

SNAPSHOT



Communities in Action

NATIONAL ASTHMA FORUM

WASHINGTON, DC JUNE 9-10, 2011

A Systems-Based Approach for Creating and Sustaining Effective Community-Based Asthma Programs

**Snapshot of High-Performing
Asthma Management Programs**

To access the Change Package and to join a network of communities committed to delivering high quality asthma care, like those profiled in this Snapshot, visit www.AsthmaCommunityNetwork.org.



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Table of Contents

System for Delivering High Quality Asthma Care 1

Strategies for Building, Evaluating, and Sustaining Effective Asthma Care Systems That Last..... 2

Key Drivers of Program Effectiveness: Tested Strategies for Improving Health Outcomes 3

Successful Asthma Programs Using the System to Succeed

American Lung Association of Minnesota – Partners for Asthma Action (PAA) 4

Asthma Network of West Michigan (ANWM) 6

Bethlehem Partnership for a Healthy Community Asthma Initiative 9

Boston Medical Center (BMC) and Boston Public Health Commission (BPHC)
Asthma Program Coordination 11

California Department of Public Health (CDPH) – Center for Chronic Disease Prevention
and Health Promotion 14

Cambridge Health Alliance’s Planned Care Program (CHA)..... 17

Centene Corporation®, Nurtur®, MHS 19

Children’s Hospital Boston – Community Asthma Initiative 22

Children’s Hospital of Philadelphia’s Community Asthma Prevention Program (CAPP)..... 24

Children’s Mercy Family Health Partners (CMFHP) Asthma Management Program 27

Genesee County Asthma Network (GCAN)..... 29

Improving Pediatric Asthma Care in the District of Columbia (IMPACT DC)..... 31

MaineHealth AH! Asthma Health Program 33

Monroe Plan’s Improving Asthma Care for Children 35

Neighborhood Health Plan of Massachusetts (NHP)..... 37

New York City Asthma Initiative (NYCAI)..... 40

New York State Department of Health, Center for Environmental Health,
Healthy Neighborhoods Program 42

Priority Health Asthma Management Program..... 45

Seton Asthma Center 47

Sinai Urban Health Institute (SUHI)..... 49

South Bronx Asthma Partnership, Bronx-Lebanon Hospital Center 51

University of Michigan Health System (UMHS) 54

Urban Health Plan’s Asthma Relief Streets Program (UHP) 56

Washington Heights/Inwood Network (WIN) for Asthma 58

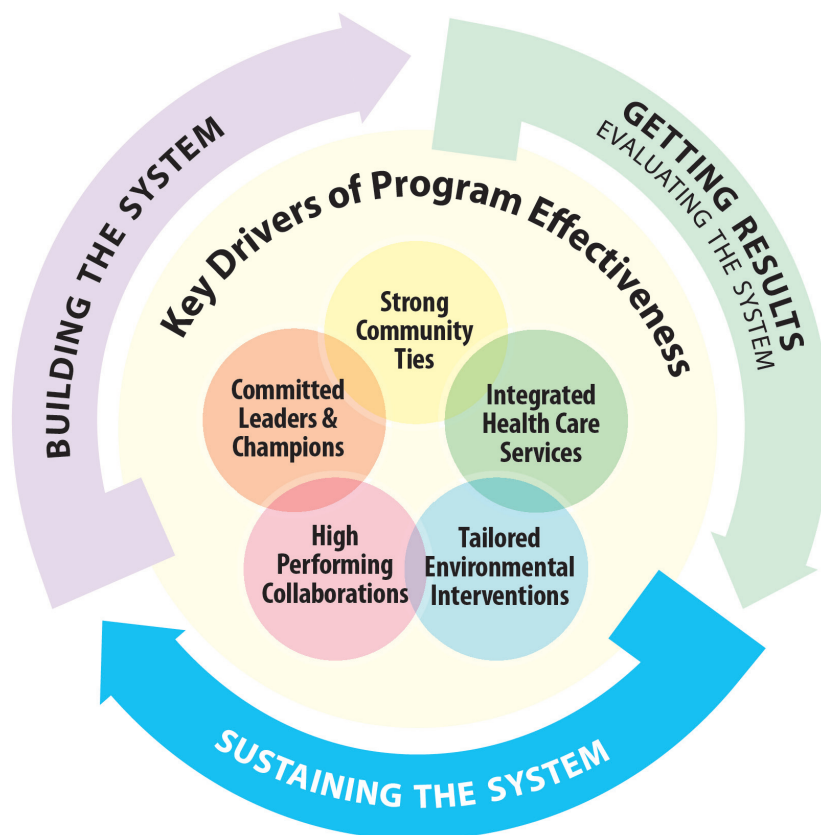
Woodhull Medical and Mental Health Center..... 60

High-Performing Asthma Management Programs

The U.S. Environmental Protection Agency (EPA) has developed the *Communities in Action* Asthma Change Package to support a national network of asthma programs as they share knowledge, tools and strategies to accelerate improvements in asthma care. The Asthma Change Package is one of the network's most valuable tools for rapidly sharing scientific and field-based data on program strategies that drive results. It synthesizes research and field-observation of successful asthma programs to demonstrate **what** highly effective asthma programs—*Key Drivers of Program Effectiveness*—and **how** these successful programs are built, refined, evaluated, resourced and ultimately sustained.

What follows are brief snapshots of successful asthma management programs. We present their stories through the lens of the *System for Delivering High Quality Asthma Care* and highlight the *Key Drivers of Program Effectiveness* where they appear in these programs. In their diversity, these programs demonstrate that whether led by a health plan, a health care provider or community-based organizations, the *System for Delivering High Quality Asthma Care* provides the foundation for programs to achieve enduring health improvements for people with asthma.

Delivering High Quality Asthma Care



Communities in Action Change Package Version 3.0:

A Systems Approach for Creating & Sustaining Effective Community Asthma Programs

The *System for Delivering High Quality Asthma Care* depicts the key elements that interact to drive the emergence of a promising asthma program; the development and effective use of program evaluation data; the recruitment and institutionalization of resources to sustain the program; and the continuous improvement and expansion of high-quality asthma care. This table captures common strategies that successful asthma programs follow as they build, evaluate and sustain their System.

System for Asthma Control Program Sustainability		
Building the System	Getting Results — Evaluating the System	Sustaining the System
<p>1. Ensure Mission-Program Alignment</p> <p>2. Build Evaluation in From the Start</p> <ul style="list-style-type: none"> ▶ Establish a process to collect the data you need to track program results. <p>3. Let the Data Guide Program Planning, Design and Implementation</p> <p>4. Conduct Needs-Based Planning</p> <ul style="list-style-type: none"> ▶ Seek input from the community. <p>5. Start Small to Get Big</p> <ul style="list-style-type: none"> ▶ Pilot test new approaches. <p>6. Align Incentives with Goals</p> <p>7. Focus on the Resource Strategy at Every Step.</p>	<p>1. Evaluate Program Implementation</p> <ul style="list-style-type: none"> ▶ Use data to evaluate whether your program is being implemented as planned and to identify what works so you can continuously improve program delivery. <p>2. Evaluate Program Impact</p> <p>3. Use Evaluation Data to Demonstrate the Business Case</p> <ul style="list-style-type: none"> ▶ Assign costs to the program elements and outcomes. 	<p>1. Use Data to Demonstrate Your Program’s Value</p> <ul style="list-style-type: none"> ▶ Demonstrate the need for your program. ▶ Demonstrate your program’s impact. <p>2. Be Visible: Funders Support What They Know</p> <p>3. Make It Easy to Support Your Program</p> <ul style="list-style-type: none"> ▶ Let funders support individual program elements if they are not ready to support the entire program. <p>4. Promote Institutional Change for Sustainability</p>

See Table on Page 3 for the Key Drivers of Program Effectiveness, Five Tested Strategies for Improving Health Outcomes.

Key Drivers of Program Effectiveness

Five Tested Strategies for Improving Health Outcomes

Committed Leaders and Champions	Strong Community Ties	High-Performing Collaborations	Integrated Health Care Services	Tailored Environmental Interventions
<ul style="list-style-type: none"> ▶ Use Outcomes Data to Promote Change <ul style="list-style-type: none"> • Make sure everyone knows the program's goals and how performance is measured. ▶ Institutionalize the Focus on Outcomes ▶ Create Program Champions <ul style="list-style-type: none"> • Identify people with passion and ask them to help spread and improve the program. 	<ul style="list-style-type: none"> ▶ Include Your Community in Program Planning <ul style="list-style-type: none"> • Institutionalize a feedback channel to hear from your community. ▶ Engage Your Community 'Where It Lives' <ul style="list-style-type: none"> • Locate care sites in the target community; meet local needs with local people. ▶ Make it Easy to Accept Services by making them convenient. 	<ul style="list-style-type: none"> ▶ Build on What Works <ul style="list-style-type: none"> • Partner with collaborators that are active in your target community—train them if necessary. ▶ Collaborate to Build Credibility <ul style="list-style-type: none"> • Collaborate with established organizations to build social capital and local infrastructure. 	<ul style="list-style-type: none"> ▶ Educate and Support Clinical Care Teams to facilitate consistent, high-quality care. ▶ Support Continuous Clinical Improvement <ul style="list-style-type: none"> • Use data to drive improved performance. ▶ Promote Robust Patient/Provider Interaction ▶ Facilitate Communication Across the Care Team 	<ul style="list-style-type: none"> ▶ Educate Care Teams to Deliver Environmental Trigger Assessment and Management ▶ Assess Trigger Sensitivity and Exposure in Clinical Interviews ▶ Provide Tailored Education and Counseling During Clinical Visits <ul style="list-style-type: none"> • Partner to address environmental triggers everywhere people with asthma spend time. ▶ Make Environmental Management a Reality at Home, School and Work

American Lung Association of Minnesota – Partners for Asthma Action (PAA)

In 2001, the American Lung Association of Minnesota spearheaded the Controlling Asthma Project, which is now called PAA, through a grant from the U.S. Centers for Disease Control and Prevention to create the first comprehensive, coordinated strategy for pediatric asthma care in Minneapolis and St. Paul. PAA created a strategic plan that mapped existing asthma care services, identified gaps in care and planned 13 pilot interventions to address the community's needs. Since 2001, PAA has steadily built community capacity to improve asthma control, upgraded and added asthma services and delivery mechanisms to fill the gaps, evaluated and refined their pilot interventions and worked to sustain the program. By implementing a coordinated system of interventions that delivers consistent messages, guidance and assistance on how to best manage pediatric asthma across a network of care, PAA has changed the way asthma is managed in an urban setting.

Building the System

Ensure Mission-Program Alignment

At its inception, PAA set a bold mission: approach asthma management from every angle; connect doctors, pharmacists, emergency departments (ED), clinics, health plans, schools, child care centers and families with interventions that employ consistent messages and guidance on how best to manage pediatric asthma. PAA's coalition of 60 leading health, education, public policy and community partners brought the right decision makers to the table from the start. Together, they designed programs that implemented interconnected and overlapping interventions across key sectors to create a community-based network of care. The PAA strategy focused on four broad areas: school-based interventions, health systems/professional education, community-based education and policy initiatives. All of the initiatives focused on improving pediatric asthma outcomes across the community.

Build on What Works

PAA joined Minneapolis Public School's existing Healthy Learners Asthma Initiative (HLAI) and broadened the reach of this successful program by funding its implementation in St. Paul Public Schools. A key aspect of HLAI is the Asthma Resource Nurse, who provides training and mentoring for school nurses, supports enhanced asthma care, and assists with complex cases. The HLAI model, evaluation findings and sustainability efforts have been featured in several national, peer-reviewed journals, and HLAI is also being piloted in rural communities.

Getting Results – Evaluating the System

Evaluate Program Implementation

The PAA initiative includes multiple interventions, each of which is evaluated to assess whether its design meets its goals. For example, in an effort to tailor asthma care education for frontline health professionals and promote the use of spirometry to diagnose and manage asthma, PAA developed a new training entitled "Implementation and Interpretation of Spirometry in Primary Care." The training is customized and delivered to nurses or clinic staff responsible for administering the test and health providers who interpret test results. Initial evaluation indicates 89% of participants reported they were likely to apply what they learned. The training continues; it is in high demand and fills to capacity each time it is offered.

Location: Minneapolis/St.Paul, MN

Type: Community Asthma Coalition

Service Area: Minneapolis and St. Paul, MN and seven-county metro area

Population Served: 10,414 pediatric asthma patients

Key Players: ALA of MN is a leader of PAA, a coalition of 100+ health, education, public policy and community partners

Results: 8% reduction in pediatric ED/urgent care visits for asthma and 48% decrease in pediatric asthma hospitalizations comparing baseline to year five; a two-day reduction in the number of missed school days due to asthma; and a 27% reduction in the proportion of parents who reported that asthma symptoms limited their child's activities.

Program at a Glance

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — FACILITATE COMMUNICATION ACROSS THE CARE TEAM

PAA invites school nurses, who serve the area around each health clinic, to participate in the clinic quality improvement meetings. As part of the care team, the school nurses share information from their unique perspective and get support to improve asthma care in their school.

Evaluate Program Impact

To assess the program's impact on health outcomes, PAA obtained UB92 claim forms from Minneapolis hospitals and identified aggregate data for pediatric asthma hospitalizations and ED visits where asthma was a primary or secondary diagnosis. Comparing the data from 2000 (one year prior to beginning their work) with the data from 2006 (five years into their program) they found a 48% reduction in pediatric asthma hospitalizations and an 8% reduction in pediatric ED visits. Although there is not a definitive way to attribute this decline solely to PAA sponsored interventions, the coalition is confident that their efforts are making a significant contribution (data through 2009 is available).

Sustaining the System

Promote Institutional Change for Sustainability

To promote pharmacists' role in asthma patient education, PAA channeled significant attention toward institutionalizing asthma education for these frontline health professionals. PAA saw an opportunity in 2006 with the enactment of the federal Medicare Modernization Act Part D Prescription Drug Program, which resulted in an increased demand for pharmacists to deliver medication therapy to patients. PAA developed an online continuing education program for community pharmacists to impart the knowledge and skills necessary to provide asthma education in a pharmacy setting. By including chronic obstructive pulmonary disease (COPD) in the content, PAA was able to leverage funding from the Minnesota COPD Coalition. Additionally, PAA helped to develop a rotation for fourth-year pharmacy students at the University of Minnesota College of Pharmacy. This five-week program is designed to increase students' knowledge of asthma medications and patient asthma education by providing close proximity to physicians. It also engages the pharmacy students in conducting examinations, performing and interpreting spirometry, and charting and participating in home environmental assessments. All rotations offered have been filled and the rotation has been adopted as a regular part of the curriculum, requiring no more funding from PAA.

KEY DRIVER

STRONG COMMUNITY TIES — ENGAGE YOUR COMMUNITY 'WHERE IT LIVES'

Choosing a familiar and comfortable location, such as church or other faith-based sites and training a community member to deliver education sessions in the language of choice for that neighborhood are PAA's secrets of success for increasing participation at group parent education sessions.

Asthma Network of West Michigan (ANWM)

ANWM was formed in 1994 when community leaders came together to address the rise in morbidity and mortality associated with pediatric asthma. In 1996, ANWM received funding for a demonstration project that would deliver home-based asthma care to uninsured and underinsured children in Grand Rapids whose asthma was leading to a high number of emergency department (ED) visits, hospital admissions and missed school days. ANWM now provides comprehensive home-based case management to children and adults, including asthma education, coordination with health care providers, development of asthma action plans (AAP), home environmental assessments and social worker support.

Building the System

Ensure Mission-Program Alignment

A committed group of health professionals joined forces to tackle the burden of asthma in West Michigan. These individuals shared a passion for children with asthma and held key positions of leadership in the community, which enabled them to parlay that passion into action. A key to their early success was a physician champion, Dr. Gary Kirk, who opened doors at local health care institutions and foundations and leveraged funding from key stakeholders to develop ANWM's direct service model.

Build on Your Strengths

Everything ANWM does is the result of a partnership and the network knows how to maximize the contributions of its members. By defining specific tasks and assigning responsibilities to one of the standing committees, ANWM has steadily achieved its goals. "Each committee is an integral part of the whole; attacking the asthma issue from differing perspectives," said Karen Meyerson, ANWM's Manager.

ANWM's care delivery model also relies on collaboration across the care team. For example, taking baseline severity assessments involves the home visitor such as a nurse or respiratory therapist (also a certified asthma educator—AE-C), a medical social worker, a community health worker and families; the development of individualized AAP to engage families, home visit team and providers; coordinated care conferences for providers, families and home visitors; and asthma education for school personnel and families.

ANWM also collaborates with a variety of groups to augment case management services, building on what already exists within the community. For example, when they recognized the need for a summer camp for children with asthma, instead of designing the program from scratch, ANWM partnered with the local children's hospital and area doctors and nurses to manage the camp. Similarly, when the local children's hospital created a Kent County Children's Medical Home Project to seek

Program at a Glance

Location: Grand Rapids, MI

Type: Community Asthma Coalition

Service Area: Three counties in West Michigan

Population Served: 82,933 people with asthma (30% are younger than 18)

Key Players: Priority Health, Molina Health Care, Blue Care Network, CareSource, Health Plan of Michigan, Great Lakes Health Plan, Saint Mary's Health Care, Spectrum Health, Grand Rapids Public Schools, First Steps, Heart of West Michigan United Way, Michigan Department of Community Health

Results: ANWM's comprehensive care costs \$2,500 PPPY and leads to a 63% decrease in hospitalizations, a 30% decrease in ED visits and reductions in health care costs of approximately \$800 per child per year.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — PROMOTE ROBUST PATIENT/PROVIDER INTERACTION

Asthma programs that create strong relationships between care providers and people with asthma achieve improved health outcomes. ANWM's asthma educators/case managers and social workers work with primary care providers and specialists to develop tailored AAPs for patients. They communicate with the clinical care team regularly to share findings from home visits and update the care plans.

KEY DRIVER

HIGH-PERFORMING COLLABORATIONS — BUILD ON WHAT WORKS

To help partners recognize their opportunities for collaboration and ensure that a partnership approach was integrated into ANWM's organizational framework, the network's leaders called on early partners to "leave their affiliations at the door and to focus on the real challenge at hand... uncontrolled pediatric asthma in our community."

medical homes for children with Medicaid, they contracted with ANWM to provide asthma case management for children with asthma in the population.

Collaborate to Build a System That Will Last

The ANWM team knew that to create an organization that was effective and enduring, they had to convene and engage community health care leaders in a shared mission. “To get folks to collaborate, remind them that they’re here because they care about asthma and have the ability to make a difference. They are not here to represent competing institutions,” says Karen Meyerson. Collaborating on three levels – family, provider and system – ANWM staff enroll patients in their home-based case management services, but also provide: 1) Technical assistance to improve the “medical homeness” of primary care practices; 2) Resource coordination of community services; 3) Needed services for children/families, including social work support; 4) Office efficiency assistance; and 5) Opportunities for community stakeholders to convene to address systems issues.

Getting Results — Evaluating the System

Use Evaluation Data to Demonstrate the Business Case

“We just wanted to prove that our model was compelling and effective, so we captured data and assigned costs to our outcomes from the beginning,” Karen Meyerson said. ANWM partnered with Grand Valley State University faculty to track outcomes for 34 children over one year and demonstrated a total cost savings of \$55,000 by pulling patient charts, asking hospitals for cost information, assigning dollar values to outcomes, and comparing costs for the year preceding the program with costs in the first year. Upon seeing the results, Priority Health, ANWM’s first health plan partner, agreed to reimburse ANWM for their home visit program in 1999, which is believed to be the nation’s first agreement between a grassroots asthma coalition and a managed care plan. Contracts now exist between ANWM and six local health plans, with negotiations underway with more health plans. ANWM receives reimbursement for home-based case management of individuals with Medicaid, Commercial or Medicare coverage. Third-party reimbursement now supports more than one-third (\$198,000) of ANWM’s total annual budget (\$560,000).

Sustaining the System

Be Visible — Funders Support What They Know

ANWM once received an unsolicited \$30,000 grant from a social investors’ group in Grand Rapids because the program was well publicized and its leaders made time to speak publicly about their results. When the investors’ group was looking to support a significant social issue through an organization that provided direct service and demonstrated results, ANWM quickly rose to the top of the list.

Use Data to Demonstrate Your Program’s Value

ANWM has recruited corporate sponsors by visiting large corporations in the community and using data to describe the personal burden of asthma. For example, Karen Meyerson described the number of area children with severe asthma and explains that when those children have acute attacks, they often use the ED for care and their parents are likely to miss work. This tactic has been successful for ANWM. Many corporations, including GlaxoSmithKline, Genetech/Novartis, AstraZeneca, Steelcase and Alticor, have supported the network. Similarly, when the Medical Directors of five local plans saw the cost savings data ANWM had achieved for Priority Health’s members in ANWM’s program, they also agreed to reimburse for home visits for their plan members in the area. ANWM’s model has proved so successful that some health plan partners have offered to reimburse asthma programs in other communities in Michigan if they replicate ANWM’s in-home case management model. Two other communities in Michigan are now obtaining reimbursement for their case management services, which is patterned after the ANWM model. A comprehensive research project is underway to compare outcomes in the three communities now providing these services.

KEY DRIVER

STRONG COMMUNITY TIES — ENGAGE YOUR COMMUNITY ‘WHERE IT LIVES’

Karen Meyerson, ANWM’s Manager, credits her regular community presentations for calling attention to the program. When she staffed a booth at a community fair, for example, she met a foundation program officer who asked about ANWM. Karen has been asked more than once by program officers she met at similar events to submit funding requests based on the good work and impressive outcomes of ANWM.

Make it Easy to Support Your Program

ANWM calculated the annual cost per patient for home-based intensive case management and invited funders and donors to sponsor one child for one year: \$2,500 can reduce hospitalizations, ED visits and missed school and work days. By making it simple and making it hard to say no, ANWM successfully lined up a diverse and sustainable funding stream. ANWM was originally housed inside a hospital in Grand Rapids. The hospital was a founding member and, early on, ANWM found support within the hospital's infrastructure, such as the accounting department accepting checks and managing the bills. But as ANWM grew, its leaders found it hard to make the mission and organization clear when contribution checks were made out to the hospital rather than to ANWM. ANWM's decision to form an independent 501(c)(3) has greatly contributed to its sustainability. Being a 501(c)(3) allows funders to provide tax-deductible contributions; makes it simpler to give restricted funds, which are often slated for non-profit organizations; provides tax breaks for ANWM; and empowers ANWM to keep their own books and have ready access to complete financial information at all times.

Lessons Learned

ANWM learned many lessons from replicating their programs that they hope will help other programs. They have learned: 1) An intensive case management program can produce significant positive outcomes in a low-income population of children with moderate to severe asthma; 2) The same program can be cost-effective; 3) Great numbers of community members can be educated through an effective community outreach program; 4) This program can be replicated in other communities; and 5) This program can enhance the services of a patient-centered medical home pilot targeting children with uncontrolled asthma who are covered by Medicaid insurance. To prove the cost-effectiveness mentioned in the second lesson, ANWM has data that the reduced hospital charges among the children in the ANWM program exceed the costs associated with their case management.

Bethlehem Partnership for a Healthy Community Asthma Initiative

The Bethlehem Partnership for a Healthy Community Asthma Initiative (the Asthma Initiative) formed in 1998 to serve children at high risk for poor asthma control. The program has continually evolved to better serve its target population by collaborating with strategic partners. Today, more than 100 health care, business, community, education and service organizations coordinate efforts through the Asthma Initiative to meet the needs of economically disadvantaged families throughout Greater Bethlehem. There are three key partners that champion the Asthma Initiative—St. Luke’s Hospital, Bethlehem Health Bureau (BHB) and Bethlehem Area School District (BASD). Together, they coordinate efforts to identify children with asthma and match them to quality health care services. They also educate school staff, families, clinical providers and the community on ways to improve asthma control through effective school-based asthma management, improved clinical practice, better self-management and effective home-based environmental interventions.

Building the System

Conduct Needs-Based Planning — Seek Input From the Community

The Bethlehem Partnership for a Healthy Community, whose mission is to improve access to care, promote child and adolescent health, and eliminate health disparities, began its Asthma Initiative in response to compelling data and community input. In the mid-1990s, the Partnership conducted a community health assessment survey, which revealed that asthma was the third most prevalent chronic condition facing the community. In addition, school nurses indicated that asthma control was a serious challenge for BASD students. In response, the Partnership launched the Asthma Initiative to identify children with asthma who have not been diagnosed and refer them for treatment; identify children with an asthma diagnosis who are not adequately treated; increase public awareness of asthma; and increase provider knowledge of the National Guidelines for the Diagnosis and Management of Asthma (EPR-3).

Let the Data Guide Program Planning, Design and Implementation

In 2006-2007, the Asthma Initiative conducted a survey of all students and families in the BASD. It distributed more than 15,000 surveys and almost 50% were returned. Results indicated asthma prevalence of 23.6%. Even if all of the students who did not respond were asthma-free, the results still indicate asthma prevalence of 12%, which is considerably higher than the rate in the rest of Pennsylvania. Asthma Initiative leaders responded by targeting outreach to schools with the highest asthma prevalence, which pointed to the 11 Title 1 elementary schools and two Title 1 middle schools. The Asthma Initiative took immediate steps to address asthma at the school with the highest reported prevalence—an elementary school whose families returned 88.5% of their surveys and reported 38.7% asthma prevalence. Today, that school hosts a health clinic that provides asthma evaluation, spirometry testing and extensive asthma education. Furthermore, students at all BASD elementary schools can receive asthma education through the BASD and St. Luke’s Community Health. High school students can access the Asthma Initiative’s mobile health clinic and all schools receive bilingual asthma education materials, peak flow meters and aerochambers for children in need.

Program at a Glance

Location: Bethlehem, PA

Type: Hospital-Led Community Coalition

Service Area: Greater Bethlehem-Northampton County, PA

Population Served: 24,000, including 5,520 children with asthma

Key Players: St. Luke’s Hospital, Bethlehem Health Bureau (BHB), Bethlehem Area School District (BASD); and another 100 representatives from health care, business, community, education and service organizations that comprise the Bethlehem Partnership for a Healthy Community

Results: From 2007-2008, ED visits decreased by nearly 20%; pediatric patients with multiple asthma-related visits declined by more than 25%; and the total number of multiple pediatric hospital visits for asthma fell by more than 55%.

Getting Results — Evaluating the System

Evaluate Program Implementation

In addition to the school-based interventions and education, the Asthma Initiative focuses on improving the quality of asthma care across the St. Luke's Hospital clinic system and in the Emergency Department (ED). The Initiative promotes improved clinical care through grand rounds, residency education and asthma care education for nursing and medical assistants at clinic sites. It also provides practice improvement tools and training on how to use them, to promote adherence to the EPR-3. To assess its clinical interventions, the Asthma Initiative's leaders conduct chart audits of the school-based clinic and St. Luke's ED and clinic records to ensure the use of action plans, classification of asthma severity, and appropriate use of medications. They also follow-up by telephone after visits to the ED to identify medication received in the ED and at discharge. The Asthma Initiative uses this data in yearly case reviews with the ED staff and has found that providing concrete data on the care provided and benchmarking it against the EPR-3 increases ED physicians sense of ownership for client care outcomes and encourages them to align their care with the national standards.

Evaluate Program Impact

The Asthma Initiative has monitored trend data since 2008, when it began an intensive home visits program for children who have visited St. Luke's ED for asthma care. The rate of asthma-related ED visits has decreased from 261 visits in 2007, to 211 visits in 2008. The rate of patients with recurring visits to the St. Luke's ED for asthma has fallen from 39 pediatric patients with multiple ED visits in 2007, to 28 in 2008.

Sustaining the System

Make It Easy to Support Your Program — Let Funders Support Individual Program Elements

The Asthma Initiative has developed slowly over ten years as the founding group has assembled the partnerships and support required to deliver the full system of medical and environmental care delivered today. Each of the three primary fiscal partners, St. Luke's Hospital, the BHB and the BASD, is responsible for funding their program goals. This shared ownership allows the Asthma Initiative to sustainably provide multiple services because no single partner shoulders the entire financial burden. The BHB gets funding for the home visit program from the state health department and grants; St. Luke's Hospital provides a full-time employee to coordinate the program and donates supplies for many of the Asthma Initiative programs, such as school and home-based asthma education; and the BASD supports the school nurses, who make referrals to the program, and provides school personnel to support educational programming. During the partners' quarterly meetings, they discuss costs and explore ways to improve the cost effectiveness of the program model.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — MAKE ENVIRONMENTAL MANAGEMENT A REALITY AT HOME, SCHOOL AND WORK

Monitoring pediatric ED visits to St. Luke's has helped the Asthma Initiative to identify and reach children in need. Each day, the asthma coordinator receives a list of children seen the previous day in the ED for asthma. The coordinator and BHB's asthma nurse contact each family to learn why they visited the ED, serve as liaisons between the family and providers and enroll them in the home visit program. At the first home visit, parents report on suspected environmental exposures, then the home is assessed for triggers. A visiting nurse recommends steps to reduce environmental exposures, reviews medication compliance and advises caregivers to make an appointment for clinical care, if an asthma action plan is not in place or if the child's asthma is not well controlled. At the second visit, the nurse checks for compliance. At the third visit, the nurse distributes materials to support continued environmental management, such as allergen proof mattress casings and air conditioners. Of the 43 families who received home visits after a trip to St. Luke's ED since February 2008, only four have returned to the ED for asthma care.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — FACILITATE COMMUNICATION ACROSS THE CARE TEAM

When assessing environmental factors that may affect a child's asthma, home visitors use an intake sheet adapted from EPA's Asthma Home Environment Checklist. The findings are transferred to an electronic database. Identified triggers and any information on how the family is utilizing prescribed medications are shared via fax or email with the referring partner, such as a private physician, school nurse or St. Luke's asthma clinic. This information sharing helps to reinforce self-management messages promoted during home visits and facilitates continuity of care. It also helps establish a coordinated network of care that can provide tailored care for children with asthma in the clinic, home and school.

Currently, the Asthma Initiative is estimating the cost savings associated with the program's improved health outcomes and will use the data to request support from local managed care organizations for home assessment and asthma education sessions.

Boston Medical Center (BMC) and Boston Public Health Commission (BPHC) Asthma Program Coordination

The BMC and the BPHC have been a driving force behind many innovative community-wide initiatives to address asthma in Boston over the past decade. Their coordination of asthma programming emerged in response to the public's need. The Boston Urban Asthma Coalition (BUAC), a city-wide asthma advocacy organization, had formed in response to rapidly rising asthma rates in Boston and was urging the mayor to take action. The health department saw the data and recognized the scope of the problem, particularly in Boston's low-income and minority communities. More and more residents were utilizing urgent care for asthma and requesting home inspections, concerned that their homes might be making them sick. BPHC lined up partners to collaborate on home interventions and community asthma education initiatives while BMC, the city's safety net hospital, developed electronic medical record (EVR) templates and education materials for providers to improve the effectiveness of clinical care. Together, BMC and BPHC responded to an urgent need by delivering effective medical care, environmental interventions and important social and policy support for the city's underserved population.

Building the System

Ensure Mission-Program Alignment

When building the program, leaders at BMC and BPHC continually asked themselves, "What are our core functions and where do we fit in the fight against asthma in Boston?" By focusing on core capacities, BMC and BPHC recognized that addressing the environmental factors of asthma was a logical fit for their efforts.

First, BMC found ways to ensure clinical care was aligned with the National Guidelines for the Diagnosis and Management of Asthma (EPR-3) across the health care system. BMC developed tools, including electronic prompts and reminders for clinicians to ensure patients received asthma education, preventive service and environmental controls. BMC's EVR captures data on core asthma quality measures based on the EPR-3 to ensure patients are assessed for asthma control and receive appropriate medication for prevention and severity. The system generates reports that show physicians the evidence behind the measures and steps providers and patients can take to improve scores on various measures, like peak flow. The EVR also make it easy for providers to make referrals for environmental management and education.

BPHC, as a government agency, was well-positioned to convene multi-disciplinary partners, including academics, clinicians, advocacy groups, housing partners and government officials to address asthma. BPHC's relationship with BMC was important because the hospital could serve as an incubator for integrating these environmental services into medical care, through the revised EVR and electronic referrals.

Program at a Glance

Location: Boston, MA

Type: Hospital and Public Health Department Collaboration

Service Area: Boston, MA (focus on Roxbury, Dorchester, Jamaica Plain, South End, South Boston and Mattapan)

Population Served: Annually serves more than 390 clinical patients and more than 150 homes with a child with asthma directly; through grants to community organizations, supports another 150-200 homes annually. Through policy efforts reaches thousands of Boston households.

Key Players: Boston Urban Asthma Coalition, Boston Housing Authority, Committee for Boston Public Housing, Boston Inspectional Services Department, BMC HealthNet insurance program

Results: At BMC, 38% reduction in hospitalizations and 16% reduction in emergency department (ED) visits for children under the age of five; increase use of asthma education, preventative care and environmental services; 20 health centers participating; number of pest complaints in public housing reduced.

KEY DRIVER

STRONG COMMUNITY TIES — MAKE IT EASY TO ACCEPT SERVICES

The Boston Health Net Collaborative provides easily accessible, high quality and culturally sensitive health care services across greater Boston. Patients can access leading asthma specialists with credentials at BMC in convenient locations. Many centers offer asthma education and management strategies as well as clinical and preventive care. In addition to providing in-person interpreters in more than 30 languages, 24 hours a day, BMC uses telephonic and video interpreting to ensure that care is available to everyone who needs it.

Conduct Needs-Based Planning — Seek Input From the Community

When BPHC first launched its asthma program, it started with a housing component designed for young children with asthma living in one low-income Boston neighborhood. Few families enrolled in the program. BPHC responded to the BUAC's request to help remove barriers that were keeping families from participating in the asthma home visits program.

The initial Breathe Easy at Home (BEAH) program, which offers housing code enforcement inspections for people with asthma, began in 1998, but received few referrals, as it was not well integrated into the medical home. In a community meeting with BUAC, BMC and BPHC, it was clear that technology improvements could lead to increased use of the program. BMC provided the funding to design a web-based referral network. Community groups, housing groups and health centers have been integral to the design, delivery and evaluation of this code enforcement program.

Focus on the Resource Strategy at Every Step

BMC and BPHC collaborate closely with the Boston Housing Authority (BHA) and the city-wide public housing organization, Committee for Boston Public Housing (CBPH), to improve home environments in Boston public housing. Pests are a major environmental asthma problem in these communities and are a priority asthma risk for patients, the housing management and tenant organizations. In 2006, BPHC came to the BHA with an offer of initial funding to support a safe and effective pest control program in public housing. Working together, BPHC, BHA and CBPH educated tenants about their rights and guided institutional change across the city to address how new housing is built, how existing housing is renovated and how pest control is managed in public housing. BMC hosted grand rounds to educate providers about this innovative program and opportunities for clinicians to counsel families on reducing pests and pesticide exposures. Based on the success of the safe pest control campaign, the partners are now engaged in smoke-free homes policy and awareness efforts.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — MAKE ENVIRONMENTAL MANAGEMENT A REALITY AT HOME

BMC and BPHC collaborate with the BUAC and Boston Housing Authority on "BEAH," a web-based referral system for reporting potential housing code violations that may contribute to asthma. With patient consent, providers alert the city's Inspectional Services Department. Inspectors who have been trained to identify environmental asthma triggers then look for code violations, notify property owners of violations, and work with them to achieve compliance. Referring providers receive automatic case updates and have on-line access to review their referrals. BMC also offers a home visit program to help families detect and manage environmental asthma triggers. Visiting nurses can refer families with structural problems to BEAH and the Medical Legal Partnership for Children, a program that brings legal services to the health care setting to help families address basic needs, such as decent housing.

Getting Results — Evaluating the System

Evaluate Program Implementation

BMC continues to support the evaluation of the BEAH program web-based referral system it helped develop with partners at BPHC and the housing code enforcement. It uses EVRs and other systems to constantly survey appropriate use of the EPR-3. BMC has seen significant improvement in almost all measures of care across the clinical system. For example, there was an 83% increase in asthma severity assessment and a 67% increase in delivery of written action plans since the EVRs were implemented.

BPHC evaluates recruitment, retention and participant satisfaction for its 'Healthy Homes' program clients. The 'Healthy Homes' mission is for all residents to live in a safe and healthy home. Because the program is a public health initiative, the BPHC team also monitors the communities from which their clients are recruited to make sure that they are achieving their mission to deliver care to the underserved. BPHC works closely with health care providers, including BMC, to identify high risk asthma patients and focuses outreach on the neighborhoods most affected by asthma.

Evaluate Program Impact

BPHC's "Health of Boston" report in 2005 documented that the asthma hospitalization rate had fallen by 43.9% in the decade since BPHC and BMC began their major asthma initiative.

Sustaining the System

Promote Institutional Change for Sustainability

BMC has received grants from the U.S. Department of Housing and Urban Development (HUD), Boston Medical Center Health Net Plan (BMCHP) and BPHC to design home visiting programs and asthma education programs for high-risk asthma patients. BPHC has raised money externally, first from the U.S. Centers for Disease Control and Prevention (CDC), HUD's Healthy Homes Program, EPA and the WK Kellogg Foundation. With every grant, BMC and BPHC made institutional changes across the city by documenting the need and market for services and partnering with other government programs. For example, BMC helped BMCHP, a Medicaid-managed care plan, to cover home environmental visits by visiting nurses for all asthma patients. Another example is when BPHC leaders recognized that their asthma mission aligned with BHA's goals, they funded a joint initiative with the understanding that, if effective, the initiative would be maintained by the partner. BPHC's asthma program was dedicated to addressing the environmental factors that contribute to asthma and knew that underserved populations were typically hardest hit by environmental factors. Through the partnership with BHA, tenants' rights organizations, environmental health advocates, clinicians and others, BPHC advanced policy changes supporting the construction, renovation and management of public housing that reduced environmental exposures for asthma patients.

In recent years, the BMC/BPHC collaboration has grown into a city-wide Asthma Home Visiting Stakeholders Planning Process. All major hospitals in the city of Boston participate. The group has done extensive research on best practices in home visiting and has agreed on referral, home visit and report forms; home visit content and training; and supervision structures for asthma home visitors. A process pilot was completed in the summer of 2010, with positive results from patients, home visitors and referring clinicians. The group will undertake a health outcome pilot in 2011, with the support of multiple funders, including EPA, HUD and the National Asthma Control Initiative. Home visitors in the project have lingual capacity including English, Spanish, Haitian Creole, Portuguese and Cape Verdean Creole, Mandarin and Cantonese.

Use Data to Demonstrate Your Program's Value

Dr. Megan Sandel, who directs BMC's community asthma outreach, credits partnerships with public health groups, such as BPHC and insurance plans, such as BMCHP, to getting buy-in from all levels of health care providers to improve environmental asthma management at BMC. Margaret Reid, the Director of BPHC's asthma program, credits the city government's continued support of her program to BPHC's ability to demonstrate the public demand for its services. BPHC constantly receives requests for its asthma services from neighborhoods across the city, particularly from low-income and public housing areas.

Be Visible: Funders Support What They Know

Demand for environmental services from BMC and BPHC runs across the spectrum. It comes from patients, clinicians, tenant advocates, environmental health experts and other local government programs. By forging effective collaborations with strategic partners, such as BHA around pest management and the childhood lead poisoning program around comprehensive environmental assessments, BPHC established a strong lobby to support its continued work. BMC views this effort as part of the exceptional care it provides to all patient families, regardless of ability to pay.

California Department of Public Health (CDPH) – Center for Chronic Disease Prevention and Health Promotion

The CDPH Center for Chronic Disease Prevention and Health Promotion (the Center) has a unique and critical leadership role in combating asthma in California. It facilitates a diverse statewide network to ensure asthma efforts are coordinated and strategic. The Center also oversees and supports partnerships focused on asthma care improvement, helps to evaluate the effectiveness of different approaches, and spreads knowledge and capacity to deliver interventions that work. The Center's efforts increase the capacity of health care and asthma service providers, public health practitioners, community education and health promotion organizations and many others working to reduce the burden of asthma in high-need communities statewide.

The Center's various asthma programs focus on surveillance and data-driven, community-focused public health interventions; monitoring of pollutant exposures that may be related to work-related asthma (WRA); promoting education and effective treatment for WRA; and facilitating community-wide, school-based and clinical asthma education, management and prevention.

Building the System

Conduct Needs-Based Planning — Seek Input From the Community

The Center's many asthma initiatives fit into and help drive delivery of a comprehensive strategy for reducing the burden of asthma statewide. This strategy is the result of a multi-year, stakeholder-led planning process that created the Strategic Plan for Asthma in California (SPAC). The Center developed SPAC through a facilitated and highly collaborative process that brought together academic and clinical scholars, government representatives, public health practitioners, health organization leaders, legislative staff and many other asthma leaders from across the state. The SPAC—first released in 2002 and updated in 2007—ensures that state-level efforts are responsive to the needs of California's diverse asthma care leaders and that the Center's activities are integrated with community-level action.

Let the Data Guide Program Planning, Design and Implementation

All of the Center's asthma programs are aligned with the SPAC. The Center uses its unique position and capacities in surveillance, technical assistance and the ability to coordinate activities at the state and community levels to help ensure that local asthma efforts are data-driven, evidence-based and strategic. For example, the Center's California Breathing (CB) Program helps to increase understanding of asthma surveillance data and its use in program planning, links agencies and organizations addressing asthma to maximize efficiency and program efficacy, and supports implementation of targeted interventions. CB uses surveillance data to focus its grant-making to community-based, faith-based and county organizations in the most disproportionately affected communities.

Program at a Glance

Location: California

Type: State Public Health Agency

Service Area: State of California

Population Served: More than 36 million residents, including 4.9 million with asthma (3.49 million adults and 1.44 million children with asthma)

Key Players: More than 150 key partners, including grantees; local government and health departments; regional, state and local asthma organizations; and California Asthma Partners

Results: An example of results from one funded intervention to improve pediatric clinical care in 10 communities include: an 84% increase in the number of children with written asthma action plans; 81% increase in the number of children whose health care providers deliver asthma trigger education; 72% reduction in frequent daytime symptoms; 73% reduction in the frequent use of rescue medications; 76% reduction in asthma-related hospitalizations; 78% reduction in ED visits; and 103% increase in the number of children/parents reporting "very good" quality of life.

KEY DRIVER

HIGH PERFORMING COLLABORATIONS — BUILD ON WHAT WORKS

The Center's focus on leading and facilitating partnerships resulted in a statewide agenda and a shared framework for planning and implementing asthma activities across California. This focus resulted in collaborations with recognized leaders in their communities and helped to garner important social capital and the community infrastructure necessary for implementing the Strategic Plan for Asthma.

Build Evaluation in From the Start

The Center's California Asthma Public Health Initiative (CAPHI) leads a program with a network of community health centers (CHC) to Improve Asthma Control (IAC). An IAC collaborative with 10 CHC seeks to integrate the National Guidelines for the Diagnosis and Management of Asthma (EPR-3) into standard clinical practice in communities that serve a diverse population of children with asthma, the majority of whom are covered by Medicaid. The IAC focuses on tool development to support clinical improvements; training for CHC staff on topics such as culturally competent communications and supporting tenants' rights; and placement of asthma care coordinators at CHCs to provide individualized patient education and home visits. From the beginning, the IAC program defined process and outcomes measures to track the implementation and success of the interventions. The impact of each CHC program has been carefully evaluated using a quasi-experimental evaluation design. The design combines longitudinal patient interviews with cross-sectional chart review to determine improvements in clinical care, changes in the frequency of asthma symptoms, and changes in asthma health care utilization.

Getting Results — Evaluating the System

The Center's asthma programs evaluate all clinical and environmental efforts, the effectiveness of its partnerships, the utility of its surveillance system, and the cumulative impact of statewide efforts on asthma morbidity and mortality. All asthma programs in the Center are predicated on logic models with specific process and outcome measures. The CB program uses the U.S. Centers for Disease Control and Prevention's (CDC) Framework for Public Health Evaluation as a guide. Partners, including impacted stakeholders, play a critical role in the evaluation process. Their participation ensures that the Center's evaluation efforts inform their own programming as well as the programming of key partner organizations.

Use Evaluation Data to Demonstrate the Business Case

The Center conducts extensive longitudinal evaluations of the clinical quality improvement (CQI) initiatives CAPHI supports, such as the IAC described above. All clinical initiatives have demonstrated similar significant improvements in care, reductions in asthma-related symptoms and reduction in costly health care utilization. Though specific returns on the Center's investments through CAPHI's CQI initiatives are hard to capture, the sizeable reductions in utilization achieved by CAPHI-funded programs have saved costs through a 64-78% decrease in asthma-related emergency department (ED) visits and 67-85% drop in hospitalizations. These reductions directly impact the state's Medicaid spending, which accounts for 61% of state asthma hospitalization charges. CAPHI-funded clinical programs also have demonstrated dramatic improvements in patient quality of life and significant reductions in missed school and work days.

KEY DRIVER

COMMITTED LEADERS AND CHAMPIONS — INSTITUTIONALIZE THE FOCUS ON OUTCOMES

CB provides easy access to surveillance data via its website. By helping community and clinic-based leaders use data that describes asthma prevalence, severity and outcomes at the community and state level, the Center helps to ensure asthma efforts are responsive to the risks and needs of each community. Helping stakeholders use surveillance data to target their work furthers two key goals of the SPAC—data-driven programming and coordination of state and community work.

California is one of five states to receive funding from the National Institute for Occupational Safety and Health (NIOSH) to conduct surveillance of occupational asthma. The California Department of Public Health Work-Related Asthma Prevention Program (WRAPP) was developed to identify primary and secondary cases of occupational asthma, characterize exposures and disease, develop interventions in the workplace, and devise prevention strategies. California law requires that physicians file a Doctor's First Report of Occupational Injury or Illness for each case of suspected illness or injury caused on the job. The WRAPP surveillance system identifies cases of work-related asthma through these Doctor's First Reports, as well as through data from ED, hospital inpatient data and data from the state's Workers Compensation Information System. These reports constitute a sentinel event, providing an opportunity for follow-up, investigation and prevention. The program attempts to interview each case identified to gather more information and offer help and resources. WRAPP also carries out worksite investigations to further identify risk factors and make recommendations for prevention. Data are continuously analyzed to monitor exposures, jobs and industries that put workers at risk for WRA. WRAPP also distributes findings, recommendations and health education materials to workers, employers and many other audiences. Currently, WRAPP also is conducting the Cleaning for Asthma-Safe Schools (CLASS) project to assist schools to adopt safer cleaning methods and products.

Sustaining the System

Use Data to Demonstrate Your Program's Impact

The Center's asthma program is sustained through funding from CDC, the McKesson Foundation and California tobacco-tax revenue. The demonstrated success of several of the Center's key programs, including CB's successes in surveillance, schools-based interventions and addressing asthma disparities, and CAPHI's successes in addressing the burden of asthma in California, has led to repeat funding from CDC, McKesson and annual state tobacco tax funding.

Promote Institutional Change for Sustainability

The Center's focus on building community capacity and partnerships to address asthma throughout the state has led to sustainable asthma improvements. Funding and technical assistance have increased the ability of local organizations and clinical providers to implement the SPAC and have seeded ongoing commitment to addressing California's asthma burden. For example, the San Diego Black Health Associates (SDBHA) received funding from the Center in 2006 and 2007 to address asthma disparities among African Americans in faith-based settings. While the group had substantial experience working with the target population, asthma had never before been a focus. Now, SDBHA targets asthma as a key issue in their ongoing work to reduce chronic disease health disparities.

Similarly, capacity building efforts targeting improved clinical care have resulted in sustainable improvements that directly affect asthma morbidity. For example, CAPHI's IAC collaborative has resulted in improved clinical care that will continue even though the funding had ended. Also, educational outreach by the Center's WRA program to health care providers and workers affected by WRA has built enduring clinical and public capacity to help patients reduce exposures and manage asthma in the workplace. With one in five Californians spending their day in school, addressing asthma in the school setting is particularly important. Custodians have high rates of work-related asthma and 17% of children in the state have been diagnosed with asthma. Research shows that conventional cleaning products can cause or worsen asthma and release unsafe chemicals into the air. In mid-2009, CB partnered with the Occupational Health Branch to support the development of the Cleaning for Asthma-Safe Schools (CLASS) Project. The CLASS project helps California schools adopt safer cleaning methods to protect worker and student health from asthma. To date, CLASS has partnered with four school districts to provide technical support for switching to safer cleaning products and practices. Interventions with these four school districts alone has potentially improved the health of over 100,000 students and school staff in California. CLASS is now developing statewide guidelines for school districts in California and plans to hold trainings to enhance its implementation.

Cambridge Health Alliance's Planned Care Program (CHA)

CHA recognized that childhood asthma is a major problem in its community and looked to devise a model to help reduce the burden. With grant support from the Robert Wood Johnson Foundation (RWJF) and help from the Institute for Healthcare Improvement, CHA built the infrastructure, including an electronic asthma registry, to implement the Planned Care for Childhood Asthma Model.

Building the System

Ensure Mission-Program Alignment

CHA is a mission-driven organization that puts performance improvement at the center of its work. When building the asthma program, CHA focused on the Institute of Medicine's (IOM) aim of delivering safe, timely, effective, efficient, equitable and patient-centered care. CHA staff embodies the organization's mission and commitment to the IOM's standards, so Planned Care for Childhood Asthma was a natural fit for the staff. The Planned Care Model is designed to achieve high-quality health outcomes: the same common goal of all CHA programs, and to reduce waste and cost in medical care.

Collaborate to Build a System That Will Last

CHA clinical staff collaborated with a wide variety of players, including politicians, local government officials in two cities, health plans, school nurses and other hospitals on the Planned Care work. This collaboration ensured program sustainability. For example, school nurses are part of the asthma care team and are connected to the asthma registry, so they can see patient asthma history, report on care delivered at school, and provide a link for providers to one of the environments in which pediatric asthma patients spend their time. The public health departments, also connected through the registry, support 'Healthy Homes' visits for patients referred by CHA and report findings in the registry to share information with the providers.

Align Incentives with Goals

CHA operates a pay-for-performance model for its providers. Financial incentives for physicians and clinical staff encourage attention to all of the asthma registry elements, including severity classification, appropriate medications, environmental home visit referrals and completion of individualized asthma action plans (AAP). The registry produces monthly reports, which are sorted by provider and clinical care site and highlight gaps in compliance with the National Heart, Lung and Blood Institute's evidence-based guidelines. Every provider team in the system receives an individualized report with the names of patients who are "not in compliance with guidelines" showing up in red ink at the top of the page. Financial performance incentives help ensure that providers pay attention to the red ink and proactively manage their patients who are not "under control."

Program at a Glance

Location: Cambridge, MA

Type: Integrated Health Care System
(Two Hospitals, 12 Primary Care Practices, Medicaid Managed Health Program)

Service Area: Cambridge, Somerville and Metro North Boston

Population Served: More than 3,100 children with asthma in registry system

Key Players: Cambridge Department of Pediatrics, Cambridge IT Department, Cambridge Public Health Department Healthy Homes Program, Cambridge and Somerville Public Schools, Healthy Children's Task Force

Results: 45% reduction in inpatient admissions and a 50% reduction in asthma-related ED visits for patients enrolled in the pediatric asthma registry.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — MAKE ENVIRONMENTAL MANAGEMENT A REALITY AT HOME, SCHOOL AND WORK

CHA's care team can refer children living in Cambridge or Somerville to the Cambridge Public Health Department's 'Healthy Homes' Program for home visits. A full-time nurse and one staff person manage the 'Healthy Homes' Program to ensure that referred families receive prompt and comprehensive home visits.

Getting Results — Evaluating the System

Evaluate Program Implementation

Dr. David Link, Chief of Pediatrics, and Laureen Gray, RN, Program Director of Cambridge Health Alliance's Planned Care Program, spearheaded the RWJF-funded effort to develop an electronic patient registry. During 2005-2006, the CHA Information Technology (IT) Department deployed an electronic medical record (EMR) that could download critical information into the registry, thus avoiding the need for double data-entry. This integration of the EMR and the registry developed by the IT Department has been key to sustaining the work and achieving the dramatically improved outcomes. With the click of a button, the registry allows everyone involved with CHA's Asthma Program to see outcomes on inpatient stays and emergency department (ED) visits for children with asthma. Program partners, including school nurses, pediatricians, ED, allergists and 'Healthy Homes' staff, can view asthma information online and immediately see trends in health outcomes and quality of life indicators. CHA uses the registry data to drive program improvement and demonstrate to staff the health outcomes related to their efforts. The system also allows clinical teams to compare their results with other teams and identify areas in which they can improve. The data-driven process delivered remarkable results: a 45% decrease in inpatient admissions and a 50% drop in asthma-related ED visits for patients enrolled in the program for two years.

KEY DRIVER

COMMITTED LEADERS AND CHAMPIONS — USE OUTCOMES DATA TO PROMOTE CHANGE

The team of Dr. Link and Laureen Gray, insist on a "relentless commitment to evaluating outcomes" to drive quality improvement. They talk about the importance of outcome measures to successful program planning and implementation whenever they get the chance.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — FACILITATE COMMUNICATION ACROSS THE CARE TEAM

CHA's asthma registry is a highly effective communication tool that links schools, clinics, hospitals, outreach workers and other members of the care team in real-time conversations about children with asthma in their program.

Evaluate Program Impact

The IT infrastructure at CHA enables the program leaders to monitor their outcomes continuously so that even the slightest slippage in ED visits, for example, can immediately be identified and corrected. The data-driven culture at CHA not only allows the Planned Care Program to drive consistent care delivery across its provider network, but it also allows CHA to sustain its remarkable health outcomes over time: CHA has held hospitalizations for children with asthma to 2-3% per year and annual ED visits for asthma to 6-8% for four years in a row.

Sustaining the System

Promote Institutional Change for Sustainability

CHA built its Planned Care Program "not by creating new jobs, but by showing the staff we had already, how to do their jobs better," said Gray. To institutionalize the program, CHA redesigned its work flows and developed the resources and systems, such as the electronic registry and medical records system, to make it easier for staff to deliver the quality care the program was designed to achieve. CHA expanded the patient care team to include the IT staff, empowering them to take a more active role in care delivery. By integrating the IT function, CHA created the organizational design that made delivering the Planned Care Model feasible and sustainable. CHA also increased its effectiveness by expanding the care team to include the patients themselves. CHA insists that patients have AAP that are regularly reviewed. This approach creates efficiencies and savings because it promotes better patient self-management.

The patients are the ones who sustain their level of care and CHA has seen those changes reflected in population-level data. "We have been able to sustain our results because this program is so integrated into the operations of CHA and is not an add-on. Looking at monthly data for last month compared to a year ago, you see that it is flat. In other words, we have been able to hold our improved results constant. That's because we built the infrastructure to support and sustain our improved outcomes," said Gray.

Centene Corporation®, Nurtur®, MHS

Managed Health Services' (MHS) asthma program is grounded in the idea that improving the health of patients with chronic conditions requires empowering the patient and the caregiver in the medical home and in the community. As a company servicing Medicaid members, Centene realized the importance of offering a comprehensive asthma program that not only addresses medical needs, but social and environmental needs as well.

Over a four year period, beginning in 2007, MHS/Centene partnered with their sister company, Nurtur, to develop a disease management program that provides risk-stratified asthma case management; high-touch coordination and care support across primary clinical care and MHS' Asthma Team; and community collaborations aimed at addressing the social and environmental factors affecting MHS' members with asthma. The MHS asthma care system delivers telephonic and in-home case management, asthma education and environmental interventions; coordination between case management and clinical care to share information and ensure guidelines-based care; and robust outcomes tracking to facilitate real-time improvements in individual patient care.

Building the System

Let the Data Guide Program Planning, Design and Implementation

Recognizing that many MHS members with asthma experienced disproportionately poor asthma outcomes, MHS developed an asthma disease management program to reduce the impact of asthma on its members. The MHS Asthma Program is designed to ensure members with asthma are connected to a medical home and primary care provider; and receive age- and culturally-appropriate asthma education, medication compliance support and social and environmental supports to help manage factors that exacerbate asthma. The program's goals include reducing unplanned asthma-related healthcare utilization, reducing symptom severity and frequency and promoting compliance with self-management and medication guidelines outlined in NAEPP EPR-3. To achieve its goals, the MHS Asthma Team—which includes health plan case managers, the plan's medical director and a disease manager or health coach from Nurtur—tracks and stratifies members with asthma according to risk. The team delivers risk-appropriate asthma education, home-based interventions with licensed Respiratory Care Practitioners and offers care support—such as transportation to clinical visits or help with electricity for nebulizers if their electricity is turned off. The Asthma Team also promotes strong relationships between

Program at a Glance

Location: Indiana

Type: Medicaid Managed Care Organization

Service Area: Managed Health Services (MHS) is an Indiana statewide Health Maintenance Organization; Centene, MHS' parent company, is a Managed Medicaid Services provider in 12 states

Population Served: MHS serves more than 200,000 Medicaid members statewide

Key Players: Nurtur—a disease management company—and wholly owned subsidiary of Centene; local American Lung Association chapters across Indiana; the Marion County Health Department; the Asthma Alliance; Improving Kids Environment

Results: For child participants, reduced ER visits by 17.3%; reduced inpatient admissions by 28.6%; increased scheduled visits to primary care providers by 11.1%; and increased vaccination rates by 22.5%, indicating improved preventative care. For adult participants, reduced ER visits by 9.4%; increased visits to primary care by 16.4%; and increased vaccination rates by 51.3%.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — FACILITATE COMMUNICATION ACROSS THE CARE TEAM

MHS uses IT systems to share information across the care team to improve member self-management, inform clinical care and promote care consistency. For example, members identified as medium-and high-risk for healthcare utilization may receive personal visits to assess factors that impact severity, such as the home environment, and reinforce self-management lessons. Home visitors complete spirometry screening and pulse oximetry, monitor vital signs, review medication plans and compliance and demonstrate tools, such as peak flow meters. When appropriate, home visitors suggest revisions to treatment plans and ask primary care providers to review and sign off on proposed changes. Home visit data is captured in centralized software and made available to the entire care team thereby supporting improved stratification and personalized treatment planning. The care team also convenes weekly 'High Needs Rounds' where case managers and the Asthma Team discuss members with particularly difficult to manage asthma.

patients and clinical providers and helps providers deliver guidelines-based care by sharing information collected through case management with providers and offering in-clinic national guidelines education for providers. All these mechanisms allow the Asthma Team to function as an extension of the primary care practice to reinforce the personalized asthma management plans jointly developed by providers and patients, and to provide real-time documentation of patient condition and compliance with the care plan. The Asthma Team also leads MHS' collaborations with community organizations to integrate asthma care improvement within broader community health efforts. For example, MHS partnered with the Marion County Health Department, the Asthma Alliance, the American Lung Association and Improving Kids Environment to provide free lead testing, radon test kits, trigger locks and asthma educational materials and supplies through a Healthy Homes Spring Cleaning event.

Getting Results — Evaluating the System

Evaluate Program Impact

MHS monitors the asthma program through a continuous Quality Management/Quality Improvement Program to determine its clinical and financial impacts. This information allows MHS to continuously improve asthma health outcomes, and increase program effectiveness. A 2007-2009 study assessed the program's impact on health outcomes and treatment costs using medical and pharmacy claims data for children (n=3,986) and adults (n=1,238). For child participants (compared against a non-participant matched control group), the program reduced ER visits by 17.3% and lowered inpatient admissions by 28.6%; increased scheduled visits to primary care providers by 11.1%; and increased vaccination rates by 22.5%, indicating improved preventative care. For adult participants (compared against a non-participant control group), ER visits were reduced by 9.4%, while visits to primary care providers increased by 16.4% and vaccination rates increased by 51.3%.

Sustaining the System

Use Data to Demonstrate Your Program's Value — Demonstrate Your Program's Impact

The MHS evaluation program is specifically designed to track metrics that support continuous improvement of the asthma care program. This evaluation capacity is key to the program's sustainability. Based on data demonstrating decreases in unplanned healthcare utilization (reduced ER visits and hospitalizations), MHS estimates its asthma case management program saves approximately \$250,000 per year. While it is difficult to estimate the savings its environmental management program delivers, MHS conservatively estimates the environmental component of the program contributes 20% of the cost savings, or \$50,000.

Use Data to Demonstrate Your Program's Value — Demonstrate the Need for Your Program

The MHS Asthma Team and business leadership is cognizant of the particular needs of its Medicaid population and the significance of the environmental factors and socioeconomic barriers Medicaid patients often encounter when attempting to

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — EDUCATE AND SUPPORT CLINICAL CARE TEAMS

Asthma Team members are trained in guidelines-based care and contact providers immediately if they note discrepancies between the treatment plan and the guidelines. Treatment plans are captured in a centralized system and can be seen by the entire MHS care team. Asthma Team members regularly review the treatment plans developed by the provider and patient to ensure patients understand and can follow their plans. Asthma Team members then share with the clinical providers any knowledge deficits observed related to the plan, pathophysiology, medication use or environmental management. Progress notes are faxed to providers at a minimum of six and 12 month intervals.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — EDUCATE CARE TEAMS TO MANAGE ENVIRONMENTAL TRIGGERS & PROVIDE TAILORED EDUCATION AND COUNSELING

MHS prioritizes education and counseling on environmental asthma management. All members receive low-literacy environmental trigger educational materials; and environmental management through newsletters, and during telephonic case management and home visits. Members in the medium-and high-risk strata can receive home visits and environmental assessments, which include counseling on trigger management by respiratory therapists. Members who need them are connected to support resources, like smoking cessation, and the plan provides housing assistance, a critical resource for its Medicaid population. The Asthma Team also connects plan members with free community resources such as hypoallergenic pillowcases and mattress covers, fans and air conditioners. Finally, the Asthma Team works with clinical providers to share information from home assessments and deliver environmental education during clinical visits.

manage their asthma. MHS and Centene are committed to internally funding the comprehensive Asthma program, especially the telephonic and in-home environmental education program and efforts to coordinate with community-based resources to manage environmental factors contributing to MHS members' asthma. Support for the program starts with the CEO, the health plan presidents and lead doctors and nurses in each market.

Furthermore, because it serves a Medicaid population, MHS believes the healthcare quality improvement story alone is worth the expense associated with the program. MHS has increased its HEDIS scores for appropriate asthma medications usage, has promoted the concept of a medical home for optimal asthma disease management and has improved vaccination rates in this high-risk population, resulting in better health outcomes at lower costs.

Children's Hospital Boston — Community Asthma Initiative

Children's Hospital Boston (Children's) launched the Community Asthma Initiative (CAI) in response to alarmingly high rates of asthma among children in particularly hard-hit neighborhoods of Boston. In partnership with key community organizations, CAI delivers case management, facilitates improved primary care, conducts home visits and environmental interventions, and advocates for policy changes to help improve the health and quality of life for children with poorly controlled asthma.

Building the System

Ensure Mission-Program Alignment

CAI seeks to improve pediatric asthma outcomes for the most severely affected children in Boston. Asthma is the leading cause of hospitalization at Children's and the majority of Children's asthma patients come from Boston's poorest and most ethnically diverse neighborhoods. To ensure CAI reaches its target population, it enrolls children who have been hospitalized or admitted to the emergency department (ED) for asthma in a year-long case management program and gives priority enrollment to children who have had admissions or multiple ED visits.

Let the Data Guide the Program Planning, Design and Implementation

As soon as CAI began assessing patients who frequented Children's for emergency asthma care, it became obvious that social and environmental issues were significant contributors to asthma severity within the program's target population. The neighborhoods clients are drawn from have a high percentage of older rental housing, significant mold, dust and pest allergen issues and high rates of poverty, unemployment, language barriers and low health literacy. In response, CAI designed a program that matches high-need children and their families with culturally appropriate case management that strengthens the connection to a medical home, helps families obtain insurance and affordable medications, and facilitates access to community-based asthma care resources, such as home visits and housing advocacy assistance.

Getting Results — Evaluating the System

Evaluate Program Impact

CAI tracks health outcomes for enrolled children at six and 12 months post-baseline. The program captures data provided by the families on health care utilization, missed school and work days and days with limitation in physical activity. Between October 1, 2005, and September 30, 2009, CAI provided case management services to 441 children. Of the total number of families enrolled, 315, or 71%, received one or more home visits.

Families enrolled in the year-long case management program reported a significant reduction in ED visits (65%), hospitalizations (81%), limitation in physical activity (37%), missed school days (39%) and missed work days (49%). In addition, there was a 71% increase in the number of children with up-to-date asthma action plans.

Program at a Glance

Location: Boston, MA

Type: Hospital

Service Area: Boston – Jamaica Plain, Roxbury, Dorchester and other neighboring communities

Population Served: Predominantly inner-city, African American and Latino children and their families

Key Players: Health Resources in Action, Asthma Regional Council and Boston Urban Asthma Coalition, Ensuring Stability through Action in the Community/Boston Asthma Initiative, Boston Public Health Commission, Massachusetts Asthma Action Partnership

Results: Over a 5 year period, 626 children experienced an 82% reduction in hospital admissions; 62% reduction in ED visits; and 146% ROI to society due to lower hospital costs.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — FACILITATE COMMUNICATION ACROSS THE CARE TEAM

CAI's case managers, both nurses and community health workers (CHW) communicate with primary care providers (PCP) after admission or ED visits, home visits and other interactions with enrolled children. They provide the PCP with detailed assessments of the patients' asthma control and adherence to medications, and findings of environmental home assessments and recommended actions to reduce trigger exposure. Home visitors have time to thoroughly assess patient needs and can judge and report back on the impact of the home environment and other social issues.

CAI's data also provide demographic and other information for the population the program is reaching. Of the 441 families enrolled in the program, 48% are African American, 45% Hispanic and 8% are other ethnicities; the majority (70.5%) use state Medicaid and, of those, 67% have household incomes of considerably less than \$25,000 per year.

Sustaining the System

Use Data to Demonstrate Your Program's Value

The CAI estimates its return on investment (ROI) by comparing hospital costs for asthma treatment for children in communities served by the CAI in the first two years of the program against costs for children from similarly affected communities that the CAI did not reach. The program has since expanded and now covers the comparison community. The program can estimate the costs of the clinical portion of the CAI because those costs are supported by Children's. Based on this data, the CAI calculates a ROI of 1.46.

The CAI is working with Children's Hospital's Office of Child Advocacy (OCA) to advocate for policy changes that would lead to reimbursement by private and public payers in Massachusetts for nurse case management and home visits for asthma. Such a change would allow Children's and other agencies throughout the city and state to deliver the CAI model to a wider population of children with asthma. Part of the argument that CAI and OCA present is the powerful cost benefit data that demonstrates considerable savings resulting from the intervention. The CAI leaders also tell a compelling story based on their health outcomes. Children's and other community partners have presented these findings to Medicaid and state legislators with some recent success. The preliminary state budget for fiscal year 2011 includes a provision establishing a bundled payment pilot for pediatric asthma that would enable providers to deliver tailored asthma interventions.

Promote Institutional Change for Sustainability

Institutional change that supports asthma program sustainability can occur within an organization, across a community coalition and at the policy level. CAI pursues all three approaches. CAI's leaders have collaborated with the Asthma Regional Council (ARC) of New England on a range of initiatives to promote changes to health plan reimbursement policies to support expanded asthma care services. For example, CAI and ARC worked together to develop a business case for health plans on comprehensive asthma care that includes environmental interventions. They also co-sponsored a policy forum for providers and plans, surveyed insurers to document current asthma benefits, and gathered data to advocate for lower co-pays for asthma medications.

CAI is currently partnering with the Boston Public Health Commission, Boston Medical Center and other providers across the community in the Boston Asthma Home Visit Collaborative to develop a coordinated, sustainable, asthma home visit program for Boston. The effort seeks to achieve standardization of home visit protocols and link clinical providers to home service providers through a web-based referral and feedback system. It also will facilitate data sharing and evaluation; a city-wide asthma registry; demonstration of improved outcomes, such as reduced hospitalizations and ED visits and cost savings to strengthen the asthma business case; and negotiation as a single body with payers for insurance reimbursement.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — MAKE ENVIRONMENTAL MANAGEMENT A REALITY AT HOME, WORK AND SCHOOL

CAI delivers home visits to assess the medical and environmental needs of families, provide asthma education, and deliver environmental interventions. During home visits, families receive one-on-one education on reduction of triggers, medication usage and the importance of ongoing asthma control. After an environmental assessment, families receive supplies, such as HEPA vacuums, bedding encasements, storage bins and Integrated Pest Management materials to address asthma triggers. When pest infestations, mold or structural issues pose a problem, home visitors advocate with landlords or housing authorities for improvements and refer families to the Breathe Easy at Home program, an initiative of the Boston Inspectional Services Department, the Boston Public Health Commission, health care providers and advocates, to identify sanitary code violations that must be corrected in order to eliminate or reduce asthma triggers in the home environment.

KEY DRIVER

HIGH-PERFORMING COLLABORATIONS — COLLABORATE TO BUILD CREDIBILITY, SOCIAL CAPITAL AND LOCAL INFRASTRUCTURE

The CAI is collaborating with a city-wide group of partners to develop a centralized system for collecting, managing and sharing data about asthma-related home visits. The partnership represents a large group of clinical asthma programs, local public health and housing agencies and others involved in home visit services. By bundling their efforts and data, the collaborative will demonstrate the significant health and cost impact of effective home visits for high-risk asthma patients. The partners plan to use the data to advocate for sustainable support from health plans for a city-wide home visit program.

Children’s Hospital of Philadelphia’s Community Asthma Prevention Program (CAPP)

CAPP recognized that asthma morbidity continued to rise among urban, poor and minority populations, such as those served by the Children’s Hospital of Philadelphia (CHOP). CAPP sought to demonstrate the potential to improve asthma health outcomes among an inner-city, minority population by providing community-based asthma education and controlling common indoor asthma triggers.

Building the System

Let the Data Guide the Program

CAPP knew that asthma health outcomes for minority, inner-city children in Philadelphia were not improving despite the existence of accepted national standards linked to improved asthma care. To help the service population achieve improved asthma health outcomes, CAPP focused on decreasing asthma-related hospitalizations and emergency department (ED) visits by educating children and their families about asthma and methods for identifying and mitigating environmental asthma triggers at home.

Conduct Needs-Based Planning — Seek Input From the Community

CAPP established its program by assembling a large group of partners from the target communities and asking them what they needed and how CAPP could help. By engaging the community from the start, CAPP planted the seeds for a program that would have the support, interest and results it needed to last.

Conduct Needs-Based Planning — Meet Your Community ‘Where It Is’

CAPP learned from listening to community input that to make community asthma education programs work for North and West Philadelphia communities, classes for adults and children should run simultaneously so caregivers can avoid child care costs. Also, classes should occur in the evenings on multiple days of the week to account for people who work night shifts. Classes should be delivered in English and Spanish at several locations, such as schools, churches and local YMCAs, that are accessible by public transportation.

Collaborate to Build a System That Will Last

CAPP looked for potential partners who might help to deliver the program. “If you’re addressing a real need, you will be able to find local partners who want to address it as much as you do,” said Dr. Tyra Bryant-Stephens, CAPP’s Program Director. “We come to the table alone most of the time and try to find other interested parties—faith-based organizations and community-based organizations. Often, we find partners already providing community services in the area and we coordinate with them for service delivery.” For example, to deliver services in North Philadelphia, CAPP partners with Habitat for Humanity, the local YMCA and the school district to reach out to children with asthma and their caregivers.

Program at a Glance

Location: Philadelphia, PA

Type: Hospital Devoted Exclusively to the Care of Children

Service Area: North, West, Southwest and Lower Northeast Philadelphia

Population Served: 3,000 families (1.4 million in city with 20-25% prevalence of asthma in inner-city community); large minority population

Key Players: American Lung Association, Habitat for Humanity, School District of the City of Philadelphia, City of Philadelphia Department of Health, Philadelphia Allies Against Asthma, Philadelphia Health

Results: Decrease in asthma-related hospitalizations, ED visits, sick visits and asthma symptoms; decrease in inpatient stays and ED visits compared to control group; 13% increase in asthma knowledge from education course.

KEY DRIVER

HIGH-PERFORMING COLLABORATIONS — COLLABORATE TO BUILD CREDIBILITY

As CAPP prepared to spread its effective model for asthma care, the program’s leaders moved into new areas by first seeking out established organizations, local leaders and local knowledge. This allowed them to tailor their asthma care model to the particular needs of their target communities and to resource their program by establishing close ties to partners willing to help deliver CAPP’s program.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — EDUCATE CARE TEAMS ON ENVIRONMENTAL MANAGEMENT

CAPP trains home visitors, or community health workers, with exceptional relationship management skills to allow them to work closely with inner-city families to educate them about common indoor environmental asthma triggers and strategies for reducing trigger exposure at home. The relationship skills are key because the asthma home visitors need to be welcome in people’s homes if they are to make home environmental management a reality for children with asthma.

Getting Results — Evaluating the System

Evaluate Program Implementation

CAPP's leaders knew that collecting data and demonstrating results were critical, so they built in quantitative measures to track health outcomes and qualitative measures to track how the program's work is accomplished. To capture data, CAPP spends a significant amount of time training home visitors to collect data on the home environment and patient health and quality of life. The training was critical, according to Dr. Bryant-Stephens: "You have to plan for good data collection—garbage in will mean garbage out. So, we train our home visitors. To ensure that our program was actually promoting improved environmental management, we had to train our home visitors to use the assessment forms consistently. All visitors had to respond the same way to the question, 'is the home carpeted?' when they saw a throw rug. To achieve that level of understanding, we started by simplifying our forms to include only the essential data. Then we scripted every question and worked with our home visitors to review the forms, item by item and to practice providing answers. Because we invested heavily in preparing our home visitors to capture evaluation data, we can now use the data to reliably assess the impact of our program."

Use Evaluation Data to Demonstrate the Business Case

CAPP collects hospital and ED data from providers in West Philadelphia and from CHOP; there are fewer barriers to getting the data in that region. In North Philadelphia, where it is harder to get data, CAPP relies on self-reported data collected by the home visitors, as well as medical records with caregivers' permission. CAPP uses the data to assess the impact of its efforts to educate the community, improve home environments, and coordinate care with local providers on the goal of improving asthma health outcomes in underserved communities. CAPP staff also use the data in presentations to potential funders to demonstrate how they do their work, what their work achieves and the progress they are making toward reducing the burden of asthma in inner-city Philadelphia.

Sustaining the System

Promote Institutional Change for Sustainability

When CAPP leaders spread their program model to reach new communities in North Philadelphia, they convened partners to discuss the program, describe how it had worked elsewhere and hear from local partners about how to tailor the program to North Philadelphia's needs. CAPP forged an agreement with the community partners: in year one, CAPP would deliver the program; in year two, CAPP would manage a train-the-trainer program to prepare community members to deliver the education program and conduct home visits; and in year three, CAPP would step back and be available for technical assistance. "We've seen our asthma home visit and community education programs incorporated as parts of existing programs and local providers have sustained the programs over time by championing them with local organizations," said Dr. Tyra Bryant-Stephens.

In order to complete the circle of care, CAPP has recently begun the Asthma Care Navigator (ACN) project, where community health workers are integrated into the primary office as part of the health care team. CAPP plans to enroll 270 children with asthma and their caregivers in this project where the ACN will help families overcome barriers to asthma management. The ACN's will help caregivers identify goals and barriers to goals in care. ACN's will also continue to make home visits with families to identify environmental allergens and to teach self-management skills. CAPP also has embarked on the Asthma Environmental Education for Inner City Practices where providers and nurses are taught how to educate families about environmental asthma triggers and avoidance measures. As part of this project, CAPP has partnered with colleagues to implement an Education Module in the electronic medical record to offer prompts, documentation and advice for removal of asthma triggers.

KEY DRIVER

COMMITTED LEADERS & CHAMPIONS —CREATE PROGRAM CHAMPIONS

CAPP has a number of innovative strategies for deploying champions, including recruiting parents to enroll in train-the-trainer courses. When CAPP educators identify particularly motivated parents, they ask them to become peer educators. CAPP trainers conduct a formal teaching session and then the parent-trainees accompany experienced asthma educators on at least five community education sessions where the parents buddy-teach. When the parents are ready, CAPP asks them to lead community education classes. Over the past seven years, CAPP has trained 60 parents through this program and two training program parents are now full-time home visitors on CAPP's payroll.

Use Data to Demonstrate Your Program's Value — Demonstrate the Need

CAPP is built on a network of collaborative relationships to deliver asthma care in local communities across Philadelphia. One way that CAPP's leaders leverage their community partners to achieve sustainability is by recruiting them to accompany CAPP staff on visits to policymakers. "Educating policymakers is important. If you walk into a politician's or government office with a fleet of partners in tow, it makes a powerful statement about the need for your program and the lobby that's backing it." This tactic has worked for CAPP, which has seen line item funding in the state budget for the program for two years in a row after CAPP leaders and their collaborators paid a visit to a senator.

Children's Mercy Family Health Partners (CMFHP) Asthma Management Program

Several factors led Children's Mercy Hospitals and Clinics (CMH) to develop its Asthma Disease Management Program. First, a state Medicaid review of the quality of asthma care found that CMH's not-for-profit safety net health plan's, (Children's Mercy Health Partners (CMFHP)) members were not receiving asthma care that was on par with state expectations. Secondly, the leadership knew that CMH delivered high-quality asthma care at the hospital, but wondered about patients outside of the hospital's reach.

Building the System

Ensure Mission-Program Alignment

CMH's mission statement is to "deliver excellent care to children in the Kansas City region." The organization had achieved impressive results for pediatric asthma patients at the hospital, but CMH's leaders recognized that they had to scale their services to reach beyond their four walls.

Let the Data Guide Program Planning, Design and Implementation

CMFHP's data showed that even members who were following their medication requirements were not experiencing the expected improvements in asthma severity symptoms and that 5% of FHP members were responsible for 60% of asthma-related claims. When reviewing the data, CMH's leaders knew they had to deliver the same outcomes that were possible inside the hospital to all plan patients.

Let the Data Guide the Program

When CMH operationalized their goal to provide high-quality asthma care to all children in the area, the first step was to identify the pediatric population with asthma and to assess the health system in place to meet its needs. CMFHP's data showed that there were not enough specialists to serve the pediatric asthma community, but there was a large primary care network. CMH decided to mobilize and empower the primary care providers (PCP) to deliver high-quality care by developing a Disease Management Program that provides asthma education for PCP and office staff.

Conduct Needs-Based Planning — Seek Input From the Community

CMH conducted focus groups of providers and patients. Providers wanted a standardized curriculum and reimbursement for providing expanded education to their patients. Patients wanted education from their providers. Based on provider and patient input, CMH decided to hire asthma educators to provide intensive training for physicians and their staffs.

Align Incentives with Goals

The asthma educators provided in-office education and granted continuing education credits to attendees. CMH had to build successful partnerships with providers to make it easy for providers to deliver standards-based care. CMH and CMFHP developed codes to reimburse for asthma education delivered by providers who completed CMH training. Members of the health plan (CMFHP) also received interventions and education.

Program at a Glance

Location: Kansas City, MO

Type: Medicaid Managed Care Organization, Not-For-Profit, Safety-Net Health Plan, Owned by CMH

Service Area: Missouri and Kansas

Population Served: Over 200,000 members now and of that approximately 22,763 diagnosed with asthma

Key Players: Children's Mercy Hospital and Clinics, Children's Mercy Environmental Health Program

Results: From 2001-2006: overall asthma ED utilization decreased 26%; asthma inpatient utilization decreased 23%; and PMPM, or asthma costs PMPM, decreased 17%.

Current data: Comparing the June YTD utilization for 2010 versus the same period for 2009: 18% decrease in ED utilization and a 9% decrease in asthma-related inpatient hospitalizations. Comparing the June YTD costs for 2010 versus the same period for 2009: 7% decrease in asthma-related costs.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — EDUCATE AND SUPPORT CLINICAL CARE TEAMS

Providers said they needed education and time and CMH found ways to deliver both to help providers deliver improved asthma care to their patients.

Getting Results — Evaluating the System

Evaluate Program Implementation

To use limited resources well, CMFHP designed its program to target its most intensive interventions to those who need them most. Members are assigned to a category based on asthma-related health care utilization. Those with the highest utilization receive the most intensive interventions from health coaches. This includes a 12-month look back to view emergency department (ED) and inpatient utilization, as well as visits to their PCP. As members increase their ability to self-manage their asthma in conjunction with their PCP, they receive fewer interventions.

Evaluate Program Impact

CMFHP uses ED and inpatient utilization data to measure progress against goals because these measures are benchmarked by the U.S. Centers for Disease Control and Prevention (CDC). When the CMFHP team compared their baseline data to CDC's averages, they saw that their health outcomes were in line with CDC's findings. CMFHP has continued to track the same measures to assess the program's impact. Because the measures are compatible with CDC's data, CMFHP can compare their outcomes with national trends and discern the difference between population-level changes and their program's effects.

Collaborate to Get the Data You Need — Provide Incentives

CMFHP provides incentives to providers when they provide asthma-specific education. CMFHP activated a Current Procedural Terminology (CPT) code to pay providers an extra fee for providing and reporting on these services. Chart reviews and utilization data are used to measure and determine behavior changes among PCP.

Sustaining the System

Promote Institutional Change for Sustainability

Initially, CMH sought support to launch their Asthma Disease Management program from the Robert Wood Johnson Foundation (RWJF). CMH used the grant money to hire two asthma educators, a social worker and a database specialist to build the sustainable infrastructure and knowledge-base required to sustain the program beyond the grant funding period.

Use Data to Demonstrate Your Program's Value

During the course of the RWJF grant, CMH tracked per member per month (PMPM) costs for the Asthma Disease Management Program and captured data that demonstrate a savings of about \$2 PMPM. CMH also captured costs savings over time as the program shifted the focus of asthma care from ED and hospital visits to the clinical setting. When the RWJF grant expired in fall 2004, CMFHP renewed the program because the health plan noticed that their bottom line for asthma patients was improving. The health plan paid CMH 43 cents PMPM on a two-year Asthma Disease Management contract.

In December 2006, the Disease Management Program moved from CMH to CMFHP. The program has remained sustainable and has grown in many ways at CMFHP. Due to an increase in geographic area that the program covered, two additional asthma educators were hired, with ongoing data compilation. The interventions currently received by the members include: home or clinic visits, phone calls, packets, newsletters and mailings. CMFHP constantly re-assesses utilization scores to determine the level of intervention needed.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — PROMOTE ROBUST PATIENT/PROVIDER INTERACTION

CMFHP provides incentives to get providers and patients talking more about patients' asthma and individualized strategies for asthma self-management by promoting and reimbursing time spent developing asthma action plans. Best practices including spirometry testing or validated questionnaires are reviewed.

Genesee County Asthma Network (GCAN)

GCAN services both adults and children, with a focus on inner-city children in Genesee County and the surrounding areas. GCAN is a comprehensive community-based program that delivers school-based asthma education and community outreach, support for children with asthma and their families, a summer camp program for children and, for high risk patients, intensive disease management, and home visits from certified asthma educators and social workers. Through education and outreach with patients, families, schools and home inspectors and widespread sharing of asthma action plans (AAP), GCAN ensures that patients and the community are well prepared to manage environmental and medical factors affecting asthma. With the support of Hurley Medical Center and a large and diverse partner network, GCAN has delivered dramatic results for a large population of children and families and recently expanded their effective care model to reach adults with asthma.

Building the System

Start Small to Get Big

Over 12 years ago, through the University of Michigan-Flint, a small group of individuals came together to develop an asthma outreach program to improve management of asthma for disproportionately affected children in the community. They began by helping to educate schools through a program called Breathing Space. The school education pilot was successful and expanded with the help of its new fiduciary partner, the local ALA, to reach more schools and promote community-wide asthma education and improved clinical care. By steadily adding more partners and delivering new services to a larger and larger population over time, the Coalition grew into a comprehensive asthma management program that now educates providers and promotes the National Guidelines for the Diagnosis and Management of Asthma (EPR-3); delivers in-home environmental assessments and education; provides support to help families address social and economic barriers to effective self-management of asthma; delivers school- and day care-based asthma education and environmental interventions for children; and coordinates communication about patient care across a large network of clinical, home, school and community-based care providers. The program has grown steadily by publicizing its positive outcomes to attract partners who are committed to supporting the community's needs and recognize GCAN as an effective vehicle for making an impact. For example, Hurley Medical Center's leadership decided to step in as fiduciary for GCAN based on the program's demonstrated health and cost outcomes and the strategic fit for the asthma care program within Hurley's clinical home. By 2008, the Coalition had conclusively demonstrated the effectiveness of their approach: data showed a significant decrease in emergency department (ED) visits and hospitalizations for children with hard to control asthma.

Focus on the Resource Strategy at Every Step

GCAN formed strategic partnerships with key organizations allowing the program to effectively meet community needs. With the support of over 50 partners, GCAN developed initiatives to reach and care for inner-city children with asthma, including an annual free asthma camp, support groups for families, education programs for asthma care professionals and asthma education for school staff and child care providers. The large care network GCAN has assembled allows the Coalition to reach

Program at a Glance

Location: Flint, MI

Type: Community Asthma Coalition

Service Area: Genesee County and surrounding areas; City of Flint

Population Served: 10,854 children and 30,156 adults with asthma

Key Players: American Lung Association (ALA), a network of 81 churches focused on community health, several local universities, Genesee County Medical Society Environmental Committee, Public Health Department, local tobacco coalition and the local Intermediate School District

Results: In first year, hospital savings of \$660,000, 45% decrease in ED visits over two years, 25% decrease in hospitalizations and decreased missed school days.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — EDUCATE AND SUPPORT CLINICAL CARE TEAMS

GCAN works with asthma and allergy specialists and primary care physicians who are well versed in the EPR-3. When GCAN determines a patient's care is inappropriate, the coalition's medical advisor contacts the physician to provide guidance on proper treatment. GCAN also educates their clinical care team on the EPR-3. For example, at coalition meetings, which more than 100 people attend, GCAN describes how to access the EPR-3, and provides copies of its six key components, handouts of its assessments and treatment grids for each age group.

approximately 150 to 200 individuals each year with its intensive disease management and home visit program and up to 2,000 individuals with asthma education and support.

Getting Results — Evaluating the System

Evaluate Program Implementation

GCAN learned early that collecting health outcomes data and connecting it to the Coalition's program interventions is an effective way to improve program quality and demonstrate impact to help ensure the support of Hurley Medical Center and other key partners. GCAN merges its data and hospital data to monitor hospitalizations and ED visits for the people the program reaches. GCAN also tracks missed school days, use of inhaled steroids, activity limitations, use of rescue medication and asthma trigger reduction through observation and self-reports collected during home visits. The results are collected, compiled and compared with previous years to assess the effectiveness of programming and to identify areas for improvement. GCAN also shares outcomes with community partners and stakeholders to highlight cost savings correlated with the decrease in ED visits, hospitalizations and days spent in intensive care due to asthma. The outcomes also show the association between decreased hospital visits, cost savings and the number of work days caregivers miss due to their child's asthma.

Evaluate Program Impact

During GCAN's first year, it delivered \$660,000 in cost savings by decreasing ED visits by 45% and hospitalizations by 25%, and reducing the number of intensive care days by 18%. From 2006 to 2008, GCAN decreased ED visits from 512 to 61 and hospitalizations from 283 to 42. In addition, six years ago, Genesee County ranked third in the state of Michigan for asthma morbidity and mortality. Currently, it is ranked fifth. According to Medicaid claims data, Genesee was the only county that showed a decrease in asthma morbidity and mortality in 2006. GCAN's educational efforts led to positive outcomes that directly correlate with the community's compliance with environmental trigger control measures, AAP and the number of individuals on appropriate medication, which is up from 29% to 84%. Finally, the In-Home Assessment Tool (IHAT) shows a 55% decrease in secondhand smoke exposure for families who have received in-home asthma education.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — MAKE ENVIRONMENTAL MANAGEMENT A REALITY AT HOME

GCAN's two Registered Nurses/Asthma Educators evaluate all rooms in a home to identify potential asthma triggers and complete a home assessment using either the IHAT or EPA's Asthma Home Environment Checklist. During home walkthroughs, they identify potential asthma triggers explaining why and how these triggers impact asthma. GCAN educators visit homes 12 to 18 months after the initial walkthrough to reassess the home, offer additional asthma education, and provide other follow up. GCAN visits approximately 150 to 200 homes annually.

Sustaining the System

Be Visible: Funders Support What They Know

The positive outcomes of GCAN's asthma management initiatives have impacted children with asthma and their families and the health community that cares for them. GCAN has become known as an organization that makes a difference in Genesee County. In 2007, GCAN's successes were recognized by the state of Michigan, receiving the 2007 Hometown Heroes Award as well as the EPA Region Five 2007 National Exemplary Award for Asthma Management. State, federal and community recognition and acknowledgement has enabled GCAN to receive funding from local community foundations, volunteers at Hurley Medical Center and local health plans. Sharing its successes has been key to securing support and funding.

Make It Easy to Support Your Program

GCAN has currently secured funding from several major health plans in the area whose clients benefit from the asthma program. At this time, GCAN is looking for other varied sources of funding including other health plans and grants. GCAN partnered with the Michigan Department of Community Health on a presentation to health plans on the scope, mission, vision and results the program has achieved.

KEY DRIVER

HIGH PERFORMING COLLABORATIONS — BUILD ON WHAT WORKS

GCAN has partnered with the Asthma Network of West Michigan (ANWM) to adopt the ANWM's comprehensive home-based case management model, which several health plans in Michigan already reimburse. GCAN now mirrors the ANWM's program pricing model in their request for reimbursement. GCAN is currently partnering with three sites across the state, under the direction of the Michigan Department of Community Health, to provide replicable disease management as a model for Medicaid reimbursement.

Improving Pediatric Asthma Care in the District of Columbia (IMPACT DC)

IMPACT DC is a comprehensive asthma surveillance, intervention and advocacy program centered at Children's National Medical Center in Washington, DC. The program is designed to serve the neediest children in Washington, DC, particularly those who have developed a reliance on the emergency department (ED) for episodic care.

Building the System

Let the Data Guide the Program

IMPACT DC is under contract to the Washington, DC, Department of Health to conduct surveillance on all asthma-related ED visits in the city. IMPACT DC collects data from all of the city's non-military hospitals and then geo-spatially maps ED visits for asthma. As Dr. Stephen Teach, IMPACT DC's Medical Director explains, "We carefully track ED visits in DC, and we always use the data to design our interventions, locate our services, and drive our outreach to providers."

Start Small to Get Big

As Dr. Teach and Deborah Quint, MPH, Project Director, built the IMPACT DC system, they focused on incremental program growth and "took a long view" of their path to success. "The population we're serving is wary of programs that come and go and it's critical to build the community's trust if you're going to make a real difference. Our strength was our presence in the community and we couldn't afford to promise anything that we weren't sure we could deliver."

Conduct Needs-Based Planning

Recognizing that one of the barriers to care that the community faces is access to providers, IMPACT DC built a system to deliver care where the community can most readily receive it: in the ED, the primary point of service for many children in Washington, DC. The IMPACT DC Asthma Clinic also has developed locations in clinics housed in the communities with the largest numbers of children who have uncontrolled asthma.

Getting Results — Evaluating the System

Evaluate Program Implementation

IMPACT DC has a research arm in addition to its clinical component. IMPACT DC has conducted a number of studies to assess program effectiveness and determine areas of strength as well as program challenges. New interventions are developed based on lessons learned and results of prior research studies.

IMPACT DC also collects textured data on the children with asthma seen in the ED and in the IMPACT DC Asthma Clinic. After examining the number of children showing up at the ED and determining their asthma severity, IMPACT DC staff quickly recognized that too many children in the city were not on the controller medications they should be (only 20% were on the right medications). They used this information to focus their clinical counseling. When IMPACT DC's counselors work with asthma patients, they discuss the importance of medication usage for preventing acute asthma episodes and listen for barriers patients and their families may face to using medications appropriately. IMPACT DC's staff also follows up with patients' primary care physicians to discuss what they have discovered about medication adherence.

Program at a Glance

Location: Washington, DC

Type: Asthma Program Affiliated with Children's National

Service Area: Washington, DC and Southern Maryland

Population Served: 800-1,000 new asthma patients per year (75% of which are on Medicaid); urban, minority, disadvantaged population

Key Players: Physicians, Nurse Practitioners, and Asthma Educators at Children's National; DC Department of Health, DC School Nurses, Primary Care Providers

Results: Gradual and sustained drops in ED visits made for asthma by children living in Washington, DC, during 2002-2008; documented positive outcomes in a randomized clinical trial.

KEY DRIVER

STRONG COMMUNITY TIES — MAKE IT EASY TO ACCEPT SERVICES

To make the community as comfortable as possible with the program, IMPACT DC located its services in places familiar and accessible to the target community.

Sustaining the System

Make It Easy to Support Your Program

IMPACT DC's program leaders have always been committed to promising only what they can deliver and delivering on their promises. To ensure that they keep their promises, the IMPACT DC team looks 18 months ahead when planning its funding and relies on a diverse portfolio of funders. "Having just one major funder can be a huge mistake," according to Dr. Teach. IMPACT DC's solution is to combine payer support, private foundation funding and local and federal government support and to leverage the results captured by the program's well-funded research arm to drive continuous support for the IMPACT DC model.

Use Data to Demonstrate Your Program's Value — Demonstrate the Need

Dr. Teach describes philanthropists as business-savvy consumers who look for the greatest value opportunities for investment. When he gives presentations to potential funders, Dr. Teach uses quantitative data to describe the population-level needs in Washington, DC, and compares the city's asthma burden to national averages to demonstrate just how critical the program is to the community. He uses qualitative data that follows one pediatric patient through the IMPACT DC program to demonstrate the health and quality of life results that his program achieves.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — FACILITATE COMMUNICATION ACROSS THE CARE TEAM

IMPACT DC's innovative ED-based care model is not intended to replace, but to strengthen, the care provided by primary care providers and school nurses. IMPACT DC communicates regularly with providers who care for the patients seen in the IMPACT DC Asthma Clinic, sharing copies of asthma action plans and sending patient updates with medication and utilization information after patients are seen at IMPACT DC sites.

MaineHealth AH! Asthma Health Program

MaineHealth launched the AH! Asthma Health Program in 1998 to address high asthma prevalence rates in Maine. Environmental factors — such as the wide use of woodstoves and wood boilers, high ozone rates and mold problems in many old school buildings — have contributed to indoor and outdoor air quality problems in many areas of the state. In response, MaineHealth developed a comprehensive asthma management program that combines standards-based clinical care with robust environmental asthma management.

Building the System

Focus on the Resource Strategy at Every Step

The AH! Program has formed lasting relationships with a diverse group of health care partners, including school-based health centers, childcare centers, public health departments, worksites and other groups, to deliver asthma care and education.

Conduct Needs-Based Planning — Seek Input From the Community

In order to effectively reach Maine's disadvantaged populations, AH! Program researchers conducted needs assessments and developed culturally appropriate interventions targeted to diverse groups. A series of focus groups with Somali and Latino populations — two of Maine's growing foreign-language populations — revealed that many individuals in these groups are fearful of the U.S. health care system; did not understand the impact of the environment on asthma; and live in substandard housing. In order to reach out to these groups and meet their needs, the program supported specially trained, indigenous community outreach workers to deliver educational interventions in their communities.

Translating standardized, evidence-based program materials into six languages and creating low literacy tools and materials using pictograms has also helped the AH! Program meet the needs of the community. Key community partners, such as the Maine Medicaid Program, the American Lung Association of Maine and the Minority Health Program of Portland's Public Health Division, help deliver services to disadvantaged populations.

The AH! Program supports member hospitals to develop and sustain certified asthma education specialists who work with patients in the hospital service area on an inpatient and outpatient basis.

Getting Results — Evaluating the System

Evaluate Program Impact

A comprehensive evaluation mechanism is the centerpiece of the AH! Program. Built-in measurement tools, such as a web-based Clinical Improvement Registry (CIR), help measure results including behavioral, clinical, health status and cost outcomes. AH! Program leaders monitor and evaluate the effect of interventions on different populations including patients and physicians. Research for the past 10 years shows that typical reported outcomes (e.g., reduced emergency department (ED) and hospitalization health care utilizations) are largely sustained. Outcomes are comparable to other nationally reported studies and benchmarks. For example, the length of stay for hospitalized pediatric patients with a primary diagnosis of asthma was 1.98 days compared with the 2008 national benchmark of 2.23 days.

Program at a Glance

Location: Portland, ME

Type: Non-Profit, Integrated Health Care Delivery System

Service Area: 11 counties in Southern, Central and Western Maine

Population Served: 975,000 adults and children including 90,675 with asthma

Key Players: Maine Medicaid Program, the American Lung Association in Maine, the Maine Indoor Air Quality Council, the Portland Public Health Division, the Maine Primary Care Association, the Maine Health Access Foundation, CDC of Maine

Results: Reduced ED visits and hospitalizations at six months post-intervention resulting in potential savings of \$403,648 in reduced health care utilization costs.

Evaluate Program Implementation

In order to quickly and easily measure the effects of the program's efforts on clinical and behavioral outcomes, the AH! Program integrated key measures into the CIR. To encourage physicians to use the CIR to track data points and increase the quality of asthma care, the AH! Program works with the Physician Hospital Organization to provide financial incentives to physician practices for achieving excellent outcomes. The CIR has resulted in improved care of pediatric asthma patients by measurably increasing severity classification, controller medication use with persistent disease, written asthma actions plans, use of Quality of Life (QoL) Asthma Control Test (ACT) questionnaires, referral to asthma educators and other key measures.

Sustaining the System

Make It Easy to Support Your Program

The AH! Program is sustained by funding from a variety of sources. The funding model that AH! Program leaders originally established for local hospitals is a key factor in sustaining the program. One-third of the funding for community asthma education specialists comes from the community hospitals that host local AH! Programs; one third is funded by MaineHealth; and one third is funded by the income generated by community asthma education specialists for direct patient care.

Use Data to Demonstrate Your Program's Value — Demonstrate Your Impact

Recognition for excellent outcomes has caught the attention of supporters. The AH! Program has received awards from the U.S. EPA and has been profiled on the Agency for Healthcare Research and Quality Innovations Exchange website. Locally, the AH! Program has been recognized by the Maine Public Health Association and the American Lung Association in Maine, in recognition of the impact the program has achieved. AH! Program leaders' ongoing involvement with public policy issues, such as advocating to allow children with asthma to carry inhalers, keeps their work in the spotlight and helps to increase the program's visibility.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — MAKE ENVIRONMENTAL MANAGEMENT A REALITY AT HOME, SCHOOL AND WORK

The AH! Program works closely with community organizations to increase awareness and education of environmental management of asthma. For example, Community Asthma Education Specialists found that child care centers were eager to convert to "green" cleaning practices and supplies after receiving practical information about the effectiveness of the products and where to find them.

Monroe Plan's Improving Asthma Care for Children

Rochester, NY, faces significant challenges in children's health care. A 1998 study ranked the area near the bottom of 216 cities in child quality of life, and the city's school district had the state's highest poverty rate (78%) and a large minority population. Monroe Plan reviewed trends in pediatric asthma and noticed that admission rates were high and minorities were particularly affected. In the fall of 2001, in partnership with ViaHealth, a health care delivery system, Monroe Plan launched a program to shift asthma care away from emergency services and inpatient care, toward improved patient self management. Because of the program's success, Monroe Plan has expanded its Improving Asthma Care for Children program to include all of its members with pediatric asthma.

Building the System

Ensure Mission-Program Alignment

Monroe Plan's mission focused on improving health outcomes and reducing health disparities. Consequently, to be consistent with that mission, Monroe Plan's leadership knew that it had to improve asthma care for its children. Monroe Plan adopted the Center for Health Care Strategies' Best Clinical and Administrative Practices (BCAP) Quality Framework to support the development of the program. Monroe Plan and ViaHealth recognized that they could do more to better serve children by working together and determined that asthma patients needed more education if they were to become fully engaged in their own care. Monroe Plan and ViaHealth received a grant from the Center for Health Care Strategies (funded by the Robert Wood Johnson Foundation (RWJF)) to support asthma educators and outreach workers; used plan data to identify children with asthma with multiple visits to primary care providers (PCP), emergency department (ED) visits, or inpatient stays; made sure that all children with an asthma diagnosis were linked to a PCP; provided improved data for PCP to support their asthma care delivery (e.g., make sure PCP know when patients go to the ED); engaged patients in specialty care services; provided home visits to enhance asthma management understanding; and improved administrative processes to support these interventions.

Conduct Needs-Based Planning

In addition to providing the data to support providers, Monroe Plan also responded to providers' calls for education. "We found out our providers didn't know as much about asthma as they wanted to know — assessment, management, using equipment — they were honest about the information they were missing. They also said that they had limited time for patient education." Monroe Plan designed a program to address the providers' needs.

Align Incentives with Goals

To develop provider education, Monroe Plan borrowed content, with permission, from Children's Mercy Family Health Partners, the American Lung Association, and National Jewish Health. Monroe Plan developed a five-hour program from which providers and their staff may receive continuing medical education credits. Monroe Plan partnered with other payers in their market to create a set of uniform codes that allow providers to bill for patient education once they have completed the training. "It became easy for offices to provide asthma education, particularly once they had to worry about only one code

Program at a Glance

Location: Rochester, NY

Type: Managed Care Organization with Over 4,500 Providers

Service Area: Monroe County and 12 neighboring rural counties

Population Served: 6,100 children with asthma; large minority population.

Key Players: Center for Health Care Strategies, Robert Wood Johnson Foundation

Results: Percentage of participants with asthma categorized as moderate-to-severe declined from 51% to 26% and quality of life surveys showed improvements in patients' symptoms and functional limitations.

KEY DRIVER

STRONG COMMUNITY TIES — ENGAGE YOUR COMMUNITY 'WHERE IT LIVES'

Monroe Plan heard from providers that they had limited time to deliver asthma education, so they decided to augment clinical education with home visits. To reach their diverse population, Monroe Plan hired a dedicated Asthma Outreach Representative, Neil Padraza, who is from the community he serves. Neil has lived in the Rochester area for 20 years. He is bilingual and understands the cultural background of Monroe Plan's Hispanic members. When Neil conducts home visits to educate children with asthma and their families, people recognize him, understand him, and welcome his help.

set.” Monroe Plan trained Asthma Education Counselors at every site, created a registry of Asthma Education Counselors, and shared the registry with the other payers. Monroe Plan also changed its benefits structure to make it easy for providers to deliver high quality asthma care: they began paying for spacers and nebulizers and removed the specialty referral requirement so that children could easily get allergy skin testing.

Getting Results — Evaluating the System

Evaluate Program Implementation

Monroe Plan’s Chief Medical Officer, Dr. Joseph Stankaitis, and Director of Medical Informatics, Dr. Howard Brill, led a team to develop an evaluation strategy involving quality of life, care management process, medical claims, and qualitative interview data. “We conduct a survey of our members with asthma twice a year (seasonally) to catch them when they are more aware of their asthma. We want to know how our program is impacting them and whether we are delivering the kind of care we want to be providing,” said Deb Peartree, Monroe Plan’s Director of Quality Improvement and Clinical Strategies.

Use Evaluation Data to Demonstrate the Business Case

According to Deb Peartree, being able to demonstrate the quality of life impacts and collect utilization information from the pilot program were driving forces in Monroe Plan’s program sustainability. “We were able to build an initial business case that enabled the Board to support expanding it to the entire population because we were achieving improved quality of life and demonstrating a shift in costs from ED and inpatient utilization to primary and specialty care. Our survey results showed that our program had improved patients’ lives and that was a slam-dunk for our Board. We are fortunate to have a committed Board that is dedicated to quality of care and it is easy for them to support us when we have good data to put in front of them.”

Evaluate Program Impact

When Monroe Plan began its efforts, 51% of children with asthma were categorized as having moderate-to-severe asthma based on their utilization of higher level services. After efforts to coordinate better care, the percentage dropped to 25%. The results of Monroe Plan’s Integrated Therapeutics Group Child Asthma Survey showed that the plan achieved significant improvements in all of the relevant measures for asthma: daytime and nighttime symptoms, functional limitations, inhaler adherence, and family-life adjustment. In addition, hospitalization and ED visit rates demonstrated a strong downward trend.

Sustaining the System

Promote Institutional Change for Sustainability

New York State’s Medicaid program offers financial incentives to Medicaid managed care programs that perform well on a number of measures. Monroe Plan has consistently achieved high scores in these measures, resulting in quality incentive payments from the state. Monroe Plan’s Board has committed to reinvest these funds into quality improvement, which has sustained quality initiatives, including the Improving Asthma Care for Children program. Monroe Plan received two subsequent grants from the Center for Health Care Strategies (made possible by funding from the RWJF and The Commonwealth Fund) to develop other strategies and further demonstrate the business case for quality asthma care for children.

Neighborhood Health Plan of Massachusetts (NHP)

NHP is a mission-driven plan founded to address the health care needs of underserved populations in Massachusetts. In 1999, NHP initiated an Asthma Disease Management Program (ADMP) to address a troubling trend in members' asthma-related emergency department (ED) visits and hospitalizations. The ADMP is designed to enhance patient self-management, improve the quality of clinical care, and decrease asthma-related utilization through a range of interventions aimed at high risk patients and their providers. NHP manages the program using an asthma registry to identify at-risk patients, target interventions to the communities and individuals most at-risk, track program implementation, share actionable and timely data with providers and assess the ADMP's impact.

Building the System

Let the Data Guide Program Planning, Design and Implementation

Initially, NHP's ADMP focused on characterizing its enrolled asthma population by developing a registry to house medical and pharmacy data that will help NHP assess its networks' effectiveness in controlling their members' asthma and allow NHP to identify potential areas for improvement. In response to its data collection efforts, the program has expanded and today, NHP delivers a tiered disease management approach. The interventions are based on risk stratification and include generalized educational mailings, personalized case management and telephonic outreach; intensive home visits; and close coordination between home visitors, asthma care managers and providers. Currently, NHP is expanding to its ADMP by helping nine community health centers that serve some of the plan's most at-risk members with asthma to adopt routine spirometry by providing funding for equipment, technical assistance, training staff to perform tests, and teaching providers how to interpret results. This intervention will help these health centers improve the quality of their asthma care to both NHP members and their broader patient population in these underserved, diverse communities.

Ensure Mission-Program Alignment

NHP was one of the nation's first health plans created specifically to address the health care needs of the underserved. It grew from a few thousand members in the late 1980s to more than 225,000 members today. Asthma is the number one chronic disease among NHP's members, affecting over 10% of its members, and the prevalence of asthma is higher in Massachusetts than in most states. It is highest among minority populations, including African Americans and Hispanics, and low-income residents. To help address the disproportionate impact of asthma on low-income and minority communities, who are frequently exposed to high levels of housing-based asthma triggers and often unable to address structural impediments to environmental trigger avoidance, NHP developed its Enhanced Asthma Home Visit Program (EAHVP) in 2005. The EAHVP targets pediatric and adult asthma members who, despite using appropriate

Program at a Glance

Location: Boston, MA

Type: Private, Not-For-Profit Medicaid Health Plan

Service Area: Massachusetts

Population Served: 228,000 members; an estimated 10% of the NHP population utilize asthma-related services in a given year; 68% of NHP's members are covered by Medicaid

Key Players: Boston Asthma Home Visit Collaborative, Boston Asthma Initiative (BAI), Greater Brockton Asthma Coalition, Massachusetts Asthma Advocacy Partnership

Results: Over ten years, the rate of annual ED visits and hospitalizations for the members with asthma declined from a high of 15.3% to 10.5% for ED visits and from a high of 3.5% to of 2.5% for hospitalizations; more than 90% of members receiving a controller medication received an inhaled corticosteroid, up from 78.4% in 1999; and 96% of members surveyed report that the ADMP has positively affected their quality of life.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — PROVIDE TAILORED EDUCATION AND COUNSELING DURING CLINICAL VISITS

NHP offers an EAHVP for patients who are using appropriate controller medication, but continue to show signs of poorly controlled asthma. The EAHVP offers multiple in-home visits by specially trained respiratory therapists, nurses or asthma educators to: assess asthma control and current treatment; provide education on triggers and appropriate medication use; conduct an environmental home assessment; suggest interventions and provide materials at no charge, such as impermeable mattresses, box springs, bed covers, pillow cases, a HEPA vacuum, a HEPA air purifier and, as needed, referrals to smoking cessation and housing remediation supports; and in consultation with the PCP, develop and review a written care plan to address patients' individual medical and environmental issues.

controller medications, are experiencing uncontrolled asthma due to significant environmental exposures. The EAHVP provides home assessments and moderate intensity interventions to help control environmental triggers and connects members to counseling and institutional support, such as public housing management and tenants rights programs, to help reduce environmental exposures.

Build Evaluation in from the Start — Establish a Process to Collect the Data You Need

NHP's registry is a powerful tool to drive identification of patients with poor asthma control, target provider education to improve clinical care and ensure utilization of aspects of the ADMP to those members most in need. NHP runs quarterly reports from the registry to identify members who may benefit from the ADMP. ADMP also can identify members through health risk screenings at health plan enrollment, inpatient or ED utilization, high recent use of rescue medications and direct referrals from providers. NHP then uses the registry reports to improve clinical care by providing site-specific information on in-patient and pharmacy utilization over the previous 12 months through a secure web portal. Most sites also receive bi-weekly trigger reports, which identifies patients with current poor asthma control. NHP sends about 1,200 letters with individualized treatment recommendations to primary care providers (PCP) each month based on their patients' presence on the trigger report. The members whose names appear on the trigger reports, receive educational mailings. These mailings include low-literacy information that defines good asthma control and describes the steps members can take to improve their asthma control, and a multi-lingual DVD providing video instruction on proper use of asthma delivery devices.

KEY DRIVER

HIGH-PERFORMING COLLABORATIONS — BUILD ON WHAT WORKS

NHP collaborates to address environmental and social factors that contribute to poor asthma control. Partners include: The Greater Brockton Asthma Coalition, a partnership of community, health and environmental providers, insurers, educators and parents whose focus is reducing the number of asthma-related hospital and ED visits; Massachusetts Asthma Advocacy Partnership, the only statewide asthma partnership that links community organizations to efforts to achieve statewide environmental changes; and Boston Asthma Home Visit Collaborative, which leads home visiting efforts, including environmental assessments and interventions.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — FACILITATE COMMUNICATION ACROSS THE CARE TEAM

NHP holds integrated care management rounds each week where care managers, including asthma care managers, meet to discuss high-risk complex members and develop collaborative care plans. The asthma care managers help coordinate care provided at clinical sites and through the home visit program and direct educational outreach to targeted plan members with asthma.

Getting Results — Evaluating the System

Evaluate Program Impact

NHP conducts an annual survey to measure the number of members with asthma who received educational materials and the number enrolled in more intensive care management activities. The survey also gauges members' satisfaction with educational materials and assess their quality of life (QoL) improvements. NHP augments these member-reported results with data on asthma-related hospitalization, ED visits and asthma medication use patterns to determine how outreach and interventions impact health care utilization. In the most recent results, all survey respondents reported that the education tools are helpful and 96% said that the ADMP had improved their QoL, which exceeded NHP's goal of 90%. The percentage of members with an asthma-related ED visit or hospitalization also have shown positive trends. During the past decade, both have declined by more than 30%.

NHP also uses its registry to track program indicators on a quarterly basis. Using a variety of measures captured in the registry and analyzing data trended over a three-year period, NHP follows site-specific and plan-wide asthma care indicators, including the percent of members receiving appropriate medications and, most recently, the member-level asthma medication ratio ((# of controller medications) / (# of controllers + # of relievers)) in the past year. More than 90% of plan members with persistent asthma based on Healthcare Effectiveness Data and Information Set (HEDIS) criteria receive appropriate medication, a rate significantly higher than most Medicaid plans, but only 55% have a medication ratio above the target of 0.5.

Sustaining the System

Promote Institutional Change for Sustainability

NHP does not receive outside funding for its ADMP; the program is funded through NHP's medical management budget. The program's leaders believe that improved health outcomes do not necessarily need to yield a positive return on investment to be deemed successful and worthwhile. However, they should represent a cost-effective use of medical and administrative spending. Because NHP is committed to improving health outcomes while reducing health care disparities in its members and in the communities it serves and because asthma is the leading chronic disease among NHP members, the plan's leaders believe the ADMP is a high-priority initiative worth continued support.

New York City Asthma Initiative (NYCAI)

NYCAI was formed to combat childhood asthma in NYC. While successfully implementing a citywide asthma case management intervention project, NYCAI formed the New York City Asthma Partnership (NYCAP), which joined together several community groups and the New York City Department of Health and Mental Hygiene (NYCDOHMH) to address the disproportionately high and rapidly rising asthma rates in low-income and minority communities across New York City.

Building the System

Focus on the Resource Strategy at Every Step

NYCAI first collaborated with a community-based health clinic, Urban Health Plan (UHP), to reach families in the Hunts Point section of South Bronx. Later, NYCAI expanded its collaboration to five community-based organizations to implement a citywide approach to asthma management. While the program was being built, a group of individuals and organizations dedicated to social justice and children's health banded together to move policy and take action to tackle the skyrocketing asthma rates in low-income, inner-city neighborhoods. Programs such as UHP; the South Bronx Clean Air Coalition; medical providers and managed care organizations, including the Medicaid Program run through the Department of Health; and K-12 schools and day care organizations were among NYCAI's early champions. These members recognized that an effective collaboration with shared knowledge, funding sources, skills and responsibilities would lead to more dramatic and sustainable outcomes than any single organization could achieve.

NYCAP formed six committees, each tasked with addressing a critical issue related to asthma: health care delivery, schools, early childhood, environment, research and community asthma educators. People were assigned to the committees based on experience, expertise and interest. Committees developed recommendations, position statements and key strategies that quickly led to tangible success. For example, the schools committee partnered with the Office of School Health to streamline access to asthma medications at school and improved asthma management policy; the day care committee was able to have asthma screening questions added to admission forms; and the research committee successfully advocated for a bill requiring emergency departments (ED) to report the reasons for ED visits so that the coalition could better track asthma-related ED visits.

Let Data Guide the Program Planning, Design and Implementation

NYCDOHMH's Asthma Initiative, a convener of the NYCAP and active on all of its committees, was in an odd place at the outset of the initiative: It had great resources, skills, knowledge and experience available, but many NYCAP members did not know the value of what the health department could offer. To help NYCAP succeed, NYCDOHMH enabled local programs from across the city to use the department's asthma prevalence and severity data to plan program strategy and health outcomes data to drive program improvement and secure funding. "We showed community groups how to use zip code data. We showed them how to look for high numbers within a specific age group or neighborhood to refine and target their services. We taught

Program at a Glance

Location: New York, NY

Type: Citywide Asthma Coalition

Service Area: New York, NY

Population Served: 300,000 children and 700,000 adults with lifetime diagnosis of asthma; large minority and low-income population

Key Players: Over 400 individuals and organizations including NYC Department of Health and Mental Hygiene, New York Academy of Medicine, NYCDOHMH-Office of School Health, Bureau of Day Care and Pest Control, Urban Health Plan, South Bronx Asthma Partnership, East Harlem Asthma Center of Excellence (EHACE), EHACE Asthma Counselor Program, Harlem Asthma Network, NYC Health & Hospitals Corporation, NYS Department of Health, NYC Administration for Children's Services

Results: Number of hospitalizations for asthma among NYC residents decreased by more than 8.1% from 2005 to 2008.

KEY DRIVER

STRONG COMMUNITY TIES — INCLUDE YOUR COMMUNITY IN PROGRAM PLANNING

NYCDOHMH sought out partners with which to collaborate on local initiatives. Jacqueline Fox-Pascal and her colleagues put themselves into the communities where asthma rates are highest to hear from community leaders, asthma activists and others. "We went to community meetings, schools, wherever folks wanted to be heard."

them to understand the problem and draw on our resource base of evidence-based interventions to determine program strategy. We became an important resource that helped neighborhood leaders combine what they felt in their hearts with the reality of the data to deliver more powerful and effective programs,” said Jacqueline Fox-Pascal, Deputy Director of the NYCDOHMH.

Conduct Needs-Based Planning — Seek Input From the Community

NYCDOHMH took a leadership role by organizing NYCAP’s activities and being a visible resource for asthma initiatives across the city. NYCDOHMH listened to the community’s perceptions of asthma problems in their neighborhoods and asked groups to describe their needs. “We listened to the community’s needs and didn’t assume we knew what they needed. When you listen, you find the key people in each neighborhood who are leaders and ready to act. If you’re lucky, you also find your support base. The same folks we talked to about local asthma needs ended up being our biggest backers. Those same leaders lobbied the City Council for support for our asthma program — something those of us on staff can’t do,” said Fox-Pascal. She describes how NYCDOHMH applied its particular strengths to support asthma efforts across the city: “When we first talked to people in the community about how we could join them to address asthma, they said ‘give us money,’ but didn’t really recognize the other capabilities we could bring.” Fox-Pascal knew that NYCDOHMH’s particular capacity was in evaluation and that they could strengthen the NYCAI by showing members how to use data well.

Getting Results — Evaluating the System

Collaborate to Get the Data You Need

NYCDOHMH supported neighborhood groups, health plans and health providers by sharing their staff resources to design evaluation strategies at the outset of local initiatives, support data collection and present data to the community in a way that helped them better understand their circumstances and opportunities. “We take what folks already know and help them make them better. Local ownership is critical and we can’t manufacture that, but we can improve their chances of success by bringing our strengths in surveillance, evaluation and population-based planning to the work,” said Jacqueline Fox-Pascal.

Use Evaluation Data to Demonstrate the Business Case

The community of health plans, providers and activists did not have much of a connection to the health department before the NYCAI was formed. To many of these organizations, NYCDOHMH was a distant funder, but not a partner. By using their evaluation prowess to strengthen programs, help them grow, and demonstrate impact through the NYCAI and NYCAP, NYCDOHMH created a closer bond with the community that ultimately led to citywide support for the health department’s asthma program. These groups also learned that money invested in the health department was helping them to achieve asthma health improvements across the city. They became advocates for NYCDOHMH, helping to sustain the NYCAI and NYCAP by demonstrating to city council members and others the clear value of NYCDOHMH’s efforts.

Sustaining the System

Use Data to Demonstrate Your Program’s Value

By reaching out to local community programs, listening to community needs, meeting neighborhood programs where they were and bringing their strengths in funding and evaluation to the table to support partners, NYCDOHMH built citywide support for the asthma program. According to Jacqueline Fox-Pascal, “We kept ownership for the various asthma initiatives in the [local communities] and that ownership has been critical to our sustainability. If we had tried to drive everything, the community folks would have felt like we were visiting for a short-term program, but would soon be on to something else.” That, however, is not how NYCDOHMH operated. For example, they partnered with UHP and supported its success in South Bronx. UHP took ownership for asthma outcomes in their neighborhood from the beginning and when the NYCAI funding was no longer available, the initiative continued because UHP had used the NYCAI support to build its own local resource base.

Be Visible: Funders Support What They Know

In the early 1990s, asthma was a top mayoral priority, so early on the mayor ensured that funds were available for NYCDOHMH’s asthma work. Over time, other health issues, such as obesity, cancer, physical activities, teenage pregnancies and diabetes, have emerged as new hot topics and the asthma program has faced funding shortfalls. NYCAI sustained, however, because NYCDOHMH spent time up front building relationships, creating a network and seeding change at the neighborhood level. “Our partners fight for our funding with their city council people,” said Fox-Pascal. “If we see budget cuts, our advocacy groups are usually right there to fight for us and to make sure the money is restored.”

New York State Department of Health, Center for Environmental Health, Healthy Neighborhoods Program

Before New York State created the Healthy Neighborhoods Program (HNP) in 1985, funding and programs to address housing hazards largely focused on single diseases or exposures and, therefore, missed opportunities to leverage staff to address multiple hazards in a single home; find common solutions to multiple problems; and create neighborhood-wide solutions for environmental problems, such as widespread pest infestations. In response, the State Department of Health (DOH), Center for Environmental Health created the HNP, a centrally-managed initiative delivered through local health departments in high-risk communities to improve housing conditions. By 1997, the HNP recognized the need to address asthma because the same neighborhoods where the HNP was active to address problems like childhood lead poisoning also showed disproportionately high asthma prevalence.

Building the System

Ensure Mission-Program Alignment

The HNP framework for asthma management is grounded in a healthy homes approach to hazard prevention and health promotion. The program began with a focus on preventing fire deaths and falls in homes, controlling lead hazards and promoting sanitary conditions. In the late 1990s, based on the strong correlation between traditional healthy homes risk factors and high asthma prevalence, the HNP expanded its portfolio to include asthma assessment, education, clinical referrals and environmental interventions.

Today the HNP provides in-home assessments and interventions to reduce the burden of housing-related illness and injury in high-risk communities. The state health department manages the overall program—bringing the strengths of its surveillance, evaluation and resources, and the program is delivered through grant-funded local health departments, which are competitively selected based on factors including surveillance data on the burden of housing-related disease. The central role for the state provides standardization across core program design elements, such as what housing conditions are assessed and how they are assessed and mitigated, evaluation metrics and a perspective that allows for fast recognition and dissemination of best practices across the program. The locally-led program delivery model allows for tailoring to meet local needs; access to credible, community-based partners; and strong partnerships with local clinical care providers and organizations.

Though all HNP programs follow the same basic program framework articulated by the state—to address tobacco

Program at a Glance

Location: High-risk neighborhoods across New York State (NYS)

Type: Local and State Public Health Department Collaboration

Service Area: Target neighborhoods within selected urban, suburban and rural communities

Population Served: Since October 2007, the program has provided services to 58,000 residents in more than 20,000 homes in high-risk neighborhoods. Approximately 13% of the residents had asthma. Half of the households were identified as non-white and roughly half receive public assistance.

Key Players: County health departments in Albany, Clinton, Erie, Monroe, Niagara, Oneida, Onondaga, Orange, Rensselaer, Rockland, Schenectady, Tompkins and Westchester; the NYS Asthma Control Program; NYS Regional Asthma Coalitions; regional managed care plans; and NYSDOH Office of Health Insurance Programs, Bureau of Community Chronic Disease Prevention and Control and Center for Environmental Health

Results: Evaluation of recent two-year period shows the following results after one home visit for residents with asthma: 14% reduction in environmental tobacco smoke exposure; improved pest control in at least 44% of homes with pest problems, improvements in 50% of homes with mold/mildew and 58% of homes with significant dust accumulation; improvement in the number of people reporting good asthma control; and significant decreases in the number of days with worsening asthma and number of days of school/work missed due to asthma.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — FACILITATE COMMUNICATION ACROSS THE CARE TEAM

Strategic local partnerships improve program targeting to at-risk populations and help integrate environmental management into clinical care. For example, the local HNP in Erie County collaborates with four regional managed care plans to identify poorly controlled asthma patients using hospitalization, ER visit and medication usage data; refer those patients to the HNP for home and asthma control assessments, education and interventions; and communicate the findings of the home assessments back to the referring providers and plans. They also partner to assess the effectiveness and cost of the intervention by tracking pre/post intervention outpatient visits, ER visits, inpatient stays, medication use and associated costs.

control, fire safety, lead poisoning prevention, indoor air quality and asthma control—specific interventions and staffing models vary from one local delivery program to another. Sanitarians, health educators, certified asthma educators, public health nurses or other public health professionals with training in healthy homes concepts deliver comprehensive assessments and interventions, typically within a single home visit. In about one quarter of the cases, follow up visits are conducted at three to six month intervals with priority for follow-up going to homes with residents with asthma or other pressing health and safety concerns. All local health department partners also receive annual HNP training that includes content on clinical and environmental aspects of asthma, and all local partners are encouraged to build partnerships with clinical providers so that residents with housing-related medical needs can be referred for appropriate clinical care and follow-up. For example, in Niagara County, medical residents regularly accompany HNP field staff on home visits, which provides training for medical professionals on the interaction between housing and patient health while also providing on-site care from a medical professional for patients with asthma. In Schenectady, a public health nurse delivers the home visits and is able to provide enhanced education around self-management during the home visit and to call upon connections with clinical partners to provide follow-up care and case management. In Erie County, the HNP formed a unique partnership with regional managed care plans to identify patients with poorly controlled asthma and integrate the home visit into each patient’s routine case management.

Getting Results – Evaluating the System

Evaluate Program Impact

Evaluation is integral to the HNP. Data is used dynamically to monitor progress and refine the approach. The asthma component uses pre/post-intervention evaluation to assess improvements in the following: presence of triggers or conditions that promote triggers in the home environment; asthma knowledge and self-management—knowledge of triggers and avoidance strategies, medication usage and the use of asthma action plans; and asthma morbidity—number of days with worsening asthma and visits to a doctor, ER or hospital. The state-led evaluation program allows for comparisons across local initiatives to look for the impact of different approaches on targeting the intervention to the most at-risk populations, and the magnitude of improvement in trigger reduction, asthma knowledge, self-management behaviors and asthma morbidity. The state’s central management role in the program helps to ensure that promising and transferable strategies for targeting home visits are shared across local program grantees.

Local programs often collect or acquire additional data (e.g., medical claims data), but the primary data source for evaluation is the HNP four-page dwelling assessment form. The form includes demographic information about the primary respondent; characteristics of the dwelling; characteristics of the residents; physical conditions of the dwelling; and education, referrals and products provided. A one-page asthma form is completed for each resident with asthma at each visit. Completed forms are

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — ASSESS TRIGGER SENSITIVITY AND EXPOSURE

Home assessments include visual assessment of common asthma triggers or conditions that promote triggers and inquiries about asthma symptoms, self-management and knowledge. Participants receive basic asthma education and products, such as mattress covers and green cleaning supplies, referrals (e.g., pest control, code enforcement), and counseling to remediate specific environmental triggers identified during assessments. Triggers and conditions assessed include evidence of smoking, furnace filter conditions, chemical smells and other odors, dust accumulation and clutter, cleaning practices, food and garbage storage, evidence of pests, presence and condition of large rugs, structural disrepair, moisture leaks, presence of mold and presence of pets.

KEY DRIVER

HIGH PERFORMING COLLABORATIONS — COLLABORATE TO BUILD CREDIBILITY

The NYS Asthma Control Program (NYSACP) is a key partner at the state-level for the asthma component of the HNP. The NYSACP assists state Center for Environmental Health staff in providing asthma training to the local HNP delivery programs, reviews asthma data collection tools and evaluation plans, facilitates partnerships with regional asthma coalitions to support the local HNPs and ensures that program content is consistent with the latest NAEPP EPR-3 guidelines.

KEY DRIVER

STRONG COMMUNITY TIES — MAKE IT EASY TO ACCEPT SERVICES

During the design and implementation of one local initiative, managed care program partners were surveyed quarterly so that state-level staff could identify and respond to barriers to care coordination and promote success. For example, when partners noted difficulty in recruiting eligible residents due to fear of retribution from landlords, a paragraph was added to the script used for recruitment to address this concern when it came up during a call.

faxed to the state, which scans the data and saves it in a database. The data system automatically generates quarterly reports for the program as a whole and for individual local health departments.

Sustaining the System

Make It Easy to Support Your Program — Let Funders Support Individual Program Elements

Local programs that receive state HNP funding must demonstrate strong partnerships with other housing and environmental health programs. Because of its multi-disciplinary healthy homes approach, instead of a disease or exposure-specific approach, the HNP is uniquely positioned to leverage support from a diverse base of clinical, environmental and housing partners. This support comes in the form of supplemental funding and donated goods and reciprocal services (e.g., for referrals and case management). Many local programs also attract attention from legislators and private donors interested in supporting their services. Additionally, since evaluation and other management oversight is provided by the state, local programs do not have to support or maintain individual data collection and evaluation systems. The 25-year program history is testament to the value, impact and sustainability of the services it provides to reduce the burden of asthma and other housing-related illness in NYS.

Priority Health Asthma Management Program

In the late 1990s, Priority Health recognized the need for home-based asthma care that includes environmental trigger management. To deliver effective home-based care, Priority Health formed a first-of-its-kind partnership with the Asthma Network of West Michigan (ANWM). Priority Health uses ANWM's case managers and social workers to increase its ability to effectively assess and educate its members. Today, all of the plan's members with high asthma risk within ANWM's service area receive intensive case management that integrates patient education, home-based environmental interventions and evidence-based clinical care as part of Priority Health's Asthma Management Program. Priority Health also works with providers, pharmacists, case managers, employers, schools and day care centers to offer comprehensive asthma management for its members.

Building the System

Collaborate to Build a System That Will Last

Although Priority Health was educating providers through regular mailings and using case managers to assess and educate members about asthma via mail and phone, Priority Health leaders realized that they could not manage all aspects of the disease through these methods. By partnering with ANWM, Priority Health can provide comprehensive asthma management services to members. Priority Health reimburses ANWM for providing asthma education, conducting home assessments, meeting with providers to develop individual asthma management plans, working with social workers who provide social service referrals for members and conducting in-service training for schools and day care centers.

Align Incentives with Goals

Priority Health established the Physician Incentive Program (PIP) to offer incentives to their providers to ensure that members use asthma medications appropriately and to implement the Planned Care Model for asthma. With the goal of encouraging evidence-based practice among physicians, the program offers a financial incentive (per member per month) to physicians whose asthma patients meet a specified ratio of long-term controller medication to short-acting medication.

Getting Results — Evaluating the System

Evaluate Program Implementation

In order to help providers manage patient information and track progress toward goals, Priority Health created the interactive Patient Profile tool. The tool allows providers to look at the record of an individual member with asthma or to sort for care opportunities such as suboptimal medication management, missed services and emergency department (ED) utilization.

One of Priority Health's strategies to help providers reach targeted goals is the Pacesetter's Initiative. In this initiative, Priority Health and provider office staff team up to implement the Planned Care Model to improve processes for managing asthma patients and, ultimately, improving health outcomes. When Priority Health met with Alger Pediatrics to discuss improved compliance on asthma measures, the team identified specific strategies for improvement, including partial reimbursements for

Program at a Glance

Location: Grand Rapids, MI

Type: Non-Profit Health Plan

Service Area: 65 counties in Michigan

Population Served: 17,565 adults and children with asthma

Key Players: Asthma Network of West Michigan (ANWM)

Results: Reduced ED visits per 1,000 members from 72 in 2002 to 40 in 2006 for commercial members and from 250 to 189 for Medicaid members. Decreased hospital admissions per 1,000 members from 26 in 2005 to 18 in 2006 for commercial members, and from 62 to 36 for Medicaid members. Medical costs for members with asthma were reduced by \$1.7 million.

KEY DRIVER

COMMITTED LEADERS & CHAMPIONS — INSTITUTIONALIZE THE FOCUS ON OUTCOMES

A dedicated Asthma Workgroup comprised of Priority Health leaders with diverse experience meets monthly to oversee the Asthma Health Management Program and employ improvement strategies. The workgroup is committed to continually improving activities such as identification of the member population, risk stratification, directed member education, physician registries, incentives, clinical practices guidelines and employer support.

provider staff to attend an asthma education course and use the Michigan Asthma Resource Kit. The case manager assigned to this provider became an integral part of the team, facilitating referral of the provider's asthma patients to the Priority Health case management program. After identifying and implementing key improvement strategies, Alger Pediatrics increased their asthma PIP score from 67% in 2004 to 82% in 2005.

Use Evaluation Data to Demonstrate the Business Case

Senior managers at Priority Health have continued to support the Asthma Management Program because of the progress made to reduce the burden of asthma, decrease ED visits and hospitalizations, and gain a return on the plan's investment. As a result of Priority Health's interventions, medical costs incurred by members with asthma were reduced by approximately \$1.7 million in 2007. The long-term return on investment for Priority Health was 2.1-to-1.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — EDUCATE AND SUPPORT CLINICAL CARE TEAMS

Priority Health case managers communicate regularly with providers to emphasize the importance of asthma education and appropriate use of medications based on national guidelines. This critical educational information is reinforced through regular mailings to providers.

Sustaining the System

Promote Institutional Change for Sustainability

Partnering with ANWM is vital to Priority Health's ability to sustain comprehensive asthma care for members. When ANWM had to discontinue services to one of Priority Health's high-need markets for financial reasons, Priority Health saw a dramatic increase in hospitalizations and ED visits for members who no longer had access to ANWM's services. After learning that related costs for the increased utilization amounted to more than \$70,000, Priority Health managers approved an increased reimbursement that enabled ANWM to reinstate crucial activities in targeted markets to help members manage their asthma and avoid acute care services.

In continuation of their partnership with ANWM, Priority Health and ANWM have partnered with the Denver Children's Hospital to start the Children's Healthcare Access Program (CHAP). Together, they pulled together a group of 40 pediatricians; 10 to 12 family physicians; and midlevel providers from four private practices, nine community- and school-based clinics, a pediatric resident teaching clinic and a nurse practitioner to improve care for publicly insured children. This program has reduced ED visits, hospitalizations and costs because of a focus on the delivery of asthma care services.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — MAKE ENVIRONMENTAL MANAGEMENT A REALITY AT HOME, SCHOOL AND WORK

Home-based environmental assessments are offered to all members who reside within the ANWM service area. Assessments include comprehensive education on asthma and an environmental assessment. Priority Health emphasizes reduced exposure to secondhand tobacco smoke in the home by aligning their benefits structures to incorporate multidisciplinary community and pharmacological initiatives.

Seton Asthma Center

In 2004, in response to increasing pediatric asthma emergency department (ED) visits and hospitalizations and high ED recidivism rates, the Seton Family of Hospitals (Seton) formed the Seton Asthma Center (the Center). The Center delivers an asthma disease management program focused on asthma education; coordination of a care network that includes clinical providers and school nurses; in-home environmental interventions; and Medicaid funding screenings to ensure all eligible clients have access to health insurance. The Center has grown its asthma program and expanded services over time through partnerships with six community health centers and local school districts across Central Texas. Today, the Center reaches more than 800 clients each year with education and case management.

Building the System

Ensure Mission-Program Alignment

Seton's mission is to care for and improve the health of all it serves with a special concern for the poor and vulnerable. In line with that mission, the Center's overarching goal is to reduce asthma disparities in Seton's seven county service areas. With a focus on its mission, the Center delivers all asthma care services free of charge. To identify as many clients in need of care as possible, the Center accepts referrals from local hospitals, Seton's clinical network, other providers throughout the service area and school nurses — Austin Independent School District (AISD) nurses are Seton employees. The school district underwrites their salaries and Seton covers all benefits and administrative costs. To date, the Center's clients have primarily been children under 17 (90%) and more than 85% of clients have been either uninsured or publicly funded.

Start Small to Get Big

When the Center first launched in 2004, it had a staff of two respiratory therapists who delivered in-patient asthma education and educated providers on the National Guidelines for the Diagnosis and Management of Asthma (EPR-3). Over time, the staff expanded to include a clinical manager and five respiratory case managers, and two administrative support staff while shifting the focus to home and community-based education to promote patient self-management, control of environmental triggers and coordination of long-term clinical care. Today, the Center offers more than education: its comprehensive care model helps to deliver "funding, physicians, pharmacies and follow-up" through ongoing case management that helps equip clients with all the components of effective asthma care. For example, if at any point during the Center's twelve-month program, a client becomes ineligible for previous insurance coverage, the Center's staff will screen the family for funding eligibility and attempt to establish insurance coverage and a new medical home.

The Center's education and case management program is carried out through a series of one-hour sessions, where clients and their families complete a quality of life (QoL) survey to address key indicators, such as frequency of symptoms, medication usage, missed school and work days and others. Based on the results, case managers provide tailored education on medication usage, environmental trigger exposure and management and self-monitoring and self-management. When the

Program at a Glance

Location: Austin, TX

Type: Not-For-Profit Network of 31 Hospitals Serving Central Texas

Service Area: Seven county area in Central Texas, including Austin

Population Served: 1.7 million, including 225,000 people with asthma

Key Players: Seton Family of Hospitals, Austin Independent School District (AISD), American Lung Association of the Central States, Integrated Care Collaboration, Central Texas Asthma Coalition

Results: 37% decline in ED visits; 63% reduction in hospitalizations; number of patients reporting NO asthma symptoms 90-days post enrollment increased 200%; and estimated \$5.30 savings for every dollar invested per patient.

KEY DRIVER

STRONG COMMUNITY TIES — ENGAGE YOUR COMMUNITY 'WHERE IT LIVES' — LOCATE CARE SITES IN THE TARGET COMMUNITY

The Center has expanded to include operations in six community clinics. Two clinics are in Burnet and Caldwell counties, among the most economically challenged in the state. Case managers offer monthly education sessions in conjunction with local providers at the clinic sites. When transportation is a problem, they deliver sessions in clients' homes. In Burnet and Caldwell counties, the Center also operates a mobile caravan to make monthly visits to public schools to deliver asthma care to uninsured and indigent students who may not be served in the clinic system.

education session is complete, case managers develop treatment recommendations based on the EPR-3. In conjunction with the provider, case managers complete or update asthma action plans (AAP) to reinforce the learning. Patients and their parents receive a copy of the AAP and a copy is placed in the medical record.

Getting Results — Evaluating the System

Evaluate Program Impact

The Center evaluates ED and hospital utilization and self-reported QoL measures. Utilization data includes the number of ED visits, number of hospital in-patient visits and total length of stay (LOS). The Center estimates the program's impact by comparing outcomes for enrolled patients in the 12 months prior to enrollment, to outcomes in the 12 months after enrollment. QoL measures include symptom-free days in the last 14 days, missed school or work days in the past 30 days and number of days symptoms affect the ability to engage in physical activity in the last 14 days. QoL data is reported at enrollment and through follow-up surveys conducted at quarterly intervals throughout the year-long intervention.

Utilization data demonstrates a significant decrease in ED visits, inpatient encounters and hospitalization days due to asthma: ED visits declined by 37%; in-patient visits declined by 63%.

Sustaining the System

Use Data to Demonstrate Your Program's Value

Based on a 12-month pre/post intervention age-adjusted, controlled outcome analysis from 2009, the Center experienced a: 37% decline in ED visits in intervention group (n=229) compared to 14% decrease in the control (n=1010; $p<0.05$); 63% decrease in in-patient visits in intervention group compared to 16% increase in in-patient visits in the control ($p<0.05$); 200% increase in patients reporting no asthma symptoms 90-days post enrollment; and an ROI of \$5.3 based on cost avoidance model using Medical Expenditure Panel Survey (MEPS) data as proxy value.

Promote Institutional Change for Sustainability

The Center is currently conducting a pilot project with the local Federally Qualified Health Center (FQHC) where the FQHC has underwritten a portion of the Center's operating cost for managing Medicaid and managed-care funded children with asthma who receive primary care at the FQHC. The partnership delivers many benefits, including contributing to the Center's long-term sustainability. The FQHC's support reduces the hospital's financial commitment; delivers prompt access to primary care, which helps drive down recidivism to emergency care and inpatient admissions; and enhances the value proposition the Center can offer Seton's hospital operations. The Center plans to conduct an annual evaluation of the pilot partnership and to examine the viability of the partnership as a model for other stakeholders, such as Texas Medicaid Services, a partner that could potentially support the expansion of the asthma care network in Central Texas.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — FACILITATE COMMUNICATION ACROSS THE CARE TEAM

In clinical settings, case managers provide a copy of the completed AAP along with treatment recommendations to the provider at the end of the visit and the provider signs the AAP. When encounters occur outside of the clinical setting, case managers communicate the treatment recommendations and provide a copy of the AAP to providers within seven days. To indicate they have received and reviewed the recommendations, providers return signed copies of the AAP to the Center within 48 hours. When the Center receives signed AAP from providers for school-aged children, staff fax a copy of the AAP to the child's school nurse.

Sinai Urban Health Institute (SUHI)

Since 2000, SUHI and Sinai Children's Hospital (SCH) have worked to reduce the burden of asthma in underserved, minority Chicago communities, where up to one in four children suffer from asthma. In 2008, with funding from the U.S. Centers for Disease Control and Prevention (CDC), SUHI and SCH initiated Healthy Home, Healthy Child: The Westside Children's Asthma Partnership (HHHC), a comprehensive, community-based program that centers on an intensive, home visit program led by community health workers (CHW) to address asthma medically, socially and environmentally.

Building the System

Let Data Guide the Program Planning, Design and Implementation

SUHI and SCH targeted their work in the Westside area because they had strong data indicating the community's considerable need for improved asthma care. In 2003, SUHI worked with community organizations in Chicago to design and conduct the largest door-to-door health survey in the city's history. Findings indicated high rates of poorly controlled asthma in North Lawndale, a neighborhood in the heart of Chicago's Westside where Sinai Health System also is located. The survey revealed that 23% of children in the area had a diagnosis or symptoms of asthma; 80% of children with an asthma diagnosis were not receiving appropriate medications; and nearly half were exposed to tobacco smoke on a daily basis. In addition, the pediatric asthma hospitalization rate in North Lawndale from 2004 to 2006 was 150% higher than the rate in the rest of Chicago. The data influenced the design of asthma interventions, particularly the selection of the CHW-led home visit model. This model brings culturally sensitive care to the community to ensure a strong connection to the health care system and provide interventions in the environments where children spend the majority of their time.

Start Small to Get Big

Beginning in 2000, SCH and SUHI began partnering on a pediatric asthma initiative to reduce the impact of asthma through case management and one-on-one asthma education delivered in a clinic and by telephone. The next stage of program development focused on reducing asthma-related morbidity and improving quality of life (QoL) by utilizing CHW delivery of case-specific asthma education through home visits. The third iteration of the program incorporated SUHI/SCH's successful CHW-led home-visit model into a larger, statewide initiative led by the Illinois Department of Public Health to improve pediatric asthma outcomes.

SUHI's and SCH's research conducted on the three prior initiatives yielded significant reductions in asthma-related health care utilization. This culminated in the development of the most comprehensive initiative to date: the HHHC. The HHHC exclusively focuses on children with poorly controlled asthma living in poor communities on the Westside. The program's objective is to significantly impact asthma-related measures of morbidity, urgent health care utilization and QoL by decreasing asthma triggers in the home environment, improving asthma care knowledge among primary caregivers, and improving caregivers' confidence in their ability to manage asthma. To achieve

Program at a Glance

Location: Chicago, IL

Type: Not-for-Profit Health Care System

Service Area: Westside of Chicago, IL

Population Served: Families of up to 350 underserved, minority children (ages 2-14) with poorly controlled asthma

Key Players: Chicago Asthma Consortium (CAC), Community Advisory Board (CAB), Health & Disability Advocates (HDA), Metropolitan Tenants Organization (MTO) and Sinai Community Institute

Results: Data from three interventions run between 2000 - 2008 showed significant reductions in ED visits and hospitalizations against baselines, such as reductions of at least 48% against baseline for ED visits and 50% against baseline for hospitalizations in every year for which there is data since the asthma initiative's inception.

KEY DRIVER

STRONG COMMUNITY TIES — ENGAGE YOUR COMMUNITY 'WHERE IT LIVES'

The HHHC is carried out by CHW, who have been recruited from the local community and have a personal connection to asthma. After their training, CHW make home visits to provide comprehensive asthma education, trigger assessment and reduction and referrals for social and legal support. CHW also serve as liaisons to the medical system, encouraging visits with primary care providers (PCP), providing referrals for those without a PCP and working with PCP to develop asthma action plans. The HHHC program reaches beyond enrolled families through community-wide education, such as presentations to clinics, residents, nurses and other health care professionals and asthma basics workshops for schools, day care centers, parent groups and others.

these goals, CHW provide asthma education during six home visits over the course of a year. Visits focus on providing tailored education to caregivers and children on medical management and addressing the disproportionate presence of asthma triggers in the home. Having CHW visit participants' homes means that families do not have to arrange for transportation as visits can be scheduled to accommodate families. The CHW can serve as advocates and liaisons between the families and the broad network of partners that SCH and SUHI have assembled to support the HHHC. The CHW also record case information in a shared database for partners to access and initiate extensive telephone and email communication to discuss cases, asthma management education, home environmental exposures and controls, needed social support and assistance families need to navigate the health care system.

Conduct Needs-Based Planning: Seek Input From the Community

The Community Advisory Board (CAB) helps to ensure that HHHC receives vital insight into its community. The CAB guides the asthma outreach and home intervention process and helps the program reach as many children as possible by educating the community about the program and how to access it. CAB members include parents and caregivers of children with asthma, leaders of community-based organizations, representatives from faith-based groups, business owners and other stakeholders. The CAB engages the community, guides the program's design, and helps to foster sustained asthma care improvements.

Getting Results — Evaluating the System

Use Evaluation Data to Demonstrate the Business Case

QoL improvements and reduced morbidity are the ultimate goals of the HHHC program, but program leaders also hope to demonstrate a tangible return on investment (ROI). Data on time spent by CHW and partner organizations currently is being collected as are related health care utilization data for participants, so that SCH and SUHI can calculate the ROI from the HHHC. Rigorous cost-benefit analyses conducted on the preceding initiatives showed impressive results. The partnership's first asthma initiative generated \$13.29 savings for every dollar spent and the second initiative generated \$5.58 savings for every dollar spent. SCH and SUHI leaders share the cost-savings data internally and externally to inform the public and their partners of the program's successes.

Sustaining the System

Promote Institutional Change for Sustainability

CDC seeded the HHHC with \$1.5 million, but the partnership has continually sought funding for sustainability from grants, foundations and the community. Everyone involved in the HHHC has discussed the imperative to sustain the program once start-up funding is exhausted. The CAB discusses how to sustain the program by making effective asthma self-management and environmental controls top priorities for all community-based leaders. HHCC leaders have continually discussed sustainability with the project staff. Also, key partners in program delivery, such as the Metropolitan Tenants Organization (MTO), Health & Disability Advocates (HDA) and Chicago Asthma Consortium (CAC), have focused on ways to sustain their contributions to the program from within their organizations. These partners are well-established programs whose mission is to assist low-income families to create healthy homes and healthy lives, therefore, the HHHC program is a good fit for them. The partners' contributions to the HHHC are likely to be incorporated as line items in their long-term budgets, because HHHC offers an evidence-based solution for demonstrably achieving partner organizations' goals.

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — EDUCATE CARE TEAMS TO DELIVER ENVIRONMENTAL TRIGGER ASSESSMENT AND MANAGEMENT

SUHI developed the Sinai Asthma Education Training Institute (SAETI) to train providers in the proper management of asthma in accordance with the National Guidelines for the Diagnosis and Management of Asthma (EPR-3). The SAETI trains CHW, as well as nurses, respiratory therapists, medical residents and others. To date, SUHI has trained nearly 100 CHW and other medical staff in Illinois. For the HHHC, CHW receive additional training from the MTO on conducting environmental assessments and addressing triggers in the most effective yet practical manner. HHHC CHW also receive training on problem solving and motivating clients to develop self-management skills. After formal training, new CHW shadow experienced CHW for approximately one month before beginning their one-on-one work with families.

KEY DRIVER

COMMITTED LEADERS AND CHAMPIONS — CREATE PROGRAM CHAMPIONS

The HHHC project is fortunate to have a champion in the Chief Executive Officer of the Sinai Health System, Alan Channing. He supports the program's efforts, proclaiming its accolades within the hospital and the community. He has led efforts to integrate the program into the hospital's system by building relationships with the SCH, the ED and the Pharmacy Department. In the community, the program is championed by the CAB.

South Bronx Asthma Partnership, Bronx-Lebanon Hospital Center

The mission of the Bronx-Lebanon Hospital Center's (BLHC) Childhood Asthma Management Program (CAMP) is to address asthma disparities across the South Bronx, an ethnically and culturally diverse, low-income community with one of the highest pediatric asthma prevalences in the country (17%). Over the past ten years, BLHC-CAMP has assembled a diverse network of partners and integrated their efforts in a comprehensive system for asthma care to deliver multi-dimensional, community-based solutions for children with asthma. BLHC-CAMP's goals include reducing unscheduled healthcare utilization for asthma; providing culturally appropriate asthma services; and engaging diverse community resources to deliver a system-based solution to the social, environmental and medical factors that jointly contribute to the South Bronx's disproportionate asthma burden.

Building the System

Focus on the Resource Strategy at Every Step

BLHC-CAMP grew in stages as key leaders emerged, new partners were engaged and resources were allocated to support the delivery and expansion of comprehensive asthma services. Over time, partners established a framework for delivering comprehensive care through three principle domains—the clinical care component run by BLHC; the community education and intervention component run through the South Bronx Asthma Partnership (SOBRAP); and the hospital-community integrated programming component, which BLHC and SOBRAP collaborate to deliver.

Clinical care is delivered by the BLHC Department of Pediatrics in the pediatric ED and inpatient ward, the Pediatric Asthma Center, Pediatric Subspecialty Center and at five ambulatory care network sites located throughout the Bronx. SOBRAP, meanwhile, coordinates a wide range of community-based activities, including home visits, which include asthma education and environmental assessment; school and daycare-based asthma surveillance, education and multi-faceted environmental interventions; and the Annual "Asthma in the Bronx" Conference, among many other programs. Jointly, the hospital and SOBRAP deliver a large number of programs that reach out to the community and support asthma patients and their families through medical, social and environmental interventions. One such jointly run program is BEAM, "Bronx Emergency Asthma Management," an intervention targeting patients who frequently visit the pediatric ED. BLHC helps identify the patients and SOBRAP invites them to an educational "BEAM brunch" where they learn the importance of adhering to medical management, the benefits of following a tailored Asthma Action Plan, strategies for reducing exposures to environmental triggers and the importance of regularly scheduled visits with a primary care provider. Following the BEAM brunch, SOBRAP staff coordinates follow-up care with clinical providers and helps BEAM families access home visits and social support services to improve their child's asthma control.

Location: Bronx, New York

Type: Not for profit, Public Hospital

Service Area: South Bronx, a low-income, medically-underserved community, where one in five school-aged children has asthma

Population Served: Approximately 41,000 children with asthma; 35% of Bronx residents are Black or African American, 51% are Latino, and 32% were born outside the US.

Key Players: S. Bronx Asthma Partnership; Affinity Health Plan; Asthma Free School Zone; Bronx Breathes; Bronx District Public Health Office; Bronx Health Link, The New York Academy of Medicine, Children's Health Fund, Clean Air NY, Commuter Link, Crotona Inn Family Shelter, East Harlem Asthma Center of Excellence, For A Better Bronx, Healthfirst Health Plan, Health People, HealthPlus Health Plan, Healthy Nest, Lincoln Hospital Smoking Cessation Program, Martin Luther King Jr. Health Center, Montefiore Hospital Community Pediatrics, Morris Heights Health Center, Narco Freedom Neighborhood and Family Community Health Center, Community Health Corps/VISTA, National Latino Tobacco Control Network, New York City (NYC) Asthma Partnership, NYC Department of Education, NYC Department of Health and Mental Hygiene, New York State Department of Health, Literacy Assistance Center of NYC, The Point, Sustainable South Bronx, United Bronx Parents Day Care, Urban Health Plan, Visiting Nurse Service of New York

Results: Since 2008, volunteer health educators, also known as "asthma literacy advocates," have delivered 2,685 educational modules to 971 caregivers and increased asthma self-management knowledge/skills by a minimum of 77%; BLHC has seen a 42% decrease in asthma-related hospitalizations since 2003 (in relation to a relatively constant rate of asthma ED visits indicating a decrease in severity of exacerbations).

Program at a Glance

Getting Results — Evaluating the System

Evaluate Program Implementation

BLHC-CAMP incorporates evaluation in the program design to track patient health outcomes, achieve program goals and improve adherence to clinical practice indicators. Evaluation results drive continuous program improvement and support long-term sustainability. Data collected include: provider compliance with asthma care documentation requirements, parental knowledge and confidence following self-management education, asthma prevalence in pre-school aged children across the Bronx, asthma-related health care utilization and much more.

Evaluate Program Impact

BLHC employs a centralized, integrated, electronic medical record (EMR) system, which captures and produces reports on patient information, such as scheduled and missed appointments, ED visits and hospitalizations, medication history and refill data, diagnoses (i.e., asthma severity classification), specialty consultation reports, spirometry results, immunization records and allergy test results. This data supports planned care, such as influenza vaccine reminders or invitations to attend BLHC-CAMP educational activities. Asthma clinical practice recommendations are also incorporated into the EMR to improve entry-to-exit clinical care by prompting guidelines-based documentation for pediatric asthma visits. BLHC-CAMP also conducts structured, interactive provider education sessions on guidelines-based care while monitoring key quality of care indicators including: documentation of impairment, risk, severity, control, stepwise treatment, self-management education, appropriate referrals and administration of the influenza vaccine to all pediatric patients with asthma. This education and evaluation process has shown a 50% increase in appropriate asthma severity documentation across all ambulatory care network sites between 2005 and 2010, and a 33% increase in annual influenza vaccination for patients with asthma from 2006 to 2010.

BLHC-CAMP also serves a coordinating function to help partners manage, monitor and share information. For example, the program's Community Asthma Educator receives stratified data on high-frequency ED utilizers every month and coordinates referrals to clinical providers, environmental services and other support services. Additionally, she frequently receives referrals from SOBRAP partners for patients or caregivers in need of further one-on-one education. In this way, patient information is shared across the partner network to facilitate care.

KEY DRIVER

STRONG COMMUNITY TIES — ENGAGE YOUR COMMUNITY WHERE IT LIVES

To reach the target population, BLHC-CAMP locates care sites within the community and meets local needs with local people. Three of the ambulatory care network sites are street-side clinics on main thoroughfares, and BLHC-CAMP conducts health fairs at schools, daycares, community centers and clinics. BLHC's Community Asthma Educator is a bilingual community resident who delivers culturally-appropriate asthma education to patients and their families in the pediatric emergency department (ED) and in-patient ward. Her education sessions in homes, schools, workplaces and clinics help to facilitate referrals to primary care, asthma specialists, environmental services and other resources.

KEY DRIVER

HIGH-PERFORMING COLLABORATIONS — BUILD ON WHAT WORKS

BLHC-CAMP's success has resulted from coordinated efforts across a team of clinicians, administrators, program managers and community educators. These leaders work together to advance the goal of delivering care consistent with the National Asthma Education and Prevention Program's Expert Panel Report-3 (NAEPP EPR-3) guidelines for asthma care. BLHC's Pediatric Department Chairman and other senior leaders promote provider and patient education, outreach, treatment and training. Experts in clinical management, environmental issues, policy, school and daycare health, health literacy, managed care and other areas serve as champions for environmental interventions, education and advocacy. Parents of children with asthma are active in SOBRAP activities. This combination of clinical, educational, community and parental leadership has amplified BLHC's ability to address the diverse asthma needs of a disproportionately affected community. To organize the dispersed leadership across the asthma care system, BLHC-CAMP is led by a Steering Committee that guides program direction and encourages communication across the collaboration. Steering committee members include BLHC senior leaders and representatives from Morris Heights Health Center, Health People, Visiting Nurse Service of NY, DeFranco Pharmacy, Martin Luther King Jr. Health Center, Asthma Free School Zone (AFSZ), NYC Department of Education Region 1, the Bronx District Public Health Office, and For a Better Bronx.

Sustaining the System

Use Data to Demonstrate Your Program's Value — Demonstrate Your Program's Impact

BLHC-CAMP supports clinical services through third-party insurance payments. Most patients are covered by Medicaid Managed Care, which reimburses for standard clinical asthma services with primary care providers, as well as hospitalizations and ED visits when necessary. Because the vast majority of BLHC-CAMP's patients are Medicaid-eligible, and Medicaid reimburses for the care BLHC provides, the clinical care component is largely self-sustaining through revenue. However, the actual costs of clinical asthma care are declining because BLHC is reducing the burden of asthma visits over time. Since 2004, the number of asthma-related hospitalizations has declined by 42% and the lengths-of-stay for asthma-related hospitalizations has declined. This improved care is yielding an annual average cost savings of about \$431 per child. But the issue of cost-savings is complex because what constitutes a savings from a public health perspective actually results in a loss of revenue to the hospital system. Therefore, it has become increasingly important to BLHC's organizational leadership to focus on leveraging other sources of financial support that promote the mission of BLHC-CAMP.

Be Visible: Funders Support What They Know

The program has leveraged the scope, visibility and diversity of its interventions to engage a wide variety of local, state and national funders, and has embedded many interventions within its partner organizations. In addition to NYSDOH, the primary funder of SOBRAP, several BLHC-CAMP initiatives receive support through grants and contracts. Funders include the New York City Department of Health and Mental Hygiene, which supports the Managing Asthma in Daycare program; the United Hospital Fund, which supported the Asthma Literacy Project, an initiative to recruit and train community volunteers to serve as "asthma literacy advocates" and teach parents of children with asthma self-management skills; the National Asthma Control Initiative, which supports the Asthma Passport, a palm-sized, wire-bound guide to help parents and clinical providers navigate the critical components of the Asthma Action Plan; Merck Pharmaceuticals, which supported the 2008 SOBRAP Annual "Asthma in the Bronx" conference; and the American Lung Association, which supported the development of an integrated pest management study in Bronx-based elementary schools. BLHC-CAMP's wide scope has made it possible to access local, state and national funders and leverage public relations to receive funding for new projects, as well as support for small local events. By offering funders and partners many opportunities to support elements of a multi-faceted, comprehensive, partner-driven system for care, BLHC-CAMP has spread leadership, ownership and responsibility for the program across the community.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — SUPPORT CONTINUOUS CLINICAL IMPROVEMENT

BLHC-CAMP uses data to drive improved performance among providers. BLHC-CAMP delivers anonymous "report cards" to BLHC pediatric health care providers with peer comparisons at quarterly departmental meetings. This performance feedback motivates providers to improve their documentation compliance. Providers who perform in the lower 50% must attend a guidelines refresher course.

University of Michigan Health System (UMHS)

UMHS responded to the alarmingly high rate of asthma (18.5%) in children in their primary service area by establishing the Asthma Quality Improvement Steering Committee (AQISC), a forward-thinking group that harnessed data from electronic medical records (EMR) to launch an asthma patient registry. The registry was established in 2005 and serves as the foundation of the program. It enables seamless care and communication across the care network and provides outcomes data that indicate where quality improvements are effective and where upgrades are needed. AQISC's asthma program focuses on standardizing documentation, promoting high quality service and delivering effective educational materials to improve patient outcomes.

Building the System

Build Evaluation Data in From the Start

To improve asthma care throughout UMHS, the AQISC set out to employ standardized, system-wide processes and education that were evidence-based in design and simple to use in operation. For example, providers can easily access educational templates and asthma action plans (AAP) online to help them educate patients about asthma and can document triggers in the patients' EMR through the educational templates and problem summary list. The purpose of standardizing documentation, care and educational materials was clear: with the Registry, the AQISC could track the use of standard care protocols by physician, health center and department and could target areas for improvement that are linked to improved patient outcomes.

Let the Data Guide Program Planning, Design and Implementation

In response to the high rate of pediatric asthma admissions in 2005, UMHS established two programs targeting high-risk asthma populations, the Children's Asthma Wellness Program (CAWP) and Home Asthma Program (HAP), a home-based asthma environmental assessment and education program.

CAWP helps children with poorly controlled asthma acquire self-management skills. A clinic-based program to assess asthma triggers through allergen testing and a detailed environmental history is coupled with discussion of mitigation techniques and referrals to HAP. HAP nurses use a laptop during home visits to access the EMR and add details to the patient's profile, including a description of the home environment; triggers; family's current management of asthma control due to lifestyle determination; mitigation recommendations; level of compliance with the CAWP's recommendations; and potential barriers to compliance. Based on the HAP nurses' detailed assessments, physicians can provide more thorough recommendations on medical management, trigger removal and personalized AAP. If HAP nurses see urgent issues, they can page, call or email physicians. During subsequent visits, nurses use the EMR data to assess progress toward improved asthma control.

Program at a Glance

Location: Ann Arbor, MI

Type: Non-Profit Health Care Provider

Service Area: Southeastern Michigan, including four counties (Washtenaw, Livingston, Oakland and Wayne)

Population Served: 18,900 (7,900 validated as either persistent or intermittent) asthma patients cared for by an UMHS provider; urban, rural, suburban

Key Players: Asthma quality improvement steering committee comprised of representatives from general and family medicine, pediatrics, allergy, pulmonary, quality improvement, visiting nurse service, social work, pharmacy, respiratory therapy and Information Systems

Results: A 53% decrease in asthma-related hospitalizations in 2009 following focused program interventions in high-utilization populations through the home-visiting nurse program.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — PROMOTE ROBUST PATIENT/PROVIDER INTERACTION

To overcome variation in patient education during office visits, UMHS developed education kits that contain patient-centered tools and an education checklist for educators. Tools include:

- Two different literacy-level standardized education books.
- Medication device training kits.
- Peak flow logs.
- Customized, age appropriate AAP. To improve interaction during home visits, nurses carry laptops and set up children on "Quest for the Code,"[©] while they work with parents on environmental triggers.

Getting Results — Evaluating the System

Evaluate Program Implementation

The AQISC recognized that the information in the registry provided an opportunity to monitor quality improvements system-wide. Using the National Guidelines for Diagnosis and Management of Asthma (EPR-3) as a benchmark, the group identified several quality improvement indicators and developed customized reports that semi-annually are sent to each practitioner, clinic director, health center executive and specialty practice. The reports highlight areas for action, recommend provider education and set up further interventions, where expected improvements have not been achieved. For example, the March 2007 reports indicated that though 85% of asthma patients were seen by primary care physicians (PCP) in a six-month period, only 7% had current AAP. In response to this, new tools and processes were developed, including an easy-to-use, one-touch click button on the EMR that documents that an AAP was provided to the patient and a process to automatically scan a copy into the EMR. After six months of educating PCP and pediatric and outpatient clinic staff, this index improved to 14%. In early 2009, an electronic interactive AAP was developed and integrated into the EMR which has led to further improvements in AAP completion rates to 50% in December 2010.

Sustaining the System

Use Data to Demonstrate Your Program's Value — Demonstrate Your Impact

In 2007, one year after the program was developed, UMHS asked the Joint Commission, the independent national organization that evaluates and accredits health care organizations, to evaluate the CAWP. The program was awarded the Certificate of Distinction, Joint Commission National Quality Award. It was one of just 11 programs in the nation to receive certification in asthma and was one of only four programs certified in asthma-pediatrics. “We look forward to continuing to provide patients with comprehensive teaching, coaching and monitoring to help improve disease management skills for a lifetime,” says Dr. Manuel Arteta, clinical lead for the program.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — FACILITATE COMMUNICATION ACROSS THE CARE TEAM

The multidisciplinary steering committee that drives the UMHS program draws representatives from across the network of care; it is a purposely diverse group that meets monthly to ensure a coordinated approach to quality asthma care. The electronic AAP has been integrated into the EMR which allows access across the care continuum. Communication across the care team is further facilitated through daily reports that notify providers that an asthma patient is scheduled to be seen in their clinic that day and also indicates who needs an updated AAP.

Urban Health Plan's Asthma Relief Streets Program (UHP)

UHP serves the poorest Congressional District in the U.S. There is 10% asthma prevalence in this community, where 82% of the population is Hispanic and 15% is African American. In 1997, annual hospitalization rates for asthma for children aged 0-14 peaked at 22.5 per 1,000 patients. UHP recognized that they had to improve asthma care in their community to control what was becoming an epidemic.

Building the System

Focus on the Resource Strategy at Every Step

In 2001, UHP collaborated with the Bureau of Primary Health Care's (BPHC's) Health Disparities Collaborative to implement a comprehensive asthma program built around the BPHC's Model for Improvement and the Chronic Care Model. The collaborative approach helped UHP to develop its effective care model because it provided resources, experience with underserved communities, and insight into interventions that work as UHP was getting its program up and running.

Let the Data Guide the Program

UHP staff looked at their baseline data and considered what they could expect to achieve with the BPHC's care model in order to name program goals. UHP set out to achieve the following: more than 10 symptom-free days out of 14; more than 90% of patients stratified for asthma severity; more than 95% of patients, whose severity called for it, on anti-inflammatory medications; and more than 70% of patients with documented self-management goals.

Identify Your Goals and Plan for Action — Build on Your Strengths

To improve the quality of asthma care across the system, UHP created a multi-faceted implementation strategy that includes provider education, intensive patient education, standard data management, regular follow up visits for patients, Asthma Action Plans (AAP) for all patients, documentation of the Asthma Control Test (ACT) at every visit regardless of if it is respiratory or not, using exhaled nitric oxide to monitor for impending asthma exacerbation, screening non-asthma patients, a clinical information system and environmental home visits for some patients. UHP spread the program by turning its multi-site infrastructure and staggered training schedule into an advantage. UHP designed a Masterminds program to produce a fleet of trainer-champions to teach others the elements of BPHC's care model. When spreading the asthma program to other sites or departments, UHP expects all staff members of the site to be present. In order to make this happen, temporary workers from other trained sites

Program at a Glance

Location: Bronx, NY

Type: Federally Qualified Health Center

Service Area: Bronx, NY

Population Served: 7,656 patients tracked in asthma registry (27% of children in the South Bronx have an asthma diagnosis); large Hispanic population

Key Players: New York City Asthma Initiative, Bureau of Primary Health Care, Affinity Health Plan

Results: 95% of providers use standard asthma classification system during patient visits; 96% of patients on appropriate anti-inflammatory medications; 62% of patients have self-management goals; average of 11 symptom-free days in a row.

KEY DRIVER

COMMITTED LEADERS AND CHAMPIONS — USE OUTCOMES DATA TO PROMOTE CHANGE

Everyone should know the program's core goals and how to measure them. UHP's leaders worked hard to explain their program's short-term objectives and long-term goals to everyone in the system. The entire staff understood their charge and knew that their success would be measured in the number of symptom-free days for asthma patients in the UHP system.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — SUPPORT CONTINUOUS CLINICAL IMPROVEMENT

Due to the incidence and prevalence of asthma in UHP's catchment area and because many of its patients are unaware that they have asthma, it is important to diagnose patients as early as possible. UHP's Asthma Relief Street integrates asthma care into primary care ensuring that all patients are screened for asthma on a regular basis. In 2009, 22% of 1,000 patients screened were diagnosed with asthma. None of these patients were aware that they had it. Non-asthma patients are screened twice per year. Patients with diagnosed asthma complete the ACT every time they visit their providers because UHP's EMR prompts providers to complete it before concluding a visit.

are brought in to replace the staff during the training. The entire asthma team, from the CEO to the Medical Assistant, receives training.

All the necessary tools, such as posters of the lung, different inhalers and sample AAD, are placed in exam rooms while the clinical staff attends the trainings. By the time the training session concludes, clinical staff know why change is important, understand the data that demonstrates the effectiveness of the proposed changes and have tools at-the-ready to implement the new and more effective care model immediately.

Getting Results — Evaluating the System

Collaborate to Get the Data You Need — Train Staff to Collect Program Data

UHP developed a clinical information system and standard forms in their electronic medical record system to ensure the consistent capture of patient information. The system was designed to make chart reviews unnecessary and to enable providers and UHP's management team to easily monitor asthma care and health outcomes. The system allowed UHP to train providers and continuously monitor care, thereby ensuring that the program achieved its goals.

Evaluate Program Implementation

Program evaluation is integrated. Data graphs are generated from the electronic medical record and stratified by site, department and individual provider; emailed to the Physician champion and Senior Leaders each month; and shared with providers and health educators at a monthly Asthma meeting. Based on data graphs, the physician champion targets individual sites, departments and providers for improvement. Asthma data is part of the organization's clinical dashboard and is monitored monthly.

Evaluate Program Impact

UHP uses its data management system to assess progress toward goals and the outcomes have been impressive. They have achieved: 11 symptom-free days out of 14 for patients (and the number continues to rise); 95% of patients stratified for asthma severity; 96% of patients on appropriate medications; and 62% of patients with self-management goals.

Sustaining the System

Use Data to Demonstrate Your Program's Value

An outside study comparing health plans showed that from 2006 to 2007, total per-person health care cost for adults with asthma who were covered by Urban Health Plan were 22% less than for other adult patients in the network. Comparable figures for children show 39% lower costs. These are truly significant savings in return for excellent health outcomes.

Promote Institutional Change for Sustainability

Urban Health Plan employs close to 502 staff members across its 12 clinics, including 83 medical providers. Staff involved in developing and rolling out the asthma program across the clinics included senior leaders, physicians, health educators, medical assistants and information technicians. UHP's total annual operating budget is approximately \$47 million. Since the improved asthma care changes have been institutionalized, the program does not require a dedicated budget. Instead, the improvement practice has been integrated into the routine standard of care.

KEY DRIVER

STRONG COMMUNITY TIES — ENGAGE YOUR COMMUNITY 'WHERE IT LIVES'

One way UHP built the community base to ultimately be a self-sustaining program was by being visible in the service community. UHP is the largest employer in its zip code with 13 sites; just about everyone in the Bronx knows about UHP's asthma program and someone who works there. One of UHP's Health Educators is known as the "Asthma Lady." She explains that all of UHP's health educators live in the community and "if we don't see our patients at the clinic, we know we will see them on the street or in the grocery store...when we ask how they are, they know we are asking about their asthma."

Washington Heights/Inwood Network (WIN) for Asthma

Childhood asthma rates in Northern Manhattan are four times the national average. Gaps in culturally appropriate asthma care and related supports lead to significant health risks for children with asthma and compromised quality of life for their families. In 2006, New York-Presbyterian Hospital initiated the WIN for Asthma – a hospital-community partnership designed to address local health disparities and improve outcomes for children with poorly controlled asthma.

Bilingual Community Health Workers (CHW) serve as the single point of contact for families who enroll in the year-long care coordination program. Participating families receive comprehensive asthma education, home environmental assessments, trigger reduction strategies, on-going support, and social service referrals that address competing obstacles such as housing, immigration, and employment. The CHW are based in partner community-based organizations, allowing them to remain anchored in the community while also maintaining a strong presence in the hospital and ambulatory care network (ACN) clinics where they conduct rounds and provide culturally appropriate education and support to families who require immediate assistance.

Program at a Glance

Location: New York, NY

Type: Non-Profit Community Partnership

Service Area: Washington Heights/Inwood, New York City

Population Served: 14,000 children under 18

Key Players: New York Presbyterian Hospital Ambulatory Care Network, Columbia University College of Physicians and Surgeons, Morgan Stanley Children's Hospital of New York, Alianza Dominicana, Inc., Community League of the Heights, Fort George Community Enrichment Center, Northern Manhattan Improvement Corporation, Healthy Schools Healthy Families, Columbia University Mailman School of Public Health

Results: After 12 months in the program, according to survey data, caregiver confidence in controlling their child's asthma increased by 40%, ED and hospitalization rates decreased by more than 50% and child school absenteeism decreased by 30%. During this same period, WIN trained and supported more than 300 physicians.

Building the System

Conduct Needs-Based Planning — Seek Input From the Community

Community ownership and integration has been built into WIN's program design from the start. Upon receiving funding, WIN leadership, including community partners, convened a network of community stakeholders committed to filling gaps in the local system of asthma care. The leadership team, including representatives from four community-based organizations — Alianza Dominicana, Inc., Northern Manhattan Improvement Corporation, Fort George Community Enrichment Center and Community League of the Heights — joined together to design WIN. They applied the principles of community-based participatory research and spent the first nine months setting program strategy, recruiting and training staff from the community, developing asthma care guidelines and protocols, creating evaluation tools, and forming the WIN Leadership Task Force. The Task Force, which includes stakeholders from the community, Columbia University and the hospital, oversees and supports WIN programming.

Ensure Mission-Program Alignment

The WIN for Asthma care coordination program focuses on children with high risk asthma and their families. Referrals come from providers, schools, day cares, community-based organizations and self-referrals. In addition, all children admitted to the

KEY DRIVER

STRONG COMMUNITY TIES — MAKE IT EASY TO ACCEPT SERVICES

Many caregivers in the community face serious obstacles that prevent them from appropriately caring for their child's asthma. Through WIN, families receive referrals for support services, including immigration, domestic violence, employment, housing, mental health, smoking cessation, tenants rights, housing assistance and others. A secondary benefit is that the referrals further link families to the community by connecting them to local resources. WIN leaders believe that a good deal of the program's success is attributable to helping families address life's obstacles as well as their child's asthma.

Morgan Stanley Children’s Hospital of New York with a diagnosis of asthma are automatically referred to WIN. Through its broad network of collaborators, WIN is able to assess a large pediatric population.

WIN’s target population is multi-lingual, culturally diverse, has low levels of health literacy and high levels of poverty, and faces multiple obstacles that often impede optimal asthma management. To make it easy for families to support effective asthma care for their children, WIN’s care model employs bilingual CHW based in organizations across the community. The CHW serve as the single point of contact for families to facilitate culturally appropriate and comprehensive asthma education, home environmental assessments, support for setting individualized asthma control goals, referrals for clinical and social services and ongoing support. The CHW, who are linked to the hospital and the community, facilitate communication with clinicians, provide broad-spectrum support to families and strengthen ties between the health care system and the community.

Getting Results — Evaluating the System

Evaluate Program Implementation and Program Impact

WIN seeks to reduce severe pediatric asthma exacerbations and related health care utilization through education, support and improvements in the quality of clinical asthma care.

WIN conducts caregiver interviews during enrollment in the care management program and again at six and 12 months. Descriptive statistics assess the impact of the intervention on caregiver self-efficacy and key asthma morbidity indicators. Over a three-year period, CHW enrolled 360 families. After 12 months in the program, caregiver confidence in their ability to control their child’s asthma increased by 40%, emergency department (ED) and hospitalization visit rates decreased by more than 50%, and child school absenteeism decreased by 30%. In addition, WIN engaged 306 providers based in Washington Heights/ Inwood and Harlem in an asthma care education program. The education program reached the vast majority of community pediatric providers and enhanced the delivery of National Guidelines for the Diagnosis and Management of Asthma (EPR-3) throughout the community.

Sustaining the System

Be Visible: Funders Support What They Know

Preliminary funding was provided by a four-year grant from the Merck Childhood Asthma Network (MCAN), which was administered through New York Presbyterian Hospital. Early on in the grant period, the leadership team explored where within the New York Presbyterian Hospital system to house the program and recognized that positioning WIN within the department of Community Health Outreach and Marketing in the Ambulatory Care Network would allow the program to develop within an established framework for hospital-community programming and provide a mechanism for partnering with ambulatory clinics that serve many local children with asthma. Under these auspices, WIN established itself as the hospital’s “asthma program” and collaborated with multiple hospital divisions, increasing the program’s visibility.

During the last year of grant funding, WIN convened a multi-disciplinary group to develop a Business Plan for WIN to document the program’s return on investment and cost savings associated with reduced health care utilization. This effort contributed to WIN’s sustainability by spotlighting the program’s health outcomes, and resulted in the hospital agreeing to support the WIN for Asthma program. An unintended benefit was recruiting program champions from the high-level Business Plan team, including Community Health and Finance Departments and from the Office of Strategy.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — EDUCATE AND SUPPORT CLINICAL CARE TEAMS

To strengthen the local network of care, a provider outreach team engages and supports providers in Physician Asthma Care Education (PACE) and QI initiatives. PACE reaches the majority of pediatric providers in WIN’s community with trainings on the clinical aspects of asthma, medication management and introduction and reinforcement of the EPR-3 and communication skills to address asthma during patient encounters. PACE also covers the importance of asthma action plans and how to educate parents on their use. In partnership with the National Initiative for Children’s Healthcare Quality, WIN developed a QI protocol for post-PACE provider support. Providers received one-on-one training in their practice on QI projects for asthma. A WIN provider liaison helped providers establish projects and track their improvements over time. This led to widespread implementation of the EPR-3 through projects initiated by the providers themselves.

Woodhull Medical and Mental Health Center

The Woodhull North Brooklyn Health Network (Woodhull) is the primary safety net hospital for North Brooklyn. Woodhull began its comprehensive asthma management program in 1998 to respond to high asthma rates in the community. The program's goal is to ensure that everyone seen at any of the 15 Network facilities receives the same high standard of asthma care resulting in improved self-management and improved health outcomes.

Building the System

Let the Data Guide Program Planning, Design and Implementation

Woodhull developed its asthma program to address the high pediatric asthma rates and poor outcomes in North Brooklyn. Research showed that children in the area suffered disproportionately from exposure to asthma triggers. Also, the numbers of pediatric patients with recurrent emergency department (ED) visits and hospitalizations for asthma indicated a lack of adequate clinical care. Woodhull leaders selected an evidence-based approach—the Chronic Care Model—to tackle pediatric asthma. Their approach included improving the quality of care and strengthening connections between and among care providers and the at-risk community the program is designed to reach. Woodhull aimed to decrease ED visits and hospitalizations by 50% within five years. To achieve these goals, the program delivers asthma care in a clinic that serves all regardless of their ability to pay; trains providers to improve the quality of care across the network; collaborates with local schools to identify and educate children with asthma; delivers home visits and case management for the highest risk patients; provides enhanced asthma care in the ED; and works through wide-ranging community collaborations to provide social and environmental support to families in need.

Woodhull developed their comprehensive asthma clinic as part of a parent organization, the New York City Health and Hospitals Corporation's Chronic Care initiative. The asthma clinic helps to ensure that all children with an asthma diagnosis in the Woodhull Network receive treatment in accordance with the National Guidelines for the Diagnosis and Management of Asthma (EPR-3). The Woodhull asthma program also began training attending, community and ED doctors, residents and nurses on the EPR-3 and implemented a number of innovations to reinforce the delivery of EPR-3-based care. For example, Woodhull modified their electronic medical record to make it impossible to close an asthma encounter without providing a medication prescription based on severity classification. Woodhull also implemented a program to educate patients before clinical visits to ensure they are prepared to ask questions that will elicit high quality and personalized care from providers.

Program at a Glance

Location: Brooklyn, NY

Type: Health Care System (Part of New York City's Public Hospital System)

Service Area: North Brooklyn

Population Served: Predominantly low-income Medicaid and Medicare population

Key Players: New York State Department of Health, National Asthma Control Initiative (NACI), American Lung Association of NY, EPA and Rutgers University, Williamsburg Greenpoint Organization United for Trash Reduction and Garbage Equity, Brooklyn Public School District 14, Bushwick Brownfield Opportunity Area, Brooklyn Clear the Air Coalition, Woodhull North Brooklyn Health Network Quit Smoking Program, Kings County Hospital, New York City Department of Health and Mental Hygiene/Asthma Initiative, Visiting Nurse Regional Health Care System

Results: A comparison of health care utilization in the six months prior to clinic participation against the six-month period following clinic participation for 322 current pediatric patients showed a 67% reduction in hospitalizations and a 58% reduction in ED visits. A follow-up in calendar year 2010, demonstrated a 79% reduction in asthma hospitalizations and a 45% reduction in asthma ED visits compared to baseline. A review of 322 patients from calendar year 2010, demonstrated 100% of the patients surveyed had an asthma classification on file, an updated AAP, and class appropriate medication.

KEY DRIVER

STRONG COMMUNITY TIES — MAKE IT EASY TO ACCEPT SERVICES

Woodhull makes high-quality asthma care convenient for children with poorly controlled asthma. Early in the program's development, Woodhull renovated the ED with a state-of-the-art asthma treatment room and began training ED doctors on EPR-3-based asthma care. It also eliminated the traditionally long wait times for patients to begin emergency medication by adding social workers on site to help with paperwork while patients receive nebulizer treatments. Because many underserved pediatric asthma patients end up at the ED, these enhancements ensure they receive the best care possible even under suboptimal circumstances. Also, asthma program staff contacts patients seen in the ED within a few days to schedule a follow-up appointment at the clinic.

Getting Results — Evaluating the System

Evaluate Program Implementation and Program Impact

Woodhull assesses the practice patterns of its asthma providers by surveying providers who received education through the Physician and Nursing Asthma Care Education (PACE) program. PACE participants report they are now more likely to prescribe inhaled anti-inflammatory therapy, give patients written treatment plans, review instructions for new medications with patients and address patients' fears about using new medications. Woodhull also assesses whether the providers' asthma education is actually affecting the quality of care. This is done by tracking registry data on the percent of the population who have asthma diagnoses that have been classified for severity; and have received appropriate medications; asthma action plans (AAP) and tobacco screenings. The registry also provides outcomes data on hospitalizations and ED visits.

Woodhull's results are impressive. Comparing ED visits and hospitalizations for 322 pediatric patients in the six months prior to clinic participation to the rates in the six months after, showed a 67% reduction in hospitalizations and a 58% reduction in ED visits. A follow-up in calendar year 2010, demonstrated a 79%

reduction in asthma hospitalizations and a 45% reduction in asthma ED visits compared to baseline. A review of 322 patients from calendar year 2010, demonstrated 100% of the patients surveyed had an asthma classification on file, an updated AAP, and class appropriate medication. Success from the Pediatric Asthma Program has become a model for the management of asthma in all pediatric medical settings at the hospital. In addition, the same standards of care from the Pediatrics program have been applied to the Adult Asthma Program. In the last year, nearly 1,000 adults with asthma have been included in the asthma registry.

KEY DRIVER

INTEGRATED HEALTH CARE SERVICES — PROMOTE ROBUST PATIENT/PROVIDER INTERACTION

People Reaching Empowerment Program (PREP) for Asthma cards present the EPR-3 in lay terms to educate consumers about what constitutes a comprehensive, quality visit. This information empowers patients to take control of their own asthma care and form a relationship with their providers. For example, the pediatric PREP card includes a question about medication availability at school, AAP and peak flow meters to prompt families to discuss these aspects of care with providers and prompt providers to take action if the child is missing any of these elements of care.

Sustaining the System

Promote Institutional Change for Sustainability

As clinical and provider training programs took root within the Woodhull system, the asthma program began partnering with health care organizations and providers, community and faith-based organizations and community leaders to create the venues needed to deliver a single high standard of asthma care to the entire community. Woodhull received funding from the New York State Department of Health (NYDOH), Office of Minority Health to spearhead a coalition focused on racial disparities in asthma care. This led to the creation of the North Brooklyn Asthma Action Alliance (NBAAA), a community coalition to champion policy-level change in asthma management in schools; increased awareness of patient rights; and expansion of the PACE program to reach providers across the community. Because of the commitment of its members to health, environmental and social justice issues, the NBAAA has continued to meet on a voluntary basis even during periods when funding has lapsed.

Woodhull has carefully applied grant funding to promote institutional change, thereby minimizing the need for future grant funding to sustain improvements. For example, in the most recent five-year period, NYDOH funded Woodhull to expand its coalition to reduce the asthma burden statewide. This approach resulted in partnerships with local schools to institute policy-level changes to ensure asthma-friendly school environments. It

KEY DRIVER

TAILORED ENVIRONMENTAL INTERVENTIONS — MAKE ENVIRONMENTAL MANAGEMENT A REALITY AT HOME, SCHOOL AND WORK

Woodhull developed the first asthma-friendly school program in New York City when the hospital worked with local school principals and parent coordinators to develop a school environmental assessment checklist. The program later integrated EPA's *Indoor Air Quality Tools for Schools* guidance and, in partnership with EPA and Rutgers University, now delivers comprehensive education on environmental asthma triggers in schools and how to manage them. In addition, Woodhull designates one of their certified asthma educators as a school liaison to promote coordination of care for children at school. The liaison rotates pediatric residents to the 15 public schools in the district to provide asthma education to parents and school staff and screen children for asthma. Woodhull also maintains an asthma-friendly environment in the hospital-run day care center and offers workshops to community day care centers on how to manage asthma and the triggers of asthma.

also led to the development of new policies regarding animals in the classrooms, the use of carpeting, enforcement of the bus idling law, and the use of green cleaning products. Once established as policy, environmental management of asthma became part of the institutional culture in the school system and, therefore, the intervention continues even after the funding period. Similarly, a U.S. Centers for Disease Control and Prevention grant that funded the development of the computerized asthma registry to track patient care helped to prove the concept and value of a computerized disease registry. Now the registry system is part of the infrastructure of the program and the hospital has maintained it beyond the pilot funding period.

