

CHCS

Center for
Health Care Strategies, Inc.

Resource Paper

***Monroe Plan & ViaHealth
Partnership: 2001-2004
Improving Asthma Care
for Children***

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Introduction: Pilot Project

Rochester, New York is a progressive community with a well-established pattern of collaboration and partnering among its health care organizations, especially for children's health issues. In this environment it was not unusual that in the spring of 2000, the Monroe Plan for Medical Care was meeting with providers from the Mary Parkes Asthma Center, part of the Genesee Health Service Medical Group, an affiliate of the ViaHealth health system, to discuss ways of improving asthma care for children in Medicaid managed care. The focus of this work group was to identify children with asthma who were high utilizers of services and to facilitate their entry into specialty care for evaluation and enhanced patient education. The goal of this Asthma Management for Children pilot project which began in Fall 2000 was to shift the pattern of care away from emergency services and inpatient care; through identification and outreach, the pilot project attempted to engage children with moderate to severe asthma in an intensive evaluation, education and clinical management program resulting in improved health status and utilization of resources. Over a six-month period, Monroe Plan claims data for the ViaHealth population identified children with asthma based on their overall utilization of key services. Asthma center staff attempted to make appointment arrangements for specialist visits and to coordinate transportation as needed for the patient and parents. A planned sequence of visits provided an initial evaluation, skin testing for a battery of allergens, review of medication use, and on-going health education provided by an asthma educator. An assigned community health nurse was made home visits using a home evaluation survey tool to evaluate exposure to allergens/ irritants in the home. Despite extensive team planning and readily available provider resources, the pilot project did not succeed in bringing patients to the asthma center for visits. It was difficult to contact families and there was a high rate of missed appointments. Even with ongoing staff effort, it became apparent that patients contacted by mail and telephone by staff they did not know were reluctant to make and keep appointments at an unfamiliar medical office to seek care for a disease process they did not understand. For the project to move forward, it was clear that it would need resources to incorporate a formalized outreach component. The major lesson learned from the pilot project was that outreach and engagement of patients are critical factors necessary for success.

Fortuitously, the opportunity was well-timed for the Monroe Plan to apply for Robert Wood Johnson Foundation (RWJF) three-year grant funding through its Improving Asthma Care for Children (IACC) initiative, a \$3.25 million national program administered by the Center for Health Care Strategies (CHCS). The program, one of six asthma initiatives funded by RWJF, targeted high-risk children enrolled in Medicaid and State Children's Health Insurance Programs (SCHIP) under managed care. The initiative sought to improve the health and health-related quality of life for children with asthma, to develop and sustain partnerships with key community stakeholders, and to institutionalize innovative clinical models in asthma care. Since a Monroe Plan and ViaHealth partnership already had a pilot project underway with a goal that was congruent with the IACC initiative, the work group readily envisioned a comprehensive, expanded program based on the initial project's experiences. With funding support, it proposed to recruit a project coordinator, outreach and support staff and to implement a plan of work for a project with expanded scale and scope. The Monroe Plan would provide in-kind support with the participation of its Chief Medical Office, while the Asthma Center offered the participation of its clinical coordinator, and ViaHealth provided IACC office space. RWJF received 80 letters of intent and CHCS invited 16 organizations to submit full grant proposals. The Monroe Plan-ViaHealth Partnership was one of five groups awarded funding that began October 2001.

Background: Monroe Plan & ViaHealth

It is helpful to consider the Monroe Plan's IACC project in the context the Rochester area community and its health care delivery system. While the Rochester community is home to Kodak, Xerox and Bausch & Lomb and boasts five colleges, a 1998 Children's Defense Fund study reported that the city of Rochester ranks 12th in the nation for the percentage of its children living in poverty; a related study ranks Rochester 206th out of 218 American cities in child quality of life. The Rochester City School District's poverty rate, 78.4 percent, is the highest in New York State. Of Rochester's 61,000 children, 45 percent are African-American and 17 percent Hispanic.

Rochester has one of the highest rates of HMO penetration in the nation. At the start of the IACC project, the Monroe Plan for Medical Care, with total enrollment of over 50,000 members, served over 36,000 medically indigent children under age 19 in Monroe County and six neighboring rural counties. Monroe Plan's Medicaid managed care plan, Blue Choice Option, is the plan selected by 72 percent of those in Medicaid managed care, which is mandatory in Monroe County. Monroe Plan also administers the SCHIP plan (Child Health Plus) for this region of New York State and is the sole Child Health Plus delivery system in the seven counties. Currently Monroe Plan has 85,000 members and has expanded to a total of 13 counties in Western/Central New York with two more planned for 2006.

The Monroe Plan is unique as a health care management organization serving low-income individuals and the working poor, with a mission to improve the health status of their enrollees and their families by facilitating access to high quality health care services, educating patients and providers, providing support and fostering collaboration. It is a physician-organized and governed non-profit health care management organization founded in 1970. Viewed as the oldest Independent Practice Association (IPA) in New York State, it has grown from 2800 providers at the inception of the IACC project in 2001 to its current 4100-provider panel, which includes over 700 primary care physicians. In partnership with Excellus Blue Cross/Blue Shield since 1987, Monroe Plan's programs are totally capitated for all services, risk contracting with the HMO, except pharmacy for Blue Choice Option. Monroe Plan contracts with hospital-based delivery networks as well as independent practitioners. Blue Choice Option has consistently received an "Excellent" accreditation rating from the National Committee for Quality Assurance (NCQA), and in December 2005 NCQA recognized Excellus BlueCross/BlueShield's Blue Choice Option program as one of the nation's "Top 10" Medicaid health plans.

While Rochester had a history of six well-established hospitals serving the community, the late 1990's saw the emergence of three competing health systems, resulting from hospital mergers, closures and alignments: Strong Health (which includes the University of Rochester Medical Center), Unity, and ViaHealth. ViaHealth, an integrated delivery network of health care services serving about a third of the greater Rochester metropolitan area, currently consists of the urban Rochester General Hospital (RGH), a rural hospital, behavioral health and geriatric affiliates, and RGH Medical Groups, serving a diverse population; ViaHealth's second urban hospital, The Genesee Hospital, closed in Spring 2001, after which its ambulatory programs remained on the campus.

RGH Medical Groups is unique in sponsoring three urban Federally Qualified Health Centers (FQHC), DHHS Bureau of Primary Health Care Section 330 Community Health Centers (CHCs) funded through Rochester Primary Care Network (RPCN) and serving over 75,000 patients: 28,000 children, 49 percent medically indigent, 51 percent minority - one on each

urban hospital campus, and a third in a Latino inner-city neighborhood. Federal funding has enabled the CHCs to pursue the mission of providing high quality health care to community residents who experience barriers to access, and offer sliding scale discounts for the uninsured, as well as facilitated enrollment for Medicaid managed care and Child Health Plus. On the Genesee campus, the Genesee Health Service (GHS) CHC was established in 1972 to integrate episodic care being provided to the medically indigent and underserved in the hospital's outpatient clinics. For many years, it was used as a demonstration model by The Robert Wood Johnson Foundation for how community hospitals could organize their ambulatory care programs. The GHS Pediatric Group is among Rochester's largest urban pediatric practices. At RGH, Rochester General Pediatric Associates (RGPA), with pediatricians, midlevel practitioners and a resident teaching program affiliated with the University of Rochester School of Medicine, serves Rochester's northeast quadrant. Clinton Avenue Family Health Center is staffed by a bi-lingual family physician and a midlevel practitioner. These three urban CHCs were the initial participating providers for the IACC project. By year two of the project, six additional ViaHealth practice sites became IACC participants - Wayne Medical Group, a CHC with four practice sites in rural Wayne County, plus two ViaHealth suburban pediatric practices. These nine practice sites encompass the entirety of ViaHealth's pediatric primary care providers.

Rochester General Hospital sponsors School Based Health Centers (SBHCs) at two Rochester City School District high schools and an elementary school serving almost 4000 students (and has opened two more SBHCs in 2005). These SBHCs, operating collaboratively with the school nurse, offer primary care and preventive health services, as well as integrated comprehensive mental health and dental services, and promote a family-centered care model; SBHC staff encourages family involvement in all aspects of care, and foster student-parent communication. Services are provided to students in coordination with the student's PCP. Students must "enroll" with parental consent to receive SBHC services. Synergy exists between the CHCs and SBHCs through shared staff and on-call coverage arrangements. The SBHC nurse practitioners became active participants in the IACC program.

The Mary Parkes Asthma Center (MPAC), part of the Genesee Health Service and centrally located on the urban Genesee campus, was established as a center of excellence in 1995, the first of its kind in Western New York. It was unique in being staffed by a multi-disciplinary team of asthma specialists including allergy/clinical immunology physicians, pulmonary physicians as well as CAE nurse-educators and a respiratory therapist. Besides comprehensive asthma evaluation and disease management services, MPAC also offered pulmonary function testing, skin testing, individual/group and school/community education and outreach programs, support groups, professional seminars, clinical research, and preceptorship programs through the University of Rochester School of Medicine. The center was founded in memory of Mary Parkes, a nurse, who died in 1991 at the age of 31 from complications of severe asthma, and who had been cared for over a decade by Allergy and Pulmonary physicians at The Genesee Hospital. Her battle with asthma was especially difficult, and her life story was the catalyst resulting in an outpouring of financial support from family, friends and the community to establish an asthma center in her memory.

Project Goals & Initial Challenges

With RWJF grant funding, the Monroe Plan-ViaHealth Partnership IACC project set out to refine the strategies and interventions in the pilot project design, based on preliminary results experienced by winter 2001. IACC identified barriers to care, which led to modified strategies available with additional resources. With grant-supported project resources over a three-year

period, IACC expanded the scale and scope of the initiative to ViaHealth children with asthma identified within the Monroe Plan pediatric population, at all of ViaHealth's Pediatric practices – four urban and rural federally-qualified Community Health Centers (CHC) at seven sites, two suburban pediatric practices, and three School-Based Health Centers (SBHC). Project objectives were to:

- Identify children with an asthma diagnosis through the managed care organization, SBHC and CHC;
- Identify undiagnosed/untreated or under-treated children with asthma within Rochester's medically indigent/underserved population through community asthma education outreach;
- Strengthen the child/family connection with their Primary Care Physician (PCP); coordinate care with the PCP, facilitating referral for asthma specialty consultation and disease management as appropriate;
- Facilitate/improve access community-wide to asthma care via outreach strategies to address socio-economic and cultural barriers to care;
- Provide patient/family asthma education; facilitate provider education;
- Provide community asthma education to raise awareness of environmental asthma triggers and their abatement;
- Evaluate the effectiveness of the service delivery model by measuring defined clinical outcomes; evaluate the effectiveness of intervention strategies by other defined measures; and
- Identify effective strategies that can potentially be replicated and extended to the entire Monroe Plan enrollment.

Initial Challenges

IACC experienced a major challenge in initiating the project with the sudden closure of one of ViaHealth's urban hospitals, The Genesee Hospital, in March 2001. This was a great shock to the Rochester community, especially in light of the closure of St. Mary's Hospital two years earlier. Fortunately, key ambulatory services remained on the Genesee campus - including the Mary Parkes Asthma Center and its specialty physicians, as well as Genesee Health Service Pediatrics, all key IACC participants. A later external challenge occurred near the end of the project in September 2004, when the Mary Parkes Asthma Center changed system affiliations from ViaHealth to Strong Health and relocated to a suburban site. Fortunately, the GHS asthma specialists who staffed the center remained on the Genesee campus, continuing to serve IACC patients through their GHS Asthma/Allergy, Immunology & Rheumatology Division in a suite adjacent to the former MPAC.

Another initial challenge was recruitment of qualified project staff. Even with the advantage of a mature and cohesive planning group and a well-defined project, it took several months to recruit and orient a qualified project coordinator, and then for the project coordinator to recruit, orient and train the two part-time outreach workers. Attempting to reflect the patient populations being served, both outreach workers were minorities representing the predominantly African-American and Latino patient populations. While RWJF funding was available in October 2001, the project coordinator was not on board until the end of April and the outreach staff until June 2002. By September 2002, the project coordinator was among the first to sit for and successfully achieve the new National Asthma Educator Certification examination to become an Asthma Educator-Certified (AE-C).

Program Design

The Monroe Plan/ViaHealth Partnership IACC Project is fundamentally a project about organizational change — about establishing a model of best practices into a clinical setting — rather than a trial of a new treatment regimen. Large organizations are not well-behaved experimental subjects, and a serious attempt at organizational change must recognize the dynamic social and economic context, as well as internal forces, that drive these organizations. Consequently, evaluations of organizational change are subject to severe constraints; usually well-outside of the capacity of the evaluator to influence. For this reason simple pre-post evaluation designs are common, although the deficiencies of this approach are well-known (Cook and Campbell 1979).

External constraints required the program design for this IACC project to focus on one delivery system, although the Monroe Plan includes multiple delivery systems in its network. Because the Monroe Plan has an extensive database of medical claims history, political adversity contributed in this case to an evaluation opportunity. It became possible to track cost and utilization across multiple delivery systems, only one of which was involved in the program intervention, and to have access to a long baseline period. Because of the dual dimensions of time and comparison groups the project has the quasi-experimental design illustrated in Table 1. The design combines a pre/post structure as well as quasi-control comparison groups (Cook and Campbell 1979; Rutman and Mowbray 1983). This approach allows for the statistical accounting of historical events and general environmental changes occurring during the intervention. This places less burden to assume that the baseline data is capturing the full extent of variation occurring in the population. It is *quasi* experimental because patients were not randomly assigned to groups and *quasi* controlled because the comparison groups were not treated under defined protocols.

In fact, the comparison delivery network also had an active asthma improvement program during the intervention period. Community efforts common to all three groups also occurred during this period. Also, the comparison groups did not represent distinct homogeneous delivery models, although there were important variations in the delivery models. Both delivery networks are dominated by clinic-based care, primarily staffed by residents, but not exclusively so — these delivery networks also include a small number of traditional office-based primary care providers. In contrast, the unaffiliated comparison group is almost exclusively represented by traditional private practitioners.

Table 1: Evaluation Design

	<i>Time</i>	
Comparison Group	Baseline 1999–2001	Intervention 2002–2004(Sept)
Intervention Group	Baseline Variation	Intervention
Comparison Delivery Network	Baseline Variation	Alternative Interventions
Comparison Unaffiliated	Baseline Variation	Environmental Variations

Patients eligible for the IACC program were Monroe Plan enrollees, under age 19, with Blue Choice Option or Child Health Plus, who had a ViaHealth primary care provider. When a patient was first identified for potential IACC participation, the Monroe Plan medical director would send a letter to the patient’s PCP, explaining the benefit of the program’s specialist evaluation and asthma education, while offering the physician the option of non-participation if the PCP had alternative plans for the patient. It was rare that the PCP did not support IACC participation.

Patient Entry into IACC Program

On a periodic basis, Monroe Plan claims data generated lists of high utilizers of services with an asthma diagnosis. If these patients were not already receiving asthma specialty services, they

were identified for the IACC program. The list of high utilizers was the primary source of IACC participants. Additionally, the project coordinator reviewed ED visits for asthma at Rochester General Hospital, received as faxes from the hospital coding room on a timely basis; this provided another source of patients for the program. Family inquiries were also a source of participants; these increased with the implementation of the semi-annual quality of life survey that was sent to over 500 ViaHealth parents of children with asthma during 2003 and 2004; the Project Coordinator followed up with families who requested additional information on asthma when they completed their surveys. PCPs, the SBHC NPs, and other community resources also referred patients to the program.

Project Staff Initial Contact

The IACC outreach workers attempted to make initial contact with the family by telephone. If this was not possible or there was no response, the IACC program mailed an initial letter to the home introducing the program. If there was no response to the mailing, the outreach worker would visit the last known address and attempt to find the patient/family. If no one was at home, the outreach worker would leave IACC information and a phone number for the family to contact IACC. Once initial contact was successful, the outreach worker scheduled a date and time of an initial home visit.

Initial Home Visit

The outreach workers, accompanied by the project coordinator as needed, made home visits and introduced themselves to the family and established rapport. The IACC staff provided an information packet with asthma resource materials in English and Spanish, explained the services offered and benefits the program, and offered it for the patient. If the parent was interested in participating, the IACC staff scheduled a first appointment for the patient at the asthma center by using pre-designated appointment slots that were held for the program, or by contacting the asthma center by cell phone for other time slots the patient might prefer. IACC staff then obtained a brief patient history, gave and explained specialty care information packet, discussed transportation needs and made arrangements for cab service or bus tokens as necessary.

Specialty Visits to Asthma Center

The IACC project secretary made reminder phone calls to families the day before each scheduled appointment, in order to reduce missed appointments. IACC would schedule the initial Asthma Center visit with the FNP, CAE, so the patient could be seen within a two-week time frame. This was preferable since the typical wait for a specialist physician appointment was usually four to eight weeks. The initial visit consisted of an evaluation, spirometry, asthma education (overview of the disease process, medications, proper use of devices, triggers) and an implemented asthma action plan. The second visit included allergy skin testing, as indicated, as well as ongoing asthma education. Thereafter, follow-up visits were scheduled every six months for a two year time frame, after any ED visit or hospitalization, or as needed.

IACC Staff Ongoing Interventions

The outreach workers followed up all instances of missed specialty appointments, discussed barriers, implemented interventions, and then rescheduled these visits. IACC staff routinely made follow-up contact 4-6 weeks after the second specialty visit to review ongoing needs and identify new barriers to care and treatment adherence.

Home Environment Assessment

After skin testing, based on the specialty evaluation recommendation, the IACC outreach worker scheduled and conducted a home environment assessment, using a community standard form. The form provided a systematic method of identifying environmental conditions, interior living conditions, and patient-specific asthma triggers. The home environment assessment visit included referral to Monroe Plan's smoking cessation program, Greater Rochester Area Smoking Prevention project (GRASP) as appropriate. IACC staff offered suggestions for trigger abatement supplemented with the placement of durable medical equipment as appropriate, such as encasings for mattress, box springs and pillows as well as HEPA furnace filters.

Coordination with PCP

As previously described, the Monroe Plan sent an initial letter regarding the IACC program to PCPs of children identified from the Monroe Plan utilization list. IACC staff then sent an update to the PCP after the initial home visit. The asthma center specialists routinely sent updates to PCPs after each visit, education session, or missed appointment. The IACC outreach workers were available to assist PCPs with follow-up of asthma patients who missed their PCP appointment for asthma-related care.

ED Follow-up

An ongoing project activity was follow-up by the project coordinator of asthma Emergency Department (ED) visits with patients to prevent further potential ED visits or hospitalization. The coordinator contacted the patient to make sure that the patient was scheduled for a follow-up PCP appointment, had transportation arranged for the visit, and had filled prescriptions. This contact was an educational opportunity to review what might have precipitated the visit, to express Monroe Plan's concerns, and to check on how things were going now. The follow-up to an ED visit call provided the coordinator with the opportunity to identify a new at-risk patient for IACC participation, or to assess a change in disease status for a current program participant.

Provider Education

Provider education for MDs, NPs & clinical support staff at the participating health center sites was a critical component to initiate the IACC project and later became a key component of the IACC-successor program, described below. Rochester has had NHLBI-based Community Guidelines for Asthma Care for Children in place since 2001, and the IACC project outcome measures included several guideline adherence measures - asthma specialty evaluation, asthma action plans, controller drug prescribing, and influenza vaccination. A regular schedule of on-site in-service education at the participating health center sites, provided by the IACC project coordinator in conjunction with the designated asthma center specialist for that practice, focused on enhancing awareness and understanding of the guidelines and making them a reality within the primary care office setting. This was especially pertinent for RGPA, with its rotating complement of 25 Pediatric residents. The project coordinator focused on sharing Rochester's community-standard Asthma Action Plan, as well as an RGH standardized asthma evaluation form, which was in use at one of the CHCs. Inhaler technique in-services were of particular interest at all the practice sites and extremely well-received. Case study presentations were very successful for the SBHC NPs. Having one of the four Asthma Center specialists designated as a primary contact for each of the PCP practices served as a key component for facilitated access and quick consults either telephonically or on site for the practice.

Community Asthma Awareness Education

Community asthma awareness education was integral to the IACC project. IACC staff participated in community and school health fairs, particularly those targeted for the urban medically underserved populations, as well as sponsoring booths at public events. IACC also sponsored an array of its own awareness/education activities, such as annual World Asthma Day events, as well as participating in previously established annual programs sponsored by the Mary Parkes Asthma Center and Rochester General Hospital. The Asthma Center, with support from Blue Cross/Blue Shield, sponsored an annual Asthma Expo each Fall attended by over 250 children and parents, featuring talks by asthma specialists as well as two dozen informational booths (asthma screenings, healthy home evaluations, inhaler demonstrations, asthma triggers) plus prizes, clowns, face painting and sand art. Since 1995, the asthma center has also held an annual Asthma Teaching Day, co-sponsored by the University of Rochester School of Medicine & Dentistry, attended by over 200 health professionals from the region. Rochester General Hospital sponsors Camp Broncho-Power, now in its twelfth year, a three-day outdoor overnight camp in August, for approximately 70 children ages 6-11 with moderate to severe asthma, supported by hospital and volunteer staff.

During the two-and-a-half year period from project operational inception in July 2002 through December 2004, there were 548 children identified for potential participation in the IACC program from the Monroe Plan panels of ViaHealth's primary care providers - 29 physicians, 16 mid-level providers and 25 residents - at nine practice locations. The primary sources for identifying these children/families were the Monroe Plan listings of high utilizers of services (58 percent), follow-up of ED asthma visits (20 percent), quality-of-life survey respondents requesting additional information (14 percent), and other referral sources (8 percent), such as PCPs and parents. Of these 548, 130 (24 percent) did not meet the inclusion criteria - the patient's PCP declined participation, the patient changed to a non-ViaHealth PCP, insurance terminated or changed, the patient had mild asthma, or the patient was already engaged in specialty care - resulting in 418 being eligible for services. Of these remaining 418, 167 were currently receiving IACC services or pending contact (as of February 2005) while 86 families had declined further participation after IACC contact. Of the remaining 165, IACC was unable to locate 48 families, due to the transient nature of these enrollees. Finally there was no response by 117 families; this number represents cases closed after multiple attempts by the outreach workers to contact the family over a minimum of a three-month time-frame. The program closed cases if after a series of attempts by mail (two letters sent), telephone (three phone calls), and a personal visit (IACC brochure left at home) did not yield a result. Therefore, of those who met the inclusion criteria, 40 percent became engaged in services, 21 percent declined, and 39 percent were unable to be found or did not respond to repeated attempts.

Overall, during this two-and-a half-year period, 202 initial home visits were made by the IACC team; 128 children were seen for specialty evaluation and follow-up, with skin testing and allergy shots as needed; 41 had a home environment assessment visit, as recommended by the asthma specialists after skin testing. The IACC project issued parking passes for 117 families and arranged taxicab transportation for 83 families as needed for visits to the asthma specialists, for allergy skin testing, and for weekly injection appointments.

Consumer Vignette

The story of Fransheska & Yolamar R. provides a view of the IACC program from the family's perspective. In August 2002, seven-year old Yolamar R. was one of the earliest IACC participants. Monroe Plan identified her as a high utilizer of services, an indication that her asthma was not in good control. Her mother received an initial letter, and then follow-up contact and a home visit from the bi-lingual IACC Outreach Worker, inviting Yolamar to participate in the program. During the home visit, Mrs. R told the Outreach Worker that Yolamar's older sister, 12-year old Fransheska, also had asthma and would benefit from an evaluation, so she also joined the program. Both sisters were classified as having moderate-persistent asthma, were prescribed controller medications and had allergy skin-testing. The family received asthma education as well as a home environmental assessment, which resulted in mattress encasings (for dust mite allergies) and a HEPA filter for the furnace. In the course of two years of follow-up, the IACC outreach worker kept in close contact with the family - making 18 phone contacts to facilitate the girls' medical appointments, making transportation arrangements (both parking passes and taxicab service) and following up several instances of missed appointments.

Yolanda R. is a cheerful, energetic mother of five – as well as grandmother to a toddler. She has two grown sons, as well as a thirteen year old son. But sitting in the living room of her 1920's Rochester home with its gleaming hardwood floors on a cold, sunny February morning, we are talking about her daughters - Yolamar, 9 and Fransheska, 14 - both of whom have had asthma since early childhood. Yolanda knew a lot about asthma from other family members - her sister, one of her older sons, a nephew... She moved to Rochester from Puerto Rico after Yolamar was born, in part because her doctor there thought the weather in Rochester might be better for her daughters' asthma. She describes an incident when Fransheska was a toddler, rushing her to the hospital, being stuck in a traffic jam, with her daughter unable to breathe and starting to turn blue.

Mrs. R. proudly shows school photos of her smiling long-haired daughters, whom she characterizes as friendly and talkative, with little sister always wanting to imitate her older sister. Yolamar is in third grade and wants to be a pediatrician when she grows up; Fransheska is in seventh grade and wants to be a dentist. Asthma used to make them miss school. Mrs. R. recalls Yolamar exclaiming, "I don't want to miss school!" and knowing how important it was for her girls to be able to attend school, because they were learning English as a second language. The girls also love to swim - Mrs. R calls them her "little fishes" - and asthma used to keep them from enjoying their favorite activity. Mrs. R would put her ear to her girls' chests to check on their wheezing - the family calls it the "doggie cough."

Thanks to the IACC program, Mrs. R. happily reports no current problems. With asthma controller medication, an understanding of their rescue inhaler, the support of the girls' school nurses, plus dust covers and a HEPA filter at home, Yolanda and Fransheska are leading healthy, active lives. At age 14, Fransheska takes responsibility for taking her daily medication, and when she cleans her room, her regular chore, she wears a mask so the dust won't bother her; she sets a good example for her younger sister to follow.

Outreach Challenges

The IACC project was structured to rely on the effectiveness of its outreach worker "people-finding" activities. Its quality of life surveying to the target group, as described below, demonstrated the prevalence of inaccurate address and telephone information as available for the

enrollees. As noted earlier, of those who met the inclusion criteria for IACC project participation, 39 percent were unable to be found or did not respond to repeated attempts. The project realized early on that effective orientation and training of the outreach worker was critical. The IACC project coordinator developed an outreach training manual to cover a five-week orientation period, with comprehensive contents: overview of asthma including signs and symptoms, current treatment, triggers and environmental factors, peak flow meters and asthma action plans, HIPAA and patient confidentiality, cultural diversity, home and community safety for the outreach worker, communication techniques, outreach methods and strategies, community resources, and risk assessment for child and spousal abuse. The IACC staff shared a common office, and the project coordinator mentored and monitored outreach worker activities and caseloads, providing guidance and support as needed.

Additionally, the outreach workers participated in meetings of the Rochester Outreach Workers Association, a community networking forum for front-line workers, which provided additional valuable resources and support. The IACC project coordinator attended training to be certified as a Family Development Credentialing (FDC) Instructor, and incorporated FDC materials into the Outreach Worker Training Manual. Finally, IACC used a staffing pattern of two half-time outreach staff, so that their schedules could be flexed to contact families at times they were more likely to be available, such as early evenings or weekends. A 39 percent rate of missed appointments (no-show) for the initial specialist visit, in spite of extensive outreach worker intervention, presented an ongoing challenge for the IACC project in maintaining a positive working relationship with the asthma center. (For purposes of comparison, the overall asthma center no-show rate was approximately 15 percent.) However, the no-show rate declined with each successive asthma center visit, as patients became more engaged in care; (the first follow-up visit no show-rate was 33 percent, second follow-up visit was 27 percent, third follow-up was 17 percent.)

Evaluation

Data Collection

Four major sources of data have been used in this project that includes: medical claims data; quality of life survey data; care management process data; and qualitative interview data.

Medical claims data is administrative data collected through the Excellus Blue Cross Blue Shield claims system. The data is transferred monthly to the Monroe Plan's Data Warehouse, where it is cleaned and stored for analytical use. The Monroe Plan Data Warehouse is a Microsoft SQL Server database developed internally. Statistical and graphical analysis was performed on the Insightful S+ 6.2 statistical system, which allows direct transfer of data from SQL Server.

The Integrated Therapeutics Group (ITG) Child Asthma Short Form Quality of Life Survey (Group 1968) data was collected during each survey round and stored in an internally developed Microsoft Access database. The database included both survey responses and survey process information. For further processing the data was transferred to the Insightful S+ 6.2 statistical system, where a program was applied to scale survey responses to the ITG scaling algorithms.

Care management process data was collected in a combination of Microsoft Access and Excel ad hoc tools. This process data was focused on monthly flows of patients through the various care management steps. This data has been used to measure the intensity of intervention in this report.

Qualitative interview data was collected by the interviewer, Karen Towner, R.N., either through written notes or transcribed recordings. This information was transferred to Atlas*ti, a qualitative analysis software "workbench."

Data Time Structure

Data have been compiled for years 1999–2004 in quarterly segments for the ViaHealth project delivery network (the “intervention group”) as well as two comparison groups — the non-project delivery network (“comparison delivery network”) and the nonproject unaffiliated group of providers (“comparison unaffiliated”).

In addition, data was collected for both Medicaid and Child Health Plus enrollees. The Child Health Plus enrollees tend to be more similar to commercial insurance members than Medicaid enrollees in multiple dimensions. These include household socioeconomic status, suburban versus urban residence, and private practice versus clinic primary care providers.

For analytical purposes different forms of data smoothing and date ranges have been applied in reporting the data. In some cases this reflects the nature of measures used. Most important in this regard is the measure of asthma severity. The measure of asthma severity is utilization-based, determined from office visits, ED encounters, and hospital admissions occurring during a 12 month period. To synchronize this measure with quarterly cost and utilization data it has been calculated by the use of a *rolling year* that is recalculated at quarterly intervals. Using a rolling year is effectively the same as applying a moving average, with the average calculated over 12 months.

One of the opportunities provided by the Monroe Plan dataset is the availability of data extending back to 1999, allowing a very long baseline period. During this long baseline period major organizational changes occurred in the intervention group, which is valuable to analyze in its own right. There are advantages, however, in terms of presentation clarity, to report on a baseline period narrowed to one year, that is, 2001. (Keep in mind that this baseline period includes data from 2000, because of the 12-month calculation of asthma severity.)

Another methodological question is whether to apply a rolling year calculation, or moving average, to cost and utilization data. In the project design the cost and utilization measures were defined quarterly, and there are credible interventional and evaluative reasons for this. Applying a 12-month moving average will obscure ongoing positive and detrimental changes, making it more difficult to quickly diagnose and correct problems. Also, and ultimately more difficult to reconcile methodologically is that asthma is a seasonal disease. A simple moving average obscures seasonality. Although the cost and utilization data could be recast using a 12-month moving average, for the purposes of this technical report it has been kept consistent with the original project design.

Population versus Cohort

One methodological choice is whether to evaluate the program from a population or cohort perspective. A population refers to all of the persons at-risk for the condition subject to intervention. The population for this project is persons identified as having asthma, although the population could be more broadly defined as persons enrolled in the programs, who could potentially have asthma or could develop asthma. A cohort is a specific group of individuals followed over time. From a policy perspective what really matters is affecting the health status and utilization of the population that is at risk. But from an evaluation perspective there are compelling reasons to follow a particular cohort over time. The problem with the population perspective is that the population is subject to inflows and outflows, so that persons in the population will have varying degrees of exposure to the intervention. A cohort analysis reduces the effects of population turnover. While cohort studies are prone to the regression to mean validity threat, the design of this project mitigates that threat, because cohorts outside of the intervention can also be followed. Both per-

spectives are complementary to each other; however, with an understanding of the impact of turnover, this project takes a population perspective.

Asthma-specific versus overall costs

A common controversy in evaluating disease management programs is whether to include all costs associated with the population or to just include disease-specific costs (as determined from claims diagnoses). There are several reasons for including all costs: For many diseases there are substantial costs associated with related co-morbidities, and the major impact of disease management programs may be on how those co-morbidities are averted. Also, there is considerable subjectivity and lack of standardization in how secondary diagnoses are coded in claims. On the other hand, for some diseases, and asthma is a good example, co-morbidities are not usually related to the disease. Also, when including all costs there is a difficult problem in how to handle outlier and catastrophic cases with no medically plausible connection to the targeted disease. For this project there were actual examples of extremely high costs associated with severe burn injuries and leukemia. Processes of outlier elimination or the removal of claims with unrelated diagnoses create additional threats to the validity and integrity of the population. Because asthma is not generally associated with significant co-morbidities this project analyzed asthma-specific cost and utilization.

Description of Key Variables

Asthma severity was defined by a utilization based measure. The measure had been used historically by the Monroe Plan and Excellus Blue Cross Blue Shield for case managing asthma. It is keyed off the number of office visits, emergency department (ED) visits and inpatient hospitalizations. The specific intensity levels are displayed in Table 2. Visits and admission counts are determined over a 12 month period. For the purposes of statistics reported here, a 12 month rolling period was used. Claims with an ICD-9 CM asthma diagnosis of 493.XX in any position (Diagnoses 1 through 4) were counted for this measure. Individuals with only 1 asthma claim were included in the population of “identified” asthmatics, although certainly some of these individuals would not meet guideline based criteria for asthma diagnosis.

Table 2: Definition of Asthma Severity Levels

<i>Severity Level</i>	<i>Intensity over Twelve Months</i>
Unconfirmed	1 Office Visit
Mild	2 to 5 Office Visits
Moderate	6 to 9 Office Visits or 1 Inpatient Admission or 1 to 4 ED Visits
Severe	> 9 Office Visits or > 1 Inpatient Admission or > 4 ED Visits

Medical cost was determined from claims and encounter data submitted to the Excellus Blue Cross Blue Shield claims system for the Blue Choice Option and Child Health Plus programs. Since portions of the comparison delivery system’s primary care costs are capitated, all professional service costs were expressed in fee-for-service equivalents, using the Monroe Plan’s standard fee schedule. The fee schedule is Medicare RBRVS based, with a common conversion factor applied each year. Outpatient facility costs are calculated on a percentage of charge basis. Inpatient hospitalization rates are tied to New York State Medicaid DRG rates for the Medicaid program, and to commercial DRG rates for the Child Health Plus program. In this report costs are typically reported on a per member per month (PMPM) basis. The denominator is the member-months for identified asthmatics.

Claims data used for cost measurement was also used for utilization measurement. A visit is defined as any claims transactions between member and servicing provider occurring on the same day. Utilization is typically expressed as per 1000 person-years, where the denominator is the identified asthmatics during the measurement period.

Findings & Accomplishments

The overall goals of the IACC project have been to improve the identification and diagnosis of children with asthma within the Monroe Plan/ViaHealth population, to help patients and their families better manage their disease, and through outreach, to coordinate their care in primary care, specialty and school settings. Outcome measures have been reported in four domains: improved health, quality of life, and functional status; increased collaboration and coordination among providers; improved utilization rates and patterns; and system-wide, sustainable changes.

Domain 1: Improved Health, Quality of Life, and Functional Status

Two approaches were taken to measure domain 1 in this project. The first approach involved using the Integrated Therapeutics Group (ITG) Child Asthma Short Form Quality of Life instrument to evaluate changes in quality of life in the intervention group (Group 1998). This measure was not used across the comparison groups and was not initiated during the baseline period or first year of intervention. The second approach involved evaluating the proportion of asthma severity in the comparison groups. Because this measure is utilization based, it has been calculated during the baseline period.

The ITG Quality of Life Survey is a 10-item instrument specifically designed for use with children in a clinical setting. It consists of 8 mandatory items and 2 optional items, we used all 10 items. There are five scales derived from the items:

- Daytime Symptoms
- Nighttime Symptoms
- Functional Limitations
- Inhaler Interference
- Family Life Adjustment

It is important to understand that these scales are not normalized to a national population. The well-known SF-36 Health Status measure is normalized and in referencing it is common to ground changes in status to the person's position in the national distribution. This cannot be done with the ITG QOL scales. These scales are set at a 0 to 100 level, with 100 marking perfect quality of life. The scale has been cross-validated against clinical measures. Parent and physician global ratings of "Mild" corresponded to an average score of around 75. An average score between 45 and 55 corresponded to physician and parent global ratings of moderate to severe (Bukstein, McGrath, Buchner, Landgraf, and Goss 2000).

The survey was structured in four rounds between 2003 and 2004. For each year, there were January and August rounds. The purpose of having the two rounds was to recognize seasonal variation in the disease and its impact on quality of life. Due to the seasonality of asthma, it is arguably more valuable to compare Winter to Winter, and Summer to Summer rounds, rather than all four rounds in sequence. The quality of life survey was not originally included in the project evaluation design, hence there is no baseline period and the first year of the intervention was not measured. Also, because of budget limitations, the comparison groups were not surveyed. Because the design of the survey deviates from the overall project evaluation design it lacks the cross-time and comparative structure which strengthens the rest of the evaluation.

For this project it was decided that a mail survey would be a more effective means for sampling the population rather than utilizing it within clinics and offices. To ensure a high response rate, a highly prescriptive technique, the Dillman Total Design Method (TDM), was used. In this method all aspects of the survey package and process are directed at improving the response rate. An initial mail survey, followed by a reminder, and then a second mail survey was used. Non-responders were

followed up by a telephone survey, conducted by a professional out-bound telephone call center. As seen in Table 3 response rates over 40 percent were consistently maintained through all four survey rounds. Based on past survey experiences with Medicaid populations, which have often been limited to single-digit response rates, we considered this an excellent survey response.

Table 3: Quality of Life Survey, Sample Disposition Survey Round

	1/2003	8/2003	1/2004	8/2004
Sample	541	528	576	601
Mail Response	172	154	169	182
Phone Response	52	66	45	59
Total Response	224	220	214	240
Unusable Sample ^a	69	32	64	60
Response Rate ^b	47	44	42	44

^aNo forwarding address and no phone number.

^bResponse Rate = $\frac{\text{Total Response}}{\text{Sample Unusables}}$

Individual scales were analyzed by the type of respondent to provide additional insight into respondent characteristics. Tables 4 through 8 show results for individual scales for the last survey round. The tables list the mean response, as well as lower and upper confidence limits. The patterns seen in the last survey round are consistent with what we had seen with previous rounds. In particular:

- Respondents using the Spanish-language version of the survey reported lower quality of life than English-language respondents.
- Late respondents (those responding to the final phone contact), had significantly higher quality of life than early respondents.
- Respondents requesting additional information reported a lower quality of life than those not requesting information.
- Although the last item may not seem surprising, the first two confirmed concerns raised in other areas about asthma among Latinos and the importance of getting high response rates.

Table 9 displays the average scale scores across all four survey rounds, for each scale. In the absence of nationally-normalized scales it is difficult to interpret the clinical significance of these score changes. Improvement is seen from the first survey round to the last. In our opinion, these improvements are modest, with the possible exception of nighttime symptoms which showed a movement of almost 10 points in a 100-point scale.

Table 4: Daytime Symptoms Scale by Survey Type, ITG Child Asthma Short Form, Summer 2004*

	N	Mean	Lower	Upper
Type	209	6651	6274	7027
English	18	6111	4667	7555
Spanish				
Surveytype	170	6301	5888	6715
Mail	57	7522	6806	8238
Phone				
Info	142	7192	6758	7625
No	85	5632	5037	6227
Yes				
Overall	227	6608	6246	6970

*N=227, 13 Missing

Table 7: Inhaler Interference Scale by Survey Type, ITG Child Asthma Short Form, Summer 2004*

	N	Mean	Lower	Upper
Type	214	8002	7616	8389
English	18	6528	4433	8623
Spanish				
Surveytype	176	7670	7197	8144
Mail	56	8571	7961	9182
Phone				
Info	145	8414	7990	8838
No	87	7011	6276	7747
Yes				
Overall	232	7888	7499	8277

*N=232, 8 Missing

Table 5: Nighttime Symptoms Scale by Survey Type, ITG Child Asthma Short Form, Summer 2004*

	N	Mean	Lower	Upper
Type	214	6916	6517	7315
English	18	5278	3855	6701
Spanish				
Surveytype	175	6400	5951	6849
Mail	57	7982	7302	8663
Phone				
Info	144	7465	7009	7921
No	88	5682	5047	6317
Yes				
Overall	232	6789	6403	7174

*N=232, 8 Missing

Table 8: Family Life Adjustment Scale by Survey Type, ITG Child Asthma Short Form, Summer 2004*

	N	Mean	Lower	Upper
Type	214	7161	6697	7626
English	18	5972	3834	8110
Spanish				
Surveytype	176	6634	6077	7190
Mail	56	8438	7831	9044
Phone				
Info	145	7793	7285	8301
No	87	5862	5038	6686
Yes				
Overall	232	7069	6613	7525

*N=232, 8 Missing

Table 6: Functional Limitations Scale by Survey Type, ITG Child Asthma Short Form, Summer 2004*

	N	Mean	Lower	Upper
Type	198	7980	7638	8321
English	18	6111	4482	7740
Spanish				
Surveytype	165	7591	7186	7995
Mail	51	8578	7966	9190
Phone				
Info	137	8335	7963	8707
No	79	6938	6290	7587
Yes				
Overall	216	7824	7481	8168

*N=216, 24 Missing

Table 9: ITG Survey Scales by Period

Scale	2003		2004	
	Winter	Summer	Winter	Summer
Daytime Symptoms	61.76	65.49	66.50	66.08
Nighttime Symptoms	58.97	63.90	64.66	67.89
Functional Limitations	72.58	76.68	77.63	78.24
Inhaler Interference	76.70	80.78	79.90	78.88
Family Life Adjustment	65.88	68.52	72.01	70.69

While the quality of life survey showed modest improvement, stronger changes were seen in asthma severity levels among the intervention group (Figure 1). At the beginning of 2001, the intervention group had the highest proportion of moderate to severe asthmatics, at 50 percent. This compared to 41 percent for the other delivery network and 30 percent in the unaffiliated group. A sharp decline occurred in the moderate-severe proportion among the intervention group during 2002, which then stabilized during the rest of the intervention period. By the end of 2002, the proportion of moderate-severe in the intervention group had declined to 31 percent, with 35 percent in the comparison delivery network, and 28 percent in the unaffiliated group. By the end of the project period, the percentage of moderate-severe in the intervention group was 26 percent versus 37 percent in the comparison delivery network, and 27 percent in the unaffiliated group. Because the most substantial change occurred in 2002, but the quality of life survey was not performed until 2003, it is not surprising that the quality of life survey registered more modest improvement. These results need to be interpreted carefully because increases in identification, as well as improved treatment, will decrease the proportion of moderate to severe asthmatics. Because identification rates did not increase at similar rates, we believe this does reflect real reductions in disease severity due to improved care.

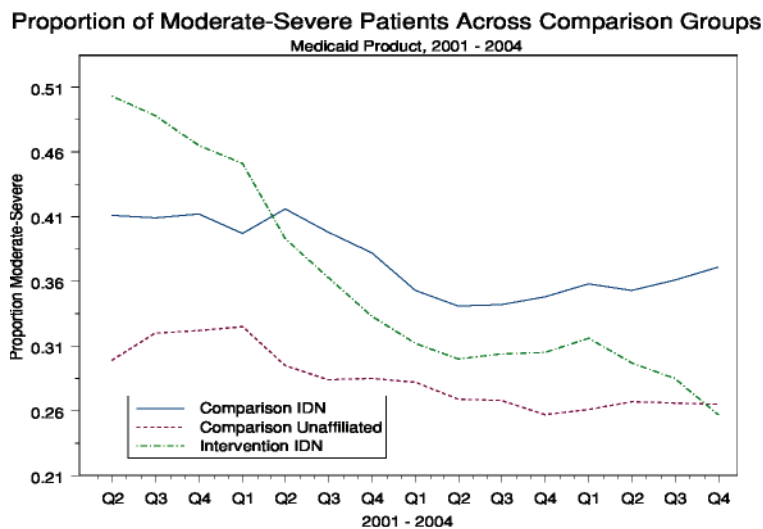


Figure 1: Proportion Moderate-Severe by Comparison Groups, 2001-2004

Domain 2: Increased Collaboration and Coordination Among Providers

Two measures were selected for domain 2: the proportion of moderate to severe asthmatics who received specialty services and the proportion of patients receiving follow-up within 72 hours of an emergency department (ED) visit. The first measure goes to the core of the project intervention — utilizing specialty services for patients whose asthma is not well controlled in the primary care setting. The measure of asthma severity is based on 12 months of service utilization, and is weighted to register ED and hospital admits more heavily than office visits.

In this area striking results were achieved, as are seen in Figure 2. During the beginning of 2001, only 8 percent of the intervention group’s moderate to severe asthma patients received asthma specialty services, compared to 13 percent of the comparison delivery network, and 25 percent of the unaffiliated group. Increased use of specialty services in the intervention group preceded the intervention, but occurred most vigorously during the first year of the intervention. By the end of 2002, 30 percent of moderate-severe asthmatics in the intervention group were receiving

specialty asthma services. This compared to 26 percent for the unaffiliated group and 13 percent for the comparison delivery network. Note that virtually no change occurred in the comparison groups. By the end of the third quarter of 2004, the end of the project period, 39 percent of the intervention group's moderate/severe asthmatic children were receiving specialty services. At that time, 35 percent of unaffiliated moderate-severe patients were also receiving specialty services, but only 13 percent of the comparison IDN's moderate-severe asthmatic children received specialty services, unchanged from the baseline period. There clearly was improvement in the unaffiliated comparison group, but the strongest change occurred in the intervention group.

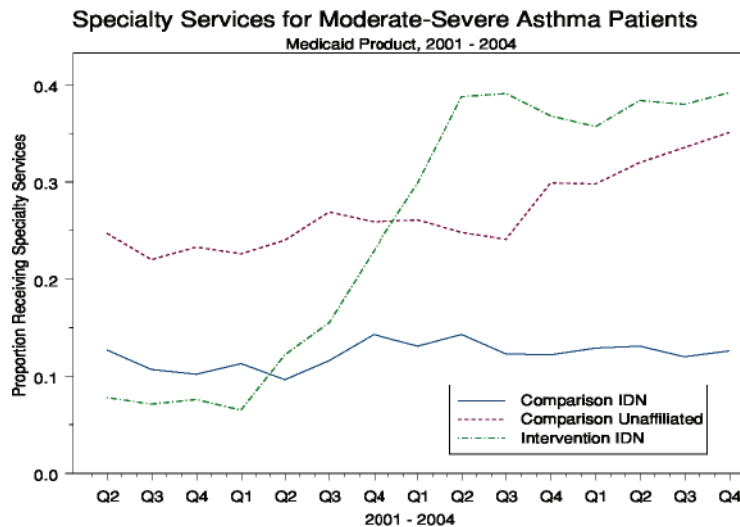


Figure 2: Specialty Services for Moderate to Severe Asthma Patients, 2001-2004

The results with the measure of 72 hour office follow-up after an ED visit were not positive (see Figure 3). In early 2001, the intervention delivery network had poor performance, with only 9 percent of the patients receiving follow-up within 72 hours. Similarly, for the comparison delivery network only 8 percent of the patients received follow-up within the time frame. In contrast, for the unaffiliated patients 15 percent had a follow-up within 72 hours. This is curious: since the hospital emergency rooms are part of the same delivery networks, one would expect easier communication and collaboration within networks. By the end of 2002, the initial year of the intervention, follow-up had increased to 13 percent for the intervention group, had also risen to 13 percent for the comparison IDN, and had reached 18 percent for the unaffiliated group. Since comparable increases occurred across the groups, it is difficult to attribute improvements to the intervention. There was continued improvement with the intervention group during 2003, however, by the end of the project period, the percentage of follow-up was at 12 percent. The comparison delivery network had a follow-up rate of 9 percent, while the unaffiliated group was at 19 percent.

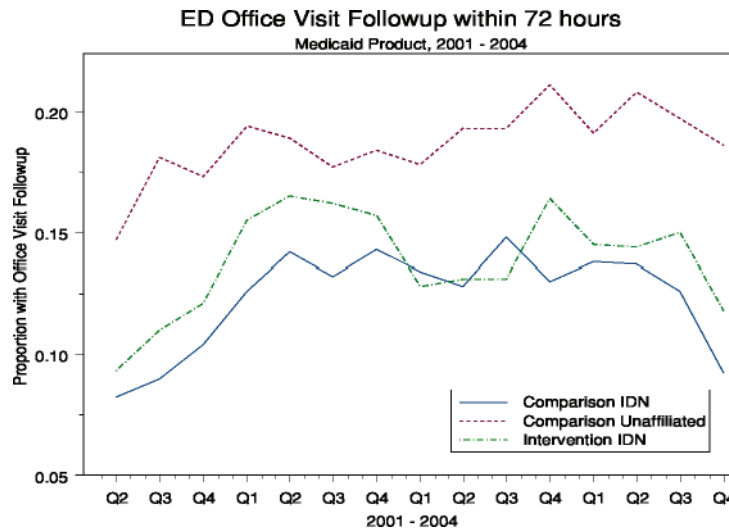


Figure 3: Office Visit Follow-up after ED encounter, 2001-2004

These results did not correspond with interview responses with physicians in the intervention group. While complaining of poor communication with emergency departments at the beginning of the project, at least some of the interviewed physicians highlighted improved emergency department communication as a project accomplishment. An alternative explanation for the observed results is that the clinic-based care predominant in delivery networks makes it difficult for appointments to be made within 72 hours. If the emergency department visits are reported by the next day, the clinics only have a short window to contact the patient’s family and arrange a visit by the end of the 72 hours. Perhaps the better performance in the unaffiliated group reflects both better follow-up by the patient’s parents, and greater responsiveness by the practices, rather than direct follow-up by the practice. To test this hypothesis we also examined a 2 week follow-up window.

As seen in Figure 4, the intervention group did show impressive improvement during the initial intervention period, when the measurement window was extended to 2 weeks. In early 2001, the 2 week follow-up was 15 percent for the intervention group, 18 percent for the comparison delivery network, and 27 percent for the unaffiliated group. By the end of 2002, the intervention group reached 28 percent follow-up compared to 29 percent for the unaffiliated group, and 21 percent for the comparison delivery network. The gap between the intervention and unaffiliated groups was closed. However, continued improvement was flat, and there was slippage at the end of the intervention period. By the close of the project, follow-up was 23 percent for the intervention group compared to 27 percent for the unaffiliated group. The comparison delivery network had fallen back to 17 percent. Supporting the physician interviews, the two week window shows improvement in the intervention group relative to its baseline and comparative performance with the other delivery network.

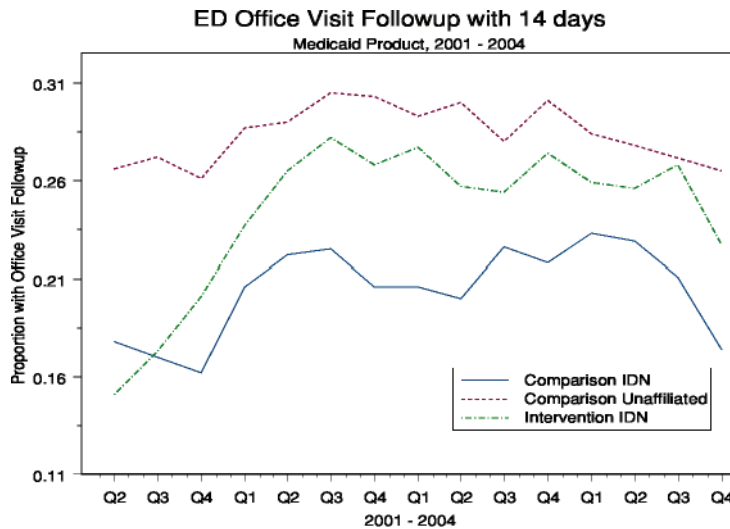


Figure 4: Office Visit Follow-up after ED encounter, 2001-2004

Domain 3: Improved Utilization Rates and Patterns

Improved utilization patterns were measured by changes in asthma-specific hospital admissions and emergency department visits. Because of the small number of hospitalizations, admission rates can vary widely from time to time (see Figure 5). During the first quarter of 2001, the intervention group had about 55 admissions per 1000 person-years of identified asthmatics. The comparison delivery network had 37 admissions per 1000 person-years, while the unaffiliated group had 56 admissions per 1000 person-years. By fourth quarter 2002, the intervention group’s admissions had declined to 41 admissions per 1000 PY. The comparison delivery network’s admissions had slightly increased to 39 admissions per 1000 PY. The unaffiliated group admissions declined sharply to 36 admissions per 1000 PY.

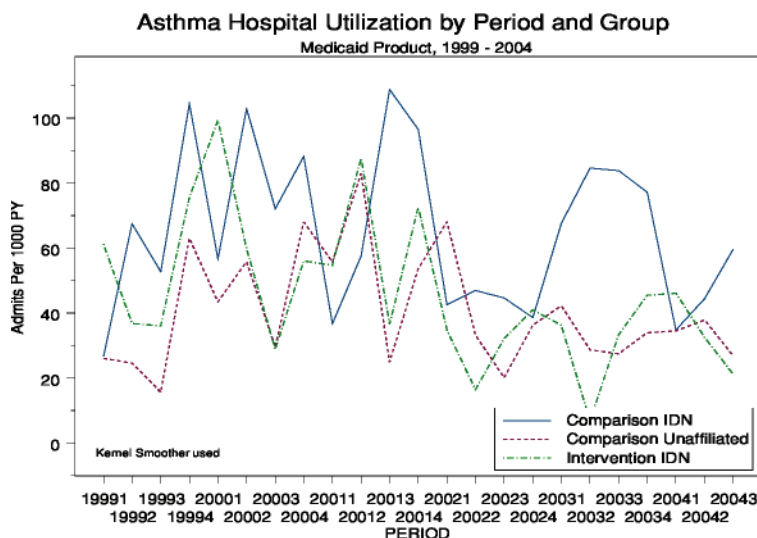


Figure 5: Asthma Hospital Utilization, 1999-2004

By the end of the intervention period, the intervention and unaffiliated groups had similar admission rates. For the intervention group this was 22 admits per 1000 PY, while it was 25

admits per 1000 PY for the unaffiliated group. In contrast, the comparison delivery network had a relatively high rate of 53 admissions per 1000 PY. Because of the variability in this measure, caution should be exercised in its interpretation. In this regard, a more subtle effect is an apparent reduction in variability for the intervention group. During 2001, quarterly results for the intervention group swung between 37 and 73 admissions per 1000 PY. The range for the comparison group delivery network was 36 to 109 admissions, while for the unaffiliated group it was 24 to 83 admissions per 1000 PY. During the last four quarters of the intervention, the range was 21 to 46 for the intervention group, 34 to 77 for the comparison delivery network, and 27 to 35 admissions per 1000 PY for the unaffiliated group.

From Figure 6, stronger results were seen in the reduction of Emergency Department (ED) visits, but major improvements occurred in the early part of 2002, which preceded the ramp up of intervention activities. However, improvements were sustained. During the first quarter of 2001, visits per 1000 per year were 866, 705, and 445 for the intervention, comparison delivery network, and unaffiliated respectively. By the first quarter of 2002, this had changed to 487 for the intervention group, 802 for the comparison delivery network, and 399 for the unaffiliated group. This striking improvement in ED utilization for the intervention group cannot be attributed to the intervention. Significant program activity did not occur until the third quarter of 2002. By the fourth quarter of 2002, ED visits had increased to 589 for the intervention group, 734 for the comparison delivery network, and 471 for the unaffiliated group.

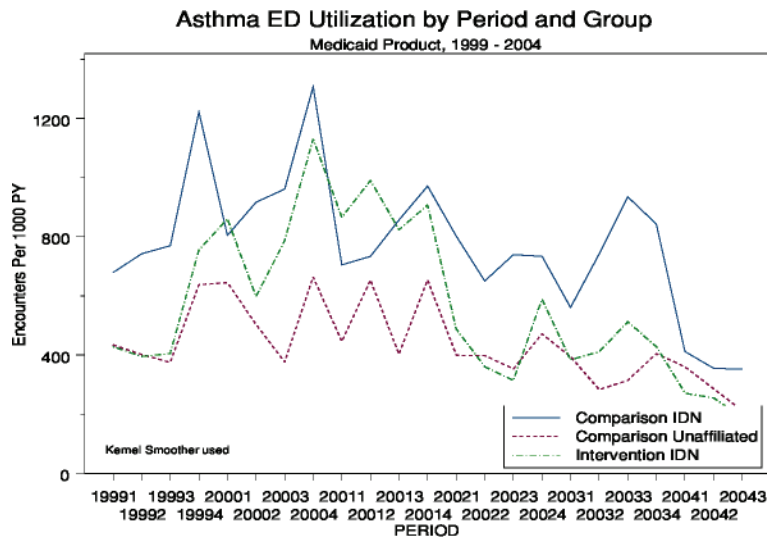


Figure 6: Asthma ED Utilization, 1999-2004

Interestingly, by the end of the intervention period improvement had been sustained and the range of variability declined for the intervention group. By the end of the project period, admissions were 191, 212, and 352 per 1000 per year for the intervention, comparison delivery network, and unaffiliated groups, respectively. Note that the intervention group switched from having the worst utilization pattern to the best over the comparison groups. During the last four quarters, the range for the intervention group was 191 to 429 visits per 1000 per year, versus a range of 352 to 843 for the comparison delivery network, and 212 to 404 for the unaffiliated group.

Domain 4: System-wide Sustainable Changes

One aspect of sustainability is cost. To the extent that an intervention can reduce cost, there will be support to sustain the intervention based on financial benefits. To evaluate costs, asthma-specific primary care, specialty care, hospitalizations, and emergency department costs were examined, as well as these costs totaled. Because pharmacy is carved out the Medicaid managed care program, pharmaceutical costs were not included (and not available). Also, other sources of outpatient costs were not included in total costs, nor were transportation and ancillary costs. Cost savings were not originally anticipated for the project; rather it was thought specialty costs would substitute for emergency department and hospitalization costs.

As previously observed, hospitalization and emergency department utilization declined in the intervention group, while more patients with moderate-severe asthma received specialty services. Cost is a function of utilization and price, so it's expected that hospitalization and emergency department costs would likewise decline, controlling for price changes. In reality, different delivery networks have widely differing charges, especially for emergency department visits, so it is difficult to control for price changes through overall price trends.

As Figures 7 and 8 show, cost data confirms these expectations, although cost changes for the intervention group were not as distinctive as the related utilization changes. Compared to the pre-intervention period, the intervention group tracks more closely with unaffiliated performance than the comparison delivery network. Primary care costs were not expected to change due to the intervention, and as demonstrated in Figure 9, they didn't, with similar performance across all comparisons groups. Primary care costs show an overall cost trend increase, with seasonal fluctuations clearly visible.

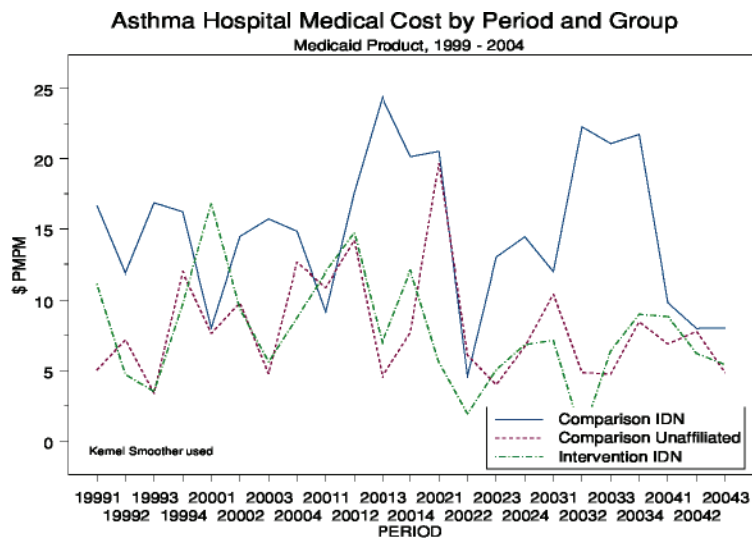


Figure 7: Asthma Hospital Medical Cost, 1999-2004

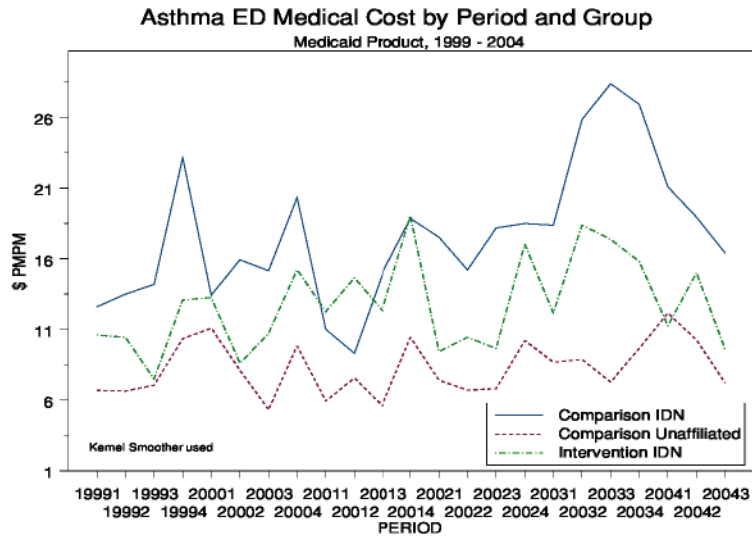


Figure 8: Asthma ED Medical Cost, 1999-2004

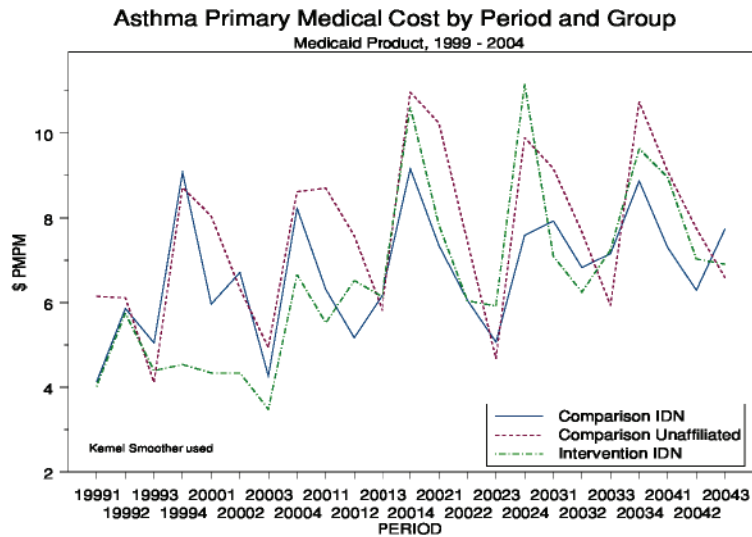


Figure 9: Asthma Primary Medical Cost, 1999-2004

Quarterly total medical PMPM asthma-specific costs for identified asthmatic children are displayed in Figure 10. Total costs for the intervention group were \$35.25 PMPM for the comparison delivery network and \$33.54 PMPM for the unaffiliated group. The costs reported here are for all identified asthmatic children; note that asthma is defined very broadly as an individual with one asthma diagnosis on a claim. Costs for moderate/severe asthmatic children are much higher. By the fourth quarter of 2002, total asthma-specific costs were \$42.02 PMPM for the intervention group, while the comparison delivery network had risen to \$47.04 PMPM and unaffiliated group was at \$36.25. By the last project quarter, total asthma-specific costs were \$28.78 for the intervention group, \$44.10 for the comparison delivery network, and \$27.54 PMPM for the unaffiliated group. These data show cost improvements for the intervention group, especially with respect to the comparison delivery network and its pre-intervention performance. The unaffiliated group was able to achieve similar reductions in cost.

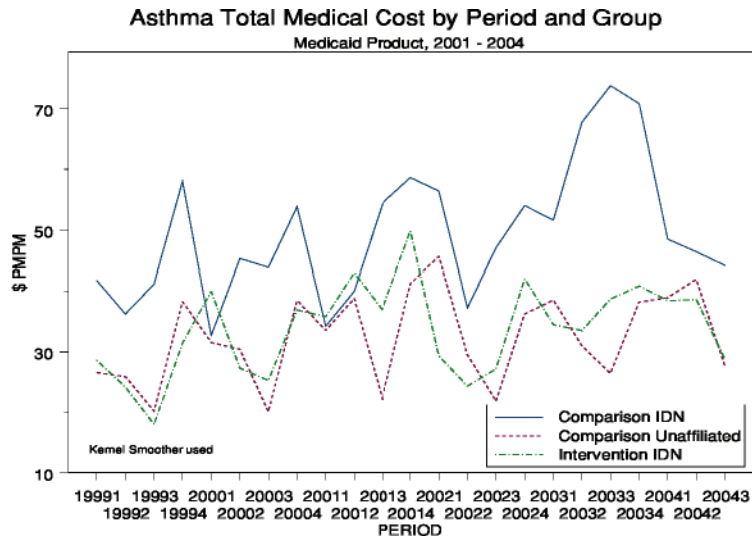


Figure 10: Asthma Total Medical Cost, 1999-2004

As expected specialty costs increased for the intervention group, as seen in Figure 11. During the first quarter of 2001, the PMPM costs were \$0.66, \$1.07, and \$1.50 for the intervention, comparison delivery network, and unaffiliated groups, respectively. Specialty costs for the intervention group peaked at \$3.65 PMPM during the second quarter of 2003, but slipped down to \$1.72 at the end of the intervention period. The comparison delivery network reached a peak of \$2.67 PMPM at the end of the intervention period, while the unaffiliated group was at \$2.95 PMPM during the same period.

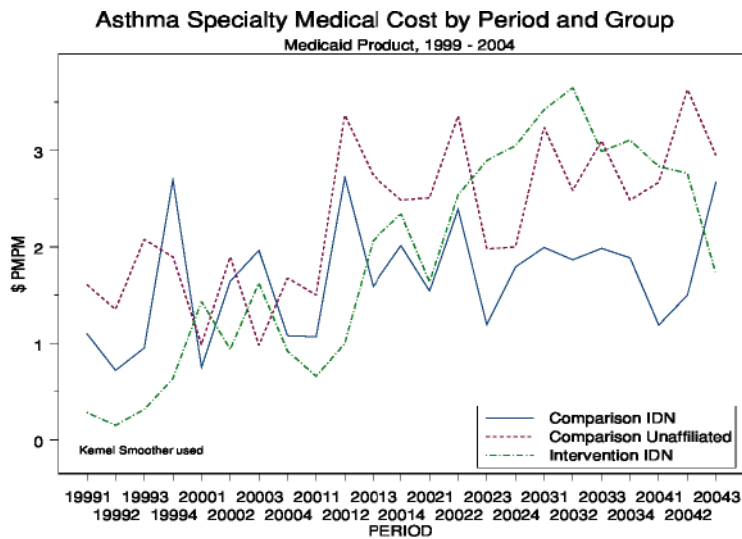


Figure 11: Asthma Specialty Medical Cost, 1999-2004

At the end of the project, effort transitioned from focusing on the intervention group to all groups. In addition, the Mary Parkes Asthma Center changed affiliation from the intervention group to the comparison delivery network. Alternatively, previous sections showed that the intervention group experienced a sharp reduction in moderate/severe asthmatic children — the

reduction in the use of specialty services may simply reflect decreased candidates for those enhanced services.

In sum, the cost data supports the sustainability of the project intervention. As expected, specialty service costs increased. Unexpectedly hospitalization and emergency department costs decreased sufficiently to more than offset the increase in specialty costs. Note that this analysis does not include the costs of the intervention program itself and, consequently, is not sufficient to demonstrate a positive return-on-investment. It does support that idea that specialty services efficiently substituted for hospitalizations and ED visits. Clouding the picture is a sudden decline in specialty service costs in the intervention group, with the possibility that organizational changes maybe negatively affecting the improvement process.

Influenza Vaccination

Over a three year period, the IACC project has fostered sustainable changes in health care provider clinical behaviors, as evidenced by its impact on PCP and SBHC clinical practice patterns as well as influenza immunization for children with asthma.

For Fall 2004, the Monroe Plan identified, from its claims database for its multi-county enrollment, 4433 children under age 19 with asthma. In light of the national influenza vaccine shortage, in late October, Monroe Plan mailed letters (English/Spanish), along with CDC vaccine information sheets (English/Spanish) encouraging parents of children with asthma to contact their PCPs to schedule a flu shot, if available, for their children, per CDC vaccination recommendations. These letters also provided information regarding influenza prevention and treatment measures. Monroe Plan also sent letters to 358 Monroe Plan Pediatric and Family Practice physicians informing them of the patient letter and providing them with a roster of their patients under age 19 with asthma. The Monroe County Health Department and Monroe County Medical Society took the lead in coordinating flu vaccine availability in the region and prioritizing use of available supplies. The ViaHealth SBHCs, which had success during school year 2003-04 with mailing flu shot reminder packets to their enrollees with asthma, received an adequate supply of vaccine in Fall 2004 from their sponsoring hospital, Rochester General, which was used for their enrollees with asthma per community guidelines.

SBHC Practice Patterns

In support of their IACC project participation over a three year period, the ViaHealth SBHC Nurse Practitioners (NP) developed a consistent approach to identify students with asthma in their schools and ensure that these at-risk students were enrolled in the SBHC. The SBHCs implemented an asthma roster to track each student's asthma action/care plan and patient education provided. At the inception of the IACC project, for school year 2002-03, there were 286 children with an asthma diagnosis identified and tracked among the three SBHCs; this increased to 396 for school year 2004-05. For school year 2004-05, in the two SBHCs having a full complement of NP staff, asthma action/care plans and patient education were documented in 96 percent of medical record charts sampled for the high school SBHC (improved from 92 percent in 2002-03) and 89 percent for the elementary school SBHC (improved from 38 percent in 2002-03.). At the other high school SBHC which had less than the full complement of NP staff, action plans and patient education were documented in 69 percent of the charts sampled (improved from 53 percent in 2002-03.)

The SBHC NPs initiated a flu shot project for students with asthma for school year 2003-04. The project - *Influenza Vaccine for Students: A Collaborative Effort of SBHCs, Students, Parents and Community Providers* - received first prize recognition for its poster presentation at the National

Assembly of School-Based Health Care annual convention in June 2004. The project demonstrated how “SBHCs can be instrumental in the promotion, education and administration of the influenza vaccine. This has positive outcomes for the student, the school and the community.” Packets were sent to the families of enrolled students with asthma, including a cover letter to parents (advising them that their child should be vaccinated for influenza at their PCP office or at the SBHC), a consent form, and vaccine information sheets. The SBHCs tracked influenza vaccinations given to students with asthma, or those known to have been vaccinated at their PCP office. The SBHC NPs also arranged for influenza vaccination clinics for the faculty and staff at their schools. As a follow-up, the IACC outreach worker attempted to contact by telephone parents of students who had not yet responded, to check if the students had received a flu shot from their PCP. The Outreach Worker reminded the parent of the benefit of vaccination, answered any questions, and again offered the availability of vaccination at the SBHC. At the pilot project SBHC, with 119 enrollees with asthma, 68 students (58 percent) of the students with asthma received flu shots either at the SBHC or through their PCP. For school year 2004-05, the national shortage of vaccine limited the scope of the annual SBHC flu shot project.

PCP Practice Patterns

During the IACC project, the staff conducted longitudinal medical records audits for the participating PCPs for the year 2001. This provided the baseline, with audits repeated again for 2002 and 2003, seeking the charts previously included, plus an additional sample for inclusion of newly participating medical groups and to augment the sample size. The IACC project became fully operational third quarter 2002. For the final 2003 audit, the IACC-participating physicians had shown minimal improvement in using a standardized asthma evaluation visit form (from 2 percent in 2001 to 16 percent in 2003) and a slight decrease in documenting an action plan or written instructions (from 20 percent to 16 percent). However, there were impressive results with a significant increase in the prescribing of controller medications (from 37 percent to 86 percent), and improved influenza immunization rates (from 31 percent to 50 percent).

Transition Challenges

Since the allocated grant funds were not fully expended during the three years of the project due to lag time in hiring project staff, a five-month project extension period into 2005 supported a planning process for program continuation. Transition planning began earlier due to project staffing issues and Asthma Center changes. IACC’s bi-lingual outreach worker, who had previously had an intermittent health problem, became permanently disabled six months prior to the end of the grant; her activities were accomplished by the remaining outreach worker and the project coordinator, with help from a bi-lingual Monroe Plan member services staff member. Additionally, the other outreach worker and the project secretary both resigned three months prior to the end of funding for their project positions, having accepted permanent positions elsewhere. Monroe Plan moved forward by planning and implementing its IACC continuation program; the IACC project coordinator transitioned into the newly created position of Monroe Plan Asthma Care Coordinator and the project recruited a full time bi-lingual outreach worker. A second external challenge also occurred at the end of the project, when in September 2004, the Mary Parkes Asthma Center changed system affiliations from ViaHealth to Strong Health and relocated to a suburban site. Fortunately, the GHS asthma specialists who staffed the center remained on the Genesee campus, continuing to serve IACC patients through their GHS Asthma/Allergy, Immunology & Rheumatology Division in a suite adjacent to the former MPAC. There was timely, effective communication with patients to try to make the transition as seamless as possible.

Program Sustainability

As a result of the IACC project, the Monroe Plan has enhanced its organizational capacity to provide improved disease management services to its enrollees with chronic illness. Post-grant, Monroe Plan, with Quality Incentive support from the New York State Department of Health (NYSDOH), is expanding its IACC initiatives beyond ViaHealth to the broader Monroe Plan enrollment: to the comparison integrated delivery network group and to the other non-affiliated practices, both of which groups are larger in size than the initial ViaHealth intervention group. Starting in 2005, IACC will be implemented in Monroe Plan's original seven-county service area, including its Rural Outreach Program for the Finger Lakes Region, and over time, in eight new counties in New York's Southern Tier region and to the west of the current service area.

NYSDOH has recognized the Monroe Plan as one of the consistently best performing Medicaid managed care entities by awarding Blue Choice Option, for a third year in 2004, a quality incentive payment - a full one percent increase in premium revenue (maximum award) - as part of its Quality Incentive program. Effective April 1, 2005, the NYSDOH increased the maximum possible quality incentive payment to 3 percent of premium revenue. Monroe Plan's ultimate goal is to achieve results for HEDIS measures comparable to the commercial plans' performance. For 2005, the Monroe Plan Board committed all of the NYSDOH Quality Incentive money for enhanced quality initiatives, in addition to its usual funding of quality improvement activities. This funding will support IACC program continuation.

Monroe Plan's IACC program for 2005 and beyond will continue to use the patient and provider identification, stratification, outreach and intervention methodologies and strategies from IACC project:

- Patient identification/case finding from lists of high utilizers of service from the entire Monroe Plan enrollment (staged by registered practice groups who have completed provider education, by patient asthma severity, and by bigger practices), follow-up of ED asthma visits, and quality of life survey requests for additional information;
- Contact PCPs of children with moderate to severe asthma re anticipated referral of child to PCP's preferred asthma specialist for evaluation;
- Contact patient to arrange and facilitate services unless PCP disagrees;
- Implement office staff training curriculum/program to register physician practices for providing reimbursable patient asthma education;
- Institute reimbursement billing codes for patient asthma education in PCP and specialty offices;
- Provide practitioners with usable individual patient data;
- Facilitate influenza vaccination; and
- Expand the ITG quality of life survey to entire Monroe Plan population.

The new Monroe Plan position of Asthma Care Coordinator, filled by the incumbent IACC project coordinator, is responsible for coordinating asthma program activities through the promotion of asthma education, program operation and collaboration with providers to improve outcomes of care by identifying members targeted for intervention through a variety of case-finding activities, providing program operation support, conducting provider office staff asthma training and monitoring results, providing case management services, and evaluating program outcomes. The Asthma Care Coordinator oversees the bi-lingual Asthma Outreach Worker, who makes home visits, coordinates health care and resource services, educates members on issues relating to medical care compliance, and participates in data collection.

IACC has developed two brochures to describe the expanded Monroe Plan IACC program, one for patients (English/Spanish) and one for provider offices. The patient brochure is similar to the brochure in use for the initial IACC project, and promotes the comprehensive services available to patients: home visits, office visits with an asthma specialist, asthma education, peak flow meters/spacers, and transportation assistance. The brochures explain to patients and their families what they can expect from their child's asthma treatment: no symptoms or minor symptoms (wheezing, coughing, shortness of breath); sleeping through the night without asthma symptoms, no time off from school or work due to asthma, full participation in physical activities, no ED or hospital stays, and little or no side effects from asthma medicine.

The new IACC provider brochure describes Monroe Plan asthma care management available for patients requiring follow-up after ED visits or hospitalization and for patients needing asthma education or education for adherence to asthma medication. Benefits to PCP offices include: availability of outreach for at-risk patients, facilitation of specialty services, opportunity to provide asthma education with reimbursement to the practice, and improved patient compliance and outcomes. Improved system processes include: continued "no-referral" requirement for asthma specialty services; spacers/peak flow meters; tracking/ recall/ reminder and outreach for influenza vaccination; educational materials, asthma action plan and encounter templates; physician office staff training curriculum/materials for patient asthma education; training and registering licensed office staff (RN, NP, PA, RT) as competent to deliver asthma education; and billing codes for Monroe Plan reimbursement to registered offices for patient asthma education.

A key feature of the IACC program is provider education, supported by physician office staff training modules for reimbursable asthma patient education. The educational program has been approved for 5 CME credits through the Rochester Academy of Medicine. Modules include: asthma overview and patho-physiology; asthma tools and medications, asthma action plans, evaluating the asthma patient, control of environmental triggers and skin testing, and asthma resources. Monroe Plan adapted this component for its IACC continuation program from another IACC grantee, Kansas City Family Health Partners. Such sharing of effective strategies was a direct benefit of networking among the grantees that was fostered by CHCS grantee meetings, a regular schedule of grantee conference calls, and structured email communication.

Lessons Learned

A major lesson learned from the project is that outreach and engagement of patients is a critical success factor. Prior to the inception of the IACC project, Monroe Plan had undertaken a pilot project with limited success to identify children with asthma who were high utilizers of services and to facilitate their entry into specialty care for evaluation and education. With the inception of the RWJF-funded IACC project, IACC structured a comprehensive initiative which included two part-time outreach workers, representative of the Monroe Plan enrollees being served - African-American and Hispanic. An initial home visit arranged by the outreach worker put a personal face on the program and encouraged the family to seek care for their child's chronic illness. The home visit positioned the outreach worker for ongoing follow-up with the family to ensure that medical appointments were kept, as well as facilitating transportation (for 200 families in the course of the project) and identifying and addressing other barriers to access to care.

Another example of outreach and engagement structured into the program was follow-up by the IACC project coordinator of children who had ED visits in order to prevent further potential ED visits or hospitalization. The goal was to ensure that the patient was scheduled for a PCP follow-

up appointment, had transportation arranged for the visit, and had filled prescriptions. The ED visit was a trigger for concern regarding the patient's health status, and staff contact was a focused educational opportunity. A final example of outreach and engagement structured into the program - a side-benefit of the quality of life survey process - was the opportunity for IACC staff to make personal contact with families who requested additional information when completing the survey by mail or telephone. Over the course of two years of surveying, this resulted in 77 additional children/families becoming program participants and receiving the benefits of specialty care and enhanced patient education and support services.

An additional lesson learned from undertaking the project was the necessity and benefit of ongoing physician involvement and communication. Primary Care and specialty physicians and mid-level practitioners at thirteen urban, suburban and rural practice sites, including SBHCs, were involved in the project through ongoing written correspondence, participation on the project steering committee, on-site in-service education and IACC presentations, and two cycles of provider open-ended qualitative surveying - one-to-one meetings with the IACC coordinator. The surveying focused on influences the IACC project had on communication between PCPs, specialists, and EDs, as well as plans for the expanded Monroe Plan continuation program, including the new provider office reimbursable patient education component. Overall, the providers were appreciative of IACC efforts, indicated satisfaction with improved connection with specialists for consults and educational opportunities, and felt that the project had been successful.

A final lesson learned was the value of the opportunities provided by the Center for Health Care Strategies to the five IACC grantees for regular, ongoing communication and sharing of project strategies and successes. From these interactions, the Monroe Plan decided, for its IACC continuation program, to implement an IACC initiative developed by Kansas City Family Health Partners - physician office reimbursement for patient asthma education - adapting learning modules from its provider education curriculum as a component of the Monroe Plan IACC continuation program. In addition, CHCS also provided ongoing technical assistance and support, particularly valuable in the area of project evaluation.

Project Impact

The IACC project impacted positively on the quality of life of its enrollee participants. It facilitated access to appropriate specialty evaluation services; the project outreach workers identified and addressed barriers to care (transportation, child care, language, literacy) in a culturally competent manner. IACC activities supported provider and patient/family education with focus on preventive care to avoid unnecessary hospital visits. The SBHC model provided optimal opportunity for patient access and preventive care services.

The IACC project promoted clinical quality, using accepted standards of care. Rochester has had *Community Guidelines for Asthma Care for Children* in place since 2001. Provider on-site education focused on enhancing awareness and understanding of the guidelines within the primary care office setting. Communication among the CHC and SBHC providers and the asthma specialists was enhanced by the project's in-service education as well as the availability of asthma specialists for facilitated consults. The qualitative surveys of IACC-participating providers in 2003 and 2004 indicated satisfaction with improved connection with specialists for consults and educational opportunities.

In support of asthma awareness and education, IACC staff participated in over 30 community events since mid-2002, primarily health fairs in urban Rochester targeted to the medically indigent and underserved, sponsored by such community organizations as Ibero-American Action League and Action for a Better Community. Over this period of time, the IACC coordinator organized 21 presentations, covering the participating practice sites, attended by over 180 provider and clinical office staff. In addition, over the course of the project, the coordinator provided 10 additional asthma presentations to interested clinical groups in the community.

The IACC project, in collaboration with RCAN - Regional Community Asthma Network, a non-profit coalition representing asthma stakeholders throughout the Finger Lakes Region, whose mission is to promote partnerships to reduce the social, medical and economic impact of asthma - has applied for an EPA National Environmental Leadership Award in Asthma Management. This award recognizes health plans/health care providers for their leadership in addressing management of environmental triggers as part of their comprehensive asthma management programs. Receipt of this award is a sign of excellence and an indication of commitment to the health of asthma patients.

The IACC program, with its Best Clinical and Administrative Practices (BCAP) model of identification, stratification, outreach and intervention strategies, has been fully incorporated into the Monroe Plan ongoing quality programming, enabling Monroe Plan to fulfill its mission and reflecting its vision to be "...recognized nationally as a health care management organization that improves health outcomes and reduces disparities for low-income and working poor individuals and their families...through its effective partnerships with enrollees and health care professionals, its innovative quality management programs, its focused community leadership, and its strategic organizational management." Additionally, the ongoing IACC program supports efforts to maintain Monroe Plan performance to retain the NYSDOH quality incentive award.

Monroe Plan Quality Improvement Pays Project

As an outgrowth of the IACC project, the Monroe Plan is participating in a 30-month CHCS demonstration/evaluation project of the business case for investing in quality-enhancing initiatives (QEI) to improve care for Medicaid beneficiaries with chronic illnesses - children under age 19 with asthma and adults under age 65 with a primary diagnosis of diabetes. The goal is to demonstrate a business case for quality by measuring the Return on Investment (ROI) for three domains: financial, economic, and social. The additional features of the QIPP program specifically for IACC, include providing practices with patient data regarding care needs (use of controller and rescue medications) and reviewing HEDIS clinical measures for disparities within sub-populations (African-American, Latino, urban, rural.)

NYSDOH Asthma Collaborative

Monroe Plan is an active participant in the New York State Department of Health Asthma Collaborative, convened during 2004, developed with and funded through the Center for Health Care Strategies, as an outgrowth of CHCS' New York IACC grantee relationships. As part of this, the IACC project has been the catalyst and model, via a new regional collaborative initiative, the Rochester Asthma Collaborative, for Rochester's two competitor Medicaid managed care plans - Blue Choice Option and Preferred Care Option - to establish physician office staff training for reimbursable patient asthma education, which will benefit all Medicaid managed care and Child Health Plus enrollees in the county. Discussions are underway regarding the feasibility for RCAN, the regional asthma collaborative, to assume the training program community-wide, using the IACC provider education modules.

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