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Promoting a Medical Home: Findings from Pilot Work in Two Sites

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Key Findings

- Parents served by the Patient Advocate report a statistically significant increase in the family-centeredness of care provided by their primary care physician
- Families in the medical home pilot have exceptional levels of completion of scheduled well-child visits; completion of well-child visits in the first year of life (86%) is approximately double the rate for children born on to Medicaid in Cuyahoga County (40% based on 2003 data)
- As the target child gets older, the percentage of families keeping current on all their child's appointments drops from 99% at two weeks, to 92% at six months, to 86% at 12 months
- Use of the emergency department among the children served in the pilot project was markedly lower than the rate reported for similar populations in other studies (41% NFP site vs. 56% Medicaid general population)
- Approximately 54% of children in the pilot had other office visits in addition to scheduled well-child visits during the period, and this proportion is similar to that found in other studies (57%)
- Future work should examine the relationship between the parent and the Patient Advocate as the key dimension of the approach; measures should be identified that clearly link to this interaction rather than the patient's relationship with the physician and/or health care facility

Introduction

The continuity of medical care for young children is recognized as central to measures of child well-being. The medical home concept places a premium on helping parents establish an early and durable relationship with a primary care provider, so that children are better able to access preventive care. A pilot project in Cuyahoga County, Ohio, is examining the value of a model program aimed at promoting a medical home for young children. The model provides a dedicated Patient Advocate that works exclusively with parents of newborns to facilitate their relationship with and engagement in the health care services provided through their primary care facility.

Ongoing monitoring of health care insurance coverage has shown nearly universal coverage of the child population under age 6 in Cuyahoga County in recent years. Approximately 4% of children were found to be uninsured in 2004 & 2008 based on survey data (Coulton, Fischer, Hardy, & Lalich, 2009). Yet, data on receipt of well-child visits showed that at most half of infants on Medicaid in Cuyahoga County were receiving the recommended number of well-child visits in the first year of life (Koroukian, Offutt, Polousky, Fischer, & Coulton, 2003). This led the Cuyahoga County Office Health & Human Services and the Office of Early Childhood/Invest in Children and its program partners to explore alternatives for more effectively engaging parents of young children to influence visit-keeping behaviors during this crucial period.

Program Description

The medical home model that was identified was to employ a patient advocate in the health clinic setting to do outreach to pregnant women and serve as a liaison between the health care provider and the family. Beginning in spring 2008, the IIC Medical Home Pilot commenced in two health care clinics in the City of Cleveland – the Northeast Ohio Neighborhood Health Services (NEON) operating in the Hough neighborhood, and Neighborhood Family Practice (NFP) operating in the Stockyards neighborhood. See Map inset.



At these clinics a dedicated staff person (Patient Advocate) began to work with families in which the mother had a recently delivered or was pregnant. The patient advocate functioned as the family's chief contact at the clinic and would assist the family in navigating the service environment. Through the end of 2009, the two patient advocates had worked with approximately 350 families of newborns at the two sites.

To examine the delivery of the pilot project, an evaluation plan was adopted. The primary questions that the evaluation sought to address were (1) what are parents' attitudes and perceptions over time about their relationship with their child's primary care provider?, (2) do parents demonstrate increased understanding of the importance of a medical home for their child and themselves?, and (3) does medical home engagement lead to greater utilization of health check and well child services and timely pediatric immunizations? This summary presents data that begin to inform these key questions.

Methods

The evaluation was framed by drawing on two principal data sources. The first involved parent self-report data on the *Primary Care Assessment Tool – Expanded Version* (Cassady, Starfield, Hurtado, Berk, Nanda, & Friedenberg, 2000). The PCAT contains 69 scaled items and is designed to assess parents' view of primary care services and use of a medical home for their child. The second method used in the evaluation was data extraction from cases by the patient advocate in each site. The case record data reflected the appointment keeping of families for well-child and other office visits, as well as use of emergency department. PCAT data were collected during the first year of the study only and the PCAT was administered to parents at baseline (enrollment) and then six-month intervals.

PCAT Data

In the first year of the pilot program, a total of 153 baseline PCATs were collected in hardcopy and the data from these forms were entered into SPSS statistical software. Analyses yielded a descriptive look at the families engaged in the pilot program at the two sites as well as the families' initial assessment of their use of primary care for their child.

Baseline data. **Table 1** shows basic demographic characteristics on the families who completed a baseline PCAT. In regard to income, the families are predominantly low-income with approximately 60% earning under \$25,000 annually. Nearly one-third of respondents declined to report their income, so these data should be interpreted with caution. Overall, more than half of the

families are African-American, nearly one-quarter are White, and eight percent are Hispanic or Latino. There are substantial differences at the site level, with the NEON sample being predominantly African-American (96%), and the NFP sample being approximately one-half White (46%) and one-half of other races. In respect to education level, nearly 40% of the parent respondents had not completed a high school diploma, and only eight percent had completed a college degree. More than half of the parents were not employed at the time they completed the survey, and overall 87% of the families reported having insurance coverage of some type.

TABLE 1: Demographic Data

	Total		NEON		NFP	
	N	%	N	%	N	%
Income (n=148)						
Under \$5,000	37	25.0	23	29.8	14	20.0
\$5,000-9,999	14	9.5	4	5.1	10	14.3
\$10,000-14,999	18	12.8	12	15.6	6	8.6
\$15,000-24,999	20	13.5	13	16.9	7	10.0
\$25,000-34,999	10	6.8	6	7.8	4	5.7
\$35,000 or more	5	3.4	4	5.2	1	1.4
Not sure/don't remember/refuse to answer	43	29.0	15	19.5	28	40.0
Race (n=150)						
African-American	84	56.7	75	96.1	9	12.7
White	33	22.0		-	33	46.5
Hispanic or Latino	20	13.3		-	20	28.2
Other	12	8.0	3	3.8	9	12.7
Education (n=150)						
Did not finish high school	59	39.3	27	34.2	32	45.7
Got a high school diploma or GED	52	35.3	32	40.5	20	28.6
Had some college or vocational school	26	17.3	13	16.5	13	18.6
Finished college or graduate school	12	8.0	7	8.9	5	7.1
Employment (n=152)						
Employed full-time	32	21.7	17	21.2	15	21.1
Employed-part-time	15	9.9	3	3.8	12	16.9
Not employed	81	53.3	47	58.8	34	47.9
Retired/In-school	15	9.9	9	11.3	6	8.5
Other	8	5.3	4	5.0	4	5.6
Health Insurance (n=148)						
Yes	129	87.2	67	87.0	62	88.6
No	13	9.5	6	7.8	7	10.0
Not sure / Don't remember	5	3.4	4	5.2	1	1.4

Table 2 presents additional data on the health insurance coverage for the child and the parent's experience paying for medical care. Though approximately 70% of the respondents reported that their child was covered by insurance for the full year, nine percent reported that the child was never covered and an additional nine percent was covered "only a few months or weeks." The sample reflects a population of families reliant on publicly-funded health care. A majority of parents reported that their child was covered by Medicaid/S-CHIP during the past year and 43% of children received care at a public health clinic, during the period. Less than 10% of the families had any private health insurance during the year, and 6% paid some of the costs from their personal income.

Approximately ten percent of respondents reported that they had trouble paying for the child's health care in the last year, with the rate at NEON (13%) being markedly higher than that at NFP (6%). Fully, 90% of respondents reported that they rarely or never have to pay at the time of a visit for their child's health care.

TABLE 2: Baseline Characteristics

Respondent's Insurance and Paying for Medical Care						
	Total		NEON		NFP	
	N	%	N	%	N	%
Length of time child has been covered by health insurance (including Medicaid) in the past 12 months:						
All year	108	70.6	60	74.1	48	67.6
Most months	13	8.5	8	9.9	5	7.0
Only a few months or weeks	14	9.2	6	7.4	8	11.3
Never	12	8.5	5	6.2	7	9.9
Not sure/don't remember	5	3.3	2	2.5	3	4.2
Means of paying child's health care in the past 12 months:*						
Medicaid or medical assistance/S-CHIP	89	61.0	35	46.1	54	78.3
Governmental health department clinic	58	43.3	54	70.1	4	7.0
Private health insurance company	11	8.2	5	6.6	6	10.5
HMO	15	11.1	9	11.7	6	8.5
Personal income	8	6.1	2	2.7	6	10.7
Respondent has had trouble paying for child's health care in the last year:						
Yes	14	9.7	10	13.3	4	5.9
No	129	90.3	65	86.7	64	94.1
When respondent visits child's PCP, respondent has to pay at the visit:						
Always	5	3.3	1	1.2	4	5.6
Usually	1	0.7		-	1	1.4
Sometimes	2	1.3	2	2.5		-
Rarely or never	136	89.5	74	91.4	62	87.3
Not sure/don't remember	8	5.2	4	4.9	4	5.6
*Represents respondents who answered 'yes.' Possible answers were 'yes,' 'no,' and 'not sure/don't remember.' Respondents could check all that apply.						

Figure 1 presents the mean scores on the PCAT subscales related to the parents' view of primary care services and use of a medical home for their child. The subscales are based on combining the scores from a set of identified survey items and computing a mean value for each respondent. The PCAT domains are described in Appendix 1. Scores can range from 0-4 with 4 representing the best on that subscale dimension. The responses of those who reported "don't know/can't remember" are included as a value of 2.5 on the scale per recommended procedures from the scale author.

Overall, scales that were rated more highly include utilization, comprehensiveness of services available, family-centeredness, and cultural competence. Items that were rated relatively more low included first contact – access, comprehensiveness of services provided, and community

orientation. The mean ratings between the two sites did not differ statistically except in three cases. In regard to first contact-access and comprehensiveness of services available, NEON respondents reported a significantly higher mean value. In regard to comprehensiveness of services provided, NFP respondents reported a significantly higher mean value. No comparable benchmark data are currently available to assess the PCAT levels in this sample.

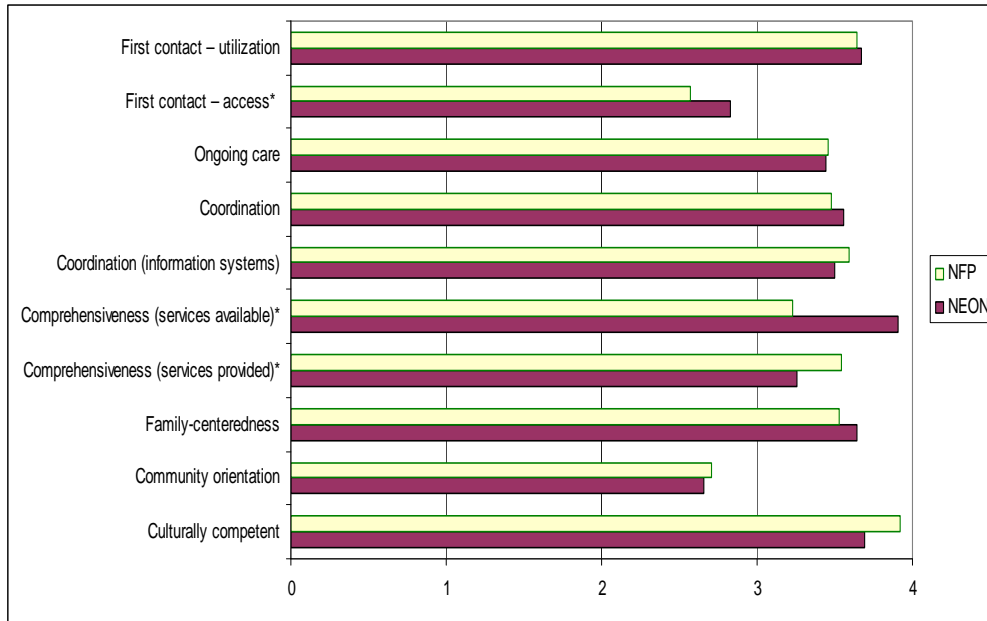


FIGURE 1: Primary Care Subscales on P-CAT by Site

* = Indicates means are significantly different between two sites.

Data on parent perception of primary care over time. The administration of the PCAT over time allowed the examination of changing parent perceptions of their primary care provider. **Table 3** presents data on cases for which the PCAT was administered at two points in time. These data show that six of the nine rated subscales show higher mean values at the second time point. However, the change is statistically significant only one instance – on the family centeredness subscale. This subscale taps into the extent to which the parent feels that their primary care physician involves them in the care of their child.

TABLE 3: Primary Care Subscales – Scores over time

Primary Care Dimension	N of items	Time 1 Mean	Time 2 Mean
First contact – utilization	4	3.61	3.82
First contact – access	12	2.63	2.59
Ongoing care	15	3.53	3.56
Coordination (information systems)	3	3.60	3.59
Comprehensiveness (services available)	16	3.43	3.39
Comprehensiveness (services provided)	7	3.58	3.64
Family-centeredness*	3	3.64	3.89
Community orientation	6	2.71	2.84
Culturally competent	3	3.38	3.51

* = Indicates means are significantly different from time 1 to time 2.

Since the PCAT is framed around a patient's interaction with the primary care physician, it may not have been sufficiently sensitive to detect the changes associated with the medical home pilot. That is, since the focus of the pilot was on the relationship between the Patient Advocate and the parent, the PCAT may not have been appropriately focused as a measure. The pilot included no systematic efforts aimed at influencing physician behaviors, so the PCAT items linked to such changes would not be expected to show change. Future work should more closely assess parents' relationship with the Patient Advocate as a key mechanism in program success. Research using the PCAT has shown that accessibility was rated more highly by patients in clinics with 10 or fewer physicians, a nurse, 24 hour telephone access, and evening walk-in services (Haggerty, Pineault, Beaulieu, Brunelle, Gauthier, Goulet, & Rodrigue, 2008). These factors highlight the important role that the primary care organizational setting plays in the patient's view of the physician.

It should also be noted that the measurement of the medical home concept is the subject of considerable debate. Though the PCAT is one of several measures that have been used to assess the dimensions of primary care in this respect, it has been identified as having the most comprehensive approach to the measurement (Malouin, Starfield, & Sepulveda, 2009). Recent research has suggested a broadening of the medical home concept to a more holistic approach referred to as the "patient-centered medical home" (Stange, Nutting, Miller, Jaen, Crabtree, Flocke, & Gill, 2010).

Medical Appointment Data

The other primary data sources used in the evaluation was case record data on families' appointments related to the target infant. In particular, data were collected on the completion of scheduled primary care appointments by enrolled families. The patient advocate extracted data from the case records using a case summary tool developed for the evaluation. For each case the tool extracts data on the receipt of well-child visits as well as other visits involving the child to the physician and/or emergency department (and the reason for the visit). In addition, case closure data were also collected, recording the reason for the closure and the child's status at closure.

The visit data set includes 346 cases total; cases by site are 195 (NFP) and 151 (NEON). A case was deemed "eligible" for a visit if the target child is old enough for the visit to have occurred and the family was enrolled in the pilot at the time of visit. If a family enrolled in the pilot sometime after a visit should have taken place (e.g., enrolled when infant was one month of age), the receipt of previous visits is not reflected in the calculation of longitudinal appointment-keeping rates.

Findings on well-child visits. In regard to the issue of whether families keep appointments at each point in time, the data were examined cross-sectionally [**Figure 2**]. Families in the pilot project have exceptional levels of completion of scheduled well-child visits; among families where the child was enrolled and age-eligible for a visit, more than 95% of families have completed visits at each of seven age-specific time points. Further, the differences in cross-sectional completion rates between the two delivery sites never exceeded 10% during the period included in the study.

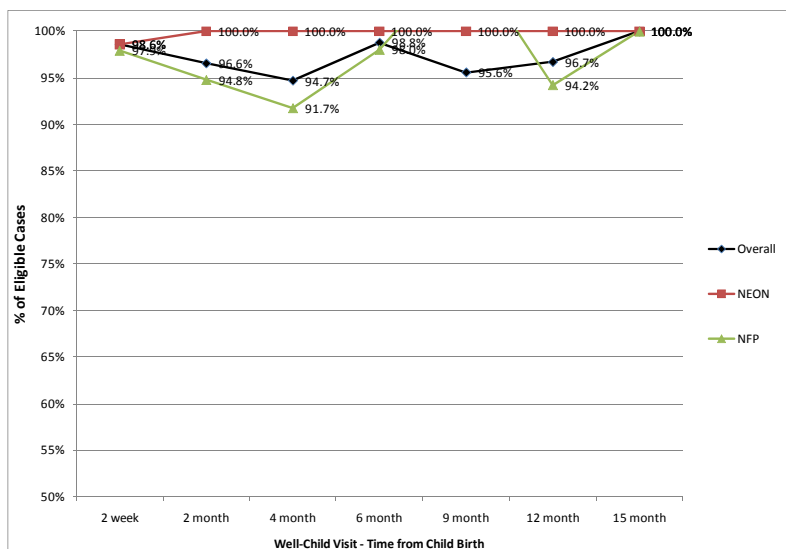


FIGURE 2 – Cross-Sectional Appointment Keeping

In regard to whether families keep all the appointments over time, the data were examined longitudinally [Figure 3]. As the target child gets older, the percentage of families keeping all their appointments drops from 99% at two weeks, to 92% at six months, to 86% at 12 months. The continuity of well-child visits in the first year of life is approximately double the rate for children born on to Medicaid in Cuyahoga County found in previous research (40% based on 2003 data). Differences between longitudinal completion rates at the two delivery sites grow over time and may be in part explained by population characteristics and variable enrollment timing into the pilot between the two sites.

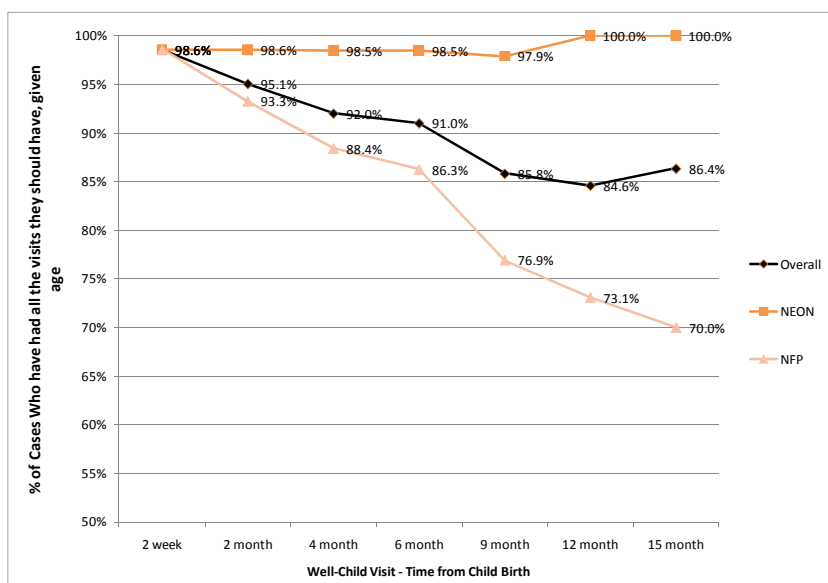


FIGURE 3 – Longitudinal Appointment Keeping

These findings are consistent with previous program audit data on appointment keeping among served families. An audit as part of an internal program review completed in late 2008 showed that the rate of late or missed well-child visits was approximately 18% across the two Medical Home sites (comparable to the 86% of families keeping all visits in the current data). Data collected on

earlier cohorts of children at these same sites as part of the program audit showed rates of late or missing visits in the 30-38% range, roughly double the rate shown in the medical home pilot.

Use of the emergency department. Included within the appointment-keeping data base was information on families' use of the emergency room as well as other medical office visits related to the child (i.e., sick visits). Overall, during the study period 24.3% of children in the pilot had at least one reported ER visit and 53.7% had had at least one sick visit. However, the proportion of cases with a reported ER visit differed markedly between the two sites (41% at NFP, 3% at NEON) but this is largely explained by NEON's extended facility hours and flexible approach in dealing with walk-in visits. As such, situations that would have resulted in a need to go to the ER were likely accommodated as a walk-in office visit at the NEON site. Given this, the ER usage rate at NFP is more appropriate for comparison purposes. Studies of urban Medicaid populations have reported ER use of 56% among families of newborns in approximately the first year of life, and sick visit receipt of 57% (Alessandrini, Shaw, Bilker, Perry, Baker, & Schwarz, 2001; Brousseau, Meurer, Isenberg, Kuhn, & Gorelick, 2004). Therefore, the ER usage in the pilot is still markedly lower than in other studies (41% versus 56%). Among the 85 families that used the ER, 35 (42%) used the ER a single time; an additional 23 families (27%) used the ER twice during the period. The most ten most frequently identified reasons for ER visits were fever (17), weight check (12), cough, (8), cold/fever (7), congestion/fever (7), rash (7), follow-up (7), constipation (6), thrush (5), and flu (5).

Discussion

The available research literature shows that the frequency of well-child visits is associated with short-term health care benefits as well as cost savings to the health care system. For example, children with incomplete well-child care in the first six months of life have been shown to be significantly more likely to have an emergency department visit for a condition that would normally be treatable in a primary care setting (e.g., an upper respiratory tract infection, gastroenteritis, or asthma) compared to children who have complete care (Hakim & Ronsaville, 2002). Children with incomplete care were 60% more likely to visit an emergency department for any cause compared to children who are up-to-date on their well-child care. In addition, children on Medicaid who are up-to-date on their well-child visits through their second birthday are 48% less likely to have an avoidable hospitalization compared to children who are not up-to-date (Hakim & Bye, 2001).

Given these relationships, models targeting the completion of well-child visits could have a substantial social return if effective. The evidence on the patient advocate model suggests that (1) though parents view their primary care provider as more family-centered in their care over time, the evaluation did not measure parents' relationship with the Patient Advocate, which is likely where much positive change occurred, and (2) families are successfully keeping well-child visits according to the recommended schedule at nearly double the rate found in similar populations in Cuyahoga County.

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Appendix A: PCAT Subscale Domains

PCAT-CE Domain	Description	Sample Item
First contact – utilization	Extent to which care was sought from a primary care setting for routine care, immunizations, and illness care	<i>When your child has a new health problem, do you go to your PCP before going somewhere else?</i>
First contact – access	Ease of accessing care	<i>Is it difficult for you to get medical care for your child from your PCP when you think it is needed?</i>
Ongoing care	Extent to which provider is regular source of care and would be approached for a new problem	<i>Does your PCP know what problems are most important to you and your family?</i>
Coordination	Characteristics of care when referral to a specialist or specialty care was needed	<i>Did your PCP suggest that you take him/her to the specialist or special service?</i>
Coordination (information systems)	Characteristics of medical record system to foster coordination of care	<i>When you take your child to your PCP, is his/her medical record always available?</i>
Comprehensiveness (services available)	Availability of 16 different types of services	<i>Are the following available at your PCPC's office...Tests for lead poisoning?</i>
Comprehensiveness (services provided)	Receipt of 5 categories of age-relevant services	<i>In visits to your child's PCP, are any of the following subjects discussed with you and your child..Home safety, like using smoke detectors and storing medicines safely?</i>
Family-centeredness	Role of the family in child's primary care	<i>Does your PCP ask you about your ideas and opinions when planning treatment and care for your child?</i>
Community orientation	Provider's knowledge of an involvement in the community	<i>Does your child's PCP know about the important health problems of your neighborhood?</i>
Culturally competent	Adaptations taken by provider to facilitate relationship with populations having special cultural characteristics or beliefs	<i>Would you recommend your child's PCP to someone who does not speak English well?</i>