Cost and Cost Effectiveness of Pediatric Medical Home Transformation

Florida CHIPRA Part C Medical Home Demonstration Project

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Executive Summary

Background

The medical home is not a location, but an approach to primary care and care coordination designed to provide a consistent trusted source of care, typically by a general pediatrician. This approach to care is also expected to reduce health care costs while improving quality of care by simplifying, organizing, and coordinating care, particularly for children with medically complex conditions.

The purpose of the Florida CHIPRA Part C Medical Home Demonstration Project was to use practice-based models to advance pediatric performance measures related to pediatric practice medical home transformation. In Florida, the patient-centered medical home model was selected, which transforms practices from independent, physician-led, case-by-case management practices to integrated, team-led, population-based management practices. As part of the evaluation component, a cost effectiveness study was funded to assess the cost to pediatric clinics in transforming to a pediatric medical home. Even if the medical home approach to care reduces overall health care costs, it is not known whether the cost of medical home transformation outweighs the benefits from the pediatric practice perspective.

Methods

In 2013, a panel of 15 experts from the American Academy of Pediatrics (AAP), the Children's Medical Services Network (CMSN), and the National Committee on Quality Assurance (NCQA) identified 15 practices to participate in Round 2 of the medical home demonstration. A sample of 8 Round 2 practices was identified and offered participation in the cost effectiveness component of the evaluation. Only 8 were selected in order to maintain a balance between minimizing practice data collection burden and sample size. The 8 practices that were selected operate as stand-alone practices, instead of part of a larger health care system, so as to minimize complications with identifying and isolating costs. Of the 8 practices selected, 6 volunteered to participate.

Cost information, directly related to medical home transformation, was gathered by contacting practices monthly from October 2013 through November 2014, inquiring about the implementation of medical home activities and their associated costs. Each monthly call was guided by practice summary documents of medical home activities. A primary contact person was identified at each practice to describe medical home activities by identifying personnel involved, including their associated position titles and supply or contract costs. Median hourly wages for the relevant position titles were obtained from the Bureau of Labor Statistics (http://www.bls.gov/oes/2013/may/oes_fl.htm). Outcomes data are also self-assessed by the pediatric clinics. The pediatric medical home index (MHI) (Center for Medical Home Improvement), which measures a practice's progress in transforming to a medical home, was measured prior to implementation, during September 2013, and post-implementation, during September 2014. The number of patients and patient visits was obtained from the practice profile survey administered to all demonstration practices.

Results

The six participating practices ranged in size from serving 1,600 to 10,000 patients annually, where on average the Medicaid patients represented over half of their patients, and special needs children represented a range of 5-35 percent of their population. The mean MHI self-report score increased by 1.39 points, representing 38.4 percent more medical homeness. The average annual cost per practice to transform to a pediatric medical home was $131,943. This represents an average cost per visit of $14, an average cost per patient of $39, and an average cost per percent change in medical homeness of $24,905. Medical home activities included, but were not limited to, referral coordination, quality improvement, care plan implementation, creation of patient registries, family advisory group meetings, and preparations for seeking NCQA recognition.

Table 1. Description of Florida Participating Pediatric Practices

Pediatric Practice	Annual # Patients Served	Annual # Patient Visits	Average # Visits per Patient	Percentage			
				Medicaid*	White	Hispanic	Special Needs
A	6,000	17,160	2.9	75	40	40	10
B	4,968	18,468	3.7	44	50	5	5
C**	6,550	8,880	1.4	60	30	40	20
D	2,000	6,180	3.1	45	50	20	10
E	10,000	34,008	3.4	81	61	21	35
F	1,600	5,880	3.7	20	70	15	30
Average	5,186	15,096	3.0	54	50	24	18

**Percent Medicaid, Medicaid Health Plan or KidCare (Florida State child health insurance program)*

***Used estimated number of visits from first year, instead of second year*

Table 2. Change in Medical Home Index (MHI) Mean Score (self-reported)

Pediatric Practice	MHI Pre	MHI Post	MHI Difference
A	2.88	6.08	3.20
B	2.52	4.08	1.56
C	5.52	5.56	0.04
D	4.40	5.00	0.60
E	3.12	4.16	1.04
F	3.28	5.16	1.88
Average	3.62	5.01	1.39

Table 3. Cost to Practices for Pediatric Medical Home Transformation

Pediatric Practice	Cost for MH	Cost/MHI Unit Diff	Cost/MHI % Change	Cost/Visit	Cost/Patient
A	$82,100	$25,656	$739	$5	$14
B	$232,743	$149,194	$3,760	$13	$47
C	$97,186	$2,429,650	$134,117	$22	$15
D	$44,445	$74,075	$3,259	$7	$22
E	$135,971	$130,742	$4,079	$4	$14
F	$199,212	$105,964	$3,476	$34	$125
Average	$131,943	$485,880	$24,905	$14	$39

Discussion and Conclusions

On average, practices increased their self-perceived medical homeness, from a reactive practice (mean score 3 to 4) to a proactive practice (mean score 5 to 6). The practices perceive that medical home transformation can be costly to the practice, averaging $131,943 per practice. Practice perceptions vary regarding the identification of medical home transformation activities, which in turn creates variation in the practice costs related to the transformation.

One of the limitations with this study was that activities that constitute medical home transformation were not clearly defined. Each practice had a different interpretation as to which of their practice activities enhanced medical homeness. For instance, practice advertising was considered a medical home activity by one practice, where advertising could be considered a typical activity for any pediatric practice, whether or not they were transforming to a medical home. Another limitation is that practices self-reported their MHI pre- and post-transformation, without objective criteria or critical review by the evaluation team. As a result, there could be bias in the practices' self-perceived degree of medical home transformation. Finally, practices voluntarily participated in the study and only stand-alone practices were selected. Practices that were part of large health care systems were not selected, as identifying practice costs would be a challenge, particularly for activities where efficiencies could be created by the system, such as electronic record enhancements. Also, as practices volunteered to participate, the range in the percentage of special needs children served also varied. As medical homes target children with complex conditions, who are in need of coordinated care, a study that focused on pediatric clinics with a large percentage of special needs children or children with complex conditions may have had different results.

On the other hand, this report does describe what practices perceive as medical home activities and the associated costs. Pediatric practice perception of the activities and costs associated with medical home transformation are important considerations, as policy makers and health care providers expand adoption of pediatric practice medical home transformation.

Further study could include a comparison of pediatric transformation medical home costs for both stand-alone and system-affiliated pediatric practices. Also, additional guidance could be developed to guide practices on which activities could enhance a practice's medical homeness, where the degree of medical homeness would be evaluated by outside experts.

The following report describes each of the six practices in greater detail, including the type of practice, the specific medical home activities, and the associated costs.

Florida Pediatric Medical Home Demonstration Project

Cost Analysis for Practice A

Practice Overview

Practice A is a private pediatric practice in New Port Richey, Florida. Care is provided at 1 location by 3 physicians and 1 physician assistant. Each month, the practice sees approximately 850 patients, 20% of whom are children with special health care needs (CSHCN).[1] The practice joined the Florida Pediatric Medical Home Demonstration Project in September 2013.

Medical Home Activities

Since joining the Demonstration Project, the practice has implemented numerous activities aimed at improving its patient- and family-centered medical home. These activities described below.

Medical Home Management Activities

Medical Home Team Meeting: Practice employees participated in meetings that focused on care coordination and quality improvement activities. From October to December 2013, meetings were 30 minutes per week. Beginning January 2014, meetings changed to once monthly for half a day (4 hours).

Daily Huddles: Practice employees engaged in daily huddles to strategize for the day's patients. Huddles typically lasted 5 minutes.

Care Coordination Meeting: The lead physician met with a Children's Medical Service (CMS) nurse for 2 hours in February 2014 to discuss care coordination processes.

Staff Training Activities

Electronic Medical Record (EMR) Training: The physician assistant attended a 3-day training on a medical home module for the EMR system. In addition to her time cost, the practice spent $2,000 on her travel.

Organizational Capacity Activities

Printing costs: The practice saw an increase in paper and ink consumption related to printing of educational and care plan materials. This is estimated to have cost the practice approximately $259.25 per month. This was estimated based on the following assumptions: 5 extra sheets of paper per visit; $8 per ream of 500 sheets; $0.045 of ink per page; 850 patient visits per month for 12 months.

New printers: To meet the increased printing demand, 2 new printers were purchased for $400 in May 2014.

New telephones: In order to improve the practice's ability to answer patient phone calls and address patient questions via telephone, a new telephone system was purchased for $1,700 in May 2014.

[1] Estimated by the Practice based on ICD9 codes

Care Coordination Activities

Referral coordination: Beginning in October 2013, medical assistants coordinated referrals made to outside providers by contacting patients to ensure appointments were kept and by contacting outside providers for medical notes. These duties were performed by 4 medical assistants for 1 hour each day.

Patient ER visit registry: In May 2014, the lead physician met with a manager of the local ER to develop a system for tracking patient ER visits. The physician spent 9 hours developing the system for tracking ER visits.

Quality Improvement Activities

Patient satisfaction surveys: In October 2013, the lead physician spent 3 hours revising the patient satisfaction survey to reflect medical home objectives.

Care plan tracking: In September 2014, a billing specialist tracked the number of patients with asthma diagnoses who had care plans. She spent 30 minutes each day on this activity.

Patient/Family Education Activities

Campaign to reduce ER visits: The lead physician developed patient education materials regarding appropriate use of the emergency room. He spent 3 hours developing the materials.

Medical home brochure: The lead physician developed a patient brochure to describe the medical home model of care. He spent 1 hour developing the brochure.

Care plan implementation: Beginning in October 2013, the lead physician spent 1 hour per day implementing care plans with patient families.

Cost of Medical Home Activities

The total cost to conduct the medical home activities from October 2013 to September 2014 was $82,100. The largest contributor to these costs ($30,427) was medical home management activities. Of the medical home management costs, most can be attributed to staff participation in the medical home team meetings, which cost $21,763. The second largest cost driver was patient education activities, on which the practice spent approximately $23,400. The medical home costs by activity are detailed in Table 4.

The practice's medical home index (MHI) increased 111% during the project, from a baseline of 2.88 to 6.08. The cost per percent of change in MHI was $739, and the cost per patient was $14. Table 5 describes the cost effectiveness of the practice's medical home activities.

Table 4. Cost of Medical Home Activities

ACTIVITIES	DATE	COST
Medical Home Management		**$30,427.32**
Medical Home Team Meeting	October 2013-September 2014	$21,763.23
Daily huddles	November 2013-September 2014	$8,487.57
Care Coordination Meeting	February 2014	$176.51
Staff Training		**$3,407.43**
EMR Training	June 2014	$3,407.43
Organizational Capacity Investments		**$5,211.00**
New printers	May 2014	$400.00
New phones	May 2014	$1,700.00
Printing costs	October 2013-September 2014	$3,111.00
Care Coordination		**$19,184.37**
Referral Coordination	October 2013-September 2014	$18,390.06
Patient ER Visit Registry	May 2014	$794.31
Quality Improvement		**$481.70**
Patient Satisfaction Survey	September 2013	$481.70
Patient/Family Education		**$23,388.11**
Education materials to reduce ER visits	November 2013	$264.77
Care Plan Implementation	October 2013-September 2014	$23,035.08
PCMH Brochure	February 2014	$88.26
TOTAL MEDICAL HOME COSTS		**$82,099.93**

Table 5. Cost Effectiveness of Medical Home Activities

Total Change in Practice Cost Directly Related to Transforming to Medical Home	**$82,100**
Baseline MHI - Year 1	2.88
Post 12 Months MHI - Year 2	6.08
Cost per Unit Change in MHI (3.2)	$25,656
Cost per Percent Change in MHI (111%)	$739
Cost per Patient (n = 6,000)	$14
Cost per Visit (n = 17,160)	$5

Florida Pediatric Medical Home Demonstration Project

Cost Analysis for Practice B

Practice Overview

Practice B is a private pediatric practice in Jacksonville, Florida. Care is provided in 2 locations by 6 physicians and 2 nurse practitioners. Each month, the practice sees approximately 1,500-1,600 patients, 20-30% of whom are children with special health care needs (CSHCN).[2] The practice joined the Florida Pediatric Medical Home Demonstration Project in September 2013.

Medical Home Activities

Since joining the Demonstration Project, the practice has implemented numerous activities aimed at improving its patient- and family-centered medical home. These activities are described below.

Medical Home Management Activities

Medical home project coordination: Coordination of the project involved writing medical home policies and procedures, creation of key indicator reports, development of tracking logs and patient registries, review of patient satisfaction survey results, as well as coordination of all activities related to seeking NCQA Medical Home recognition. From October to December 2013, the coordinator spent 20 hours per week on these activities; from January to August 2014, her time increased to 30 hours per week. In September 2014, 40 hours a week were spent on these activities.

NCQA recognition: The practice incurred application costs as well as ongoing fees for technical assistance from NCQA reviewers. The total cost during the project period was $1,660.

Medical home team meeting: The medical home coordinator and referral coordinator began meeting monthly in January 2014 to discuss the NCQA certification processes, quality improvement initiatives, and workflow/patient care issues. The meetings were 60-90 minutes per month.

Daily huddles: Non-clinician practice staff engaged in daily huddles to strategize for the day's patients. From January to March 2014, huddles were 15 minutes per day; as of April 2014, huddles were shortened to 5-10 minutes per day.

Staff Training Activities

Staff orientation to project: In October 2013, a 2-hour lunch meeting was held for all practice employees to orient them to medical home concepts.

EMR webinars: In March 2014, the medical home coordinator and referral coordinator received 4.5 hours of webinar training on using the EMR medical home module.

Trainings by NCQA consultant: Beginning in June 2014, the NCQA consultant conducted monthly 1-hour trainings with the medical home coordinator, referral coordinator, and a physician. An additional 2-hour meeting was held each month with clinical providers.

[2] Estimated by the practice based on patient problem lists in the medical records

Organizational Capacity Activities

Medical home module for EMR: Module was purchased for $2,000 in February 2014. There was also a $38 per month usage fee.

Staff hires: In January 2014, a full-time medical assistant was hired to do phone triage and organize records from outside providers. In March 2014, a full-time front desk specialist was hired to coordinate paperwork associated with medical home screenings and questionnaires. In September 2014, a full-time call center employee was hired to do reminder calls for patients with chronic diseases.

Printing costs: The practice saw an increase in paper and ink consumption related to printing of educational and care plan materials. This is estimated to have cost the practice approximately $472.75 per month. This estimate was based on the following assumptions: 5 extra sheets of paper per patient visit; $8 per ream of 500 sheets; $0.045 of ink per page; 1,550 visits per month for 12 months.

Care Coordination Activities

Referral coordination: Starting October 2013, the referral coordinator spent 40 hours per week managing referrals to outside providers, working with insurance providers to authorize referrals, and following-up with patients; she also tracked referrals to ensure outside provider reports were received by the practice.

Quality Improvement Activities

Ages and Stages Questionnaire: Beginning October 2013, providers began implementing the Ages and Stages Questionnaire at visits for patients under 3 years of age. Every week, providers spent approximately 75 minutes each on this activity.

Patient/Family Education Activities

Develop patient education materials: In January 2014, a medical assistant spent 20 hours developing health education curriculums on topics such as obesity, asthma, and ADHD.

Vaccine follow-up information sheet: In October 2013, the medical home coordinator developed a vaccine FAQ sheet about common reactions after vaccination. The sheet took 2 hours to develop (which is accounted for in her time above). The practice ended up saving an estimated 1 hour per week of medical assistant time due to decreased calls on the triage line.

Weight management clinics: In August 2014, a nurse practitioner began conducting weight management clinics for patients at 2 locations. She spent 16-20 hours per month preparing for and implementing the clinics.

Creation of care plans: In June 2014, the Medical Home Coordinator and clinicians used a two-hour provider meeting to develop care plans for asthma and ADHD patients.

Care plan implementation: Since June 2014, providers spent approximately 8 hours per week discussing the care plans with patient families.

Cost of Medical Home Activities

The total cost to conduct the medical home activities from October 2013 to September 2014 was $232,743. The majority of cost is related to medical home management activities and care coordination activities, each of which account for approximately $62,000. The next largest cost driver was organizational capacity investments, on which the practice spent approximately $52,000; the majority of these costs were related to new staff hires. The medical home costs by activity are detailed in Table 6.

The practice's medical home index (MHI) increased 61.9% during the project, from a baseline of 2.52 to 4.08. The cost per percent of change in MHI was $3,760, and the cost per patient was $47. Table 7 describes the cost effectiveness of the practice's medical home activities.

Table 6. Cost of Medical Home Activities

ACTIVITIES	DATE	COST
Medical Home Management		**$61,290.86**
Medical home project coordination	September 2013-September 2014	$45,895.60
NCQA recognition	December 2013-September 2014	$1,660.00
Medical home team meeting	January 2014-September 2014	$655.23
Daily huddles	January 2014-September 2014	$13,080.03
Staff Training		**$8,072.44**
Staff orientation to project	October 2013	$2,095.89
EMR webinars	March 2014	$268.05
Trainings by NCQA consultant	June 2014-September 2014	$5,708.51
Organizational Capacity Investments		**$57,524.32**
Medical home module for EMR	February 2014	$2,456.00
Staff hires	October 2013	$49,395.32
Printing	October 2013-September 2014	$5,673.00
Care Coordination		**$62,186.90**
Referral coordination	October 2013-September 2014	$62,186.90
Quality Improvement		**$29,789.23**
Ages and Stages Questionnaire	October 2013-September 2014	$29,789.23
Patient/Family Education		**$13,879.56**
Creation of patient education materials	January 2014	$352.30
Vaccine follow-up information sheet	October 2013	($919.50)
Weight management clinics	August 2014-September 2014	$1,981.98
Development of care plans	June 2014	$1,279.30
Implementation of care plans	June 2014-September 2014	$11,185.48
TOTAL MEDICAL HOME COSTS		**$232,743.32**

Table 7. Cost Effectiveness of Medical Home Activities

Total Change in Practice Cost Directly Related to Transforming to Medical Home	**$232,743**
Baseline MHI - Year 1	2.52
Post 12 Months MHI - Year 2	4.08
Cost per Unit Change in MHI (1.56)	$149,194
Cost per Percent Change in MHI (61.9%)	$3,760
Cost per Patient (n = 4,968)	$47
Cost per Visit (n = 18,468)	$13

Florida Pediatric Medical Home Demonstration Project

Cost Analysis for Practice C

Practice Overview

Practice C is a private pediatric practice in Valrico, Florida. Care is provided at 1 location by 1 physician. Each month the practice sees approximately 630 patients, 30% of whom are children with special health care needs (CSHCN).[3] The practice joined the Florida Pediatric Medical Home Demonstration Project in September 2013.

Medical Home Activities

Since joining the Demonstration Project, the practice has implemented numerous activities aimed at improving its patient- and family-centered medical home. These activities are described below.

Medical Home Management Activities

Medical home team meetings: In September 2013, the physician, medical home coordinator, and parent partner began meeting weekly for 45-60 minutes to discuss the medical home project, practice goals, and quality improvement initiatives. Meetings were discontinued in March 2014.

Medical home project coordination: The medical home project coordinator planned and implemented medical home process changes, oversaw PDSA cycles, performed chart reviews, developed care plans, and called outside providers to establish referral relationships. From October 2013 to January 2014, these activities required 47.5 hours per week. From February to March 2014, the activities required 43.75 hours per week. This employee left the practice in April 2014. The medical home coordination activities were resumed in September 2014, and required 2 hours that month.

Daily huddles: From September 2013 to March 2014, office staff met for 10-20 minutes each morning to strategize for the day's patients.

Parent partner meeting: The practice hosted a partner meeting in March 2014 to elicit feedback and family involvement in the practice's medical home project. The physician and parent partner spent 4 hours planning the meeting and developing a survey for the parents. The meeting was attended by 5 families, and lasted 90 minutes.

Organizational Capacity Activities

Electronics: In January 2014, 4 new computers and new security software were purchased for $8,000 in anticipation of transitioning to an EMR system.

Extra cloud space: In October 2013, extra cloud space was purchased for $25/month in order to store medical home forms, such as care plans, questionnaires, and referral sheets.

Medical assistant hired: A new medical assistant was hired in December 2013 at 0.6 FTE in order to allow the referral coordinator additional time to coordinate patient care.

[3] Estimated by the practice based on ICD9 codes

Printing costs: The practice saw an increase in paper and ink consumption related to printing of care plan materials. This is estimated to have cost the practice approximately $192.15 per month. This estimate was based on the following assumptions: 5 extra sheets of paper per visit; $8 per ream of 500 sheets; $0.045 of ink per page; 630 patient visits per month for 12 months.

Care Coordination Activities

Referral coordinator position: In October 2013, a medical assistant began coordinating referral processes, which included making referrals, acquiring prior authorizations, and explaining procedures to patient families. Coordination activities were estimated to be 4-6 hours per week.

Quality Improvement Activities

Family satisfaction survey: A satisfaction survey was conducted in October 2013, and the practice offered a $25 incentive to encourage participation. The medical home coordinator spent 1 hour analyzing results, which is accounted for in her time above.

Patient/Family Education Activities

Care plans: Beginning in October 2013, the physician spent 30-45 minutes each day implementing care plans.

Community Engagement Activities

Meeting with local schools: The medical home coordinator and physician met with local school leadership in January 2014 for 2.5 hours to discuss medical home services available at the practice.

Meeting with community partners on childhood obesity: In October 2013, the physician began attending monthly meetings with community partners to discuss childhood obesity interventions. Meetings were 4 hours per month from October to December 2013. As of January 2014, meetings required 2 hours per month.

Cost of Medical Home Activities

The total cost to conduct the medical home activities from October 2013 to September 2014 was $97,186. The biggest contributor to these costs was medical home management activities, which account for $46,750. Of the medical home management costs, most can be attributed to the efforts of the medical home coordinator, which was $35,866. The second largest cost driver was organizational capacity investments, at approximately $29,000. The medical home costs by activity are detailed in Table 8.

The practice's medical home index (MHI) increased 0.7% during the project, from a baseline of 5.52 to 5.56. The cost per percent of change in MHI was $134,117, and the cost per patient was $15. Table 9 describes the cost effectiveness of the practice's medical home activities.

Table 8. Cost of Medical Home Activities

ACTIVITIES	DATE	COST
Medical Home Management		**$46,750.37**
Weekly medical home meeting	September 2013-March 2014	$2,685.41
Medical home project coordination	October 2013-March 2014	$35,866.18
Daily huddles	September 2013-March 2014	$7,678.14
Parent partner meeting	March 2014	$485.41
Organizational Capacity Investments		**$28,958.79**
Electronics	January 2014	$8,000.00
Cloud space	October 2013	$300.00
Medical assistant hired	December 2013	$18,352.99
Printing	October 2013-September 2014	$2,305.80
Care Coordination		**$4,608.08**
Referral coordination	October 2013-September 2014	$4,608.08
Quality Improvement		**$25.00**
Family satisfaction survey	October 2013	$25.00
Patient/Family Education		**$13,900.95**
Care plans	October 2013	$13,900.95
Community Engagement		**$2,942.81**
Meeting with local schools	January 2014	$295.10
Meetings on childhood obesity	October 2013-September 2014	$2,647.71
TOTAL MEDICAL HOME COSTS		**$97,186.00**

Table 9. Cost Effectiveness of Medical Home Activities

Total Change in Practice Cost Directly Related to Transforming to Medical Home	**$97,186**
Baseline MHI - Year 1	5.52
Post 12 Months MHI - Year 2	5.56
Cost per Unit Change in MHI (0.04)	$2,429,650
Cost per Percent Change in MHI (0.7%)	$134,117
Cost per Patient (n = 6,550)	$15
Cost per Visit (n = 4,332)	$22

Florida Pediatric Medical Home Demonstration Project

Cost Analysis for Practice D

Practice Overview

Practice D is a private pediatric practice in Lake Placid, Florida. Care is provided at 1 location by 1 physician. Each month the practice sees approximately 500 patients, 30-40% of whom are children with special health care needs (CSHCN).[4] Practice D joined the Florida Pediatric Medical Home Demonstration Project in September 2013.

Medical Home Activities

Since joining the Demonstration Project, the practice has implemented numerous activities aimed at improving its patient- and family-centered medical home. These activities are described below.

Medical Home Management Activities

Daily huddles: Practice employees engaged in daily huddles to strategize for the day's patients. Huddles typically lasted 10 minutes each day, starting in October 2013. In July 2014, the practice decided daily huddles were no longer necessary, due to the communication style of small staff.

Medical home team meetings: Staff participated in biweekly meetings that focused on medical home and quality improvement processes. Meetings were 15-30 minutes every 2 weeks, starting in November 2013.

Family advisory group meetings: The practice invited patient families to join an advisory group, which would partner with staff in efforts to provide patient- and family-centered care. Monthly meetings were attended by 16 parents and the physician. The meetings were 1 hour each.

Staff Training Activities

Lunch and Learns: The practice held "Lunch and Learn" sessions, at which outside care providers and practice staff learned about one another's services, and discussed how best to partner in care provision. Sessions were 1 hour every other month, starting November 2013.

Spirometry: A certified nursing assistant was sent to a pulmonologist's office for 8 hours to receive training on spirometry.

Organizational Capacity Activities

Spirometry equipment: In order to provide more patient services "in house," the practice purchased a spirometer for $2,100.

Medical assistant hired: A medical assistant was hired for 0.5 FTE in November 2013 to allow staff more time for care coordination activities. The medical assistant was also hired to provide lactation consultation to patients.

[4] Estimated by the practice based on patient problem lists in the medical records

Computers and printer: Three computers and a printer/scanner/fax machine were purchased for $3,000 in March 2014. The equipment was used to improve processes related to sending and receiving patient records, results, orders, etc.

Televisions: Televisions were purchased for $3,500 in March 2014 so that patients could view health education videos in patient rooms and the practice waiting room.

Server and workstation upgrade: In September 2014, the server was upgraded for $2,300 in order to meet meaningful use standards. Computer workstations were upgraded for $2,000 at the same time.

Printing: The practice saw an increase in paper and ink consumption related to printing of educational and care plan materials. This is estimated to have cost the practice approximately $152.50 per month. This was estimated based on the following assumptions: 5 extra sheets of paper per visit; $8 per ream of 500 sheets; $0.045 of ink per page; 500 patient visits per month for 12 months.

Care Coordination Activities

Referral coordination: Two medical assistants coordinated patient referrals to outside providers. Starting in November 2013, they each spent 20 minutes per week following up with outside providers and patients.

Patient registry creation: During the 2013 flu season, the certified nursing assistant (CNA) created a registry of patients at high risk, and called them to encourage influenza vaccination. She spent 8 hours doing this in November 2013. Starting in April 2014, she began spending 20 minutes per week to create a list of patients needing other recommended vaccinations.

Quality Improvement Activities

Patient satisfaction survey: The physician spent 1.5 hours in July 2014 adapting a satisfaction survey.

Patient/Family Education Activities

Local resource list: The CNA and physician developed a local resource booklet for patient families. This took approximately 12 hours of the CNA's time, and 6 hours of physician time.

Care plans: Beginning in May 2014, the physician spent 2 hours per week implementing the AAP's asthma care plan with patients.

Community Engagement

City council meeting: The practice physician attended a 2-hour city council meeting in April 2014 to advocate for keeping the local health department clinic open.

Cost of Medical Home Activities

The total cost to conduct the medical home activities from October 2013 to September 2014 was $44,445. The majority of cost is related to organizational capacity investments, which account for $31,499. Of the organizational capacity investment costs, most can be attributed to the hire of a medical assistant, which was $16,769. The second largest cost driver was medical home management activities at $6,300. The medical home costs by activity are detailed in Table 10.

The practice's medical home index (MHI) increased 13.6% during the project, from a baseline of 4.4 to 5.0. The cost per percent of change in MHI was $3,259, and the cost per patient was $22. Table 11 describes the cost effectiveness of the practice's medical home activities.

Table 10. Cost of Medical Home Activities

ACTIVITIES	DATE	COST
Medical Home Management		**$6,344.39**
Daily huddles	October 2013-July 2014	$4,291.27
Medical home team meetings	November 2013-September 2014	$1,435.32
Family advisory group meetings	March 2014-September 2014	$617.80
Staff Training		**$1,039.04**
Lunch and learns	November 2013-September 2014	$923.29
Spirometry training	May 2014	$115.75
Organizational Capacity Investments		**$31,499.48**
Spirometry equipment	December 2013	$2,100.00
Hire of medical assistant	November 2013	$16,769.48
Computers and printer	March 2014	$3,000.00
Televisions	March 2014	$3,500.00
Upgrade server and workstations	September 2014	$4,300.00
Printing costs	October 2013	$1,830.00
Care Coordination		**$702.11**
Referral coordination	November 2013-September 2014	$472.63
Patient registry creation	November 2013 and April 2014	$229.48
Quality Improvement		**$132.39**
Patient satisfaction survey	July 2014	$139.29
Patient/Family Education		**$4,551.18**
Local resource list	December 2013	$703.17
Care plans	May 2014	$3,848.01
Community Engagement		**$176.51**
City council meeting	April 2014	$176.51
TOTAL MEDICAL HOME COSTS		**$44,445.09**

Table 11. Cost Effectiveness of Medical Home Activities

Total Change in Practice Cost Directly Related to Transforming to Medical Home	**$44,445**
Baseline MHI - Year 1	4.4
Post 12 Months MHI - Year 2	5.0
Cost per Unit Change in MHI (0.6)	$74,075
Cost per Percent Change in MHI (13.6)	$3,259
Cost per Patient (n = 2,000)	$22
Cost per Visit (n = 6,180)	$7

Florida Pediatric Medical Home Demonstration Project

Cost Analysis for Practice E

Practice Overview

Practice E is a private pediatric practice in Ocala, Florida. Care is provided in 3 locations by 3 physicians, 1 physician assistant, and 2 nurse practitioners. Each month, the practice sees approximately 1,600-1,800 patients, 30% of whom are children with special health care needs (CSHCN).[5] Practice E joined the Florida Pediatric Medical Home Demonstration Project in September 2013.

Medical Home Activities

Since joining the Demonstration Project, the practice has implemented numerous activities aimed at improving its patient- and family-centered medical home. These activities are described below.

Medical Home Management Activities

Medical home meetings: Two meetings were held with 2 physicians, 1 nurse practitioner, 1 parent partner, and the CMS Nurse to discuss the medical home project and care coordination processes. Each meeting was held over lunch for 1 hour.

Daily huddles: Front desk and medical assistants engaged in daily huddles to strategize for the day's patients. Huddles were conducted in April and May 2014, and typically lasted 5 minutes each day.

Organizational Capacity Activities

Check-in/Follow-up sheets: The practice began printing patient demographic sheets on colored paper to help ensure parents updated the information. The sheets were also used by providers to document follow-up needs. The additional cost for colored paper is estimated to be $2,572. This was estimated based on the following assumptions: 2 extra sheets of paper per patient visit; $11 per ream of 500 sheets of colored paper; $0.045 of ink per page; 1,700 visits per month.

Nurse practitioner hired: In an effort to improve access to care in June 2014, a full-time nurse practitioner was hired to cover extended hours at 1 location.

Care Coordination Activities

Patient registry: The physician assistant began to develop a patient registry of CSHCN. She spent 2 hours on this project, but was unable to complete it due to time constraints. In September 2014, front office staff used the EMR to create registries of patients needing specific medical services and notified patients' families. This required 30-60 minutes each day.

Referral coordination: Beginning in October 2013, 1 medical assistant coordinated referrals to outside providers, which involved follow-up with specialists, patients, and insurers. She spent 40 hours per week on these activities. In June 2014, a second medical assistant was hired to assist in referral coordination 20 hours per week.

[5] Estimated by the practice

Patient call services: In March 2014, the reminder call service was moved "in house" and 2 medical assistants began spending 15 hours per week each on this task. In April 2014, a registered nurse was hired 24 hours per week to provide phone triage and patient education to families.

Quality Improvement Activities

Patient survey: The front office supervisor developed and implemented a patient satisfaction survey. This took 6 hours in February 2014.

Community Engagement Activities

Patient relations representative: From March to June 2014, a patient relations representative was hired 32 hours per week to help plan a community health fair that the practice hosted. She also served as a liaison with outside medical providers to whom the practice would refer patients.

Community fair participation: The front office supervisor assisted in planning the practice's community health fair. She spent 25 hours on this activity. She also spent 20 hours attending outside community health fairs in order to engage with other providers and community members.

Cost of Medical Home Activities

The total cost to conduct the medical home activities from October 2013 to September 2014 was $135,971. The majority of cost is related to care coordination activities, which account for $83,102. The second largest cost driver was organizational capacity investments, on which the practice spent approximately $40,890. The medical home costs by activity are detailed in Table 12.

The practice's medical home index (MHI) increased 33.3% during the project, from a baseline of 3.12 to 4.16. The cost per percent of change in MHI was $4,079, and the cost per patient was $14. Table 13 describes the cost effectiveness of the practice's medical home activities.

Table 12. Cost of Medical Home Activities

ACTIVITIES	DATE	COST
Medical Home Management		**$965.48**
Medical home meetings	December 2013 & January 2014	$470.31
Daily huddle	April 2014-May 2014	$495.17
Organizational Capacity Investments		**$40,890.28**
Check-in/Follow-up sheets	January 2014	$2,572
Nurse Practitioner hired	June 2014	$38,318.28
Care Coordination		**$83,101.70**
Patient registry	January 2014 & September 2014	$380.05
Referral coordination	October 2013	$42,910.14
Patient call services	March 2014-September 2014	$39,811.57
Quality Improvement		**$178.70**
Patient survey	February 2014	$178.70
Community Engagement		**$10,835.19**
Patient relations representative	March 2014-June 2014	$9,494.95
Community fair participation	March 2014-June 2014	$1,340.24
TOTAL MEDICAL HOME COSTS		**$135,971.35**

Table 13. Cost Effectiveness of Medical Home Activities

Total Change in Practice Cost Directly Related to Transforming to Medical Home	**$135,971**
Baseline MHI - Year 1	3.12
Post 12 Months MHI - Year 2	4.16
Cost per Unit Change in MHI (1.04)	$130,742
Cost per Percent Change in MHI (33.3%)	$4,079
Cost per Patient (n = 10,000)	$14
Cost per Visit (n = 34,008)	$4

Florida Pediatric Medical Home Demonstration Project

Cost Analysis for Practice F

Practice Overview

Practice F is a private pediatric practice in Sarasota, Florida. Care is provided in 1 location by 1 physician and 1 nurse practitioner. Each month, the practice sees approximately 500 patients, 15-20%[6] of whom are children with special health care needs (CSHCN). The practice opened in June 2013 with the intent of being a medical home; the practice joined the Florida Pediatric Medical Home Demonstration Project in September 2013.

Medical Home Activities

Since opening in June 2013, the practice has implemented numerous activities aimed at improving its patient- and family-centered medical home. These activities are described below.

Medical Home Management Activities

Virtual patient advisory group: In July 2013, the medical home coordinator participated in online discussion groups with "virtual patients." Input from the sessions influenced the design of the practice's clinical processes and marketing materials. This took the medical home coordinator 9 hours; the physician and nurse spent 4 hours each on the activity.

Medical home meetings: The practice staff met 3 hours each month to discuss medical home processes and/or participate in "lunch and learn" sessions. In addition, in October 2013 and February 2014, the practice staff held additional 2-hour meetings to discuss care coordination and PDSA projects.

Morning huddles: Beginning in November 2013, the practice staff met each morning to discuss the needs of the day's patients. Each meeting was approximately 10 minutes.

Coordination of medical home activities: The medical home coordinator planned, implemented, and evaluated most of the practice's medical home activities. She spent 60 hours per month performing activities such as: PDSA cycle implementation and evaluation; policy/process development; data analysis; best practices research; outreach to community specialists; development of educational materials and resources; scoring of patient questionnaires.

Family Advisory Meeting: In September 2014, the practice held its first family advisory meeting. The front desk specialist spent 5 hours planning the event and 2.5 hours implementing it. In addition, the practice spent $100 on gift cards for the families who attended.

Staff Training Activities

EMR training: In January 2014, the nurse and medical home coordinator each spent 2 hours on webinars that discussed using an EMR for care plans and referrals.

[6] Estimated by the practice

Organizational Capacity Activities

Cardiochek: To provide more comprehensive services in-house, the practice purchased a Cardiochek machine for $890. Additionally, there is a $220/month cost for the supplies.

EMR meaningful use module: Purchased for $2,000 in June 2013.

Spirometer: To provide more comprehensive services in-house, the practice purchased a spirometer for $1,500 in August 2014. The Nurse Practitioner spends approximately 2 hours per week administering spirometry with patients and discussing patient care plans based on results.

CHADIS: The Child Health and Development Interactive System is an online program that administers and analyzes pre-visit questionnaires that are completed by patient families. The system cost $1,000.

Vision screening instrument: To provide more comprehensive services in-house, the practice purchased a vision screening instrument for $7,000 in August 2014.

Hire part-time LPN: The practice found that providing additional services in a more comprehensive manner demanded additional staff time. Consequently, the practice hired an LPN for 20 hours per week in September 2014.

Printing costs: The practice saw an increase in paper and ink consumption related to printing of educational and care plan materials. This is estimated to have cost the practice approximately $152.50 per month. This was estimated based on the following assumptions: 5 extra sheets of paper per visit; $8 per ream of 500 sheets; $0.045 of ink per page; 500 patient visits per month for 12 months.

Care Coordination Activities

Referral follow-up: Beginning in January 2014, the front desk specialist spent 2 hours per week following up on pending referrals.

Reminder calls: Starting in June 2013, the practice utilized a volunteer 3 hours per week to call families of patients who were overdue for appointments or recommended services.

Meetings with outside providers: In August 2014, the physician and nurse practitioner met with local specialists to whom they refer patients. They each spent about 90 minutes on this activity.

Tracking ER visits and hospitalizations: Beginning in August 2014, the front desk specialist tracked ER visits and hospitalizations in a notebook. This activity takes "a couple of minutes" each day.

Quality Improvement Activities

Family flu clinics: During fall 2013, the practice was open on 3 Saturdays to administer the flu vaccine to patients and their families. All staff participated in the flu clinics for a total of 16 hours each.

Patient feedback surveys: In August 2014, the practice had a "Back to School Backpack" drawing to incentivize the satisfaction survey. The backpack cost $40. The medical home coordinator developed and scored the surveys, which is accounted for in her time above.

Cardiochek: The nurse spent 3.5 hours per month performing the screening.

Vision screening: A volunteer spent 1 hour per day performing the screening.

Patient/Family Education Activities

Development of educational materials and care plans: Starting in June 2013, the physician spent 2 hours per month researching and developing medical home materials, such as care plans, templates, and educational summaries about common health problems.

ADHD toolkit: Purchased for $100 in February 2014.

Fit 4 All Kids Program: Developed by All Children's Hospital, the Fit4AllKids program addresses childhood obesity. The nurse practitioner began implementing the program at the practice in June 2014. She spent 5 hours per month developing educational materials and implementing the program with patients.

Care plans: Beginning April 2014, the physician and nurse practitioner spent 3 hours and 6 hours per week, respectively, reviewing care plans with patients' families.

Community Engagement Activities

Radio show: From October 2013 to December 2013, the physician spoke on a local radio show about the pediatric patient-centered medical home model. He spent 3 hours per month on this activity.

Press releases/blogs: From October 2013 to August 2014, the practice employed a writer 5 hours per month to do press releases and blogs about the medical home model and common health issues.

Cost of Medical Home Activities

The total cost to conduct the medical home activities from June 2013 to September 2014 was $199,212. The majority of cost is related to medical home management activities, which account for $147,047. Of the medical home management costs, most can be attributed to the efforts of the medical home coordinator, which was $124,016. The second largest cost driver was organizational capacity investments, in which the practice spent approximately $20,000. The medical home costs by activity are detailed in Table 14.

The practice's medical home index (MHI) increased 57.3% during the project, from a baseline of 3.28 to 5.16. The cost per percent of change in MHI was $3,476, and the cost per patient was $125. Table 15 describes the cost effectiveness of the practice's medical home activities.

Table 14. Cost of Medical Home Activities

ACTIVITIES	DATE	COST
Medical Home Management		**$147,047.18**
Virtual patient advisory group	July 2013	$772.14
Medical home meetings	June 2013-September 2014	$12,753.61
Coordination of medical home activities	June 2013-September 2014	$124,016.41
Morning huddle	November 2013-September 2014	$9,285.59
Family advisory meeting	September 2014	$219.44
Staff Training		**$135.10**
EMR training	January 2014	$135.10
Organizational Capacity Investments		**$19,997.11**
Cardiochek	June 2013	$4,410.00
EMR meaningful use module	June 2013	$2,000.00
Spirometer	April 2014	$1,500.00
CHADIS	August 2014	$1,000.00
Vision screening instrument	August 2014	$7,000.00
Hired part-time LPN	September 2014	$2,257.11
Printing costs	October 2013-September 2014	$1,830.00
Care Coordination		**$4,793.25**
Referral follow-up	January 2014-September 2014	$1,242.15
Reminder calls	June 2013-September 2014	$3,315.59
Meetings with outside physicians	August 2014	$214.97
Tracking ER visits and hospitalizations	August 2014-September 2014	$20.54
Quality Improvement		**$6,408.06**
Flu clinics opened for patient families	September 2013-October 2013	$3,568.45
Patient feedback surveys	October 2013 and August 2014	$40.00
Cardiochek	June 2013	$2,114.84
Vision screening	August 2014	$684.78
Patient/Family Education		**$19,616.97**
Develop educational materials & care plans	June 2013-September 2014	$2,824.22
ADHD Toolkit	February 2014	$100.00
Fit for Kids program	June 2014-September 2014	$1,101.10
Care plan	April 2014-September 2014	$15,591.65
Community Engagement		**$3,043.83**
Radio show about PCMH	October 2013-December 2013	$794.31
Press releases/blogs PCMH	October 2013-August 2014	$2,249.52
TOTAL MEDICAL HOME COSTS		**$199,211.50**

Table 15. Cost Effectiveness of Medical Home Activities

Total Change in Practice Cost Directly Related to Transforming to Medical Home	**$199,212**
Baseline MHI - Year 1	3.28
Post 12 Months MHI - Year 2	5.16
Cost per Unit Change in MHI (1.88)	$105,964
Cost per Percent Change in MHI (57.3%)	$3,476
Cost per Patient (n = 1,600)	$125
Cost per Visit (n = 5,880)	$34