

Partners for Kids Care Coordination: Lessons From the Field

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abstract

OBJECTIVE: The goal of this trial was to present a case study of care coordination for children and youth with special health care needs from an exclusively pediatric accountable care organization, and compare precare and postcare data on their use of inpatient and emergency department services.

METHODS: This pre–post comparison of the health care utilization included a subset of 733 children enrolled in Partners for Kids care coordination funded through a delegation arrangement with several Medicaid managed care plans. We compared inpatient admissions, hospital bed days, 30-day hospital readmissions, and emergency department visits during the 6 months before their enrollment in the coordination program versus the 6 months after enrollment.

RESULTS: Approximately 16 000 referrals to the Partners for Kids care coordination program were made for an estimated 12 000 children. A total of 3072 unique individual children were enrolled; the most common condition classification was mental, behavioral, and neurodevelopmental disorders (25% of enrolled children). Due to rapid turnover/churn in Medicaid managed care eligibility, the subset of children with continuous enrollment was limited to 733 children. Among this subset, the counts of inpatient admissions, bed days, and 30-day readmissions between the pre-enrollment and post-enrollment period decreased ($P < .05$).

CONCLUSIONS: These results suggest that it is possible for an accountable care organization to reduce inpatient and emergency department utilization. Going forward, the most important tasks of the care coordination team are to overcome obstacles to referral and participation and to develop methods to achieve better measures of patient-reported outcomes.

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Organizing and delivering care for chronically ill children, particularly for those with multiple comorbidities, and other special needs is a perennial challenge. Children and youth with special health care needs (CYSHCN) have high rates of health care use in multiple settings. Families of CYSHCN often report challenges in negotiating transitions between different settings and navigating a fragmented health care system.

Care coordination has been proposed as a solution to inadequate care and family frustrations by reconciling diverse providers and instructions. Care coordination or case management is “a collaborative process of assessment, planning, facilitation and advocacy for options and services to meet an individual’s health needs through communication and available resources to promote quality cost-effective outcomes.”¹ Care coordinators are nurses, social workers, or other personnel following protocols to ensure adequate communication and resources for effective health care delivery. Coordinators can be provided through practices, health systems, or insurers, and are often focused on high-cost patients identified through referrals, cost profiles, or self-identification. Care coordination systems may be supported by case management administrative fees from payers such as Medicaid or may be paid for through savings generated by lowered use of expensive health care services. Interest in care coordination has grown substantially with the expansion of value-based purchasing and other cost control efforts. Value-based purchasing includes incentives through bundling, shared savings, or capitation that encourage reductions in cost, especially for higher cost patients such as CYSHCN.

Integrated systems such as accountable care organizations (ACOs) or clinically integrated networks with value contracts have the potential to be more efficient than the traditional

system with multiple independent service providers supported by fee-for-service payments. ACOs and clinically integrated networks are designed to provide health care to covered populations, including chronically ill or special needs children, or at least to save money on more expensive patients. Preliminary evidence in pediatrics suggests they do.^{2,3} In theory, integrated systems share data across diverse settings, build in incentives for generating savings, and coordinate protocols for managing high-cost patients. But are integrated systems living up to their potential?

This question has new urgency with the rise of value-based purchasing in the pediatric health care market. Nine state Medicaid programs have launched ACOs with provider incentives to reduce costs and improve child outcomes for Medicaid participants.^{4,5} At least 14 pediatric health care systems have entered into ACO-type arrangements with payers to take financial risk and provide clinical care for children, and the number is expected to grow.⁶ Two states, Arkansas and Ohio, have launched large-scale bundled payment initiatives, with more states planning to do the same.⁷

The financial benefits from early experiments with value-based contracts, at least in pediatric ACOs, look promising, but questions remain about clinical outcomes.^{8,9} It is hoped that financial accountability combined with care coordination located within clinically integrated networks will improve outreach and prevention services for many CYSHCN previously served in fragmented health care systems.

We present a case study from 1 exclusively pediatric ACO in the management and care coordination of children demonstrating high utilization, having severe disorders, along with multiple comorbidities, psychosocial complexity, and chronic medical conditions, including CYSHCN. We examined care coordination

initiatives among those who may be at risk in value contracting initiatives aimed at pediatric patients; pediatric patients were defined broadly because, in practice, ACOs and other integrated systems must provide care coordination to all patients as defined by payers and in this case, also provide such services to all patients self-referring or identified through high use of health care. Although the majority of such children fall into the category of children with special health care needs, the referred children in the present case study include a broad swath of children and adolescents.

To obtain preliminary data on care coordination, we compared precare and postcare coordination program data on inpatient admissions, hospital bed days, 30-day hospital readmissions, and emergency department visits. We hypothesized that care coordination would be associated with improvements in all 4 outcomes.

METHODS

Setting

Through contracts with the Ohio Department of Medicaid, ~80% of the state’s Medicaid population (adult and pediatric)¹⁰ are insured by 5 private managed care plans. Ohio plans to move the remaining 20% of children into Medicaid managed care over the next 2 years. Partners for Kids (PFK) is a 501(c)(3), not-for-profit, physician-hospital-organization meeting criteria for a Level 4 provider risk organization.^{11–13} Through contracts with the 5 private managed care plans, PFK takes full-risk capitation for all Medicaid managed care enrolled children (~330 000) in 34 central and southern Ohio counties. PFK does not receive full-risk capitation for the ~20% of children insured through Medicaid fee-for-service in these counties referenced earlier. Details of PFK contracts and its overall performance have been

described elsewhere.^{2,6} The children enrolled in PFK include those eligible for Medicaid because of poverty and those with both poverty and disability through Supplemental Security Income and related programs. Nationwide Children's Hospital (NCH) provides the majority of specialty care for PFK children.

Grant-funded Coordination Program

In July 2012, NCH and PFK initiated a care coordination program as part of a \$13.1 million Centers for Medicare & Medicaid Services Health Care Innovation Award–funded effort. As described in detail elsewhere, this pilot program provided case management services to a cohort of Medicaid fee-for-service– and Medicaid managed care–eligible patients with a percutaneous feeding tube and neurologic impairment.¹⁴

Relevant Ohio Department of Medicaid Mandates

In July 2012, the Ohio Department of Medicaid implemented legislation that required Medicaid managed care plans to provide care management to at least 1% of the overall population at the high-risk stratification level. Risk stratification was determined by each plan's algorithms rather than by the state. Because plans cover adults and children, children comprised a proportion of the members for whom the plans were required to provide care management.

One year later, in July 2013, the Ohio Department of Medicaid required children in Medicaid's Aged, Blind, and Disabled (ABD) Medicaid managed care program to switch from Medicaid fee-for-service to Medicaid managed care. ABD is 1 of the state's 2 broad coverage categories, the other being Covered Families and Children (CFC). As a result of this legislation, PFK accepted financial risk for an additional 7673 ABD children, who accounted for 2.6% of the 296 518 Medicaid managed care population served by the ACO.

PFK Delegated Care Coordination Program

As a result of these numerous care coordination initiatives, beginning July 2013, PFK entered into contractual arrangements with 3 of Ohio's 5 Medicaid managed care plans (hereafter referred to as delegated Medicaid managed care plans or delegated payers). This contract enabled PFK to provide care management to the portion of the delegated payer's high-risk population for which PFK was at financial risk, thereby assisting the plans to meet state-mandated care coordination requirements. To provide care management services, PFK used the model developed through the Health Care Innovation Award. For context, in July 2013, 36.4% (107 944) of the Medicaid managed care children for whom PFK accepted financial risk were insured by a delegated payer and therefore had the potential to be identified as a high-risk candidate for care coordination.

Care coordination was provided by registered nurses and social workers (hereafter referred to as care coordinators), with assistance from nonlicensed support staff. Staff were located on site at NCH but paid by PFK. Average monthly enrollment in the PFK care coordination program increased from 284 children in the first quarter of 2014 to 915 in the first quarter of 2016. The ratio of care coordination team members to patients was maintained in the range of 1:25 to 1:50. To ensure compliance with National Committee for Quality Assurance and Ohio Department of Medicaid requirements, the PFK care coordination program is regularly assessed by using National Committee for Quality Assurance standardized audit methods and program evaluation/quality improvement techniques. A detailed summary of the PFK delegated care coordination program eligibility criteria and key processes is provided in the following sections.

Eligibility Criteria

Children were eligible to participate in the PFK delegated care coordination program if they: (1) were insured by a Medicaid managed care plan that has contracted with PFK to provide care coordination (ie, delegated payer); (2) met age restrictions for Ohio's CFC Medicaid managed care program (aged <1–19 years) or ABD Medicaid managed care program (aged <1–21 years); (3) lived in PFK's 34-county service area; and (4) through clinical assessment by a care coordinator, demonstrated at least 1 need that affected their health, either directly or through barriers to accessing health care and supportive service. Families also needed to agree to participate. Eligible children could have a broad range of diagnoses, including chronic diseases and behavioral health conditions. Children facing barriers to care were also eligible. Children could receive care from any provider contracted with one of the Medicaid managed care organizations that were participating in the program. Although these definitions were more inclusive than research definitions of CYSHCN, most children had significant medical morbidity and social needs.

Referral Process

Children were identified as candidates for care coordination through both direct referrals and data mining to find high-cost or high morbidity patients. Medicaid managed care plans used proprietary predictive models to identify children with extremely high rates of utilization and costs or combinations of high-risk diagnoses or services. Direct referrals were made by providers and organizations irrespective of NCH affiliation and were documented in the electronic medical record (EMR). The PFK data team also examined NCH EMR data because NCH was the largest provider of specialty care. In addition, the data team examined Medicaid managed care eligibility,

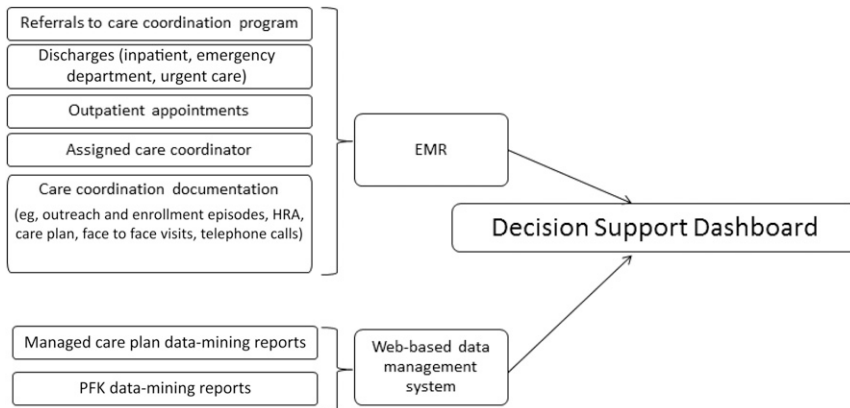


FIGURE 1
Care coordination data systems.

medical claim, and pharmacy claim files that PFK received monthly from all 5 Medicaid managed care plans in Ohio. Because children switch between Medicaid managed care plans and have interruptions in eligibility, using information from all 5 plans (rather than from only the 3 delegated payers) provided a more complete picture of historical Medicaid managed care eligibility and health care utilization and costs.

Outreach Process

Because candidates came from many sources and were often repeatedly identified, careful data management was essential to PFK care coordination outreach. A decision support dashboard was used to combine data-mining reports, direct referrals, and PFK care coordination outreach outcomes documented in the EMR (Fig 1). Data were aggregated to reduce the duplicate referrals because referral sources did not share common identification numbers (eg, Medicaid identification number, managed care plan subscriber identification number, medical record number) and to determine the most recent care coordination status of identified children. Children with no care coordination history and those who had been previously contacted for care coordination but did not enroll were called first on the list. To

initiate outreach, a member of the care coordination team contacted children and families to offer care coordination services.

Enrollment, Development of Care Plans, and Discharge Processes

Once the family agreed to participate, care coordinators completed a Health Risk Assessment (HRA), a holistic assessment of a child's physical, functional, behavioral, social, and psychological needs, within 30 days of initial contact. This assessment parallels the Ohio Department of Medicaid advisory group recommendations on risk assessment. HRAs were completed by interviewing the child (if appropriate) and family, gathering health care provider input, and critically reviewing the child's EMR, including existing treatment plans. After completing the HRA, the care coordinator and the family created a care plan containing individualized goals and interventions to address needs identified in the assessment. The care plan was then shared with the child's health care providers and family. A child was considered enrolled in care coordination upon completion of this initial care plan.

A member of the care coordination team contacted enrolled families at least every month. A team member visited the home, provider's office, or a location of the family's choice every

90 days. The care plan was updated quarterly. Updates to the care plan included a review of established goals to monitor completion of interventions and progress toward outcomes. This process also included medication reconciliation, updating the assessment to identify new needs, and a review of most recent utilization. Changes in health status (eg, emergency department visits, urgent care visits, inpatient admissions) triggered follow-up protocols that also included care plan updates by the care coordination team. Engaged patients and families were discharged when established goals were met and no new needs were identified.

Some patients, especially in behavioral health care, required additional services because of challenges in coordination. The care coordination team developed linkages with community mental health services that identified the availability of outpatient therapists for children and adolescents being discharged from inpatient settings, piloted a program to provide online psychotherapy for rural adolescents without access in their home communities, and participated in a medication-weaning clinic organized by psychiatry services for children taking multiple psychiatric medications.

Design

This study was a pre-post comparison for the health care utilization of a cohort of 733 children enrolled in the PFK care coordination program. We compared their use of inpatient and emergency department services during the 6 months before their enrollment in the care coordination program and the 6 months after enrollment.

Definition of Study Group

The study group consisted of a subset of children who were: (1) eligible to participate in the PFK care coordination program; (2) successfully enrolled in the program

on or before May 31, 2015; and (3) continuously eligible for Medicaid for 6 months before and 6 months after their enrollment. Patients needed to be enrolled in the program by that date to accommodate the processing time required to obtain their administrative data from the Medicaid managed care plans. Patients had to be eligible for Medicaid for 12 months to ensure that complete utilization data were available during the comparison periods. All children meeting these criteria were included.

Measures

PFK care coordination enrollment data from July 2013 to June 2016, captured in the EMR, were queried from an administrative database maintained by the PFK data team. Medicaid managed care eligibility and medical claims data were queried from an administrative health care database prepared by a third-party data vendor. Because documentation methods for referral sources evolved in scope over the course of the program and did not share sufficient data to uniquely link records (eg, Medicaid identification number, managed care plan subscriber identification number, medical record number, birth date), de-duplication of referral data was incomplete. Consequently, the exact number of unduplicated referrals could not be derived.

Medicaid managed care eligibility data were available according to month. The pre-enrollment period was defined as the 6 months immediately preceding the date of enrollment, with the month of enrollment being the final month in the period. The post-enrollment period was defined as the 6 months immediately after the date of enrollment, with the month after enrollment being the first month in the period.

Day-stamped claims data were available for all reimbursed services. The pre-enrollment period was

defined as the 6 months immediately preceding the date of enrollment in care coordination, measured as exactly 6 months to the day. Likewise, the post-enrollment period was defined as the 6 months immediately after the date of enrollment, measured as exactly 6 months to the day. Inpatient admissions were calculated as the number of inpatient admissions during the pre-enrollment period and post-enrollment period, respectively.

To qualify as an inpatient admission, the claim had to fall into the following categories: acute medical, maternity, acute surgical, rehabilitation/skilled nursing facility, or mental health/substance abuse. Inpatient admissions with a paid amount ≤ 0 were excluded. Length of stay was calculated as the length of stay for the admissions during the pre-enrollment period and post-enrollment period, respectively. Readmissions were calculated as the number of admissions (defined earlier) that occurred during the pre-enrollment and post-enrollment periods, in which the admission date was ≤ 30 days before the previous discharge. Emergency visits were calculated as the number of emergency department visits during the pre-enrollment period and the post-enrollment period.

Analysis

Because these are pre-post comparisons of the same patients, the distribution of the differences between the paired observations was examined to determine whether parametric or nonparametric statistics should be used to test for changes in inpatient admissions, length of stay, 30-day readmissions, and emergency department visits. Given the nonnormality of the data and the presence of outliers, nonparametric Wilcoxon signed rank tests were used to determine statistical significance at $\alpha = .05$. Outliers were not removed because

the focus of the study was the impact of care coordination enrollment on all utilization.

RESULTS

Because children had the potential to be identified by referral sources more than once, outreach and enrollment volumes were examined in terms of episodes as well as unique patients (Fig 2). Approximately 16 500 referrals from an estimated 12 000 children were made. A total of 3072 individual children (26%) were ultimately enrolled in care coordination. Unfortunately, due to care coordination documentation changes in the EMR over the 3-year period, accurate counts could not be derived for outreach episodes that did not result in enrollment. However, potential reasons referred children were not enrolled include: (1) inability to contact the family; (2) parents declined to participate; or (3) completion of the HRA revealed that there was no need for care coordination or that it was already being provided by another agency.

Table 1 presents demographic information and the top 6 condition classifications for these 3072 children, the largest of which was mental, behavioral, and neurodevelopmental disorders (25% of enrolled children). The age at time of enrollment varied, but the majority of children were female (57%) and insured under Ohio's CFC Medicaid managed care program (86%). Most (72%) lived in Franklin County, the urban county in which Columbus and NCH are located, or a contiguous county. The average length of time between initial outreach and completion of the HRA and between HRA completion and care plan completion were 9.8 ± 11.1 days and 7.7 ± 16.8 days, respectively. The average length of enrollment was 172.5 ± 167.5 days.

Of the 3072 unique children enrolled in the PFK care coordination program

between July 2013 and June 2016, a total of 733 met the inclusion criteria for the utilization cohort using a Medicaid managed care continuous eligibility requirement of 6 months' pre-enrollment and post-enrollment (Fig 2). This rapid turnover/churn in Medicaid patients is consistent with enrollment patterns across the region, and loss of Medicaid managed care coverage with a delegated payer resulted in discharge from the care coordination program. As shown in Table 2, reductions in the number of inpatient admissions, bed days, 30-day readmissions, and emergency department visits over time were observed. Decreases in the number of inpatient admissions, bed days, and 30-day readmissions between the pre-enrollment and post-enrollment periods reached statistical significance at $\alpha = .05$.

Sensitivity analyses were conducted to determine the impact of lengthening the Medicaid managed care continuous eligibility requirement from 6 to 12 months pre-enrollment and post-enrollment. Only 312 met the inclusion criteria for the sensitivity analyses. As shown in Table 3, reductions in the number of inpatient admissions, bed days, 30-day readmissions, and emergency department visits over time were observed. However, only decreases in the number of inpatient admissions and bed days between the pre-enrollment and post-enrollment periods reached statistical significance at $\alpha = .05$ when the 12-month period was examined.

DISCUSSION

Care coordination is a central function of Medicaid managed care and essential to improving the family experience, quality of care, and costs. PFK, as an intermediary insurance organization, accepted delegated responsibility from most of its managed care organizations for this function and experienced explosive growth in its care coordination

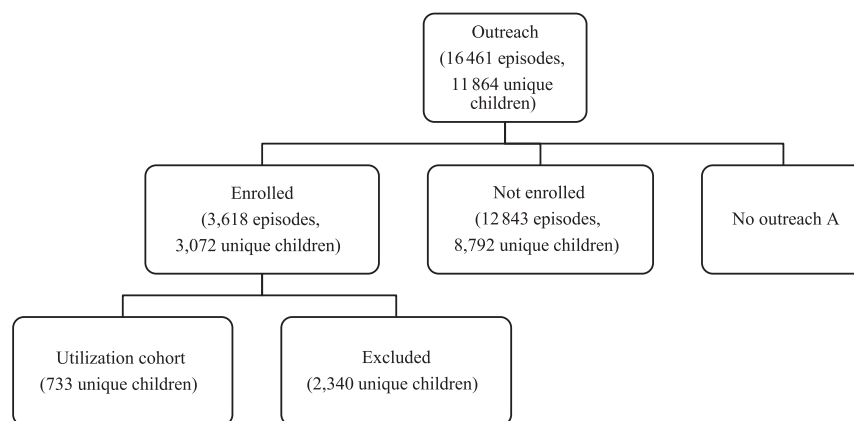


FIGURE 2

Consolidated Standards of Reporting Trials diagram for PFK care coordination program, July 2013 to June 2016. ^aOverall volume and number of unique children could not be derived given stated data limitations.

TABLE 1 Characteristics of Unique Children Enrolled in PFK Care Coordination, July 2013 to June 2016

Characteristic	Children (N = 3072)
Age at enrollment, y	
<2	1122 (36.5)
3–5	343 (11.2)
6–11	912 (29.7)
12–18	637 (20.7)
19–21	59 (1.9)
Female	1747 (56.9)
Medicaid eligibility through CFC	2650 (86.3)
Franklin County/contiguous counties	2214 (72.1)
Top 6 condition classifications	
Mental, behavioral, and neurodevelopmental disorders	760 (24.7)
Congenital anomalies	311 (10.1)
Symptoms, signs, and ill-defined conditions	310 (10.1)
Certain conditions originating in the perinatal period	188 (6.1)
Asthma	168 (5.5)
Diseases of the nervous system and sense organs	150 (4.9)
Program milestones and enrollment	
Days between initial outreach and HRA completion	9.8 ± 11.1
Days between HRA and care plan completion	7.7 ± 16.8
Days of enrollment	172.5 ± 167.5

Data are presented as n (%) or mean ± SD. Race, ethnicity, language spoken, and need for interpreter data were not reliable.

program for children with chronic and complex needs between 2013 and 2016. In previous research with a subset of care coordination children, we reported improvements in quality of care for children with feeding tubes receiving care coordination.¹⁴ This research found that care coordination was associated with lower use of services in a broader group of children with special health care needs. PFK learned several lessons in this process. First, 1 in 4 children and adolescents in the care coordination program had behavioral health care needs, a rate higher than staff

expected when the program began. Behavioral health problems are common among children with severe problems, and challenges from wait lists to medication problems to lack of electronic communications and resources were especially common among children with behavioral health problems. These problems occurred among both the substantial minority of patients with primary behavioral health diagnoses as well as the many children with comorbid behavioral health problems linked to their chronic illnesses. Therefore, hiring social workers and nurses

TABLE 2 Pre- and Post-enrollment Health Care Utilization of Patients Enrolled in PFK Care Coordination, 6 Months' Pre- and Post-Medicaid Managed Care Eligibility Criteria

Metric	Time Period	N	Total No.	Mean	Median	Range	P ^a
Inpatient admissions	Pre-enrollment	733	281	0.38	0.00	0–7	<.001
	Post-enrollment	733	129	0.18	0.00	0–14	
Bed days	Pre-enrollment	733	1625	2.21	0.00	0–120	<.001
	Post-enrollment	733	528	0.72	0.00	0–44	
Readmissions (30-d)	Pre-enrollment	733	69	0.09	0.00	0–6	.009
	Post-enrollment	733	50	0.07	0.00	0–14	
Emergency department visits	Pre-enrollment	733	590	0.80	0.00	0–11	.07
	Post-enrollment	733	482	0.66	0.00	0–12	

^a Wilcoxon signed rank tests were used to determine statistical significance at $\alpha = .05$.

for care coordination who have experience or training in managing behavioral health problems is essential to success.

A major challenge was enrolling patients identified as candidates for care coordination. Although the staff could not have handled all 12 000 patients referred, the large number of families with incorrect or no known telephone numbers, the high rate of eligibility churn, and the family refusal rates dramatically reduced the number of patients receiving PFK care coordination. First, the contact information reaching patients and their families in the administrative claims and eligibility files was frequently wrong. Improving contact rates will require solutions at the point of care, with a way to regularly update information. The identification of possible children also requires better data from the myriad referral sources.

A second enrollment issue was parental interest in care coordination. Most children and families referred either were not contacted or chose

not to participate. Although we did not collect information on reasons for refusal to participate, anecdotal comments from care coordinators and families indicated that some did not understand the program, did not identify their child as high risk or needing assistance, or identified another source that was meeting their needs for care coordination. Future research should systematically examine the reasons for parental refusal and develop ways to identify these families before contact.

The present study had several limitations. First, this was a study of the association between PFK care coordination participation and health care utilization. Policy makers, however, are also interested in the cost of care, and utilization is only a proxy for cost. Second, due to care coordination documentation changes, we could not definitively count the number of unique referrals and outreach episodes that did not result in enrollment. Therefore, we were unable to report the proportion of patients who met criteria for enrollment and were actually enrolled.

Third, we did not have a control group, and a portion of our findings may be attributed to regression to the mean. Because the field is in a nascent stage of development, a study such as this one is valuable, but we cannot claim a causal effect of the care coordination program. This limitation means we cannot estimate the size of the effect of care coordination on utilization because we cannot compare the decline in utilization in the intervention group versus the change in utilization in a group that did not receive care coordination. A final limitation is that our design required continuous eligibility for 6 months before and after enrollment. This somewhat arbitrary protocol could have biased the results in ways that we cannot estimate. Although the sensitivity analyses revealed little change in the results with a longer time frame, we suspect that children who are continuously enrolled are likely different than those who are not.

Few studies examine the impact of care coordination enrollment over a period of ≥ 12 months.^{15–17} This approach is likely due to the relative newness of

TABLE 3 Pre- and Post-enrollment Health Care Utilization of Patients Enrolled in PFK Care Coordination, 12 Months' Pre- and Post-Medicaid Managed Care Eligibility Criteria

Metric	Time Period	N	Total No.	Mean	Median	Range	P ^a
Inpatient admissions	Pre-enrollment	312	130	0.42	0.00	0–7	.0006
	Post-enrollment	312	67	0.21	0.00	0–8	
Bed days	Pre-enrollment	312	853	2.73	0.00	0–59	<.0001
	Post-enrollment	312	256	0.82	0.00	0–27	
Readmissions (30-d)	Pre-enrollment	312	29	0.09	0.00	0–6	.1435
	Post-enrollment	312	17	0.05	0.00	0–10	
Emergency department visits	Pre-enrollment	312	488	1.56	0.00	0–18	.2739
	Post-enrollment	312	408	1.31	0.00	0–26	

^a Wilcoxon signed rank tests were used to determine statistical significance at $\alpha = .05$.

care coordination programs, which limits the amount of follow-up, and the fact that a shorter follow-up period is less prone to logistical issues such as income mobility (and subsequent changes in insurance coverage)¹⁸ and loss to follow-up.¹⁶ Depending on how a care coordination program is funded, short-term outcomes may be a logistical necessity given that payers cannot wait an extended period of time to see a return on investment. However, use of a short follow-up period does not fully answer the question of what length of follow-up is most appropriate to capture the impact of care coordination on health care utilization, cost, and other outcomes.

CONCLUSIONS

These preliminary results from the PFK care coordination program suggest that it is possible for an ACO to engage a portion of children with special health care needs and their families and to reduce inpatient and emergency department utilization. Going forward, the most important tasks of the care coordination team are to overcome obstacles to referral and participation and to develop methods to achieve better measures of recruitment problems. Future studies also require measures of cost of care and of patient-reported outcomes. Although care coordination was initiated through federal demonstration funds, the entirety is now funded through savings generated by the ACO and through administrative pass-through from the managed care organizations as part of the state Medicaid payment. Finally, experimental or quasi-experimental designs that produce causal measures of treatment effects are essential. Although the early suggestion of a reduction in utilization seems promising, using experimental or more sophisticated nonrandomized methods to identify matched patients and families and to examine costs and use over time will be important.

ABBREVIATIONS

ABD: Aged, Blind, and Disabled
 ACO: accountable care organization
 CFC: Covered Families and Children
 CYSHCN: children and youth with special health care needs
 EMR: electronic medical record
 HRA: Health Risk Assessment
 NCH: Nationwide Children's Hospital
 PFK: Partners for Kids

REFERENCES

1. Case Management Society of America. What is a case manager? Available at: www.cmsa.org/Home/CMSA/WhatisaCaseManager/tabid/224/Default.aspx. Accessed June 29, 2016
2. Kelleher KJ, Cooper J, Deans K, et al. Cost saving and quality of care in a pediatric accountable care organization. *Pediatrics*. 2015;135(3). Available at: www.pediatrics.org/cgi/content/full/135/3/e582
3. Christensen EW, Payne NR. Effect of attribution length on the use and cost of health care for a pediatric Medicaid accountable care organization. *JAMA Pediatr*. 2016;170(2):148–154
4. National Coalition on Health. Value-based purchasing: a definition. Available at: www.nbch.org/Value-based-Purchasing-A-Definition. Accessed June 29, 2016
5. Center for Health Care Strategies, Inc. *Medicaid Accountable Care Organization Learning Collaborative. March 2016*. Hamilton, NJ: Center for Health Care Strategies, Inc; 2016
6. Makni NR, Rothenberger A, Kelleher K. Survey of twelve children's hospital-based accountable care organizations. *J Hosp Admin*. 2015;4(2):64–73
7. Delbanco S. The payment reform landscape: bundled payment. Health Aff. Blog; 2014. <http://healthaffairs.org/blog/2014/07/02/the-payment-reform-landscape-bundled-payment/>. Accessed June 29, 2016
8. Chien AT, Song Z, Chernerew ME, et al. Two-year impact of the alternative

quality contract on pediatric health care quality and spending. *Pediatrics*. 2014;133(1):96–104

9. Gleeson S, Kelleher K, Gardner W. Evaluating a pay-for-performance program for Medicaid children in an accountable care organization. *JAMA Pediatr*. 2016;170(3):259–266
10. Kasich JR, McCarthy JB. *The Ohio Department of Medicaid Annual Report State Fiscal Year 2015*. Columbus, OH: The Ohio Department of Medicaid; 2015
11. Shortell SM, McCurdy RK. Integrated health systems. *Stud Health Technol Inform*. 2010;153:369–382
12. Conway P. Health System Transformation—The Future of Payment and Implications for Pediatricians. American Academy of Pediatrics National Conference. October 14, 2014; San Diego, CA
13. Conway P. *Center for Medicare and Medicaid Innovation Center Update*. Baltimore, MD: Centers for Medicare & Medicaid Services; 2014
14. Noritz GM, Madden M, Roldan D, et al. A population intervention to improve outcomes in children with medical complexity. *Pediatrics*. 2017;139(1):e20153076
15. Cohen E, Lacombe-Duncan A, Spalding K, et al. Integrated complex care coordination for children with medical complexity: a mixed-methods evaluation of tertiary care-community collaboration. *BMC Health Serv Res*. 2012;12:366
16. Kuo DZ, Robbins JM, Lyle RE, Barrett KW, Burns KH, Casey PH. Parent-reported outcomes of comprehensive care for children with medical complexity. *Fam Syst Health*. 2013;31(2):132–141
17. Petitgout JM, Pelzer DE, McConkey SA, Hanrahan K. Development of a hospital-based care coordination program for children with special health care needs. *J Pediatr Health Care*. 2013;27(6):419–425
18. Sommers BD, Rosenbaum S. Issues in health reform: how changes in eligibility may move millions back and forth between Medicaid and insurance exchanges. *Health Aff (Millwood)*. 2011;30(2):228–236

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