ORIGINAL ARTICLE

Survey of twelve children's hospital-based accountable care organizations

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Abstract

Accountable care organizations (ACOs) are a primary focus of value-based healthcare reform strategies, however research is lacking on pediatric-specific ACO development. To present the current landscape of children's hospital-based pediatric ACOs, researchers conducted semi-structured telephone interviews with executive-level staff from twelve ACOs from November 2013 to February 2014. Interview questions spanned five topics: (1) pathway/strategy; (2) organizational structure; (3) shared savings; (4) provider network; (5) data and quality. Three qualitative frameworks were applied to assess the degree of similarity among pediatric ACO models and between these and promulgated adult ACO components: (1) operational diagrams; (2) spectrums of characteristics; (3) financial and organizational categorization. Organizational structures consisted of five Physician-Hospital Organizations, two System-Based Pediatric Contracts, three Provider-Sponsored Managed Care Organizations, and two Hospital Medical Staff Organizations. Oversight models developed for the ACOs included six separate boards, two board subcommittees, and one dispersed governance. Financial contracts between payers and participants included four shared savings only, one risk corridor, and seven full capitation. Eight participants had provider incentive programs primarily for cost reductions. Nine participants used National Committee for Quality Assurance (NCQA)'s Healthcare Effectiveness Data Information Set (HEDIS) metrics, emphasized utilization management, and invested in separate care coordination resources. Overall, marked variation in pediatric ACO models is developing nationally, and cost savings goals exceed the importance of quality improvement. National pediatric collaboration and state facilitation for ACO quality measures is crucial to improving health outcomes in the pediatric ACO.

Key Words: Accountable care organizations, Payment reform, Medicaid, Children's hospitals, Value-based care

1 Introduction

Accountable care organizations (ACOs) are a focus of value-based healthcare reform strategies which aim to improve the delivery of services and decrease costs. The core elements are an organized group of providers offering comprehensive services for a defined population and using transparent and measured outcomes for fiscal and clinical accountability. ACOs are described primarily by the type of provider groups and organizations convening to act as such, and by the amount of financial risk they assume in delivering services.[1]

To date, the majority of development has focused on adult healthcare, with specific rules like those for the Shared Savings Program and technical assistance being promulgated for Medicare groups by the Centers for Medicare and Medicaid Services. However, the Patient Protection Affordable

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Care Act also separately called for the development of pediatric ACOs through Medicaid, the federal and state entitlement program serving low income children and other high risk children.[1–3] Although several large children's hospitals have developed such entities or contracts, federal resources or guidance has not been forthcoming. For this reason, cost and quality metrics are lacking and research on outcomes has not materialized for these pediatric-focused constructs.

Without national guidance on structure or regulations, a need for better understanding of the existing pediatric accountable care landscape has emerged. In an effort to respond, the research team conducted in-depth interviews with twelve such entities in eight states identified through a screening survey and referral process. Experts were interviewed to explain the motivation, governance, operation, and relationships of their existing pediatric hospital-based accountable care structures, and data collected was analyzed qualitatively and quantitatively to identify common elements and diverse components found in the early stages of development. While the lack of standardization in these models inhibits benchmarking or measuring cost effectiveness in the sample, the study provides knowledge about key goals, structures, governances and other aspects necessary to aid the future construction of proper cost and outcome comparisons.

2 Methods

2.1 Overview

From November 2013 to February 2014 the team conducted semi-structured interviews with predominantly administrative staff at twelve pediatric institutions in eight states. All participating entities had a partnership aiming to function as a pediatric accountable care organization now or in the near future. Sample size and significant structural and strategic variation across the twelve models limited the use of advanced analytical software in this study. The qualitative and quantitative analyses used were constructed from published accountable care research methods, and modified to fit the sample.

2.2 Sample

Study participants were identified in two phases. In phase one, a survey was distributed by mail to all Children's Hospital Association members with questions that would indicate whether or not accountable care-like activity was present. Content used to develop questions came from Medicare accountable care requirements outlined in federal regulations, including: (1) willingness to become accountable for cost; (2) quality and overall care of a specified population; (3) a formal legal structure to receive and distribute payments for shared savings; (4) an adequate number of primary care professionals serving at least 5,000 beneficiaries; (5) various improvement projects that promote patient engagement, report on quality and cost measures, and coordinate care.[2] Ten entities responded positively to the survey, self-identifying as hospitals with accountable care or accountable care-like entities. Six of the ten indicated a willingness to speak further about this activity and became ongoing study participants.

In phase two, the team requested participant nominations from study leaders and colleagues with internal and external knowledge about children's hospitals who have entered the pediatric accountable care market, but were not brought forth by the phase one survey. In addition to study leader and colleague knowledge, the team conducted an online search for and literature review of pediatric risk-bearing organizations via Google Scholar and PubMed for English language publications from 2004 to present. Search terms included, but were not limited to, "pediatric accountable care organization", "children's accountable care", and "pediatric managed care organization". From phase two, six additional institutions were identified for the study, resulting in twelve total participants.

Three of the twelve participating entities did not have current accountable care contracts but were considered eligible for study given their advanced stage of development, planning and/or the presence of contracts under negotiation. In order to maintain a focus on children's hospital-led activity, two categories of pediatric ACOs excluded from our sample include: (1) those part of a broader, adult-focused model; (2) those not owned by or associated with a large children's hospital. The exclusions limit the applicability of these findings to hospital-led efforts, which appears to be the most prominent setting for exclusively pediatric healthcare payment reform.

2.3 Data collection

The team arranged one hour phone interviews with each of the twelve respondents' most ACO-knowledgeable administrator(s). A set of 67 questions was designed as a discussion and facilitation guide for the phone interviews. The questions were organized into five sub-sections, based on criteria found in the reform legislation and Medicare accountable care rules:[3,4] Pathway/Strategy; Organizational Structure; Shared Savings; Provider Network; Data and Quality. A draft of the discussion guide was tested by conducting an in-person mock interview with one participant. Upon completion of the mock interview, the discussion guide was modified to clarify ambiguities and terms. Interviews were then carried out on all twelve participants from November 2013 to February 2014. Data was collected manually by two interviewers for each site and organized in a spreadsheet. The spreadsheet was reviewed manually by both interviewers to ensure quality of data. Any unclear or incomplete response was sent to each interviewee for clarification via email or with follow-up phone call(s).

2.4 Analysis

Three summaries were developed to stratify participants and their interview data into meaningful results: (1) comparing diagrammed accountable care structures across participants; (2) organizing participants along spectrums of accountable care characteristics; (3) inserting participants into a delivery system models framework. First, the pediatric participants' contractual operations were each drawn in diagram format by the research team and validated by participants to visually represent each organizational and financial structure. Second, characteristic spectrums were developed to help the team understand and analyze each entity's relative progress with accountable care development. The team identified key phrases common to all interviews (*e.g.* care coordination, shared savings, hospital role in ACO, *etc.*) and developed a plotting or ranking system based on the type of structure or investment, and degree of investment, made by each participant. The research team members independently plotted all models on each spectrum and then reconvened to compare placements. Disagreements were reconciled with validation from either further data review or direct clarification from participants. Lastly, the team adapted and modified Shortell, Casalino and Fisher's (2010) delivery system model categories and financial risk tiers to classify the participant entities, which are discussed later in detail.[1,5,6]

Table 1: Modified framework for ACO delivery system and payment models

Delivery System Model	Payment Model		
	Shared Savings Only (T1)	**Risk Corridor (T2)**	**Full Capitation (T3)**
Hospital Medical Staff Organization	Children's Hospital of Philadelphia*; Children's Health Collaborative*	**	The Health Network by Cincinnati Children's Hospital
Physician Hospital Organization	Children's Hospital and Clinics of Minnesota	**	Partners for Kids; Children's Mercy Pediatric Care Network; Children's Hospital Los Angeles*
Health Plan Provider Organization/Network	**	**	Cook Children's Health Plan; Children's Community Health Plan; Texas Children's Health Plan
System-Based Pediatric Contracts	University Hospitals Rainbow Babies and Children's Hospital	Blank Children's Hospital	**

Note. * Indicates ACOs in the planning/development stage; ** Indicates no organization had the specified delivery system and financial model.

3 Results

3.1 Organizational structure

The twelve accountable care or accountable care-like entities operated with varied organizational structures. Shortell, Casalino and Fisher's (2010) analyses of delivery system models[1,5,6] assisted with the stratification. The models owned by Children's Hospital and Clinics of Minnesota, Children's Mercy Pediatric Care Network, Partners for Kids, Children's Health Collaborative*, and Children's Hospital Los Angeles* resembled Physician Hospital Organizations, most of which were integrated health networks. University Hospitals Rainbow Babies & Children's Hospital and Blank Children's Hospital had System-Based Pediatric Contracts for primary and/or specialty care services. Texas Children's Health Plan, Children's Community Health Plan and Cook Children's Health Plan had Provider-Sponsored Managed Care Organizations or Health Plan Provider Organizations/Networks. Finally, Children's Hospital of Philadelphia's ACO*, and The Health Network by Cincinnati Children's Hospital were Hospital Medical Staff Organizations.[1,5,6] Those organizations marked with an asterisk were in the planning stages. See Table 1 for view of participants by category and tier.

Overall, the participants in this study were either managed care organizations or relied heavily on them as a partner to perform several tasks and sometimes bear some risk for the defined population. The managed care organizations most often maintained claims processing and, at times, performed utilization review and other state-mandated tasks to manage their population if the risk-bearing entity chose not to or was unable to take on these additional tasks. This delegation of responsibility occurred during the contractual negotiation phase and relied heavily on the dynamic of state Medicaid offices and managed care organizations' relationships with the ACO. As mentioned in section 2.4, each participant organization was diagrammed for a bird's eye view of the overall composition, relationship and functions. Three sample diagrams are provided for review and comparison (see Figure 1, Figure 2, Figure 3).

3.2 ACO oversight

Nine participants described the makeup of their leadership and oversight bodies fitting one of three observed structures: (1) a separate ACO-dedicated board; (2) an ACO subcommittee within an existing hospital- or system-level board; (3) a group of hospital executives managing the ACO. All six participants with a separate board were limited liability corporations or other legal entities formed to house administrative operations. Overall, the majority of the board mem-

bers were executives from the affiliate or owner children's hospital, while the minority was the accountable care organization's providers. In Partners for Kids and Blank Children's Hospital, a patient family member was included on the board as a consumer representative. Managed care organizations, however, were subject to state policy on board composition and regulation.

Children's Hospital of Philadelphia and The Health Network by Cincinnati Children's Hospital's accountable care organizations were managed by a subcommittee of the hospital's executive board members, one being an accountable care model for its employees' dependents, and the other taking risk for pediatric Medicaid managed care enrollees. Children's Hospital and Clinics of Minnesota did not require a separate entity in their temporary accountable care agreement with Medicaid, thus responsibilities were dispersed among hospital leadership. However, a separate board and entity were preferred by most to ease legal concerns about the distribution of network provider incentive payments and Stark rules against self-referral.

A key lesson cited on provider engagement was the advantage of granting providers decision-making roles on subcommittees and boards as soon as development begins. This fostered provider trust in, and accountability for, the model's goals. Also stressed was the early recruitment of key leadership, like the executive director, to avoid delays in initiation of lengthy processes including strategic planning, legal structuring, contract negotiations and network development.

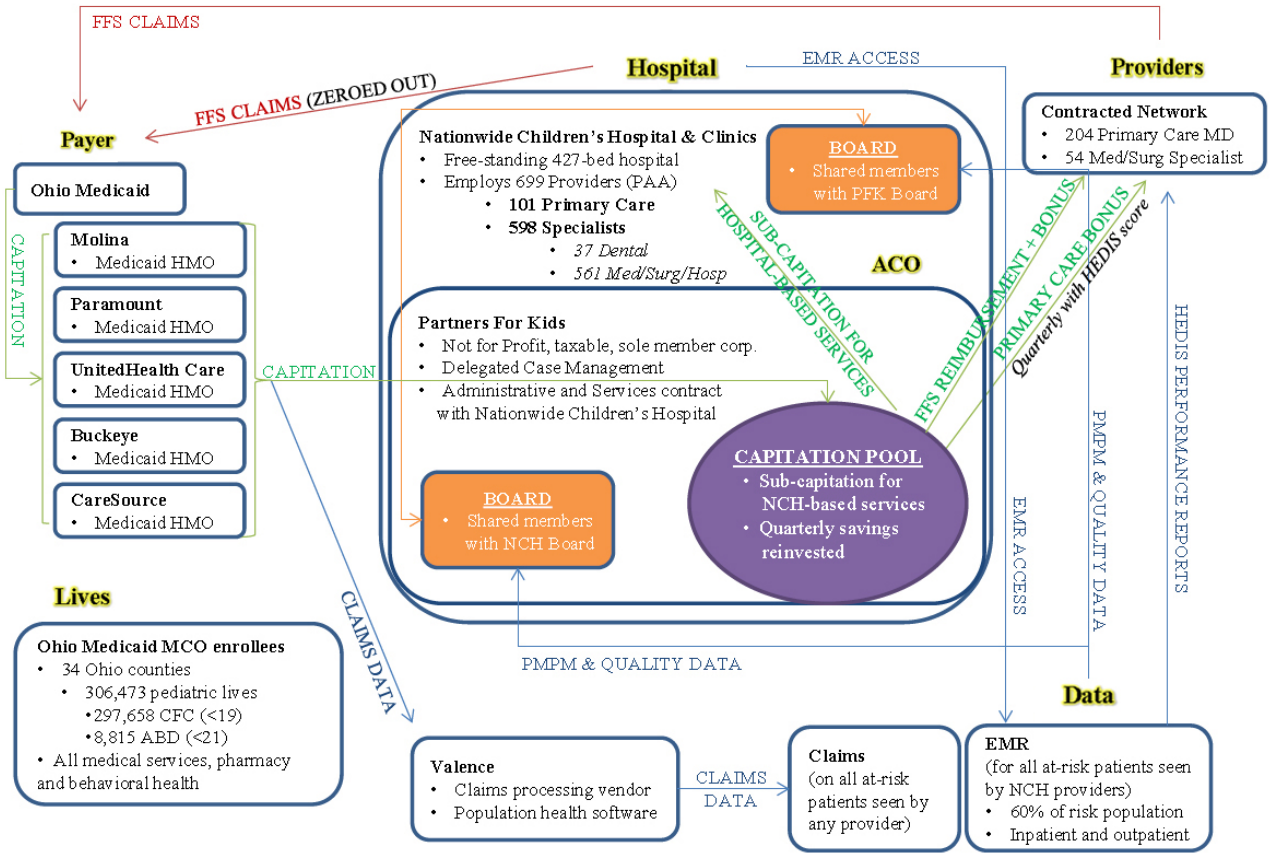

Figure 1: Partners for Kids ACO diagram representation

3.3 Financial structure

3.3.1 Overview

The financial arrangements of the twelve participants were grouped using a modified version of the three tiers of classification developed by Shortell, Casalino and Fisher (2010).[6] The twelve organizations operated under one of three observed financing structures, either directly or through a partially/fully-owned entity: (1) fee-for-service with shared savings from either Medicaid or a managed care organization (tier 1); (2) risk corridor arrangement with a managed care organization (tier 2); (3) full capitation from Medicaid or a managed care organization (tier 3). Generally, accountable care behavior and organizational characteristics clustered according to financial structure and accompanying level of risk assumed. See Table 2 for a summary of the most common characteristics present across the participant group, organized by financial tier.

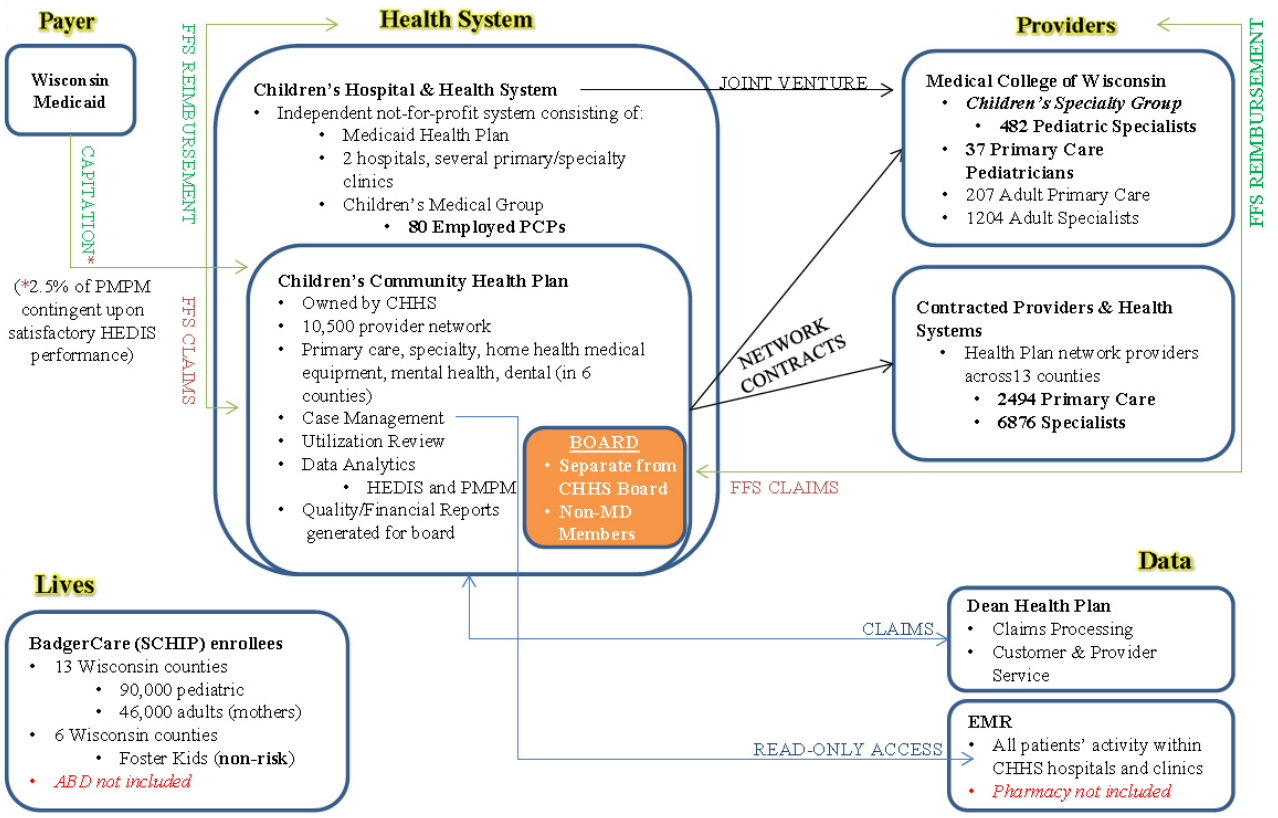

Figure 2: Children's Community Health Plan MCO diagram representation

3.3.2 Shared savings only

In the shared savings arrangements, the provider organizations negotiated cost and quality targets with the payer for a defined population, without becoming fully financially responsible for services.[1,5] For the purposes of this section, shared savings is referring to savings at the ACO level with the payer participant. In upside-only shared savings agreements, the provider organization received a negotiated percentage of the bonus or "savings" generated by performing well against targets. Alternatively, in upside and downside shared savings agreements, the contracting provider still benefited but also owed the payer when cost targets were exceeded and/or quality targets were not met. Children's Hospital of Philadelphia, Children's Hospital and Clinics of Minnesota, University Hospitals Rainbow Babies & Children's Hospital and Children's Health Collaborative had or were planning shared savings agreements only, equivalent to a tier 1 ACO as defined by Shortell, Casalino and Fisher (2010).[6] Children's Hospital of Philadelphia and Children's Hospital and Clinics of Minnesota held upside and downside agreements which bear the most risk in this category. Children's Health Collaborative is currently under development with risk contracts not yet finalized. Most indicated that shared savings arrangements were a stepping stone to a deeper level of risk with payers.

3.3.3 Risk corridor

One participant engaged in a risk corridor agreement with the payer (in this case, the Medicaid managed care orgainzation) based on per member per month total expense, and the continued use of fee-for-service payments to the provider entities. Blank Children's Hospital assumed partial financial responsibility on behalf of the hospital for a defined population's healthcare services, equivalent to Shortell, Casalino and Fisher's (2010) tier 2 ACO.[6] Corridors of performance above and below the financial target were negotiated with the payer, as well as the distribution of financial responsibility accepted by the payer and ACO within each corridor. Multiple corridors can be negotiated to create safeguards and agreeable levels of risk, in contrast to full risk capitation where no financial risk remains with the payer.[2] The calculation of performance against cost targets, as well as the exchange of due payments or refunds between the payer and ACO, were completed at contractually agreed time intervals.

3.3.4 Full risk capitation

The three managed care organizations interviewed received capitation directly from the state Medicaid program, while the four non-managed care tier 3 ACOs received or planned to receive full risk from one or more managed care entities.

In both cases, capitation rates were based on actuarially-established per member per month payments adjusted for gender and age providing strong incentives for cost reduction. The recipient organizations were owned by or affiliated with some of the largest children's hospitals in this sample. Affecting total cost depended largely on the ability to monitor and affect the utilization of services sought by the at-risk population. Thus, hosting a large market share of the population's high cost services was seen as critical to effectively manage total cost. These seven financial structures were consistent with Shortell, Casalino and Fisher's tier 3 categorization.[6]

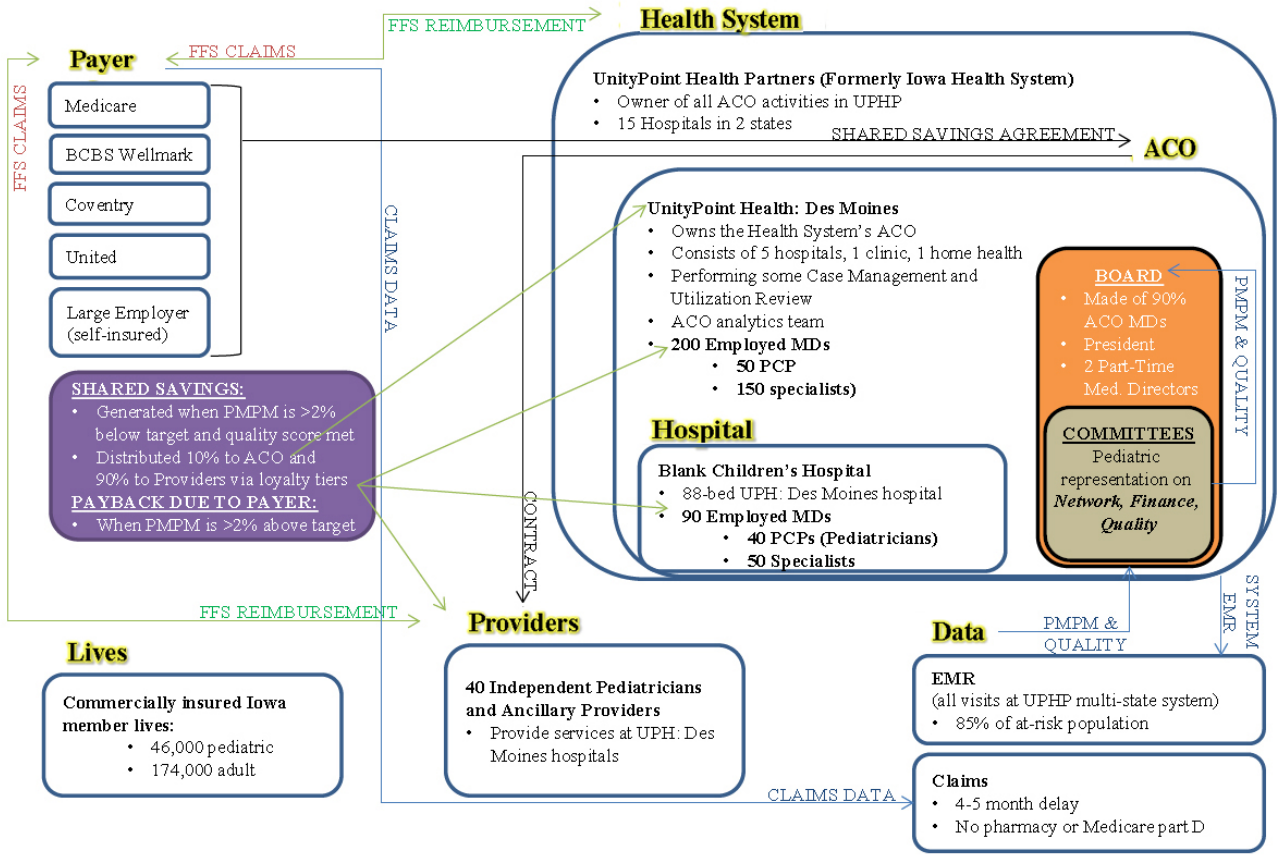

Figure 3: Unity Point Health: Des Moines ACO diagram representation

Table 2: ACO characteristics by financial structure

Pediatric ACO Characteristic	Presence of Characteristics by Financial Structure				
	Tier 1 ACOs (d = 4)	Tier 2 ACOs (d = 1)	Tier 3 ACOs (d = 7)	Unable to Determine	Percent of Total Known*
Provider Incentive Program	C	E	F, G, H, I, J, L	A, D, I	100%
HEDIS-based Performance Measures	B, C	E	F, G, H, J, K, L	D, I	90%
Free-standing Children's Hospital	A, B, D	**	F, G, H, I, J, K, L	**	83%
Medicaid Payer Contracts	B, C, D	E	F, G, H, I, J, K, L	**	83%
Dedicated Case Management Resources	B, C, D	E	F, G, H, K, L, M	A, I	80%
Quality-based Payments to ACO and/or Providers	B, C	E	G, J, K, L	D, I	70%
Commercial Payer Contracts	C	E	**	**	17%
Affiliated with Adult Health System	C	E	**	**	17%

Note. * Percent Calculation = ([Tier 1 + Tier 2 + Tier 3] / [12 – Unable to Determine]); ** Indicates no organization in this financial category had the specified characteristic. Letter Key: A. Children's Hospital of Philadelphia; B. Children's Hospital and Clinics of Minnesota; C. University Hospitals Rainbow Babies and Children's Hospital; D. Children's Health Collaborative; E. Blank Children's Hospital; F. The Health Network by Cincinnati Children's Hospital; G. Partners for Kids; H. Children's Mercy Pediatric Care Network; I. Children's Hospital Los Angeles; J. Cook Children's Health Plan; K. Children's Community Health Plan; L. Texas Children's Health Plan.

Commonalities among the tier 3 organizations included a large market share of the at-risk population, a dedicated and separate board for ACO stewardship, the use of National Committee on Quality Assurance's Healthcare Effectiveness Data Information Set (HEDIS) set of measures, and broad scale initiatives to lower cost. The provider-sponsored managed care organizations were subject to state regulations on health plans including maintenance of fiscal reserves, state-defined quality metrics, case management, claims payment and processing. Texas Children's Health Plan and Cook Children's Health Plan had state contracts requiring that profits in excess of 3% be returned to Medicaid. Lastly, 2.5% of capitation could be withheld by the state payer and returned to the managed care organization-based on performance against contracted standards for the delivery of preventive care and other measures.

3.4 Provider network

3.4.1 Overview

Overall, the ACOs averaged 540 lives per primary care physician in network, and network primary care physicians per ACO ranged from 60 to 571 even though penetration of Medicaid patients varied widely. While the survey did not specifically inquire as to whether participants had a patient-centered medical home or were pursuing certification, four entities volunteered that they are pursuing or received some certification for or with their primary care providers. Eight participants had robust specialty provider networks to serve general and medically complex pediatric populations. They averaged 368 pediatric lives for every specialty provider in network, and pediatric specialists per ACO ranged from 50 to 800. There is no apparent relationship between the number of providers contracted with or number of lives contracted for, and the type of accountable care delivery system (*i.e.* health plan versus other entity). Children's hospitals are also evolving to meet the mental and behavioral health needs of their patients through integration with primary care and, ipso facto, their accountable care organization's provider network composition. Three hospital participants carved in behavioral health to their fully capitated payment arrangements with Medicaid, having recognized the need to incorporate behavioral health data in outcome measurement, enhancing both the health of patients and the data analytic capabilities of the model.

3.4.2 Strategic network development

Generally, more diversified and larger provider networks allowed children to stay in network and resulted in perceptions of less fragmented care.[2] Research shows that hospitalizations decrease and quality of care improves when physicians in the hospital setting and physicians in the community better coordinate care. This is particularly important for the medically complex populations and children with chronic conditions who represent the majority of resource use.[7] Consequently, provider network composition was found to be a dominant priority in the planning and development of studied models. Among four non-managed care organization tier 3 ACOs, the majority of providers were signed via new contracts to supplement their existing community and hospital services. Executives noted the importance of strategic decision making in network development. For example, one participant described a situation where they chose to cut a payer contract with the accountable care entity due to the payer's unwillingness to include home health services, which were highly sought by the model's target population. Another interviewee realized too late that service carve outs led to a fragmented picture of their patients' healthcare utilization. Finally, the alignment of goals and resources amongst all accountable care entities was stressed even more than financial payment terms in some interviews.

3.5 Provider incentive payments

Children's hospital-based accountable care models incentivized their providers to work toward reducing costs and/or improving the quality of care delivery, generally through allocating to them a portion of the overall savings. Variation was seen in payment distribution (per provider or per group) and payment trigger (provider or overall model performance). Of the nine payment models examined, eight provided financial incentive payments to providers who met quality and/or cost targets. Most had network provider incentive programs where a bonus payment is earned on top of usual fee-for-service reimbursement. Though research and study results show that financial incentives are often used to align independent physicians with the quality and/or cost goals,[2] two entities also incentivized employed physicians in the same way. See Table 3 for visual representation of the incentive payments in detail.

Regardless of the financial incentives that made attaining the quality and cost goals seem attractive, hospital executives noted that providers were drawn to the incentives because they represent an organization that aims to improve the quality and efficiency of care delivery to children.

3.6 Pediatric ACO outcome metrics

At most institutions, the measurement and improvement of quality in the pediatric accountable care organization was not well conceptualized beyond cost and utilization. Executives noted that payers did not come to contract negotiations equipped with pediatric-focused quality metrics and mostly relied on the children's hospitals' expertise. For Medicare accountable care participants, high level performance on detailed metrics is required by the Centers for Medicare and Medicaid Services before any potential savings can be attained.[4] None of the pediatric models highlighted any similar restrictions on pediatric quality metrics.

Most of the organizations in this study set their baseline of

metrics with HEDIS process-driven metrics, although few are relevant to pediatrics and even fewer are more than process and utilization.[8,9] Certain pediatric ACOs are implementing advanced metrics, but even these are skewed toward utilization management measures. In particular, some organizations reported measures of high cost services (*e.g.* Children's Mercy Pediatric Care Network measures emergency room utilization) for monitoring expensive patients, while fewer yet included specialty-based utilization such as asthma emergency room use. Other non-HEDIS measures mentioned for subsets of patients by participants included but were not limited to: quality of life (Children's Hospital of Philadelphia, Children's Mercy Pediatric Care Network and Partners for Kids), parent or patient satisfaction (Children's Hospital of Philadelphia and Children's Mercy Pediatric Care Network), infant mortality (Partners for Kids), low birth weight infants (Texas Children's Health Plan), neonatal intensive care unit admissions (Texas Children's Health Plan), emergency department use for ambulatory-sensitive conditions (Texas Children's Health Plan), and avoidable emergency department visits (University Hospitals Rainbow Babies & Children's Hospital, Children's Mercy Pediatric Care Network, and The Health Network by Cincinnati Children's Hospital).

Table 3: Provider incentive payments in nine children's hospital-based ACOs or HMOs

ACO Study Participant	ACO Shared Savings to Group (Cost and/or Quality Goals)	ACO Shared Savings to Individual (Cost and/or Quality Goals)	Provider Incentive to Group (Quality Goals)	Provider Incentive to Individual (Quality Goals)	Payment Distribution Methodology
Children's Hospitals and Clinics of Minnesota	No	No	No	No	N/A
University Hospitals Rainbow Babies & Children's Hospital	Yes (Cost)	Yes (Cost)	No	No	Earned by independent and employed providers
Blank Children's Hospital	No	Yes (Quality)	No	No	Awarded by level of system commitment
The Health Network by Cincinnati Children's Hospital	Yes (Quality)	No	Yes	No	Earned by independent providers
Partners for Kids	No	No	No	Yes	Earned by independent primary care physicians
Children's Mercy Pediatric Care Network	Yes (Quality)	No	Yes	No	Earned by independent providers
Children's Community Health Plan	No	No	No	No	N/A
Texas Children's Health Plan	No	No	Yes	No	N/A
Cook Children's Health Plan	No	No	Yes	Yes	Specific to provider type

3.7 Data analytics and information technology infrastructure

A benchmark characteristic of an accountable care organization was the ability to share quality and cost information among providers, leadership and payer groups.[1,2] All of the entities in this study had or were planning to gain access to claims data for their at-risk population, by being or contracting with one or more Medicaid health plan(s). Because a large portion of the costs of pediatric care were tied up in a small number of very sick patients,[10] care coordination and utilization management were paramount in the negotiation of data elements contracted from the payer. Care coordination was the first infrastructure build for risk bearing in the majority of these organizations. Among health information technology lessons learned, interviewed executives cited the need for a separate, dedicated data and analytics department that functions only for the cost and quality monitoring needs of the overall model in order to evaluate operations and support coordination of care.

Partners for Kids, the model responsible for the most pediatric lives at the time of this study, utilized vendor services for its claims data processing, but also built their own integrated, electronic medical record-based care coordination platform to perform high risk case management responsibilities delegated to them by the State Medicaid health plans. Cook Children's Health Plan invested in data infrastructure through its Center for Children's Health, a population health-focused center that distributes surveys to six counties on the prevalence of childhood obesity, safety from injury, and access to health care. The data is benchmarked against past years' results for goal-setting, and progress on alleviating targeted health needs is evaluated in four year increments. Other institutions explored the use of state health information exchanges but had not seen success yet due to lack of widespread pediatric participation and technical delays, however states were still hopeful of exchange development.[10]

4 Discussion

Federal support for Medicare accountable care for the elderly was an essential element in their explosive growth,[11] however the twelve pediatric accountable care models in this study largely addressed Medicaid-enrolled children. Local and regional market conditions precipitated the development of pediatric ACOs across the country led mostly by

strong, free-standing children's hospitals with large market. Variability across models due to state-to-state differences in Medicaid and lack of federal guidance on structure and financing made them difficult to compare, align or regulate for best practice in pediatric accountable care. Nonetheless, developing models have surfaced primarily through state and managed care organization partnerships and other favorable business conditions.[10] The launch of most sites depended on a positive political climate for innovation. For example, states that employed less harsh restrictions and prerequisites on risk-bearing eased the path for accountable care candidates wishing to execute risk-bearing agreements with Medicaid. Demonstrations, population carve-out arrangements and program redesign are a few examples of opportunities captured by pediatric ACO aspirants that provided direct access to experimentation with payment methodology and risk.[10]

A minority of participants mentioned quality improvement and population health goals in their chief lessons learned, physician incentives, and stated motivation for starting accountable care models. Participants have extensive quality initiatives within their hospital systems, but for most, the emphasis of the model was primarily utilization measures and costs. The primary reason for an immediate or predominant focus on cost savings instead of or before quality improvement is because savings manifest more quickly, and can be measured by any model with access to claims data.[12] Even so, the fact that some are attempting to implement additional quality standards may demonstrate that the models are evolving to have a population health management focus. These additional metrics will help as accountable care transfers from the use of purely process-driven metrics to outcome driven metrics focused on improving overall population health outcomes.[2]

Federally-funded pathways to innovation and payment transformation continue to be announced and pursued by future pediatric accountable care entities submitting single and multi-state applications. With the majority of current models involving contracts with large Medicaid managed care organizations, negotiation with hopeful pediatric accountable care entities lacking bargaining power may require direct pressure from Medicaid offices or an alternative political window of opportunity. For example, over half of the United States has taken advantage of the State Innovation Model Initiative providing millions of direct support dollars to state Medicaid offices wishing to design and test new payment models for Medicaid and Children's Health Insurance Program.[13] For rural accountable care candidates, or others not backed by dominant provider groups or health systems, statewide efforts comparable to State Innovation Model Initiative can be the perfect catalyst for payer negotiations. Until broader reform pressure is applied to public Medicaid payers, much of pediatric payment reform and quality improvement efforts will continue to involve large pediatric providers with market dominance.

From the twelve participants studied, the future of pediatric ACOs would appear most certain in its ability to control costs for at-risk populations, as most reported having seen some overall savings already.[12] However, the development of systematic measurement for pediatric-specific health status in a market so structurally dichotomous, is a task fraught with uncertainty. All things considered, the risk of pediatric accountable care structures failing to identify the health improvement value in their models should be mitigated through standardization and national assessment of best practice and outcome reporting.

5 Conclusions

Several large children's hospitals are engaged in or seeking risk-bearing contracts to provide services for Medicaid-enrolled children in their catchment areas. These contracts have been taken on as business models because of a general perception that value-based contracting will be expanding rapidly. Several commonalities like the importance of detailed data and analytics, provider engagement, strength of networks and contract terms were emphasized by all, though variation exists throughout the financial structures, oversight models and provider-to-patient ratios in each accountable care setting. The political ambiguity and degree of specialization found in just twelve pediatric models speaks to the broader lack of nationally organized and endorsed efforts to research and test accountable care implementation and outcomes for pediatric populations. Success will require sincere determination of states, child health systems, provider networks, and payers, to accomplish sustainable payment innovation and cultivate national collaboration on pediatric quality outcome measurement.

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Conflicts of Interest Disclosure

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References

[1] Shortell SM, Casalino LP, Fisher ES. Implementing Accountable Care Organizations. Berkeley Center on Health, Economic and Family Security [Internet]. 2010 May [cited 2014 Dec 8]. Available from: http://www.law.berkeley.edu/files/chefs/Implementing_ACOs_May_2010.pdf

[2] Merlis M, Berenson R, Fisher E, *et al*. "Health Policy Brief: Accountable Care Organizations," Health Affairs [Internet]. 2010 [cited 2014 December 8]; 20. Available from: http://www.healthaffairs.org/healthpolicybriefs/brief_pdfs/healthpolicybrief_20.pdf

[3] Patient Protection and Affordable Care Act, 42 U.S.C. § 18001. 2010.

[4] CMS.gov. Summary of Final Rule Provisions for Accountable Care Organizations under the Medicare Shared Savings Program [Internet]. Baltimore, MD: Centers for Medicare and Medicaid Services. 2014 Apr [cited 2014 Dec 8]. Available from: http://www.cms.gov/medicare/medicare-fee-for-service-payment/sharedsavingsprogram/downloads/aco_summary_factsheet_icn907404.pdf

[5] Shortell SM, Casalino LP. Implementing Qualifications Criteria and Technical Assistance for Accountable Care Organizations. JAMA. 2010; 303(17): 1747-1748. http://dx.doi.org/10.1001/jama.2010.575

[6] Shortell SM, Casalino LP, Fisher ES. How The Center For Medicare And Medicaid Innovation Should Test Accountable Care Organizations. Health Affairs. 2010; 29(7): 1293-1298. http://dx.doi.org/10.1377/hlthaff.2010.0453

[7] Childrenshospitals.net. Integrated Care Aims to Improve Access, Quality, Effectiveness [Internet]. Washington D.C.: Children's Hospital Association. 2009 Summer [cited 2014 August]. Available from: http://www.childrenshospitals.net/AM/Template.cfm?Section=t&template=/CM/ContentDisplay.cfm&ContentID=67717

[8] NCQA.org. Summary Table of Measures, Product Line and Changes [Internet]. Washington D.C.: National Committee on Quality Assurance. 2015 [cited 2014 Dec 9]. Available from: http://www.ncqa.org/Portals/0/HEDISQM/Hedis2015/List_of_HEDIS_2015_Measures.pdf

[9] CMS.gov. Clinical Quality Measures (CQMs) Pediatric Recommended Core Measures [Internet]. Baltimore, MD: Centers for Medicare and Medicaid Services. 2012 October [cited 2014 Jun 1]. Available from: https://www.cms.gov/Regulations-andGuidance/Legislation/EHRIncentivePrograms/Downloads/2014_CQM_PrediatricRecommended_CoreSetTable.pdf

[10] McGinnis T, Van Vleet A. Core Considerations for Implementing Medicaid Accountable Care Organizations. Center for Health Care Strategies, Inc [Internet]. 2012 Nov [cited 2014 Dec 8]. http://www.chcs.org/media/CoreConsiderationsforMedicaidACO_Final.pdf

[11] Muhlestein D, Tianna T, Gardner P, *et al*. Growth and Dispersion of Accountable Care Organizations: June 2014 Update. Leavitt Partners [Internet]. 2014 Jun [cited 2014 Dec 8]. Available from: http://leavittpartners.com/wp-content/uploads/2014/06/Growth-and-Dispersion-of-Accountable-Care-Organizations-June2014.pdf

[12] Kelleher K, Cooper J, Deans K, *et al*. Cost Saving and Quality of Care: A Case Study of a Pediatric Accountable Care Organization. In Press, Pediatrics, 2015 Jan. http://dx.doi.org/10.1542/peds.2008-1536

[13] CMS.gov. State Innovation Models Initiative: General Information [Internet]. Baltimore, MD: Centers for Medicare and Medicaid Services. 2014 [cited 2015 Feb 3]. Available from: http://innovation.cms.gov/initiatives/state-innovations