

Value-Based Payment Models for Medicaid Child Health Services

Report to the Schuyler Center for Analysis and
Advocacy and the United Hospital Fund

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Foreword

New York Medicaid has set an ambitious goal to rapidly implement value-based payment by 2020. For all of the challenges associated with this huge shift, one of the most consequential for the long-term is how this set of payment changes should apply to the nearly 40 percent of Medicaid enrollees who are children and adolescents. This report, *Value-Based Payment Models for Medicaid Child Health Services*, commissioned by our organizations and written by Bailit Health, addresses just this question, proposing a new, child-centered approach to value-based payment in Medicaid.

Grounded in data on children’s utilization of health care services, literature on children’s health and health care, and expert interviews, the Bailit team concludes that substantial differences in children’s health care utilization compared to adults and in the value of children’s health care argues for a different approach to value-based payment. They suggest that the payment model should promote – and pay for – screening and effective interventions to address psychosocial risks that are not currently widespread in primary care. The authors also suggest that payment models take into account socioeconomic risk and consider approaches that address parental health and well-being. Another recommendation is developing separate payment strategies for very high-need children, whose service needs generate high costs and are generally addressed by specialists. Finally, the report notes that improving value for children is unlikely to generate short-term savings, and in fact may require an upward adjustment in capitated payments for primary care.

Our hope is that this report will open a broader conversation, in New York and nationwide, about Medicaid’s opportunity – as the dominant payer for child health services – to drive more value in children’s health care.

New York Medicaid has a special opportunity to adopt value-based payment strategies to promote advanced health care for children, care that focuses on long-term outcomes and recognizes the critical psychosocial challenges that disproportionately affect our low-income children. As it led the nation in ensuring access to health coverage for every child, New York can again lead in investing wisely for children’s health.

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Executive Summary

The New York State Roadmap for Medicaid Payment Reform sets forth a goal of 80–90% of all Medicaid managed care payments to providers being value-based by 2020. How this goal will be addressed for child health services is unclear, particularly in light of the limited national attention to value-based payment (VBP) models specific to such services. This paper lays out a proposed framework for a pediatric value-based payment model. The recommendations were informed by interviews with state and national thought leaders, a literature review, consideration of New York Medicaid utilization and cost data, and the authors' own experience. Although adult-oriented VBP models are currently being applied to child health services, a pediatric-specific VBP model is appropriate because of the differences between adults and children in terms of disease burden and health care needs. Unlike adults, most children are generally healthy and, importantly, the management of childhood adversities and chronic conditions has payoffs many years into the future. Given the increased recognition of how profoundly social determinants of health (including Adverse Childhood Experiences) affect childhood development and adulthood health and social productivity, payment models need to consider how to motivate and support attention in this area. Finally, the children with very high costs – a very small percentage – generally have very complex medical conditions that require intensive use of health care services by specialists, calling for a distinct payment model for this group.

There are four key challenges to a pediatric value-based payment model:

- Most children generate little medical expense.
- Children with high medical needs are a heterogeneous population.
- Present and future health status is largely defined by factors not under the control of clinicians.
- Many Medicaid providers are not prepared for value-based payment.

For a primary care payment model, we recommend a capitated model supplemented by a care coordination payment and a performance incentive bonus. For children with medical complexity, we recommend using a total cost of care model. Details on the recommended pediatric VBP models are described below.

1. *Value-Based Payment Model for All Children Except for Those with Medical Complexity*

Capitated Primary Care Payment: This payment would cover most child health services delivered by pediatric and family medicine practices. The rate should be based on historical costs adjusted upwards, if necessary, to assume delivery of services consistent with Bright Future guidelines, screening for social determinants and other risk factors, including parental screening, and physician time for telephone calls. The rate should incorporate behavioral health services for practices with co-located and operationally integrated behavioral health care. The capitation payment does not include vaccine costs, which would be paid on a fee-for-service basis. The rate should be adjusted downward for a given practice if the practice is making higher-than-expected use of emergency department, urgent care, or physician specialist services.

Care Coordination Payment: This would be a risk-adjusted per-patient-per-month payment to fund care coordination for children within the practice with medical and social risk factors. The payment would cover care coordination activities such as coordinating specialist referrals, tracking tests and doing patient follow-up, as well as care coordination services with a robust network of community-based agencies and helping families connect to those agencies that can help with addressing social determinants.

Performance Incentive Bonus: Explicit incentives and rewards for the delivery of high-quality and efficient care would account for at least 10% of total primary care practice compensation. Both excellence and improvement over time should be rewarded with measures adopted on a multipayer basis.

2. *Value-Based Payment for Children with Medical Complexity*

Total Cost of Care: Providers caring for this subpopulation, estimated to be no more than 1 to 5% of the pediatric population, would be paid using a total cost of care model with the following characteristics:

- There would be a sufficiently large population to ensure an accurate assessment of financial performance.
- The model would evolve from shared savings to shared risk, but would not be full risk due to the impact of high-cost outliers.
- Eligibility for distribution of any earned savings would be predicated on accessible performance relative to a pre-negotiated measure set that

addresses measures relevant to the health status of the target population, with increased distribution linked to higher performance.

Care Coordination Payment: This would be a risk-adjusted per-patient-per month payment which recognizes the need for higher clinical credentials than would be needed for children without medical complexity and would reflect more intensive care coordination activities needed by this subpopulation.

Other Considerations

Episode-based payment is recommended for consideration for use with specialists who both operate within and outside of a total cost of care contract.

Performance incentive and shared savings distribution methodologies measures associated with all payment methods would capture social determinants that are subject to health care provider influence. For example, consideration should be given to the following non-exclusive list of opportunities:

- parental depression and stress,
- kindergarten readiness (e.g., pre-reading skills),
- environmental triggers of asthma, and
- parental education and supports regarding Adverse Childhood Experiences.

There is also an opportunity to build joint accountability by aligning areas of focus and financial incentives across health care and other sectors serving children. Joint accountability should also be explored with adult primary care providers for parental activities, specifically tobacco use, substance use, maternal depression, and nutrition, which influence child health. Such accountability could lead to better coordination of parent educational and preventive activities.

Cross-subsidization will be necessary to maintain an adequate investment in primary care services for children. Two likely sources for this cross-subsidization are:

- savings generated through better care for children with medical complexity, and
- savings generated through better care for chronically ill and medically complex adults.

In implementing these pediatric VBP models, some customization will be inevitable based on market and provider characteristics.

1. Background and Purpose of the Report

New York’s Medicaid program is in the midst of a massive transformation envisioned by the recommendations of its Medicaid Redesign Team. These recommendations are now in various stages of implementation.¹ The program is striving to achieve the “Triple Aim” of better care, improved health, and reduced costs through a combination of delivery system and payment reforms.²

In the spring of 2015, New York State’s Medicaid leadership convened a group to develop a roadmap for redefining the provider payment system by advancing value-based payment. “Value-based payment” (VBP) is a strategy to structure health care provider payment to reward the quality and efficiency of health care delivery, and it stands in contrast to the traditional fee-for-service payment system that financially rewards higher volumes of services and contributes to cost inflation.

New York Medicaid’s roadmap seeks to reward value over volume and to reinforce a more integrated and coordinated delivery system approach to improved care envisioned for its Delivery System Reform Incentive Payment (DSRIP) program. Based on CMS requirements, the roadmap envisions 80–90% of all Medicaid managed care payments to providers being value-based by 2020.

Because services for children make up a small percentage of overall Medicaid managed care spending, discussion about VBP models have to date primarily addressed the adult Medicaid population.³ Adult care payment models tend to focus on a) reducing unnecessary inpatient and emergency department utilization to save costs, and b) providing more coordinated and integrated care to both improve the quality of care and to help reduce growth in total cost of care.

Since children covered by Medicaid are generally healthy and have relatively few avoidable hospitalizations compared to their adult counterparts in Medicaid,

¹ www.health.ny.gov/health_care/medicaid/redesign/ (accessed May 11, 2016.)

² www.ihl.org/Engage/Initiatives/TripleAim/Pages/default.aspx (accessed May 10, 2016)

³ In calendar year 2014 managed care payments accounted for \$26.5 billion of the nearly \$49 billion total in direct service and drug expenditures. Children aid categories accounted for only 16 percent of all managed care spending in that year. That percentage would be even smaller if expenditures associated with births were removed. Source: United Hospital Fund analysis of 2014 New York Medicaid data www.health.ny.gov/statistics/health_care/medicaid/quarterly/aid/2014/cy/expenditures.htm (accessed May 11, 2016)

adult VBP models do not have the potential to produce savings of comparable scope when applied to the general pediatric population. Moreover, objectives for child health and health care for children – the “value” for children – are quite distinct from those for adults.

The purpose of this report is to explore the distinct characteristics of children served by Medicaid, along with their health and their health care; and to identify approaches to value-based payment that reflect children, their health, and their health care. These approaches are put forth to help inform policy discussions of future directions for value-based payment for pediatric care.

2. Research Methodology

The authors collected information from three major sources: a literature review; interviews of child health practitioners, health system leaders, and state policy leaders; and Medicaid utilization and cost data.

The literature review generally focused on a) papers that discuss the current pediatric care payment model, its limitations, and possible future directions; and b) data analyses that help define the Medicaid pediatric population. The authors identified few papers discussing new payment models being implemented. Of these, some reported the experience of a small number of pediatric-only accountable care organizations (ACOs), and others discussed a few disease-specific episode-based payment models.

The authors interviewed a total of 17 individuals (see Attachment A). They included: practicing pediatricians (both general pediatricians and specialists); a medical director of a Medicaid managed care organization; leaders of the American Academy of Pediatrics; national, state, and city governmental officials; and child health policy leaders. For the most part, all those interviewed commented on the need for a robust policy discussion around effective models for value-based payment for children’s health care. The major themes from these interviews are summarized later in this report.

Data are drawn from a United Hospital Fund analysis of children and adults continuously enrolled in New York State Medicaid in 2014.⁴ Children were defined as beneficiaries younger than 21 years of age and adults were defined as

⁴ L. Kennedy-Shaffer and C. Shearer. July 2016. *Understanding Medicaid Utilization for Children in New York State: A Chartbook*. New York: United Hospital Fund.
<https://www.uhfnyc.org/publications/881143>

beneficiaries between 21 and 64 years of age. As is reported below, data covered enrollee demographics, utilization patterns, illness burden and cost. These data provide a clear picture of the difference between the pediatric and adult populations, reinforcing the need for a pediatric-specific value-based payment model.

3. Current Child Health Care Value-Based Payment Models

The dominant value-based payment models – supplemental payments, pay-for-performance, episode-based payments, and shared savings on total cost of care – have been implemented within the context of pediatric practices across the United States. A more detailed discussion of the components of each model, and examples of each type of payment model, as applied to a pediatric setting, follow.

Supplemental Payment and Pay-for-Performance. This payment model is frequently implemented with two to five of the following key components:

- Fee-for-service (FFS) payments for covered pediatric services. FFS payments are maintained as the traditional foundation of the payment model.
- Per-member per-month (PMPM) payments for care coordination services, which are recognized as essential to providing more integrated, responsive and efficient services, but are seldom reimbursable under traditional FFS models. PMPM payment rates are either one average rate that applies to all attributed children, or varying PMPM rates that are based on the level of care management services needed by a child.
- PMPM or lump sum infrastructure payment. These funds are paid to practices in recognition of the need to build the capacity to develop new work flow processes as part of practice transformation work, hold team meetings, build data collection capabilities and meet reporting responsibilities.
- Pay-for-performance opportunities are often tied to performance on clinical process and outcome measures, and sometimes to utilization and cost performance, although it can be dangerous to do the latter at the practice level due to statistical problems with small numbers.
- Shared savings opportunity. Practices may share in savings on the total cost of care for their attributed patient population with a given payer if their costs come in below a pre-determined target, or relative to a control group. The target is frequently either a PMPM budget amount or a cost

trend. The ability of the practice to earn shared savings is frequently linked to attaining quality targets. The better the practice performs on meeting specific quality-based performance targets, the larger the share of the savings it can retain. Savings are shared between the health plan and the practice at a percentage agreed to by the parties.

Example: Rhode Island's multipayer PCMH Kids initiative provides supplemental payments to pediatric practices that have committed to transforming into Patient-Centered Medical Homes. The payments are intended to fund care coordination services and transformation expenses. Specifically, during the start-up year practices will receive \$3.50 PMPM: \$2.50 PMPM for care coordination and \$1.00 PMPM for transformation expenses, such as developing reporting capacities. In subsequent years, practices will continue to receive the \$2.50 PMPM care coordination payment and will be eligible to receive a \$0.50 PMPM incentive payment for reducing ED visits and meeting quality benchmarks.

Episode-Based Payments. Episode-based payments are fixed budgets or payments for a defined procedure (e.g., tonsillectomy), acute illness (e.g., upper respiratory infection), or for care of a chronic condition (e.g., asthma). Episodes are clearly defined in terms of what services are excluded and included from the payment, and for their time period. Episode-based payment differs from a case rate because the episode is often defined to include services provided by more than one type of provider and includes time parameters. Payments may be prospectively paid, but most often providers are paid on a FFS basis with a retrospective reconciliation against the episode budget.

Example: The Arkansas Medicaid program has been the national leader in implementing episode-based payments for pediatric services, including episode-based payments for attention deficit/hyperactivity disorder (ADHD), oppositional defiant disorder, tonsillectomy, and acute exacerbation of asthma.

Shared Savings. Payment models for ACOs, and for some medical homes, are based on sharing any generated savings on total cost of care for a designated population. Shared savings arrangements often have the following components:

- Fee-for-service payments for health care services provided. More advanced ACOs may receive prospective PMPM payments for total cost of care.
- PMPM payments. These are paid out in recognition that a successful ACO must build and operate extensive infrastructure around care

management, care coordination, data collection and reporting, and patient outreach. The payments may also be to fund ACO conduct of delegated health plan functions.

- Shared savings and/or shared risk opportunity. Early in their evolution, ACOs usually participate in “upside” shared savings contracts where they bear no financial risk for health care spending exceeding the target for their attributed patient population. To earn shared savings, the ACO’s total cost of care must come in below a predetermined target, which is defined as a PMPM amount or a cost trend. As with PCMH payment models, there is frequently a quality performance calculation that impacts the percentage of shared savings an ACO may retain. Savings are shared between the payer and the ACO. The ACO then distributes the earned savings among its participating providers, often retaining some for infrastructure financing and development or for reserves.

ACOs may also accept varying levels of “downside” risk. If the total cost of care on a per capita basis comes in above the PMPM target (or trend target), the ACO is responsible for reimbursing the payer an amount that is predetermined by a risk-sharing formula. Some models modulate the amount of risk assumed by reducing the amount if the ACO achieves certain quality targets.

Example: There are a number of pediatric ACOs in the country that have been formed by children’s hospitals and which serve considerable numbers of children covered by Medicaid.⁵ Partners for Kids is an ACO in Columbus, Ohio organized by Nationwide Children’s Hospital. It operates under contracts with Ohio Medicaid managed care plans in a large urban and rural region of the state and was serving 325,000 Medicaid children through its ACO as of 2015.⁶

4. Research Findings: Literature Review Regarding Child Health Care Payment Models

We found that most authors, when discussing pediatric payment reform, do not distinguish between and reference both *delivery models*, including Patient-

⁵ N. Makni. A. Rothenburger, K. Kelleher. “Survey of Twelve Children’s Hospital-based Accountable Care Organizations.” *Journal of Hospital Administration* 2015; 4(2): 64-73.

⁶ A Study of Safety-Net Providers Functioning as Accountable Care Organizations, Report to the Medicaid and CHIP Payment and Access Commission by Abt Associates and Bailit Health Purchasing, July 22, 2015.

centered Medical Homes and Accountable Care Organizations, and *payment models*, such as pay-for-performance, capitation and bundled payment. In addition, we did not find that evaluative work had been performed specific to pediatric payment models. Rather, the peer-reviewed literature to the extent that it addressed child health care payment models at all, provided descriptive information and/or commentary on recommended models.

Authors generally supported transition to payment models that fund non-traditional services and offer more practice flexibility. For example, the Massachusetts Primary Care Payment Reform Initiative (PCPRI), which was launched in 2014, includes a two-part comprehensive payment: a risk-adjusted supplemental medical home transformation PMPM payment for care coordination and management, and a risk-adjusted capitation payment to cover the majority of all primary care services and some behavioral health services. The model also includes a pay-for-performance component in the form of quality targets and a shared savings opportunity.⁷

Literature also described episode-based payments to address prevalent childhood illnesses, particularly asthma, since they provide a payment mechanism to fund best practices around parent education, medication management and home mitigation services. Asthma episode-based payments generally focus on children with severe asthma and can be triggered by a hospital (admission or emergency department visit) event as with the Arkansas Payment Improvement Initiative (APPI) or triggered by the child meeting clinical eligibility criteria, as with the Massachusetts High-risk Asthma Bundled Payment, which was recently piloted with 200 patients. The Arkansas bundle covers inpatient and outpatient costs for 30 days from the trigger date; services are paid on a fee-for-service basis with an opportunity for cost savings if costs come in below the 75th percentile of costs. The Massachusetts pilot was designed to initially pay participating providers a supplemental PMPM payment to fund non-traditional services, including family education, home assessments, and mitigation supplies. It was intended that later the pilot would implement a comprehensive bundled payment covering both medically necessary services and the services covered under the initial PMPM payment.⁸

Numerous state Medicaid programs are pursuing the implementation of Medicaid ACOs that generally include both adults and children. However, there

⁷ "A Case Study in Payment Reform to Support Optimal Pediatric Asthma Care." Center for Health Policy at Brookings. April 27, 2015.

⁸ Ibid.

are some Medicaid pediatric-only ACOs. One of the earliest pediatric ACOs is Partners for Kids ACO (PFK), which was formed in 1994 by Nationwide Children's Hospital and community pediatricians. PFK is paid an age- and gender-adjusted PMPM payment and assumes full risk for all services. The ACO has been successful at both reducing costs and improving quality on several selected measures. Its success is attributed to having been able to rapidly identify cost reduction targets such as rapid repeat admissions, inappropriate use of high-cost drugs or procedures, and patients in need of specialty care coordination. The ACO has reported a challenge in building robust external partnerships that can impact improved population health.⁹

In terms of new directions for child health care payment models, authors have advocated that payers design models that recognize that savings from pediatric care come principally from preventing adult chronic conditions. Concurrently, they argue that a payment model must also recognize that there are vulnerable pediatric subpopulations that require higher spending during childhood for medical services and to address mental health conditions.^{10,11} Since controlling costs requires the engagement of specialists, as well as pediatricians, others have suggested aligning payment incentives around shared accountability for outcome and cost.¹²

Other authors have advocated for socioeconomic risk adjustment to ensure adequate payment levels to providers, provision of funding flexibility and incentives for more direct collaboration with social service agencies and testing of new payment models that recognize the impact of parental health on their children's health.¹³ Researchers have also suggested that the standard risk-

⁹ K.J. Kelleher, J. Cooper, et al. "Cost Savings and Quality of Care in a Pediatric Accountable Care Organization." *Pediatrics* 2015; 135(3): e582-c589.

¹⁰ J. P. Raphael JP, A.P. Giardino. "Accounting for Kids in Accountable Care: A Policy Perspective." *Clinical Pediatrics* 2013; 52(8): 695-8.

¹¹ D. Z. Kuo, M. Melguizo-Castro, A. Goudie, T.G. Nick, et al. "Variation in Child Health Care Utilization by Medical Complexity." *Maternal and Child Health Journal* 2015; 19(1): 40-18.

¹² X. Huang, M. Rosenthal. "Transforming Specialty Practice – the Patient-Centered Medical Neighborhood." *New England Journal of Medicine* 2014; 1376-79.

¹³ J. Jonas, J. Eder, K. Noonan, D. Rubin, E. Fieldston. "Shifting the Care and Payment Paradigm for Vulnerable Children." Policy Lab. Center to Bridge Research, Practice and Policy, page 3. Evidence to Action, Spring 2015.

adjustment methodology for the general population be updated for pediatric-only populations by reweighting both clinical and developmental factors.¹⁴

There is broad agreement that quality measures must be an element of any payment model and that those measures must be appropriate to pediatric care.¹⁵ Commentators agree that quality benchmarks at a minimum must focus on preventive care, including screening, counseling, and timely vaccinations.¹⁶

The American Academy of Pediatrics has identified the following payment methodology principles for ACOs, which have relevance to other payment and delivery systems as well.¹⁷

- Compensation systems and incentives are aligned internally and externally among providers and payers and support PCMH values (e.g., e-mail and telephone support, coordinated care, teleconferencing).
- Compensation systems must recognize special elements of pediatric care, including appropriate and fair payment for the administration of vaccines.
- A pediatric risk-adjustment methodology is needed for special needs children and practices should be adequately paid for additional effort required to care for this subpopulation with respect to including family, community/educational resources in their care management/care coordination.
- Measures need to be clinically validated and developed by nationally recognized organizations.
- Savings and revenues from ACO operations should be retained for patient care services as well as distributed to the participating health care professionals in a fair and equitable manner.

¹⁴ H. Kahn, R. Parke and R. Yi. "Risk Adjustment for Pediatric Populations." Milliman Healthcare Reform Briefing Paper. November 2013.

¹⁵ D. R. Rittenhouse, S. M. Shortell, E. S. Fisher. "Primary Care and Accountable Care—Two Essential Elements of Delivery-System Reform." *New England Journal of Medicine* 2009; 2301-03.

¹⁶ J. P. Raphael, A.P. Giardino.

¹⁷ Accountable Care Organizations (ACOs) and Pediatrician: Evaluation and Engagement. American Academy of Pediatrics. Available at: www.aap.org/en-us/professional-resources/practice-support/Pages/Accountable-Care-Organizations-and-Pediatricians-Evaluation-and-Engagement.aspx

5. Child Health and Health Care

While this report focuses on New York Medicaid, national data suggests that New York's pediatric Medicaid population is reflective of national experience. A 2015 study of Medicaid administrative data from 10 states reported a cost pattern similar to New York State's pediatric Medicaid population. Specifically, care for a large majority of children between 11 months and 18 years was low-cost, but a small subset of approximately 5% of the covered pediatric lives was very costly, generating 50% of annual expenses. Within that high-cost cohort, the most expensive 1% of children accounted for 25% of all expenses.¹⁸ As in New York, other studies document the growing number of children with chronic conditions.¹⁹ Data from 2011 indicate that New York's percentage of children (ages 10-17) overweight or obese (32.5%) was close to the national average of 31.3%. The following section of this report discusses New York's pediatric Medicaid population in more detail.

a. Description of New York State Pediatric Medicaid Population, Their Utilization/Cost Profiles, and Their Health Care Service Needs

The United Hospital Fund conducted an analysis of 1,767,435 continuously enrolled children who were up to 21 years of age during 2014.²⁰ The pediatric Medicaid population is generally a low-cost group, with an average cost per enrollee of \$4,253, and with 48.5% of the children having an annual expenditure at or below \$2,288. The average per enrollee cost for adults is \$11,154. Median cost information was not available for the adult Medicaid population. Average cost per pediatric enrollee was \$4,638 for males and \$3,886 for females. The vast majority of the children are generally healthy, as evidenced by a low rate of hospitalization. Children experienced 123 inpatient discharges per 1,000 enrollees, while adult enrollees experienced 303. Excluding discharges with a

¹⁸ D. Z. Kuo, M. Hall, et al. "Comparison of Health Care Spending and Utilization among Children with Medicaid Insurance." *Pediatrics* 2015; (136:6).

¹⁹ B. E. Compas, S.S. Jaser, M.J. Dunn, E. M. Rodriguez. "Coping with Chronic Illness in Childhood and Adolescence." *Annu Rev Clin Psychol* 2012 Ppr 27: 8:455-480 and J. Perrin, E.L. Anderson, and J. Van Cleave. "The Rise in Chronic Conditions among Infants, Children, and Youth can be Met with Continued Health System Innovations." *Health Affairs*, 33(12), 2099-105 (2014).

²⁰ L. Kennedy-Shaffer and C. Shearer. July 2016. *Understanding Medicaid Utilization for Children in New York State: A Chartbook*. New York: United Hospital Fund.
<https://www.uhfnyc.org/publications/881143>

birth or pregnancy primary diagnosis, the rate of discharges per enrollee for all children was 0.072.

Of the continuously enrolled children, 42.3% had one or more chronic condition, which appears to be much higher than the estimated national average of 27%, although the measure methodology is not comparable.²¹ For the New York pediatric Medicaid population, the top five chronic condition diagnoses and associated percentages of children with each diagnosis were as follows:

- Mental Disorders (37.8%)
- Respiratory System Diseases (34.1%)
- Nervous System Diseases (18.8%)
- Endocrine, Nutrition, and Metabolic Diseases and Immunity Disorders (13.5%)
- Congenital Anomalies (10.3%)

When comparing the top inpatient diagnosis among the youngest group of children (ages 1 to 4 years) with that of the oldest group of children (ages 18 to 20 years), the differences in health care issues leading to hospitalizations are stark. Among the youngest children, excluding birth and pregnancy-related utilization, 41.6% of the inpatient diagnoses were respiratory system diseases, compared to 6.1% for the oldest children. However, 33% of the discharges of the oldest children had a primary diagnosis of a mental disorder, which does not appear among the top five inpatient diagnoses for the youngest children.

The number of inpatient discharges per enrollee among the youngest children (0.087) and oldest children (0.080) is similar. When examining ED utilization patterns, it is notable that 27.2% of the continuously enrolled children had an ED claim, with little variation by gender. The average annual number of ED visits per enrollee among all children was 0.479.

Data excluding birth and pregnancy-related utilization show that children between 1 and 4 years go to the ED most often for respiratory system diseases and for injury and poisoning. The oldest group of children goes to the ED most often for ill-defined conditions and for injury and poisoning. The number of ED visits per enrollee among the youngest children (0.683) is somewhat higher than the number of ED visits among the older children (0.510). Similarly, the

²¹ Prevalence of Chronic Illness in US Kids Has Increased. *Medscape Medical News*. February 16, 2010.

percentage of the youngest children with at least one ED visit is 36.5%, compared to 26.2% among the oldest children.

The top five inpatient and ED diagnoses for all continuously enrolled children, excluding birth and pregnancy-related utilization, are detailed below.

Table 1: Top Inpatient and Emergency Department Diagnoses, Excluding Birth and Pregnancy-related Utilization, 2014

Rank of Diagnosis	Top 5 Inpatient Diagnoses	Top 5 ED Diagnoses
1	Respiratory System Diseases	Injury and Poisoning
2	Mental Disorders	Respiratory System Diseases
3	Digestive System Diseases	Symptoms, Signs, and Ill-Defined Conditions
4	Injury and Poisoning	Infectious and Parasitic Diseases
5	Nervous System Diseases	Nervous System Diseases

Not surprisingly, children with specific chronic and acute conditions have higher inpatient and ED utilization rates than the average. The table below provides utilization information for children with asthma, diabetes, gastroenteritis and behavioral health conditions.

Table 2: Inpatient, Emergency Department, and Evaluation & Management or Prevention Utilization Rates for Continuously Enrolled Children on Medicaid with Asthma, Diabetes, Gastroenteritis, and Behavioral Health Conditions, Compared to All Continuously Enrolled Children on Medicaid, 2014

	Children with Asthma	Children with Diabetes	Children with Gastroenteritis	Children with Behavioral Health Conditions	All Children
Prevalence	7.9%	0.6%	4.7%	12.4%	N/A
Inpatient discharges per enrollee	0.244	0.403	0.182	0.181	0.072
% of enrollees with a discharge	9.6%	13.2%	7.0%	7.8%	3.1%
ED visits per enrollee	1.076	0.816	1.172	0.789	0.479
% of enrollees with an ED visit	49.0%	37.6%	52.8%	38.7%	27.2%
% of enrollees with an outpt. E&M or prevention visit	97.1%	97.2%	97.6%	90.1%	84.7%

Note: Excludes birth and pregnancy-related utilization.



Importantly, data on use of outpatient evaluation and management (E&M) and preventive services (excluding birth and pregnancy-related utilization) among all continuously enrolled children indicate that utilization is high. In aggregate, 84.7% of the continuously enrolled children have at least one outpatient E&M or preventive care claim. A slightly higher percentage of female children had a claim compared to male children (86.3% compared to 83.7%). In 2014, children on average had 4.5 E&M or preventive claims per enrollee, with little variation by gender.

These data indicate that because nearly half of Medicaid children have at least one chronic condition with associated higher rates of ED and inpatient utilization, a pediatric payment model must account for the prevalence of chronic illness in this population and for the need for clinical care management services. The different primary diagnoses among the youngest and oldest children and the varying utilization patterns by age suggest that a payment model must support providers by allowing them flexibility in providing needed services in a way that meet evolving patient needs throughout childhood. Finally, the relatively high rate of children with behavioral health conditions, particularly in teen years, suggests that a payment model needs to support practices that in addition to screening for behavioral health needs are able to then provide follow-up services through adoption of a co-located and operationally integrated behavioral health model of care.²²

Consistent with national findings, the cost and utilization picture is dramatically different for a small subset of children with intense medical needs.^{23,24,25,26,27} Medicaid data provide several prisms for comparing costs. Approximately 10% of the continuously enrolled children accounted for approximately 50% of all

²² We analyzed the utilization, cost and diagnostic patterns by race, but did not find observed variation to suggest a related recommendations regarding payment model design. We believe that the data support pursuing a more robust primary care payment model that is applicable for all children covered by Medicaid and provides flexibility that enables practices to respond to the unique needs of their patient population.

²³ J. G. Berry, M. Hall, J. Neff, D. Goodman, et al. "Children with Medical Complexity and Medicaid: Spending and Cost Savings." *Health Affairs* 2014; 33 (12): 2199-206.

²⁴ D. Z. Kuo, M. Hall, et al.

²⁵ A. Peltz, M. Hall, D.M. Rubin, et al. "Hospital Utilization Among Children With the Highest Annual Inpatient Cost." *Pediatrics* 2016; 137(2).

²⁶ J.G. Berry, M. Hall, D.E. Hall. "Inpatient Growth and Resource Use in 28 Children's Hospitals: a Longitudinal, Multi-Institutional Study." *AMA Pediatrics* 2013; 167(2): 170-7.

²⁷ D. Z. Kuo, M. Melguizo-Castro, A. Goudie, T.G. Nick, et al.

expenditures. When considering the 5.9% of the continuously enrolled children who are SSI beneficiaries, the annual cost per enrollee is \$19,758, a figure 4.6 times greater than the overall average of \$4,253 per pediatric enrollee. Children with a Developmental and Childhood Disorder primary diagnosis represent 6.7% of all continuously enrolled children, of which 28.8% were among the SSI population. Their annual cost per enrollee was \$13,945, which was slightly more than three times the overall average cost per pediatric enrollee. Children with a Complex Chronic Condition primary diagnosis represent 5.5% of the continuously enrolled population, of which 21.9% were among the SSI population. Some of them are also categorized as having a Developmental and Childhood Disorder primary diagnosis. Children with a Complex Chronic Condition primary diagnosis had an average cost per enrollee of \$15,938, which is 3.7 times more than the overall average cost per enrollee. These two subpopulations of children represent 5.5% and 6.7% of all continuously enrolled children, but account for 20.5% and 27.5% of total costs for continuously enrolled children, respectively. The following tables summarize this cost information.

Table 3: Per-Enrollee Cost Comparisons by SSI Status

Cohort	Beneficiaries	% of		Costs per % of Total	
		Total CE	Total Costs	Enrollee	Costs
Continuously Enrolled	1,767,435	100.0%	\$7,516,998,334	\$4,253	100.0%
SSI Beneficiaries	104,656	5.9%	\$2,067,801,684	\$19,758	27.5%
Non-SSI Beneficiaries	1,662,779	94.1%	\$5,449,196,650	\$3,277	72.5%

Table 4: Per-Enrollee Cost Comparison by Diagnosis of Developmental and Childhood Disorder and Complex Chronic Condition

Cohort	Beneficiaries	% SSI	% of		% SSI	Costs per % of Total	
			Total CE	Total Costs		Enrollee	Costs
Continuously Enrolled	1,767,435	5.9%	100.0%	\$7,516,998,334	27.5%	\$4,253	100.0%
With Developmental and Childhood Disorder Primary Diagnosis	117,721	28.8%	6.7%	\$1,641,601,480	52.7%	\$13,945	21.8%
Without Developmental and Childhood Disorder Primary Diagnosis	1,649,714	4.3%	93.3%	\$5,875,396,854	20.5%	\$3,561	78.2%
With Complex Chronic Condition Primary Diagnosis	96,722	21.9%	5.5%	\$1,541,548,246	52.2%	\$15,938	20.5%
Without Complex Chronic Condition Primary Diagnosis	1,670,713	5.0%	94.5%	\$5,975,450,088	21.1%	\$3,577	79.5%



Based on national studies, it is likely that these very high-cost children have two or more chronic conditions that impact two or more body systems.^{28,29} It is also likely that the most prevalent chronic conditions among the medically complex are neurologic or neuromuscular, congenital or genetic and cardiovascular.³⁰ These are conditions that generally require specialty-focused care.

The utilization and cost patterns of children eligible through SSI, those with developmental and childhood disorders and those with complex chronic conditions, suggest that these subpopulations need an intense level of services that is often available only in specialized primary care or academic medical settings. Their distinct medical needs and service and cost patterns suggest the use of a payment model that addresses their high service intensity usage patterns and needs for extensive patient and family-centered care coordination support.³¹

b. Impact of Socioeconomic and Psychosocial Factors on Child Health

A policy brief produced by The Children’s Hospital of Philadelphia Research Institute summarized current research findings on the socioeconomic impact on health and health care costs as follows:

“Socioeconomic stressors, including poverty, social isolation, housing conditions, food insecurity and job insecurity can lead to poor health and exacerbate chronic conditions. These unmet social needs often lead to non-optimal utilization of the health care system, higher health care costs and a heavy burden on the health care workforce.”³²

The impact of socioeconomic factors on children is clear and their impact is cumulative. For example, early research found that food-insecure children under 36 months of age had odds of “fair or poor” health nearly twice as great and odds of being hospitalized since birth almost a third larger than food-secure

²⁸ J. G. Berry, M. Hall, J. Neff, D. Goodman, et al.

²⁹ J.G. Berry, M. Hall, D.E. Hall.

³⁰ J.G. Berry, M. Hall, J. Neff, D. Goodman, et al.

³¹ Policy Statement: Patient- and Family-Centered Care Coordination: A Framework for Integrating Care for Children and Youth Across Multiple Systems. American Academy of Pediatrics, 2014

³² J. Jonas, J. Eder, K. Noonan, D. Rubin, E. Fieldston. Page 3

children.³³ A more recent study conducted by the PolicyLab and the Children's Hospital Association, which examined children's health care resource utilization, hospital length of stay and inpatient mortality in relationship to ZIP code-based median annual household income, associated poverty with greater rates of hospitalization, longer lengths of stay and increased mortality.³⁴

A child's exposure to a specific subset of socioeconomic and psychosocial events referred to as Adverse Childhood Experiences (ACEs) has been found to have a strong and consistent relationship with significant chronic disease, and to produce an increased likelihood of child engagement in risky behavior.³⁵ Other studies have found higher incidence of adult heart disease and behavioral health conditions in children who were exposed to ACEs.³⁶

The ACE Pyramid depicts the linkages between ACEs and lifelong health and well-being challenges.

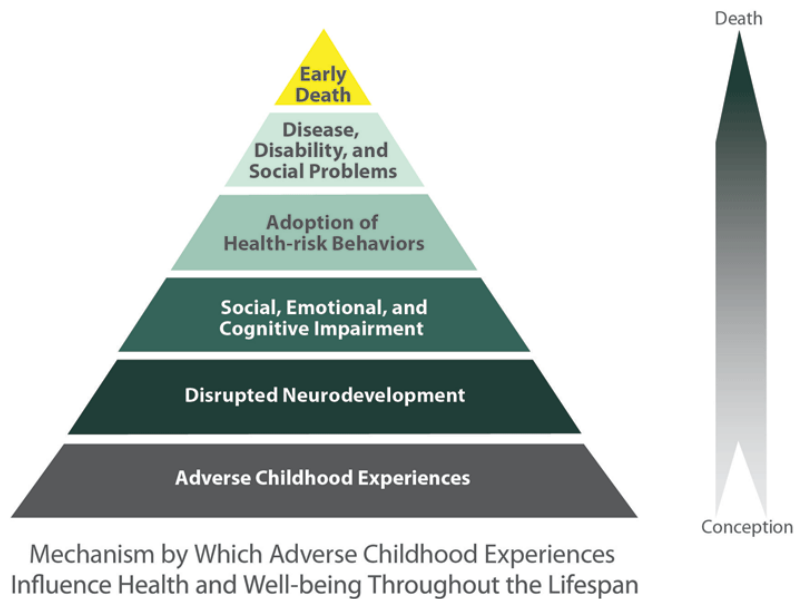
³³J. Cook, D.A. Frank, C. Berkowitz, M.M. Black, et al. "Food insecurity is associated with adverse health outcomes among human infants and toddlers." *J Nutr* 2004 Jun; 134(6):1432-8.

³⁴J. Jonas, J. Eder, K. Noonan, D. Rubin, E. Fieldston.

³⁵ ACEs are divided into three categories: abuse (including emotional, physical, and sexual), neglect (physical and emotional), and household challenges (intimate partner violence, household substance abuse, household mental illness, parental separation or divorce, and incarcerated household member). For more information on ACEs, see www.cdc.gov/violenceprevention/acestudy/.

³⁶S.C. Brundage. *Seizing the Moment: Strengthening Children's Primary Care in New York*. United Hospital Fund. January 2016.

Diagram 1: ACE Pyramid³⁷



The science is clear that an individual’s health trajectory is affected during early childhood and that the home caregiving environment plays a significant role. When a child is repeatedly exposed to food and housing insecurities, personal abuse or neglect, and/or a disruptive household environment, this can have a particularly detrimental effect on child health. Exposure to adverse social determinants of health has a cumulative effect upon children. This impact shows up initially in poor health and educational outcomes, but the full impact of negative early childhood events may not show up until adulthood.

For children covered by Medicaid, the importance of this research is profound. There is a clear association between lower family income and indicators of poorer health and well-being. Moreover, the percentage of children experiencing negative developmental, physical, behavioral, and educational outcomes increases as income falls. Importantly, the percentage of children experiencing one or more ACE increases as income falls, reducing a child’s ability to bounce back from traumatic events.³⁸ With growing recognition of the substantial impact

³⁷ Center for Disease Control and Prevention. Accessed on June 9, 2016 at: www.cdc.gov/violenceprevention/acestudy/about.html

³⁸ N. Halfon, P.H. Wise, and C.B. Forrest. “The Changing Nature of Children’s Health Development: New Challenges Require Major Policy Solutions.” *Health Affairs* 2014; 33(12): 2116–124.

of socioeconomic and psychosocial factors on child health, practicing primary care providers, including pediatricians, do not feel confident in their capacity to meet patient social needs, which can impede their ability to provide quality care. Four in five physicians participating in a national survey conducted for the Robert Wood Johnson Foundation reported that they did not have the capacity to address patients' broader social needs.³⁹

Because of the impact of socioeconomic determinants, including ACEs, on the long-term health and well-being of children covered by Medicaid, a pediatric payment model should anticipate the need for pediatric practices to address these factors by 1) screening for them; 2) providing interventions, such as parental education and support and behavioral health services, when appropriate services are available within the practice; 3) establishing robust linkages to community-based behavioral health, educational, and social service organizations that can address more directly the social determinants that are beyond the scope of a pediatric practice; and 4) making and closing referrals to such community-based organizations.

Because some of the social determinants of health may be directly affected by child health providers, in Section 10 below, we identify several such factors that could be integrated into a child health value-based payment model.

6. High-Value Adult Health Care and How It Contrasts with High-Value Child Health Care

High-value health care for adults is typically defined as producing the best health outcomes at the lowest cost.^{40,41} This value definition, for adults, is based on the premise that there is a significant opportunity to both lower costs and improve the quality of care by better managing chronic conditions, promoting preventive care, and addressing overuse and misuse of services. While screening and prevention are a consideration, high-value adult health care places much greater emphasis on the management of costly and sometimes debilitating chronic conditions.

³⁹ "Health Care's Blind Side: Unmet Social Needs Leading to Worse Health." Robert Wood Johnson Foundation. December 7, 2011.

⁴⁰ G.D. Curfman, S. Morrissey, J.M. Drazen. "High-Value Health Care – a Sustainable Proposition." *New England Journal of Medicine* 2013; 369: 1163-64.

⁴¹ K.J. Kelleher, J. Cooper, et al.

Under this framework, cost savings can be expected to be generated within one or two years (at most), and those savings can be used to fund the provision of additional, value-adding services that are not traditionally reimbursed but are essential to containing costs. This value-based payment model, therefore, is sustainable – at least as long as savings opportunities persist.

Because pediatric care is predominantly focused on developmental screening, preventive care and anticipatory guidance, opportunities for short-term cost savings to fund and sustain a value-based pediatric payment model do not exist to the same extent that they do for adults.⁴² While such savings opportunities may occur, they are usually found in smaller, higher-cost sub-groups within the Medicaid pediatric population, including children with severe asthma and children with medical complexity.^{43,44,45} For the vast majority of children covered by Medicaid, infrequent inpatient service use means that adult-driven value-based payment models cannot be expected to generate substantial annual savings.

Data from the New York State Medicaid program illustrates the challenge that a pediatric value-based model has in generating annual savings. The differences in the disease burden, utilization, and costs of children compared to adult populations are obvious. The following table compares several key population characteristics that document the greater chronic disease prevalence in the adult population, the higher frequency of use of inpatient services by adults, and the much higher average per-person costs for adult beneficiaries generating the top tiers of spending compared to children.

⁴² J.L. Raphael, A.P. Giardino.

⁴³ M.B. Malcarney, N. Seiler, K. Horton. “Using Insurance Laws to Improve Access to Community-based Asthma Prevention. *Public Health Reports* 2013; 128(5): 402-6.

⁴⁴ J. G. Berry, M. Hall, J. Neff, D. Goodman, et al.

⁴⁵ S.L. Ralston, W. Harrison, J. Wasserman, D. C. Goodman. “Hospital Variation in Health Care Utilization by Children With Medical Complexity.” *Pediatrics* 2015; 136(5): 860-7.

Table 5: Comparison of Costs, Utilization, and Chronic Condition Prevalence between Adults and Children Continuously Enrolled in New York’s Medicaid Program, 2014

Variable	Children	Adults	% Difference (Adults Compared to Children)
Number of Continuous Enrollees	1,767,435	2,133,905	+21%
Average Expenditures per Enrollee	\$4,253	\$11,154	+162%
Inpatient Days/1,000 Enrollees	655	2,474	+278%
Enrollees with 1 or More Inpatient Discharges (%)	5.8%	12.3%	+113%
Enrollees with 3 or More Inpatient Discharges (%)	0.8%	2.8%	+244%
Enrollees with 5 or More Inpatient Discharges (%)	0.2%	1.0%	+383%
Enrollees with 1 or More Chronic Conditions (%)	42.3%	70.1%	+66%
Percentage of Inpatient Discharges with a Chronic Condition Primary Diagnosis	27.4%	46.6%	+70%
Annual Cost Per Person of Beneficiary in Top 1% of Spending	\$94,491	\$203,141	+115%
Annual Cost Per Person of Beneficiary in Top 5% of Spending	\$32,598	\$99,024	+204%

Because children are predominantly healthy and the focus of pediatric care is principally to ensure healthy lifetime development, the health and financial benefits from receiving good child health care are recognized over a longer period of time than are the benefits of adult care.⁴⁶

7. Interviewee Perspectives on Value-Based Payment Models for Children

We interviewed 17 state and national thought leaders regarding pediatric payment reform, 11 of whom were clinicians. When we asked these leaders about a pediatric value-based payment model, very clear themes emerged, many of which were also reflected in literature reviewed.

First, the interviewees recognized the importance of a healthy childhood to becoming a productive adult and the key role that pediatricians have in providing critical developmental screenings, preventive services, anticipatory

⁴⁶ J.L. Raphael, A.P. Giardino.

guidance and in managing acute and chronic health care issues, without which a child's healthy future is less certain. In that regard, many felt that **payment models undervalue pediatric care** because of the long-term payoff that is not reflected in current fee-for-service payment rates. One interviewee specifically stated that pediatric care should be subsidized with savings from value-based adult care models. Another interviewee thought that a payment model should incorporate savings from non-health agencies, such as state, county, and local departments of education and corrections – that realize savings as a result of children's improved health.

Second, the interviewees all recognized the direct **detrimental impact on a child's physical, emotional, and cognitive development of Adverse Childhood Experiences and other social determinants of health**, and that the detrimental effects of these adverse experiences can result in chronic diseases in adulthood and shrink a child's potential to becoming a productive, working adult. All recognized the elevated importance of addressing social determinants for lower-income children because of the likelihood that a high percentage of Medicaid-enrolled children will have these adverse experiences.

Third, interviewees expressed concern about **what the appropriate role of the pediatrician should be in addressing social determinants of health** because many fall outside of the pediatrician's medical purview (e.g., housing or food insecurity) or because they require access to scarce clinical resources (e.g., pediatric psychiatrists). Several noted that their ability to address social determinants of health is also limited by the reality that the child's parental health can directly affect the child's health, and there is limited ability for child health providers to address the parent's health issues because parents usually have separate primary care providers and may be covered by different health care programs.

Fourth, interviewees believed that there were activities that child health providers could undertake that would help mitigate the impact of social determinants of health and that a pediatric VBP model should include payment for those added services. Interviewees thought pediatricians should be responsible for meeting Bright Futures care guidelines, which include screening for some adverse events and referring patients to other clinicians or to social service agencies better able to directly address their needs.⁴⁷ To meet these guidelines, interviewees consistently expressed the view that it was **critical for practices to be reimbursed for screening, referral, and care management**

⁴⁷ <https://brightfutures.aap.org/about/Pages/About.aspx> (accessed May 7, 2016)

services to ensure that families receive the support services they need. Their experience indicated that just providing referral information to a family was not sufficient and that families require more active support to connect them to needed services. In addition, several interviewees thought that providers should receive payment for expanded services necessary for a well-functioning medical home, including on-site nutritional and behavioral health services. Many emphasized the need to promote behavioral health and physical health integration through a VBP model.

Fifth, interviewees expressed the need for **more funding flexibility** that would enable pediatricians to provide services more strategically, specifically mentioning an adequately funded capitation payment as a desirable model. Such an approach would enable providers to better address the underlying causes of health problems, such as home remediation services for children with severe asthma. It would also enable providers to be more creative in engaging patients. One practicing pediatrician noted the success her practice had with telephone gaming applications for obese teens to motivate them to lose weight and also with the use of telemedicine to access specialty care. Several interviewees believed that vaccinations should be paid for on a fee-for-service basis to retain the incentive to provide vaccines to as many children as can be reached.

Sixth, interviewees versed in the details of payment models identified the need to develop **accountability measures specific to child health** and mentioned the Bright Futures guidelines as the basis for developing process measures. Several thought that there were opportunities to develop measures that reward collaboration with other clinical and non-clinical service providers. Several expressed a strong view that closer working relationships between pediatricians and the schools, particularly school nurses, are key to meeting a low-income child's needs. Some thought that there might be opportunities to promote shared accountability with community-based organizations by developing measures, such as improving the kindergarten attendance rate or readiness for school.

Seventh, there was **no consensus about what child populations should be included in or excluded from a pediatric VBP model**. Several interviewees thought that high-cost children with complex medical needs should be excluded because there should be no disincentives to providing all needed care. Others thought that this subpopulation should be included because of the lack of intensive coordination that patients need and because of the opportunities to reduce costs with better integrated care. The interviewees acknowledged that this subpopulation was generally served by specialists rather than community-based pediatricians, and that a payment model would need to be structured

accordingly. Several interviewees thought a specialized medical home model for high-cost children with complex needs was a preferred model. Foster care children and high-cost premature infants were mentioned by some as populations that might need to be excluded from a pediatric VBP model.

Eighth, several interviewees suggested that **episode-based payments to specialists** would be a desirable model for that group of child health care providers.

Finally, interviewees consistently acknowledged **some knotty technical issues** that needed to be addressed for a successful pediatric VBP model to be successfully implemented. These issues included a) patient attribution, particularly in New York City where there are many providers with overlapping service areas; and b) the need for risk adjustment that includes consideration of social determinants of health.⁴⁸

8. Defining Value for Child Health Care

In order to define appropriate value-based payment models for children's health care, it is necessary to first define the value sought through the purchase of health care services for children. The experts we interviewed believe society's goal for children is to maximize each child's opportunity to develop physically and emotionally such that he or she can productively contribute to society throughout his or her life, and they felt that a mix of process-of-care and outcomes should define the value of care for children. We recommend the following construct⁴⁹ as the basis for defining value-based payment models.

1. Process: regular access to a primary care team
2. Process: regular developmental screens and preventive care
3. Process: regular screens for socioeconomic determinants of health, with resource referral when needed
4. Process: access to coordinated specialty care, when needed
5. Process: family involvement in care
6. Process: seamless integration of behavioral health and primary care
7. Outcome: health is well-managed and the child is emotionally well

⁴⁸ The New York Children's Health Home initiative reportedly will be using the Child and Adolescent Needs and Strengths Assessment of New York (CANS-NY) as a risk adjustment proxy to classify participants in acuity categories (high, medium, and low) to determine Health Home rates.

⁴⁹ This framework was conveyed to us by Shanna Shulman, PhD.

8. Outcome: the child is able to appropriately and effectively function—e.g., at developmental milestones, performing activities of daily living, attending school, and achieving academically

While a minority voice said that value should be solely defined in terms of the delivery of care consistent with clinical guidelines (the AAP's Bright Futures were referenced most often), this was not the majority opinion, nor is it ours.

9. Challenges Related to Value-Based Payment Models for Child Health Care

Based on our research and experience, we have identified four key challenges that must be considered in developing a pediatric VBP model.

1. Many Medicaid providers are not prepared for value-based payment. According to the Kaiser Family Foundation, 39% of US children age 0-18 were covered by Medicaid in 2014—and 43% of New York State children.⁵⁰ The profile of the providers serving Medicaid beneficiaries makes implementing value-based payment challenging. Medicaid beneficiaries make greater proportional use of federally-qualified health centers (FQHCs) and safety-net hospitals than do individuals covered by commercial policies or Medicare. FQHCs and safety-net hospitals are typically poorly capitalized and operate in a resource-poor environment. This makes it hard for them to develop and maintain the operational and financial capacity to enter into and succeed under value-based payment models, especially those models that include transfer of risk from the payer to the provider.⁵¹

⁵⁰ Kaiser Family Foundation estimates based on the Census Bureau's March 2015 Current Population Survey (CPS: Annual Social and Economic Supplements). <http://kff.org/other/state-indicator/children-0-18/> (accessed May 6, 2016)

⁵¹ Bailit Health Purchasing and Abt Associates (B. Waldman and M. Bailit) "A Study of Safety-Net Providers Functioning as Accountable Care Organizations" Medicaid and CHIP Payment and Access Commission (MACPAC), July 28, 2015; M. Bailit, R. Tobey, J. Maxwell and C. Bateman. "The ACO Conundrum: Safety-Net Hospitals in the Era of Accountable Care" Robert Wood Johnson Foundation, Princeton, NJ, May 2015; M. Burns and M. Bailit. "Alternative Payment Models and the Case of Safety-Net Providers in Massachusetts" Blue Cross Blue Shield of Massachusetts Foundation, Boston, MA, March 2015.

2. Most children generate little medical expense.

While “value” in health care is commonly understood to be inclusive of access, clinical quality, improved health status, and cost management, it is primarily cost concerns that have propelled national interest in value-based payment. For this reason, value-based payment model development in the U.S. has largely focused on adult populations, as spending on adults (especially older adults) is so much higher than for children and thus presents a larger opportunity for savings.

The smaller opportunity for savings is not the only difficulty in pursuing value-based payment models for children; there’s a methodological challenge as well. Value-based payment models in 2016 are commonly understood to include some consideration of cost performance. Because most children generate so little medical expense annually, their patterns of medical expenditure tend to be more sensitive to random events. Susceptibility to the impact of random variation – across all age groups – is greater with comparatively healthier populations.⁵² This sensitivity to random event occurrence makes it hard to conclude whether the actions of a provider affected the utilization and costs associated with a population of patients.

3. Children with high medical needs are a heterogeneous population.

Application of value-based payment models to the small percentage of children with medical complexity (estimated at 0.5% of commercially insured children by an interviewee, and by other interviewees and research publications as between 1% and 5% of Medicaid covered children) is complicated by the array of medical conditions affecting this small population.⁵³ This makes the creation of budgets, for either total cost of care or for episodes of care, difficult except in regional tertiary referral centers that see large volumes of children needing complex care. Uncommon conditions also pose a challenge to the use of condition-specific performance measures because the measure denominators are too low to produce statistically reliable results. Further complicating payment model design for this pediatric subpopulation, according to one interview, is the lack of clear guidelines of care for many children in this group.

⁵² N. McCall and D. Peikes. “Tricky Problems with Small Numbers: Methodological Challenges and Possible Solutions for Measuring PCMH and ACO Performance.” Robert Wood Johnson Foundation, April 2016.

⁵³ 0.5% of a Boston, MA, commercially-insured pediatric population represent 25% of spending, personal communication, R. Antonelli, M.D. and D. Z. Kuo, M. Hall, et al.

4. Present and future health status is largely defined by factors not under the control of clinicians.

As discussed earlier, extensive literature points to the impact of social determinants of health on the health status of children.⁵⁴ Yet most interviewees were reluctant to have pediatric payment models address responsibilities extending very far, if at all, beyond traditional clinical care. One interviewee reasoned, “I’m drawing the line based on what is feasible, rather than based on what’s right.” With rare exception, interviewees felt that it was appropriate to hold providers responsible for referrals to and linkages with community resources, but nothing more.

In addition, children’s health and developmental progress is heavily influenced in both the short term and the long term by their parents’ mental and physical health, and parents often are served by different providers than their children.

10. Proposed Value-Based Payment Models for Child Health Care

Informed by expert interviews, literature review, data analysis and practical experience with a range of value-based payment models, we conclude that a range of pediatric value-based payment models is the most appropriate strategy. These models are envisioned for use with all primary care practices serving Medicaid children (e.g., pediatrics and family medicine).

While recognizing that total cost of care, ACO-type contracts with large medical groups, provider networks, and integrated systems are growing in prevalence, our proposed models address payment to providers for specific services and specific subpopulations. Our rationale for so doing is that unless a pediatric health professional is employed by an organization receiving prospective payment (and few are in 2016), the underlying payment to the professional – even if there is an overarching total cost of care contract – will influence performance.

For example, if a pediatric practice affiliates with a larger organization for shared savings / total cost of care contracts with health plans, and the practice continues to be paid on a traditional volume-driving fee-for-service basis, the practice is unlikely to substantially change its manner of care delivery.

⁵⁴ S. Brundage. “Seizing the Moment: Strengthening Children’s Primary Care in New York” United Hospital Fund, January 2016 and J. Jonas, et al. “Shifting the Care and Payment Paradigm for Vulnerable Children” Children’s Hospital of Philadelphia Research Institute, Spring 2015

In thinking about payment models, we have been influenced by interviewees who stratified children into three groups: children with medical complexity who need tertiary specialized care; children with one or more chronic conditions or mental health needs who can be treated by community providers; and all other children, who are generally healthy. We have also been influenced by interviewees' stated desire for more funding flexibility to better respond to patient needs. Finally, we have found compelling the growing scientific evidence that negative social determinants of health, including ACEs, have a profoundly detrimental and permanent impact on the child's lifetime health and well-being and the recognition that pediatricians are in a unique position to screen for these factors and link families and children to external service organizations that can help build resilience and address the social determinants of health.

1. Primary Care Payment

We recommend a primary care payment model with three primary elements: capitation, care coordination, and performance bonus.

Capitated payment for most services delivered to children by pediatric and family medicine practices is our preferred model. While capitation is sometimes viewed as a payment model for managing costs by controlling service volume, we believe it is attractive for primary care because of a) its removal of the harsh financial incentive to generate office visits, and b) its corresponding liberation to provide new services and use non-office-visit modalities.

We recommend that primary care capitation be structured in the following fashion:

- a. The rate should be based on historical costs that are adjusted upwards, if necessary, to assume:
 - i. delivery of care consistent with the Bright Futures guidelines,⁵⁵
 - ii. screening for social determinants of health and other risk factors, including parental screening, and
 - iii. physician time for telephone calls.
- b. The rate should exclude vaccine costs, as well as those pediatric services delivered by some but not most practices (e.g., suturing). Payers and practices could also agree to exclude from capitation specific services about which there may be serious concern regarding underutilization. All of these residual services should be reimbursed on a fee-for-service basis.

⁵⁵ <https://brightfutures.aap.org/about/Pages/About.aspx> (accessed May 7, 2016)

- c. The rate should be adjusted downward for a given practice if experience shows the practice to be making higher-than-expected use of emergency department, urgent care, and physician specialist services.
- d. The rate should incorporate behavioral health services for primary care practices with co-located and operational integrated behavioral health care.
- e. Children with complex health needs should be excluded from primary care capitation.

Primary care capitation should be complemented with a **care coordination payment**, probably paid on a per-patient-per-month basis. The care coordination payment should fund care coordination for children within the practice with medical and social risk factors.⁵⁶ The payment would cover care coordination activities such as coordinating specialist referrals, tracking tests, and doing patient follow-up, as well as care coordination services associated with connecting families to a robust network of community-based agencies that can help with addressing social determinants. One interviewee described these care coordinators as performing “upstream” work, linking families with community-based resources. For many children and families, the care coordinators could be social workers or community health workers. For ease of administration, the PCP capitation payment and the care coordination payment could be combined into a single payment stream.

The capitation and care coordination payments should be risk-adjusted. Risk-adjustment criteria should include clinical risk (e.g., chronic condition, behavioral health diagnosis, and foster care status) and, ideally, socioeconomic risk. Because there are no well-established means for adjusting care coordination payments for socioeconomic risk, proxies may be necessary in the short term.

The final pediatric primary care payment component is a **performance incentive bonus**. We feel that it is important that there be an explicit incentive and reward for the delivery of high-quality and efficient care. Research suggests that potential rewards should approach 10% of compensation to provide sufficient motivation.⁵⁷ Both excellence and improvement over time should be rewarded.

⁵⁶ R. Antonelli, J. McAllister, J. Popp. “Making Care Coordination a Critical Component of the Pediatric Health System: A Multidisciplinary Framework.” The Commonwealth Fund, publication number 1277, May 2009.

⁵⁷ Rosenthal M.B., Frank R.G., Li Z., Epstein A.M. “Early Experience with Pay-for-Performance: From Concept to Practice.” *Journal of the American Medical Association* 2005; vol. 294: 14.

Performance measures should be evidence-based and drawn from national measure sets. Measures should ideally be adopted on a multi-payer basis as has been done in Minnesota and elsewhere to support the practices in attending to shared priorities.

The goal of this model is not to place financial risk on the clinician, but to adequately fund traditional and non-traditional services, provide delivery service flexibility, and provide incentives to continually improve the quality of care provided.

2. Payment for Children with Medical Complexity

We recommend that care for children with medical complexity – estimated to make up no more than 5% of the pediatric population and most of whom are supported by care teams at tertiary referral centers – be paid using a **total cost of care model**, unless the provider organization is already contracting on a total cost of care basis for its total patient population. Our rationale for this model is a) that it provides financial flexibility for the attributed provider as with primary care capitation, but to a far greater degree because the budget is so much larger; and b) that it provides a financial incentive to reduce unnecessary care and to find better ways to meet patient and family needs. Interviewees with direct experience serving this population felt that significant opportunities exist for supporting them with more efficient care. This is supported by research finding that children with medical complexity account for 40.1% of all hospitalizations for ambulatory care-sensitive conditions in children covered by Medicaid.⁵⁸

The total cost of care model for children with medical complexity should have the following characteristics:

- a. There should be a sufficiently large population to ensure an accurate assessment of financial performance; and
- b. The total cost of care model should evolve from shared savings to shared risk, but should not become a full-risk model due to the impact of high-cost outliers.
- c. Eligibility for distribution of any earned savings should be predicated on accessible performance relative to a pre-negotiated measure set that addresses measures relevant to the health status of the target population, with increased distribution linked to higher performance.

As with primary care payment, the total cost of care model should be complemented by a **care coordination payment**. Care coordination resources

⁵⁸ Berry J.G., Hall M., Neff J., Goodman D., et al.

should include individuals with higher clinical credentials than would be needed for children without medical complexity, and should reflect the intensive care coordination activities associated with caring for these children.

Other Considerations

Episode-based payment. While we do not recommend episode-based payment as an initial method of value-based payment for children, we believe that it is a concept worthy of further exploration and testing for specialty care. Some interviewees felt that episode-based payment (sometimes referred to as “bundled payment”) could work well for populations managed by specialists (e.g., those with sickle-cell anemia patients or asthma). As noted earlier, Arkansas Medicaid has put episode-based payment into practice for certain conditions, with implementation independent of treating provider type.⁵⁹ We have particular interest in the possible application of episodes with specialists who both operate within and outside of a total cost of care contract.

Accountability for social determinants of health. While most interviewees felt that it would be inappropriate or simply infeasible to build direct accountability for social determinants of health into pediatric value-based payment models, some voiced concern about who would assume responsibility for “upstream” determinants of health.

There are *many* social determinants of health. Some of them are subject to more influence by a health care provider than are others. Certain measures capture social determinants that are subject to health care provider influence; we believe that it is time to begin to incorporate these measures into performance incentive and shared savings distribution methodologies. For example, we specifically suggest considering the following as a non-exclusive list of opportunities:

- parental depression and stress,
- kindergarten readiness (e.g., pre-reading skills),
- environmental triggers of asthma, and
- parental education and support regarding Adverse Childhood Experiences (ACEs).

⁵⁹ Thompson J. “Moving to a Value-based Health Care Payment System in Arkansas” National Academy for State Health Policy Annual Health Policy Conference, Dallas, TX, October 20, 2015.

We also believe that there is promise in the concept of “joint accountability” across health care providers and agencies addressing social determinants. For example, Oregon is considering the concept of joint accountability across its Medicaid Coordination Care Organizations and regional early learning “hubs.”⁶⁰ Joint accountability strategies would align areas of focus and incentives across the sectors serving children and remove the burden that some pediatric practices express regarding “solving poverty.”

Joint accountability should also be explored with adult primary care providers for parental activities, specifically tobacco use, substance use and nutrition, which influence child health. Such accountability could lead to better coordination of parent educational and preventive activities.

11. Considerations for Implementation of the Proposed Models

The most important consideration for implementing the proposed models is how to finance the primary care model. Our recommendations envision capitation rates that would be built to assume funding of some activities that are not always funded today, as well as care coordination payments and incentive bonus opportunities. While some new primary care payment models, particularly those tied to comprehensive medical home initiatives, provide this level of support, most current payment models do not. Interviewees often voiced recognition of the financing challenge for supporting primary care practice to deliver high-value to children and their families. They believe – and we do too – that cross-subsidization will be necessary to maintain and adequate investment in primary care services for children. Two likely sources for this cross-subsidization are:

- savings generated through better care for children with medical complexity,⁶¹ and

⁶⁰ “Child & Family Well-Being Measures Workgroup: Final Report and Recommendations” The Joint Subcommittee of the Early Learning Council and the Oregon Health Policy Board, September 11, 2015.

⁶¹ Some interviewees who served children with complex needs indicated that better quality care should result in lower spending. Examples of opportunities for improved care include reductions in avoidable inpatient admissions, avoidable emergency department visits, inappropriate specialty referrals and duplication of testing, all of which produce wasted expenditures and reduce the quality of life for the child and family

- savings generated through better care for chronically ill and medically complex adults.

This cross-subsidized investment will be most necessary for Medicaid. Children served by Medicaid are subject to many more adverse social determinants of health and have worse health status than higher-income children, and yet are generally funded at lower levels than commercially insured children.

A second consideration will be the composition of the provider community in a given market or state. Some payment models will be easier to implement than others, and ease of implementation will depend on market and provider characteristics in any given market. Some customization is inevitably required to be sensitive to market differences.

12. Conclusion

This report describes the rationale for and design of a value-based payment strategy for child health care. The strategy reflects a specific definition of what “value” means for child health care, and what actions providers need to take to attain that value. The recommended payment models have relevance whether or not practices are affiliated with a larger network operating under a total cost of care, ACO-like contract or not.

We also identify areas for testing, including joint accountability incentives between child health providers and agencies that can influence social determinants of health. We also suggest consideration of episode-based payments for some specialty care providers.

While not solely intended for such a purpose, we hope that this report will serve as a basis for discussing the adoption of pediatric value-based payment models within the New York State Roadmap for Medicaid Payment Reform.

Attachment A. Interviewees and Their Organizational Affiliations

1. Richard Antonelli, M.D., The Boston's Children Hospital
2. George Askew, M.D., New York City Department of Health and Mental Hygiene
3. Susan Berman, M.D., American Academy of Pediatrics
4. Marc Berg, M.D., KPMG
5. Debbie Chang, MPH, Nemours Children's Health System
6. Suzanne Delbanco, Ph.D., Catalyst for Payment Reform
7. Steven Farmer, M.D., George Washington University
8. Eliot Fishman, Ph.D., Centers for Medicare and Medicaid Services
9. Jason Helgerson, MPP, New York State Department of Health
10. Dana Hargunani, M.D., Oregon Health & Science University HealthCare
11. Mark Hudak, M.D., American Academy of Pediatrics
12. Kelly Kelleher, M.D., Nationwide Children's Hospital
13. Bruce Nash, M.D., Blue Cross Blue Shield of Massachusetts⁶²
14. Andrew Racine, M.D., Montefiore Health System
15. Shanna Shulman, Ph.D., Richard and Susan Smith Family Foundation
16. Joseph Stankaitis, M.D., MPH., Monroe Plan
17. Peter Szilagyi, M.D., University of California, Los Angeles

⁶² Dr. Nash was associated with the Capital District Physicians' Health Plan at the time of the interview.