

# Achieving Better Value in Pediatric Care: School Systems as Clinical and Financial Partners?

Venus Wong, PhD; Hoangmai Pham, MD, MPH; and Kelly Kelleher, MD, MPH

Value-based health systems, such as accountable care organizations (ACOs), have made progress in improving care value.<sup>1</sup> However, provision of health care for children, the cornerstone of our future society, remains haphazard and subpar.<sup>2</sup> We suggest partnerships between value-based health care systems and “capitated” special education systems as a novel relationship to drive high-value pediatric care.

Health care and education are tightly connected for the pediatric population—a healthier child is a better learner, and vice versa.<sup>3</sup> Early childhood education, high school graduation, and enrollment in higher education are highly correlated with health.<sup>4,5</sup> Fundamentally, the goals of improving child well-being make child health care and education inseparable, yielding a hypothesis that a partnership between health care and school systems has potential. Historically, however, child health care systems have been reimbursed for caring primarily for ill children in fee-for-service health settings, and schools were focused on providing education and limited health care services through special education for the children with the most needs in schools. Neither group had strong motivation to partner with the other.

The advent of alternative payment models like capitation in health care changed the incentives for health care systems, increasing the focus on prevention and savings. Interestingly, 8 states (eg, California, Massachusetts) also use a capitated system in special education, namely census-based education,<sup>6</sup> which pays a school district a lump sum for special education according to the number of the whole population of students, regardless of the actual number of special education students. Both types of capitation shift the risks of overspending to those delivering services (health care organizations or school districts) and encourage the 2 systems to support children with highest needs and long-term chronic conditions across settings.

Educating a child with special needs is expensive, costing 2 to 3 times more than for a student with typical development. Using California as an example, the \$26,000 average annual educational costs of a student in special education are almost triple those of a student in regular education.<sup>7</sup> With more students needing special

## TAKEAWAY POINTS

Value-based contracts between managed health care systems and school systems are feasible and potentially clinically and financially gainful.

- ▶ The rise of value-based contracts in pediatrics and performance-based contracts in education has signaled the readiness of both sectors to adopt financial risk for high-cost groups of children.
- ▶ Schools, especially those using a population-based (capitated) formula, are likely to be more interested in long-term outcomes and may fund some interventions. Health care organizations bearing financial risk and long-term commitments may do the same.
- ▶ Value-based contracting between the 2 systems can initially focus on shared high-need, high-cost cases (eg, asthma, attention-deficit/hyperactivity disorder).

education, the total expenditure increased by 28% in the decade between 2007-2008 and 2017-2018.<sup>7</sup> Likewise, the medical costs of these similar groups of children with chronic and complex conditions are 2 to 10 times more than those of children with typical development.<sup>8</sup>

Some high-need, high-cost diseases may spark shared interests in the 2 systems (see the [Table](#)<sup>9-15</sup> for examples). For example, 1 in 54 children in the United States is affected by autism, a condition generally considered to be the most expensive developmental disorder. The total cost of care for individuals with autism is estimated at \$236 billion to \$262 billion annually in the United States.<sup>16</sup> Although there is no effective cure for autism, early intervention (EI) before the age of 5 years is critical to improving cognitive, social, and language development.<sup>17</sup> Because these services are rarely integrated between special education and health care, better coordination has the potential to substantially reduce the cost of care for autism for both systems. Initial estimates showed that 2 to 3 years of EI would save almost \$20,000 in therapy-related health care costs per child in the year after EI<sup>18</sup> and approximately \$200,000 in educational costs per child across 18 years of education.<sup>19</sup>

Despite shared motivation and new opportunities to align value, we know of no specific examples of shared, value-based contracting between health care and school systems. Yet, based on a number

of emerging activities, we believe that such value-based contracts between the 2 systems are more than a pipe dream. At a national level, both HHS and the Department of Education strongly encourage embedding health supports in educational settings for children, setting the groundwork for more extensive clinical and financial collaboration.

At a local level, there are many school-based health projects, but at least 2 examples are associated with capitated pediatric populations. Partners for Kids (PFK), a pediatric ACO in Ohio, carries full financial risk for approximately 330,000 Medicaid-insured children. To ensure population health, PFK has introduced care in schools. PFK started 2 dozen school-based health centers and an asthma therapy program through which children can receive medication at school to decrease the percentage of emergency department (ED) visits related to asthma and to increase school attendance. Given the heavy burden of behavioral health on PFK, specialists from PFK also assisted more than 125 schools in implementing the PAX Good Behavior Game, an evidence-based preventive intervention that reduces drug dependence, suicidal ideation, dropout rates, and special education rates.<sup>20</sup> PFK has a cost growth rate 2 to 6 times less than that of fee-for-service.<sup>21</sup> It is unclear, however, how much these school programs have contributed to PFK's lower costs. A similar value-based program developed by Boston Children's Hospital also partnered with schools and the larger community to deliver asthma support. This program reduced missed school days by 20% and ED visits by 50%.<sup>22</sup> These value-based efforts are growing (eg, Colorado Medicaid Accountable Care Collaborative, Wisconsin Children's Hospital). Although these initiatives do not involve value-based contracts between the 2 systems per se, they have highlighted the possibility of both systems pursuing aligned health- and education-related quality metrics together.

The structure of partnerships between schools and health systems varies based on incentives. First, schools are likely to be more interested in long-term outcomes than most health plans because children do not leave school districts frequently,<sup>23</sup> but they may shift health plans. School systems, especially those that have capitated special education, are motivated to pay for outcomes that are educationally and financially gainful, such as a reduced rate of special education and an improved rate of attendance. This motivation was evident in recent pay-for-performance contracts between school districts and EI agencies.<sup>24</sup> For instance, school districts could set up pay-for-performance contracts with health systems to leverage health systems' expertise in specialized EI to improve at-risk student outcomes and to reduce the rate of special education. Then school districts could financially incentivize health systems if the rate of special education goes down and student outcomes are improved. These school-based service lines may become a new revenue stream for health systems. Second, capitated health plans, managed care organizations (MCOs), and ACOs are often

**TABLE.** Incremental Health Care and Education Costs of 3 Common Health Conditions<sup>9-15,a</sup>

	Prevalence	Incremental health care costs	Incremental education costs
Asthma	7.5% <sup>9</sup>	+\$1737 PMPY <sup>10</sup>	+\$99 PMPY <sup>10</sup> (2.3 missed school days PMPY <sup>10</sup> )
Autism	1.85% <sup>11</sup>	+\$3020 PMPY <sup>12</sup>	+\$8610 PMPY <sup>12</sup>
ADHD	9.4% <sup>13</sup>	+\$682 PMPY <sup>14</sup>	+\$5007 PMPY <sup>15</sup>

ADHD, attention-deficit/hyperactivity disorder; PMPY, per member/student per year.

<sup>a</sup>Systems that experience more incurred costs may have more motivation to contain costs by providing better care and conducting preventive measures. Costs in this table are estimates reported in the literature and may not be applicable for all systems.

more interested in short-term outcomes because of high churn rates and annual incentive contracts from state Medicaid agencies. Thus, these health plans are more likely to finance interventions that can generate a quick return on investment (eg, school-based asthma clinics to reduce ED visits, school-based adolescent wellness visits to receive Medicaid incentives). For instance, capitated health systems may set up upside sharing contracts with school-based health clinics/schools as a way to incentivize quality school-based care for asthma.

Value alignments between the 2 systems will necessitate some foundational elements and contracting mechanisms. First, health care and school systems would have to share coverage of similar populations geographically. They would develop trusting relationships, identify goals, and agree on metrics. Second, data sharing systems and agreements attuned to both the Health Insurance Portability and Accountability Act of 1996 and the Family Education Rights and Privacy Act would be set up. Third, the 2 systems would have to agree on the services through which to achieve the goals and then develop contracts. Indeed, value-based contracting will not solve all structural barriers, such as a shortage of behavioral health clinicians. To enable quality pediatric care at scale, health and school systems will need to continually advocate for system changes (eg, increased total funding for pediatric care).

The need for better coordination between the 2 systems is even more evident now as coronavirus disease 2019 (COVID-19) has put both health care systems and school systems under great stress. Primary care facilities for children are under tremendous financial pressure, with many sites serving low-income children expected to close. Massive delays in the receipt of routine health care have occurred, placing children at risk of vaccine-preventable disease as school resumes. Schools have also been subjected to intense pressures. They were primary places to provide health-related services for many school-age children, ranging from primary care at school-based health centers to behavioral/mental health services through individualized education programs before COVID-19. However, large-scale school closures have pushed off both education and its affiliated health care services, even when telehealth or distance learning has been available. Even here, new opportunities exist to coordinate digital access for school-age children and their families to both health care and education, ensuring access to support at

home, health care, and school. Treatment planning and progress monitoring can be done in a collaborative manner to maximize continuity of services during and after COVID-19.

Also, with nonurgent care being postponed or being converted to telehealth visits, health care systems may have difficulty reaching children and their families. Health care systems, especially MCOs that share a similar geography of children with particular school districts, may take advantage of school-based communication channels (which have frequent contacts with parents) to disseminate population-based health monitoring to inform population-based health strategies for children in the shared geography. Such population-based health monitoring may include measures on social determinants of health needs and unmet care needs. The likely repercussions of COVID-19 will continue to prompt creative, collaborative efforts to support children more efficiently.

In sum, value alignment between health care and school systems has promise but is replete with challenges. A start could be made, however. MCOs and ACOs are likely to be the most fruitful sites to initiate the collaboration. Expanding on the few existing partnerships, such as PFK, and evaluating their effects more extensively on educational outcomes and school financing could be the next step. ■

#### Acknowledgments

The authors thank Dr Elliot Fisher, Dr Kolbe Lloyd, and Dr Bill Koski for their suggestions on this paper. They also thank Dr Arnold Milstein, Dr Nirav Shah, and Dr Sarah Rosenbaum for conversations that prompted the conceptualization of this paper.

**Author Affiliations:** Clinical Excellence and Research Center, Stanford University (VW), Stanford, CA; Institute for Exceptional Care (HP), Indianapolis, IN; Nationwide Children's Hospital (KK), Columbus, OH; The Ohio State University (KK), Columbus, OH.

**Source of Funding:** None.

**Author Disclosures:** Dr Kelleher's hospital is part-owner of a not-for-profit example listed in the manuscript (Partners for Kids). The remaining authors report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.

**Authorship Information:** Concept and design (VW, HP, KK); acquisition of data (VW, HP, KK); analysis and interpretation of data (VW, HP); drafting of the manuscript (VW, HP, KK); critical revision of the manuscript for important intellectual content (VW, HP, KK); provision of patients or study materials (VW); obtaining funding (VW); administrative, technical, or logistic support (VW); and supervision (VW, KK).

**Address Correspondence to:** Venus Wong, PhD, Clinical Excellence and Research Center, Stanford University, 365 Lasuen St, Stanford, CA 94305. Email: vwhwong@stanford.edu.

## REFERENCES

1. Overview of research on ACO performance. National Association of ACOs. Accessed June 20, 2020. <https://www.naacos.com/assets/docs/pdf/NAACOS-ACO-PerformanceResearchReport7.19.18edited.pdf>
2. Davis K, Stremikis K, Squires D, Schoen C. Mirror, mirror on the wall, 2014 update: how the U.S. health care system compares internationally. The Commonwealth Fund. June 16, 2014. Accessed June 19, 2020. <https://www.commonwealthfund.org/publications/fund-reports/2014/jun/mirror-mirror-wall-2014-update-how-us-health-care-system>
3. Vital Signs. National Academy of Medicine. Accessed June 20, 2020. <https://nam.edu/vital-signs-initiative/>
4. Basch CE. Healthier students are better learners: a missing link in school reforms to close the achievement gap. *J Sch Health*. 2011;81(10):593-598. doi:10.1111/j.1746-1561.2011.00632.x
5. Lanza HI, Huang DYC. Is obesity associated with school dropout? key developmental and ethnic differences. *J Sch Health*. 2015;85(10):663-670. doi:10.1111/josh.12295
6. Parker E. 50-state comparison: K-12 special education funding. Education Commission of the States. March 20, 2019. Accessed June 11, 2020. <https://www.ecs.org/50-state-comparison-k-12-special-education-funding/>
7. Petek G. Overview of special education in California. California Legislative Analyst's Office. November 6, 2019. Accessed June 11, 2020. <https://lao.ca.gov/reports/2019/4110/overview-spec-ed-110619.pdf>
8. Hoefgen ER, Andrews AL, Richardson T, et al. Health care expenditures and utilization for children with noncomplex chronic disease. *Pediatrics*. 2017;140(3):e20170492. doi:10.1542/peds.2017-0492
9. Asthma surveillance data. CDC. Updated January 28, 2020. Accessed May 8, 2020. <https://www.cdc.gov/asthma/asthmadata.htm>
10. Nurmagambetov T, Kuwahara R, Garbe P. The economic burden of asthma in the United States, 2008-2013. *Ann Am Thorac Soc*. 2018;15(3):348-356. doi:10.1513/AnnalsATS.201703-2590C
11. Data & statistics on autism spectrum disorder. CDC. Updated September 25, 2020. Accessed June 30, 2020. <https://www.cdc.gov/ncbddd/autism/data.html>
12. Lavelle TA, Weinstein MC, Newhouse JP, Munir K, Kuhlthau KA, Prosser LA. Economic burden of childhood autism spectrum disorders. *Pediatrics*. 2014;133(3):e520-e529. doi:10.1542/peds.2013-0763
13. Danielson ML, Bitsko RH, Ghandour RM, Holbrook JR, Kogan MD, Blumberg SJ. Prevalence of parent-reported ADHD diagnosis and associated treatment among U.S. children and adolescents, 2016. *J Clin Child Adolesc Psychol*. 2018;47(2):199-212. doi:10.1080/15374416.2017.1417860
14. Gupte-Singh K, Singh RR, Lawson KA. Economic burden of attention-deficit/hyperactivity disorder among pediatric patients in the United States. *Value Health*. 2017;20(4):602-609. doi:10.1016/j.jval.2017.01.007
15. Robb JA, Sibley MH, Pelham WE Jr, et al. The estimated annual cost of ADHD to the U.S. education system. *School Ment Health*. 2011;3(3):169-177. doi:10.1007/s12310-011-9057-6
16. Buescher AVS, Cidav Z, Knapp M, Mandell DS. Costs of autism spectrum disorders in the United Kingdom and the United States. *JAMA Pediatr*. 2014;168(8):721-728. doi:10.1001/jamapediatrics.2014.210
17. Dawson G, Rogers S, Munson J, et al. Randomized, controlled trial of an intervention for toddlers with autism: the Early Start Denver Model. *Pediatrics*. 2010;125(1):e17-e23. doi:10.1542/peds.2009-0958
18. Cidav Z, Munson J, Estes A, Dawson G, Rogers S, Mandell D. Cost offset associated with Early Start Denver Model for children with autism. *J Am Acad Child Adolesc Psychiatry*. 2017;56(9):777-783. doi:10.1016/j.jaac.2017.06.007
19. Chasson GS, Harris GE, Neely WJ. Cost comparison of early intensive behavioral intervention and special education for children with autism. *J Child Fam Stud*. 2007;16(3):401-413. doi:10.1007/s10826-006-9094-1
20. Boyer KB, Chang DI. Case study: Nationwide Children's Hospital: an accountable care organization going upstream to address population health. National Academy of Medicine. April 24, 2017. Accessed June 1, 2020. <https://nam.edu/case-study-nationwide-childrens-hospital-an-accountable-care-organization-going-upstream-to-address-population-health/>
21. Kelleher KJ, Cooper J, Deans K, et al. Cost saving and quality of care in a pediatric accountable care organization. *Pediatrics*. 2015;135(3):e582-e589. doi:10.1542/peds.2014-2725
22. Sommer SJ, Bhaumik U, Tsopelas L, et al. Boston Children's Hospital Community Asthma Initiative replication manual: needs assessment, implementation and evaluation. Boston Children's Hospital. 2013. Accessed June 1, 2020. [https://www.childrenshospital.org/-/media/centers-and-services/programs/a\\_e/community-asthma-initiative/replicationmanual2c2final2c92413.ashx?la=en](https://www.childrenshospital.org/-/media/centers-and-services/programs/a_e/community-asthma-initiative/replicationmanual2c2final2c92413.ashx?la=en)
23. CPS historical migration/geographic mobility tables. United States Census Bureau. Accessed May 8, 2020. <https://www.census.gov/data/tables/time-series/demo/geographic-mobility/historic.html>
24. Carnoy M, Marachi R. Investing for "impact" or investing for profit? social impact bonds, pay for success, and the next wave of privatization of social services and education. National Education Policy Center. February 4, 2020. Accessed June 30, 2020. <https://nepc.colorado.edu/publication/social-impact-bonds>

Visit [ajmc.com/link/88520](http://ajmc.com/link/88520) to download PDF