Paediatric alternative payment models: emerging elements

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Purpose of review
The aim of this study was to summarize emerging elements of paediatric alternative payment models (APMs), identify strategies to address barriers in implementing paediatric APMs and share policy approaches.

Recent findings
The unique health needs of children and adolescents must be considered as paediatric value-based care and APMs are developed. The longer time period for achieving cost savings, relatively few existing model tests and challenges with cross-sector data-sharing and pooled financing are barriers to the adoption of paediatric APMs. The Integrated Care for Kids (InCK) model and some state-based efforts are testing whether an integrated service delivery model combined with paediatric APMs can reduce expenditures and improve care and outcomes. However, the relative paucity of models makes it difficult to identify the most effective strategies and overall impact of paediatric APMs.

Summary
Emerging paediatric APMs include the following key elements: developmentally appropriate approaches, paediatric-specific quality and cost measures, a focus on primary care, special considerations for children with complex healthcare needs and cross-sector integration of data, workforce and financing. A variety of strategies, rooted in cross-sector partnerships, can be pursued to address implementation barriers and ultimately support paediatric care transformation.

Keywords
paediatric alternative payment models, paediatric value-based payment, social drivers

INTRODUCTION
The role of social factors in influencing developmental trajectories, health equity and outcomes for children is well documented [1–7]. The COVID-19 pandemic has laid bare the social, economic, racial and health-related inequities that children and families face and has put a spotlight on racial and ethnic disparities in disease burden and mortality [8,9]. In response, Congress passed various legislative packages, including the American Rescue Plan (P.L. 117-2), to reduce child poverty and make critical investments in nutrition, housing, education, childcare and mental health.

To build upon these investments, and more systemically and sustainably address children and families’ holistic needs, healthcare systems can test and implement payment and delivery models that promote whole child health, address developmental needs and support positive relational health to keep children on a healthy trajectory [10].

Our current healthcare system is a largely fragmented, volume-based system that reimburses for specific services and does not foster integrated approaches that address underlying social drivers [11].

The pandemic delivered a shock to our healthcare system [12] and highlighted the limitations of Fee-for-Service (FFS) models [13] that may inhibit the financial sustainability of healthcare providers when disruptions significantly decrease patient...
KEY POINTS

- Paediatric APMs hold promise in helping to address the unique health, developmental and relational needs of the paediatric population.
- Effective implementation requires addressing barriers through improved multisector collaborations and supportive policy changes.
- More research is needed to identify the most effective approaches to designing and implementing paediatric APMs, and what policy approaches have the greatest impact in accelerating their testing.

ALTERNATIVE PAYMENT MODELS

There are a wide variety of APMs that incorporate varying levels of provider accountability for health outcomes, financial incentives and financial risks [33]. The Healthcare Payment Learning & Action Network categorizes healthcare payment models into four main types [33]. FFS consists of payments to providers for the cost of specific healthcare services [33]. FFS with link to quality and value adjusts payments for investments in infrastructure and operations, payments or penalties related to reporting quality data, and/or bonuses for quality performance [33]. APMs Built on FFS Architecture Payments share savings with providers when cost and quality targets are met and can include downside risk [33]. Population-Based Payments incorporate prospective payments encompassing a broad array of services (e.g. global budgets, per member per month payments) [33]. Some healthcare providers transition along the spectrum of payment models, taking on increasing financial risk as they build capacity to provide value-based care [33].

Recent publications and perspectives highlight lessons from value-based payment models (defined as those in which providers are paid based on patient outcomes [34]) over the past decade [35,36] and suggest future directions [37] without focusing on the role of paediatric APMs. The limited literature available on paediatric APMs notes that there is variation in the design and implementation of paediatric APMs and no standard approaches that serve as straightforward examples [18]. New payment models are needed to align with new models of care delivery and coordination that focus on identifying, responding to and preventing developmental risk [38]. Integrated Care for Kids (InCK) is the Center for Medicare and Medicaid Innovation’s first major paediatric model testing whether an integrated service delivery model supported by state-specific APMs can reduce expenditures and improve care and outcomes [11,19]. Results are pending as the model is underway.

KEY ELEMENTS OF PAEDIATRIC ALTERNATIVE PAYMENT MODELS

On the basis of recent findings and expert perspectives, a few elements of paediatric value-based care models have been identified and can be considered when designing paediatric APMs.

DEVELOPMENTALLY APPROPRIATE APPROACHES THAT ACCOUNT FOR SOCIAL DRIVERS

Experts have noted that children experience critical developmental periods during which experiences, both positive and negative, have lasting effects [9]. A whole child APM addresses social drivers that impact families and accounts for developmental stages beginning in early childhood [20]. One perspective posits that the unique health needs of children and adolescents (the 4 Ds) are important factors in paediatric value-based care and include changing developmental needs, dependence on caregivers, disease prevention and treatment of rare chronic conditions, and demographics [21]. Experts emphasize the importance of maternal health and well being in impacting the health of the next generation [9] and recognize early childhood as a critical developmental stage. Targeted interventions can support caregiver and family health (such as addressing maternal depression), promote the health and social-emotional development of children, and support their resilience in the face of adversity, particularly in their first 3 years of life [39,40]. Transformative models for children and caregivers (two-generation approaches) that are
<table>
<thead>
<tr><th>Barrier</th><th>Considerations</th><th>Potential solutions</th></tr>
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<tbody>
<tr><td>Cost savings are lower, take longer to accumulate than for adult populations and often result in ‘wrong pocket’ issues in which investments from one sector create savings and benefits in another [30]</td><td>Early interventions can support healthy development and create a foundation for lifelong health, but savings are in the form of avoided healthcare costs spread over the long term and across sectors [17**].</td><td>Paediatric healthcare makes up a modest percentage of a state’s healthcare spending and offers few opportunities for rapid savings [21].</td></tr>
<tr><td>Paediatric healthcare makes up a modest percentage of a state’s healthcare spending and offers few opportunities for rapid savings [21].</td><td>Paediatric healthcare makes up a modest percentage of a state’s healthcare spending and offers few opportunities for rapid savings [21].</td><td>Value can be defined in relation to improving child health trajectories, regardless of whether there are immediate cost offsets [20].</td></tr>
<tr><td>Inability to link or share data across platforms and sectors</td><td>Logistical, privacy and legal barriers (such as the Health Insurance Portability and Accountability Act (HIPAA) and Family Educational Rights and Privacy Act (FERPA) to linking and sharing data across sectors, including data collection inconsistency, make it difficult for providers to see a child and family’s full health and social needs [24,26**,27**].</td><td>Dedicated investment in cross-sector data sharing infrastructure could support APMs [29].</td></tr>
<tr><td>Difficulty blending and braiding funding to pay for services not covered by healthcare payers</td><td>Laws and policy often prohibit or make it challenging for healthcare and service providers to blend and braid funds, which silos funding and inhibits cross-sector initiatives and coordination [24].</td><td>Legislative and policy changes can facilitate more blending and braiding of funds [25], and APMs can also provide some nonmedical services now allowed with recent changes to Medicaid managed care regulations [24].</td></tr>
<tr><td>Paediatric populations to realize long-term cost savings associated with improving children’s health and social outcomes [17**].</td><td>By implementing cost measures used to incentivize providers to support measurable improvements in education [44].</td><td>States can authorize a single entity to disburse blended or braided funds or test demonstration models aimed at achieving better integration of funding and services [31].</td></tr>
<tr><td>Paediatric alternative payment models Gratale et al.</td><td>There are few alternative payment models currently being implemented, providing few examples to draw upon when developing paediatric quality measures and metrics [23].</td><td>Early adopters of paediatric APMs recommend the entire paediatric provider community advocate for payers to develop a consensus on quality measures for long-term health and savings [18].</td></tr>
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Strengths-based, include risk stratification for medical and social risk, address social drivers and include care coordination and connection to social services, can build resilience and promote lifelong health and wellbeing [22,23,41].

**PAEDIATRIC QUALITY AND COST MEASURES**

Child and adolescent healthcare requires different metrics than those applied to adults [9**]. Experts contend that transformative paediatric approaches should emphasize value in terms of long-term benefits and not immediate healthcare cost savings [24]. Healthy children and youth are still developing, and primarily require prevention and early detection services [9**,21,25]. Experts recommend that paediatric APMs’ quality metrics focus on those areas [26**,42]. Quality measures used by early adopters of paediatric APMs include HEDIS measures (a comprehensive set of standardized performance measures used to compare health plan performance, and related to many significant public health issues such as asthma and diabetes) [43], chronic condition management and emergency department utilization, along with more comprehensive measures associated with long-term health and wellbeing such as literacy, positive parenting and well-tolerated sleep [18]. The next frontier is for more payers to incentivize providers to support measurable improvements in education [44].

Experts assert that in addition to quality measures, cost measures should also be tailored to paediatric populations to realize long-term cost savings associated with improving children’s health and social outcomes [17**]. By implementing cost measures that capture a long-time horizon for cost savings across sectors, and assess the impact on the whole family, paediatric APMs could help finance and sustain childhood interventions that impact
well being and costs over the life course [17**]. One perspective suggests that pediatric APMs could utilize a ‘net present value of care’ measure that includes actual short term healthcare savings and predicted savings over a specified set of years on the basis of intermediate health outcomes achieved [17**].

**DESIGN MODELS FOR DIFFERENT PAEDIATRIC POPULATIONS**

Health and social needs vary among paediatric populations, and different populations may require different APMs [25]. APM design decisions are guided by the population health goals the APM sets for the community and population it serves, and therefore will vary based on the needs of a particular paediatric population [26**]. Most children do not have complex health conditions and generally require preventive care, health and social determinants screenings, care coordination, behavioural healthcare services and family supports [45]. However, a relatively small number of children have complex health conditions requiring a significant amount of high-cost, specialty healthcare services in addition to the health services needed by generally healthy children [45].

**FOCUS ON PRIMARY CARE**

Primary care is important to transformative paediatric payment and delivery models. Primary care is ideally positioned to promote wellness and a holistic approach to health for the paediatric population [46]. One study found that children with noncomplex conditions enrolled in Medicaid capitated payment plans are more likely to seek preventive and acute care in less costly healthcare settings such as primary care, resulting in more cost-effective care than for children enrolled in FFS plans [47]. Bundles of care to pay for enhanced well childcare services in primary care promote comprehensive implementation of guidelines and personalized supports [20,24]. Experts assert that regardless of the paediatric payment model, payments to providers must incent and support practices, especially primary care practices, to be more holistic and preventive in their responses with a focus on the family and child development [24].

**TAILORED MODELS FOR CHILDREN WITH SPECIAL HEALTHCARE NEEDS**

Children with medically complex conditions utilize more healthcare and require APMs focused on care coordination and specialty care in addition to primary care [25]. Risk-adjusted per-patient per-month care coordination payments can enable higher payments for specialists, and greater intensity of care coordination required to meet the needs of children with complex conditions [44]. The experiences implementing APMs for adults also indicate that children with complex conditions will require more services from healthcare specialists that incur higher healthcare costs in paediatric APMs [36].

**INTEGRATION THROUGH PARTNERSHIPS**

In order to improve children’s health and well being, the health sector must move beyond treating disease to a broader focus on neighbourhood conditions, requiring the health sector to collaborate with other sectors [27*]. Cross-sector integration creates a supportive context for implementing paediatric APMs and includes coordination with non-medical personnel from multiple sectors [10], notably schools and child care [28*].

**WORKFORCE INTEGRATION AND ALIGNMENT WITH INDEPENDENT PAEDIATRICIANS**

Experts contend that cross-sector integration to support transformative population health models will require changes in the workforce [9**]. Paediatric value-based models will require a diverse, culturally competent workforce with positions such as care coordinators, community health workers, parent navigators and social workers to connect patients with community-based services and expand behavioural and mental health capacity, improve coordination and management of conditions and address social drivers [9**,28]. Paediatric APMs will also require integration within the healthcare sector so that primary care, behavioural health and specialty care providers work together efficiently and collaboratively to optimize the care of children, particularly those with complex health conditions [48,49].

**THE ROLE OF PAEDIATRICIANS**

Paediatricians in independent practice represent a critical piece of the paediatric care landscape, and efforts to transition to APMs provide opportunities for their participation and success [50]. Several market pressures challenge the viability of the FFS model for primary care paediatricians, resulting in nearly half of the paediatricians participating in some form of value-based payment model as of 2018 [50,51]. For some APMs, paediatrician success may rely on alignment with a paediatric hospital [50]. One
approach to alignment is participation in a clinically integrated network (CIN) focused on children, such as those in Arkansas, Colorado and Delaware [52–54], all of which include paediatric hospitals as key partners. Participating providers in CINs may benefit from shared resources, group purchasing and jointly negotiated contracts [55], as well as greater capacity to engage across sectors to address social drivers impacting health [49].

CROSS-SECTOR DATA INTEGRATION
Implementing whole child APMs requires cross-sector data-infrastructure and sharing to identify needs, establish closed-loop referrals to services, coordinate follow-up and report on activities and outcomes [26*,28*]. States can play a leadership role in advancing common data platforms that facilitate cross-sector sharing. For example, North Carolina’s NCCARE360 enables providers to electronically connect those with identified needs to community resources and creates a feedback loop on the outcome of the connections [56].

ALTERNATIVE PAYMENT MODEL STRUCTURE AND FINANCING
To promote sustainability and financial alignment, experts suggest designating an accountable entity that contracts with payers and anchors the APM to promote deeper community engagement, including more equitable co-governance and opportunities for partners to participate in the financial incentives of the APM [13**]. In addition, approaches that blend and braid funding from multiple sources (e.g. philanthropic organizations, state agencies, community organizations) can fund services not covered by Medicaid or other payers to align with the goals of an APM [14*,26**]. Accountable Communities for Health (ACH) for Children and Families that include two-Generation approaches and multipayer APMs with shared goals and financial accountability across multiple sectors are a promising approach meriting further testing [57*].

California Accountable Communities for Health (CACHI) is testing wellness funds that are designed to attract and weave funding to support the sustainability of the ACH [29]. One study suggests that states and localities can apply this concept specifically to children and families by developing a Children’s Health and Wellness Fund to finance whole child health investments [14*]. Other experts suggest that states can consider applying savings accrued to sectors outside of healthcare in paediatric APMs to make APMs sustainable [19*].

BARRIERS AND POTENTIAL SOLUTIONS
Healthcare providers and systems face barriers to financing paediatric APMs due to the lower potential savings, longer savings time horizon and churn (when members switch between health insurance plans or lose coverage completely), which limits a payer’s opportunities for long-term savings [17**]. Barriers to linking and sharing data, and pooling funding also make it difficult to assess and address children and families’ comprehensive health and social needs [26**]. Although paediatric APMs are nascent, and few examples are available to guide paediatric providers contemplating implementing APMs, there are promising solutions to address these barriers identified in Table 1. Paediatric APMs could capture cross-sector savings and use longer time horizons in their calculations [19*]. Investment in data linking and sharing infrastructure could support APMs in taking a life course approach [58*], and legislative and policy changes could provide more flexibility to support pooling funds [42]. Developing consensus among payers in a region on standard quality and cost measures that account for long-term health outcomes and cross-sector savings could support broader implementation of paediatric APMs [18].

POLICY AND LAW
Public policy and publicly funded demonstration models have addressed social drivers impacting children and families through payment and delivery system reforms. CMMI’s State Innovation Model [59] awarded funds to over half of states to design and/or test innovative payment and delivery models, with second round awardees developing state-wide plans to improve population health [7]. In addition, CMMI’s Accountable Health Communities model has funded 28 organizations and is testing whether systematically identifying and addressing the health-related social needs of Medicare and Medicaid beneficiaries through screening, referral and community navigation services will affect healthcare costs and utilization [7,30]. Although not paediatric specific, given their focus on addressing social drivers, these models have been characterized as accelerators of holistic paediatric value-based payment models [60].

CMMI has also developed two models specific to the maternal and paediatric populations. The Maternal Opioid Misuse Model is funding eight awardees to support the coordination of clinical care and the integration of other services critical for health, well-being and recovery for pregnant and postpartum Medicaid beneficiaries with opioid use disorder.
Primary model goals include creating sustainable coverage and payment strategies that support ongoing coordination and integration of care [61]. In addition, InCK has incentivized testing pediatric APMs to eight awardees in seven states through funding and technical assistance. One perspective notes that InCK offers momentum toward child-focused payment reform [17].

Beyond model tests, federal guidance and legislation also help create a supportive context for whole child health models. In January of 2021, the Centers for Medicare and Medicaid Services (CMS) issued a letter outlining opportunities under Medicaid and the Children’s Health Insurance Program to address social drivers [62]. Furthermore, relevant federal legislation includes the Social Impact Partnerships to Pay for Results Act, which supports outcomes-based financing and social impact partnerships, including pay for success (PFS) projects. According to experts, applying a similar approach to reinvesting in children’s healthcare, formalized through an APM, could result in a more robust network of supports for families [19].

States have also championed transformative care models addressing social drivers, some impacting the entire population, and others focused on the pediatric population. A survey highlights that many states are leveraging Managed Care Organizations (MCO) contracts, as well as strategies outside of their MCO programs (in FFS programs) to promote strategies to address social drivers. Such strategies can include screening enrollees for social needs, providing enrollees with referrals to social services or partnering with community-based organizations [63]. Some states are also testing new models, often through Medicaid Section 1115 waivers (which require federal approval) and through Accountable Care Organizations or ACH. Various white papers have highlighted different state-based approaches [7], including models focused on the pediatric population [28,60]. For example, in 2020, the Oregon Health Authority adopted paediatric-specific incentive measures within its Community Care Organization delivery model, elevating the focus on child health outcomes [64]. In addition, New York’s First Thousand Days Initiative addresses social drivers, requires managed care plans to have child-specific measures and braids funding for early childhood mental health consultants [65,66].

CONCLUSION

When paired with policy, financing and delivery system changes, pediatric APMs offer a promising pathway to improve health at the individual and population level. Further policy to accelerate such models is warranted. In addition, evidence-based research is needed to explore how to achieve readiness to pursue pediatric APMs paired with delivery system transformation, identify additional components of effective pediatric APMs, increase participation among independent pediatricians and determine which models and measures are most impactful in improving equity and reducing disparities to promote whole child health.

Acknowledgements

The authors would like to acknowledge Allison Gertel-Rosenberg and Kate Blackburn for their thoughtful review of this article.

Financial support and sponsorship

None.

Conflicts of interest

There are no conflicts of interest.
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