

Spurring Innovation: The Role of Child Health Policy



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Executive Summary

As Congress and the Administration continue to debate critical health policy issues, innovation in care delivery, technology and health research remain key pillars in efforts to improve health and health care for all Americans. This open debate presents an opportunity for the child health community to identify a near term, one-to-three-year agenda of the areas of greatest opportunity for innovation and progress in child health policy.

AcademyHealth's core mission is to improve health outcomes and health system performance through the production and use of timely, rigorous evidence. AcademyHealth serves as a connector between evidence users and producers, spurring dialogue and collaboration on the most persistent challenges in health care. AcademyHealth's Child Health Services Research Interest Group (CHSR) is one such forum for researchers, policymakers, practitioners, and trainees to engage on health services issues affecting the life course of children and adolescents.

Nemours Children's Health System (Nemours) is a nonprofit pediatric health system dedicated to life-changing medical care and research, helping kids grow up healthy, advocating for kids, and training tomorrow's pediatric experts. Nemours' National Office of Policy and Prevention leverages Nemours experience and expertise to test, spread and scale innovative models for policy and practice change, and ensures that children have a strong voice in national policy development.

Bringing national and state stakeholders in children's healthcare together, CHSR representatives with experts from Nemours provided a forum for robust dialogue on the importance of supporting policy development and research initiatives to advance children's health.

This focused, invitational meeting funded by Nemours and CHSR convened 35 diverse stakeholders from across the child health spectrum to discuss areas of opportunity where state and federal action, with support from other child health stakeholders, can enable measurable progress in child health. Based on the interests and priorities of the current Administration and Congress, meeting organizers identified the following four target areas:

- Medicaid and the Children's Health Insurance Program (CHIP) delivery and payment reforms;

- Consumer digital health (including telehealth);
- Precision medicine in pediatrics; and
- addiction and neonatal abstinence syndrome (NAS).

The convening provided an opportunity for diverse stakeholders to review and reframe the topics to focus on children and identify policy and research opportunities that could be addressed over the next three years to spur innovation in child health policy. Looking across all four areas of opportunity, subject matter experts summarized the following recommendations to advance child health policy:

1. *Leverage innovations in technologies.* Technological advances are transforming every sector of our economy including health care delivery and research. Strides in precision medicine and digital health technologies offer significant potential to improve access, choice and quality in health care for children and their families.
2. *Address key considerations related to data.* Data privacy and security, data standardization, and secure and appropriate data sharing must be improved to spur innovation in children's health.
3. *Promote shared learnings by highlighting bright spots.* Given the pace of change in healthcare delivery in states and communities, it is critical to accelerate adoption and spread strategies that work. There is great opportunity to harness learnings and promising practices from existing collaboratives, as well as technical assistance and capacity building efforts to help inform policies and programs that focus on children.
4. *Align initiatives for greater impact.* To support and guide healthcare delivery transformation, federal and state agencies can encourage greater interagency coordination to better align programs, eliminate competing priorities and optimize the impact of existing policies and funding programs.
5. *Include children specifically in all federal agency initiatives.* An enduring priority is the need to ensure that children and their needs are explicitly considered in the design, planning and implementation of any state or federal policy, program, or initiative.

Introduction

While uncertainty exists as to the future of many components of the Affordable Care Act, it is clear that payment reform, care delivery innovation, technological advancements and health research are only accelerating. These advances, together with new leadership in the Administration, present an opportunity to identify a one-to-three-year agenda for innovation in child health policy in the following four topic areas:

- Medicaid and the Children's Health Insurance Program (CHIP) delivery and payment reforms;
- Consumer digital health (including telehealth);
- Precision medicine in pediatrics; and
- Opioid addiction and neonatal abstinence syndrome (NAS).

As a national professional organization, AcademyHealth's mission is to advance the field by acting as an objective broker of information, bringing together stakeholders to address the current and future needs of an evolving health system, inform health policy and practice, and translate evidence into action. Furthermore, the Child Health Services Research Interest Group (CHSR IG), comprised of AcademyHealth members, provides a forum for researchers, policymakers, practitioners, and trainees to interact around health services issues affecting children. From a life course perspective, the CHSR IG recognizes the important role of pregnancy and perinatal health, family context, and the dynamics of transitions from childhood to adolescence to young adulthood in shaping health and well-being.

With a mission to provide leadership, institutions, and services to restore and improve the health of children through care and programs not readily available regardless of the recipient's financial status, Nemours brings internationally recognized expertise as a nonprofit pediatric health system and children's advocate. With two children's hospitals and outpatient facilities in six states, Nemours cares for more than 400,000 children each year and is committed to making family-centered care the cornerstone of its health system. Nemours' National Office envisions a transformed health system that makes optimal health and well-being possible for all children. The mission of the Nemours National Office is to be a catalyst for change in helping children grow up healthy and have the best chance for success in life.

AcademyHealth, the CHSR IG and Nemours collaborated to commission four issue briefs and convene an invitational meeting of 35 participants, representing federal and state policymakers, health care systems, national associations, clinicians and researchers, and consumer technology experts (See Appendix A). The meeting agenda was structured into four sessions tailored to each topic

domain noted above, with additional small group breakout sessions for more in-depth discussion and identification of key opportunities and recommendations on policy priorities and funding on each topic. The meeting concluded with a report of recommendations from each topic's breakout session and a large group prioritization exercise. Following is an overview of each topic area, which outlines key themes addressed in the small breakout sessions, along with consensus recommendations.

Medicaid and CHIP Delivery and Payment Reforms

Medicaid

State Medicaid programs are increasingly focused on innovative delivery system and payment reforms designed to improve health care, health outcomes, and reduce costs. States are incorporating new payment models that hold providers accountable for patient health as well as costs of treatment. These models may also encourage providers to address social determinants of health (SDOH) as part of a strategy to improve health outcomes.ⁱ Medicaid programs are increasingly working with other government, private, and public sector partners at the federal, state, and community levels to promote population health. These partnerships include:

- Collaborations with public health departments;
- Federal-state partnerships with other US Department of Health and Human Services (HHS) agencies; and
- Partnerships with multisector private organizations, nonprofit organizations and foundations to make services available that are not traditionally covered by Medicaid.ⁱⁱ

Today, almost half (40 percent) of America's children are enrolled in Medicaid or CHIP. Nemours' Roadmap of Medicaid Prevention Pathwaysⁱⁱⁱ notes that while Medicaid is designed to provide medical care to eligible children, there is flexibility under current law to address SDOH and population health. The Roadmap highlights how some states have successfully created sustainable financing models through Medicaid and CHIP to prevent chronic diseases at both the individual and population levels. The Roadmap confirms and highlights opportunities for states to use existing Medicaid and CHIP authorities to cover innovative prevention strategies.

The following targeted federal programs provide opportunities to promote child health and well-being. For detailed descriptions of these federal programs, see Appendix B.

Value Based Payment (VBP) Arrangements

There is increasing interest in moving toward VBP arrangements that emphasize cost-effectiveness, quality outcomes, and improved population health. The goal of VBP is to achieve the best outcomes

within available resources. These models may include pay for performance, bundled payments, ACOs, and integrated care systems that link primary care, behavioral health services, and some social service programs. Most VBP arrangements have focused on adults, so there is limited information on the impact of these VBP arrangements on children. However, there are a variety of Medicaid waivers, including 1115 demonstration waivers, section 1915 home and community based services (HCBS) waivers, and other authorities, that can be leveraged to fund support services that address SDOH for children.

EPSDST & CHIP

Health promotion efforts are particularly important to reduce health disparities among children in the U.S. and achieve greater health equity. The Medicaid Early and Periodic Screening, Diagnostic and Treatment (EPSDT) and CHIP programs offer opportunities to promote child health and well-being through preventive services as well as comprehensive care. Additionally, under CHIP, states can develop a state-designed Health Services Initiative (HSI), which allows funds to be used to provide preventive and intervention services, including those to address SDOH, to improve the health of low-income children who are eligible for CHIP and/or Medicaid.

Medicaid Managed Care Organizations

Medicaid managed care organizations (MCOs) are also playing a critical role in addressing SDOH for their Medicaid enrollees. Under existing Medicaid authorities, MCOs can voluntarily provide services beyond those included in the traditional Medicaid benefit package, including care coordination and disease prevention programs, recognizing their impact on health outcomes and health status among vulnerable Medicaid beneficiaries.

Center for Medicare and Medicaid Innovation (CMMI)

State Innovation Models (SIM)

Some states are developing multi-payer delivery and payment reforms that include an emphasis on population health and SDOH.^{iv} One model to promote these innovations is the State Innovation Model (SIM) Initiative. The SIM Initiative provides financial and technical support to states to develop and test delivery models designed to improve health system performance, increase quality of care, improve population health, and decrease costs. Some SIM states are specifically addressing SDOH and linkages between primary care and community-based organizations and social services.

Accountable Health Communities

In 2016, CMMI issued a call for communities to participate in a 5-year, \$157 million program called *Accountable Health Communities (AHC)*, with the goal of the demonstration to test a model to determine if addressing SDOH can reduce health care costs and utilization among selected Medicare and Medicaid beneficiaries.

The implementation and evaluation of the AHC model offers the potential to determine whether health care savings can be generated when SDOH are addressed through collaboration among stakeholders who are jointly accountable for the health and well-being of their community.

Current Policy Opportunities and Barriers

On December 22, 2017, the National Quality Forum (NQF) released a report, entitled *A Framework for Medicaid Programs to Address SDOH of Health: Food Insecurity and Housing Instability*.^v The report noted that providers are increasingly incentivized to address SDOH through emerging payment models, but the health care system does not routinely collect social determinant data or coordinate care to address social needs.

The report concluded that there is currently no framework for Medicaid to support the collection and use of social determinant data. In response to this gap, CMS formed a collaborative with NQF to develop a framework for state Medicaid programs to assess and address social needs in health care, focusing on food insecurity and housing instability. Though focused on specific social determinants, the report serves as a model to illustrate the importance of collaboration and partnerships between health and other sectors, and the value of SDOH in health care delivery.

Similarly, in 2015, the Medicaid and CHIP Payment and Access Commission (MACPAC) identified specific barriers to promoting population health under Medicaid.^{vi} MACPAC noted that there are barriers to organizational collaboration, including:

- Financing challenges such as separate funding streams;
- The length of time it takes to see the results of prevention initiatives; and
- Differences in organizational culture and objectives.

Additional systemic barriers identified by Nemours include:

- Misperceptions within Medicaid programs. Medicaid directors or other agency officials are sometimes unaware or wary of using existing authorities to address SDOH; and
- The challenge of capturing and measuring a return on investment (ROI).

MACPAC also noted that population health initiatives require the collection of measures to assess the baseline health of that population and changes to health over time. These initiatives require integration of multiple datasets and linkage to population health data for Medicaid enrollees, which is yet to be developed.

Recommended Actions

When considering current Medicaid policies and models that can be leveraged to improve children's health, it is important to explore strategies that can be achieved under current flexibilities in the law and can take advantage of current delivery system reforms. Currently, CMMI has the authority to test and build models that improve care so long as they reduce costs. As described in detail below, efforts should focus on programs that look to adopt and/or enhance coordination of care, emphasize cost-savings and quality and incorporate payment incentives. In addition, states could benefit from meaningful data that provides a full picture of their beneficiaries and their needs – beyond clinical care. States could also benefit from technical assistance (TA) to leverage managed care contracts so they can hold health plans accountable for social determinants of health.

Build on Existing Evidence

State policymakers require guidance and TA to identify existing and emerging evidence, data, and measures to support the implementation of cost effective solutions to optimize health outcomes and quality for children. Consideration should also be given to the complexity of children's health care needs, and outline the context, conditions, and systems in which these models work. Specific recommended actions include:

- HHS should establish a TA Center that provides up to date evidence and information on existing models and innovations that can assist in improving maternal and child health and provide targeted TA to states.
- CMS should produce a compendium for states of successful models that could include a focus on the payment models and the incorporation of particular services, like telehealth and initiatives to address SDOH that are being paid for through Medicaid (not grant funded). For example, it would be helpful for CMS to provide guidance on what type of digital health technologies could be used, and whether particular payment models could best be used to reimburse for such services.
- CMS should provide hands-on TA for state Medicaid agencies as they work with MCOs to negotiate contracts to include (SDOH) and also directly support data collection, analysis and interpretation for SDOH, in order to design effective contracts.
- CMS should issue further guidance (e.g., information bulletins) regarding evidence-based strategies that states can implement under current authority, or through waivers, to address SDOH.

Develop Measures, Data and Accountability to Address SDOH

Emerging evidence suggests that in order to promote quality, optimize health outcomes and reduce the cost of health care, particu-

larly for children, today's healthcare system must focus on collaboration and integration among public and private sector stakeholders to address the SDOH for children. Specific recommended actions include:

- HHS should build on the work of the National Quality Forum and others to develop a core set of SDOH measures for states to collect. This could enable states to engage government and community sectors to identify and align priority needs in maternal and child health in order to create a dashboard of measures. States could then use their dashboard in the oversight of their Medicaid managed care contracts.
- CMS should assist in measure selection and development of SDOH measures through the commissioning of the National Academy of Medicine to convene experts and stakeholders and develop recommendations to the Secretary of Health and Human Services.

Explore Payment Models to Support Children's Health and Address SDOH

A fundamental barrier to moving toward a system that emphasizes SDOH and population health is that current public and private payers continue to rely on a fee-for-service payment model, which incentivizes and rewards payment for the volume of services provided to treat an illness as opposed to health promotion and upstream interventions. While progress is being made under numerous federal and foundation initiatives, most of the existing payment reform programs are focused on adult primary care and/or the high-cost, high-needs populations. Today's healthcare system still does not reward prevention and health promotion, or recognize the role of economic, environmental, and social factors that contribute to children's health and well-being.^{vii}

Alternative payment models that incorporate enhanced payment levels for achieving targeted outcomes and incentivize quality care are critical to supporting children's health. To make progress on the development of these payment models, evidence on the required components and cost of a care delivery model that addresses SDOH for children is needed. Additionally, these payment models must be tied to quality measures to incentivize the adoption of delivery models, such as care coordination between clinical care and non-clinical social supports. Specific recommended actions include:

- CMS should pursue a joint announcement with other federal agencies, including others within HHS and the United States Department of Agriculture (USDA), that promotes aligned goals of their respective programs (e.g. Medicaid, CHIP, the Supplemental Nutrition Assistance Program (SNAP) and Temporary Assistance for Needy Families (TANF)) and blended funding. For example, these programs could be aligned around three com-

mon measures and outcomes for which each agency is jointly accountable and at-risk for the outcome. Federal agencies could also consider public/private partnerships.

- Either separately, or in the TA Center mentioned above, CMS should inventory innovative payment models that have been used for children’s health services, including models that address SDOH for Medicaid populations.

Consumer Digital Health (including telehealth)

Consumer digital health technologies designed to improve care for children are evolving at a rapid pace. Providers and consumers alike are adopting and embracing these technologies. While there are multiple definitions and continuously evolving innovations, digital health technologies are emerging as a powerful tool to support disease prevention, urgent care, chronic disease management, and overall healthcare delivery.^{viii}

A report by the Commonwealth Fund defines digital health technologies to include wearable sensors and portable diagnostic equipment, data-driven software platforms, telehealth, and mobile health care apps. The report concludes that these tools have the potential to help the U.S. health care system by making care more effective, more convenient and of higher value to patients. These tools offer value by:^{ix}

- helping patients become more engaged in their own care and the care of their families;
- closing communication gaps;
- identifying patients’ needs and tailoring services to meet them;
- enabling consumers to get care in convenient, cost-effective ways; and
- improving decision-making by consumers and providers.

Consumer digital health technologies in pediatrics offer the potential to transform how pediatricians and other providers practice medicine in a rapidly changing health care environment. Increased use of these technologies may increase access to care, lower health care costs, and improve quality and patient satisfaction, particularly for children with chronic conditions and other vulnerable populations.

Designed to support patients as they seek health care services, these tools can be used to:

- streamline the scheduling of online appointments;
- provide access to vital health information via mobile apps;

- support chronic disease management;
- promote prevention and well-being;
- reinforce appointment reminders;
- enhance care through the use of telehealth and/or remote patient monitoring devices; and
- assess social needs and link patients and their families to community-based services as well as other non-clinical resources (e.g. nutrition information, literacy support).

These technologies also support efforts to be transparent in both outcomes and cost of care.

Telehealth is one example of a rapidly growing digital health technology used to enhance access to care for children. The American Academy of Pediatrics (AAP) defines “telehealth care” as including patient education, physician consultation or training, and remote care monitoring. Based on a 2015-16 survey of AAP U.S. members providing direct patient care, approximately 15 percent of pediatricians report using telehealth technologies to provide patient care.^x

The AAP has published an advocacy guide for its local chapters specifically designed to help remove barriers and expand access to telehealth services.^{xi} The guide notes that telehealth is likely to positively impact access to care for children, especially access to pediatric medical subspecialists, as well as cost and quality of care.

The AAP concludes that removing barriers to telehealth can extend the reach of pediatric physicians to offer care to more children. For example, it notes that telehealth is commonly used to deliver subspecialty consultation to children and families in rural communities or who live long distances from large medical centers where most pediatric subspecialists practice, and to expand the depth and breadth of the patient- and family-centered medical home.

The AAP policy statement, [*The Use of Telemedicine to Address Access and Physician Workforce Shortages*](#), emphasizes that the use of telehealth should occur within the context of the medical home, which offers continuity of care and efficient use of health care resources.^{xii} Some 48.7 percent of children are receiving health care that meets criteria of having a medical home including having a personal doctor/nurse; a usual source for sick care; family-centered care from all health care providers; needed referrals; and effective care coordination.^{xiii}

A 2015 survey by the American Academy of Family Physicians found that family physicians believe that telehealth improves access to patients and continuity of care, including connecting patients to specialists. However, respondents also pointed to barriers that needed to be addressed such as training and support that includes telehealth education and licensing and credentialing clarification that allows interstate provision of telehealth services.

Current Policy Opportunities and Barriers

In describing opportunities for consumer-centric, digitally transformed healthcare, the Millennium Alliance noted that “the implementation of new technology requires a shift in research, regulatory, and clinical practices.”^{xv} This includes shifting the policy and regulatory approaches to data protection and security, adapting existing policies and regulations to the digital age to foster innovation, and developing and deploying payment models that promote the use of digital platforms.

HHS has an opportunity to lead the way in promoting and utilizing digital health technologies to improve care for children. These technologies have the potential to improve access and quality while potentially reducing the cost of care for a range of programs including federally qualified health centers, rural health clinics, Medicaid and CHIP, the Center for Medicare and Medicaid Services Maternal and Child Health programs, the National Institutes of Health (NIH), the Substance Abuse and Mental Health Services Administration (SAMHSA), and Head Start, among others. While there is no single focal point for promoting and monitoring these technologies, HHS has an opportunity to:

- remove barriers to widespread use of digital health technologies;
- identify opportunities for streamlining policies to ensure coverage and access to digital health technologies;
- develop policies to assure privacy and security of data and other information; and
- encourage federal, state, and local programs to reimburse for the use of digital health technologies that can help promote health and prevent and treat diseases among children.

Recommended Actions

When considering how digital health technologies can be harnessed in the next one to three years to spur innovation in children’s health, the following general parameters should be considered.

Build on Existing Efforts to Increase Evidence

As in many other areas, the evidence base on the emerging impact, role and value of digital health technologies in children’s health

care is less robust than the use of technology in addressing adult populations and needs. However, the use of digital health technologies with older, dependent adults could provide important lessons for use with children and their caregivers. Importantly, the evidence base must take into account the various developmental stages of children and the role of their parents in health information and care seeking behaviors. Specific attention to how adolescents could use and benefit from digital health platforms is sorely needed.

There is significant potential to leverage and build on existing federal demonstrations by supplementing some of the approaches with digital tools and assess their impact on access, satisfaction, quality and cost.^{xvi} Payment models like direct primary care (DPC) and sub-capitation approaches could be designed to support the use of digital health technologies amongst child-serving Medicaid plans and practices, highlighting how these sub-capitated models can be adopted by states.

Similarly, it would be useful to identify successful uses of consumer digital health tools supported by Medicaid MCOs, and learn from early lessons and emerging best practices for evaluation and eventual spread. For example, Medicaid programs are finding success with text message programs and additional applications could be explored that use “gamification” to engage children. The Office of the National Coordinator for Health Information Technology (ONC), the Agency for Healthcare Research and Quality (AHRQ) and the Library of Medicine could also promote studies and/or demonstrations to test and evaluate the preferences, attitudes, use patterns and impact of digital health technologies amongst children and their caregivers at different ages. Specific recommended actions include:

Consumer Digital Health Technologies

- AHRQ and/or the Patient-Centered Outcomes Research Institute (PCORI) should fund research on the use of consumer digital health technologies, including telehealth, in child health care and its impact on access, satisfaction, quality, cost and outcomes. Particular attention should be paid to the technologies’ impact on emergency department (ED) visits and readmissions, as well as a range of use cases for children, including those with medical complexity, behavioral health, chronic disease, younger children and adolescents.

Telehealth

- CMS should identify and disseminate to state Medicaid and CHIP programs practices with at least initial evidence of effectiveness that states have used to advance telehealth services in the care of children and adolescents, including identification of any unique barriers for this population and ways to address them.

- HHS should also compile emerging practices, their impact and lessons learned from initiatives implementing telehealth services across other federal agencies (including CMS, CMMI, the Health Resources and Services Administration (HRSA), the US Department of Defense (DoD), the US Department of Veterans Administration (VA), etc.) to share and encourage alignment across federal programs. This compilation would also be shared with state Medicaid and CHIP programs.

Leverage Current Policies and Federal Initiatives

As in the prior section on Medicaid and CHIP innovation, CMS could take several steps to facilitate state action to spur the use of digital health technologies to improve children's health in Medicaid and CHIP. Additionally, states could benefit from clarity on Medicaid authorities as it relates to supporting and covering the use of consumer digital health technologies. Medicare includes standards for digital health technologies that may be useful for application in Medicaid. HHS could showcase current programs or evidence that may help support the investment and implementation of such technologies. For example, HHS has a role in collecting and sharing examples of states, MCOs and delivery systems that have effectively incorporated these technologies in the care of children as well as examples in adult populations that might be adaptable, such as those from the CMS Round 1 State Innovation Models (SIM), the DoD and the VA. Finally, the Food and Drug Administration (FDA) has a critical role in technology and device review and approval that impacts the speed with which innovative technology can be leveraged to impact child health. Specific recommended actions include:

- CMMI should develop and launch a regional, multi-state pilot study to test a set of aligned Medicaid policies impacting digital health access, and payment focused on high cost pediatric conditions in Medicaid and CHIP, especially when care is provided across state lines.
- HHS should explore CMMI initiatives, like Accountable Communities for Health, where digital health technologies may be foundational to linking clinical care with essential community social services for children and supporting care for children in a range of settings, including school based health clinics.
- The FDA should leverage their new streamlined regulatory process to fast track approval of digital health technologies, while ensuring comprehensive quality review, to promote use in the delivery of children's health care.

Foster New Investments Focused on Children

Federal program and research agencies could develop Funding Opportunity Announcements (FOA) focused on developing models to

deploy and test digital health technology in child serving programs and settings. For example, the HRSA Office for Advancement of Telehealth, which provides TA for twelve telehealth centers across the nation, could be a useful resource. It will be valuable to identify those models that could be considered by CMMI, which will have to yield cost savings or cost neutrality while improving quality and outcomes. In addition, AHRQ could build on its 2016 systematic review of the evidence on telehealth by commissioning another study, specifically focused on the use of digital health technologies in the care of children. Specific recommended actions include:

- HHS could develop FOAs that encourage development and testing of digital health technologies that enable the delivery of pediatric care and related-services to address the clinical and SDOH needs of children.
- AHRQ could commission a new systematic review of evidence focused on digital health technologies in the use of pediatric care.

Assist States in MCO Contract Negotiation

Guidance to states from CMS on what is allowable under Medicaid in MCO contracts that would support further use of digital health technologies could provide a common understanding for state Medicaid agencies that often do not have the time, resources, or technical knowledge to effectively negotiate with MCOs. Additional information on what is working across states and federal programs that have expanded access to and coverage for telehealth and other consumer digital health technologies could also assist Medicaid programs in implementing similar policies in their managed care contracts.

- CMS should provide TA and resources to states related to managed care contract negotiation to expand coverage and access to consumer digital health technologies for children and families.

Opioid Addiction and Neonatal Abstinence Syndrome

One major effect of the opioid epidemic is the number of infants born to women using opioids during pregnancy, often experiencing neonatal abstinence syndrome (NAS) or neonatal opioid withdrawal syndrome (NOWS), which can lead to a range of health challenges.

- Shortly after birth, babies with NAS exhibit gastrointestinal disturbances, hyperirritability, excessive crying, and tremors, which are common during withdrawal.^{xvii}
- From 2004 to 2013, neonatal intensive care unit admissions for infants with NAS increased from 7 cases per 1,000 admissions to 27 cases per 1,000 admissions.^{xviii}

- In 2012, newborns with NAS stayed in the hospital an average of 16.9 days (compared to 2.1. days for other newborns).
- Medicaid payments to hospitals for NAS from 2009 - 2012 increased from \$564 million to \$1.2 billion; Medicaid pays for more than 80 percent of all NAS-related cases, reflecting the greater tendency of opiate-abusing mothers to be from lower-income communities.^{xix,xx}
- From 2004 to 2013, NAS incidence increased disproportionately in rural counties compared to urban counties. The rural incidence of NAS increased by a factor of 6.3 while the urban incidence of NAS increased by a factor of 3.4.^{xxi}

To address the unmet needs of pregnant women and their newborns, the Protecting Our Infants Act (POIA) of 2015 (P.L. 114-91) mandated that HHS reduce research gaps, develop best practice guidance to treat NAS, and coordinate federal efforts and reduce duplication among relevant federal programs. Since then, HHS' Behavioral Health Coordinating Council Subcommittee on Prescription Drug Abuse developed a POIA [Report to Congress](#) and [Final Strategy](#).^{xxii}

Current Policy Opportunities and Barriers

While the challenges and costs associated with NAS continue to grow, there is emerging evidence that planning and implementing a collaborative, public health and social service approach to prevention, diagnosis and treatment combined with payment reforms for maternal and infant health may reflect best practices for preventing and treating opioid use disorders during pregnancy and NAS.

Now with a heightened awareness of this epidemic at both the state and federal level, opportunities exist to improve outcomes for mothers and their babies with NAS through implementation of more standardized approaches to clinical care and transitional services. The Comprehensive Addiction and Recovery Act of 2016 directed the Government Accountability Office (GAO) to examine NAS in the United States and related treatment services covered under Medicaid, which resulted in an October 2017 GAO report recommending standardized approaches for screening and treating NAS-affected babies.^{xxiii} It also examined HHS's strategy for addressing NAS, including the prevention, treatment, and related services for NAS and prenatal opioid use. Based on their review, GAO recommended that HHS should develop a plan for implementing the recommendations included in its strategy related to addressing NAS.^{xxiv}

Current literature cites effective standardized and evidence-based protocols to treat NAS, including NAS evaluation and treatment, scoring practices (used to screen newborns and to determine the

appropriate course of treatment), as well as pharmacologic (e.g. buprenorphine, methadone or morphine) and non-pharmacologic interventions (e.g. breastfeeding, soothing, cuddling, swaddling, etc.).^{xxv} Hospitals with rigorous narcotic weaning guidelines (to help babies wean off opioid dependence), have seen lower health care utilization and improved outcomes such as shorter treatment time, reduced length of stay and lower rates of adjunctive therapy.^{xxvi}

Another opportunity for improved policies to support mothers and their babies occurs upon discharge. Often, even when NAS babies are discharged from the hospital, mothers find themselves without the resources and support needed to care for them. A 2015 investigation by Reuters found that many NAS babies die after being discharged from the hospital; in 75 percent of these cases, the cause of death was related to neglect. When asked in retrospect, many of the mothers wished for social services interventions,^{xxvii} thereby highlighting an important policy opportunity to provide better connections to social support services upon discharge.

The Role of Medicaid

Medicaid provides critical opportunities to support mother and baby through enhanced connections to social support services upon discharge. Some states are pursuing innovative approaches to care delivery as well as payment models to address and finance the comprehensive clinical and social service needs of opioid addicted mothers and their infants. (See Appendix C for examples of state Medicaid strategies to address NAS.) Findings from these efforts can provide promising practices to other Medicaid agencies and Medicaid MCOs to replicate.

Recommended Actions

Recommended actions to leverage current Medicaid authorities, along with additional targeted federal initiatives, to address the opioid addiction crisis for mothers and their children include:

- CMS should develop a demonstration pilot to test alternative payment models for comprehensive care for pregnant and postpartum women with substance use disorder (SUD) and babies with NAS or NOWS. Services provided could include health care, behavioral health, public health, social work, early intervention, home visitation and lactation support. A variety of alternative delivery and payment models could be tested, such as developing a maternal and child health-focused Accountable Health Community model targeted to SUD and NAS.
- The Centers for Disease Control and Prevention (CDC) should fund states to support enhanced surveillance efforts, building off of similar efforts undertaken to address the Zika virus outbreaks. The CDC could use new resources, as included in the President's FY 2019 budget proposal,^{xxviii} to support and improve ongoing surveillance efforts on opioid-related NAS to inform public

health action, including prevention strategies, clinical guidance, enhanced follow-up, targeted screening and evaluation, and identification of medical and early interventions to help children recover and thrive.

- The CDC should promote similar state and jurisdictional strategies like those adopted during the Zika virus outbreak, which encouraged practitioners and agencies in Zika virus-infected regions to improve education about, and access to, long-acting, reversible contraception (LARC) for women interested in reducing the risk of an unintended pregnancy and avoiding poor birth outcomes.^{xxix}
- Through the annual appropriations process and opioids authorizing bills, Congress should provide funding for enhanced research and treatment for OUD and SUD for mothers during pregnancy and babies with NAS and NOWs for babies, including ensuring connections to social services post-discharge, and implementing the Final Strategy included in POIA. One option could be a joint funding announcement from multiple federal agencies (e.g. CDC, HRSA, AHRQ, CMS, the National Institutes of Drug Abuse (NIDA), etc.), with shared metrics and reporting requirements.
- CMS should provide additional guidance to state Medicaid agencies on terminology and suggested ICD codes to identify infants with NAS and NOWs; best practices from States regarding payment models for NAS; and technical assistance to State Medicaid agencies regarding additional flexibilities and incentives related to screening, prevention, and post-discharge services under contracts with Medicaid managed care organizations. CMS should also provide assistance on what is an appropriate and allowable use of CHIP's HSI funds.

Precision Medicine

The National Institutes of Health (NIH) defines precision medicine as “an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person.” Precision medicine provides tools to allow providers and researchers to more accurately identify which treatment and prevention strategies will work for a particular disease and in which groups of people.^{xxx} It is noted that the definition of precision medicine varies widely, ranging from one that focuses specifically on innovative applications, such as those applied in oncology, to more common applications such as genetic testing.

Regardless of the definition, the applications of precision medicine and the benefits in pediatrics are only just emerging. A 2016 review of precision medicine for pediatrics, *Uses of Personalized Medicine in Current Pediatrics*, described emerging opportunities that may offer early diagnosis and treatment in pediatrics, including respiratory diseases such as cystic fibrosis; gastroenterology including

inflammatory bowel disease and celiac disease; childhood diabetes; pediatric neurology; as well as oncology.^{xxxi}

Below are a few examples of federal initiatives in precision medicine that are focused on supporting research and have the potential to build the evidence for application in pediatric populations:

All of Us Research Program: The objective of the *All of Us* Research Program (formerly the Precision Medicine Initiative) is to build an observational research resource that will provide the information needed to address a wide range of scientific questions, facilitating the examination of biological, clinical, social, and environmental determinants of health and disease. The program will collect and study health-related data and biospecimens from one million or more individuals, reflecting the diversity of the U.S. population.^{xxxii,xxxiii}

In an effort to address the unique research opportunities related to children, the *All of Us* Research Program Advisory Panel formed the Child Enrollment Scientific Vision Working Group (CESVWG) to develop an approach for including pediatric populations in the initiative. Charged with defining how *All of Us* research can be enabled through the enrollment of children from diverse backgrounds into the cohort,^{xxxiv} the CESVWG released a report in January 2018 on scientific opportunities relevant to child health.^{xxxv} The Special Populations Committee will examine the practical considerations of child enrollment and data collection involving children and identify necessary updates to the program's protocol for review by the *All of Us* Institutional Review Board prior to implementation.^{xxxvi}

ECHO: NIH awarded \$157 million in grants in fiscal year 2016 to launch the Environmental influences on Child Health Outcomes (ECHO), the follow-on to the National Children's Study. The ECHO program will investigate how exposure to environmental factors in early development including changes in the expression of genes or development of the immune system from conception through early childhood influences the health of children and adolescents.^{xxxvii} ECHO is designed to enhance understanding of the factors that contribute to optimal health in children by examining a broad range of exposures. ECHO will also be used to build pediatric clinical research networks in rural and medically underserved areas to assure that children from these communities participate in clinical trials.

ASPE's Office of Health Policy: The Office of the Assistant Secretary for Planning and Evaluation (ASPE) is responsible for administering the Office of the Secretary Patient Centered Outcomes Research Trust Fund (OS-PCORF) to fund HHS projects that help to strengthen national data capacity and infrastructure for the conduct of patient-centered outcomes research (PCOR). The projects that

make up the OS-PCORTF portfolio span a diverse set of topics that include data standardization at the point of care; improving the utility of disease registries and public health surveillance systems; empowering patients with improved access to health data and the ability to direct it towards research; and leveraging national standards to develop new applications to link data systems. PCORTF could be a resource to expand data capacity for patient-centered outcomes research in support of pediatric precision medicine.

Current Policy Opportunities and Barriers

While pediatric precision medicine continues to progress and has the potential to be accelerated by a broad array of federal initiatives, regulators, insurers, clinicians, and institutions face challenges in adapting to the continuously evolving science of precision medicine and its impact on care for pediatric patients. Barriers include limited data on cost savings, insurance coverage and lack of an appropriate regulatory framework to quickly approve tests and therapies associated with precision medicine.^{xxxvii}

Lack of evidence for ROI

One barrier is the lack of evidence for the cost effectiveness of these new approaches, including diagnostic tests, and how these new technologies will impact the cost, quality, or outcomes of care. While there are several small-scale studies that show precision medicine may lower costs, improve medication adherence, and enhance quality of life, few studies include a cost-benefit analysis comparing precision medicine to standard care.^{xxxviii}

Coverage and reimbursement

Coverage and reimbursement for treatments emerging from precision medicine are potential obstacles to increased use of these therapies in daily health care.^{xxxix} Generally government and private payers' coverage policies are developed for treatments that apply to large populations while genomics and precision medicine are specifically designed to create *specialized treatments* for single or small groups of patients.^{xl} Additionally, coverage for *genetic testing* requires clinical evidence supporting a test's validity and utility to rationalize reimbursement.^{xli} Often times, payers defer to Medicare payment policies to determine their coverage and reimbursement for specific genomic tests. As such, since Medicare does not reimburse for *unapproved therapies* and generally does not reimburse for experimental or investigational tests, including genetic predisposition tests, most payers do not cover comprehensive gene sequencing for most indications. In addition, payers will not cover drug therapies where there is not a specific pediatric indication. As a result, providers often need to appeal coverage decisions, seek compassionate use, or develop single patient investigational new drug applications and submit them to the FDA. All of these aspects can cause significant delays in getting a specific drug to a patient.

Data Sharing

Another barrier to advancing pediatric precision medicine is the inability to gather enough data on the genetic mutations that contribute to certain conditions in children.^{xlii} Currently, there are several impediments to open data sharing with respect to patient confidentiality; what data formats to use; where data should be hosted; who bears the cost of hosting; and how to standardize methods so data are reproducible from center to center, among other barriers.^{xliii} While the need for widespread sharing of biomarker test results and standardized reporting is understood, the systems to accumulate, analyze, and interpret the data are still emerging.

Balancing Safety and Innovation

Drug discovery is key to translating the results of precision medicine into effective therapies. Currently, however, some perceive FDA regulations as creating barriers to those seeking to translate validated biomarkers into clinical use.^{xliiv} The scientific community must determine the appropriate balance of approval of new products emanating from precision medicine and patient safety/efficacy of new treatments.

Recommended Actions

Leverage Federal Initiatives and State Programs

Federal agency initiatives could be leveraged, such as the PCORTF projects, managed by ASPE's Office of Health Policy. As noted above, recent progress enabled by the PCOR Trust Fund's support of an expanding clinical data infrastructure, could be leveraged to promote precision medicine in pediatrics. NIH should build on its All of Us initiative with dedicated funding to prioritize data collection and research on women and children. The National Institute for Child Health and Human Development should be a key player in bringing more focus on precision pediatrics in all relevant research efforts, including the All of Us initiative. Specific recommended actions include:

- NIH should explicitly allocate funds for recruitment of children and pregnant women within the All of Us Research program.
- States should leverage their mandatory newborn screening programs by incorporating additional genetic anomalies to the standard panel of conditions for which their current screening programs test.
- Federal agencies, like PCORTF, as well as the private sector, should invest in research studies that identify and assess the ROI, costs benefits, and impact on outcomes on pediatric precision medicine technologies and genetic testing to help inform clinicians, patients and insurers.

Leverage Regulatory Policies to Promote Use

Any progress on data sharing for pediatric precision medicine will occur within the overall regulatory and payment policy environment for data sharing in general. There is also a need for balancing regulatory oversight with promoting appropriate access to precision modalities (e.g. testing, diagnostics). This regulatory context includes FDA review of diagnostic tests and support for the Clinical Laboratory Improvement Amendments (CLIA) waiver process, which regulates laboratory testing and certifies clinical laboratories for diagnostic testing. There are additional challenges regarding clinical implementation of these tests, including the clinical management of data (e.g., data access, data use, data sharing) that require inspection. Specific recommended actions include:

- The FDA should promote efficient review of new diagnostic tests in precision medicine as well as the CLIA waiver process to ensure state clinical laboratories are appropriately certified for broad range of precision medicine testing.

Address Data Sharing Barriers to Build Evidence Focused on Children

Given the very early stages of evidence development in child health for pediatric precision medicine, it is important to fund targeted research and address the data infrastructure needed to support child-specific evidence development. Thus, it could be helpful to explore what has been learned from the application of precision medicine in the adult model. Looking to the future, it will be valuable to develop a large data bank to collect and share clinical, phenomic and genomic information on children. Academic health centers and some community health care systems are currently generating their own data repositories and efforts could be explored to collaborate with the federal government to develop a shareable data resource, leveraging modern technology including the cloud and blockchain. This could also encourage the development of a uniform taxonomy for genetic testing to help standardize results reporting. Additionally, a biobank could be created for pharmacogenomics information that can be used to help track drug interactions and adverse complications over the course of a child's development. With both of these recommendations, however, key data issues will need to be addressed upfront, including privacy and security as well as interoperability. Ultimately, it will be important to understand and apply the findings from these efforts into improved population health, assuring that all children benefit from precision medicine. NIH, potentially working with CDC, should explore how the applications from this major investment in precision medicine can be used to improve the health of children including preventing disease and promoting healthy behaviors. Further, key agencies across HHS

can help all families understand how precision medicine can be applied to their own children's health and well being. Specific recommended actions include:

- Federal initiatives should focus on understanding population health implications of pediatric precision medicine.
- NIH, in collaboration with academic health systems and community health care systems, should establish a shared data warehouse to collect clinical, phenomic and genomic information on children.
- NIH should leverage and/or collaborate with state and health care system efforts to develop a uniform data taxonomy that standardizes both the taxonomy and methods in genetic testing.

Conclusion

In looking across all the areas of opportunity in child health policy, subject matter experts summarized the following cross-cutting recommendations:

1. *Leverage innovations in current policy and technologies.* Strides in precision medicine and digital health technologies, as well as policies focused on Medicaid/CHIP and opioids, are well-suited to include a focus on children.
2. *Address key considerations related to data.* Data privacy and security; data standardization; and data sharing activities must be addressed to spur innovation in children's health.
3. *Promote shared learnings by highlighting bright spots.* Harnessing learnings and promising practices from a range of public and private initiatives, technical assistance and capacity building efforts can help inform and accelerate progress in child health policy.
4. *Align initiatives and incentives for greater impact.* Federal and state agencies can support and encourage greater interagency coordination to better align programs, eliminate competing priorities and maximize funds.
5. *Include children specifically in all federal agency research initiatives.*

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Appendices

Appendix A: Meeting Agenda

Spurring Innovation: The Role of Child Health Policy

March 15, 2018

8:00 AM – 4:00 PM ET

AcademyHealth

1666 K. St. NW, Suite 1100

Washington, DC 20009

Agenda

Meeting Objective: *To identify a near term, 1 – 3 year agenda of the areas of greatest opportunity for innovation in child health policy in the following four target areas:*

- Medicaid and CHIP policy, programs, and incentives to promote transformation and address social determinants;
- Consumer digital health (including telehealth);
- Precision medicine in pediatrics; and
- Opioids - planning, coordination and payment reforms focused on maternal use and neonatal abstinence syndrome.

8:00 – 8:30 AM **Breakfast and Networking**

8:30 – 8:50 AM **Welcome, Introductions, and Objectives**

Lisa Simpson, President & CEO, AcademyHealth

Debbie Chang, Senior Vice President, Policy and Prevention, Nemours Children's Health System

Donna Woods, Associate Professor, Northwestern University

8:50 – 9:20 AM **Precision Medicine**

8:50-8:55 AM – Pre-Meeting Report Summary

Cheryl Casnoff, Senior Fellow, NORC

8:55-9:20AM – Reaction and Large Group Discussion

Reactors: Daryl Pritchard & Nicole Garro

9:20 – 9:50 AM **Medicaid & CHIP**

9:20-9:25 AM – Pre-Meeting Report Summary

Cheryl Casnoff, Senior Fellow, NORC

9:25-9:50 AM – Reactor and Large Group Discussion

Reactors: Matt Salo & Kate Neuhausen

9:50 – 10:00 AM **Coffee Break, and Move to Small Groups**

10:00 – 11:00 AM **Small Group Breakout Discussion**

Each break out group will use the questions posed in the pre-meeting reports to guide the discussion for each group's assigned area of focus.

11:00 – 11:05 AM **Transition Back to Main Room**

11:05– 11:30 AM	Keynote Speaker 11:10 -11:30 AM – Lunch Keynote Speech Deidre Gifford, Deputy Director, Center for Medicaid and CHIP Services
11:30-12:00 PM	Lunch
12:00 – 12:30 PM	Consumer Digital Health 12:00-12:05 PM – Pre-Meeting Report Summary Cheryl Casnoff, Senior Fellow, NORC 12:05-12:30 PM – Reactor and Large Group Discussion Reactors: Gina Altieri & Dean Hovey
12:30– 1:00 PM	Opioids 12:30-12:35 PM – Pre-Meeting Report Summary Cheryl Casnoff, Senior Fellow, NORC 12:35-1:00 PM – Reactor and Large Group Discussion Reactors: Lindsey Browning & Stephen Patrick
1:00 – 1:15 PM	Break and Move to Small Groups
1:15– 2:15 PM	Small Group Breakout Discussion <i>Each break out group will use the questions posed in the pre-meeting reports to guide the discussion for each group’s assigned area of focus.</i>
2:15 – 2:25 PM	Reconvene
2:25 – 3:10 PM	Small Group Discussion Report Out and Information Sharing <i>Small groups share recommendations discussed in their group discussions</i>
3:10 – 3:45 PM	Action Prioritization <i>Red-dot priority voting based on recommendations from small groups (Five votes per person for Medicaid and CHIP, and three votes for all others)</i>
3:45 – 4:00 PM	Closing Remarks & Adjourn Lisa Simpson, President & CEO, AcademyHealth Debbie Chang, SVP, Policy and Prevention, Nemours Children’s Health System Donna Woods, Associate Professor, Northwestern University

Appendix B: Federal Program Opportunities to Promote Health of Children

Value Based Payment (VBP) Arrangements

Overall there is increasing interest in moving toward VBP arrangements that emphasize cost-effectiveness, quality outcomes, and improved population health. The goal of VBP is to achieve the best outcomes within available resources. These models may include pay for performance, bundled payments, ACOs, and integrated care systems that link primary care, behavioral health services, and some social service programs. Since most VBP arrangements have focused on adults, there is limited information on the impact of these VBP arrangements on children. In addition, since the goal of children's health care is achieving health and wellness throughout the stages of a child's life, the benefits of VBP for children, including avoidable health care costs in adulthood, may not be realized for decades.^{xlv}

Some states are also using Medicaid 1115 demonstration waivers to implement *Delivery System Reform Incentive Payment (DSRIP) Programs*. Each state DSRIP is unique, but they are fundamentally designed to create payment incentives to improve care quality, enhance population health, and lower costs by encouraging and supporting care delivery redesign that emphasizes quality improvement for Medicaid populations.^{xlvi} DSRIP programs generally focus on pay-for-performance arrangements that require providers to meet defined metrics or milestones including measures related to population health and SDOH for selected populations.

CMS has provided some limited guidance to states on ways to address SDOH within the existing Medicaid program and regulatory framework. In June 2015, for example, CMS released an Informational Bulletin that provides guidance to states regarding how Medicaid reimburses for certain housing-related activities, including referral, support services, and case management services that connect and retain individuals in stable housing. The Bulletin noted that, while states can utilize Section 1915 home and community based services (HCBS) waivers, Section 1115 demonstration waivers, and other authorities, Medicaid funds cannot be used to pay for room and board.^{xlvii}

Early and Periodic Screening, Diagnostic and Treatment (EPSDT) & CHIP

It's also important to note that both the Medicaid EPSDT and CHIP promote child health and well-being. Under the authority of the EPSDT program, CMS emphasizes prevention as well as comprehensive care. Unlike other provisions of Medicaid focusing on treatment, EPSDT is the only authority with the ultimate goal of health promotion. Health promotion efforts are particularly important to reduce health disparities among children in the U.S. and achieve greater health equity. SDOH are linked to health disparities, and research suggests that many health disparities stem from early childhood.^{xlviii}

Additionally, states have the option under CHIP to develop a state-designed Health Services Initiative (HSI) to improve the health of low-income children, including direct services and public health initiatives.^{xlix} An HSI must directly improve the health of low-income children less than 19 years of age who are eligible for CHIP and/or Medicaid, but may serve children regardless of income, recognizing the importance of a population health approach based on a geographic area. HSIs generally involve providing preventive services and interventions addressing SDOH and population health. Examples of such initiatives include:

- Preventing youth violence through after school programs aimed at mitigating the consequences of trauma and promoting healthy development;
- Increasing awareness of the risks from exposure to lead and importance of blood lead screening; and
- Emphasizing home visits to teen parents to support positive parent-child interactions and provide crisis intervention and referral to other services, as needed.

Medicaid Managed Care Organizations

Medicaid managed care organizations (MCOs) are also playing a critical role in addressing SDOH for their Medicaid enrollees. MCOs may voluntarily provide services beyond those included in the traditional Medicaid benefit package even though these services are not part of traditional capitation rates. Many MCOs have led efforts to address SDOH, including care coordination and disease prevention programs, recognizing their impact on health outcomes and health status among vulnerable Medicaid beneficiaries. In its June 2014 report, *Positively Impacting SDOH of Health: How Safety Net Health Plans Lead the Way*, for example,¹ the Association for Community Affiliated Plans' (ACAP) report concluded that while investments in SDOH are important, there is much to learn regarding "which kinds of investments will prove cost-effective, for which persons, and in which situations."

Additionally, in a 2018 brief titled “[Implementing Social Determinants of Health Interventions in Medicaid Managed Care: How to Leverage Existing Authorities and Shift to Value-Based Purchasing](#),” Nemours helps states and managed care organizations understand ways to leverage existing Medicaid authorities to fund health prevention. The brief identifies the specific Medicaid authorities that allow state Medicaid agencies to address SDOH through community care coordination services and value-added services. The brief also explores how states can align payment approaches with those two kinds of services with the greater shift towards value-based payment.^{li}

Center for Medicare and Medicaid Innovation (CMMI)

State Innovation Models

Some states are developing multi-payer delivery and payment reforms that include an emphasis on population health and SDOH.^{lii} One model to promote these innovations is the State Innovation Model (SIM) Initiative. The SIM Initiative provides financial and technical support to states to develop and test delivery models designed to improve health system performance, increase quality of care, improve population health, and decrease costs. Some SIM states are specifically addressing SDOH and linkages between primary care and community-based organizations and social services.

Accountable Health Communities

In 2016, CMS leadership published an article in the *New England Journal of Medicine* that spelled out a new path for addressing social needs through Medicare and Medicaid. The authors described the need for new partnerships among medical care, social services, public health, and community-based organizations. The paper concluded that there is emerging evidence regarding the value of “addressing the SDOH, including the importance of establishing cross-sector partnerships, building data systems that bridge health and community services, and developing a workforce to deliver interventions to vulnerable populations.”^{liiii}

Based on this review, CMMI issued a call for communities to participate in a 5-year, \$157 million program called *Accountable Health Communities (AHC)*. The goal of the AHC demonstration is to test a model to determine if addressing SDOH can reduce health care costs and utilization among selected Medicare and Medicaid beneficiaries. The implementation and evaluation of the AHC model offers the potential to determine whether health care savings can be generated when SDOH are addressed through collaboration among stakeholders who are jointly accountable for the health and well-being of their community.

Appendix C: Examples of State Medicaid Strategies to Address Neonatal Abstinence Syndrome (NAS)

Ohio: Supported by a Center for Medicare and Medicaid Innovation (CMMI) State Innovation Model (SIM) award in 2013, Ohio has focused on designing payment models that increase access to patient-centered medical homes (PCMHs), and support episode-based payments for acute medical events.^{liv} Through their value based payment initiative, Ohio developed the “neonatal episodes” bundle that provides incentives for evidence and guideline-based care to improve birth outcomes in general and includes a NAS initiative. The NAS episode also includes payment incentives to reward high quality, low cost, and performance reporting. Four commercial payers as well as all five Medicaid managed care plans are participating in the initiative.

Massachusetts: In March of 2016, the Massachusetts Health Policy Commission issued a funding opportunity entitled, “Neonatal Abstinence Syndrome Investment Opportunity,”^{liv} targeting up to \$3.5 million to eligible birthing hospitals to develop and/or enhance programs for infants with NAS and for women in treatment for Opioid Use Disorder during and after pregnancy. The purpose of the program is to test a fully integrated model of postnatal supports for families with substance exposed newborns, integrating obstetrics and gynecology, pediatrics, behavioral health, social work, early intervention providers, and social service providers to provide full family care in the hospital and after discharge. It is intended to demonstrate that cost-savings and quality improvement are achievable together through an integrated delivery model to care for infants with NAS and their full family unit. No results are available yet in the published literature.

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