Prioritizing Possibilities for Child and Family Health: An Agenda to Address Adverse Childhood Experiences and Foster the Social and Emotional Roots of Well-being in Pediatrics

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ABSTRACT

OBJECTIVE: A convergence of theoretical and empirical evidence across many scientific disciplines reveals unprecedented possibilities to advance much needed improvements in child and family well-being by addressing adverse childhood experiences (ACEs), promoting resilience, and fostering nurturance and the social and emotional roots of healthy child development and lifelong health. In this article we synthesize recommendations from a structured, multiyear field-building and research, policy, and practice agenda setting process to address these issues in children's health services.

METHODS: Between Spring of 2013 and Winter of 2017, the field-building and agenda-setting process directly engaged more than 500 individuals and comprised 79 distinct agenda-setting and field-building activities and processes, including: 4 in-person meetings; 4 online crowdsourcing rounds across 10 stakeholder groups; literature and environmental scans, publications documenting ACEs, resilience, and protective factors among US children, and commissioning of this special issue of *Academic Pediatrics*; 8 in-person listening forums and 31 educational sessions with stakeholders; and a range of action research efforts with emerging community efforts. Modified Delphi processes and grounded theory methods were used and iterative and structured synthesis of input was conducted to discern themes, priorities, and recommendations.

RESULTS: Participants discerned that sufficient scientific findings support the formation of an applied child health services research and policy agenda. Four overarching priorities for the agenda emerged: 1) translate the science of ACEs, resilience, and nurturing relationships into children's health services; 2) cultivate the conditions for cross-sector collaboration to incentivize action and address structural inequalities; 3) restore and reward for promoting safe and nurturing relationships and full engagement of individuals, families, and communities to heal trauma, promote resilience, and prevent ACEs; and 4) fuel "launch and learn" research, innovation, and implementation efforts. Four research areas arose as central to advancing these priorities in the short term. These are related to: 1) family-centered clinical protocols, 2) assessing effects on outcomes and costs, 3) capacity-building and accountability, and 4) role of provider self-care to quality of care. Finally, we identified 16 short-term actions to leverage existing policies, practices, and structures to advance agenda priorities and research priorities.

CONCLUSIONS: Efforts to address the high prevalence and negative effects of ACEs on child health are needed, including widespread and concrete understanding and strategies to promote awareness, resilience, and safe, stable, nurturing relationships as foundational to healthy child development and sustainable well-being throughout life. A paradigm-shifting evolution in individual, organizational, and collective mindsets, policies, and practices is required. Shifts will emphasize the centrality of relationships and regulation of emotion and stress to brain development as well as overall health. They will elevate relationship-centered methods to engage individuals, families, and communities in self-care related to ACEs, stress, trauma, and building the resilience and nurturing relationships science has revealed to be at the root of well-being. Findings reflect a palpable hope for prevention, mitigation, and healing of individual, intergenerational, and community trauma associated with ACEs and provide a road map for doing so.

KEYWORDS: adverse childhood experiences; agenda; child health; crowdsourcing; family engagement; Medicaid; medical home; National Survey of Children's Health; pediatrics; resilience; self-care; social determinants of health; well-being

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DECADES OF DISCOVERY and advocacy now compel action to address the effects of childhood social and emotional experiences to promote healthy development and well-being early and across life.[1–4] In recent years, an array of foundational initiatives have advanced understanding about the centrality of attuned, positive, and safe, stable, and nurturing relationships (SSNRs) and healthy attachment between children and primary caregivers to healthy brain, social, emotional, cognitive, and physical development and well-being throughout childhood and adulthood.[5–8] We are now seeing a convergence of theoretical, empirical, and applied evidence from a range of scientific disciplines, which has unleashed an unprecedented focus on SSNRs, resilience-building, and child development. These disciplines encompass the fields of neuroscience, attachment, human development, stress physiology, polyvagal theory, epigenetics, psychology, mind-body interventions, resilience, well-being, and related research.[4,9–12] Integration of research findings across these and other disciplines directly link disruptions in early life attachment and social and emotional experiences to child stress, well-being, and costly and chronic physical, mental, and social health problems throughout life.[13–18] Knowledge regarding this link has existed for decades, and now rapidly accumulating findings point to effective approaches to transform and heal negative effects of adversity and promote resilience and thriving despite adversity.[4,7,10,19,20] Since at least 1998, agendas set forth for children's health services research and policy have prioritized a focus on children's family context and related social determinants of health.[21,22] However, it is only more recently that our knowledge, understanding, interest, and political will are converging to create the critical mass needed to translate these longstanding priorities for child and family health and resilience into innovation and action.

The now 20-year-old Adverse Childhood Experiences (ACEs) study led by the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente (Kaiser)[16–18] itself built on decades of previous research documenting effects of stress and childhood trauma.[12,20,23] This groundbreaking study further documented the importance of attachment, parenting, and teaching children and adults skills to be aware of and regulate the stress and emotions associated with adverse experiences.[5,6] The ACEs study catalyzed research on individual, family, and community trauma and factors enabling or impeding SSNRs and environments in childhood. By extension, the ACEs study fostered efforts in public health and medicine to address developmental trauma and proactively promote nurturing family relationships, resilience, and social and emotional skills among children and families.[9,24–28] Resilience research and discoveries of neuroplasticity and epigenetics help explain the wide variation in the effect of ACEs and trauma, highlighting the capacity to heal, build resilience, and buffer effects through nurturing relationships and environments and self-care.[10,11,19,29–31] The concept of ACEs and its related research is of great relevance to pediatrics and children's health services yet poses many issues and challenges. The field-building and agenda-setting effort summarized in this paper was launched to further strengthen the capacity of researchers, clinicians, and policymakers to effectively address ACEs and promote resilience, nurturing relationships, and environments in pediatrics and children's health services[32]—with the understanding that collaboration across sectors is essential to these aims, including with education, child welfare, social services, public health, juvenile justice, and business sectors.[33–37]

Planning for this effort began in Spring 2013 with an analysis of first-ever available national and state level ACEs, resilience, and family functioning data from the 2011–12 National Survey of Children's Health (NSCH).[38] Building on more narrow assessments of reported child maltreatment in the United States,[39] analysis of the NSCH showed that nearly one-half of all US children and youth,[40,41] two-thirds with public insurance, and three-quarters with emotional, mental, or behavioral diagnoses experienced 1 or more of 9 ACEs, similar to those evaluated in the CDC/Kaiser study (http://www.childhealthdata.org/browse/survey/results?q=2257&r=1).[42] These findings are consistent with the unprecedented rates of emotional, mental, and behavioral health problems among US children and youth and concomitant NSCH findings that fewer than 47.7% of school-age children in the United States meet basic criteria for flourishing (http://www.childhealthdata.org/browse/survey/results?q=2480&r=1). Empirical analyses confirmed a marked, negative population-wide effect of ACEs on child development, physical, mental, emotional, and behavioral health and school engagement with consistent effects across racial and income groups. We also documented promising population-based findings that many children flourish despite multiple ACEs when family, community, and health care-related protective factors are present and they have opportunities to learn and develop resilience. We also found that these factors are differentially prevalent across subgroups of children and geographic areas.[42] These findings paralleled growing evidence about the importance of trauma-informed and trauma-responsive care and specific strategies and approaches to prevent and heal from the effects of ACEs (see the Supplementary Appendix; http://www.cahmi.org/wp-content/uploads/2015/01/ACEs-Supplement_National-Agenda-Technical-Appendix_04-04-17.pdf). NSCH findings and this expanding evidence base imbued a hopeful tone for our efforts. This hope for prevention and healing is essential for translation and was the motivation and basis for engaging the pediatric research, practice, and policy communities to identify goals and priorities for addressing ACEs and promoting resilience and well-being of children, youth, and families in children's health services.

Previous foundation-building efforts enabled this work, including the 2012 American Academy of Pediatrics policy statement on early life adversity, the CDC's Essentials for Childhood initiative, the Robert Wood Johnson Foundation's National ACEs Summit (May 2013), and launch

of the *ACEs Connection* online resource in 2012.[33,37,43] Two overarching questions framed methods for this agenda: 1) "What should be the priority goals for a national ACEs and child well-being research, policy, and practice action agenda?," and 2) "What are priority research issues and short-term actions to ensure children's health services effectively address ACEs to promote child resilience and well-being?"

METHODS

The framework and logic model guiding the agenda-setting process is summarized in Figure 1. Grounded theory and modified Delphi process methods were used. Early work established consensus among key stakeholders on the core scientific premises making ACEs, toxic stress, trauma, positive health, and resilience critical to address in children's health services. The agenda process comprised 8 core activities. These activities are summarized in Figure 1 (second column) and detailed further in the Supplementary Appendix (http://www.cahmi.org/wp-content/uploads/2015/01/ACEs-Supplement_National-Agenda-Technical-Appendix_04-04-17.pdf). The 8 methods and activities used to iteratively engage stakeholders and define the priorities were:

(1) Stakeholder meetings to assess needs, goals, and priorities (4 meetings; n = 136);
(2) Online crowdsourcing of goals and priorities with 10 stakeholder groups using Codigital/Collective Insight software (Codigital Limited, London, UK)[44] (4 rounds; 10 groups; n = 136; Table 1);
(3) Literature, environment, and measurement methods scan (5228 publications scanned, 300 in-depth reviews, 200 website reviews; 40 key informant interviews);
(4) Foundational research and production of related data resources using the 2011–12 NSCH (2 data briefs; 2 policy/white papers; 3 journal publications; 2 magazine/press articles; design of methods to create county/city-level child and youth ACEs and resilience data)[40–42,45–50];
(5) In-person focus groups and roundtable listening sessions (8 forums conducted at national research, policy, and practice-community conferences; approximately 125 participants);
(6) Commissioned research and policy articles, including the development of this special issue of *Academic Pediatrics*, and an August 2016 *JAMA Pediatrics* publication[51];
(7) Education and engagement presentations and workshops (31 sessions between May 2013 and December 2016; approximately 3000 participants overall; feedback informed agenda);
(8) Participatory action research partnerships to learn about and build the field, including the collaborative design, dissemination and evaluation of state, county, and city data-in-action infographics (http://childhealthdata.org/docs/default-source/local-area-synthetic-estimates/adverse-childhood-experiences-among-baltimore-maryland-s-children.pdf?Status=Master) and trainings and facilitating inclusion of ACEs and protective factors data into news publications, policy forums, and

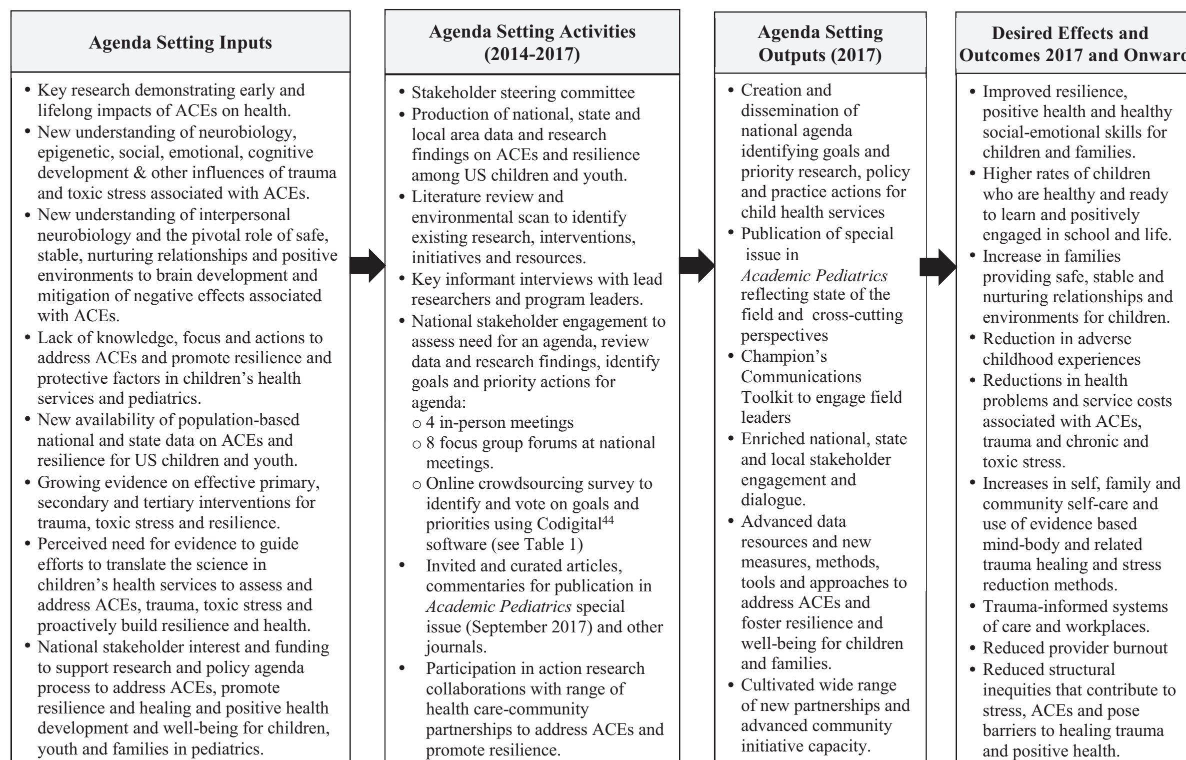

Figure 1. *Prioritizing Possibilities to Address Adverse Childhood Experiences (ACEs) and Foster the Roots of Child Well-being Project logic model.*

Table 1. Description of Crowdsourcing Modified Delphi Process (Using Codigital Software[44])

Focus Question	Phase I	Phase II	Phase III		Totals	Highlights
	Goals and Requirements for Agenda	Priority Issues and Needs	Priority Issues and Needs	Priority Issues and Needs		
Invitations, n	22	90	375	327	814	49% of all responses were from health services researchers and pediatric providers. The remainder of respondents were from other stakeholder groups.
Participants (not all unique), n*	13	30	127	80	250	
Ideas proposed (not all unique), n**	47	42	172	102	363	
Exchanges to edit and rank ideas, n (average per idea)	426 (9.06)	665 (15.8)	1737 (10.1)	744 (7.30)	4185 (2.45)	
Response rate, %†	59.1	33	34.3	29.8	39	

*Some individuals participated in more than 1 phase.

**Top 20 ideas were rotated into new rounds for further editing and ranking.

†Response rates were as high as 84% for family leaders and 73.4% for state policy and program leaders to a low of 18.2% for federal agency and program leaders.

national reports like Americas Health Rankings (www.americashealthrankings.org/learn/reports/2016-annual-report).

This effort was publicly launched as a purposeful partnership between the Child and Adolescent Health Measurement Initiative and AcademyHealth in Spring 2014, 1 year after formative research and engagement efforts took place.[32] Approximately 500 individuals participated and comprised 79 distinct agenda-setting and field-building activities. Since its inception, national dialogue, research, policy, and initiatives related to ACEs and child resilience significantly expanded and evolved, and have continue to do so.[37,51] As such, this agenda is viewed as a "living" resource that provides a high-level synthesis of findings from our process to date and will be evolved over time. This summary paper is enriched by a Supplementary Appendix that provides more in-depth details on our field-building activities, processes, resources, and recommendations.

RESULTS

Synthesis of information and input received led to 4 overarching agenda priorities to address ACEs and promote child well-being in children's health services. Four specific areas of research arose as priorities critical to address to advance these agenda priorities. Finally, we identified 16 short-term actions and recommendations, each of which leverages existing research, policy, and practice systems and structures. Agenda priorities and critical areas for short-term research and action are summarized in the following sections as well as in Figure 2 and Table 2.

PRIORITY 1: TRANSLATE THE SCIENCE OF ACES, RESILIENCE, AND NURTURING RELATIONSHIPS

Agenda activities revealed cross-cutting support and a sense of urgency for rapid and widespread training about the often called paradigm shifting "science of ACEs" (ACEs characteristics, evolution, prevalence, and effects) as well as a new "science of thriving."[35,52–57] This new science of thriving integrates research demonstrating the substantial untapped potential for positive health, resilience, and flourishing despite adversity and pointed to what several viewed as a new wave of public health and health care that moves beyond risk reduction and disease management to the purposeful promotion of positive health that addresses the social and emotional roots of well-being, all of which mandate individual, family, and community engagement and self-care.[58] Widespread agreement emerged that sufficient scientific, epidemiologic, and clinical evidence exists to prioritize the design of targeted and tailored strategies to translate the science of ACEs and thriving in children's health services.[37,45,52,59–61] Little disagreement arose that ACEs represent a risk factor that meets standard epidemiologic criteria for causal inference[62] and that important gaps in knowledge exist in children's health services.[60,63]

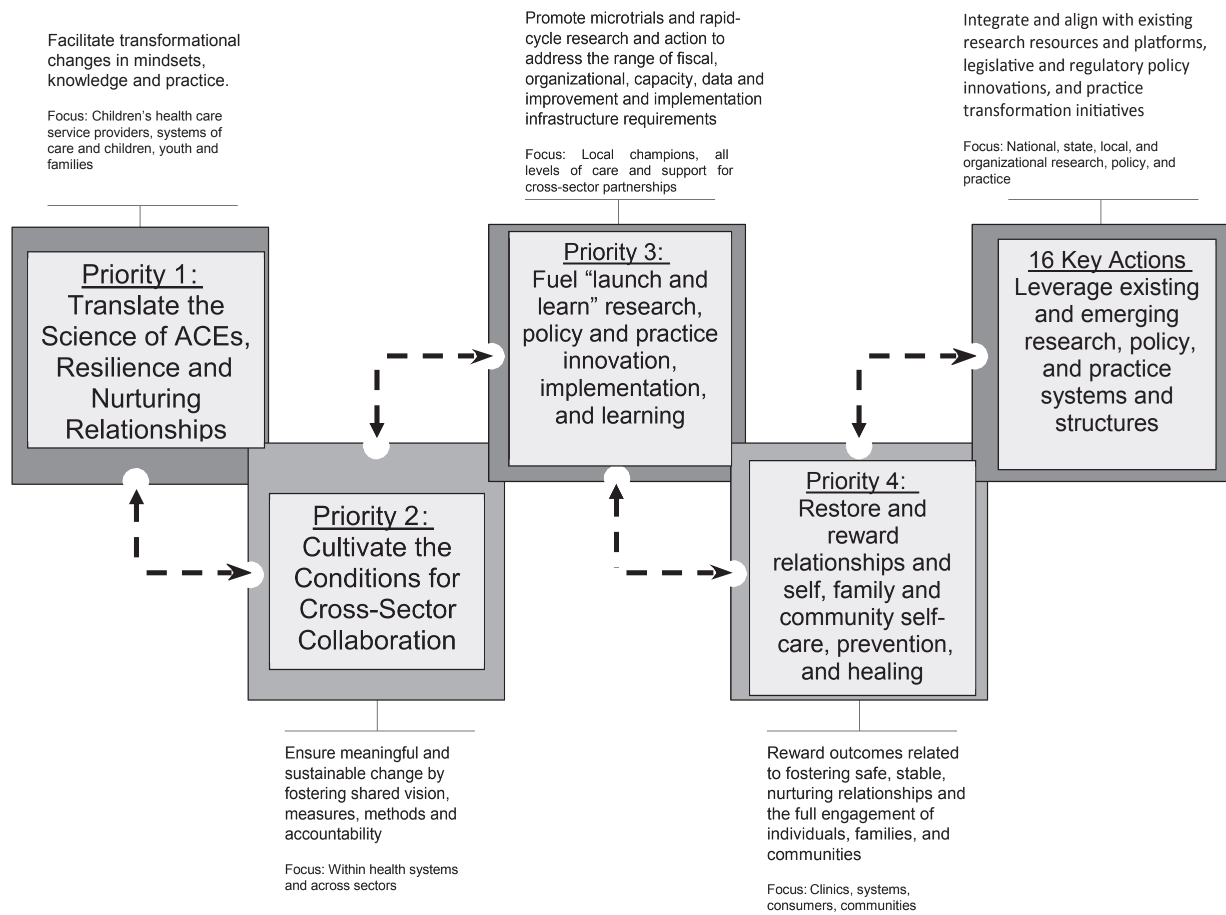

Figure 2. *Four priorities and 16 key actions for a children's health services research and policy agenda to address adverse childhood experiences and foster resilience, nurturance, and the relational roots of well-being. ACEs, adverse childhood experiences.*

Specific translation needs prioritized in this agenda include:

- Coordinated education, awareness-building, and training for health services providers, funders, parents, and families, and other child-serving sectors to establish a common language and personalized understanding about the science of ACEs and thriving as well as strategies for prevention and healing.
- Changes in clinical practice, insurance coverage, and payment[27] that complement traditional diagnosis and medical treatment norms to allow for holistic methods that address the cross-cutting social, emotional, stress, and resilience-related common causes (and remediation) of what have typically been viewed as separate risks (eg, different types of ACEs) and health conditions (eg, different mental and behavioral problems).
- Training and partnerships with nontraditional providers with skills to prevent ACEs, facilitate healing effects of ACEs-related trauma, toxic and chronic stress, and cultivate resilience and related social and emotional skills.[10,30] This might include professionals in parenting education and mindfulness-based, mind-body, and other trauma healing and prevention methods[6,25,42,64] that rely on individual, family, and community engagement, rather than use of traditional medical interventions.

Priority 2: Cultivate the Conditions for Cross-Sector Collaboration to Incentivize Action and Address Structural Inequalities

Participants called out evidence linking higher ACEs prevalence as well as reduced capacity to mitigate the effects of ACEs to structural inequalities like poverty, discrimination, quality of schools, housing, and neighborhoods, opportunities for employment, and access to health care and related services. Children's health services providers can play an important coordinating and advocacy role to establish and link children and families to community resources to address these structural factors.[65] Doing so will require effective collaboration and partnerships within and between child and family health-related systems (eg, medical and behavioral health) as well as across sectors, including between health services and public health, schools, social services, criminal justice, business, and more.[5,36,55,56,66,67]

Input across the many sectors involved in the agenda-setting process supported the view that pediatric providers are a linchpin for engaging and facilitating necessary action, especially as it relates to educating families, identifying risks, promoting positive family relationships, coordinating and linking to resources, and advancing skills to develop SSNRs, resilience, and positive health, even in

Table 2. Sixteen Short-Term Research, Policy, and Practice Opportunities to Address ACEs and Promote Child and Family Well-being

A. Priority opportunities to leverage existing policy driven systems, structures and innovation platforms
  1. Prioritize EPSDT and prevention: advance approaches to integrate ACEs, healthy parenting, and positive health development topics into federal and state EPSDT standards, policies, and initiatives in alignment with Bright Futures guidelines. Integrate care across settings.
  2. Focus hospital community benefits strategies: integrate ACEs and positive health topics into hospital community benefits standards and community needs assessments partnership efforts. Make available local area data on ACEs, resilience, protective factors, and other social determinants. Enable easy access to methods and metrics to monitor effects on child and family health, and utilization and costs of care at the community level.
  3. Establish enabling organization, payment, and performance measurement models: advance trauma-informed and positive health-oriented payment reform, accountability measurement, and integrated systems efforts in existing and emerging practice innovation models. Design, test, and evaluate models and promote shared measurement related to ACEs and positive health promotion across range of child health programs.
  4. Advance and test Medicaid policy implementation: develop and demonstrate models for addressing ACEs, promoting resilience, and healthy parenting in the context of addressing other social determinants of health in Medicaid. Ensure research methods and metrics are integrated throughout innovation efforts to show effect, and scale methods as they evolve. Foster innovation in: 1) eligibility and enrollment, 2) benefits, coverage, and coding, 3) contracting, costs, and performance measurement, 4) capacity, continuing education requirements, and credentialing, and 5) communication and coordination.
  5. Inform and track legislation to accelerate translation: formulate recommendations for, and track and evaluate effects of specific federal, state, and local legislation, regulations, and related actions to address ACEs. Ensure ACEs and childhood trauma is considered in health policies.

B. Priority opportunities to leverage existing and evolving practice transformation efforts
  1. Leverage medical/health home and social determinants of health “movement”: leverage existing primary care medical home demonstrations and efforts to address social determinants of health in pediatric practices, hospitals, and other settings. Integrate ACEs into other screening, assessment, and education efforts using a relationship-centered approach. Test methods addressing Medicaid innovations at the practice implementation level, ensuring evaluation for cost benefits and cost-effectiveness.
  2. Enable, activate, and support child, youth, and family engagement: evaluate and advance efforts to engage children, youth, and families in driving measurement and improvement efforts. Optimize face to face time in health care encounters to enable relationship-centered education and support through the use of pre-visit education and engagement tools and strategies.
  3. Build effective peer/family to peer/family support capacity: design and evaluate use of nontraditional “providers” like peer to peer, family to family, and other community health workers.
  4. Empower community-based services and resource brokers: create and evaluate effect of “through any door” models for educating and engaging parents, youth, and families and leveraging existing and emergent community-based services and resources related to trauma, healing, and resilience. Innovate around effective methods to educate and engage families as partners.
  5. Leverage existing commitments and focus areas in child and family health: integrate trauma and resilience-informed knowledge, policies, and practices into existing initiatives, including early childhood systems, childhood obesity, school health, and social and emotional learning. Focus on spread of best practices for parenting and trauma-informed education, coaching, and trauma healing and resilience-building interventions.

C. Leverage existing research and data platforms, resources, and opportunities
  1. Optimize existing federal surveys and data: coordinate and optimize national, state, and local research, policy, and practice innovation efforts using relevant data from the federal surveys that can inform, monitor, and build knowledge on ACEs prevention and positive health development. Establish targeted follow-back and longitudinal studies to understand variations and effect of health care and related policies. Include/maintain inclusion of ACEs and resilience variables in the NSCH and into NHIS and MEPS to promote medical expenditures effects studies.
  2. Optimize state surveys: facilitate efforts to enhance availability and access to ACEs, resilience, and positive health-related data on children, youth, and families in state-led surveys like the Behavioral Risk Factor Surveillance Survey, the Youth Risk Behavior Surveillance Survey, and the Pregnancy Risk Assessment Monitoring System.
  3. Liberate available data: expedite and expand the use of existing ACEs, resilience, and related data for research, policy, and practice to remove barriers to using available data and facilitate easy and “lay person” access to data findings to support national, state, and local efforts in a real time context. Ensure technical assistance, training, and education is provided to ensure valid use of data and curate “data in action” efforts to engender action.
  4. Build crowdsourcing, citizen science, and N of 1 methods: take advantage of newer NIH policies to allow data collected through crowdsourcing and citizen science methods that engage individuals and communities in self-led learning and healing around ACEs, resilience, and flourishing. Formulate and establish methods to engage individuals, families, and communities in real time and self-led learning and healing related to the prevention and mitigation of effects of ACEs. Explore launching direct to public e-summits to fast-track public education and engagement about ACEs and testing of self-care practices to assess feasibility, effectiveness, and success factors. Focus on the spread of evidence-based and promising parenting and trauma-informed education, coaching, and trauma healing and resilience-building interventions appropriate for interactive, self-guided learning platforms, and integration into existing community-based self-help programs addressing substance abuse, mental health, parenting education, weight management, and physical fitness.
  5. Integrate common elements research modules for longitudinal studies: construct common elements research and common metrics evaluation modules for ready use in existing or emerging longitudinal studies related to enable a focus on prevention and mitigation of the effects of ACEs and promotion of safe, stable, nurturing relationships, positive health, and well-being. Formulate research questions and measurement and analytic methods to append to/integrate into existing longitudinal and birth cohort studies to address key questions about prevention, risk, and mitigation of effects associated with ACEs as well as to test alternative measurement, prevention, and healing methods. Embed common methods, metrics, and coordinate analysis across deployments of research modules to facilitate learning and build knowledge.
  6. Link to collaborative learning and research networks: advance ACEs, resilience, and positive health-related research aims and methods into existing and emerging learning and research networks sponsored by public and private sector agencies, such as the numerous Collaborative Innovation and Improvement Networks and the child health-focused National Improvement Partnership Network.

EPSDT indicates early and periodic screening, diagnostic, and treatment; ACE, adverse childhood experience; NSCH, National Survey of Children’s Health; NHIS, National Health Interview Survey; MEPS, Medical Expenditures Panel Survey; and NIH, National Institutes of Health.

the face of ACEs.[5,59,60,68–70] However, even the most effective ACEs assessment and education process to prevent ACEs and promote resilience and positive health in pediatrics will falter if not bordered by a community system that shares these goals and does its part to address ACEs and promote well-being. The input received specifically highlighted the need to:

- Cultivate a shared vision and financing approaches that enable collaboration within health care and between health care and other sectors.
- Establish shared accountability measures and the capacity to share data across child and family health-serving programs and providers.[71]
- Adopt a self-healing ethic among partnerships. The very relationship skills and trauma-healing that children and families require also need to be cultivated among the individuals facilitating and essential to the success of collaborative efforts.[36,72–75]

Priority 3: Fuel "Launch and Learn" Research, Innovation, and Implementation Efforts

The literature review, environmental and measurement scans, expert meetings, and interviews conducted through this project revealed substantial evidence, innovation, and promising methods and models to address ACEs and promote healing and positive health as well as approaches for engaging partners to establish shared mindsets and collaboration. However, as noted by pioneers in this field, translating the science into policy and practice requires an "era of experimentation."[1,45] Existing science, feasible models and methods, and strong partnerships are necessary, but insufficient. At this formative stage of discovery and implementation, an enduring and purposeful infrastructure to continuously foster innovation, respond to learning, and support scaling of innovations as they emerge is also needed.[76,77] As such, perhaps the most pressing need emerging for this agenda is to establish a purposeful research, policy analysis, technical assistance, and funding assistance infrastructure that enables innovation and real-time learning, improvement, and implementation. As emphasized in a recent National Academies of Science report on fostering innovation,[77] understanding the nature, determinants, and effects of innovation is therefore essential and itself occurs through the lived experience of engaging in innovation. Therefore, funding and intervention designs must allow for real-time learning about the dynamics of innovation and the capacity to iteratively adjust intervention models to optimize learning and effects.[76] Traditional funding that requires specification and adherence to specific methods before funding and measurement and evaluation methods that are fully separate from the process of innovation do not support these goals. Four key capacities for enabling and supporting innovation and implementation were emphasized:

A "Living" Evidence Synthesis and Dissemination Engine

Existing evidence synthesis (eg, National Childhood Traumatic Stress Network, Agency for Healthcare Research and Quality Evidence-Based Practices) and communications and dissemination platforms related to ACEs and resilience (eg, ACEs Connection) should be leveraged to optimize the effectiveness of children's health services providers and systems. Tailored efforts specific to pediatrics and child health are needed and require the continued synthesis of evidence to drive and guide trauma-informed/responsive and resilience-promoting care across children's health systems, in partnership with other sectors and systems.

Innovation and Rapid-cycle Learning Platforms

Efforts should be made to leverage the many existing child health-related learning networks and develop and maintain new networks of teams of families, providers, policymakers, program staff, system leaders, and community service providers to advance innovation and robust cross-sector learning and engagement. Priority focus areas in the short term should be on strategies to build the workforce and methods to assess and address ACEs and promote positive health in primary care, hospital, and community-based settings.

Open Source Training, Data, and Tools

Open source education, hands-on technical assistance, data, tools, and training focused on common needs to advance progress in policy and practice are essential to reduce barriers to learning at this formative stage. Such efforts might involve development of free massive open online courses, quick links to assessment tools and education materials, and scripts and models for coding and assessing service needs, etc. The nature and scale of change and lack of existing financial incentives and infrastructure requires open source strategies that promote consistency as well as economies of scale, and that are highly tailored for specific contexts, populations, and capacities. Dedicated resources and infrastructure funding will be required to ensure continuity, accountability, continued improvement, and sustainability of such assistance.

Engage and Empower Champions

Proactive efforts are needed to foster and support efforts of champions at every level of pediatrics, from system leaders, family leaders, students, trainees, and community partners to advocate, educate, innovate, and document learning in the field. A coordinated train-the-trainer capacity is needed as are mechanisms to curate and share models and learning related to advancing ACEs science, prevention, and healing across a range of settings and systems where children and families receive care.

Priority 4: Restore and Reward Safe and Nurturing Relationships and Self, Family, and Community-Led Prevention and Healing

More than any other, the centerpiece theme for this agenda-setting process was the importance of establishing widespread and concrete understanding about,

commitment to, and skills to advance SSNRs and environments to promote healthy child development and well-being. Participants called out the need to build a caring capacity to ensure ACEs are addressed in a relationship-centered and family-centered manner oriented toward promoting positive health and resilience while simultaneously scaling evidence-based interventions and conducting rapid-cycle testing of promising interventions related to coping with adversity and healing trauma.[68–70,72,73,78] Summarized as “restoring relatedness,” this theme was specifically tied to scientific findings on the importance of the felt experience of safety and trust in primary relationships, including with service providers who seek to foster such relationships. This is important because scientific findings are clear that methods for building awareness and healing trauma, chronic stress, and the neurobiological effects that can result from ACEs are innately relational and therefore dependent on the proactive and positive engagement of individuals, families, and communities, which requires trust. Identifying relationships and self-care as central pillars for the agenda supported what came to be called a “We Are the Medicine” platform during input sessions and presentations associated with the ACEs and resilience agenda-setting process. Specifically, a national agenda to address ACEs must:

- Advance training, financing, metrics, and methods to build a caring capacity and to inform and reward for focusing on establishing and restoring SSNRs.
- Engage self, family, and community in self-care as the driving factor to prevent and heal the trauma associated with ACEs and to proactively improve stress and emotion regulation skills essential for the health and well-being of all children, families, and communities.[59,68,72,75]

Priority Areas for Research

Four research areas critical to advance agenda priorities emerged as priorities in the short term. These are as follows.

Clinical Protocols

Research to specify and test family- and youth-centered methods to assess and discuss ACEs and foster essential self-care, resilience, and relationship skills in clinical encounters and other settings.[7]

Outcomes and Costs

Research to evaluate the effects of alternative clinical and self-care interventions, including effects on health outcomes, utilization, and costs of health care.

Capacity-Building and Accountability

Research to define and cultivate provider, health care system, and community-based core competencies, and the training, payment, and accountability models effective in establishing these competencies.

Provider Self-Care

Research to assess the need for and effects of provider, service team, and program leader self-care related to ACEs, resilience, and relationship skills on quality of care and other outcomes.

Further input related to these central research issues is summarized in the Discussion section and reflects the nature of some of the conflicting views and/or areas lacking clarity that inform research in these areas.

Key Short-Term Research, Policy, and Practice Opportunities and Actions

Sixteen key opportunities and actions were identified to advance the 4 agenda priorities and foster research in the 4 priority areas noted above. Five policy, 5 practice-related, and 6 research infrastructure-related recommendations are summarized in the following sections and in Table 2. Each leverages emerging research, policy, and practice systems and structures.

Priority Opportunities to Leverage Existing Policy-Driven Systems, Structures, and Innovation Platforms

Prioritize early and periodic screening, diagnostic and treatment, and prevention.—Maintain early and periodic screening, diagnostic, and treatment policies and enrich these to integrate ACEs, parenting, and family relationships, and positive health development topics into federal and state early and periodic screening, diagnostic, and treatment[79,80] standards, policies, and in prenatal, well-women, well-child, and well-adolescent care visits. Ensure alignment with Bright Futures guidelines and those related to family-centered and culturally competent care.[81] Foster common element approaches across care settings (eg, clinical, home visiting, community services, early care, schools) to mainstream best practice health promotion and trauma healing methods.

Focus hospital community benefits strategies.—Innovate to integrate ACEs and positive health topics into hospital community benefits standards-related community needs assessments and partnership efforts.[35,36,55] Support these efforts by making local area data on ACEs, resilience, protective factors, and other social determinants of health available, enabling easy access to learning about best practice methods and supporting common evaluation metrics and methods to monitor effects on child and family health outcomes, utilization, and costs of care at the community level.

Establish enabling organization, payment, and performance measurement policies.—Advance trauma-informed and positive health-oriented payment reform, accountability measurement, and integrated systems efforts in existing and emerging practice innovation models (eg, Centers for Medicare and Medicaid Accountable

Health Communities[82] and Pediatric Alternative Payment Models) as well as through the range of maternal, child, youth, and family health programs like the Title V Maternal and Child Health Block Grants program, Title IV child welfare programs, Head Start/Early Head Start, Healthy Start, and school health and wellness programs.[59,66,67,71] Design, test, and evaluate models and promote shared measurement related to ACEs and positive health promotion.

Advance and test Medicaid policy implementation.—Develop and demonstrate models for addressing ACEs, promoting resilience, and healthy parenting in the context of addressing other social determinants of health in Medicaid.[28] Ensure common-elements research methods and metrics are integrated throughout innovation efforts to demonstrate effects and scale methods as they evolve. Specifically, foster innovation in important areas in which states have discretion. These include: 1) eligibility and enrollment; 2) benefits, coverage, and coding[83,84]; 3) contracting, costs, and performance measurement[85,86] ; 4) capacity, continuing education requirements, and credentialing for traditional as well as nontraditional providers[73,87]; and 5) communication and coordination to reduce unnecessary repeated assessment, consistent educational messages, and best practices for addressing needs in partnerships with children and families.[88]

Inform and track legislation to accelerate translation.—Formulate recommendations for, track and evaluate effects of specific federal, state, and local legislation, regulations, and related actions to address ACEs and trauma prevention and healing, ensuring that child, youth, and family needs and requirements are considered and advanced and a developmental trauma focus is included. Proactively ensure ACEs and childhood trauma is considered in health policies. Partner in efforts to formulate policy platforms, such as the Trauma-Informed Care for Children and Families Act (2017), which is the first comprehensive piece of legislation introduced in Congress seeking to infuse brain science related to ACEs and child and youth health into government policies and programs.[89]

Priority Opportunities to Leverage Existing and Evolving Practice Transformation Efforts

Leverage medical/health home and social determinants of health "movement".—Leverage existing primary care medical home demonstrations and related efforts to address social and emotional determinants of health in pediatric practices, hospitals, and other settings to fully integrate approaches to assess for, educate about, and address ACEs and promote SSNRs in families and communities.[7,69,83,87] Conceptualize assessing for ACEs as a relationship-centered approach[75,88] to promote population-wide learning, and establishing conversations to discern and gain buy-in and community and family ownership for specific strategies to promote resilience, healing, and prevention. Where possible, fully integrate into other screening, assessment, and education efforts using a relationship-centered approach.[72] Test methods addressing Medicaid innovations listed previously at the practice implementation level, ensuring evaluation for cost-benefits and cost-effectiveness.

Enable, activate, and support child, youth, and family engagement.—Evaluate and advance efforts to engage children, youth, and families by including them in measurement and improvement efforts.[78] Optimize face to face time in health care encounters to enable effective relationship-centered education and support related to ACEs and positive health using innovations like previsit education and engagement tools and models.[90]

Build effective peer/family to peer/family support capacity.—Design and evaluate use of nontraditional "providers" like peer to peer and family to family supports as well as community health workers and others trained to promote healthy parenting, stress management, trauma healing, and building resilience.

Empower community-based services and resource brokers (eg, early childhood programs like Head Start, Help Me Grow, Healthy Start, Healthy Steps, school health, youth, and after school programs).—Create and evaluate the effects of "through any door" models for educating and engaging parents, youth, and families, and leveraging existing and emergent community-based services and resources related to trauma, healing, and resilience. Innovate around effective methods to educate and engage families as partners.

Leverage existing commitments and focus areas in child and family health.—Integrate trauma- and resilience-informed knowledge, policies, and practices into existing initiatives and movements, including preventing repeat hospitalizations, complex chronic condition care, early childhood systems, childhood obesity, school health, and social and emotional learning in schools. Focus on the spread of evidence-based and promising parenting- and trauma-informed education, coaching, and trauma-healing and resilience-building interventions into existing child and family focused community-based self-help programs, such as those addressing substance abuse, mental health, parenting education, weight management, physical fitness, chronic disease management, and related self-care programs.

Leverage Existing Research and Data Platforms, Resources, and Opportunities

Optimize existing federal surveys and data.—Coordinate and optimize design and national, state and local research, policy, and practice innovation efforts using relevant data from the federal surveys (eg, NSCH, National Health Interview Survey, Medical Expenditures Panel Survey) that can inform, monitor, and build knowledge on ACEs prevention and positive health development. Establish targeted follow-back and "follow-forward" panel studies anchored to these surveys to understand variations and effects of health care and related policies. Include/maintain inclusion of ACEs, resilience, and protective factors in the NSCH and into the National Health Interview Survey and Medical Expenditures Panel Survey to promote effects of medical

expenditures studies. Conduct a robust follow-back study on the basis of the NSCH to examine positive deviance and variations in outcomes across similar levels of ACEs risk, and advance knowledge on opportunities to promote well-being despite ACEs, and preventing ACEs.

*Optimize state surveys.—*Facilitate efforts to enhance availability and access to ACEs, resilience, protective factors, and positive health-related data on children, youth, and families in state-led surveys like the Behavioral Risk Factor Surveillance Survey, the Youth Risk Behavior Surveillance Survey, and the Pregnancy Risk Assessment Monitoring System.

*Liberate available data.—*Expedite and expand the use of existing ACEs, resilience, and related data for research, policy, and practice to remove barriers to using available data and facilitate easy and "lay-person" access to data findings to support national, state, and local efforts in a real-time context. Ensure technical assistance, training, and education is provided to ensure valid use of data and curate "data in action" efforts to engender action.

*Build crowdsourcing, citizen science, and N of 1 methods.—*Take advantage of newer National Institutes of Health policies to allow data collected through crowdsourcing and citizen-science methods that engage individuals and communities in self-led learning and healing around ACEs, resilience, and flourishing.[91,92] Advance community-based, citizen science, and N of 1 research platforms that fast-track learning about "what works for whom" and enable rapid discovery and spread of knowledge. Explore launching direct-to-public e-summits to fast-track public education and engagement about ACEs and testing of self-care practices to document feasibility, effectiveness, and success factors. Focus on the spread of evidence-based and promising parenting and trauma informed education, coaching, and trauma-healing and resilience-building interventions appropriate for interactive, self-guided learning platforms and integration into existing community-based self-help programs, as noted above.

*Integrate common-elements research modules for longitudinal studies.—*Construct common elements research and common metrics evaluation modules for ready use in existing or emerging longitudinal studies related to enable a focus on prevention and mitigation of effects of ACEs and promotion of SSNRs, positive health, and well-being. Formulate research questions and measurement and analytic methods to append to/integrate into existing longitudinal and birth cohort studies to address key questions about prevention, risk, and mitigation of effects associated with ACEs as well as to test alternative measurement, prevention, and healing methods. Embed common methods and metrics, and coordinate analysis across deployments of research modules to facilitate learning and build knowledge.

*Link to collaborative learning and research networks.—*Advance ACEs, resilience, and positive health-related research aims and methods into existing and emerging learning and research networks sponsored by public and private sector agencies, such as the numerous Collaborative Innovation and Improvement Networks[93] and the child health-focused National Improvement Partnership Network.[94]

LIMITATIONS

Because of the broad reach of implications of ACEs across disciplines and sectors, our project sought to balance the real tension presented by the multifactorial, multisector nature of forces resulting in and preventing ACEs, while narrowing the aperture of the project's lens enough to focus sharply on the importance of the current opportunity afforded by the transforming roles of pediatric and children's health providers and health systems to identify, prevent, and ameliorate the effects of ACEs and promote child and family well-being in their communities.

This article provides only a high-level summary of agenda priorities and recommendations. It should be noted that saturation regarding the identification of new ideas and priorities occurred during initial rounds of synthesis of input, suggesting a high degree of common views. Likewise, areas where disagreement existed also emerged early in our efforts. Although this summary captures the range of priorities set forth, space limitations prevent important in-depth descriptions, delineation of priorities, or careful discussion regarding issues around which considerable debate or lack of clarity exist. Commissioned articles, reports, and data resources developed through this effort and the Supplementary Appendix further elaborate on our findings.

DISCUSSION

Findings from this field-building and agenda-setting process support the growing focus on ACEs and healthy child and youth development now present across many sectors. Findings emphasize the central role of positive family relationships, the possibilities for promoting resilience and protective factors and establishing community partnerships focused on addressing ACEs as a distinct social determinant of health. The 4 overarching priorities, 4 priority research areas, and 16 short-term opportunities and actions that emerged are meant to contribute to what are now increasingly common efforts in children's health to translate the sciences related to ACEs and thriving into research, policy, and practice. Overall, the perspectives and priorities emerging from this field-building and agenda-setting process were consistently shared across individuals and groups participating in the process. However, 3 areas reflected in the summary of findings previously mentioned were a subject of substantial debate and require further discussion: 1) assessment, measurement, and use of language; 2) the appropriate role for providers and health systems; and 3) the importance of self-care among providers as it relates to ACEs and resilience. Highlights of these issues are summarized in the following sections.

ASSESSMENT, MEASUREMENT, AND LANGUAGE

Early on in our efforts the topic of clear definitions, terminology, language, measurement, and whether and how to assess and address ACEs in practice stood out as chief

concerns. For example, although most understood that ACEs assessments[71] are conducted to measure risk for chronic stress and developmental trauma, there was concern that ACEs assessment will be mistaken as a stand-alone measure of current or accumulated chronic stress or trauma. There was also confusion about how ACEs measurement differs from other social determinants of health (eg, poverty) and how best to integrate assessment methods for ACEs, other social determinants, as well as resilience and protective factors (nurturance, self-care habits) in practice.[95] Further questions emerged regarding whether ACEs assessment is meant as a proxy to document whether certain events occurred in childhood or are currently taking place for a child (which is not the goal of ACEs assessment, per se) and whether to focus assessment on parents/adults or children, or both. Substantial debate also related to use of cumulative ACEs scores versus individual ACEs topics. Some of these issues are addressed in the article by Bethell et al[71] and other articles included in this special issue of *Academic Pediatrics*.

There was interest for the design of a short consequences-based method to assess the presence of developmental trauma symptoms (or consequences) associated with a wide range of ACEs in primary care and other clinical settings. However, how this would be different from a measure of current post-traumatic or chronic stress (active ACEs vs past experiences), biologic indicators of current and accumulated stress, and mental and behavioral diagnostic instruments requires analysis. Over time, it will be essential to compare methods and assess the value of different measures and measurement methods and proper use of existing ACEs assessment tools. Clarifying the goal, value, and possible risks of ACEs assessment in practice is urgent at this juncture and requires special attention as this agenda is implemented.[96]

Also important were concerns regarding communication and language about ACEs.[97] Use of language to ensure discussions about ACEs are relationship-centered,[75] family-centered, and health-promoting was a primary issue of concern. Despite the common understanding that discussions about ACEs are specifically intended to empower individuals, foster self-compassion, and reduce any sense of shame or blame about having ACEs,[18] the lack of research documenting negative effects of ACEs assessment is not sufficient. Proactive research to confirm lack of harm and value is needed. Specific scripts and methods for discussing these topics with parents about their children are still not well studied. Because of worries about unintended iatrogenic effects of discussing ACEs with families,[96] some argued against routine ACEs assessment in pediatric practices. Finally, including measures and methods to assess positive health, resilience, and well-being along with ACEs assessment was a high priority and was framed as critical to guide positive action in primary care and triage efficient use of therapeutic resources.[49,50]

Finally, although common language about the "science of ACEs and thriving" is helpful to enable dialogue and collaboration, it is also critical to not allow natural variations in conceptualization and communication to slow or prevent action. Of note was support for such variation and encouraging open discussion and debate, which is itself a critical component to learning and fostering shared vision, collaboration, and trust in partnerships to address ACEs and promote well-being. As noted by one participant "It is more important that we feel safe to disagree about language than to get hung up on agreeing completely."

The Role of Health Care Providers and Systems

Although support to integrate ACEs knowledge and focus into pediatrics was ubiquitous, it was nonetheless common for participants to cite research noting that health care only contributes a small amount to the health and well-being of people, despite the widespread understanding about the role of ACEs-related stress on child development and health.[12,97] Overall, the appropriate role of pediatricians and children's health services providers and systems was continuously called into question. Over time it became clear that the notion that health care does not contribute a lot to well-being is largely due to viewing health care through a disease-focused lens, rather than recognizing the longstanding role of pediatrics to provide well-child care and promote healthy development. This includes current efforts to restructure primary, chronic, and hospital health care to promote population health, address health behaviors, and address social determinants of health, like ACEs. Debate about the effectiveness of well-child care and systems reforms to address social determinants of health persisted as a key theme through the project. At a minimum, studies have documented that ACEs result in higher prevalence of diseases and health problems and use of health services. As such, health care providers are essential partners in identifying and addressing ACEs and need to take childhood and family ACEs into account in well-child visits as well as in acute and chronic illness diagnosis and treatment. Overall, the appropriate role for children's health care providers requires clarification before widespread action to match interest is likely to unfold. To the extent that parenting interventions continue to prove effective[5] and pediatric providers can promote the many integrative practices relevant to preventing and addressing ACEs,[7,98] it is clear that pediatric providers will be essential partners in identifying, referring, and engendering the understanding and motivation among families to participate in these programs.

Importance of Personal Engagement and Healing Among Providers

Although largely favored, some disagreed that health care providers or system leaders should address their own ACEs and trauma and/or have direct experience with trauma-healing and positive health development interventions to play an effective role in assessing and addressing ACEs and promoting resilience and well-being in practice. For many, this was viewed as a preliminary step for effective action, because building a caring capacity, trusting

relationships, and healing conversations were viewed as essential requirements to address ACEs. For others, this was either viewed as not important or as intrusive to health care providers and professionals. Related to this theme were questions about whether or not initiating conversations about ACEs with families should take place even if providers are not familiar with or have specific resources to refer families and/or children on the basis of what is discovered during conversations about ACEs. Some emphasized that dialogue about ACEs is an intervention in itself and discovering resources in partnership with families is sufficient to recommend assessment. Others recommend avoiding any discussions about ACEs without a more specific roadmap for referral and intervention on the basis of what arises during these discussions. Finally, the high level of burnout and secondary trauma of health care professionals was a strong and recurring theme pointing to a concerted effort to advance self-care and trauma-healing among pediatric providers regardless of their own ACEs history.[72]

CONCLUSION

Research now inescapably confirms a high prevalence of ACEs in the child population in the United States, the negative influence on healthy development and well-being, and their propensity to perpetuate across generations in families. This calls for approaches in children's health services to proactively seek to prevent, recognize, and heal the trauma and toxic or chronic stress that can result from ACEs; and that doing so at a population-wide level is an imperative to prevent ACEs over time. It is widely understood that doing so requires strategies that focus on the cross-cutting structures and social and cultural factors affecting the promotion of nurturing qualities in family relationships and environments essential to promote positive health. Widespread agreement is also emerging that individual and family skills to regulate stress and emotions are now a matter of clinical care quality, health care cost reduction, population well-being, and public policy.

Success in adopting and implementing the priorities and actions set forth in this agenda are anticipated to lead to: 1) a strengthened commitment to child, youth, and family health, leading to widespread understanding about the cross-cutting relevance of healthy child development and family health to population health,[99,100] reductions in avoidable medical and social costs, and optimizing human potential and national well-being[48]; 2) effective and accepted strategies to interrupt intergenerational transmission of ACEs and stress for all ages,[70] but with a deliberate focus in the preconception, perinatal, and early life time periods to advance healthy parenting and relationships in early life and interrupt intergenerational transmission of ACEs[1,5,6,54,59,66]; 3) a commitment to a public health, population-based approach that integrates clinical strategies with cross-cutting public health efforts to address the cumulative burden of ACEs in society at large[35,55,56,67]; and 4) priority on promoting positive relationships, engagement, and self-care that put relationships at the center of healthy development and well-being across life.[6,19,68,72,73,75,101]

Although the implications for children's health services policy and practice might require seemingly daunting shifts in structures, financing, training, measurement, and an array of clinical, public health, and other practices, they are equally energizing and well under way. Since beginning the work summarized in this article, we have seen an emergence of efforts to advance whole-population and whole-person health and address social and emotional determinants of health. Rather than requiring a separate set of efforts, the agenda to address ACEs set forth in this article fits well within these endeavors and the collective attention to this issue now provides a strong foundation from which to advance effective approaches in pediatrics and children's health services.

Continued pressures on the health care system to address cost increases are creating new opportunities to rethink approaches, catalyze innovation, and spread effective methods to promote child well-being by addressing ACEs and doing so in collaboration with a broad set of diverse community partners. Overall, our findings call children's health and related services to continue to directly and earnestly recognize social and emotional determinants of health, healthy parenting, and the contexts within which children live—their families and communities. To date, our health system has rarely, if ever, adequately addressed the confluence of these factors, their effects on child and family health, and their lifelong implications for adult health and community well-being. We set forth this field-building agenda in hopes of contributing to the work at hand.

Studies estimate an average of 17 years go by before research is translated into practice.[102] In keeping with this time frame, the national child health services research and policy agenda and field-building project summarized here began 17 years after initial findings emerged from the landmark CDC and Kaiser ACEs study launched in 1996 and led by Robert Anda and Vincent Felitti.[18] It has also now been 17 years since the National Academy of Sciences released the groundbreaking *Neurons to Neighborhoods: The Science of Early Childhood Development*,[103] initiating the current focus on early life stress and environments we now see in child health. With epidemiologic evidence now documenting the high prevalence of ACEs-related stress and trauma, a focus in this area is a critical concern for any effort seeking to promote positive health and well-being of children, families, and communities. The input processes and forums conducted reveal that the accumulated research and action to date have cultivated a palpable hope for prevention, mitigation, and healing of individual, intergenerational, and community trauma associated with ACEs exposure. A link in the chain of a long line of historic and evolving work to leverage possibilities for well-being, the work summarized in this article rests on and is dedicated to this hope.

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SUPPLEMENTARY DATA

Supplementary data related to this article can be found online at http://www.cahmi.org/wp-content/uploads/2015/01/ACEs-Supplement_National-Agenda-Technical-Appendix_04-04-17.pdf.

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