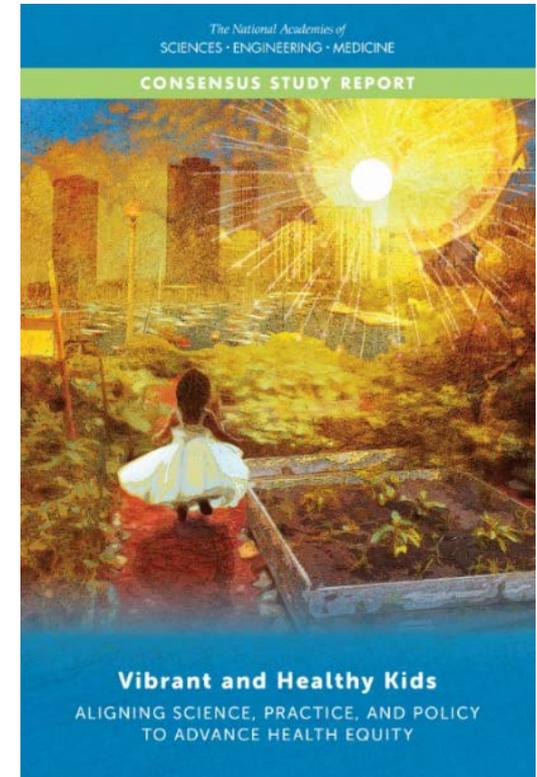


Vibrant and Healthy Kids: Aligning Science, Practice, and Policy

Report Release
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**Denotes members in attendance*

Statement of Task

1. Provide a brief overview of early life stressors that affect prenatal through early childhood development and health;
2. Identify promising models and opportunities for translation of the science to action;
3. Identify outcome measures needed to enable analyses based on the biological dynamics of the social determinants of health;
4. Develop a roadmap to apply the science to tailored interventions (i.e., policies, programs, or system changes) based on biological, social, environmental, economic, and cultural needs; and
5. Provide recommendations in these areas, including how systems can better align to advance health equity.

Magnitude of the Problem

Early life experiences have a profound impact on health outcomes in childhood, adulthood, and across generations.

- *Almost 50 percent* of children and adolescents (age 0-17) have experienced at least one category of ACEs, and Black, Hispanic, and lower income children are exposed to more ACEs relative to white or wealthier children.
- In 2016, *13 million* (one in six) children were food insecure.
- Estimates show that *10-20 percent* of mothers have lifetime prevalence of depression and the rates are much higher for mothers in low-income households.
- Families with children are estimated to make up *one-third* of homeless populations.
- Young children are the most vulnerable to child maltreatment, and *more than one fourth (28.5 percent)* of child maltreatment victims are younger than 3 years.

Committee Process



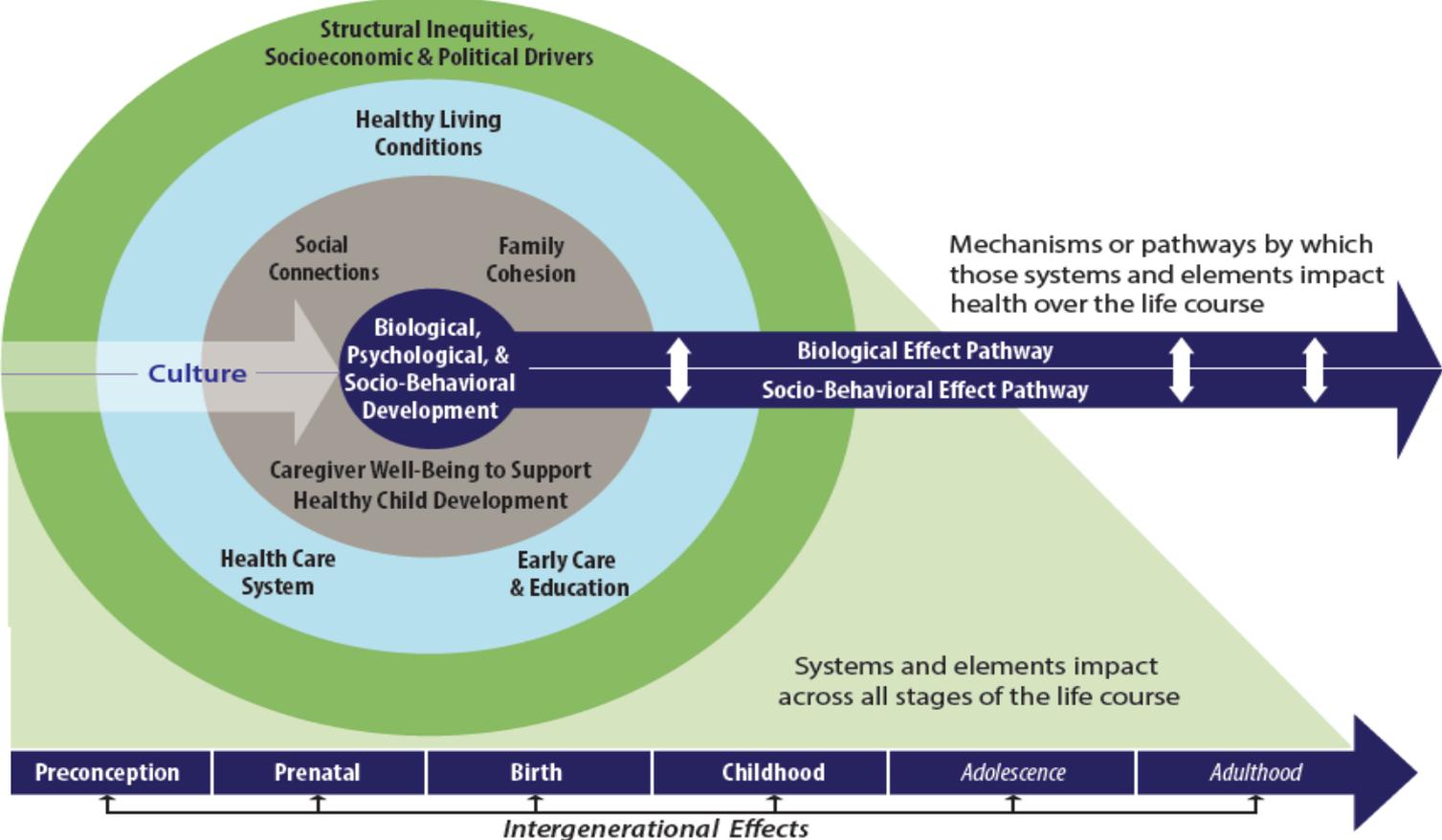
- Held 5 meetings
 - 3 information-gathering meetings
 - Received input from a broad range of invited experts
 - Open to the public
 - 5 deliberative committee meetings
- Prepared 9-chapter report
 - Underwent external peer review by 12 expert reviewers, mirroring the committee's own expertise (e.g., developmental psychology, neurobiology, epidemiology, pediatrics, obstetrics, public health, health policy, etc.)

Committee Approach

- Public/population health approach
- Health equity lens
- Methodology
 - Comprehensive literature review
 - Drew evidence from high-quality systematic evaluation of science
 - Uses as a foundation the science base described in the 2000 NRC & IOM report, *From Neurons to Neighborhoods* and Concepts from the 2017 NASEM report, *Communities in Action: Pathways to Health Equity*
- Embraced a life course approach
- Focused on preconception through early childhood
- Provide recommendations for practice, policy, and systems change
 - near and long-term

Conceptual Framework

SYSTEMS AND ELEMENTS THAT HELP "SET THE ODDS"



Poverty Affects Early Development

- Poverty affects the developing brain and cognitive outcomes.
 - This includes the structure and function of areas that regulate memory, emotion, cognitive functioning, and language and literacy.
- There is a robust literature base that ties income and wealth to life expectancy, risk of chronic disease, and health-promoting behaviors.
- While children under the age of 18 represent *23 percent* of the nation's population, they make up *32 percent* of people living in poverty.
- Black, American Indian/Alaska Native, and Hispanic children disproportionately live in low-income and poor households; they are also most likely to live in deep poverty.

The Report in Brief: 9 chapters, 30 recommendations

- Lessons from the science of early development are clear and actionable. *Chapters 1 & 2*
- Over time, biological psychological and socio-behavioral development interact to shape the way health develops over the life course. *Chapter 2*
- Biology and environment work together to affect children's growth and development. *Chapters 2 & 3*
- Ensuring the well-being of caregivers by supporting and caring for them is critical for healthy child development. *Chapter 4*
- Preconception, prenatal, postpartum, and pediatric care needs to be reconceptualized to address the root causes of health inequities and meet the developing needs of children & families. *Chapter 5*
- Families need adequate resources available for meeting basic needs, especially when children are young. *Chapter 6*
- Early care and education can be a platform for delivery or supporting services and interventions to advance health equity. *Chapter 7*
- To advance health equity and meet the developmental needs of children, a systems approach, including collaboration and alignment across sectors, is needed. *Chapter 8*

Science of Early Development

- Early experiences are essential for building brain connections that underlie biobehavioral health, and current understanding of whole-child development relies on an interplay of organ systems with each other and the environment.
- Early adversity can change the timing of critical periods of brain development, impacting the “plasticity” of developmental processes that are driven by experiences in the life of the young child and the family.
- Both institutional racism and interpersonal experiences of discrimination can influence the health and well-being of both children and adults in multiple ways, including reducing access to material resources and services that promote long-term health and development and acting as a psychosocial stressor that can lead to worse outcomes over time.

Lessons from the Science of Early Development

- Healthy development of the child begins in the preconception period and is dependent upon a strong foundation built prenatally.
- Among all the factors that may serve to buffer negative outcomes produced by toxic stress, supportive relationships between the child and the adults in life are essential.
- Based on the abundant science, the influence of access to basic resources prenatally, particularly nutritional, psychosocial, and health care components, is powerful. Resources to help families to limit chronic stress may reduce risk for disrupted fetal development and help close disparities based on race, ethnicity, and socioeconomic status (SES).

Committee Recommendations



Caregiver Well-Being to Support Healthy Child Development

Recommendation 4-4: Policy makers at the federal, state, local, territorial, and tribal levels and philanthropic organizations should support the creation and implementation of programs that ensure families have access to high-quality, cost-effective, local community-based programs that support the psychosocial well-being of the primary adult caregivers and contribute to building resilience and reducing family stress.

Caregiver Well-Being to Support Healthy Child Development

Fathers

Recommendation 4-1: Federal, state, and local agencies, along with private foundations and philanthropies that invest in research, should include in their portfolios research on the development of preventive interventions that target fathers and other male caregivers. Special attention should be given to the recruitment, retention, and support of men and fathers parenting young children from underserved populations.

Caregiver Well-Being to Support Healthy Child Development

Tailored Interventions

Recommendation 4-2: Federal, state, local, tribal, and territorial agencies, along with private foundations and philanthropies that invest in research, should include in their portfolios research on the development of interventions that are culturally sensitive and tailored to meet the needs of subgroups of children known to be vulnerable, such as those living in chronic poverty, children from immigrant backgrounds, children in foster care, and children with incarcerated parents.

Caregiver Well-Being to Support Healthy Child Development

Home Visiting

- Evidence suggests that home visiting promotes:
 - maternal and child health,
 - positive parenting,
 - child development,
 - school readiness, and
 - prevention of child abuse and neglect
- These positive effects continue well into adolescence and early adulthood.
- In 2017, *300,000* families received home visiting services, while about *18 million* additional families could benefit but were not being reached.

Caregiver Well-Being to Support Healthy Child Development

Home Visiting

Recommendation 4-3: To strengthen and expand the impact of evidence-based home visiting programs:

- Federal policy makers should expand the Maternal, Infant, and Early Childhood Home Visiting Program.
- The Health Resources and Services Administration and the Administration for Children and Families should work with program developers to increase flexibility for states and communities, to tailor the program to the needs and/or assets of the community or population being served.
- Federal, state, local, tribal, and territorial agencies overseeing program implementation should continue to strengthen programmatic coordination and policy alignment between home visiting, other early care and education programs, and medical home.

Healthy Living Conditions: Economic Stability and Security

Reducing childhood poverty is a critically important, foundational strategy for improving child health outcomes and reducing health inequity.

Recommendation 6-6: Federal, state, tribal, and territorial policy makers should address the critical gaps between family resources and family needs through a combination of benefits that have the best evidence of advancing health equity, such as increased Supplemental Nutrition Assistance Program benefits, increased housing assistance, and a basic income allowance for families with young children.

Healthy Living Conditions: Food Security

Recommendation 6-2: Federal, state, local, territorial, and tribal agencies should reduce barriers to participation to the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) program and Supplemental Nutrition Assistance Program (SNAP) benefits. Receipt of WIC and SNAP benefits should not be tied to parent employment for families with young children or for pregnant women, as work requirements are likely to reduce participation rates.



Healthy Living Conditions: Safe & Stable Housing

Recommendation 6-3: The U.S. Department of Housing and Urban Development, states, and local, territorial, and tribal public housing authorities should increase the supply of high-quality affordable housing that is available to families, especially those with young children.

Recommendation 6-4: The Secretary of the U.S. Department of Health and Human Services, in collaboration with the U.S. Department of Housing and Urban Development and other relevant agencies, should lead the development of a comprehensive plan to ensure access to stable, affordable, and safe housing in the prenatal through early childhood period. This strategy should particularly focus on priority populations who are disproportionately impacted by housing challenges and experience poor health outcomes.

Healthy Living Conditions: Economic Stability and Security

Paid Parental Leave

- Although the United States is the only OECD country without a national-level policy of paid leave, CA, NJ, NY, RI, WA, Washington, D.C., and MA have passed legislation to implement paid leave.
 - Unpaid parental leave through the Family and Medical Leave Act does not cover all employees, and most families with low incomes cannot afford to take an unpaid leave.
- A number of studies of paid maternity leave have found positive health effects, particularly lower infant and child mortality.
- Maternity leave policies have also been associated with higher rates of breastfeeding

Healthy Living Conditions: Economic Stability and Security

Paid Parental Leave

Recommendation 6-1: Federal, state, local, tribal, and territorial policy makers should implement paid parental leave. In partnership with researchers, policy makers should model variations in the level of benefits, length of leave, and funding mechanisms to determine alternatives that will have the largest impacts on improving child health outcomes and reducing health disparities.

Leveraging the Health Care System

Vision

To advance health equity, reduce health disparities, and improve birth and child health outcomes, the committee calls for a health care system that assures access for all to high-quality health care *across the life course*.

Transformation of preconception, prenatal, postpartum, and pediatric care will address early childhood sensitive and key life periods by including *attention to the root causes of poor health* (for example, access to safe housing, high-quality education, food security, early adversity), and equity.

The system will respond to the needs of *children and their families* holistically and through team-based care and by connecting them with community resources and integrating services across the life course.

Leveraging the Health Care System

Improving Access to Health Care

Recommendation 5-1: The U. S. Department of Health and Human Services, state, tribal, and territorial Medicaid agencies, public and private payers, and state and federal policy makers should adopt policies and practices that ensure universal access to high-quality health care across the life course.

This includes:

- Increasing access to patient- and family-centered care,
- Ensuring access to preventive services and essential health benefits, and
- Increasing culturally and linguistically appropriate outreach and services.

Leveraging the Health Care System

Improving Quality of Care

Recommendation 5-2: To expand accountability and improve the quality of preconception, prenatal, postpartum, and pediatric care:

- Public and private payers should include new metrics of child and family health and well-being that assess quality using a holistic view of health and health equity. Federal, state, and other agencies, along with private foundations and philanthropies that invest in research, should support the development and implementation of new measures of accountability, including key drivers of health, such as social determinants, along with measuring variations by key subgroups to determine disparities;

Leveraging the Health Care System

Improving Quality of Care

- Public and private payers, including the Health Resources and Services Administration's (HRSA's) Bureau of Primary Care and Maternal and Child Health Bureau, Centers for Disease Control and Prevention, Centers for Medicare & Medicaid Services (CMS), and perinatal and pediatric quality collaboratives, should expand the use of continuous quality improvement, learning communities, payment for performance, and other strategies to enhance accountability; and
- Health care-related workforce development entities should expand efforts to increase diversity, inclusion, and equity in the health care workforce, including diversity-intensive outreach, mentoring, networking, and leadership development for underrepresented faculty and trainees.

Leveraging the Health Care System

Organization and Integration of Health Care Services

Recommendation 5-3: The U.S. Department of Health and Human Services, state, tribal, and territorial government Medicaid agencies, health systems leaders, and state and federal policy makers should adopt policies and practices that improve the organization and integration of care systems, including promoting multidisciplinary team-based care models that focus on integrating preconception, prenatal, and postpartum care with a whole-family focus, development of new practice and payment models that incentivize health creation and improve service delivery, and structures that more tangibly connect health care delivery systems to other partners outside of the health care sector.

Leveraging the Health Care System

Transforming the Content of Care

Recommendation 5-4: Transform preconception, prenatal, postpartum, and pediatric care to address the root causes of poor health and well-being—the social, economic, environmental, and cultural determinants of health and early adversity—and to align with the work of other sectors addressing health equity.

The U.S. Department of Health and Human Services should convene an expert panel to reconceptualize the content and delivery of care, identify the specific changes needed, develop a blueprint for this transformation, and implement a plan to monitor and revise the blueprint over time.

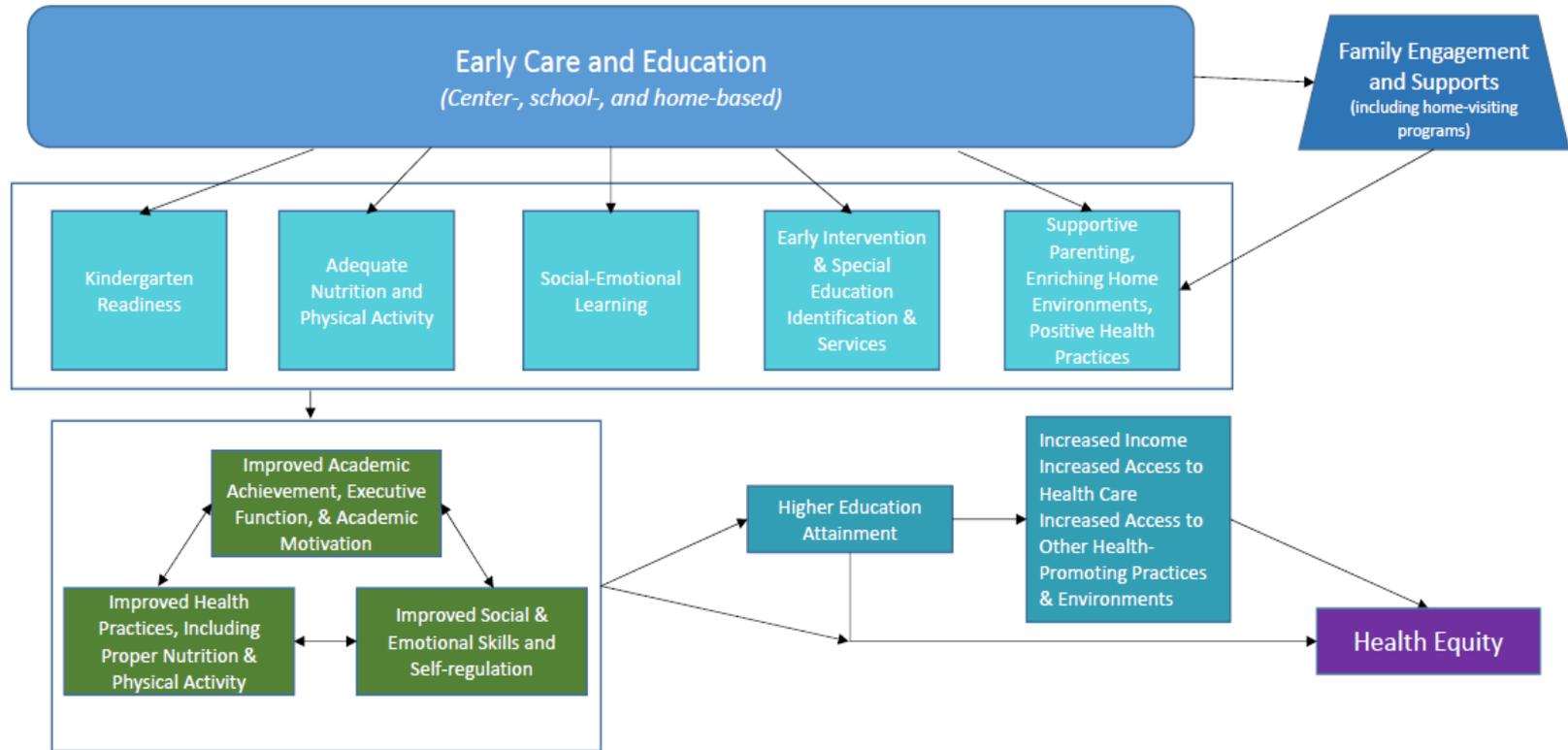
Leveraging the Health Care System

Transforming the Content of Care

Implementation of this recommendation will require:

- An update of clinical care guidelines and standards by the Women's Preventive Services Initiative, Bright Futures, American College of Obstetricians and Gynecologists, American Academy of Pediatrics, American Academy of Family Physicians, and others actively developing clinical care guidelines and standards to include this new content of care;
- Medical accreditation bodies, relevant programs, and agencies to develop performance monitoring and quality improvement based on this new content of care;
- Clinical care educational authorities, such as the Accreditation Council for Graduate Medical Education, to develop curricula, training, experiences, and competencies based on the updated guidelines; and
- Public and private payers to cover services reflecting this new content of care.

Early Care and Education (ECE)



Early Care and Education (ECE)

Allocation of Adequate Resources to Support ECE Programs and Educators

Recommendation 7-1: The committee recommends that ECE systems and programs, including home visiting, adopt a comprehensive approach to school readiness. This approach should explicitly incorporate health promotion and health equity as core goals. Implementing this approach would require the following actions:

- Federal, state, local, tribal, and territorial governments and other public agencies (e.g., school districts, city governments, public-private partnerships) that have decision-making power over ECE programs should establish program standards and accountability systems, such as a quality rating and improvement system, linked with better school readiness and health outcomes and provide adequate funding and resources to implement and sustain these standards effectively.

Early Care and Education (ECE)

Allocation of Adequate Resources to Support ECE Programs and Educators

- The Office of Child Care and the Office of Head Start at the federal level, along with state, local, tribal, and territorial early care and other education agencies, should assess the full cost of implementing standards that promote health outcomes and equity as described above, including supporting educators' own health and well-being, and work with Congress to align funding levels of the major federal ECE programs—child care subsidy and Head Start—accordingly.
- Health and human service entities, the federal Early Learning Interagency Policy Board, state Early Childhood Advisory Councils, and federal, state, local, tribal, and territorial agencies that oversee home visiting and ECE programs should ensure greater programmatic coordination and policy alignment to ensure effective allocation of resources.

Early Care and Education (ECE)

Allocation of Adequate Resources to Support ECE Programs and Educators

- The Office of Planning & Research, and Evaluation in the Administration for Children and Families along with the U.S. Department of Education, should examine the feasibility and seek resources to conduct (a) an implementation study to examine the design and implementation of this comprehensive ECE approach that incorporates health standards and (b) an outcomes study that examines the impact on children's school readiness and achievement, and health outcomes, with particular attention to eliminating disparities and gaps prior to school entry.

Early Care and Education (ECE)

Health-Focused Competencies of the ECE Workforce

Recommendation 7-2: Building off the 2015 Institute of Medicine and National Research Council report *Transforming the Workforce for Children Birth Through Age 8*, the committee recommends that degree granting institutions, professional preparation programs, and providers of ongoing professional learning opportunities develop or strengthen coursework or practicums that focus on competencies of educators, principals, and early care and education program directors that are critical to children's health, school readiness, and life success.

Early Care and Education (ECE)

Access and Affordability to ECE Programs

Recommendation 7-3: Federal, state, local, tribal, and territorial policy makers should work with the U.S. Department of Health and Human Services (HHS), the Office of Head Start, and Office of Child Care develop and implement a plan to:

- a. improve the quality of early care and education (ECE) programs by adopting the health-promoting standards discussed in Recommendation 7-1, such as building on the performance standards of Early Head Start and Head Start, and
- b. within 10 years, expand access to such comprehensive, high-quality, and affordable ECE programs across multiple settings to all eligible children. Disproportionately underserved populations should be prioritized.

The Secretary of HHS should conduct a process evaluation to inform the expansion effort, and, once implemented, conduct rigorous and comparative outcomes studies to ensure that the expansion is having the intended impacts on children and families, with particular attention on what group(s) may be benefitting.

Systems Approach

The Committee makes several recommendations to policy makers and leaders in the health care, public health, social service, criminal justice, early care and education/education, and other sectors, including:

- Develop cross-sector initiatives that align strategies to address barriers to data sharing and integration, cross-sector financing, and other challenges to cross-sector collaboration (Recommendation 8-1)
- Enhance detection of early-life adversity and improve response systems (Recommendation 8-2)

Systems Approach

- Develop trauma-informed systems (Recommendation 8-3)
- Build a diverse, culturally informed workforce in all relevant systems (Recommendation 8-4)
- Improve access to programs and policies across systems that provide parental or caregiver supports and help build or promote family attachments and functioning. For families with intensive support needs, develop programs or initiatives designed to provide comprehensive wraparound services (Recommendation 8-5)

Systems Approach

- Integrate care and services across the health continuum, including the adoption of models that provide comprehensive support for the whole person by leveraging and connecting existing community resources (Recommendation 8-6)
- Support payment reform to allow for upstream investment (Recommendation 8-7)

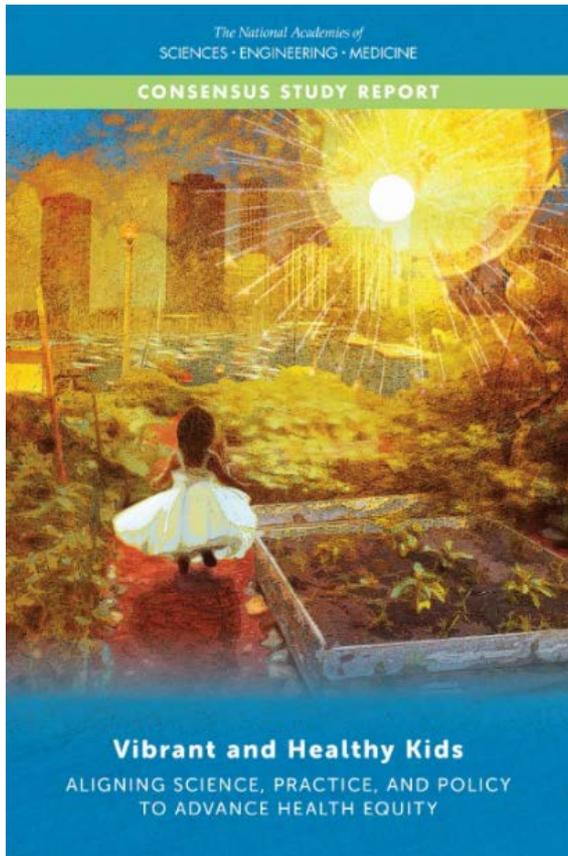


Key Concepts

1. **Intervene Early:** The preconception through early-life periods are foundational for healthy development across the life course. Biologically, a number of critical systems are developing, and humans have high plasticity during these lifestages. Social-psychological and cognitive development are also important leverage points in the early years of life.
2. **Address Systemic and Structural Factors:** Individual experiences within systems vary dramatically based on racial, cultural, or other personal characteristics. The effects of these systemic factors are by no means individually deterministic, but they do help set the odds, and when different odds play out over, they generate systematically different health outcomes. A health equity approach requires systems to change in ways that improve opportunities for good experiences and reduce the odds of adverse exposures
3. **Interconnected Nature of Health Disparities:** The systems that influence developmental and health trajectories are profoundly interconnected. The impact of any one of these systems will inevitably ripple across and shape what happens in others.

Roadmap

- Intervene early
- Support caregivers
- Reform health care system services to promote healthy development
- Create supportive and stable early living conditions:
 - Reduce child poverty and address economic and food security,
 - Provide stable and safe housing, and
 - Eliminate exposure to environmental toxicants.
- Maximize the potential of early care and education to promote health outcomes.
- Redesign the content of preconception , prenatal, postpartum, and pediatric care while assuring ongoing access, quality, and coordination.
- Implement initiatives across systems to support children, families, other caregivers, and communities.
- Integrate and coordinate resources across the education, social services, criminal justice, and health care systems, and make them available to translate science to action.



Thank you!

For the report and related resources, see:
<http://www.nationalacademies.org/VibrantHealthyKids>

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Research Needs

The committee provides recommendations to NIH, AHRQ, CDC, HRSA, CMS, DOE, philanthropies, and other funders to support research that advances the state of the science for early childhood development in several critical ways to advance health equity, including:

- Explore alternative methods to address complex causality
- Expand research into individual differences (heterogeneity) in response to adversity and treatment
- Promote scientific research that includes individuals and families from underrepresented communities

Research Needs

Promote research that explicitly seeks to understand the interconnected mechanisms of health inequities

- Support research that addresses discrimination and structural racism
- Support research for trauma-informed care and implicit bias training
- Support systematic dissemination and implementation research

Research Needs

- Build multidisciplinary teams, including but not limited to researchers in neuroscience, endocrinology, immunology, physiology, and metabolism, behavior, psychology, and primary care to identify the most relevant factors in a child's complex environment that promote resilience and promote outcomes related to physical and mental health.
- Conduct research that measures the impact of chronic stress on all relevant organ systems and determines the specific molecular and biological pathways of interaction during the pre- and postnatal periods, which are directly relevant to potential interventions to address health disparities

Healthy Living Conditions: Environmental Exposures

The embryonic, fetal, and early childhood periods represent greater risk than adulthood for adverse mental and physical health outcomes from environmental exposures due to children's smaller size, proportionally large intake of food, air, and water to body weight, and rapid developmental processes that may be influenced and disrupted by chemicals and toxicants.

The committee recommends:

- Strengthening environmental protection in early care and education settings through expanded workforce training, program monitoring, and regulations.
- Expanded or innovative models of training of prenatal and childhood health care providers on screening, counseling, and interventions to prevent or mitigate toxic environmental exposures.
- Support and enforcement efforts to prevent and mitigate the impact of environmental toxicants during the preconception through early childhood period.