

# Promoting Lifelong Health for Families and Communities

Every child deserves a bright future, growing in a nurturing family and living in a supportive community. From the moment of conception, individuals grow in physical and relational environments that evolve and influence each other over time and that shape their biological and behavioral systems for life. Dramatic advances in a wide range of biological, behavioral, and social sciences have shown that each

child's future depends on genetic predispositions (the biology) and early environmental influences (the ecology), which affect later abilities to play, learn, work, and be physically, mentally, and emotionally healthy. Box 1 provides definitions for several key terms related to the lifelong health of children, families, and communities.

## Box 1

### Definitions of Key Terms Related to Lifelong Health

**Children's health:** "The extent to which individual children or groups of children are able or enabled to (a) develop and realize their potential, (b) satisfy their needs, and (c) develop the capacities that allow them to interact successfully with their biological, physical, and social environments."<sup>1</sup>

**Social determinants of health:** "Health starts in our homes, schools, workplaces, neighborhoods, and communities. We know that taking care of ourselves by eating well and staying active, not smoking, getting the recommended immunizations and screening tests, and seeing a doctor when we are sick all influence our health. Our health is also determined in part by access to social and economic opportunities; the resources and supports available in our homes, neighborhoods, and communities; the quality of our schooling; the safety of our workplaces; the cleanliness of our water, food, and air; and the nature of our social interactions and relationships. The conditions in which we live explain in part why some Americans are healthier than others and why Americans more generally are not as healthy as they could be."<sup>2</sup>

**Health equity:** Attainment of the highest level of health for all people. Achieving health equity requires valuing everyone equally, with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and health care disparities.<sup>3</sup>

**Health disparity:** "A particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual or gender orientation; geographic location; or other characteristics historically tied to discrimination or exclusion."<sup>4</sup>



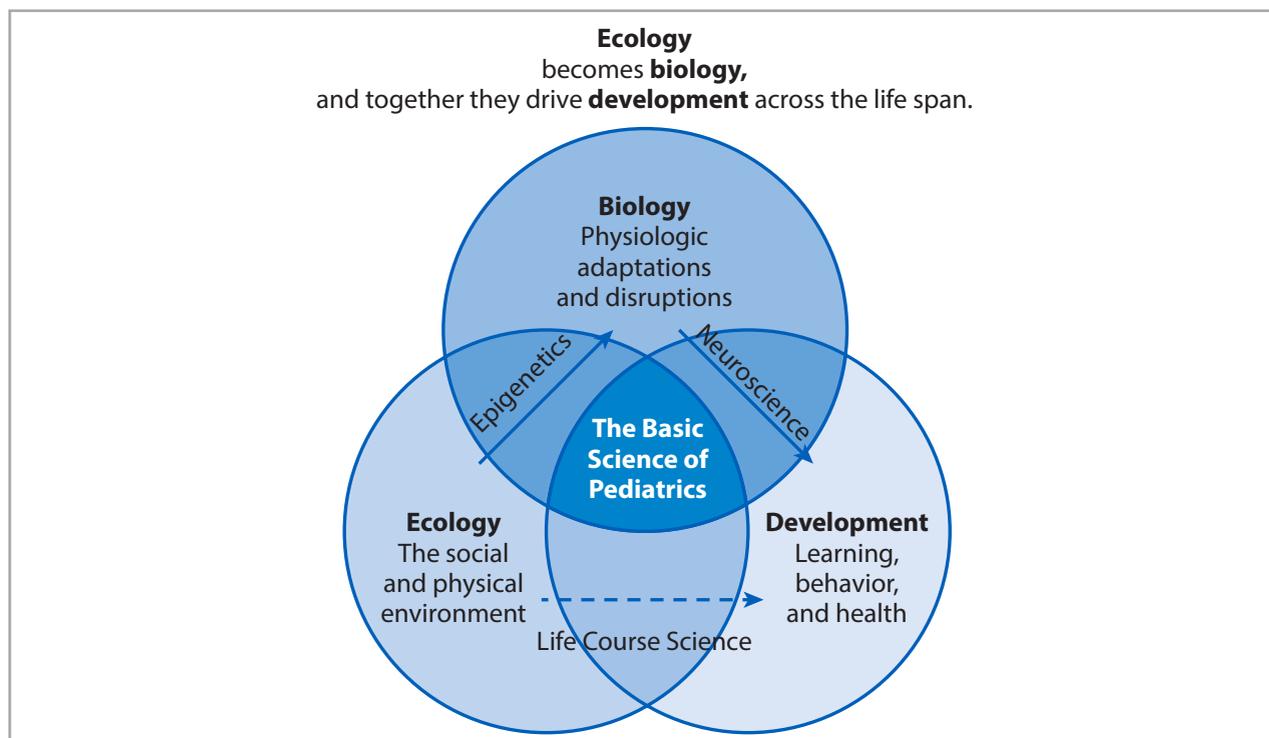


Accumulating research in behavioral neuroscience has shown that an infant's biological heritage interacts with his life experiences to affect the developing architecture of the brain and shown how the systems rewire in response to changes in the environment (plasticity). Basic neuronal pathways lay the foundation for more complex circuits, similar to how developmental skills pave the way for more sophisticated skills. Positive early experiences establish a sturdy foundation for a lifetime of learning, healthy behaviors, and wellness.<sup>5,6</sup>

Although individual health trajectories vary, population patterns can be predicted according to social, psychological, environmental, and economic exposures and experiences. For example, children and adolescents living in poverty (20% of all US children

≤17 years<sup>7</sup>) are exposed to a cluster of determinants of health that result in high rates of infant mortality, developmental delays, asthma, ear infections, obesity, and child abuse and neglect.<sup>8</sup> Research results from numerous scientific disciplines suggest that “many adult diseases should be viewed as developmental disorders that begin early in life, and that persistent health disparities associated with poverty, discrimination, or maltreatment could be reduced by alleviating toxic stress (exposure to severe and chronic adversity) in childhood.”<sup>9</sup>

Because of the powerful influence of various determinants of health early in life, the American Academy of Pediatrics (AAP) has adopted an eco-bio-developmental model of human health and disease (Figure 1).



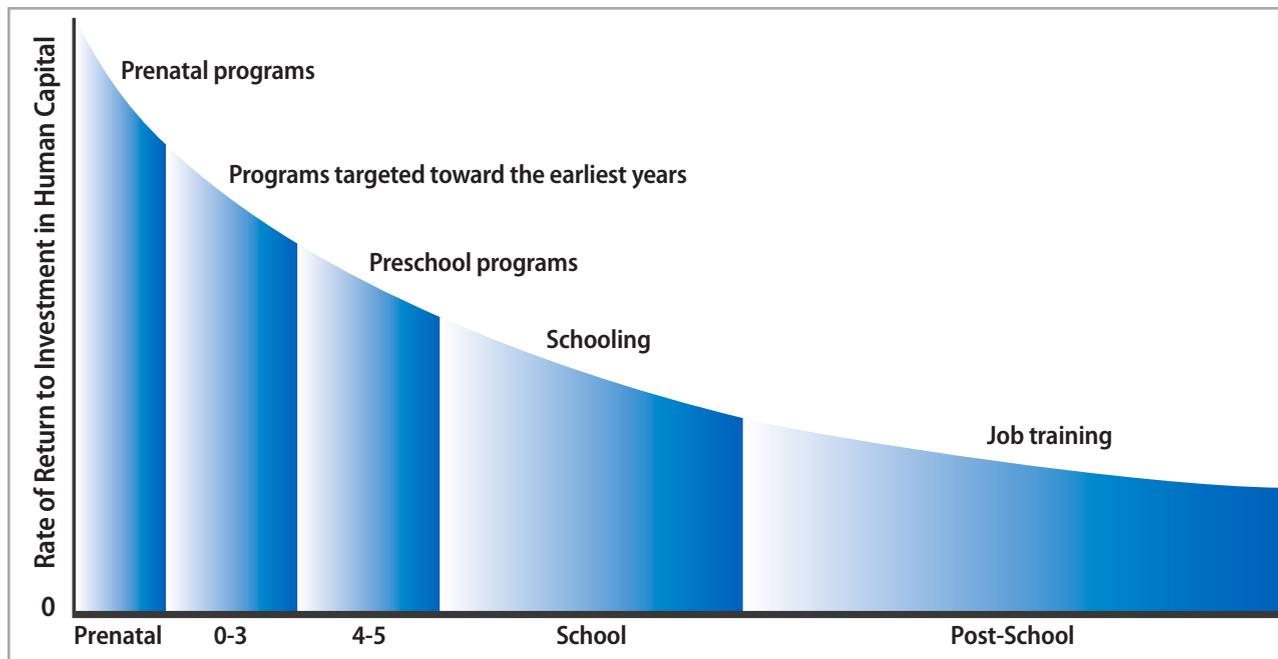
**Figure 1: Eco-Bio-Developmental Model of Human Health and Disease<sup>9</sup>**

Modified with permission from Shonkoff JP, Garner AS; American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*. 2012;129(1):e232-e246.



The model invites health care professionals to be guardians of healthy child development and to function as community leaders to help build strong foundations for positive social interactions, educational achievement, economic productivity, responsible citizenship, and lifelong health.<sup>9</sup> Partnership with families is key to reaching this goal. This combined focus of efforts will result in preventive care that is more developmentally relevant and that reflects the growing evidence that programs and interventions targeting the early years have the greatest promise and provide the highest return on investment (Figure 2). However,

health care professionals cannot be guardians of child health alone. Just as every surgery requires a team working in concert, pediatric health care professionals need a team focused on assessing children's and families' strengths and risks and intervening at various time points across the continuum of care. They also need strong links to community resources that can support the work done in the medical home. Health care professionals need skills and resources to build effective partnerships with families, and families need knowledge and support to become effective partners in achieving these goals.



**Figure 2: Rate of Return on Investments in Early Childhood Programs and Interventions<sup>10</sup>**

Reproduced with permission from Heckman JJ. Schools, skills, and synapses. *Econ Inq.* 2008;46(3):289-324. Also, see Heckman J. The Heckman Curve: Early Childhood Development Is a Smart Investment. Heckman Equation Web site. <http://heckmanequation.org>. Accessed November 14, 2016.



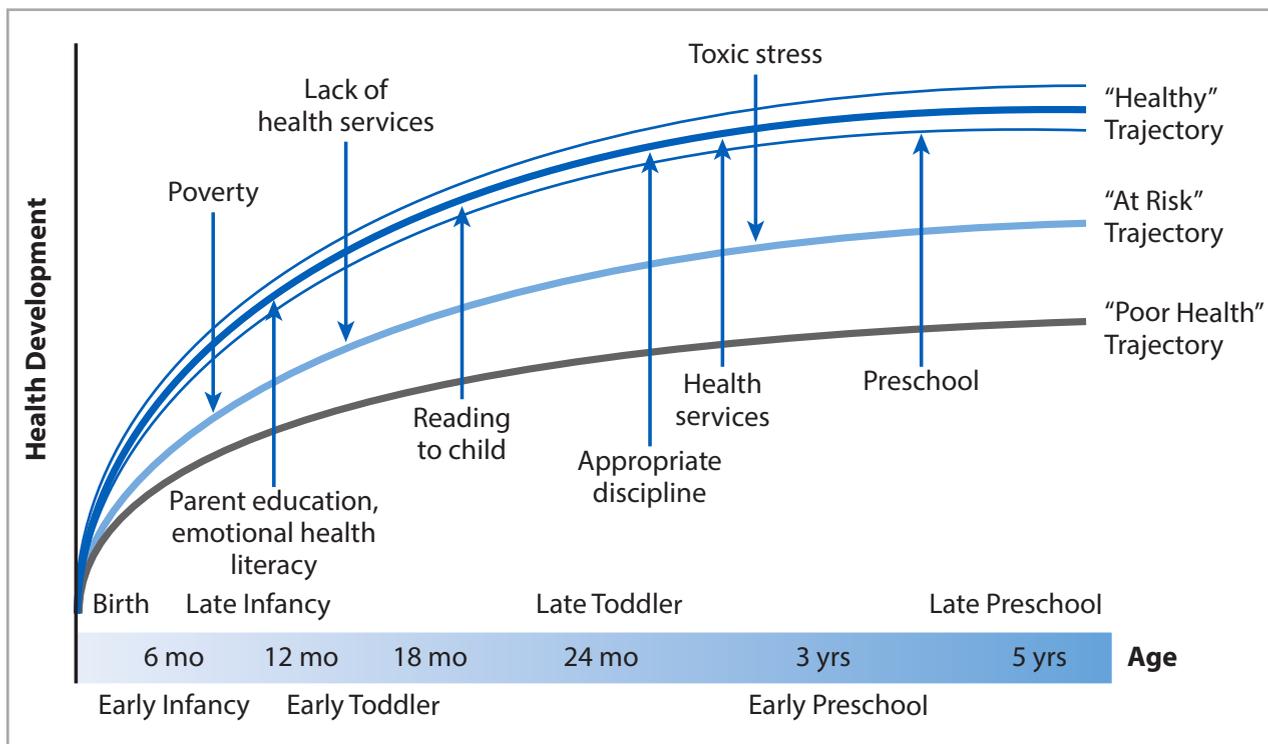
## The Life Course Framework

Life course is a conceptual framework, consistent with the eco-bio-developmental model, that identifies and explains how the complex interplay of biological, behavioral, psychological, social, and environmental factors can shape health across an entire lifetime and for future generations. Bright Futures has adopted the life course framework to help health care professionals understand how these factors influence children’s capacity to reach their full potential for health and why health disparities persist across populations. Figure 3 illustrates that higher or lower health development trajectories are influenced by the relative number and magnitude of risk and protective factors. Applying this framework in practice gives health care professionals an unprecedented opportunity to positively influence

the future health and well-being of patients and their families.

Pediatric health care professionals have historically focused on development, from birth through adolescence. The life course framework incorporates and expands on this traditional perspective. Fine and Kotelchuck have summarized key life course concepts.<sup>12</sup>

- Health trajectories are largely shaped by events during critical periods of early development.
- The cumulative effect of experiences and exposures influences adult health.
- Biological, physical, and social environments influence the capacity to be healthy by creating risk factors and strengths and protective factors for children and families.



**Figure 3: Life Course Perspective of Health Development<sup>11</sup>**

Reproduced with permission from Halfon N, Larson K, Lu M, et al. *Matern Child Health J.* 2014;18(2):344-365. doi:10.1007/s10995-013-1346-2.



## Critical Periods and Early Programming

An important component of the life course framework is recognizing the critical time periods when exposures can have protective or adverse effects on learning, behavior, and future health. Barker notes that “[c]ritical periods for systems and organs are usually brief, and many of them occur in utero.”<sup>13</sup> During these periods, certain exposures can change gene expression or activity without altering the DNA sequence. This emerging field of study, called epigenetics, has shown that events during critical periods change the process by which the physical, psychological, and social environments influence the expression of DNA. This phenomenon determines body and brain architecture and function.<sup>5,14</sup>

Beneficial in utero environments, in which fetuses are nourished, exposed to normal levels of maternal stress hormones, and protected from toxins, provide an environment in which the fetus is able to develop optimally during times when the architecture of the brain is created and full expression of genes occurs. Evidence also shows that adverse experiences before birth have similarly important

effects on development but in a negative way. These consequences include diminished physiologic responses (eg, immune system) and altered brain architecture.<sup>1,9,13-19</sup>

## Cumulative Effects

The life course literature also stresses that the effects of early experiences are cumulative, influencing health in adulthood. Ongoing adversity in childhood can increase the risk of common chronic diseases of adulthood.<sup>16,18,20</sup> Environmental risks, such as chronic exposure to lead, also can be significant. Other adult health outcomes associated with adverse events of childhood include

- Cardiovascular disease<sup>21-24</sup>
- Obesity<sup>25-28</sup>
- Type 2 diabetes<sup>29,30</sup>
- Alcohol or drug use disorder<sup>31</sup>
- Depression<sup>32</sup>

The Adverse Childhood Experiences (ACE) Study (Box 2) has identified many associations between childhood stressors and later negative health outcomes in adulthood. The ACE Study was only the

### Box 2

#### The Adverse Childhood Experiences Study<sup>33</sup>

The ACE Study was conducted at Kaiser Permanente from 1995–1997. More than 17,000 participants had a standardized examination and reported the number of adverse experiences they had during childhood, such as

- Childhood physical, emotional, or sexual abuse
- Emotional or physical neglect
- Being a witness to IPV
- Loss of birth parent by parental divorce, abandonment, or other reason
- Growing up with household substance use disorder, mental disorder, or an incarcerated household member

The total number of ACEs was used as a measure of cumulative childhood stress. The study identified many associations between traumatic and abusive events during childhood and adult health conditions, such as chronic lung disease, cancer, depression, and alcohol use disorder. Many of these effects were dose dependent; that is, negative exposures accumulated over time and increased future risks.<sup>34</sup> For example, persons who had experienced  $\geq 2$  adverse events had a 100% increased risk of developing a rheumatic disease—a result that supports mounting evidence on the effect of early life stress on adult inflammatory responses.<sup>35</sup> Chapman and colleagues<sup>32</sup> found a dose-response relationship for the probability of depressive disorders decades after the exposures. The study also found a strong relationship between the ACE score and the use of psychotropic medications, suggesting a clear association between ACEs and adult mental disorder.<sup>36</sup>



beginning of our understanding of toxic stress, and it is important that health care professionals keep a broader concept of adversity in mind when addressing and caring for children and families. Many other factors can negatively affect a child's developmental trajectory. The AAP defines these factors, or toxic stresses, as "strong, frequent, or prolonged activations of the body's stress response systems in the absence of the buffering protection of a supportive adult relationship."<sup>9</sup>

### Moderating Factors

Despite growing evidence about biological embedding and the negative effects of early adverse experiences, studies also demonstrate that caring relationships and improvements in children's environments can do much to moderate adverse effects. Because the biological systems of young children are still developing, carefully chosen positive interventions can offset negative experiences that occur during gestation or when children are very young. For example, foster children who have been hit, shaken, or threatened often do not have normal hypothalamic-pituitary-adrenal (HPA) axis activity. However, several studies have shown that the disrupted cortisol secretion caused by adversity early in life can be reversed by interventions that improve caregiving.<sup>37-39</sup> For example, early child maltreatment can cause dysregulation of the HPA axis, which can lead to emotional, behavioral, and physical problems. But placing children with foster parents who are taught behavioral parent training techniques can reverse this dysregulation,<sup>40</sup> and children who report strong social supports are less likely to experience the consequent problems of HPA dysregulation.<sup>37-39,41</sup>

In another example, every stage of life is affected by nutrition, including the mother's nutrition before and during pregnancy. Efforts to improve

maternal nutrition and increase the availability of a variety of healthful food for children can increase the likelihood of health throughout life.<sup>42,43</sup> Other environmental factors that can be moderated include

- Exposure to chemicals in the home (eg, lead in paint or toys) and in the air (eg, tobacco smoke, industrial pollutants)
- Access to drinking water, whether from a municipal or private source, that meets all established health standards

All families go through difficult times, and factors such as strong and loving relationships, personal resiliency, and adequate support systems also can be important moderating factors to help families withstand these situations.<sup>44</sup> Two families may have similar life circumstances and incomes but may have very different outcomes after a personal tragedy or natural disaster. For example, research has shown that environmental and relational factors played major roles in accelerating or impeding recovery of children and their families affected by Hurricane Katrina. Some characteristics that positively influenced families' ability to cope were pre-disaster functioning, spirituality, social connectedness, and post-disaster consultation with a mental health professional. Factors that made recovery more difficult for children were loss of resources, school problems, and long-term family or community disruption.<sup>45-48</sup>

Efforts to decrease parental stress, improve parenting, provide safe and predictable routines, and bolster relationships with warm and responsive adults can buffer stressful events and situations and promote healthy development.



## The Life Course Framework in Bright Futures

A central concept of the life course framework is that children and families are affected by a variety of biological (ie, “nature”) and ecological (ie, “nurture”) exposures that can either promote healthy development or increase risk of impairment or disease. Viewing health care through this lens allows health care professionals to identify family, neighborhood, and community determinants that affect the lifelong health of their patients. Recognizing these influences allows health care professionals to tailor their entire scope of practice (ie, screening, care coordination, formulation of treatment plans, and health promotion) to mitigate the risks that imperil a child’s current and future health and promote the strengths and protective factors that secure a child’s current and future health. The life course framework also encourages families, in collaboration with health care professionals, to seek support from community and other resources outside the practice to create a family-centered, culturally and linguistically competent, community-oriented, team-based medical home that promotes robust health in children within the context of their families and communities.

The goal of Bright Futures is to support a life course in which the strengths and protective factors outweigh the risk factors. To support this goal, the next 2 sections provide greater detail on the biological and ecological determinants that so profoundly influence child and family health. This discussion allows health care professionals to actively promote strengths and protective factors by assessing determinants of health within the scope of their practice.

## Biological Determinants

A child’s development is initially determined by the genes inherited from both parents, the expression of which can be altered in utero. A child’s life course can be optimized even before birth by excellent nutrition from a healthy mother and a uterine environment that allows full expression of genes.

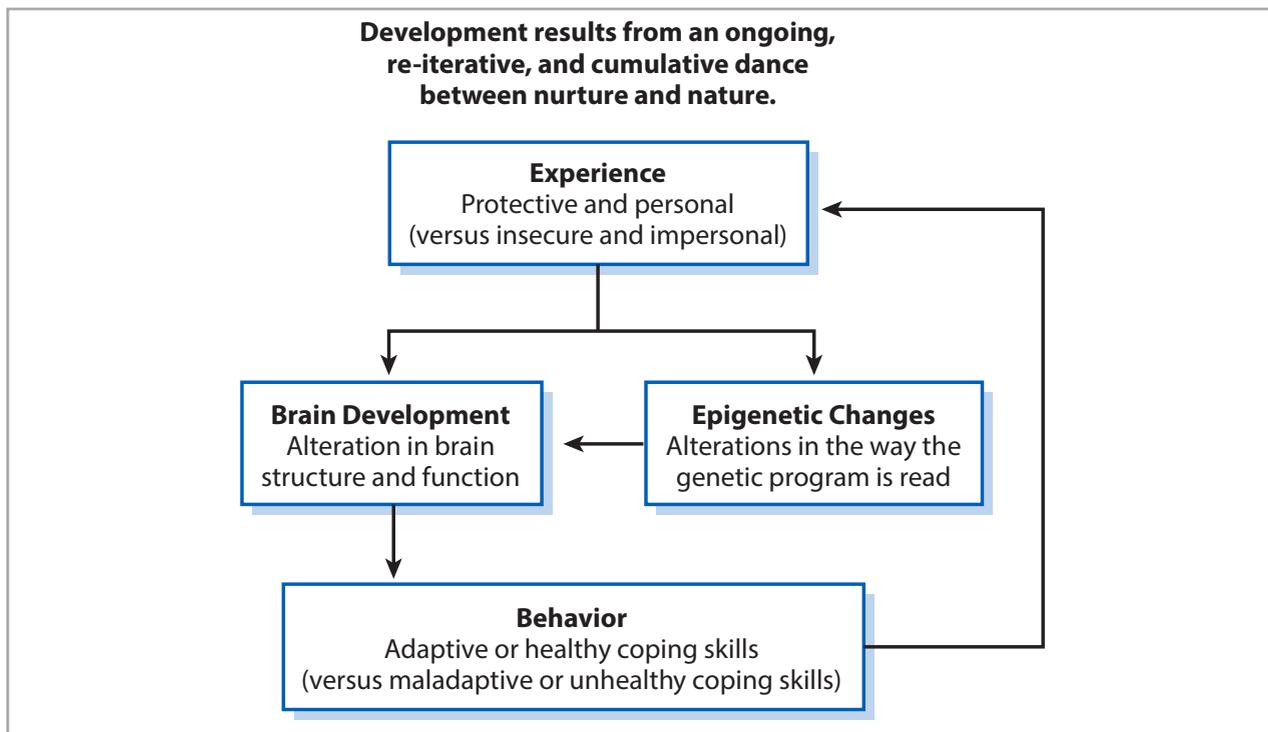
Conversely, the likelihood of optimal development is negatively affected by a stressed or depressed mother, intrauterine exposures to toxins, poor nutrition in utero, and birth trauma. Certain toxins affect fetal development. For example, exposure to lead, found in lead-based paints, soil, dust, and some toys, is a known danger to healthy cognitive development.<sup>49,50</sup> Drinking alcohol during pregnancy is one of the leading preventable causes of birth defects, intellectual disabilities, and other developmental disabilities in infants, children, and adolescents.<sup>51</sup> Babies born to mothers who smoke cigarettes are at higher risk of being born early, having a low birth weight, having an orofacial cleft of the lip or palate, or experiencing a sudden unexplained death during infancy.<sup>52</sup> Many of these determinants have been well-known for decades, and anticipatory guidance includes screening for them and counseling parents about them.

Emerging science has shown powerful and previously unknown effects of gestational influences on adult health, which go far beyond inherited genes and personal choices.<sup>12</sup> Figure 4 illustrates that if early childhood experiences are protective and personal, adaptive or healthy coping skills are more likely. If early experiences are insecure or impersonal, maladaptive or unhealthy coping skills are more likely. For example, recent research on the toxic effects of maternal stress and depression illustrate in utero biological determinants of health.



- Children exposed to normal levels of maternal stress usually develop the ability to have appropriate reactions (ie, mild and brief) to stress, especially when supported by caring and responsive adults who help them learn to cope.<sup>9</sup> However, when a fetus is exposed to high levels of maternal stress, the developing architecture of the brain is disrupted, which results in a weakened foundation for later learning, behavior, and health.<sup>53,54</sup>
- High cortisol levels in the mother during pregnancy also can disrupt development of the immune, inflammatory, and vascular pathways, setting the stage for adult diseases decades after the exposures.<sup>55</sup>
- Expectant mothers who live in stressful environments tend to have lower-birth-weight babies, putting the child at risk for numerous conditions later in life.<sup>55</sup>
- Inadequate nutrition at certain time points in pregnancy results in elevated risks for adult diseases decades after birth. Low-birth-weight babies are at risk of having obesity during childhood and for hypertension, cardiovascular disease, and stroke as adults.<sup>56</sup>
- In addition, very low-birth-weight babies are often born with insulin resistance and other metabolic changes that put them at risk for developing diabetes later in life.<sup>57</sup>
- Maternal depression during the third trimester is epigenetically associated with later increased infant stress responsiveness.<sup>58</sup>

These and other findings from developmental neuroscience suggest that emphasizing protective factors during pregnancy and infancy can alter the trajectory of health of a mother and her baby



**Figure 4: Interactions Between Experience, Epigenetics, Brain Development, and Behavior<sup>59</sup>**

Modified with permission from Garner A, Forkey H, Stirling J, Nalven L, Schilling S; American Academy of Pediatrics, Dave Thomas Foundation for Adoption. *Helping Foster and Adoptive Families Cope With Trauma*. Elk Grove Village, IL: American Academy of Pediatrics; 2015. <https://www.aap.org/traumaguide>. Accessed November 14, 2016.



toward improved health and well-being. This emphasis can take the form of

- Supporting the nutrition and health of women before and during pregnancy
- Identifying prenatal exposures to toxic substances (eg, lead, mercury, alcohol, tobacco) and working with parents to reduce or eliminate them
- Helping identify and treat depression in women early in pregnancy
- Screening pregnant women for stress and linking them to community resources for help
- Promoting proper nutrition for underweight infants that optimizes healthy growth and minimizes potential for obesity
- Encouraging and supporting a pregnant woman's decision to breastfeed her child and providing ongoing encouragement and support postpartum and throughout the breastfeeding experience

### Ecological Determinants: Social

Just as biological factors provide the foundation for a child's future health in certain key respects, social determinants—the web of interpersonal and community relationships experienced by children, parents, and families—also play a critical role. And, like biological determinants, social determinants can be characterized as strengths and protective factors or as risk factors.

### Strengths and Protective Factors in Social Determinants

Children cared for with safe, predictable routines and by nurturing and responsive adults gain protection from risks to health. Children in loving families who have strong social connectedness are better able to withstand the stressors in life and strengthen adaptability. Core family members provide reassurance and confidence (a secure base) for children, allowing them to learn to trust and successfully separate from parents.<sup>19,54,60,61</sup>

Future health also is rooted in exposure to developmentally appropriate experiences that can be provided in the home and at child care, early childhood education, and schools. For example, a policy statement from the AAP states that regularly reading with young children stimulates optimal patterns of brain development and strengthens parent-child relationships at a critical time in child development, which, in turn, builds language, literacy, and social and emotional skills that last a lifetime.<sup>62</sup> High-quality early childhood education and quality-rated preschool programs, including Early Head Start and Head Start, benefit typically developing children and children with disabilities.<sup>63</sup> An emerging literature suggests that health-promoting family routines and practices as well as the positive effects associated with music are of value.<sup>64</sup>

To be able to nurture children and provide a strong foundation for healthy development, parents and other caregivers (eg, foster parents, parenting grandparents, early care and education professionals) need basic knowledge about child development and parenting skills, including the ability to

- Respond and attend appropriately to children's needs.
- Provide stimulation.
- Notice developmental delays.
- Meet children's need for self-confidence and competence.
- Display and teach resilience in the face of adversity.
- Demonstrate effective problem-solving and independent decision-making skills.
- Promote social and emotional competence.
- Help children learn to identify and manage their emotions.



In addition to the ability to nurture children, parents who have positive social connections and concrete support in times of need are better able to prepare their children for life stressors.

““ In order to develop normally, a child requires progressively more complex joint activity with one or more adults who have an irrational emotional relationship with the child. Somebody’s got to be crazy about that kid. That’s number one. First, last, and always.””

—Urie Bronfenbrenner<sup>65</sup>

Parents are more able to create healthy norms (eg, positive family traditions, exercising as a family, always wearing seat belts) if they have these basic skills and supports.

Other adults who can support parents and provide warm, sensitive, and consistent influence on

children of all ages include members of the extended family or clan, friends, neighbors, early care and education professionals, teachers, coaches, club leaders, and mentors.<sup>66-70</sup> Cultural continuity for foster children and children who are immigrants can positively contribute to the richness of individual identity and family or cultural traditions. In many cultures, intergenerational influence can be a powerful support for children.

Common sense dictates and research demonstrates that children do best in strong and healthy families and communities because they provide a buffer against life stresses and are fundamental to healthy brain development. The elements necessary for youth to thrive include competence, confidence, connection, character, caring, compassion, and contribution.<sup>66-71</sup>

Research has identified that the more strengths or developmental assets young people have in their lives, the less likely they are to engage in health risk behaviors (Box 3).<sup>72-74</sup> Studies of children at risk (eg, children in foster care, children of

### Box 3

#### Individual Protective Factors, Strengths, and Developmental Tasks of Adolescence<sup>70</sup>

Focusing on protective factors for youth is a positive way to engage with families because it highlights their strengths. It also provides a mechanism by which children can reach their full potential and, as they grow into adolescence, engage in strength-based health protective behaviors, such as

1. Forming caring and supportive relationships with family members, other adults, and peers
2. Engaging in a positive way with the life of the community
3. Engaging in behaviors that optimize wellness and contribute to a healthy lifestyle
  - a. Engaging in healthy nutrition and physical activity behaviors
  - b. Choosing safety (eg, bike helmets, seat belts, avoidance of alcohol and drugs)
4. Demonstrating physical, cognitive, emotional, social, and moral competencies (including self-regulation)
5. Exhibiting compassion and empathy
6. Exhibiting resiliency when confronted with life stressors
7. Using independent decision-making skills (including problem-solving skills)
8. Displaying a sense of self-confidence, hopefulness, and well-being

For more information on these behaviors, see the *Promoting Healthy Development* theme.



child abuse and neglect, and homeless children) reinforce the importance of these strengths and protective factors. Relational, self-regulation, and problem-solving skills; involvement in positive activities; and relationships with positive peers and caring adults are associated with improved health and educational outcomes and fewer problem behaviors (eg, substance use disorder, delinquency, and violence). This work also identifies the critical importance of positive school and community environment and economic opportunities for these populations.<sup>75</sup>

Health protective behaviors grow from an awareness of self and others that begins in infancy and expands as children grow. When health care professionals are alert to any problems in this domain, opportunities for objective developmental and social and emotional screenings and referral arise, as do opportunities for early intervention. In addition to self-regulation, self-control, and self-awareness, the strength-based health protective behaviors listed in Box 3 increase a child's interpersonal connectedness with the community (ie, "social capital"). Children and adolescents develop in healthy ways and are protected from harm by their accumulated social capital and their connection to members of their extended family, faith community, neighborhood, school, and clubs.

In addition to these protective factors for healthy youth development, research has identified parental, family, and community strengths and protective factors that are associated with optimal child development, improved outcomes, and lower rates of child abuse and neglect (Box 4).

### **Risk Factors in Social Determinants**

At the other end of the social determinants spectrum, severe or chronic adversity that occurs because of poverty, homelessness, parental dysfunction, separation or divorce, or abuse and neglect can inhibit the development of the

elements necessary for thriving and increase the risk that children and youth will engage in risky behaviors (Figure 5).

Children exposed to excessive and repeated stress in their family and social relationships are at elevated risk for disrupted development and long-term negative consequences for learning, behavioral, and physical and mental health.<sup>15</sup>

Chronic stresses in social relationships that children may frequently experience are intimate partner violence (IPV) and separation and divorce.

### *Intimate Partner Violence*

Intimate partner violence is prevalent across all socioeconomic groups. According to the Centers for Disease Control and Prevention National Intimate Partner and Sexual Violence Survey released in 2010, more than 1 in 3 women (35.6%) and more than 1 in 4 men (28.5%) in the United States have experienced rape, physical violence, or stalking by an intimate partner in their lifetime.<sup>80</sup>

According to the National Survey of Children's Exposure to Violence, more than 8.2 million children witnessed violence between their parents in 2008.<sup>81</sup> Substantial evidence has accumulated regarding the toxic effects of IPV on the child. Infants and toddlers who witness violence in their homes or community show excessive irritability, immature behavior, sleep disturbances, emotional distress, fear of being alone, and regression in toileting and language. In school-aged children, overall functioning, attitudes, social competence, and school performance are often affected negatively. Moreover, the presence of violence in the home creates a significant risk of participation in youth violence activities even if the child is not abused by the family.<sup>82</sup> Abuse of the child is far more likely to happen in families in which violence exists between the parents.<sup>83,84</sup>



## Box 4

### Desired Protective Factors for Families and Communities

#### Protective Factors Desired for Parents

In *Strengthening Families*, the Center for the Study of Social Policy identified the following protective factors for parents<sup>76</sup>:

- **Concrete support in times of need:** Identifying, seeking, accessing, advocating for, and receiving needed adult, child, and family services. Receiving a quality of service designed to preserve parents' dignity and promote healthy development.
- **Social connections:** Having healthy, sustained relationships with people, institutions, the community, or a force greater than oneself.
- **Knowledge of parenting and child development:** Understanding the unique aspects of child development. Implementing developmentally and contextually appropriate best parenting practices.
- **Personal resilience:** Managing both general life and parenting stress and functioning well when faced with stressors, challenges, or adversity. The outcome is positive change and growth.
- **The ability to enhance social and emotional competence of children:** Providing an environment and experiences that enable the child to form close and secure adult and peer relationships and to experience, regulate, and express emotions.

**The Children's Bureau, within the Administration on Children, Youth and Families, added this sixth protective factor to their programs.**

- **The ability to foster nurturing and attachment:** A child's early experience of being nurtured and developing a bond with a caring adult during early experiences affects all aspects of a child's behavior and development.<sup>75</sup>

#### Protective Factors Desired for Families<sup>77</sup>

The CDC National Center for Injury Prevention and Control, Division of Violence Prevention, recommends these additional family strengths that parents provide to their children.

- **Nurturing:** Nurturing adults sensitively and consistently respond to the needs of children.
- **Stability:** Stability is created when parents provide predictability and consistency in their children's physical, social, and emotional environments.
- **Safety:** Children are safe when they are free from fear and protected from physical or psychological harm.

#### Protective Factors Desired for Communities<sup>78</sup>

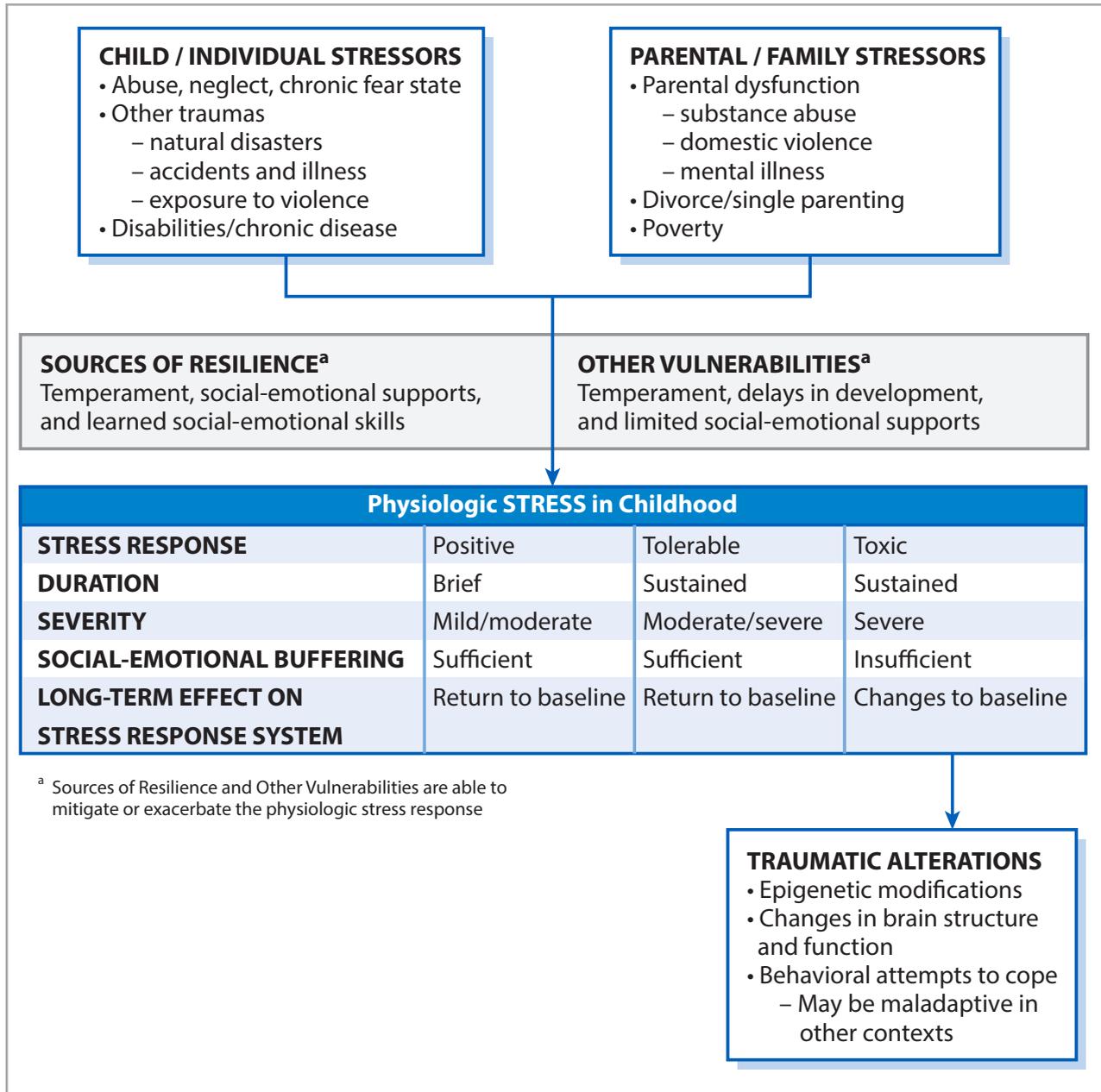
**Awareness of the importance of community-level protective factors is growing. To have a solid foundation for health, communities must seek to provide**

- Safe neighborhoods in which parents can visit with friends and children can play outdoors
- Schools in which children are physically safe and can obtain an excellent education
- Stable and safe housing that is heated in winter, free from vermin and hazards (physical and chemical), and available long-term
- Access to nutritious food
- Access to job opportunities and transportation to get to those jobs
- Access to medical care, including behavioral health and wellness care

**America's Promise<sup>79</sup> has conceptualized the protective factors as**

- Caring adults
- Safe places
- A healthy start
- Effective education
- Opportunities to help others

Abbreviation: CDC, Centers for Disease Control and Prevention.



**Figure 5: Precipitants and Consequences of Physiologic Stress in Childhood<sup>59</sup>**

Reproduced with permission from Garner A, Forkey H, Stirling J, Nalven L, Schilling S; American Academy of Pediatrics, Dave Thomas Foundation for Adoption. *Helping Foster and Adoptive Families Cope With Trauma*. Elk Grove Village, IL: American Academy of Pediatrics; 2015. <https://www.aap.org/traumaguide>. Accessed November 14, 2016.



Health care professionals must be alert to the signs of IPV and be prepared to ask questions in a sensitive manner about the safety of all family members. Routine assessment can focus on early identification of all families and persons experiencing IPV.<sup>85</sup> They also should discuss options that are available to parents who are being abused. Health care professionals should understand that women can be afraid to divulge they have been abused by a partner because they fear violent reprisals or losing the children.

The **National Domestic Violence Hotline** at **800-799-SAFE (7233)** provides information about local resources on IPV. Health care professionals also should be aware that state laws may mandate reporting of some incidents with certain characteristics of children exposed to IPV. If clinicians report IPV to child protective services, the child's caregiver must be informed and a plan made for the safety of the person being abused and the child.<sup>85</sup>

### *Separation and Divorce*

Today, more than 1 million children per year are newly involved in parental divorce. Overall, the rate of divorce is about 50% the rate of marriage every year.<sup>86</sup> In 2009, 27.3% of children lived in single-parent homes and 7.5% of children lived in stepfamilies.<sup>87</sup> The process of separation or divorce, parental dating, and stepfamilies or blended families requires many periods of adjustment for the child or adolescent, and separation and divorce are associated with negative reactions for all members of the family. Children who joined their families by adoption or children in foster or kinship families may struggle even more with parental separation, as it may resurrect old feelings of abandonment or loss. Practical concerns, such as plans for child care, shared parenting if possible, support, custody, and emergency contacts, should be clarified. The health care professional should assess the child's reaction to the separation or divorce and refer a poorly adapting child for counseling.

If the family does not remain intact, the health care professional can seek to decrease negative effects for the parents and child by being an important resource and support for both. This can be done by<sup>88</sup>

- Encouraging open discussion about separation and divorce with and between parents
- Suggesting positive and supportive ways to deal with children's reactions
- Reminding parents that parental fighting leads to poor outcomes in children
- Acting as the child's advocate
- Offering support and age-appropriate advice to the child and parents regarding reactions to divorce, especially guilt, anger, sadness, and perceived loss of love
- Referring families to mental health resources with expertise in divorce, if necessary

### **Ecological Determinants: Physical**

Physical determinants—stable housing, safe neighborhoods, nutritious and affordable foods, quality of air and water, built environment (places and spaces created or modified by people), and geographic access to resources such as health care, employment, and safe places to be physically active and socialize—can alter health trajectories in significant ways.<sup>89</sup> Children whose families live in safe and stable places and who have access to a variety of nutritious foods are likely to stay healthy and develop optimally. In contrast, children who grow up in areas of concentrated poverty are often subject to ecological disruptions, including psychosocial stressors, poor physical environmental factors, and harsh parenting, that increase their vulnerability to a variety of health and social problems.<sup>19,90</sup> The child poverty rate of African American children is 39%, almost 3 times the rate for non-Hispanic white children (14%).<sup>91</sup> The literature suggests that population health disparities are driven by lack of access to resources and by segregation by setting (eg, living in high-poverty neighborhoods and working in hazardous occupations).<sup>92</sup>



Children need safe and stable housing to thrive, and stable housing requires an adequate income. The US Department of Health and Human Services has described 5 conditions that contribute to housing instability.<sup>93</sup>

- High housing costs (ie, >30% of monthly income)
- Poor housing quality (eg, lack of plumbing or kitchen)
- Unstable neighborhoods (eg, poverty, crime, lack of jobs)
- Overcrowding
- Homelessness

Some researchers include multiple moves in the definition of housing insecurity.<sup>94</sup> Housing instability is associated with numerous problems for children, such as poor health, greater likelihood of food insecurity, and increased developmental risk.<sup>94</sup> Children who are homeless or whose families move frequently often do not have access to a stable, family-centered medical home, further increasing health risks.<sup>94</sup>

The neighborhoods in which children live can promote or impair health, so much so that the authors of *Time to Act: Investing in the Health of Our Children and Communities* stated, “when it comes to health, your ZIP code may be more important than your genetic code.”<sup>95</sup> Nearly one-fifth of Americans live in unhealthy neighborhoods that have limited access to a high-quality education, nutritious and affordable food, safe and affordable housing, safe places for physical activity, job opportunities, and transportation to get to work or medical care.<sup>96</sup>

Neighborhoods with parks, sidewalks, green spaces, and safe places to play provide opportunities for physical activity and social interactions both among children and parents.<sup>19</sup> Living in these types of neighborhoods has been linked to lower

levels of obesity, less crime, and better adult mental health.<sup>78,97</sup> In some neighborhoods, however, parents and children feel trapped in their houses because of crime on the streets and lack of safe places for children to play and adults to connect with their neighbors. Lifelong health can take root only in neighborhoods that are safe, are free from violence, and allow healthy choices.

Neighborhood-level access to a variety of affordable and nutritious foods is central to health and well-being, but socioeconomic conditions drastically affect food availability and diet choices.<sup>98</sup> In the United States, many food deserts exist—areas in which families do not have access to affordable and healthful foods, such as fruits, vegetables, whole grains, and low-fat milk, or must travel long distances to purchase them.<sup>99</sup> Numerous studies have found that residents of low-income, minority, and rural areas often do not have supermarkets or healthful food in their neighborhoods.<sup>100,101</sup> Food insecurity, which is a lack of food or a lack of variety, is linked to malnutrition and deficiency diseases,<sup>98</sup> and access to only poor-quality food increases the risk of obesity.<sup>101</sup>

Children’s health also is greatly influenced by the air they breathe indoors and out, the water they drink, and the places where they live. Children in the United States usually spend most of their time indoors, and they have little control over their physical environments. The presence of pets, pests (eg, cockroaches, rodents), water leaks, or mold in homes is associated with higher allergen loads and increased rates of asthma.<sup>102</sup> Residential exposures are believed to contribute to 44% of diagnosed cases of asthma among children and adolescents.<sup>103</sup> In addition, children living in rural and farm communities are often exposed to indoor and outdoor pesticides.<sup>104</sup> Jacobs<sup>105</sup> described types of risks to children’s health in built environments, including



- Physical conditions, such as heat, cold, radon exposure, noise, fine particulates in the home, and inadequate light and ventilation
- Chemical conditions, such as carbon monoxide, volatile organic chemicals, secondhand smoke, and lead
- Biological conditions, such as rodents, house dust mites, cockroaches, humidity, and mold
- Building and equipment conditions (eg, access to sewer services)

Many well-known, evidence-based interventions can decrease illness and injuries related to housing (Box 5).

The quality of outdoor air and drinking water poses health risks for many children and expectant mothers. In 2005, nearly all US children were exposed to hazardous air pollutant (HAP) concentrations that exceeded the 1-in-100,000 cancer risk benchmark. In addition, 56% of children lived in areas in which at least one HAP exceeded the benchmark for health effects other than cancer. In almost all cases, these exposures were emissions from wood-burning fires, cars, trucks, buses, planes, and construction equipment.<sup>110</sup> The Environmental Protection Agency estimated that 7% of children in 2009 were served by community drinking water systems that did not meet health-based standards. This estimate does

not include the approximately 15% of children in the United States who obtain water from nonpublic drinking water systems, such as wells.<sup>110</sup> Thus, advocacy for clean air and water can improve the health of many children.

On a larger scale, changing environmental conditions—global climate change and man-made and natural disasters—increase environmental vulnerabilities for children, particularly low-income children and children of color.<sup>111</sup> Global climate change, a result of greenhouse gas emissions, has resulted in climate variability and weather extremes.<sup>112</sup> Man-made disasters such as war, oil spills, wild fires in the western United States, and large industrial chemical spills over the past decade also have affected broad geographic areas, resulting in unknown toxicant exposure risks for large populations of children.<sup>113</sup>

### Implications for the Health Care Professional and the Medical Home

Knowledge about life course theory and the biological and ecological determinants of health can be integrated into the work of the health care professional within the context of the family-centered medical home. Identifying family and child strengths and protective factors as well as

#### Box 5

#### Evidence-Based Interventions to Reduce Housing-Related Illness and Injuries in Children

Local health and housing departments and other community resources are important partners in addressing housing-related illness and preventing injury,<sup>105-109</sup> such as

- Home environment interventions for asthma
- Integrated pest management
- Elimination of moisture
- Removal of mold
- Radon mitigation
- Smoke-free policies
- Making homes lead-safe through remediation of lead hazards
- Installation of working smoke alarms
- Fencing around pools
- Preset safe-temperature water heaters
- Testing of private wells



risks, understanding a family’s cultural and personal beliefs and desired roles in shared decision-making, and linking families to community resources are all necessary components of a community system of care that promotes children’s development and life-long health. In addition, health care professionals can join with other community members and organizations to advocate for strategies to address the physical determinants of health—housing stability; home health hazards; neighborhood safety; healthfulness of food, air, and water; built environment; and geographic access to resources such as health care, employment, and safe places to be physically active and socialize.

### Identify Strengths and Protective Factors and Risks

The Bright Futures Health Supervision Visits provide various opportunities for health care professionals to identify and address strengths and protective factors, to identify risks, and to work with children and their families to promote the strengths and protective factors and minimize the risks.

#### Promote Strengths and Protective Factors

- Identify family and youth strengths and protective factors.
- Give patients and families feedback about their strengths and what they are doing well and provide other suggestions, as appropriate.

The strength-based approach with adolescents has been well described, including strategies for empowering parents and including staff of the medical home.<sup>69,114-116</sup> (For additional details, see the *Ecological Determinants: Social* section.)

#### Address Risks

- Ask about unsafe housing or neighborhood, homelessness, joblessness, transportation problems, and food insecurity.
- Consider IPV, family tobacco use, and maternal depression.

- Consider family substance use disorder and mental health issues.
- Ask about prenatal history that may pose risks, such as maternal nutrition; intrauterine exposure to toxins; maternal alcohol, drug, and tobacco use; and birth trauma.
- Consider ACEs that may affect the parent’s ability to parent.

### Establish Shared Decision-making

A partnership between health care professionals and family members is based on recognizing the critical role of each partner (child, parent, health care professional, and community) in promoting health and preventing illness. When a health behavior needs to change, shared decision-making strategies and motivational interviewing can be used to put a strength-based approach in action. It indicates respect for the parent or young person as an expert on her family and her situation. It also provides an opportunity to include the strengths that already have been identified as a solid foundation from which the change can be made. People, especially those in difficult situations, often do not recognize or believe they have strengths. Guiding them through a shared problem-solving session to a successful plan can be an empowering experience. It also can serve as a model for parents and youth to use when a problem arises in daily life. To achieve a true partnership, health care professionals can model and practice open, respectful, and encouraging communication while recognizing that parents are given many recommendations and they choose which to follow and which to ignore. As a result, recommendations need to be tailored to fit the life situation of the particular family. Taking steps such as the following ones fosters the growth of trust, empathy, and understanding between the health care professional and the family:

- Greet each member of the family by name.
- Allow child and parents to state concerns without interruption.
- Acknowledge concerns, fears, and feelings.



- Show interest and attention.
- Demonstrate empathy.
- Use ordinary language, not medical jargon.
- Query patient's level of understanding and allow sufficient time for response.
- Encourage questions and answer them completely.

To identify health issues, health care professionals can use Bright Futures anticipatory guidance questions. During the conversation, understanding of the issues should be expressed and feedback given. Partnerships are enhanced if verbal recognition of the strengths of both child and parents is frequently and genuinely provided. After affirming the strengths of the family, shared goals can be identified and ways to achieve those goals discussed (eg, review the linkages among the health issue, the goal, and available personal and community resources to achieve the goal).

The next step in shared decision-making is to jointly develop a simple and achievable plan of action based on the stated goals.<sup>117</sup> To ensure buy-in from all partners, the health care professional can

- Make sure that each partner helped develop the plan.
- Use family-friendly negotiation skills to reach an agreement.
- Set measurable goals with a specific time line.
- Plan follow-up.

Follow-up is needed to sustain the partnership. It can take place through the health care professional or a member of the medical home team, such as a care coordinator, who can help the family identify their needs and connect with helpful services and also help the family follow through on the plan. It usually occurs through phone calls or appointments, during which progress is shared, successes are celebrated, and challenges are acknowledged. During follow-up calls or appointments, the plan of action is discussed and sometimes adjusted. These communications provide an opportunity for ongoing support and referrals to community resources.

## Identify and Build on Community Supports

Effective coordination of care in the family-centered medical home is rooted in establishing relationships in the community and keeping abreast of all resources and services that might help children and their parents. In addition to the traditional primary care that is essential for all children, family members can benefit from referrals to community-based services, such as family-run resource organizations, for peer support, information, and training or to evidence-based home visitation programs, parenting programs, or local preschool programs.<sup>39</sup> Other community resources are listed in Box 6. These services, coupled with primary care provided in a medical home, constitute a community-based system of care that is critical to promoting family well-being.

Promoting community relationships involves more than just knowing enough about local providers and agencies to make referrals, however. Health care professionals can help create safe and supportive communities by promoting local policies that ameliorate inequities and protect children (eg, smoke-free laws; violence-reduction initiatives; efforts to promote after-school activities, safe places to play, living wages, and supportive environments for lesbian, gay, bisexual, transgender, or questioning youth; efforts to eliminate food deserts). Health care professionals can serve as community educators and spokespersons. They can speak out to educate and advocate for local programs and policies (eg, the Safe Sleep campaign, foster care policies, and Reach Out and Read). Inclusion of legal aid and other family psychosocial and family support services in the medical home can support parents and help reduce their stress levels.<sup>120-122</sup> Additional support for parents also can come from neighborhood organizations, faith-based organizations, school and early care and education programs, and recreational services.



## Box 6

### Local Community Resources

#### Health

- Environmental health units in public health departments
- Pediatric Environmental Health Specialty Units of the Association of Occupational and Environmental Clinics ([www.pehsu.net](http://www.pehsu.net))<sup>118</sup>
- Health literacy resources
- Help Me Grow programs
- Local Child and Family Health Plus providers
- Medical assistance programs
- Medical specialty care
- Mental health resources
- Physical activity resources
- School-based health centers and school nurses
- Public health nurses
- SCHIP
- Substance use disorder treatment
- Title V Services for Children and Youth with Special Health Care Needs
- Local boards of health

#### Development

- Early care and education programs
- Early intervention programs
- Head Start and Early Head Start
- Playgroups
- Recreation programs
- School-based or school-linked programs
- Starting Early Starting Smart programs

#### Family Support

- Bereavement and related supports (for SIDS, SUID, or other causes of infant and child death)
- Child care health consultants
- Child care resource and referral agencies
- IPV resources
- Faith-based organizations
- Food banks
- Homeless shelters and housing authorities
- Language assistance programs
- Respite care services
- Home visiting services
- National Center for Medical-Legal Partnership
- Health insurance coverage resources
- Social service agencies and child protective services
- Parenting programs or support groups
  - Parents Helping Parents organizations for children with special health care needs
  - Family Voices ([www.familyvoices.org](http://www.familyvoices.org))
- 2-generation programs that enroll parents in education or job training when children are enrolled in child care
- WIC<sup>119</sup> and SNAP

#### Adult Assistance

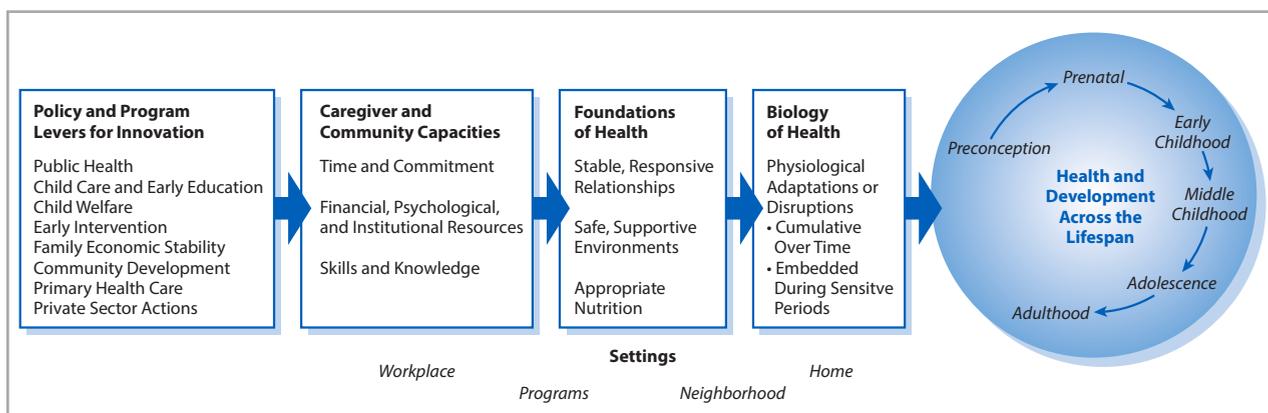
- Adult education and literacy resources
- Adult education for English-language instruction
- Immigration services
- Job training resources
- Substance use disorder treatment programs
- Legal aid
- Parent support programs (eg, Parents Anonymous, Circle of Parents)
- Racial- and ethnic-specific support and community development organizations
- Volunteering opportunities

Abbreviations: IPV, intimate partner violence; SCHIP, State Children's Health Insurance Program; SIDS, sudden infant death syndrome; SNAP, Supplemental Nutrition Assistance Program, formerly known as Food Stamps; SUID, sudden unexpected infant death; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.



Health care professionals can pursue a number of options to increase their understanding of the community, strengthen relationships with community organizations and service providers, and foster positive health-promoting change at the community level (Figure 6). These options include

- Learning about the community, understanding its cultures, and collaborating with community partners.
- Recognizing the special needs of certain groups (eg, people who have recently immigrated to the United States, families of children with special health care needs).
- Linking families to needed services.<sup>123</sup>
- Establishing relationships and partnerships with organizations and agencies that serve as local community resources, including schools and early care and education programs.
- Encouraging adoption of referral networks that have demonstrated effective partnership with the medical home and parents of young children.<sup>123</sup>
- Consulting and advocating in partnership with groups and organizations that serve the community, such as schools, parks and recreation agencies, businesses, and faith groups.
- Encouraging parents to find support in family, friends, and neighborhood.
- Encouraging families and all children, especially adolescents, to become active in community endeavors to improve the health of their communities. *(For more information on this topic, see the Promoting Family Support theme.)*
- Considering co-location in the medical home of mental health, care coordination, oral health, legal, social service, or parenting education professionals to address unmet needs of families.<sup>120-122,124,125</sup>



**Figure 6: A Framework for Conceptualizing Early Childhood Policies and Programs to Strengthen Lifelong Health<sup>19</sup>**

Reproduced with permission from National Scientific Council on the Developing Child, National Forum on Early Childhood Policy and Programs. The Foundations of Lifelong Health Are Built in Early Childhood. Center on the Developing Child, Harvard University, Web site. <http://developingchild.harvard.edu>. Published July 2010. Accessed November 14, 2016.



- Describing successful medical home partnerships with community professionals and programs that have demonstrated effectiveness with specific populations (eg, home visiting).<sup>126</sup>
- Working with community education and mental health professionals to ensure access to family-focused prevention programs that have been demonstrated to be effective in both reducing risks and enhancing protective factors for behavioral health. These could be integrated into medical homes or copresented in the community.

The role of families in helping the health care professional increase understanding of the community should not be underestimated. Families—especially those with children and youth with special health care needs—are often aware of community resources that the health care professional may not know. Families also can provide important information on their culture and traditions that may affect the health and well-being of the child.

### Promoting Lifelong Health: Infancy (Birth Through 11 Months) and Early Childhood (1 Through 4 Years)

Incorporating the compelling data described earlier in this theme into screening and anticipatory guidance requires an organized approach. The family and environmental conditions that can infuse strength into or pose a risk for the child's healthy development are now compiled into the first anticipatory guidance priority for most visits. The Social Determinants of Health priority introduced into the fourth edition's anticipatory guidance is intended to assist health care professionals and their staff to address these important topics in a systematic way with all families and children.

Screening and anticipatory guidance are included for family, social, community, and environmental risks. To encourage family strengths, the components of the Strengthening Families Protective Factors Framework (ie, concrete help in times of need, social connections, knowledge of parenting and child development, personal resilience, and social and emotional competence) and the additional family strengths identified (ie, presence of nurturing adults, stability, and safety) have been incorporated into anticipatory guidance. *(For more information, see Box 4 of this theme.)*

### Promoting Lifelong Health: Middle Childhood (5 Through 10 Years) and Adolescence (11 Through 21 Years)

School-aged children and adolescents need opportunities to do well in school and other activities and to have positive relationships with their parents, other supportive adults, and their peers. It is important to help patients and their parents appreciate that opportunities to develop caring relationships represent progress in the developmental tasks of adolescence *(see Box 3 of this theme)* and prepare them for a healthy adulthood.

Essential developmental competencies also include becoming problem-solvers, learning to cope with stress, and participating in employment, school, faith-based, and community activities. These strengths are associated with lower rates of youth risk-taking behaviors and can help young people stay on a positive life course trajectory even in the face of difficult circumstances. *(For more information on this topic, see the Promoting Healthy Development theme.)*



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