Bright Futures

FOURTH EDITION

Guidelines for Health Supervision of Infants, Children, and Adolescents

Bright Futures™

prevention and health promotion for infants, children, adolescents, and their families™

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®

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FOURTH EDITION

Guidelines for Health Supervision of Infants, Children, and Adolescents

EDITORS

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Dedication

This work honors our coeditor, Paula Duncan, MD, FAAP, without whose energy, insight, and spirit these *Guidelines* would not have achieved relevance for current pediatric practice.

A graduate of Manhattanville College, Dr Duncan received her medical degree from Women's Medical College in Philadelphia and completed her pediatric residency at Albany Medical Center and at Stanford University Medical Center, where she was also a Clinical Scholar in Adolescent Medicine.

In her early career in adolescent medicine, Dr Duncan committed to the primary and community-based care that she recognized as essential to her patients' healthy growth and development. She identified a mid-career opportunity to improve child and adolescent health in her community and left practice to serve as Medical Director of the Burlington (Vermont) School Department, where she was an early leader in the design of school-based health services. In addition, she created an innovative and nationally recognized curriculum for HIV/AIDS education for grades 4 through 12. From 1987–2001, she facilitated the Vermont public-private partnership of health care delivery at Vermont Department of Health, and served as state Maternal and Child Health Director from 1993–1998. Dr Duncan later became Youth Project Director for the Vermont Child Health Improvement Program at The Robert Larner, M.D. College of Medicine at the University of Vermont, where she is Clinical Professor in Pediatrics.

Dr Duncan's career has also been one of service in her community and on the national level. She was vice president of the American Academy of Pediatrics (AAP) Vermont Chapter (1990–1994) and later president of the Vermont Medical Society (2009). Her national work with the AAP includes serving as coeditor of the AAP's *Bright Futures Guidelines,* 3rd and 4th editions (2008 and 2017) and the *Bright Futures Tool and Resource Kit* (2009) as well as chairing the AAP Bright Futures Steering Committee.

Her contributions have been honored in national and AAP awards, including the Executive Committee Clifford Grulee Award, which recognizes long-term accomplishments and outstanding service to the AAP. She also received the AAP Section on Pediatric Dentistry Oral Health Services Award, and the AAP Council on Community Pediatrics Job Lewis Smith Award, which recognizes lifelong outstanding career achievement in community pediatrics.

The US Department of Health and Human Services, Health Resources and Service Administration (HRSA) Maternal Child Health Bureau (MCHB) Director's Award was presented to Dr Duncan in 2007 "in recognition of contributions made to the health of infants, mothers, children, adolescents, and children with special health needs in the Nation." In 2011, Dr Duncan was recipient of the Abraham Jacobi Award, which is presented to a pediatrician who is a member of both the AAP and the American Medical Association. This award recognizes long-term, notable national contributions to pediatrics in teaching, patient care, and/or clinical research.

Dr Duncan reminds us that "the heart of Bright Futures is establishing trust to build a therapeutic relationship." She has championed and devoted her career to the use of strength-based approaches. And this is who she is. Dr Duncan's warmth, joyfulness, and ability to see the best in people enable her to behold the innate strengths of families. It is her passion to teach all of us how to see families as she does and serve them better. This focus on strengths and protective factors in the clinical encounter of preventive services is her essential contribution to our *Bright Futures Guidelines,* 4th Edition.

We are in Paula's debt for her collegiality and great wisdom. And we cherish her friendship.

Joe Hagan

Judy Shaw

Mission Statement, Core Values, and Vision of the American Academy of Pediatrics

Mission

The mission of the American Academy of Pediatrics (AAP) is to attain optimal physical, mental, and social health and well-being for all infants, children, adolescents, and young adults. To accomplish this mission, the AAP shall support the professional needs of its members.

Core Values

We believe

- In the inherent worth of all children; they are our most enduring and vulnerable legacy.
- Children deserve optimal health and the highest quality health care.
- Pediatricians, Pediatric Subspecialists, and Pediatric Surgical Specialists are the best qualified to provide child health care.
- Multidisciplinary teams including patients and families are integral to delivering the highest quality health care.

The AAP is the organization to advance child health and well-being and the profession of pediatrics.

Vision

Children have optimal health and well-being and are valued by society. Academy members practice the highest quality health care and experience professional satisfaction and personal well-being.

Bright Futures Mission Statement

The mission of Bright Futures is to promote and improve the health, education, and well-being of infants, children, adolescents, families, and communities.

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Bright Futures: A Comprehensive Approach to Health Supervision

Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents describes a system of care that is unique in its attention to health promotion activities and psychosocial factors of health and its focus on youth and family strengths. It also is unique in recognizing that effective health promotion and disease prevention require coordinated efforts among medical and nonmedical professionals and agencies, including public health, social services, mental health, educational services, home health, parents, caregivers, families, and many other members of the broader community. The *Guidelines* address the care needs of **all** children and adolescents, including children and youth with special health care needs and children from families from diverse cultural and ethnic backgrounds.

Since 2001, the Maternal and Child Health Bureau (MCHB) of the US Department of Health and Human Services' Health Resources and Services Administration has awarded cooperative agreements to the American Academy of Pediatrics (AAP) to lead the Bright Futures initiative. With the encouragement and strong support of the MCHB, the AAP and its many collaborating partners developed the third and fourth editions of the *Bright Futures Guidelines.*

When the Bright Futures Project Advisory Committee convened for the third edition, the members began with key questions: What is Bright Futures? How can a new edition improve upon existing guidelines? Most important, how can a new edition improve the desired outcome of guidelines, which is child health? We turned to the previous editions of *Bright Futures Guidelines* for insight and direction.

The first edition of the *Bright Futures Guidelines,* published in 1994, emphasized the psychosocial aspects of health. Although other guidelines at the time, notably the AAP *Guidelines for Health Supervision,* considered psychosocial factors, Bright Futures emphasized the critical importance of child and family social and emotional functioning as a core component of the health supervision encounter. In the introduction to the first edition, Morris Green, MD, and his colleagues demonstrated this commitment by writing that Bright Futures represents "…'a new health supervision' [that] is urgently needed to confront the 'new morbidities' that challenge today's children and families."[1] This edition continues this emphasis.

The second edition of the *Bright Futures Guidelines,* published in 2000, further emphasized that care for children could be defined and taught to both health care professionals and families. In collaboration with Judith S. Palfrey, MD, and an expert advisory group, Dr Green retooled the initial description of Bright Futures to encompass this new dimension: "Bright Futures is a vision, a philosophy, a set of expert guidelines, and a practical developmental approach to providing health supervision to children of all ages from birth to adolescence."[2]

For the third edition of the *Bright Futures Guidelines,* the AAP's cooperative agreement with the MCHB created multidisciplinary Bright Futures expert panels working through the Bright Futures Education Center.[3] The panels, which first met in September 2003, further adapted the

Guidelines to clinical primary care by enumerating appropriate universal and selective screening and developing anticipatory guidance recommendations for each health supervision visit. Evidence was sought to ground these recommendations in science and a process was established to encourage needed study and to accumulate new evidence as it became available. The third edition expanded the definition of Bright Futures to be "a set of principles, strategies, and tools that are theory based, evidence driven, and systems oriented that can be used to improve the health and well-being of all children through culturally appropriate interventions that address their current and emerging health promotion needs at the family, clinical practice, community, health system, and policy levels."

Following publication in 2008, the Bright Futures Implementation Project demonstrated to practices that health supervision could be improved by using the *Bright Futures Guidelines.* Subsequent study demonstrated that practices and clinics could successfully implement the screening and guidance recommended.[4]

Developing the Fourth Edition

From its earliest conception and planning, the experts who have contributed to Bright Futures have viewed primary care health supervision as a service intended to promote health. Like our predecessors, we view health as not simply the absence of disease, but rather the presence of mental, physical, family, and social wellness. This wellness in infants, children, adolescents, and young adults is intended to prevent disease and promote health. It has always been the Bright Futures vision that the strength of families and communities is essential to child health.

We assert that health, broadly considered, requires a healthy family and a healthy community, and we now have the science to support our belief. New knowledge of early brain development and the importance of nurturance to avoid or lessen trauma and stress on the developing brain not only tells us that our long-held beliefs regarding health promotion might actually be true but also guides our contemporary work in this endeavor. The new science of epigenetics brings parents and caregivers to our care domain. If we cannot address the environmental and social determinants of health for parents—and alter their epigenetics—we will not change the developmental trajectory of their children or their grandchildren. In this fourth edition, clinicians will find emphasis on this uniquely pediatric endeavor. A new team of experts was convened to develop a new health promotion theme: *Promoting Lifelong Health for Families and Communities.* It provides a current review of the science of development and insight for how this science might be applied in our practices and clinics.

Since the last edition, new evidence has been developed regarding health supervision activities. We have actively sought this evidence since the previous edition and with MCHB support of young investigators, many contributions to this work have been made. Clinicians are directed to the *Evidence and Rationale chapter* so that they might understand how to apply this evidence to their work.

As was done for the previous edition, 4 multidisciplinary expert panels were convened for the age stages of infancy, early childhood, middle childhood, and adolescence. Each panel was cochaired by a pediatrician content expert and a panel member who represented family members or another health profession. The 39 members of the expert panels were individuals who represented a wide range of disciplines and areas of expertise. These representatives included mental health experts, nutritionists, oral health practitioners, family medicine providers, nurse practitioners, family and school representatives, and members of AAP national committees with relevant expertise (eg, AAP Committee on Psychosocial Aspects of Child and Family Health, AAP Committee on

Practice and Ambulatory Medicine, and AAP Committee on Adolescence).

Also, as was done with the previous edition, the *Bright Futures Guidelines* were posted for public review before publication. External reviewers who represented AAP committees, councils, and sections; professional organizations; institutions; and individuals with expertise and interest in this project provided more than 3,500 comments and endorsements that were essential to the final revisions of the *Guidelines.*

Recognizing that the science of health care for children continues to expand, the *Bright Futures Guidelines* developers have been consistently encouraged to consider which Bright Futures concepts from earlier editions could be used and further developed to drive positive change and improve clinical practice. As a result, the third edition, and now the fourth edition, build on the strengths of previous editions while also moving in new directions. The *Bright Futures Guidelines* serve as the recommended preventive services to be delivered to infants, children, adolescents, and their families.

An Emphasis on the Evidence Base

An ongoing theme in the evolution of Bright Futures involves exploration of the science of prevention and health promotion to document effectiveness, measure outcomes, and promote additional research and evidence-based practice. An evidence panel for the third edition composed of members of AAP Section on Epidemiology (known as SOEp) was convened to conduct systematic research on the Bright Futures recommendations. The Panel drew from expert sources, such as the Cochrane Collaboration,[5] the US Preventive Services Task Force,[6] the Centers for Disease Control and Prevention Community Guide,[7] professional organizations' policy and committee work, the National Guideline Clearinghouse,[8] and *Healthy People 2010.*[9]

In this fourth edition, evidence expert Alex Kemper, MD, FAAP, advised the Bright Futures Steering Committee and editors. Dr Kemper was especially helpful in areas where research and practice are changing rapidly or are investigational. Available evidence continues to guide our work. Our process of evidence discernment is discussed in the *Evidence and Rationale chapter* and new evidence is highlighted.

A Recognition that Health Supervision Must Keep Pace With Changes in Family, Community, and Society

In any health care arrangement, successful practices create a team composed of families, health care professionals, and community experts to learn about and obtain helpful resources. In so doing, they also identify gaps in services and supports for families. The team shares responsibility with, and provides support and training to, families and other caregivers, while also identifying and collaborating with community resources that can help meet family needs. New evidence, new community influences, and emerging societal changes dictate the form and content of necessary health care for children.[10] Bright Futures places special emphasis on several areas of vital importance to caring for children and families, including social determinants of health, care for children and youth with special health care needs, and cultural competence. Discussion of these issues is woven throughout the Bright Futures Health Promotion Themes and Bright Futures Health Supervision Visits.

A Pledge to Work Collaboratively With Families and Communities

Health supervision care is carried out in a variety of settings in collaboration with health care professionals from many disciplines and in concert with families, parents, and communities. Bright Futures health supervision involves families and parents

in family-centered medical homes, recognizes the strengths that families and parents bring to the practice of health care for children, and identifies resources and educational materials specific for individual families. All of us who care for children are challenged to construct new methodologies and systems for excellent care that embody this vision for health care that optimizes the health and well-being of all infants, children, adolescents, and young adults.

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The Bright Futures Steering Committee oversees the Bright Futures National Center (BFNC) efforts. The steering committee provides advice on activities and consultation to chairpersons and staff of the BFNC and the center's Project Implementation Advisory Committee (PIAC).

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Bright Futures Project Implementation Advisory Committee

The BFNC PIAC provides guidance on activities and consultation to chairpersons and staff of the BFNC on implementation of Bright Futures across disciplines. The PIAC members serve as representatives on the center's PIAC, reporting on Bright Futures activities to constituents and eliciting organizational interest and support. Members promote Bright Futures content and philosophy to other national, state, and local organizations; assist in increasing collaborative efforts among organizations; and promote center activities by offering presentations, and trainings, to colleagues within constituent organizations.

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The fourth edition of *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents* could not have been created without the leadership, wise counsel, and unwavering efforts of many people. We are grateful for the valuable help we received from a wide variety of multidisciplinary organizations and individuals.

Under the leadership of Michael C. Lu, MD, MS, MPH, associate administrator for Maternal and Child Health (MCH), Health Resources and Services Administration, the project has benefited from the dedication and guidance of many MCH Bureau staff, especially Elizabeth Edgerton, MD, MPH, director for the Division of Child, Adolescent and Family, and Erin Reiney, MPH, CHES, the Bright Futures project officer. We also acknowledge the contributions of Chris DeGraw, MD, MPH, former Bright Futures project officer. His commitment to and guidance of the Bright Futures initiative were invaluable.

We are grateful to the American Academy of Pediatrics, in particular Fan Tait, MD; Darcy Steinberg-Hastings, MPH; and Jane Bassewitz, MA, for their vision, creativity, support, and leadership as we drafted the fourth edition. We also thank Alex Kemper, MD, for his leadership in guiding the evidence review process. We are thankful to Anne Rodgers, our excellent science writer, who was so effective in helping us to say clearly what we wished to communicate.

We appreciate Leslie Carroll, MUP; Edward S. Curry, MD; Mary Margaret Gottesman, PhD, RN, CPNP; Jack T. Swanson, MD; Frances E. Biagioli, MD; Deborah Campbell, MD; Barbara Deloian, PhD, RN, CPNP; Martin M. Fisher, MD; Edward Goldson, MD; Donald B. Middleton, MD; Cynthia S. Minkovitz, MD, MPP; and Bonnie A. Spear, PhD, RDN, who were always available to us as our core consultants. Their continual review helped ensure that our recommendations would be relevant to practice and applicable to the community setting.

We are extremely grateful to the 4 multidisciplinary expert panels for their tremendous commitment and contributions in developing the fourth edition of the *Guidelines,* as well as to the expert group that worked to develop the new *Promoting Lifelong Health for Families and Communities theme.*

We also acknowledge the help and expertise of Paul H. Lipkin, MD, and Michelle M. Macias, MD, who updated and revised the infancy and early childhood developmental milestones; Jamie Meringer, MD, who assisted in developing content on e-cigarettes; and Claire McCarthy, MD; Jenny Radesky, MD; and Megan A. Moreno, MD, MSEd, MPH, who assisted in developing content related to social media.

We also wish to acknowledge the significant contributions of American Academy of Pediatrics staff, especially Kathryn Janies, Jonathan Faletti, and Bonnie Kozial, who have worked diligently to ensure the success of Bright Futures.

Throughout the process of developing and revising this edition of the *Guidelines,* we relied on numerous experts who reviewed sections of the document, often multiple times. Their careful review and thoughtful suggestions improved the *Guidelines* immeasurably. In summer 2015, the entire document was posted on the Bright Futures Web site for external review. During this time, we received more than 3,500 comments from across all disciplines (ie, health care, public health professionals, child care professionals, educators),

parents, and other child health advocates throughout the United States. We are most grateful to those who took the time to ensure that the *Guidelines* are as complete and scientifically sound as possible.

The passion and commitment of all of these individuals and partners have significantly advanced the field of health care for all infants, children, and adolescents.

—*Joseph F. Hagan, Jr, MD, FAAP; Judith S. Shaw, EdD, MPH, RN, FAAP; and Paula M. Duncan, MD, FAAP, editors*

In Memoriam

The Bright Futures experts, consultants, staff, and editors wish to acknowledge the loss of dear friends and colleagues since the publication of the last edition. We are forever grateful for their contributions to children and their families.

Morris Green, MD, FAAP, a leader in the field of child behavior and emotional health and an early proponent of family-centered care, was editor of the *Bright Futures Guidelines,* 1st Edition, and coeditor of the second edition. Dr Green practiced pediatrics in Indiana for more than 45 years; for 20 years he was physician-in-chief of the James Whitcomb Riley Hospital for Children and chairman of the Indiana University School of Medicine Department of Pediatrics. He died in August of 2013 at the age of 91. Morris was an important consultant and role model in the development of the third edition.

Polly Arango was a cofounder of Family Voices, a national family organization dedicated to family-centered care for children and youth with special health care needs or disabilities, and of Parents Reaching Out, an organization educating and advocating for New Mexico parents of disabled children. She died in June of 2010 at the age of 68. Polly Arango served on the expert panels for the *Bright Futures Guidelines,* 3rd and 4th editions. We are indebted to Polly for centering our work on the families in which children grow and develop.

Thomas Tonniges, MD, FAAP, served as director of community pediatrics at the American Academy of Pediatrics (AAP) and helped to bring the Bright Futures projects to the AAP. He died in October of 2015 at the age of 66. While in private practice before coming to the AAP, Dr Tonniges was instrumental in developing the national model for the medical home. Tom's leadership in the Bright Futures Pediatric Implementation Project has fostered an improving standard for pediatric and adolescent health supervision care.

Vaughn Rickert, PsyD, was a scholar and professor of adolescent medicine and was a past president of the Society for Adolescent Medicine. Dr Rickert was professor of pediatrics and the Donald P. Orr Chair in Adolescent Medicine at Indiana University School of Medicine and Riley Hospital for Children where he was the director of the Section of Adolescent Medicine. He died in June of 2015 at the age of 62. Vaughn's contributions to the Bright Futures Adolescent Expert Panel were essential to the behavioral care components of health supervision care.

May they rest in peace.

What Is Bright Futures?

AN INTRODUCTION TO THE FOURTH EDITION OF

Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents

Bright Futures is a set of principles, strategies, and tools that are theory based, evidence driven, and systems oriented that can be used to improve the health and well-being of all children through culturally appropriate interventions that address their current and emerging health promotion needs at the family, clinical practice, community, health system, and policy levels.

Bright Futures is . . .

. . . a set of principles, strategies, and tools . . .

The Bright Futures principles acknowledge the value of each child, the importance of family, the connection to community, and that children and youth with special health care needs are children first. These principles assist the health care professional in delivering, and the practice in supporting, the highest quality health care for children and their families.

Strategies drive practices and health care professionals to succeed in achieving professional excellence. Bright Futures can assist pediatric health care professionals in raising the bar of quality health care for all of our children, through a thoughtfully derived process that will allow them to do their jobs well.

This book is the core of the Bright Futures tools for practice. It is not intended to be a textbook, but a compendium of guidelines, expert opinion, and recommendations for health supervision visits. Other available Bright Futures resources can be found at **https://brightfutures.aap.org.** The *Bright Futures Tool and Resource Kit* that accompanies this book is designed to assist health care professionals in planning and carrying out health supervision visits. It contains numerous charts, forms, screening instruments, and other tools that increase practice efficiency and efficacy.

. . . that are theory based, evidence driven . . .

The rationale for a clinical decision can balance evidence from research, clinical practice guidelines, professional recommendations, or decision support systems with expert opinion, experience, habit, intuition, preferences, or values. Clinical or counseling decisions and recommendations also can be based on legislation (eg, seat belts), common sense not likely to be studied experimentally (eg, sunburn prevention), or relational evidence

(eg, television watching and violent behavior). Most important, clinical and counseling decisions are responsive to family needs and desires expressed in the context of patient-centered decision making. It follows that much of the content of a health supervision visit is the theoretical application of scientific principles in the service of child and family health.

Strong evidence for the effectiveness of a clinical intervention is one of the most persuasive arguments for making it a part of child health supervision. On the other hand, if careful studies have shown an intervention to be ineffective or even harmful, few would argue for its inclusion. Identifying and assessing evidence for effectiveness was a central element of the work involved in developing this edition's health supervision recommendations. The multifaceted approach we used is described in greater detail in the *Evidence and Rationale chapter.*

. . . and systems oriented . . .

In the footsteps of Green and Palfrey[1] (the developers of earlier editions of the *Bright Futures Guidelines*), we created principles, strategies, and tools as part of a Bright Futures system of care. That system goes beyond the schema of individual health supervision visits and encompasses an approach that includes continuous improvements in the delivery system that result in better outcomes for children and families. Experience since the release of the third edition demonstrates the ability of practices to effect these changes.[2] Knowing what to do is important; knowing how to do it is essential.

A systems-oriented approach in a Bright Futures practice means moving beyond the status quo to become a practice where redesign and positive change are embodied every day. Methods for disseminating and applying Bright Futures knowledge in the practice environment must be accomplished with an understanding of the health care system and environment.

. . . that can be used to improve the health and well-being of all children . . .

The care described by Bright Futures contributes to positive health outcomes through health promotion and anticipatory guidance, disease prevention, and early detection of disease. Preventive services address these child health outcomes and provide guidance to parents and children, including children and youth with special health care needs.

These health outcomes,[3] which represent physical and emotional well-being and optimal functioning at home, in school, and in the community, include

- Attaining a healthy weight and body mass index, and normal blood pressure, vision, and hearing
- Pursuing healthy behaviors related to nutrition, physical activity, safety, sexuality, and substance use
- Accomplishing the developmental tasks of childhood and adolescence related to social connections, competence, autonomy, empathy, and coping skills
- Having a loving, responsible family who is supported by a safe community
- For children with special health care needs or chronic health problems, achieving self-management skills and the freedom from real or perceived barriers to reaching their potential

. . . through culturally appropriate interventions . . .

Culture is a system of shared values and beliefs and learned patterns of behavior that are not defined simply by ethnicity or race. A culture may form around sexual orientation, religion, language, gender, disability, or socioeconomic status. Cultural values are beliefs, behaviors, and ideas that a group of people share and expect to be observed in their dealings with others. These values inform interpersonal interactions and communication, influencing such critical aspects

of the provider-patient relationship as body language, touch, communication style and eye contact, modesty, responses to pain, and a willingness to disclose mental or emotional distress.

Cultural competence (knowledge and awareness of values, behaviors, attitudes, and practices within a system, organization, and program or among individuals that enables them to work effectively cross-culturally) is intricately linked to the concept and practice of family-centered care. Family-centered care in Bright Futures honors the strengths, cultures, traditions, and expertise that everyone brings to a respectful family-professional partnership. With this approach to care, families feel they can make decisions, with providers at different levels, in the care of their own children and as advocates for systems and policies that support children and youth with special health care needs. Cultural competence requires building relationships with community cultural brokers who can provide an understanding of community norms and links to other families and organizations, such as churches or social clubs.

. . . that address their current and emerging health promotion needs . . .

The third edition identified 2 health issues in current child health practice, as major concerns for families, health care professionals, health planners, and the community—promoting healthy weight and promoting mental health. They were highlighted as "Significant Challenges to Child and Adolescent Health" throughout that edition of the *Bright Futures Guidelines* and the *Bright Futures Tool and Resource Kit.* These remain important issues of focus in child and youth health supervision care.

Lifestyle choices strongly influence weight status and effective interventions are family based and begin in infancy. The choice to breastfeed, the appropriate introduction of solid foods, and family meal planning and participation lay the groundwork for a child's lifelong healthy eating habits. Parents also influence lifelong habits of physical activity and physical inactivity. Through Bright Futures' guidance on careful monitoring, interventions, and anticipatory guidance about nutrition, activity level, and other family lifestyle choices, health care professionals can play an important role in promoting healthy weight for all children and adolescents.

A 1999 surgeon general's report described mental health in childhood and adolescence as the achievement of expected developmental, cognitive, social, and emotional milestones and of secure attachments, satisfying social relationships, and effective coping skills.[4] This remains an appropriate definition and its achievement is a goal of health supervision. As many as 1 in 5 children and adolescents has diagnosable mental or addictive disorder that is associated with at least minimum impairment.

This edition broadens our attention to health and mental health in addressing the new sciences of early brain development and epigenetics and the impact of social determinants of health on child and family health and well-being. *(For more on this issue, see the Promoting Lifelong Health for Families and Communities theme.)* Child health care professionals champion a strength-based approach, helping families identify their assets that enhance their ability to care for their child and guide their child's development. Bright Futures provides multiple opportunities for promoting lifelong health in the health supervision visits.

. . . at the family level . . .

The composition and context of the typical or traditional family have changed significantly over the past 3 decades. Fewer children now reside in a household with their biological mother and father and with only one parent working outside the home. Today, the term *family* is used to describe a unit that may comprise a married nuclear family; cohabiting family; single-parent, blended, or stepfamily; grandparent-headed household; single-gender parents; commuter or long-distance family; foster family; or a larger community family with several

individuals who share the caregiving and parenting responsibilities. Each of these family constellations presents unique challenges to child-rearing for parents as well as children.

Families are critical partners in the care of children. A successful system of care for children is family centered and embraces the medical home and the dental home concepts. In a Bright Futures partnership, health care professionals expect that families come to the partnership with strengths. They acknowledge and reinforce those strengths and help build others. They also recognize that all (health care professionals, families, and children) grow, learn, and develop over time and with experience, information, training, and support. This approach also includes encouraging opportunities for children and youth that have been demonstrated to correlate with positive health behavior choices. For some families, these assets are strongly ingrained and reinforced by cultural or faith-based beliefs. They are equally important in all socioeconomic groups. Most families can maximize these assets if they are aware of their importance. *(For more on this issue, see the Promoting Family Support theme.)*

Collaboration with families in a clinical practice is a series of communications, agreements, and negotiations to ensure the best possible health care for the child. In the Bright Futures vision of family-centered care, families must be empowered as care participants. Their unique ability to choose what is best for their children must be recognized.

. . . the clinical practice level . . .

To further define the diversity of practice in the care of children, it is important to consider the community of care that is available to the family. The clinical practice is central to providing health supervision. Practices may be small or large, private or public sector, or affiliated with a hospital. A rural solo practice, suburban private practice of one or several physicians and nurse practitioners, children's service within a multidisciplinary clinic, school-based health center, dental office, community health center, and public health clinic are all examples of practices that provide preventive services to children. Each model consists of health care professionals with committed and experienced office or clinic staff to provide care for children and their families.

To adequately address the health needs, including oral health and emotional and social needs, of a child and family, child health care professionals always will serve as care coordinators. Health care professionals, working closely with the family, will develop a centralized patient care plan and seek consultations from medical, nursing, or dental colleagues, mental health professionals, nutritionists, and others in the community, on behalf of their patients, and will facilitate appropriate referrals when necessary. Care coordination also involves a knowledge of community services and support systems that might be recommended to families. At the heart of the Bright Futures approach to practice is the notion that every child deserves a medical and dental home.

A medical home is defined as primary care that is accessible, continuous, comprehensive, family centered, coordinated, compassionate, and culturally effective.[5] In a medical home, a child health care professional works in partnership with the family and patient to ensure that all the medical and non-medical needs of the patient are met. Through this partnership, the child health care professional can help the family and patient access and coordinate specialty care, educational services, out-of-home care, family support, and other public and private community services that are important to the overall health of the child and family.

Nowhere is the medical home concept more important than in the care of children and youth with special health care needs. For families and

health care professionals alike, the implications of caring for a child or youth with special health care needs can be profound. *(For more on this issue, see the Promoting Health for Children and Youth With Special Health Care Needs theme.)*

The dental home[6] provides risk assessment and an individualized preventive dental health program, anticipatory guidance, a plan for emergency dental trauma, comprehensive dental care, and referrals to other specialists. *(For more on this issue, see the Promoting Oral Health theme.)*

. . . and the community, health system, and policy levels.

One of the unique and core values of Bright Futures is the commitment to advocacy and action in promoting health and preventing disease, not only within the medical home but also in partnership with other health and education professionals and others in the community. This core value rests on a clear understanding of the important role that the community plays in influencing children's health, both positively and negatively. Communities in which children, youth, and families feel safe and valued, and have access to positive activities and relationships, provide the essential base on which the health care professional can build to support healthy behaviors for families at the health supervision visits. Understanding the community in which the practice or clinic is located can help the health care professional learn the strengths of that community and use and build on those strengths. Data on community threats and assets provide an important tool that providers can use to prioritize action on specific health concerns.

The Bright Futures comprehensive approach to health care also encompasses continuous improvements in the overall health care delivery system that result in enhanced prevention services, improved outcomes for children and families, and the potential for cost savings.

Bright Futures embodies the concept of synergy between health care professionals, who provide health promotion and preventive services to individual children and families, and public health care professionals, who develop policies and implement programs to address the health of populations of children at the community, state, and national levels. Bright Futures has the opportunity to serve as a critical link between the health of individual children and families and public policy health goals. *Healthy People 2020*,[7] for example, is a comprehensive set of disease prevention and health promotion objectives for the nation over the current decade of this century. Its major goals are to increase the quality and number of years of healthy life and to eliminate health disparities. In its leading health indicators, *Healthy People 2020* enumerates the 12 most important health issues for the nation.

- Access to health services
- Clinical preventive services
- Environmental quality
- Injury and violence
- Maternal, infant, and child health
- Mental health
- Nutrition, physical activity, and obesity
- Oral health
- Reproductive and sexual health
- Social determinants
- Substance abuse
- Tobacco

Many of the themes for the Bright Futures Health Supervision Visits were chosen from these leading health indicators to synchronize the efforts of office-based or clinic-based health supervision and public health efforts. This partnership role is explicitly mentioned in the American Academy of Pediatrics (AAP) policy statement on the pediatrician's role in community pediatrics, which recommends that pediatricians "…should work collaboratively with public health departments and colleagues in related professions to identify and mitigate hindrances to the health and well-being of children in the communities they serve. In many cases, vitally needed services already exist in the community.

Pediatricians can play an extremely important role in coordinating and focusing services to realize maximum benefit for all children."[8] This is true for all health care professionals who provide clinical primary care for infants, children, and adolescents. The *Bright Futures Tool and Resource Kit* includes templates and Web sites to aid these efforts.

WHAT IS BRIGHT FUTURES?

The themes and visits described in Bright Futures are designed to be readily applied to the work of child health care professionals and practice staff who directly provide primary care, and the parents and children who participate in these visits. One of the greatest strengths of Bright Futures is that its content and approach resonate with, and are found useful by, a wide variety of professionals and families who work to promote child health. Evaluations of Bright Futures have found that although the *Guidelines* themselves are written in a format to be particularly useful for health care professionals who work in clinical settings, they have been adopted and adapted by public health care professionals as the basis for population-based programs and policies, by policy makers as a standard for child health care, by parent groups, and by educators who train the next generation of health care professionals in a variety of fields.[9]

The health care of well or sick children is practiced by a broad range of professionals who take responsibility for a child's health care in a clinical encounter. These health care professionals can be family medicine physicians, pediatric and family nurse practitioners, pediatricians, dentists, nutritionists, nurses, physical and occupational therapists, social workers, mental health professionals, physician assistants, and others. Bright Futures does not stop there, however. These principles and recommendations have been designed with many partners in mind because these professionals do not practice in a vacuum. They work collaboratively with other health care professionals and support personnel as part of the overall health care system.

A review of the key themes that provide cross-cutting perspectives on all the content of Bright Futures will reveal how collaborative work contributes to the goals. The discussions for each age group will be helpful to all health care professionals and families who support and care for children and youth. The *Bright Futures Tool and Resource Kit* has materials and strategies to enhance the ability of the medical home and community agencies to efficiently identify mutual resources, communicate well with families and each other, and partner in designing service delivery systems.

HOW WERE THE GUIDELINES DEVELOPED?

The richness of this fourth edition of the *Bright Futures Guidelines* reflects the combined wisdom of the child and adolescent health care professionals and families on the Bright Futures infancy, early childhood, middle childhood, and adolescence expert panels. Each panel and many expert reviewers carefully considered the health supervision needs of an age group and developmental stage. Their work is represented in several formats in the *Guidelines*.

- The first major part of the *Guidelines* is the **health promotion themes.** These thematic discussions highlight issues that are important to families and health care professionals across all the developmental stages. The health promotion themes are designed for the practitioner or student who desires an in-depth, state-of-the-art discussion of a certain child health topic with evidence regarding effectiveness. These comprehensive discussions also can help families understand the context of their child's health and support their child's and family's health. Information from the 4 expert panels about these themes as they relate to specific developmental stages from birth to early adulthood was blended into each health promotion theme discussion.

- The second major part of the *Guidelines* is the **visits.** In this part, practitioners will find the core of child health supervision activities, described as Bright Futures Visits (Box 1).

Bright Futures Visits, from the Prenatal Visit to the Late Adolescent Visit, are presented in accordance with the *Bright Futures/AAP Recommendations for Preventive Pediatric Health Care (Periodicity Schedule),*[10] which is the standard for preventive care for infants, children, and adolescents and is used by professional organizations, federal programs, and third party payers.

Each visit within the 4 ages and stages of development begins with an introductory section that highlights key concepts of each age. This information is followed by detailed, evidence-based guidance for conducting the visit.

The visits sections are designed to be implemented as state-of-the-art practice in the care of children and youth. The visits describe the essential content of the child and family visit and interaction with the provider of pediatric health care and the health care system in which the service is provided.

This clinical approach and content can be readily adapted for use in other situations where the health and development of children at various ages and stages is addressed. This might include home visiting programs or helping the parents of children in Head Start or other child care or early education programs understand their children's health and developmental needs. Colleagues in public health or health policy will find the community- and family-based approach embedded in the child and adolescent health supervision guidance. Educators and students of medicine, nursing, dentistry, public health, and others will find the *Bright Futures Guidelines* and the supporting sample questions, anticipatory guidance, and *Bright Futures Tool and Resource Kit* materials especially useful in understanding the complexity and context of health supervision visits and in appreciating the warmth of the patient contact that the Bright Futures approach ensures.

Box 1

A Bright Futures Health Supervision Visit

A Bright Futures Visit is an age-specific health supervision visit that uses techniques described in this edition of the *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents,* although modifications to fit the specific needs and circumstances of communities and practices are encouraged. The Bright Futures Visit is family driven and is designed for practitioners to improve their desired standard of care. This family-centered emphasis is demonstrated through several features.

- Solicitation of parental and child concerns.
- Surveillance and screening.
- Assessment of strengths.
- Discussion of certain visit priorities for improved child and adolescent health and family function over time. Sample questions and anticipatory guidance for each priority are provided as starting points for discussion. These questions and anticipatory guidance points can be modified or enhanced by each health care professional using Bright Futures.
- Use of the *Bright Futures Tool and Resource Kit* content and processes.

Carrying out Bright Futures means making full use of all the Bright Futures materials. For child health care professionals who wish to improve their skills, Bright Futures has developed a range of resources and materials that complement the *Guidelines,* and can be found on the Bright Futures Web site.

Finally, the *Bright Futures Tool and Resource Kit* allows health care professionals who wish to improve their practice or services to efficiently and comprehensively carry out new practices and practice change strategies. The Bright Futures tools also are compatible with suggested templates for the electronic health record (EHR), although using the *Bright Futures Tool and Resource Kit* does not require an EHR. These tools include

- A **Bright Futures Previsit Questionnaire,** which a parent or patient completes before the practitioner begins the visit. Clinicians who had experience with the American Medical Association's *Guidelines for Adolescent Preventive Services* (known as *GAPS)* approach will note that this questionnaire functions similarly to the Trigger Questionnaire in the "gathering information" phase. When the questionnaire is completed, the family's agenda, and many of the child's strengths, screening requirements, and intervention needs, is highlighted. The questionnaire helps parents understand the goals for the visit, introduces topics that will be covered, and encourages parents to list the questions and concerns that they wish to discuss. It also helps the health care professional sort the many appropriate clinical topics for the day's visit into topics that are essential to the child and family at this visit. It includes interval history (ie, changes that have occurred to the child and family since the last visit) and history that is necessary for the disease detection, disease prevention, and health promotion activities of the visit. It also is a useful tool for surveillance, as it helps bring the health care professional up-to-date with the child's health.
- **Screening tools,** such as standardized developmental assessment tests and screening questionnaires that allow health care professionals to screen children and youth for certain conditions at specific visits.
- The **Bright Futures Visit Chart Documentation Form,** which corresponds to the *Bright Futures Guidelines* tasks for that visit and the information that is gleaned from the parent questionnaire. It reduces repetitive charting and frees the clinician for more face-to-face time with the child or youth. This form allows for replication of significant positive findings from the parent questionnaire without duplication of charting. Topics are organized so that positive findings detected in the parent questionnaire easily flow to the chart instrument to document how the health care professional has addressed the need that has been identified. The chart visit documentation form also records the physical examination findings, the assessments, and the interventions that are agreed upon with the family.
- The **Bright Futures Preventive Services Prompting Sheet,** which affords an at-a-glance compilation of work that is done over multiple visits to ensure completeness and increase efficiency.
- **Parent/Child Anticipatory Guidance Materials,** which reinforce and supplement the information discussed at the visit. These materials guide the health care professional in that they contain general principles and instructions for how the health care professional can communicate information with families.

Bright Futures Tool and Resource Kit elements improve the health care professional's efficiency in identifying the correct interventions and ensure that the valuable visit time will be sufficient to address the family's questions and agenda, the child's needs, and the prioritized anticipatory guidance recommended by the Bright Futures expert panels.

The *Bright Futures Guidelines* present an expanded implementation approach that builds on change strategies for office systems. This approach allows child health care professionals who deliver care consistent with Bright Futures to engage their office staff, families, public health colleagues, and even community agencies in quality improvement activities that will result in better care.

In an effort to examine the feasibility of implementing the *Bright Futures Guidelines,* the AAP supported a 9-month learning collaborative that examined implementation strategies for health supervision visits for children at the 9 Month and 2 Year Visits.[2] Twenty-one practices from across the country improved their health care processes to support the new *Bright Futures Guidelines.* To accomplish this, practices made measurable changes in the following areas:

- Delivery of preventive services
- Use of structured developmental screening
- Use of strength-based approaches and a mechanism to elicit and address parental concerns
- Establishment of community linkages that facilitate effective referrals and access to needed community services for families and collaboration with other child advocates
- Use of a recall and reminder system
- Use of a practice mechanism to identify children with special health care needs and ensure that they receive preventive services

The study found that using the Bright Futures approach involved all the office staff in improvements that were important to patient care and demonstrable on chart audit. Many of the changes did not involve additional work but rather a more coordinated approach. Practices learned actionable changes from one other as they progressed.

In addition to the focus on systematic improvement, using Bright Futures has other potential benefits as well. Health care professionals may use the data they gather to satisfy future recertification requirements. Many of the public health national performance measures will be met through implementing of Bright Futures, such as safe sleep position, developmental screening, and adolescent well-child visit.[11,12] In addition, as health insurers link reimbursement to documentation of the delivery of quality preventive services, child health care professionals will have ready access to the data that demonstrate the high caliber of their work.

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Bright Futures Health Promotion Themes

An Introduction to the Bright Futures Health Promotion Themes

Understanding certain key topics of importance to families and health care professionals is essential to promoting the health and well-being of children, from birth through adolescence and young adulthood. The *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents* provide an in-depth, state-of-the-art discussion of these Bright Futures Health Promotion Themes, with evidence regarding effectiveness of health promotion interventions at specific developmental stages, from birth to early adulthood. These discussions are designed for the health care professional or student who desires detailed discussion of these child health topics. In addition, health care professionals can use these comprehensive discussions to help families understand the context of their child's health and support their child's and family's development.

Most of the health promotion themes contained in the third edition have been updated and carried over to the fourth edition, though several changes of note were made.

- Information on caring for *children and youth with special health care needs* was extracted from a number of themes and consolidated into one theme devoted to this issue.
- In light of the growing appreciation of the critical role that *social determinants of health* and *social media* play in the health and well-being of children, youth, and families, this edition of *Bright Futures Guidelines* has 2 new themes devoted to these topics.
- Information in the third edition's *Promoting Community Relationships and Resources theme* was incorporated into the other themes.

The 12 health promotion themes in this edition are

- Promoting Lifelong Health for Families and Communities
- Promoting Family Support
- Promoting Health for Children and Youth With Special Health Care Needs
- Promoting Healthy Development
- Promoting Mental Health
- Promoting Healthy Weight
- Promoting Healthy Nutrition
- Promoting Physical Activity
- Promoting Oral Health
- Promoting Healthy Sexual Development and Sexuality
- Promoting the Healthy and Safe Use of Social Media
- Promoting Safety and Injury Prevention

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."[1]

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."[2]

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.[3]

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."[4]

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.[5,6]

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[7]) 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.[8] 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."[9]

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).

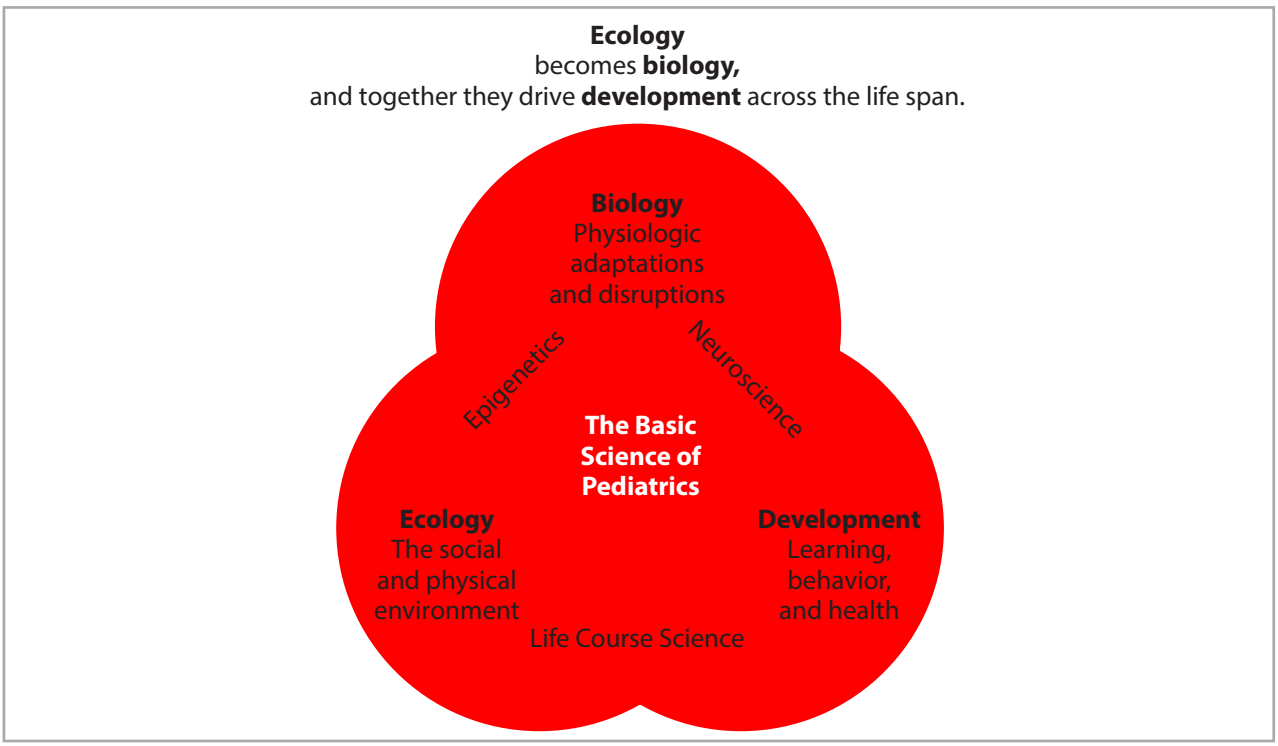

Figure 1: Eco-Bio-Developmental Model of Human Health and Disease[9]

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.[9] 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.

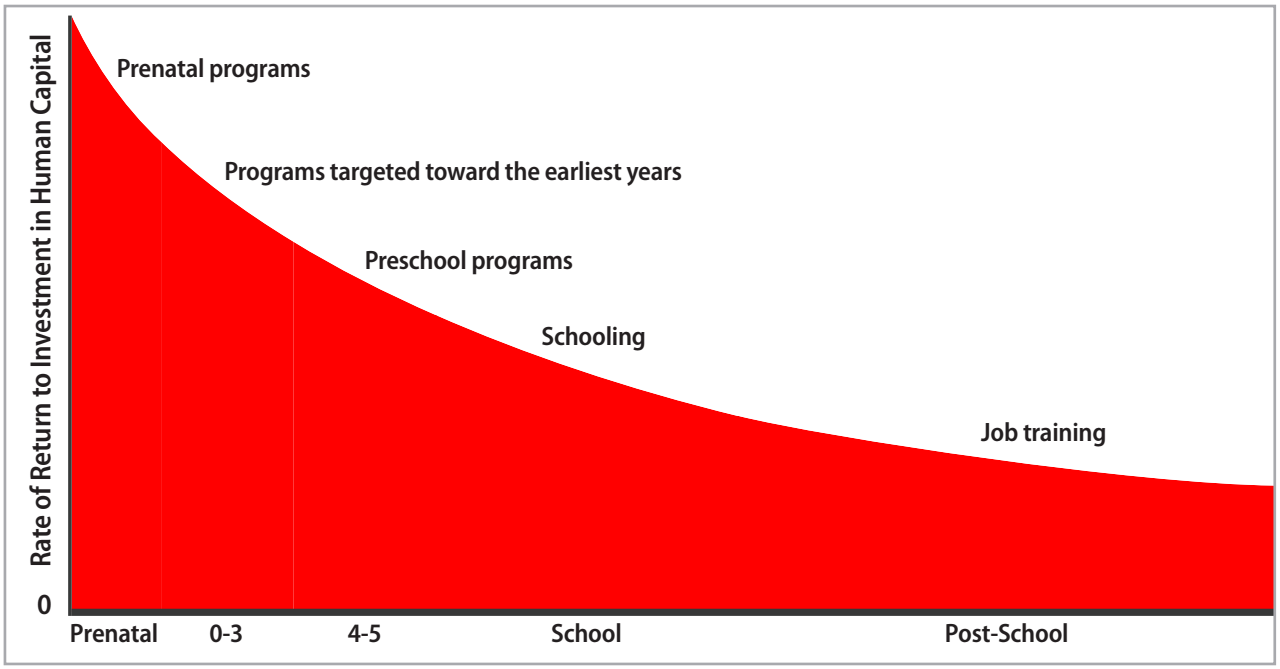

Figure 2: Rate of Return on Investments in Early Childhood Programs and Interventions[10]

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.

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.[12]

- 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.

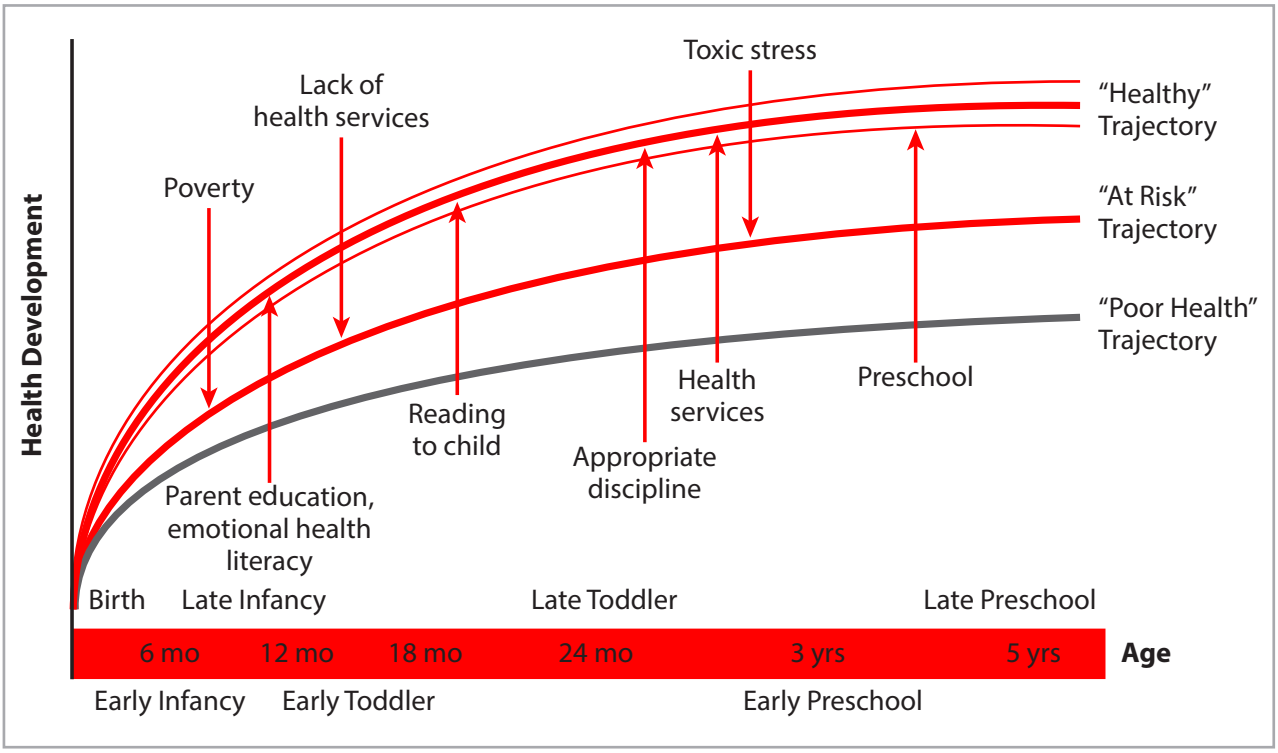

Figure 3: Life Course Perspective of Health Development[11]

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."[13] 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.[5,14]

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.[1,9,13-19]

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.[16,18,20] 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[21-24]
- Obesity[25-28]
- Type 2 diabetes[29,30]
- Alcohol or drug use disorder[31]
- Depression[32]

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[33]

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.[34] For example, persons who had experienced ≥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.[35] Chapman and colleagues[32] 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.[36]

Abbreviations: ACE, Adverse Childhood Experiences; IPV, intimate partner violence.

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."[9]

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.[37-39] 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,[40] and children who report strong social supports are less likely to experience the consequent problems of HPA dysregulation.[37-39,41]

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.[42,43] 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.[44] 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.[45-48]

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.

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.[49,50] 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.[51] 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.[52] 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.[12] 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.[9] 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.[53,54]
- 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.[55]
- 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.[55]
- 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.[56]
- 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.[57]
- Maternal depression during the third trimester is epigenetically associated with later increased infant stress responsiveness.[58]

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

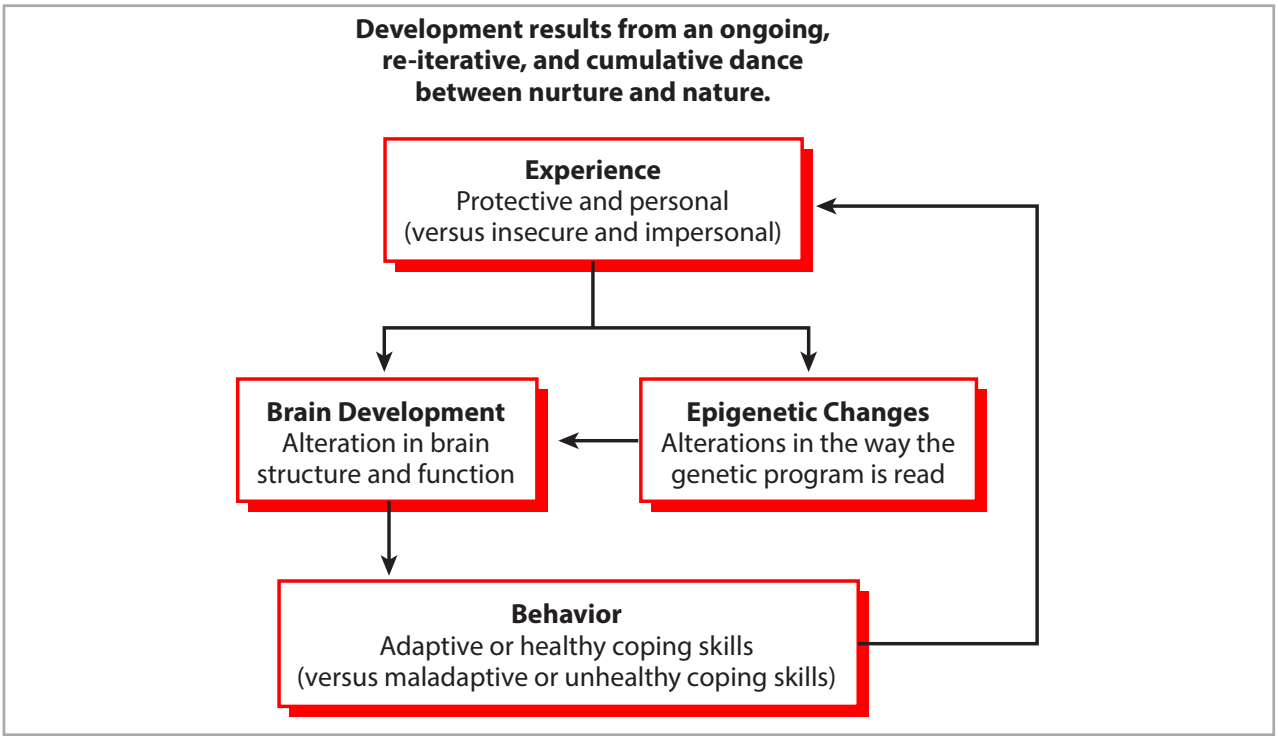

Figure 4: Interactions Between Experience, Epigenetics, Brain Development, and Behavior[59]

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.[19,54,60,61]

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.[62] 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.[63] An emerging literature suggests that health-promoting family routines and practices as well as the positive effects associated with music are of value.[64]

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[65]

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.[66-70] 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.[66-71]

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).[72-74] Studies of children at risk (eg, children in foster care, children of

Box 3

Individual Protective Factors, Strengths, and Developmental Tasks of Adolescence[70]

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.[75]

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.[15]

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.[80]

According to the National Survey of Children's Exposure to Violence, more than 8.2 million children witnessed violence between their parents in 2008.[81] 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.[82] Abuse of the child is far more likely to happen in families in which violence exists between the parents.[83,84]

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[76]:

- **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.[75]

Protective Factors Desired for Families[77]

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[78]

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[79] 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.

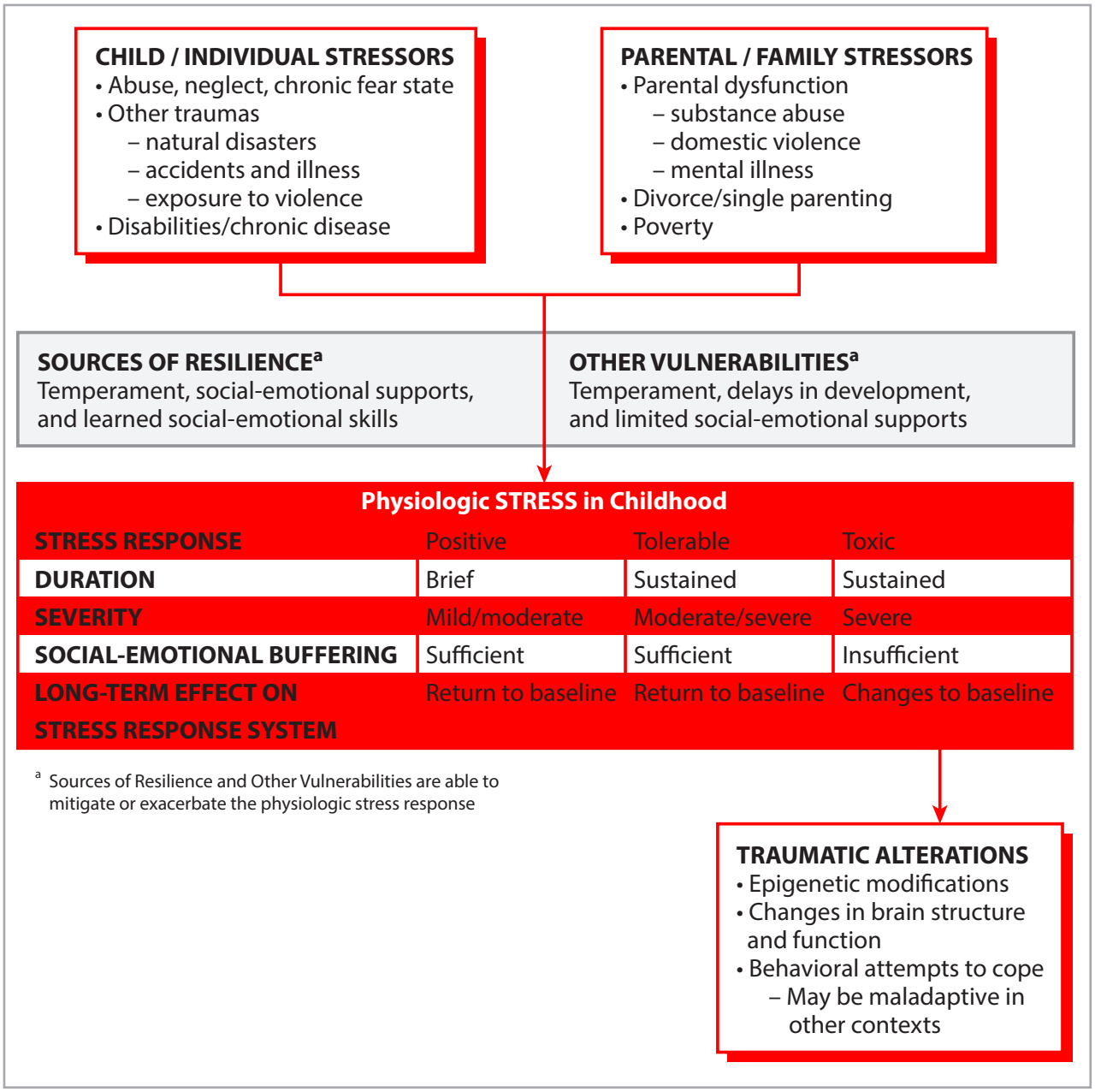

Figure 5: Precipitants and Consequences of Physiologic Stress in Childhood[59]

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.[85] 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.[85]

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.[86] In 2009, 27.3% of children lived in single-parent homes and 7.5% of children lived in stepfamilies.[87] 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[88]

- 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.[89] 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.[19,90] The child poverty rate of African American children is 39%, almost 3 times the rate for non-Hispanic white children (14%).[91] 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).[92]

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.[93]

- 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.[94] Housing instability is associated with numerous problems for children, such as poor health, greater likelihood of food insecurity, and increased developmental risk.[94] 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.[94]

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."[95] 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.[96]

Neighborhoods with parks, sidewalks, green spaces, and safe places to play provide opportunities for physical activity and social interactions both among children and parents.[19] Living in these types of neighborhoods has been linked to lower levels of obesity, less crime, and better adult mental health.[78,97] 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.[98] 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.[99] Numerous studies have found that residents of low-income, minority, and rural areas often do not have supermarkets or healthful food in their neighborhoods.[100,101] Food insecurity, which is a lack of food or a lack of variety, is linked to malnutrition and deficiency diseases,[98] and access to only poor-quality food increases the risk of obesity.[101]

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.[102] Residential exposures are believed to contribute to 44% of diagnosed cases of asthma among children and adolescents.[103] In addition, children living in rural and farm communities are often exposed to indoor and outdoor pesticides.[104] Jacobs[105] 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.[110] 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.[110] 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.[111] Global climate change, a result of greenhouse gas emissions, has resulted in climate variability and weather extremes.[112] 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.[113]

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,[105-109] 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 lifelong 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.[69,114-116] *(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.[117] 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.[39] 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.[120-122] 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**)[118]
- 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**)
- 2-generation programs that enroll parents in education or job training when children are enrolled in child care
- WIC[119] 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.[123]
- 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.[123]
- 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.[120-122,124,125]

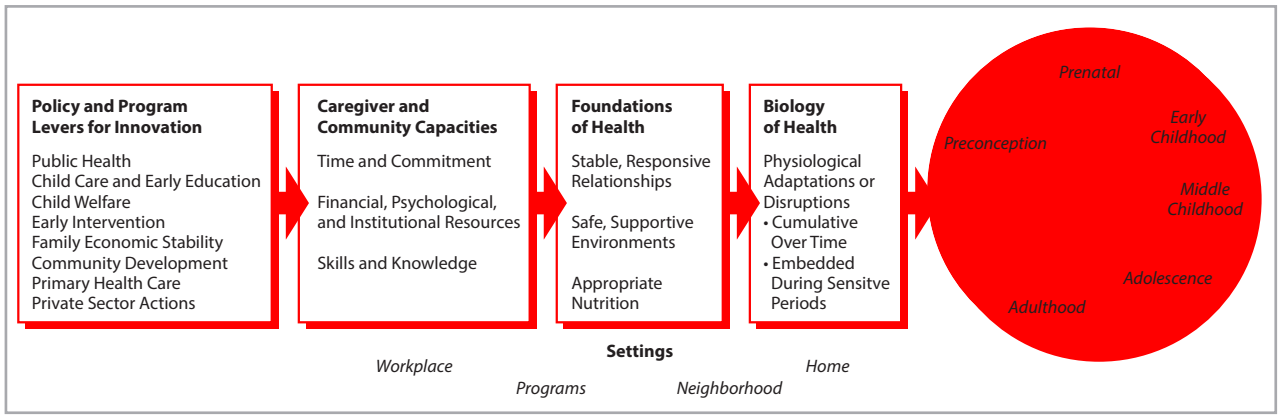

Figure 6: A Framework for Conceptualizing Early Childhood Policies and Programs to Strengthen Lifelong Health[19]

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