Chapter **20**

# Underserved Children: Preventing Chronic Illness and Promoting Health

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## *Objectives*

- Review emerging definitions of children's health and changing epidemiology.
- Define health development and discuss the impact of the social environment on health outcomes.
- Identify protective factors for child health development.
- Define health promotion and describe the Life Course Health Development Model.
- Describe the unique vulnerability of children.
- Identify strategies to transform the clinical practice to serve vulnerable children.
- Summarize strategies to tailor clinic-based assessment, education, intervention, and care coordination to vulnerable children.

Xavier is a 2-year-old boy with delayed language development. His parents are immigrants from Mexico and speak to him in Spanish. He watches television 3 hours a day and reads with his parents two to three times per week. His parents describe him as a normal, healthy boy.

## INTRODUCTION

Childhood is a critical and dynamic period of health development that has lifelong effects on health and well-being.[1] Preventing chronic illness and promoting optimal long-term health require a special focus on optimizing health and overall functional capacity in childhood, investing in a child's health potential and lifelong health reserves.

This chapter discusses emerging concepts of children's health and highlights the relationships among health, health development, and health promotion. It proposes a framework for understanding health development over an individual's lifetime[2] and how pediatric health-care providers can promote health and prevent chronic illness in the child and the future adult.

## EMERGING CONCEPTS IN CHILDREN'S HEALTH

The 2004 Institute of Medicine (IOM) report, *Children's Health, the Nation's Wealth,* defines children's health as "the extent to which an individual child or groups of children are able to 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."[3] This definition of children's health highlights the intimate relationship between health and human development and expands it to include not only physical but also social and mental well-being. Furthermore, this definition focuses not only on the individual child but also on groups or populations of children.

US child health ranks at the bottom among wealthy nations in the Organization for Economic Co-operation and Development (OECD)/UNICEF rankings, partially explaining why the United States is the sickest of wealthy nations as measured by adult health outcomes.[4,5] This is not surprising given that in just one generation, we have witnessed remarkable increases in child health problems, with over 30% of all children having chronic health conditions. Nearly 10% of all children report disabilities caused by health problems (up from 2% in 1960) and 22% of adolescents report diagnosable mental health conditions with impairments.[6,7]

## CHANGING EPIDEMIOLOGY

The shifting epidemiology of child health has profound implications for how children's health care should be organized and delivered. Prior to the 1970s, infectious diseases were the dominant threat to children. With advances in vaccine effectiveness and availability, as well as other public health improvements, the focus of clinical pediatrics in the United States has shifted to the prevention, identification, and management of chronic health conditions, such as asthma and obesity, as well as neurodevelopmental conditions, such as attention-deficit hyperactivity disorder, anxiety, and depression.[6,8,9] Despite this major shift in the epidemiology of child health, much of the organization of pediatric well child care continues to focus on the prevention of infectious disease and the provision of immunizations.[10] A major challenge now is addressing the mismatch between the current way that children's primary care is organized and the changing epidemiology of child health.[10,11]

## CHILDHOOD POVERTY

Living in poverty has always been associated with greater exposure to adversity, more risks, and decreased access to resources including health care. The US social landscape was characterized by rising social mobility and a general trend of decreasing inequality for many decades (1910s-1970s).[12] This created an atmosphere where the American Dream—that each generation of Americans would be better off than the previous generation—was an ostensible reality, and it supported a view that poverty was not a permanent life course exposure.

After nearly five decades of increasing social mobility, education expansions, and additional benefits provided by War on Poverty programs, child poverty rates were cut from 27% to 14% between 1960 and 1975.[13] However, household poverty rates of families with children began to increase in the late 1970s and, other than a slight downturn during the 1990s, have persisted at high levels. Currently, 22% of children live in families whose income is below the federal poverty line (FPL), with almost half (45%) living below 200% FPL.[12,14] Overall, the current lack of social mobility means that 40% of kids born into the lowest quintile of income (i.e., poverty) will continue to live below the lowest quintile their entire lives.[15] This trend is especially concerning as a growing body of literature suggests most low-income families (i.e., living below 200% of FPL) do not have the economic resources nor the access to the services and supports that are necessary for their children to thrive.

With deeper social stratification and a steeper social gradient, even families that are still considered middle class are finding that they do not have the time and resources necessary to provide all the child rearing resources that their children need.[16] Overall, with inadequate support for child care, early intervention services, and other child rearing supports commonly the norm in other nations, families also lack the services that they need to help their children thrive.[17]

## HEALTH DEVELOPMENT AND IMPACT OF THE SOCIAL ENVIRONMENT ON HEALTH OUTCOMES

*Health development* is a term that further expands the definition of health to acknowledge childhood as a unique period in which biological, behavioral, and environmental influences intertwine to influence current and future (adult) health.[2,18,19] For example, in children with asthma, environmental exposures (e.g., dust mites, smoke) cause chronic inflammation and ultimately change lung structure and function, which has implications for adult lung function and adult functional capacity. Interventions improving children's health thus can potentially prevent lifelong chronic illness.

Health development also defines health in terms of functional capacity. In so doing, it recognizes that health is a dynamic state that is influenced by multiple determinants, from genes to the environment with which they interact.[2] For example, a poorly nourished child from a low-income family who is exposed to violence and attends school in an overcrowded classroom may not reach his developmental potential and is at greater risk for anemia, injuries, and behavioral problems. If these result in lower educational achievement, the path out of poverty becomes more difficult to follow.

Recent data highlight the relationship between low SES/poverty and brain development, including areas such as the prefrontal cortex and hippocampus, providing a biological explanation for how environmental stressors associated with poverty "get under the skin" and have lasting impacts on functional outcomes.[20-24] For example, "toxic stress" can affect a child's developing midbrain and interrupt affiliation and attachment capacities, affect the prefrontal cortex, and interfere with the development of optimal executive function. This results in decreased

impulse control, which affects not only interpersonal behavior but also the ability to control one's choices.

Furthermore, evidence from the Adverse Childhood Experiences (ACE) study suggests that stressors/adverse childhood experiences are both highly prevalent and associated with adult comorbidities, including cardiovascular disease, chronic lung disease, chronic liver disease, depression, mental illness, obesity, smoking, and alcohol and drug abuse.[25]

These examples underscore that poverty/adverse childhood experiences perniciously stymie a child's capacity to achieve his maximal potential and has implications for adult health. Termed "double jeopardy" by some, poverty presents both a multitude of risks undermining optimal health development and a dearth of resources to mitigate them.[26]

## PROTECTIVE FACTORS FOR CHILD HEALTH DEVELOPMENT

Some people are able to develop mechanisms to deal successfully with the risks they face, thus enhancing their health and well-being. This quality, referred to as resilience, is critical for attaining optimal functional capacity, especially in the face of adversity.[27-29] Factors contributing to resilience are often termed *protective or promoting factors*, and they may either be intrinsic to the individual (e.g., their temperament or disposition) or external (e.g., educational opportunities, a supportive family, social connectedness/support). Protective qualities can be found in the individual, the family, and the community, as well as through the relationships that emerge through interactions between these groups. Like risk factors (remember the example of poverty), protective and promoting factors often occur together. Health promoting and protective factors can be particularly important in mitigating the impact of stressful life events in vulnerable children, and some protective factors are more important than others for children at particular developmental stages[29] (Table 20-1). Supportive grandparents, siblings, teachers, and mentors can all play a role in buffering children from the effects of risk factors associated with poverty. However, poverty and its related stressors can erode a parent's ability to provide high-quality parenting.[30] Therefore, bolstering interpersonal relationships and high-quality parenting is one way that clinicians can promote health.[31]

Resilience in children can manifest in different ways and is dependent upon the child's ability to develop specific noncognitive skills, capabilities, and capacities. Older children and adolescents who embrace challenges persist in addressing difficult tasks in the face of challenges, learn from criticism and see effort as the path to mastery, develop a mindset with the capacity to succeed in spite of difficult circumstances.[32] Developing such skills, however, requires a sound emotional foundation in early childhood, the ability to communicate responsively with peers and adults, and the development of other capacities including executive function.[33]

Table 20-1. Individual-, Family-, and Community-Level Protective Factors

| Protective Factors | Developmental Period |
|---|---|
| Individual | |
| Low distress/low emotionality | Infancy–adulthood |
| Active, alert, high vigor, drive | Infancy–adulthood |
| Sociability | Infancy–adulthood |
| "Easy" engaging temperament | Infancy–childhood |
| Advanced self-help skills | Early childhood |
| Average–above average intelligence | Childhood–adulthood |
| Ability to distance oneself, impulse control | Childhood–adulthood |
| Internal locus of control | Childhood–adolescence |
| Strong achievement motivation | Childhood–adolescence |
| Special talents, hobbies | Childhood–adolescence |
| Positive self-concept | Childhood–adolescence |
| Planning, foresight | Adolescence–adulthood |
| Strong religious orientation, faith | Childhood–adulthood |
| Family/community | |
| Small family size (<4 children) | Infancy |
| Mother's education | Infancy–adulthood |
| Maternal competence | Infancy–adolescence |
| Close bond with primary caregiver | Infancy–adolescence |
| Supportive grandparents | Infancy–adolescence |
| Supportive siblings | Childhood–adulthood |
| For girls: emphasis on autonomy with emotional support from primary caregiver | Childhood–adolescence |
| For boys: structure and rules in household | Childhood–adolescence |
| For both boys and girls: assigned chores: "required helpfulness" | Childhood–adolescence |
| Close, competent peer friends who are confidants | Childhood–adolescence |
| Supportive teachers | Preschool–adulthood |
| Successful school experiences | Preschool–adulthood |
| Mentors (elders, peers) | Childhood–adulthood |

Examples of protective factors that have been identified in two or more longitudinal studies of resiliency in children and youth. *Source*: Adapted from Werner E. Protective factors and individual resilience. In Shonkoff J, Meisels S, eds. *Handbook of Early Childhood Intervention*, 2nd ed. New York: Cambridge University Press, 2000:115-132.

## HEALTH PROMOTION AND THE LIFE COURSE HEALTH DEVELOPMENT MODEL

**Trajectory 1:** Projecting forward several years, Xavier has significant language delays when he goes to school. In first grade, his teachers become concerned, but it is not until third grade that he is tested and found to have language and cognitive delays. His family is disrupted when his father needs to return to Mexico; his mother works two jobs just to make

ends meet. His life is now affected by food insecurity, less parental attention, more screen time, and frequent housing moves. With poor grades and little support, he eventually drops out of school.

**Trajectory 2:** Xavier receives a comprehensive language assessment at age 2 and is placed in language and cognitive stimulation programs. His mother is supported through her local community center where they offer parenting classes and she learns parenting skills that foster her attachment with Xavier and promote his ability to self-regulate. Xavier attends a high-quality family-based child care center where he learns more socialization skills and has regular physical activity and planned healthy meals and snacks daily. He enters school with near-normal language function, normal body mass index, and cognitive and social development. He does well in school, particularly math and science. Although his father has to return to Mexico for a short time, his family receives additional assistance to maintain stable housing, food security, and consistent and supportive relationships with friends and teachers at school.

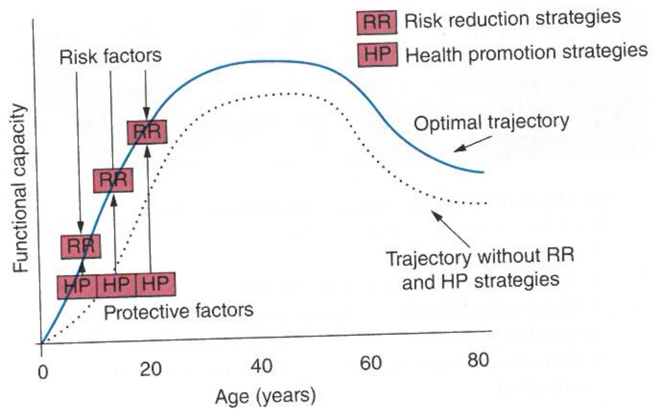


**Figure 20-1.** The health development trajectory: How risk reduction and health promotion strategies influence health development. This figure illustrates how risk reduction strategies can mitigate the influence of risk factors on the developmental trajectory, and how health promotion strategies can simultaneously support and optimize the developmental trajectory. In the absence of effective risk reduction and health promotion, the developmental trajectory will be suboptimal.[2]

*Health promotion* integrates broad definitions of health and development into health care to enable "individuals to increase control over and improve their health. It involves the population as a whole in the context of their everyday lives, rather than focusing on people at risk for specific diseases and is directed toward action on the determinants or causes of health."[34]

The Life Course Health Development (LCHD) model integrates the ideas that health develops over an individual's lifetime and is influenced by environmental, physiologic, behavioral, and psychological factors into an analytic framework useful for health providers for health promotion.[2,35] Positive or protective factors—genetic, environmental, or social—act to allow an individual to attain optimal healthy functioning. Negative influences on health, on the other hand, deter a person from achieving this potential. The balance of these forces determines the health trajectory of an individual (Figure 20-1).

Health professionals can have a significant impact on their patients' health by helping parents take steps to decouple the impact of adversity on their child's health development, providing services that can buffer the effects of different risks and by organizing *interventions* that provide the supportive scaffolding that promote optimal health development. The LCHD model frames health broadly and includes an ecological orientation that integrates the "upstream" social, environmental, and behavioral factors, influencing health in a way most often ignored by traditional medical models. Adoption of this framework requires a shift in clinical practice from major focus on the search for disease and disability to a perspective that also focuses on developmental assets and other factors that can be marshaled to enhance prevention and the active promotion of health.

Consistent with the life course orientation of Healthy People 2020[36] and a growing focus on the social determinants of health, the LCHD framework places special emphasis on the integration of the social determinants of health or non-biomedical factors (housing, income, access to healthy food, educational opportunity), thus acknowledging the special role that they play, especially during sensitive periods of development, on a range of significant health outcomes.

Viewed from the perspectives of LCHD, childhood represents an opportunity for health-care providers to intervene effectively to prevent disability and promote lifelong health during a developmental period in which interventions can be leveraged to improve the immediate health of children as well as the long-term health of the population as a whole. The integration of individual and population health promotion and disease prevention requires ongoing surveillance of the child and family functioning in order to identify strategic opportunities to support resilience and minimize risk. Finally, LCHD and the idea of health promotion provide powerful tools for tackling the vexing health problems of underserved children (Box 20-1).

## THE VULNERABILITY OF CHILDREN

Children are uniquely vulnerable because they are rapidly developing and, as nonautonomous individuals, they are dependent on others for their health, safety, and well-being. Their vulnerability is dynamic because they

**Box 20-1. Linking Children's Health Definition to the Life Course Health Development Framework and Changes in Clinical Practice**

**Transformation of the Concept of Children's Health**
Moves away from disease-based model
Focuses on:
- Optimizing development and function
- Maximizing individual and population potential

Highlights:
- Interaction of environment, contextual factors, and the individual

**Application of Life Course Health Development Framework**
LCDH concept:
- Individual-, family-, and community-level risk and protective factors interact to influence the health development of individuals over their lifetime

LCDH model:
- Framework for understanding how health develops over an individual's life time
- Conceptual structure to promote health among vulnerable populations

**The Transformed Clinical Practice:**
- Serves as a service delivery hub connected to a wide array of community resources
- Uses community epidemiologic data to identify community-level health risk factors and guide development of targeted health service delivery pathways
- Uses asset mapping to identify community-level health protective factors and create external links to community-based organizations
- Tailors clinic-based assessment, education, intervention, and care coordination to vulnerable children

are changing and these changes are exquisitely sensitive to external pressures. Thus, anticipating sensitive developmental periods in which children may be more vulnerable based on both their developmental capacities and their contextual environment as defined by their family, school, and community is crucial.[19] Although all children are vulnerable, for some children this vulnerability is exaggerated by poor health, social or family circumstances, or other environmental threats, such as poverty and toxic stress.

## Common Problems and Pitfalls

- Applying a disease-based model for health care to vulnerable populations
- Ignoring the contextual or environmental factors that influence health
- Not addressing contextual factors and adaptive responses from a developmentally appropriate perspective
- Applying individual-focused health promotion strategies to vulnerable populations
- Overlooking the inherent vulnerability of children, the dynamic nature of vulnerability, and the need to intervene at developmentally sensitive periods
- Supporting clinical practice systems that are not organized to identify and intervene to support health protective factors and remove health risk factors
- Delivering clinic-based assessment, education, intervention, and care coordination that are not tailored to vulnerable patients

## TRANSFORMING CLINICAL PRACTICE TO SERVE VULNERABLE CHILDREN

As noted earlier, current clinical service delivery mechanisms fall short in key areas, such as addressing children's developmental and other "nonmedical" (psychosocial, environmental, parenting) concerns.[37] These concerns are often directly linked to common morbidities (e.g., developmental delay, drug and alcohol abuse, mental and emotional disorders, family violence, and obesity) that challenge families and health care providers.[38] Although these psychosocial/environmental concerns undermine health, clinicians often feel unprepared and inadequately equipped to address them.[39] If they cannot offer a resource or potential solution to the family, clinicians may not inquire about issues such as domestic violence or other adverse childhood experiences, mental illness, homelessness, drug and alcohol abuse, hunger, access to high-quality child care, food insecurity, school performance, behavioral concerns, educational resources, or social isolation.[40,41]

In order to address economic disparities and the multiple forms of adversity associated with poverty, clinicians can advocate for social policies that decrease economic disparity and support families in rising from poverty.[12,17] The following suggests actions that health-care providers can take within his/her clinical practice to mitigate the impacts of these issues on an individual level.

### MAKING THE CLINICAL PRACTICE THE SERVICE DELIVERY HUB

To effectively address the health risk and protective factors affecting children illustrated in the LCHD model (Figure 20-1), a clinical practice must function as a hub or resource center that is effectively linked to community resources. Figure 20-2 illustrates the four key components of primary care of children: acute care, chronic illness care, preventive care/health promotion, and developmental/behavioral health services.[31] The capacity of any provider to address the needs of vulnerable children and their families is not only determined by the knowledge, skills, and resources that are available within the clinical setting, but

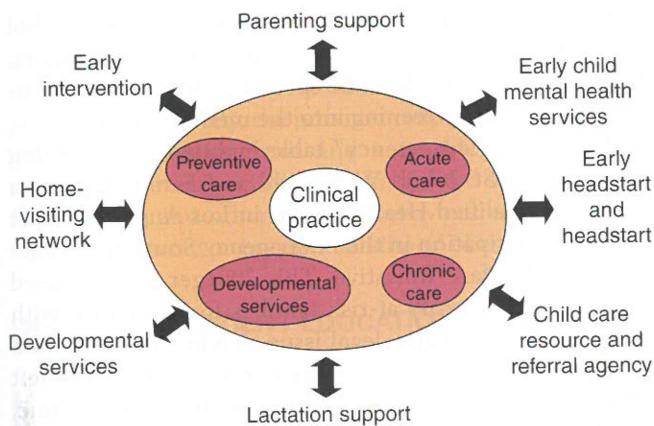


**Figure 20-2.** The pediatric office as a service delivery hub. The role of the clinical practice in the community. Adapted from Regalado and Halfon.[31]

also depends on their ability to link to other community-based resources and services such as early intervention services, child care resources, developmental services, healthy food options, and parenting support. The clinical practice is placed at the center of this service organization model because pediatric primary care providers have the unique opportunity to interact with families on a regular basis before school entry. The Patient-Centered Medical Home (PCMH) is an example of a delivery model that seeks to integrate the four components of primary care for children while also promoting access, coordination of care, and linkage to community resources.[42,43]

## REVIEWING COMMUNITY EPIDEMIOLOGIC DATA

Review of community epidemiologic data is the first step in assessing the prevalence and distribution of risk in a community and in the identification of protective assets. Knowledge about these elements in the life of the community allows the clinician to create more individualized, context-driven assessments, education, and interventions to support individual health development (see Chapter 6). With the greater availability of geographic information system (GIS) mapping, many communities are developing neighborhood level maps of child health and developmental outcomes, measures of school readiness, and indicators of social and behavioral risk that can be used to begin to create a picture of the local ecological dynamics of health development.[44]

## CONDUCTING ASSET MAPPING

The asset mapping process provides a more in-depth understanding of a community's protective factors. Asset mapping focuses on the assets of a community, including "individual assets (talent, time, experience, relationships), citizen's associations (grassroots organizations, community centers), and local institutions (schools, libraries)."[45]

Although a clinical practice may not have the time or resources to complete intensive asset mapping, an asset focus is vital to identifying and supporting community-level protective factors. Practices may gather information and catalog a list of resources for their patients. Over time a practice can develop robust linkages to community-based organizations (CBOs) allowing the clinic to address health risks and support health protective factors in the community.

Practices have found that strong relationships with key community partners (food bank, high-quality community centers/youth centers, parenting programs) are more useful than a list of potential but unknown resources. Furthermore, practices can systematically identify and support the individual assets in a family (e.g., positive parenting practices, involved grandparents or other family members, social connectedness, involvement in the child's education, maintaining healthy lifestyle routines with sufficient sleep, physical activity, and nutrition).

## CREATING LINKS TO COMMUNITY-BASED ORGANIZATIONS

> The community health center has been building its relationship with local CBOs, one of which focuses on developing high-quality in-home day-care centers operated in the neighborhood and on supporting parents in developing positive parenting skills. There is a family day care in Xavier's neighborhood whose provider speaks Spanish. The CBO offers classes in positive parenting. In addition, the local library has a free story-time session three times per week including weekends. The local park has a safe play area for toddlers and a community garden.

Once a clinic has identified community-based resources, the next step is to create linkages to these organizations, allowing for open communication and referrals. The National Initiative for Children's Healthcare Quality (NICHQ) has developed a set of tools and procedures to help practices organize and improve health development–oriented care routines and administrative processes (see "Resources" section).

## TAILORING CLINIC-BASED ASSESSMENT, EDUCATION, INTERVENTION, AND CARE COORDINATION FOR CHILDREN WITH VARIED VULNERABILITY

The clinic reorganization strategies described in the preceding sections create external links that allow the clinician to identify and address community-level health risk and protective factors (see Box 20-2). The strategies and interactions that are now described address individual- and family-level risk and protective factors.

**Box 20-2. Strategies for Organizing and Reengineering the Clinical Practice**

- Review community epidemiological data to identify community-level health risk factors and to guide development of targeted health service delivery pathways
- Establish external links to CBOs through an asset mapping process
- Position the practice as a service delivery hub
- Tailor practice-based assessment, education, intervention, and care coordination for vulnerable children

The health supervision guidelines outlined in *Bright Futures* provide detailed, age-specific recommendations for surveillance, assessment, and intervention.[38] These pediatric clinical services can be organized into four major categories: assessment, education, intervention, and care coordination. Each service delivery component may be tailored to patients with varying levels of vulnerability, which is also known as tiered care. Tailoring assessment, education, intervention, and care coordination to families with varied vulnerability requires adjusting the content (what services are delivered), the context (how services are delivered), and contacts or personnel (who delivers the services) to meet families' needs.

## CONTENT OF CARE ASSESSMENT

> Routine screening reveals that Xavier has language delays, a body mass index of >95%, dental caries, and mild anemia. He goes to bed routinely at 11:00 PM, eats fruits and vegetables three times per week, drinks soda daily, watches 3 hours of TV daily, and is exposed to neighborhood violence. The family interview reveals that both parents work and are unaware that there are resources like a library, park, CBO, and community garden in the neighborhood. The family has support through their faith community and several family members living in the area.

Individual assessment and routine screening for diverse problems is important in caring for children. Published guidelines highlight appropriate screening topics and timing for screening.[38] A variety of assessment tools are also available to help define each child's unique resilience and vulnerability. These tools focus on the individual, family, and community context of health development of children (see "Resources" section). For example, the *Parents' Evaluation of Developmental Status* (PEDS), *The Ages and Stages Social and Emotional Scales*,[46,47] and the *Survey of Wellbeing of Young Children* are validated instruments that assess children's social, emotional, and behavioral development. The PEDS uses a series of questions for parents about their concerns in different domains of development. Tools such as the Family Psychosocial Screening instrument[48] are designed to identify individual psychosocial health risk and protective factors, including parental depression, parental drug and alcohol abuse, domestic violence, and available help and support. Recent publications describe specific models for integrating psychosocial screening into the medical home.[49]

The "Core Competency" table highlights a screening tool used by St. John's Well Child and Family Center, a Federally Qualified Health Center in Los Angeles as part of their participation in the multiagency South Los Angeles Child Welfare Initiative. This "trigger tool" is used to screen and stratify at-risk families for assistance with issues such as housing, legal issues, child care, and child development. The key screening questions are on the left and the key partner agency is listed on the right. In clinic, families are screened at each visit, whether for routine well child care or sick visits. When needs are identified, referrals are made through the electronic medical record to a central care coordinator. Each participating agency is able to make referrals. For example, a family with medical issues identified at the housing agency can be linked to the health-care clinic or a child with housing or legal issues identified in the health clinic can be referred to the appropriate partner agency. Monthly case conferences ensure appropriate alignment of support services.

## ASSESSMENT OF VULNERABLE CHILDREN

Underserved children should receive screening that focuses on factors associated with the childhood poverty: assessing both the types and impacts of greater exposure to risk factors and assessing availability and access to resources and health services (protective and health-promoting factors). Because health development is so vulnerable to external forces, all children with difficult social circumstances, particularly children from low-income families, should be screened for developmental delay and psychosocial stressors.

Language development is an especially key area to target, as the "Word Gap Study" showed that children from high-income families heard 30 million more words than children from low-income families, which is then tied to disparities in school performance at age 9 or 10.[50] Using clinical judgment alone only detects 30% of children with developmental disabilities[40-52] and many health-care providers neglect to formally screen. These facts help explain why minor developmental delays often are not detected until school entry or beyond.

In addition, a general epidemiologic assessment of the community, as described, will identify community-level risk and protective factors for all children living in the area. During the clinic visit, the provider may assess an individual child's exposure to key community-level risk and protective factors. For example, through the epidemiologic assessment, a provider may have identified that 10% of the children in the community have asthma. With a known high prevalence of asthma and a potential high exposure to environmental pollutants, the provider may

choose to carefully assess children who live in high-risk areas for asthma, thereby targeting those at risk before a major asthma exacerbation. Similarly, with a known high prevalence of obesity, the provider may specifically screen for food insecurity, fruit and vegetable consumption, sweetened beverage consumption, limited safe play areas for children, and other lifestyle behaviors/circumstances that can promote or prevent childhood obesity.

## PARENT AND PATIENT EDUCATION

Xavier's provider understands the multiple risks (poverty, lack of educational opportunity, poor nutritional options, exposure to violence) and protective factors (large united family, strong sense of community and cultural identity, faith community, neighborhood with active CBOs, as well as an active and engaged child and engaged parents) that contribute to Xavier's health. Xavier is referred to early intervention services, the local library, a developmentally focused child care center, local nutrition classes, a community garden, parenting classes, and the dental van. He has his hearing and lead levels tested. His family is given guidance on Xavier's nutrition, physical activity, and reading.

Health visits are recognized as an opportunity for informing parents about their children, with a particular emphasis on prevention. When the clinician is armed with specific knowledge of the patients' experiences and potential health risk and protective factors, education and anticipatory guidance can be tailored to address the impact of those factors, allowing for more targeted and rewarding information exchange and educational intervention. For example, a child raised by a teenage parent in a community with low literacy rates and an overcrowded school system is at risk for language delay. A targeted educational intervention takes advantage of a local library with a free story time class, a clinic-based Reach Out and Read (see "Resources") program, a highly involved and engaged grandparent, and access to an in-depth assessment through an Individual Education Plan (IEP) at the school or regional center. Similarly, understanding the impacts of poverty on the quality of parenting, nutrition, establishing and maintaining routines (e.g., sufficient sleep and play time), and other healthy lifestyle habits can help clinicians intervene in these areas to promote health, prevent chronic illness (e.g., Type 2 diabetes), and promote development.

Recent publications have suggested the use of a "parent–child relational framework" to organize primary health-care services toward health promotion.[53] In a parent–child relational system, the parent mediates the context for child health and development. Emphasis on caregiving is central in a relational model and the health-care intervention is organized and individualized around the child's developmental stages and the parent's concerns.

Employing such targeted and responsive strategies when a problem has been identified can also bolster parent confidence in their child-rearing skills and help parents promote the resilience of their children. Family strengths (engaged siblings, grandparents) should be captured as part of the intervention.[31] Similarly, community assets should be incorporated into promotion of health development. Intervention not only includes clinic-based developmental education but also demonstration (modeling book reading, and referral—local library, "mommy and me" groups, or parenting classes). Positive parenting/discipline classes designed to promote an authoritative parenting style (warm/nurturing but firm approach that is associated with improved psychosocial functioning, child development, and educational outcomes) could be a routine part of the clinical intervention.[54,55] Positive discipline is an example of a class/approach designed to promote this parenting style.[56]

Children diagnosed with or at risk for a developmental disability may be referred to publicly funded intervention programs provided through the federal Individuals with Disabilities Education Act (IDEA). For eligible children, these programs provide a comprehensive multidisciplinary evaluation to identify the needs of children and their families to assist in promoting the child's development. Services and programs under IDEA vary from state to state based on age, risk, and level of potential disability. The National Early Childhood Technical Assistance Center Web site provides details on each state's eligibility requirements and program components (see "Resources").

## CARE COORDINATION

Xavier's anemia improves on iron therapy. The family has not attended a nutrition class, but has stopped by the CBO and will attend the class soon. They are participating in the local community garden and have started growing their own vegetables. He now goes to the local park daily as part of his new routine. He is also going to the library story time once a week and has started developmentally focused child care. His parents read to him daily and he has developed a few more words. They are learning new positive discipline skills from classes and peers at the CBO.

The final component of service for children is care management and coordination. There is an immediate need to have ongoing monitoring and coordination of care for children (particularly vulnerable children) to ensure that they are connected with relevant services and resources in the community. The greater the level of child and family need and more fragmented the delivery system, the greater the need for effective care coordination. Barriers to care coordination include unclear service obligations (who is eligible and who provides services), how information is communicated to and from referral agencies, and how providers are reimbursed.[57] In addition, families often face difficulty with transportation, finances, language barriers, and confusion about services.

The NICHQ Practical Guide to Implementing Office Systems for Anticipatory Guidance can guide the practice in creating internal capacity for this activity (see "Resources"). *Bright Futures* also has resources for systems change, improving preventive care and implementing quality improvement cycles (e.g., Plan Do Study Act, PDSA).[38] Furthermore, the National Committee for Quality Assurance (NCQA) has developed quality standards, performance measures, and tools to support provision of high-quality health care.[58] The PCMH offers a clinic-based model to facilitate better coordination of care. Many practices are seeking certification from the NCQA or Joint Commission as higher reimbursement may be tied to achieving certain levels of PCMH.

In addition to these clinic-based levels of care coordination, state-level partnerships also exist to facilitate better care management. One program, Help Me Grow, is a cross-sector collaboration in 17 states that seek to identify children at risk for developmental delay and link families to the right program or service for their child.[59] Often integrating state departments of education and health and human services with local agencies, this program has demonstrated significant gains, not only in connecting families to services but also to increasing parental self-empowerment and management. Coordinating care benefits the individual child and family and optimizes use of local and state resources.

### CONTEXT OF CARE

Once a child has been identified as being underserved or at risk for developmental delay, obesity, asthma, or having special health-care needs, he or she often requires additional time and attention within the clinical practice. Clinical systems can be modified to create more customized clinical care pathways and tiered care to allow for more effective and efficient implementation of the assessment, education, intervention, and care coordination components that are outlined here. For example, the front desk staff can use different scheduling algorithms to match the intensity of visit to allocated time of an appointment. Similarly, a practice may choose to schedule many of their more complex multiple-needs patients on the same day or afternoon, and alter staffing patterns to allow a nurse and clerk to be responsible for extended care coordination needs. In many regions of the United States, such extended visits can be coded and reimbursed at a higher level of intensity, thereby coupling a more responsive, effective, and efficient delivery strategy with appropriate reimbursement. The child's family may need more frequent visits to allow for medically necessary case management, to assure that they are receiving appropriate developmental services and that the services are having the expected effects. Practices and clinics that care for a number of children in specific school or child-care centers may also set up direct lines of communication with designated health personnel at those institutions.

### COORDINATION OF STAFF PROVIDING CARE

It is increasingly recognized that high-quality health care is a team endeavor. In this case, high-quality care team for the child who is at risk for developmental delay or vulnerable by the constellation of risk factors associated with poverty includes the clinicians, nurses, front desk, and care coordination staff. In addition, randomized control trial evidence reveals that for this group of children, clinical outcomes and practice-based efficiency and effectiveness can be improved by adding a developmental specialist (master's level nurse or a developmental psychologist) to the team.[60] For children with special circumstances or multiple vulnerabilities, the clinician often needs to coordinate a multidisciplinary team, including subspecialists and/or social work staff.

## CONCLUSION

Children are an inherently vulnerable population. Individual-, family-, and community-level health risk and protective factors influence the health development of children. Traditional medical care is individual and disease focused, largely ignoring the contextual factors that impact health. Modern definitions of health call upon providers to reorganize medical practice to integrate consideration of these factors into clinical care to enhance the future well-being of children and the adults they will become. Moreover, implementation of the Affordable Care Act offers a unique opportunity to transform children's health care, through adoption of Bright Futures as the standard of care, and a shift in focus to prevention and wellness.

### KEY CONCEPTS IN CARING FOR CHILDREN

- Children's health is the foundation for lifelong health.
- Children's health cannot be understood apart from development and function.
- Social factors are important determinants of health; integrating them into clinical practice is of paramount importance.
- Identifying and bolstering protective factors is as important as mitigating risk factors for poor health.
- Health promotion (rather than disease modification alone) can have important impacts on individual and population health.
- Children are inherently vulnerable, and poor children are particularly at risk for poor health.
- Tailoring clinical practice to care for vulnerable children includes thorough community and individual patient assessments, education, interventions, and coordination of care.

## CORE COMPETENCY: THE TRIGGER TOOL—COMMUNITY RESOURCE REFERRALS FOR INTEGRATED CARE

### Trigger Tool: Based on South Los Angeles Clinic Screening Initiative

| DOMAIN | TRIGGER QUESTION | YES | NO | PARTNERS |
|---|---|---|---|---|
| **Health** *(Medical Home & Insurance)* | Do you and the child(ren) in your care have a regular place for medical and dental care?<br>Do you have insurance? | | | |
| **Child Care** *(Access)* | Are you having problems getting childcare or preschool? | | | |
| **Housing** *(Resources & Access)* | Are you experiencing any of the following:<br>• Utilities Assistance<br>• Homeless<br>• Needing Shelter<br>• Behind on Rent | | | |
| **Child Development** *(Information, Workshops & Screenings)* | Do you have any concerns about the development of the child(ren) in your care?<br>• Speech/Language *speaking, body language, understanding what other's say, stutter)*<br>• Motor *(crawl, walk, run, climb, jump, balance)*<br>• Social/Emotional *(feelings, behavior, cooperation, responding to other's feelings; relationships)*<br>• Cognitive Learning *(think, concentrate, remember, plan, perceive, understand)* | | | |
| **Legal Issues** *(Insurance Problems, Kinship/ Foster Issues & Financial Assistance)* | Do you have critical legal issues that you need assistance with?<br>• Early Intervention/ Special Education Services<br>• Pregnant/Parenting Teens<br>• Probate Guardianship<br>• Medi-cal Problems<br>• Foster Care Adoption<br>• Financial Assistance<br>• Other | | | |
| **Well Being** *(Mental Health, Trauma, & Social/ Emotional Support)* | Are you concerned about how your child gets along with others?<br>Does your child have issues managing emotions?<br>• Difficulty Expressing Feelings<br>• Sad<br>• Frustrated/Angry<br>• Not Easily Calmed Down<br>• Lonely/Isolated | | | |

## DISCUSSION QUESTIONS

1. How does a disease-based focus influence how we think about patients and their care?
2. Why may development be used as an indicator of children's health?
3. What influence can a health-care provider have on a child's health development trajectory?
4. What are the challenges to reorganizing a clinical practice to address the contextual factors that influence health?
5. Can you think of examples of health-care providers who successfully address the multiple determinants/ contextual factors that influence health? How have they accomplished this?

## RESOURCES

This Web site tracks 10 key indicators of child well-being. http://www.kidscount.org

*A Practical Guide to Implementing Office Systems for Anticipatory Guidance* http://www.nichq.org

This Web site offers tools addressing development, mental health, vision, hearing, and oral health for use in the office setting. http://www.medicalhomeinfo.org/screening.html

The National Early Childhood Technical Assistance Center supports the national implementation of the early childhood provisions of the Individuals with Disabilities Education Act (IDEA). http://www.nectac.org

Reach Out and Read. http://www.reachoutandread.org

What makes us get sick? Look Upstream: Dr. Rishi Manchanda. http://www.ted.com/talks/rishi_manchanda_what_makes_us_get_sick_look_upstream

Childhood Poverty: Dr. Bert Lubin at TEDxGoldenGatePark. http://tedxtalks.ted.com/video/Childhood-Poverty-Dr-Bert-Lubin