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Screening for Social Determinants of Health Among Children and Families Living in Poverty: A Guide for Clinicians

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Abstract

Approximately 20% of all children in the United States live in poverty, which exists in rural, urban, and suburban areas. Thus, all child health clinicians need to be familiar with the effects of poverty on health and to understand associated, preventable, and modifiable social factors that impact health. Social determinants of health are identifiable root causes of medical problems. For children living in poverty, social determinants of health for which clinicians may play a role include the following: child maltreatment, child care and education, family financial support, physical environment, family social support, intimate partner violence, maternal depression and family mental illness, household substance abuse, firearm exposure, and parental health literacy. Children, particularly those living in poverty, exposed to adverse childhood experiences are susceptible to toxic stress and a variety of child and adult health problems, including developmental delay, asthma and heart disease. Despite the detrimental effects of social determinants on health, few child health clinicians routinely address the unmet social and psychosocial factors impacting children and their families during routine primary care visits. Clinicians need tools to screen for social determinants of health and to be familiar with available local and national resources to address these issues. These guidelines provide an overview of social determinants of health impacting children living in poverty and provide clinicians with practical screening tools and resources.

Introduction

According to the 2013 United States (U.S.) Census Bureau, 14.7 million (19.9%) children less than 18 years were living in poverty, and 31.4 million (42.6%) children were living below the 200% poverty threshold.[1] Social determinants of health, defined as the social circumstances in which people live and work, powerfully influence health and development, particularly for children growing up in poverty.[2] A rapidly expanding body of research has documented that adverse childhood experiences (ACEs), defined as traumatic experiences occurring before the age of 18, have long-term health outcomes and result in continued intergenerational toxic stress, ultimately impacting personal and family physical and mental health, and socioeconomic status.[3] The ACE Study, instrumental in demonstrating the association between childhood adversity and an increased risk for medical and psychosocial morbidity,[4] has influenced other researchers to study the association between ACEs and health-related problems that affect families living in poverty.[5–7] There is a consistent dose–response effect whereby those with more ACEs, or a higher ACE score, have a higher likelihood of negative health outcomes in childhood and adulthood.[4–7] Child health clinicians are in a unique position to address social determinants of health and to help prevent child adversity, but they require the tools and resources to do so effectively.

The Academic Pediatric Association (APA) and the American Academy of Pediatrics (AAP) recently authorized task forces to address child poverty.[8] As a work-group of the APA Childhood Poverty Task Force Health Care Delivery Committee, we provide an evidence-based, practical approach to those aspects of surveillance and screening that apply particularly to children and families living in poverty. In the patient-centered medical home, all children should be assessed for developmental, behavioral, and emotional concerns, based on published Bright Futures and AAP policy statements and clinical reports.[9–11] The following guidelines provide an overview of the social determinants impacting the health of children living in poverty and provide clinicians with practical tools and resources.

As research furthers our understanding of the causal mechanisms by which social factors impact health, comprehensive assessments need to address more broadly the diverse components of social determinants of health. Despite the detrimental effects of social determinants on child health, few child health clinicians routinely address the social and psychosocial factors that affect children and their families during routine primary care visits.[12] Barriers to assessing social determinants include a lack of recognized impact or measurable outcomes and lack of time, professional training, familiarity with relevant assessment tools and knowledge about the availability of relevant community resources.[12,13]

Screening for Social Determinants of Health

The process of surveillance and screening can be applied to the social determinants of health as it is for developmental delay.[9,14,15] Surveillance is defined as “a flexible, longitudinal, and continuous process whereby knowledgeable professionals perform skilled observations during the provision of health care,” whereas screening involves the use of standardized tools.[16] Surveillance and screening for social determinants include the following core components: (1) eliciting and attending to parents’ concerns by asking general queries at

routine visits (e.g., What are your family concerns or needs? How can I help you?); (2) identifying the presence of risk factors and protective factors; (3) screening for specific social issues at periodic visits; and (4) referring patients and families with identified needs to professionals in other disciplines and community agencies (e.g., Medicaid office, legal advocacy organization) that provide direct assistance and resources.[14]

There are specific principles that inform screening for social determinants of health.[15,17,18] First, screening should be tailored to address the most commonly identified issues in the community served. It is also important to screen for and address less common but serious issues, such as child sexual abuse and/or living in foster care. Parent's perspectives and concerns can contribute to prioritizing areas for screening. Second, screening should be appropriate for the child's developmental stage (e.g., childcare in early childhood or intimate partner violence in adolescence). Third, screening for specific issues ideally should be implemented after available resources to address the issues are identified. Screening during initial intake with any new family and during routine well-child care visits is important as family needs change overtime. Finally, screening may consist of global screening. A single tool can address multiple social determinants of health, or it may be focused on specific issues, such as maternal depressive symptoms or food insecurity.[14,19] A team-based approach may facilitate the screening process. Many of these screens can be completed and scored by a non-physician and many can be incorporated into the electronic health record. For those screens that are universal in a practice, patients and caregivers should be informed that the "practice screens all patients" in order to reduce concerns about stigmatization.

Children living in poverty are at greater risk for developmental and behavioral problems when compared to peers from higher income families,[20,21] though all children should be screened. Recommendations for screening and surveillance of child developmental and behavioral problems, which influence the social determinants of health discussed here, have been published in the medical literature;[9,10] therefore, child development and behavior will not be discussed further in the sections that follow. A comprehensive AAP paper on child developmental delay reviewed 20 screening tools for use in children 0–8 years, including the Ages and Stages Questionnaire (ASQ®), Denver II Developmental Screening tool, the Parents Evaluation of Developmental Status (PEDS) tool, the Modified Checklist for Autism in Toddlers (MCHAT), and the Early Language Milestone Scale-Second Edition (ELM Scale-2).[9] Bright Futures provides surveillance tools to address school-aged and adolescent cognitive development.[11] A newer screening tool, the Survey of the Well-Being of Young Children (SWYC; ages 0–5) assesses for developmental milestones, behavioral/emotional development, and family psychosocial risk factors.[22]

Each of the following sections addresses the nature of domain-specific problems, suggests approaches to surveillance and screening, and describes the role of the child health clinician. A table of examples of major screening instruments (Table 1) is included as well as a table of resources (Table 2). Overall, a heuristic approach is necessary to integrate surveillance and screening into primary care and enable clinicians to address social determinants of health for children living in poverty.

Social Determinants of Health

Child Maltreatment

More than a quarter million U.S. children are victims of child maltreatment, or abuse and neglect each year, with approximately 1640 children dying from maltreatment.[23] Child maltreatment results in short- and long-term consequences ranging from the immediate fractures, abdominal trauma, head injury, and death to residual and long-lasting neuropsychological and physical health problems.[24,25] All forms of child maltreatment—child physical, sexual, and psychological abuse, and child neglect—are ACEs that are associated with long-term adverse health effects.[4] Children living in poverty are five times more likely than their higher income peers to experience child maltreatment.[26] The increased risk for child maltreatment among children living in poverty is complex and, in part, is attributed to material hardship, infrequent employment, family stress, mental illness, and negative parenting.[27]

As mandatory reporters, child health clinicians have a primary role in identifying child abuse and neglect, and in facilitating referrals for assessment and treatment. The AAP's clinical report on suspected child abuse provides an overview of factors that should raise the suspicion for abuse, including an absent or vague explanation for a significant injury or an explanation that is inconsistent with the pattern, age and/or severity of the injury.[28] Child sexual abuse may go undetected for many years. It may present in a variety of ways, ranging from a child complaining of non-specific chronic headaches or abdominal pain to a friend or family member reporting a witnessed sexual act between a perpetrator and a child.[29] Researchers have developed an array of different measures to assess exposure to maltreatment, but most measures are far too exhaustive and time-consuming for routine use in primary care. The Childhood Trauma Questionnaire (CTQ) and History of Victimization Form (HVF) are two maltreatment assessment tools adapted for use in clinical settings.[30] The CTQ has been validated psychometrically and typically takes 5–10 min to complete. While the HVF is long (65 items) and has not been validated psychometrically, the tool is composed of five subscales, each of which can be used independently in a clinic setting to assess specific types of maltreatment.[30] The Kempe Family Stress Inventory may help to identify families at risk. An alternative approach to using screening tools involves completing a thorough psychosocial assessment at every well visit to assess family challenges and strengths, and child behavior and emotional concerns, in addition to looking for signs of abuse and neglect (i.e., unexplained injuries, scars, and bruises) during every physical examination. Practicing Safety™ is an AAP-approved toolkit that incorporates screening questions into routine well-child visits at crucial risk periods for physical abuse and neglect, including the newborn period and the toddler years.[31]

Pediatric clinicians play a central role in the identification of child maltreatment, referral of suspected cases to child protective services, and linkage of families to therapeutic services for children who require counseling secondary to their traumatic experiences. In addition, pediatric clinicians assist in the prevention of maltreatment by identifying high-risk families early and referring these families to community-based programs. It also is important for clinicians to understand that poverty and a history of prior abuse place children and youth at

risk for child sex trafficking.[32] Children who are victims of abuse and trafficking are also at risk for post-traumatic stress disorder. Whenever possible, treatment, resources, and services to help such children and families should be trauma-informed. A trauma-informed approach is one that "*realizes* the widespread impact of trauma and understands potential paths for recovery; *recognizes* the signs and symptoms of trauma in clients, families, staff, and others involved with the system; *responds* by fully integrating knowledge about trauma into policies, procedures, and practices; and seeks to actively resist *re-traumatization*."[33] Finally, using a universal approach of providing effective, age-appropriate, anticipatory guidance can help equip children and parents with skills to minimize exposure to trauma.

Child Care and Education

It is well established that early childhood education has lasting positive effects into adulthood. In the 1960s and 1970s, groundbreaking studies including the Perry preschool and the Abecedarian projects followed the outcomes of poor children who were offered an enriched preschool experience.[34] Compared to the control groups, socioeconomically disadvantaged children who received the benefits of early childhood education had remarkably better life course outcomes, with long lasting benefits, compared to peers who did not receive enriched education.[35] One in four U.S. pre-school-aged children currently lives below the federal poverty level, and half of these children have below-average reading skills when they reach fourth grade.[36] Children living in poor neighborhoods are more likely to drop out of high school.[37] Social inequities start early, and early intervention can change the life of a child, their family, and society for the better.[38] Early Head Start, Nurse Family Partnerships, and group parenting classes have been proven to increase language acquisition and cognitive outcomes in school-aged children.[39,40] A total of three states—Florida, Georgia, and Oklahoma—recognize this evidence and offer universal preschool to eligible children.[41]

Child health clinicians can have an active role in screening for childcare and education needs early in childhood. Silverstein and colleagues demonstrated the positive impact that a primary care-based intervention had on increasing low-income children's enrollment in Head Start.[42] Administration of the WE CARE survey, a tool that screens for multiple unmet material needs, has also been shown to effectively increase childcare enrollment in the first year of life.[18] Children growing up in poor neighborhoods have more challenges in primary and secondary education, a lower likelihood of completing high school, and more difficulty finding employment, which continue the intergenerational poverty cycle.[43,44] Families raising children in poverty are often in transition, moving homes and schools frequently. This disruption contributes to higher than average grade retention rates and special education placement.[45,46] Even modest increases in family income are associated with significant increases in math and reading test scores.[47] Intervention for learning delays and differences should follow the regulations of the Individuals with Disabilities Education Act (IDEA). The Individual Education Plan (IEP) is the public school system's responsibility. After a parent requests an evaluation in writing, the school is federally mandated to complete the testing within 60 days, with more time to implement special education services.[48] Poor children often attend underfunded public schools with limited resources, resulting in a stressed system where there may be delays in identifying and providing services to children in need.

[49] Screening children for school difficulties during the annual well-child care visit may uncover the need for testing and services. The child health clinician has an opportunity to help parents understand their rights and to pursue services to which their children are entitled. Partnering with families, teachers, and other school staff may help children achieve their full educational potential. Child health clinicians play an important role in encouraging and helping parents to be fully engaged with their child's education and to be advocates for his/her educational needs.

Family Financial Support

Many families living in poverty have difficulties meeting basic social and financial needs, in particular finding employment, obtaining medical insurance through Medicaid for their children, and securing adequate food.[50] When unmet, these needs have detrimental effects on child physical and mental health. Food insecurity, defined as the limited or uncertain availability of nutritionally adequate and well-tolerated foods,[51] is a common need among families living in poverty. With the rise in the number of families living in poverty, 17.4 million U.S. households experienced food insecurity in 2014.[52] Although programs such as the Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) are designed to provide support for such families, overall rates of food insecurity remain as high as 37%, even among program participants.[53,54] Food insecure families are more likely to have children with poor overall health and health problems including anemia, asthma, frequent stomach aches, headaches and colds, lower nutrient intake, obesity, and a higher likelihood of hospitalization.[53–60] Food insecure children also are more likely to have cognitive problems, aggression and anxiety, poor attachment, and behavioral problems when compared to those who are food secure.[61–63]

It is important for pediatric clinicians to assess for family financial supports by asking about employment, health insurance, and food security. Open-ended inquiries about lapses in routine well-child care for children living in poverty will often reveal a loss of health insurance that may be coincident with a loss of parental employment and/or health insurance, and/or housing instability. While individual tools exist to screen for food insecurity, the assessment of other unmet needs often relies on tools that screen for multiple domains simultaneously. Food security status has primarily been evaluated in large national surveys for research purposes using the Core Food Security Module from the U.S. Department of Agriculture (USDA).[64] This survey uses 10 questions to assess overall household food security and an additional 8 questions to specifically address how food insecurity impacts children in the home. As the need to screen for food insecurity becomes more evident, child health clinicians need efficient methods for identifying children in food insecure households. A two-item, validated, screening tool—with high sensitivity, good specificity, and convergent validity—has been adapted from the Core Food Security Module and studied in the clinical setting.[65] The 2015 AAP policy statement on food security recommends use of this two-item tool.[66]

Screening for unmet social and financial needs within the medical home is a critical first step in meeting AAP policy guidelines that call for child health clinicians to work toward

reducing ACEs and toxic stress.[3] If child health clinicians develop an increased awareness of food insecurity rates in their communities, this will enable them to serve families more effectively. Screening will aid in identifying children in need of additional resources, such as food banks and pantries, social services, and federally funded nutrition programs such as SNAP, WIC, free school meal programs, and summer nutrition programs. Various community organizations that help families living in poverty with securing access to food also provide assistance with acquiring and maintaining child health insurance and with finding employment.

Physical Environment

The physical environment in which a child lives, including the home, green spaces, parks, and outdoor play areas, has direct effects on health. Children whose families spend more than 30% of their income on housing are at risk for malnutrition and growth stunting.[67] Homelessness is associated with an increased incidence of asthma, acute otitis media, and mental health conditions among affected children.[68] Mold, mildew, and cockroach infestation worsen asthma and allergy severity; lead and carbon monoxide exposure put children at risk for toxicity; and faulty wiring and poor heating systems increase the risk of burns and fire deaths.[69] Exposure to asbestos, coal emissions, and other pollutants adversely affects health. Outside of the home, access to green space is inversely related to inactivity and stress. Children living in environments with more green space demonstrate improved resilience when confronted with adversities such as family strife, divorce, and bullying.[70] Green environments reduce stress, anxiety, and depression, and increase longevity and feelings of well-being,[71] especially for those living in poverty.[72]

Despite the negative health impact of poor housing,[73] there is no high-quality, validated clinical screening tool that assesses housing affordability or quality. The American Housing Survey, conducted by the U.S. Census Bureau, has been used in research, but its length prohibits clinical utility.[74] Child Health Watch, an organization that uses a periodic screening of families in emergency departments to understand how social needs affect child health outcomes, uses the presence of crowding (defined as more than two people per bedroom) and/or frequent moves (defined as more than two moves in the past two years) to identify children with housing insecurity.[75] In the WE CARE project, the single question, “Do you think you are at risk of becoming homeless?” is used to identify housing problems.[19] Utilizing the overall WE CARE screening and intervention system resulted in lower odds of living in a homeless shelter.[18] Similarly, there is no existing validated screening tool for access to green space. However, asking about proximity to and safety of parks and green spaces will help clinicians better understand the environments in which children live.

Identification of housing instability by child health clinicians can offer an opportunity to inform families of their legal rights as tenants to live in sanitary conditions, to advocate for families to have their medical problems accommodated by adequate housing, and to connect families with existing housing subsidy and shelter programs. Similarly, identifying a lack of access to parks and green spaces provides an opportunity for child health clinicians to inform families about available free or low-cost resources. Child health clinicians also can

brainstorm and work with families to determine creatively how they might overcome barriers to accessing such green spaces.

Family Social Support

Recent census data show that the prevalence of children living in married, two-parent family households with a mother and father has decreased to approximately 65%.[76] At the same time, there has been an increase in the prevalence of single-parent households, most often headed by mothers but sometimes fathers, and 6% of children are living in households with grandparents.[77] In addition, over 500,000 U.S. children live in foster care at any given time. Black and Hispanic children are more likely to live with one-parent, or spend time in foster care than non-Hispanic white or Asian children.[77,78]

Single-parent households have significantly worse economic status than two-parent households.[76,78] Each year, over one million U.S. children are exposed to divorce, which negatively impacts economic and mental health outcomes for children.[79,80] Half of marriages end in divorce, and the likelihood that a child will be in a family that experiences divorce is higher than one in three. The AAP and the American Academy of Family Physicians (AAFP) recommend routine screening for family composition among patients and caregivers at each well-child visit.[80]

Almost all child health clinicians assess family social support at visits with new patients and periodically thereafter. Few of the tools used to assess family social support in healthcare settings have been studied for their validity, brevity, or consistency. How often clinicians should assess family composition and support is unclear. Development of a valid, efficient, standardized measure to assess family social support would be useful for child health clinicians to serve children and families, and to enable long-term comparisons of child outcomes among diverse family settings.

Child health clinicians must understand the social context in which children live and develop to provide effective family-centered, culturally competent care.[80] A better understanding of family composition will enable clinicians to tailor advice given to children and caregivers and to identify the most appropriate community services to support families.

Intimate Partner Violence

Approximately 15 million U.S. children are exposed to intimate partner violence (IPV) in the home each year, with children under 6 years experiencing the greatest exposure.[81] While exposure to IPV affects households of all socioeconomic backgrounds, children living in poverty are at higher risk for exposure to violence in the home than children not living in poverty. IPV exposure increases the risk of child physical abuse and has been linked to physical and mental health problems in children, including asthma and behavior problems.[82–84] Along with other ACEs, exposure to IPV is associated with subsequent physical changes in the brain.[85] The AAP, AAFP, and the American Congress (formerly College) of Obstetricians and Gynecologists recommend routine screening for IPV among patients and caregivers.[86–88]

In 2007, the Centers for Disease Control and Prevention (CDC) published a compilation of IPV tools used in clinical and healthcare settings.[89] Overall, three tools stand out for their validity, brevity, and potential applicability to the pediatric setting, though none have been validated specifically for use with caregivers in this setting.[89,90] There is little consensus about the "gold standard" for IPV, but the Conflict Tactics Scale (CTS) is a commonly used comparison when assessing IPV screening tools.[89] Each tool addresses most or all of the four major domains of IPV: emotional, physical, sexual, and threats/coercion. The HITS (Hurt, Insult, Threaten, and Scream) is a brief, 4-item tool developed for use in family medicine, and tested as a self- and clinician-administered tool. Responses are on a Likert-like scale, and the scoring takes less than 1 min to complete. HITS does not ask directly about sexual violence. The Partner Violence Screen (PVS), a three-question screen, was developed and tested in emergency departments; the administration and scoring are brief, but the tool does not address emotional violence. Finally, the WAST (the Women Abuse Screening Tool) consists of seven questions and addresses all four major IPV domains. A recent review demonstrated that computer-assisted screenings led to higher rates of IPV disclosure when compared to screening done with paper surveys.[91]

Child health clinicians need to understand the social context in which children live so that they can assess risk to the child's health and safety. RADAR (**R**emember to screen regularly, **A**sk direct questions, **D**ocument results, **A**ssess safety, **R**eview options) is a widely used approach to screening for and addressing IPV.[92] RADAR stresses that the interview be conducted in private. Indeed, the need to interview a parent separately from a child, when this is developmentally appropriate, is a challenge to clinicians that may favor use of a self-administered screen. There is a strong literature of evidence-based primary care interventions for IPV in adult medicine settings, largely involving social workers and advocates in empowering victims and in connecting them with local resources, in contrast to the notable gaps in the pediatric literature.[93] An informed and sensitive approach is recommended, as some caregivers may not know about available resources and others may be dependent financially on the perpetrator of violence. It is important to determine the extent to which IPV is witnessed by the child and whether there is associated physical violence involving the child and/or child physical abuse. Knowledge of existing restraining orders and housing arrangements can help clinicians understand risk to the child. In addition, informed healthcare clinicians can assist families with pursuing restraining orders and securing safe housing by working closely with social workers and community agencies.

Maternal Depression and Family Mental Illness

Family mental health impacts family dynamics and child well-being. Maternal depression, which impacts child health, is more prevalent than depression and other mental illness among other caregivers;[94] therefore, this section focuses on maternal depression. Mothers, particularly those with young children, living in poverty are at high risk for depression.[95,96] Maternal depression, with prevalence rates as high as 25% among low-income mothers, has been recognized to have deleterious consequences on child health and developmental outcomes.[97–99] Depressed mothers display symptoms, including loss of interest, hopelessness, fatigue, low energy, and poor concentration, that contribute to decreased involvement with their child.[100] Other mothers who experience depression may have poor

coping skills. Impairments in child social development, poor attachment, emotional and behavioral difficulties, and cognitive deficits have been well documented among children whose mothers experience depression.[98,100–105] Maternal depression also has been associated with child physical health problems including an increased likelihood of infant hospitalizations, poor growth, and obesity, and a lower likelihood of following anticipatory guidance and safety recommendations.[106–109]

Mothers living in poverty have infrequent contact with organized health services, particularly mental health services.[110] For adults in low-income communities, there are known barriers to accessing mental health services. Well-child visits enable clinicians to screen high-risk families who may otherwise not receive care. Screening for maternal depression, recommended by Bright Futures and the AAP Mental Health Task Force, is considered a best practice for caring for infants and their families.[11,111] A number of validated screening tools, designed for the general adult population as well as women in the postpartum period, are available. At this time, no single screening tool is recommended. The U.S. Preventive Services Task Force (USPSTF) has recommended that all adults receive depression screening with two questions (Patient Health Questionnaire-2 (PHQ-2)), that assess mood and anhedonia if services are available to respond to positive screens.[112–114] The Edinburgh Postnatal Depression Scale (EPDS) has been validated to specifically screen for maternal postpartum depressive symptoms.[115]

The longitudinal relationship that child health clinicians have with families represents a unique opportunity to identify maternal depressive symptoms and to promote optimal child developmental, mental, and physical health outcomes. While screening does not replace a diagnostic evaluation, it aids pediatric clinicians in discussing the subject of depression and helps to identify women in need of further evaluation and treatment. Responses to a positive screen range from reassurance, education, and skills to promote a positive mother–child relationship for mild symptoms, to referral for further evaluation and intervention for moderate to severe symptoms.[111] Emergency services should be sought if suicidal or homicidal ideation or psychoses are identified.[111] Regardless of the intensity of the symptoms, it is critical to support mothers with positive screens for high depressive symptoms and to avoid further stigmatization and isolation. Before child health clinicians screen for mental health disorders, it is recommended that they have access to appropriate resources for referrals, case management, and follow-up.[114] The AAP Task Force on Mental Health and the Committee on the Psychosocial Aspects of Child and Family Health promote collaborative, integrated models for mental health services within primary care medical homes.[111,116]

Household Substance Abuse

Tobacco, alcohol, and other drugs are widely used by parents, children and youth. Populations in poverty are at risk for exposure to and use of tobacco, drugs and other substances that adversely affect their overall health and well-being. In the U.S., illegal drug use has increased from 8.3% of the 12 and older population in 2002 to 9.2%, or an estimated 23.9 million people, in 2012. This increase is due primarily to the use of marijuana, the most common illicit drug.[117]

The prevalence of cigarette smoking is greatest among adults who live in poverty.[118] There are also data to demonstrate that children of current or former smokers are at increased risk of smoking, noting the influence of intergenerational exposure on cigarette use.[119] The second hand smoke from cigarettes results in an increase in cotinine levels in the body and associated morbidity and mortality. Nationally in 2011–2012, 46.8% of black, 21.8% of non-Hispanic white, and 23.9% of Mexican American non-smokers were exposed to second hand smoke. Second hand smoke exposure was higher in the low-income population, and 43.2% of non-smokers living below the poverty level were exposed to second hand smoke.[120] E-cigarettes, a source of nicotine, are increasingly available to youth, and advertising has targeted the pediatric population. In a 2015 study of a large high school population, Wills and colleagues noted a 17% prevalence rate of e-cigarette use, 12% dual cigarette and e-cigarette use, and 3% cigarette use.[121]

In 2013, 66.2% of children in grades 9–12 reported ever having a drink of alcohol in the past year, 18.6% reported drinking alcohol prior to 13 years of age, and 20.8% had five drinks or more in a couple hours at least one day (in 30 days before the survey), and 10% noted drinking while driving one or more times.[122] High school students reporting ever using marijuana fell from a peak prevalence of 47.2% in 1999 to 40.7% in 2013. The use of cocaine also fell from a high of 9.5% in 1999 to 5.5% in 2013. Likewise, the use of inhalants fell during these same years from 14.6% to 8.9%. The use of heroin and any injected illicit drug peaked in 2003 at rates of 3.3% and 3.2%, respectively, and fell to 2.2% and 1.7% in 2013. Most concerning was the fact that 22.1% of high-school-aged children reported that they had been offered, sold or given an illegal drug by someone on school property.[123]

There are a number of screening tools available to assess for household substance use. The Safe Environment for Every Kid (SEEK) Parent Screening Questionnaire consists of 15 questions addressing many social determinants of health with three questions devoted to substance use and abuse.[124] The Survey of Well-Being of Young Children (SWYC) is a comprehensive set of instruments with a special instrument on family psychosocial factors, called “Family Questions.”[125] Among the nine questions, there are four questions devoted to drugs and other substances. To assess for substance use among adolescents, there are three screening instruments that are clinically useful. As part of the general surveillance of adolescent health, the HEADSS (Home, Education, Activities, Drug use and abuse, Sexual behavior, Suicidality and depression) assessment is a clinically organized history addressing the categories of issues that all teens face. The “D” in “HEADSS” addresses “Drug use and abuse.”[126] The CRAFFT (Car, Relax, Alone, Forgetting, Family or Friends, Trouble) is a widely used tool recommended by Bright Futures and the AAP Policy Statement on Substance Use Screening.[127,128]

As noted in Bright Futures, screening for substance use and abuse among parents is an important assessment, treatment, and preventive health strategy.[11] In addition, the child health clinician who identifies a parent whose judgment is impaired by alcohol or drugs is expected to address these issues with the parent directly. If the child(ren) is/are at risk of harm or neglect, clinicians must file a report with the local children and youth agency for suspected abuse and neglect, or take more urgent steps to protect the child(ren).[129]

Firearm Exposure

Firearm injuries remain one of the top three causes of death for children 0–24 years of age.[130] Although the risk of firearm death increases with age, the fourth most common cause of death in children ages 5–9 is firearm homicide. Injuries from firearms are common, with firearm assault being the seventh leading cause of non-fatal, violence-related injury among children 0–19 in 2013.[130] Latino and black youth, and those living in poverty, are at particular risk for non-fatal and fatal firearm assault.[131] Data from numerous studies show that the presence of a gun in the home is associated with an increased risk of suicide and homicide, both intentional and unintentional, among teenagers.[132]

Bright Futures recommends that child health clinicians screen for firearm safety at well-child care visits, starting at age nine months and continuing at every visit.[11] Although the suggested wording varies somewhat by age, the questions include the following: “Does anyone in your home have a gun? Does a neighbor, family friend, or any home where your child might play have a gun? If so, is the gun unloaded and locked up? Is the ammunition stored and locked separately from the gun? Have you considered not owning a gun because of the danger to children and other family members?” Once children turn 9, Bright Futures recommends directing questions to the child: “What have your parents taught you about guns and what not to do with them?” After the age of 11, there is a recommended additional question, “Do you ever carry a gun (even to protect yourself) or have access to a gun at home or in places where you spend time?” A 2008 study showed that screening for firearm storage practices, followed by appropriate counseling and the offering of free cable locks for firearms led to increased safe firearm storage. This study used the following screening questions: “Are any guns stored or hidden in a place other than a locked cabinet or gun safe? Are all guns stored with a gun lock on them? Are bullets stored separate(ly) from all guns?”[133] Finally, Hayes and Sege developed FiGHTS, a screening tool for adolescent firearms carrying. The “brief FiGHTS score” includes five predictor variables: having been in a physical fight (Fi), male gender (G), having required medical attention after a fight (H), having been threatened with a weapon (T), and ever having smoked at least one cigarette daily for at least 30 days (S). The sensitivity and specificity of the tool were 82% and 71%, respectively, with an area under the receiver operating characteristic (ROC) curve of 0.84. An extended FiGHTS score with 11 risk factors performed even better, with an area under the ROC curve of 0.90.[134]

Healthcare clinicians should discuss firearm ownership and storage with families, emphasizing that their interest is out of concern for the health and welfare of the family and that all information will be kept confidential. The AAP and AAFP recommend routine screening and counseling regarding gun safety.[132,135] Although 18 states have laws requiring safe firearm storage,[136] questions about firearm use and storage may be a sensitive topic for some families. In fact, in 2011 the state of Florida enacted a physician gag law restricting counseling on firearm safety, citing privacy concerns and second amendment rights.[137] To date, 12 states—Alabama, Indiana, Kansas, Minnesota, Montana, North Carolina, North Dakota, South Carolina, Tennessee, Texas, Virginia, and West Virginia—have considered but failed to pass similar legislation, but one other state, Ohio, has legislation under consideration.[138] Of note, a petition for a rehearing has been filed in Florida’s Eleventh

Circuit Court of Appeals. An injunction blocking enforcement of the Florida law is in place until the court makes a decision regarding the rehearing. As a result, the AAP continues to encourage child health clinicians in every state to screen and counsel regarding firearm safety.[139] The Centers for Medicare and Medicaid Services (CMS) has stated that, according to the Affordable Care Act, although no healthcare organization may *require* disclosure regarding firearms, there is no language that prohibits or otherwise limits communication, including communication about firearms, between healthcare professionals and their patients.[140]

Parental Health Literacy

Health literacy, defined as the "degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions,"[141] is important in ensuring effective provider–patient communication. Nationally representative survey data indicate that one in three adults have limited ("below basic" or "basic") health literacy knowledge and skills.[142] Adults living in poverty fare much worse with 60% of adults who receive Medicaid having limited health literacy.[143] Limited health literacy is associated with medication errors, inadequate knowledge, suboptimal management of chronic health conditions, and increased healthcare costs.[144–146] Low parental literacy is associated with worse child health outcomes, including higher rates of asthma-related hospitalizations and emergency department visits.[147]

Interventions designed to address low health literacy, such as written materials that use plain language and pictograms, and videos that incorporate health literacy principles are effective in improving parent knowledge and health behaviors. Given the high prevalence of limited health literacy in the U.S, the Agency for Healthcare Research and Quality (AHRQ) recommends that a "universal precautions" approach be used in primary care practices. This approach is relevant particularly when caring for families living in poverty.[148] Several tools, which primarily have been used in research and not routinely in clinical practice, are available to determine health literacy level. The most commonly used tools include the Test of Functional Health Literacy in Adults (TOFHLA)[149] and the shortened S-TOFHLA,[150] the Newest Vital Sign™,[151] and the Rapid Estimate of Adult Literacy in Medicine (REALM).[152]

The role of the physician is to promote communication by using strategies such as the following: (1) using plain "living room" language with avoidance of medical jargon; (2) using "chunk and check"—delivering information in small amounts and checking for understanding; (3) using pictures, drawings, models, and demonstration to supplement verbal communication; (4) using written information to supplement verbal messages, incorporating written handouts as part of verbal counseling by pointing, circling and highlighting key points on the page; and (5) using teach-back and show-back: asking patients and parents to repeat their understanding in their own words or through demonstration. For written materials, a maximum sixth to eighth grade reading level is recommended; for low literacy populations, a third to fifth grade level is advised. This can be accomplished using simple, 1–2 syllable words, short sentences of 4–6 words, and short paragraphs of 2–3 sentences each. A useful tool to assist in designing low literacy written materials or to assess the readability of existing materials is the Text Readability Consensus

Calculator.[153] Other readability tools, such as the Flesch Reading Ease[154] and Flesch Kincaid Grade Level[155] are available as part of some word processing programs. Suitability of written materials can be evaluated using the Suitability Assessment of Materials (SAM) tool[156] or AHRQ's Patient Education Materials Assessment Tool (PEMAT).[157] Assessing the readability and suitability of written materials used in the office can help clinicians identify patient educational materials that need improvement. Healthcare clinicians should seek out published resources for existing plain-language, patient education materials, such as the AAP publication, *Plain Language Pediatrics*.[158]

Concluding Remarks

Children live in poverty throughout the U.S., in rural, urban and suburban neighborhoods. While some families will live their entire lives in poverty, other families may move in and out of poverty with changing needs and hardships. Families living in poverty face numerous challenges that impact health and require the attention of their healthcare clinician. Sometimes families will have to choose between basic needs and medical treatment. Such "trade-offs," for example, may involve a family buying food in place of medicine or vice versa.[66] If clinicians can work with families to minimize needs and maximize their assets, then families may face fewer trade-offs.

The social determinants of health outlined in this guide can be identified and addressed by child health clinicians working one-on-one with families through the use of proper screening tools and prompt referral to resources in collaboration with social work and community agencies. More broadly, healthcare systems can be redesigned to address childhood poverty; however, this is beyond the scope of this guide and addressed elsewhere.[159] Depending on the circumstances, child health clinicians may screen for one or many social determinants of health at any given visit with families. It is recommended that clinicians connect families with community resources while building on identified family strengths and assets. Ongoing surveillance can help to prioritize family needs since attempts at addressing all needs at once may be overwhelming for the clinician and the family. Families may have established relationships with some community resources; therefore, it is important to ask families about known resources in their communities. Each community has unique resources that reside at non-profit organizations, public programs, and advocacy groups. Identifying local resources may be accomplished by contacting local governmental (e.g., departments of health) and professional organizations and agencies (e.g., county and/or state medical society, state chapter of the AAP), or by exploring local services via the internet. Some locales have organized lists of resources in partnership with the Children's Advocacy Project (www.cap4kids.org), started in Philadelphia, Pennsylvania.[160] Practices in several major regions, including the San Francisco Bay Area, New York City and Boston, use the Health Leads model, where trained college students (Health Leads Advocates) help to connect families with resources for basic needs such as heat and food.[159,161] A number of national resources are provided in Table 2 to help clinicians and families. The availability of local and national resources depends on funding, community needs, and staffing; therefore, it is important to periodically update resource lists and contact information. Clinician referrals to and relationships with community agencies are likely to impact positively a family's adherence to clinicians' recommendations.

Surveillance and screening of families and referral to resources are direct ways for healthcare clinicians, face-to-face with families, to impact the effects of childhood poverty. In addition to this direct support, child health clinicians can advocate on behalf of children and families at the practice and community levels. Practice levels changes could range from short-term, educational interventions, such as the Educating Practices/Physicians in Their Communities (EPIC) programs by the Pennsylvania Chapter of the AAP,[162] to long-term changes at the office like incorporating a WIC office or partnering with lawyers to have an on-site Medical-Legal Partnership.[159,163]

With one out of every five children in America living in poverty, there is an apparent need for creative solutions to mitigate the ill effects of child poverty. Ongoing and future research is needed to determine the best approach to evaluate and address the needs of children living in poverty. Routine screening and surveillance for social determinants of health will help connect families to essential resources within and outside the family, but additionally clinicians should work toward reducing and eliminating poverty. The APA Task Force on Childhood Poverty Strategic Roadmap provides an overall strategy to address childhood poverty through public policy and advocacy, education, and research.[164] The AAP Poverty and Child Health Leadership Workgroup also has a strategic plan and has gathered a number of resources for its members.[165] These professional organizations recognize the importance of having clinicians work with other poverty experts, including but not limited to educators, economists and lawyers. As Sir Michael Marmot writes in his book *The Health Gap: The Challenge of an Unequal World,* "…it is a reasonable conclusion that poverty reduction will be good for children's physical, psychological, social and emotional development."[166] With resources and tools, child health clinicians can work with families and others to reduce child poverty and its associated adversities to maximize child health and well-being.

Abbreviations

AAP	American Academy of Pediatrics
AAFP	American Academy of Family Physicians
ACE	Adverse Childhood Experiences
AHRQ	Agency for Healthcare Research and Quality
APA	Academic Pediatric Association
CDC	Centers for Disease Control and Prevention

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TABLE 1

Major screening tools for social determinants of health

Outcome	Screening tool, description incl # of items, cutpoint(s), sensitivity and specificity when available	Administration	Age range and specifications	Available languages	Public domain or requires authorization and/or licensing agreement
Child Maltreatment—physical, sexual and/or psychological abuse	Child Trauma Questionnaire (CTQ)—28-item; emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect	Self-administered; 5 min	Age 12 and order	English	May be purchased for use at http://www.pearsonclinical.com/psychology/products/100000446/childhood-trauma-questionnaire-a-retrospective-self-report-ctq.html?Pid=015-8102-339&Mode=summary. Accessed 08.07.15.
	History of Victimization Form—65-item instrument with 5 subscales: sexual abuse, physical abuse, neglect, witness to family violence and psychological abuse	Self-report	Children	English	No cost. Contact Vicky.wolfe@lhsc.on.ca
	Kempe Family Stress Inventory—10-items; 80–90% sensitivity; 21–89% specificity; used by a number of Healthy Start programs	Parent, self-administered	Adults	English	No copyright when used in service settings. Need permission to re-publish.
Family Financial Support	US Department of Agriculture Household Food Security Module—18 questions assessing general household and child food security, categorized into high, marginal, low, and very low food security	Researchers	Adults	English and Spanish	Free and in the public domain. See http://www.ers.usda.gov/datafiles/Food_Security_in_the_United_States/Food_Security_Survey_Modules/hh2012.pdf. Accessed 11.11.15.
	Two question screen validated for clinical use: sensitivity 97%; specificity 83%; “Within the past 12 months we worried whether our food would run out before we got money to buy more.” “Within the past 12 months the food we bought just didn’t last and we didn’t have money to get more.”	Healthcare clinician or staff	Caregivers of children (validated in families with a child less than 36 months old)	English, Spanish and Somali	Free and in the public domain.[65]
Intimate Partner Violence	HITS (Hurt, Insult, Threaten, Scream) tool—4-items; assesses frequency of IPV; <1minute to score; 86–96% sensitivity; 91–99% specificity; Conflict Tactics	Self-report or clinician administered; less than 20 s	Adults	Available in Spanish, Chinese Mandarin and Arabic	Copyrighted. For permission to use, contact: Dr. Kevin Sherin by e-mail: kevin_sherin@doh.state.fl.us

Outcome	Screening tool, description incl # of items, cutpoint(s), sensitivity and specificity when available	Administration	Age range and specifications	Available languages	Public domain or requires authorization and/or licensing agreement
	Scale (CTS)[82] used as gold standard				
	PVS (Partner Violence Screen): 3 items; assesses current safety and IPV in past year; 35–71% sensitivity; 80–94% specificity; CTS used as gold standard. Positive response to any item represents positive screen	Self-report or clinician administered; less than 1 min	Adults	English	Copyrighted. Contact developers. See original article: Feldhaus KM, et al. Accuracy of 3 brief screening questions for detecting partner violence in the emergency department. *J Am Med Assoc*. 1997;277: 1357-61.
	WAST (Women Abuse Screening Tool), WAST-SF (Women Abuse Screening Tool—Short Form); 8 items, 2 items in SF. Long form: 74% sensitive, specificity 96%. SF is 91% sensitive, and 100% specific compared to long form	Self-report	Adult women	Available in Spanish (long form)	Copyrighted. For permission, contact the Society for Teachers of Family Medicine, www.stfm.org. Accessed 08.07.15.
Maternal Depression and Family Mental Illness	Patient Health Questionnaire-9 ((PHQ-9) Items, max score 27; depression severity: score 5–9 = mild; Score 10–14 = moderate; 15–19 moderately severe; 20–27 = severe; sensitivity 81%; specificity 92% for major depression	Self-administered, staff or physician	Adult or adolescent	English and multiple other languages developed for specific countries	In the public domain. No permission required to reproduce, translate, display or distribute. See http://www.phqscreeners.com/overview.aspx. Accessed 12.07.15. Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer, Inc.
	Edinburgh Postnatal Depression Scale (EPDS)– 10 items, max score 30, cutpoint ≥13 for major depression; sensitivity 67–100%, specificity 68–100%	Self-administered	Mother	English and Spanish http://www.beyondtheblues.info/Docs/edinburgh%20espanol.pdf. Accessed 12.07.15	Copyrighted. Users may reproduce the scale without further permission providing they respect copyright by quoting the names of the authors, the title and the source of the paper in all reproduced copies. See http://www.fresno.ucsf.edu/pediatrics/downloads/edinburghscale.pdf. Accessed 12.07.15
Household Substance Abuse	Safe Environment for Every Kid (SEEK) parent screening questionnaire-5–10 min	Self report or staff person	Parent	English, Chinese, Spanish, and Vietmanese	Copyrighted. For permission to use, see: University of Maryland School of Social Work: The Institute for Innovation and Implementation. http://theinstitute.umaryland.edu/seek/seek_pq.cfm. Accessed 08.07.15
	Survey of Well-Being of Young Children (SWYC), Family Questions-5 min	Self report or staff person	Family member	English, Spanish. Portugese, Burmese, Nepali	Free and in the public domain. See: Floating Hospital for Children at Tufts Medical Center. The Survey of Wellbeing of Young Children (SWYC). http://www.theswyc.org/. Accessed 08.07.15

Outcome	Screening tool, description incl # of items, cutpoint(s), sensitivity and specificity when available	Administration	Age range and specifications	Available languages	Public domain or requires authorization and/or licensing agreement
	HEADSS (Home, Education & Employment, Activities, Drugs, Sexuality, Suicide/ Depression)–1–2 min	Self report or staff person	Adolescents	English	Free and in the public domain. BC Children's Hospital. HEADSS: A Psychosocial Interview for Adolescents. http://www.bcchildrens.ca/nr/rdonlyres/6e51b8a4-8b88-4d4f-a7d9-13cb9f46e1d6/11051/headss20assessment20guide1.pdf. Accessed 08.07.15
	CRAFFT (Car, Relax, Alone, Forget, Friends, Trouble)– 1–2 min	Self report or staff person	Adolescents	Multiple languages	Free and in the public domain. See: The CRAFFT Screening tool at http://www.ceasar-boston.org/CRAFFT/index.php. Accessed 26.03.16
Parental Health Literacy	TOFHLA (Test of Functional Health Literacy in Adults)– 4 prose passages, 17 numerical ability items, average 22 min; S-TOFHLA −2 prose passages, 4 numeracy items, average 12 min	Staff or healthcare professional	Adults	English and Spanish	Copyrighted. For details, see Peppercorn Books: http://www.peppercornbooks.com/catalog/information.php?info_id=5. Accessed 11.11.15.
	The Newest Vital Sign–6 questions about a sample nutrition label; 3 min	Staff or healthcare professional	Adults	English and Spanish	Trademark with Pfizer, Inc. For the free toolkit, see https://www.pfizer.com/files/health/nvs_flipbook_english_final.pdf. Accessed 08.07.15
	Rapid Estimate of Adult Literacy in Medicine (REALM)— list of 66 medically related words, which patients are asked to read aloud to check for correct pronunciation. REALM-R – shortened, revised version; 2 min	Staff or healthcare professional	Adults	English	Free and in the public domain. See http://www.impact-information.com/impactinfo/newsletter/realm.pdf. Accessed 08.07.15 REALM-R available at: http://www.ahrq.gov/professionals/quality-patient-safety/pharmhealthlit/realm-r.html. Accessed 08.07.15

TABLE 2

Resources for healthcare clinicians and families by social determinant of health[a]

Social determinant of health	Family resources
Child maltreatment	Centers for Disease Control and Prevention. Child Maltreatment Prevention Strategies http://www.cdc.gov/violenceprevention/childmaltreatment/prevention.html. Children's Safety Network Resources—Child Maltreatment Prevention 2014 Resource Guide http://www.childrenssafetynetwork.org/guides/child-maltreatment-prevention-2014-resource-guide Local and State Department of Human Services Local and State Department of Welfare U.S. Department of Health and Human Services. Child Welfare Information Gateway. Parenting Resources https://www.childwelfare.gov/topics/preventing/promoting/parenting/
Childcare and education	Child Development Centers (California) http://www.cdicdc.org Head Start and Early Head Start http://www.acf.hhs.gov/programs/ohs National Association for the Education of Homeless Children and Youth www.naehcy.org Nurse Family Partnership http://www.nursefamilypartnership.org Office of Child Care http://www.acf.hhs.gov/programs/occ Reach Out and Read http://www.reachoutandread.org U.S. Department of Education: Parents http://www2.ed.gov/parents/landing.jhtml U.S. Government Official Web Portal for Kids https://kids.usa.gov/parents/index.shtml
Family financial supports	Child Nutrition Programs: School Meals http://www.fns.usda.gov/school-meals/child-nutrition-programs Medicaid http://www.medicaid.gov/ Special Nutrition Assessment Program (SNAP), formerly the Food Stamp Program http://www.fns.usda.gov/snap/supplemental-nutrition-assistance-program-snap The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) http://www.fns.usda.gov/wic/women-infants-and-children-wic U.S. Department of Agriculture: Summer Food Service Program http://www.fns.usda.gov/sfsp/summer-food-service-program-sfsp
Physical environment	Centers for Disease Control and Prevention: Children's Health and the Built Environment http://www.cdc.gov/healthyplaces/healthtopics/children.htm Children's Environmental Health Network http://www.cehn.org/
Family social supports	U.S. Department of Health and Human Services Child Welfare Information Gateway: Family Support Services https://www.childwelfare.gov/topics/supporting/support-services/
Intimate partner violence	Battered Women's Justice Project: 800-903-0111 x 1; http://www.bwjp.org/ National Domestic Violence Hotline 1-800-799-SAFE (7233) (over 170 languages) or http://www.thehotline.org/ Office on Violence Against Women: 202-307-6026; e-mail: ovw.info@usdoj.gov; http://www.justice.gov/ovw Rape Abuse & Incest National Network (RAINN) 1-800-656-HOPE (4673) Women Against Abuse http://www.womenagainstabuse.org/
Maternal depression and family mental illness	Columbia University. National Center for Children in Poverty: Reducing Maternal Depression and Its Impact on Young Children http://www.nccp.org/publications/pub_791.html Substance and Mental Health Services Administration http://www.samhsa.gov/ U.S. Department of Health and Human Services, Health Resources and Services Administration: Depression During and After Pregnancy – A Resource of Women, Their Family and Friends http://mchb.hrsa.gov/pregnancyandbeyond/depression/index.html
Household substance abuse	American Academy of Child and Adolescent Psychiatry - Substance Use Resource Center http://www.aacap.org/AACAP/Families_and_Youth/Resource_Centers/Substance_Use_Resource_Center/Home.aspx Healthy Children. Healthy Children Radio: Coping with Perinatal and Postpartum Depression https://www.healthychildren.org/English/news/Pages/Healthy-Children-Radio-Coping-with-Perinatal-and-Postpartum-Depression-Audio.aspx National Institute on Drug Abuse: Patients and Families Treatment Resources http://www.drugabuse.gov/patients-families Substance and Mental Health Services Administration http://www.samhsa.gov/
Firearm exposure	Children's Safety Network Resources – Firearm Related Injuries http://www.childrenssafetynetwork.org/publications/firearm-factsheet-children National Crime Prevention Council: Guns http://www.ncpc.org/topics/by-audience/parents/guns U.S. Government Official Web Portal for Kids: Firearms https://search.usa.gov/search?utf8=%E2%9C%93&affiliate=kidsgov&query=firearms&sa.x=27&sa.y=12
Parental health literacy	Agency for Healthcare Research and Quality: Health Literacy Universal Precautions Toolkit 2010 http://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/quality-resources/tools/literacy-toolkit/healthliteracytoolkit.pdf American Academy of Pediatrics—Culturally Effective Care Toolkit: Literacy and Health Literacy https://www.aap.org/en-us/professional-resources/practice-support/Patient-Management/pages/Culturally-Effective-Care-Toolkit-Literacy-and-Health-Literacy.aspx#sthash.dcMxCfso.dpuf

Social determinant of health	Family resources
	American Academy of Pediatrics: Health Literacy and Pediatrics https://www.aap.org/en-us/professional-resources/Research/research-resources/pages/Health-Literacy-and-Pediatrics.aspx National Network of Libraries of Medicine http://nnlm.gov/outreach/consumer/hlthlit.html U.S. Department of Health and Human Services: Health Literacy Improvement http://health.gov/communication/literacy/

[a]Websites accessed 28.10.15.