Promoting Healthy Development

Some of the most influential medical research over the past decades illuminates the nature of the developmental origins and progression of the pervasive causes of morbidity and mortality in adults. In actuality, chronic diseases often get seeded and begin their pathological trajectories during gestation or childhood, sometimes decades before clinical manifestations create functional limitations. In other instances, conditions formerly seen only in older adult populations are now affecting people at younger ages. Scientific insights into epigenetics, psychoneuroimmunology, and biological stress reactivity further inform our understanding of causal links among the social determinants of health, emotion, biological risk, and health over the lifespan. *(For more information on this topic, see the Promoting Lifelong Health for Families and Communities theme.)*

Every health supervision encounter with children involves promoting healthy child development. Understanding child development and the application of its principles sets the care of children apart from that of adults. Infants grow to be children, then adolescents, and then adults. Health promotion to ensure physical, cognitive, and social and emotional health, as well as to protect the child from infectious diseases and injuries (intentional and unintentional) and harmful environmental exposures, supports the healthy development of the child. Successful health promotion efforts should take into account the developmental reality of the child now, as well as her developmental expectations for the next months and her developmental potential for growth over time.

Encouraging the development of the growing child references early brain growth and development. Physical health and growth is essential to support brain development. Even more important are the influences of stimulation and positive social ties with family, culture, and community.

The development of the infant, child, or youth with special health care needs is addressed in separate sections within this theme. Even a child whose brain growth and function have been impaired by injury or early neglect has a developmental potential that must be discerned and supported to achieve the best possible outcome for that child.

Monitoring Healthy Child and Adolescent Development

Developmental surveillance and screening of children and adolescents are integral components of health care supervision within the context of the family-centered medical home. Surveillance of children and adolescents is a continuous and cumulative process that is used to ensure optimal health outcomes; it is essential in identifying and treating children with developmental and behavioral problems. During all encounters, the pediatric health care team must listen carefully to parental concerns and observations about a child's development.[1]

Early identification of children with developmental delay is critical for diagnosing problems and providing early therapeutic interventions.[1] The parents' report of current skills can accurately identify developmental delay, even though they may not recognize it as such. Standardized developmental parent-completed questionnaires make it easier for health care professionals to systematically elicit information that is reliable and valid.[2]

Comprehensive child development surveillance may include

- Eliciting and attending to the parents' concerns
- Maintaining a developmental history
- Making accurate and informed observations of the child
- Identifying the presence of risk and protective factors
- Periodically using screening tests
- Documenting the process and findings

Developmental Surveillance and Screening in Infancy and Early Childhood

In monitoring development during infancy and early childhood, ongoing surveillance is supplemented and strengthened by standardized developmental screening tests that may be used at certain visits (9 Month, 18 Month, and 2½ Year) and at other times at which concerns are identified.[2] Commonly used developmental screening tools include the *Ages and Stages Questionnaires* (*ASQ*),[3] the *Parents' Evaluation of Developmental Status* (*PEDStest*),[4] and the *Survey of Well-being of Young Children* (*SWYC*).[5] Autism spectrum disorder screening occurs at the 18 Month and 2 Year Visits, and the most common tool is the *Modified Checklist for Autism in Toddlers Revised, with Follow-Up* (known as *M-CHAT-R/F*).[6] The *SWYC,* which also includes autism screening*; PEDStest;* and *ASQ* all include psychosocial screening that can be used to identify cognitive, emotional, and behavioral concerns from birth through age 5 years.

Developmental Surveillance in Middle Childhood and Adolescence

Currently, no comprehensive developmental screening tests exist for use during the Middle Childhood or Adolescence Visits. However, several tools have been developed that are useful in screening for particular problems. For example, the Pediatric Symptom Checklist includes a psychosocial screening that can be used to identify cognitive, emotional, and behavioral problems.[7] The CRAFFT (car, relax, alone, forget, friends, and trouble) is a validated, 6-item screening tool that can distinguish between "low" and "high" risk substance use among adolescents who have already begun to use substances.[8,9]

In addition to assessing youth for risk behaviors, health care professionals monitor school-aged children's and adolescents' progress on the developmental tasks of adolescence. This developmental surveillance addresses youth attributes and choices associated with healthy emotional and physical outcomes as well as decreased health risk behavior during adolescence.[10-14] These are the things youth need to say yes to as they move toward adulthood. The child or adolescent should

1. Demonstrate social and emotional competence (including self-regulation).
2. Exhibit resiliency when confronted with life stressors.
3. Use independent decision-making skills (including problem-solving skills).
4. Display a sense of self-confidence and hopefulness.
5. Form caring and supportive relationships with family members, other adults, and peers.
6. Engage in a positive way with the life of the community.
7. Exhibit compassion and empathy.
8. Engage in healthy nutrition and physical activity behaviors.
9. Choose safety (eg, bike helmets, seat belts, avoidance of alcohol and drugs).[15]

During the health supervision visit, most practitioners identify these strengths as they conduct their general and developmental history. Commenting on the child's or adolescent's progress on these developmental tasks helps the youth and family understand their areas of strength and can help the health care professional tailor anticipatory guidance. It is important for parents to know that children who have these strengths or protective factors in their lives are more likely to do well in school and less likely to be involved in health risk behaviors.[16] Discussion about successes allows youth to realize what strategies have worked, so they can use them again.

Health care professionals can use the context of "opportunities" to frame discussions of areas in which things are not going well. If deficits in developmental progress are identified during Middle Childhood Visits, a strength-based conversation with the parents can focus on providing *opportunities* for the child to grow in these areas. When concerns are identified during an Adolescence Visit, clinicians can seek to determine whether the youth has had an opportunity to grow in each one of the desired outcomes listed previously. If that opportunity has not yet occurred, the use of shared decision-making, a problem-solving approach, motivational interviewing, or another brief intervention may help identify at least one new thing to try.

Parents can benefit from the knowledge that these are the areas they can prioritize for their children—giving them opportunities to grow in these positive aspects. As with all developmental surveillance, if a young person is lacking progress on one or more developmental tasks, it can be helpful to assure him that he is a "work in progress."

Promoting Healthy Development: Infancy—Birth Through 11 Months

The first year of life continues the prenatal period of neural plasticity and rapid adjustment to stimuli that allows the infant's brain to develop to its maximum potential, or not, depending on his experiences.[17] Beginning with the Prenatal Visit, developmentally focused anticipatory guidance should include information on attachment and the importance of healthy relationships. Long-term outcomes for all infants are improved when health care professionals emphasize the abilities of the infant and facilitate opportunities for the parents to have early physical contact through breastfeeding, rooming-in, holding skin-to-skin, and cuddling the infant.[18,19]

Preventive topics include safety related to the child's developmental abilities and physical capabilities, sudden unexpected infant death (known as SUID), coping with the stressors that make infants vulnerable to abuse (eg, infant crying, maternal postpartum depression, paternal depression, substance use by a parent, economic pressures, and social isolation), and parenting an infant with special or developmental health care needs. Cultural considerations influence parental perspectives about infant temperament and the parental or caregiver role in supporting the infant's self-regulation. The health care professional must try to understand the complex interrelationship of the family's beliefs, values, abilities, behaviors, culture, and traditions, which affect how a family protects, teaches, and socializes an infant. Parents' perspectives about the needs of their children and whether they view the infant's behaviors as normal or typical for the child's age are equally important considerations. Because families vary in their responses and behaviors, the health care professional must learn about these customs and seek to understand parents' responses and behaviors, even if they differ from those expected in the community context.

Infants With Special Health Care Needs

Most infants are born healthy, but some are born early, at a low birth weight, or with congenital conditions or develop special health care needs. Parents and other caregivers of an infant with special health care needs will need support and guidance in nurturing the infant and fostering family cohesion. Anticipatory guidance should be structured around the parents' goals and expectations. Specific guidance can include information on growth and development, feeding concerns, specialized health and developmental care needs for the infant, expectations for achieving developmental milestones, and any specific vulnerability that the family will need to know. The health care professional should document developmental and prenatal history to facilitate appropriate diagnoses as well as explore with families their understanding of their infant's health condition, its effect on the family, their expectations on issues such as family supports and care coordination, and their hopes for the child. Additionally, many families may need assistance with referrals, financial assistance, and other types of supports. *(For more information about this topic, see the Promoting Health for Children and Youth With Special Health Care Needs theme.)*

The health care professional plays an important role in identifying conditions that place the infant at risk of disability and warrant immediate referral to early intervention services (Box 1). Health care professionals should note children who require close developmental surveillance and periodic standardized developmental screening to permit the earliest identification of their need for intervention services. The health care professional also plays an important and continuing role in providing informed clinical opinion in determining the child's eligibility and the scope of services that are needed by the child and family. Care coordination of screening services and follow-up in the context of the medical home are important. Professionals should, however, be aware that some families may not view early intervention as positive (eg, they may see efforts to screen and evaluate as efforts to stigmatize their child, or they may belong to a culture or religion in which differences are tolerated and accepted and are not "fixed").

Developmental surveillance, screening, and observations are important in all aspects of the child's growth and development. Formal developmental evaluation is indicated if any signs of developmental delay exist, if the parents express concern or questions about their child's development, or if the child is at risk of developmental challenges because of factors such as prematurity or prenatal exposure to alcohol, drugs, or other toxins. It is a federal requirement that, as a primary referral source, a physician make a referral to Part C Early Intervention within 7 days of an identified developmental concern.[20] Many parents are aware of

Box 1

Program for Infants and Toddlers with Disabilities (Part C of Individuals with Disabilities Education Act)

Children from birth–age 3 years who exhibit, or are at risk of, delays in development are eligible under federal law for early intervention services that will foster age-appropriate development. The Program for Infants and Toddlers with Disabilities (Part C of IDEA) assists states in operating a comprehensive, statewide program of early intervention services for infants and toddlers with disabilities, from birth–age 3, and their families. A diagnosis is not necessary for enrollment in early intervention programs. Children can be on waiting lists for an evaluation while receiving services. Children from the age of 3–school age and beyond also are eligible for early intervention services through the educational system (Part B of IDEA, also called Section 619) or through developmental services. Eligibility criteria for infants, children, and adolescents can be found at **http://ectacenter.org.**

Abbreviation: IDEA, Individual with Disabilities Education Act.

developmental delays or irregularities before they are told about them by a health care professional. Their concerns must be promptly addressed, and appropriate evaluation must be initiated. This evaluation might begin in the primary care office or might result in an immediate referral to an early intervention program for immediate care and a developmental specialist for evaluation.

Domains of Development

During a child's life, the most dramatic growth—physical, motor, cognitive, communicative, and social and emotional—occurs during infancy. By 1 year of age, the infant has nearly tripled his birth weight, added almost 50% to his length, and doubled his brain weight. By the age of 2, the brain has twice as many synapses as it will have in adulthood. During the remainder of childhood and adolescence, the brain is actively engaged in pruning,[21] developing, and refining the efficiency of its neural networks, especially in the prefrontal cortex, the critical brain region responsible for decision-making, judgment, and impulse control. This dynamic process of neuronal maturation continues into early adulthood.[22] Outcomes for infants who are prenatally exposed to toxins (eg, alcohol, lead, and illicit drugs) are determined by the specific toxin; degree, pattern, or timing of exposure; and the quality of the nurturing environment.[17,23]

Studies on early brain development confirm the importance of positive early experiences in the formation of brain cell connections. These early experiences, especially parent-child interactions, have a significant effect on a child's emotional development and learning abilities.

Gross Motor Skills

From birth to the end of the first year of life, major changes occur in the infant's gross motor skills. As tone, strength, and coordination improve sequentially from head to heel, the infant attains head control, rolls, sits, crawls, pulls to a stand, cruises, and may even walk by 1 year of age. Delays in gross motor milestones, asymmetry of movement, or muscle hypertonia or hypotonia should be identified and evaluated for early intervention referrals.[24] Within the framework of safe sleep guidelines,[25] it is important to promote age-appropriate and safe opportunities for tummy-time play to allow young infants to master their early motor skills.

Fine Motor Skills

Hand-eye coordination and fine motor skills also change dramatically during infancy. These abilities progress from reflexive grasping to voluntary grasp and release, midline play, transferring an object from one hand to the other, shaping the hand to an object, inferior and then superior pincer grasp, using the fingers to point, self-feeding, and even marking with a crayon by 1 year of age. Babies should be given opportunities to play with toys and food to advance their fine motor skills.

Cognitive, Linguistic, and Communication Skills

Environmental factors influence the infant's developing brain significantly during the first year of life. When parents provide consistent and predictable daily routines, the infant learns to anticipate and trust his environment. An infant's brain development is affected by daily experiences with parents and other caregivers during feeding, play, consoling, and sleep routines.[26]

At birth, newborns already hear as well as adults do, but their responses can be difficult for parents to understand. For most infants, hearing provides the foundation for language development, but 1 to 3 babies per thousand are born with a hearing loss and 9 to 10 per thousand will have identifiable permanent hearing loss in one or both ears by school age.[27,28] Newborns will have a screening test for hearing before discharge from the hospital or should be screened before 1 month of age if not

born in a hospital. Thereafter, hearing should be screened regularly and whenever parents express concern about hearing or language development.[29] Newborns can recognize their parents' voices at birth. By 3 days of age, they can distinguish their mother's voice from others.

Newborns also have color vision, can see in 3 dimensions, and can track visually. Close up, they show a preference for the pattern of human faces. Visual acuity progresses rapidly from newborn hyperopia to adult levels of 20/20 vision when the child is 5 to 6 years of age. Delays in development of fine motor skills or cognitive, linguistic, or communication skills may be caused by a deficit in the child's vision. A comprehensive eye examination should be performed as soon as possible to determine whether a vision problem is the root cause of any developmental delay.[30]

Newborns copy facial expressions from birth, use the emotional expressions of others to interpret events, and understand and use gestures by 8 months of age. By 8 weeks, infants coo; by 6 to 8 months, they begin to babble with vowel-consonant combinations; and by 1 year, they usually speak a few single words. The normal range for the acquisition of these pre-linguistic skills is broad. Families in which each parent has a separate native language should have each parent speak to the children in that parent's own language to promote bilingualism.

Beyond babbling, language acquisition progress depends on reciprocal stimulation a child receives.[31] Children who are frequently talked, signed, or read to have larger and richer vocabularies than children who have not received this stimulation. Reading is important for all children, including infants. Health care professionals should educate parents about how to read to infants and the importance of language stimulation, including singing songs to infants and children, reading to them, storytelling, and talking to them. Parents and pediatricians also need to appreciate the transition from the parent talking about pictures in a book to engaging the child in reciprocally talking and pointing to pictures in a book. This technique, known as "dialogic reading," has been shown to encourage emergent literacy skills.[32] Health care professionals also should identify feeding issues related to oromotor function and coordination because these are integral to early pre-linguistic and later communication skills. Special discussions could be used with parents who are unable to communicate verbally or who have a child with special communication needs (eg, a child with hearing loss) to help the parents support normal language development in their children. Exposure to language from a live person has been shown to have a positive effect on early child development, whereas television screen exposure increasingly shows adverse effects.[33,34]

Children who live in print-rich environments and who are read to during the first years of life are more likely to learn to read on schedule than children who are not exposed in this way.[35] Giving an age- and culturally appropriate book to the child, along with anticipatory guidance to the parent about reading aloud, at each health supervision visit from birth to 5 years, has been shown to improve the home environment and the child's language development, especially in children at socioeconomic risk.[35-40] Parents should make reading with their children part of the daily routine. Reading together in the evening can become an important part of the bedtime ritual, beginning in infancy and continuing for years. Books and reading encourage development in multiple domains and are especially important for cognitive and linguistic development. Book-handling skills in young children also reflect fine motor skills, and parent-child reading promotes social and emotional development as well. Reading to a young child is often a source of great warmth and good memories for parents and children alike. Parents can use books in various ways, and health care professionals can emphasize to parents with low or no literacy skills that having conversations with their young children about the

pictures in books (ie, interactive reading) also is an important way to encourage language development (Box 2).

Social and Emotional Skills

As parents learn to recognize their infant's behavior cues for engagement, disengagement, or distress and consistently respond appropriately to their infant's needs (eg, being fed when hungry or comforted when crying), babies learn to trust and love their parents.

Children with special health care needs may not exhibit the same responses as other children. This difficulty can cause parents to feel inadequate because they cannot discern their child's needs. Helping a family recognize even the small gains their child is making provides support to the family and acknowledges the progress and growth in their child with special needs.

By 3 months of age, infants may interact differently with different people. At about 8 months, an infant shows social referencing, looking to his parents in ambiguous or unfamiliar situations to figure out how to respond. At about the same age, his capacity to discriminate between familiar and unfamiliar people shows itself as stranger anxiety. By 14 months, he develops enough assurance and communication ability to contain his stranger anxiety and deal successfully with a new person. During the first year, the infant's social awareness advances from a tendency to cry when he hears crying to attempts to offer food, initiate games, and even take turns by 1 year. As autonomy emerges, babies may begin to bite, pinch, and grab what they want. Health care professionals should tell parents to anticipate these infant behaviors and advise on consistent, appropriate (firm but gentle) responses to redirect the infant's behavior.

Box 2

Promoting Literacy

To help parents promote healthy language and cognitive development in young children, *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents* recommends anticipatory guidance on reading aloud at every health supervision visit from birth to 5 years[41] and strongly encourages giving a book that is developmentally and linguistically appropriate, as well as culturally responsive to the family, at these visits, whenever possible, to children at socioeconomic risk. The provision of the book directly into the hands of the child should be accompanied by intentional, skilled observation of the child and family's response to and handling of the book, all as a route for developmental surveillance and assessment of relational health in the family.

The AAP recommends health care professionals promote early literacy in the following ways:

1. Advising all parents that reading aloud with their young children can enrich parent-child interactions and relationships, which enhances their children's social and emotional development while building brain circuits to prepare children to learn language and acquire early literacy skills.
2. Counseling all parents about developmentally appropriate reading activities that are enjoyable for the child and the parents and offer language-rich exposure to books and pictures and the written word.
3. Providing developmentally, culturally, and linguistically appropriate books at health supervision visits for all high-risk, low-income children and identifying mechanisms to obtain these books so this does not become a financial burden for pediatric practices.
4. Additional community and advocacy recommendations are available.[41] For example, Reach Out and Read (**www.reachoutandread.org**)[42] is a national nonprofit organization that, for more than 25 years, has promoted early literacy by making books a routine part of pediatric primary care so children grow up with books and a love of reading.[35,36] The evidence-based model, delivered in the context of patient and family-centered care, offers training for providers and technical assistance for practices or clinics that are interested in implementing a Reach Out and Read program. In addition, many organizations provide support to make books available at low or no cost.

Abbreviation: AAP, American Academy of Pediatrics.

Different cultures may have various expectations about the age at which children will achieve socially mediated milestones. It is therefore important to ask not only what the child can do but also what the family expects and allows.

Separation Anxiety

Parents need to know that infants as young as 4 to 5 months of age may be anxious, when they are separated from their parents, when meeting strangers or even familiar relatives. Even grandparents need to allow the infant to warm up to them before taking the infant from the mother. This anxiety peaks at about 8 months. This is not a rejection but a normal developmental phase.

Providing time for the infant to get to know a new caregiver in the presence of the mother, before separation, is critically important. There must be consistency in this relationship. Transitions will be easier if a child is encouraged to have a special stuffed animal, blanket, or similar favorite object, which she holds on to as an important companion. Young children use this transitional object to comfort them.

Transition is often as difficult for the parent as it is for the child. If the parent is going back to work or school and using child care on a consistent basis, the parent often feels a combination of intense longing for the child, intense guilt, and jealousy. Parents need to be reassured that they will remain the most important people to their infant's happiness, well-being, and health. The infant may have intense emotions, including crying and irritability, that are saved for times when she is within the safe embrace of her mother. These expressions reflect the intensity of attachment to the mother. Guidance for both the child and parent may be needed to ease transitions and promote healthy adaptations.

Early Care and Education

Early care and education describes programs available for children before school entry. Child care is one option in an array of settings that includes family child care homes, center-based child care, and in-home relative care, as well as home visiting programs. Regardless of the location or person providing care, young children benefit when they receive high-quality care. Care that fosters children's healthy development should be offered by caregivers who relate consistently to the children; who are available, physically and emotionally, to respond to each child's needs and interests; and who provide care in a clean, safe, nurturing, and stimulating environment. The fewer children cared for by each provider, the better the situation is for the child. For large child care centers, parents should ask whether the center adheres to national standards and is accredited by organizations such as the National Association for the Education of Young Children (**www.naeyc.org**).[43] In addition, resources are available to parents for assessing the quality and services available in child care settings.[44-46]

Developmental Highlights of Infancy

The Influence of Culture on Development

Health care professionals should understand that what are often considered milestones are less "stones" than "markers," and these markers shift according to upbringing. The timing for acquisition of any developmental task is determined by surveying many infants to determine the range of accomplishment dates. The populations surveyed are typically the population of convenience. So milestones must be understood as normed to a population (Table 1). Cultural expectations shape development such that children from different cultures may have different (but still healthy) development timelines.[47] However, it is important to note that children are still held to the same standards once they reach kindergarten. Therefore, once a child reaches preschool age, developmental differences should be viewed in light of overall population means.

Table 1

Developmental Milestones for Developmental Surveillance at Preventive Care Visits[a]				
Age	**Social Language and Self-help**	**Verbal Language (Expressive and Receptive)**	**Gross Motor**	**Fine Motor**
Newborn–1 week	Makes brief eye contact with adult when held	Cries with discomfort Calms to adult voice	Reflexively moves arms and legs Turns head to side when on stomach	Holds fingers closed Grasps reflexively
1 month	Calms when picked up or spoken to Looks briefly at objects	Alerts to unexpected sound Makes brief short vowel sounds	Holds chin up in prone	Holds fingers more open at rest
2 months	Smiles responsively (ie, social smile)	Vocalizes with simple cooing	Lifts head and chest in prone	Opens and shuts hands
4 months	Laughs aloud	Turns to voice Vocalizes with extended cooing	Rolls over prone to supine Supports on elbows and wrists in prone	Keeps hands unfisted Plays with fingers in midline Grasps object
6 months	Pats or smiles at reflection Begins to turn when name called	Babbles	Rolls over supine to prone Sits briefly without support	Reaches for objects and transfers Rakes small object with 4 fingers Bangs small object on surface
9 months[b]	Uses basic gestures (holds arms out to be picked up, waves "bye-bye") Looks for dropped objects Picks up food with fingers and eats it Turns when name called	Says "Dada" or "Mama" nonspecifically	Sits well without support Pulls to stand Transitions well between sitting and lying Balances on hands and knees Crawls	Picks up small object with 3 fingers and thumb Releases objects intentionally Bangs objects together
12 months	Looks for hidden objects Imitates new gestures	Says "Dada" or "Mama" specifically Uses 1 word other than *Mama, Dada,* or personal names Follows a verbal command that includes a gesture	Takes first independent steps Stands without support	Drops object in a cup Picks up small object with 2-finger pincer grasp

continued

Table 1 *(continued)*

Age	Social Language and Self-help	Verbal Language (Expressive and Receptive)	Gross Motor	Fine Motor
15 months	Imitates scribbling Drinks from cup with little spilling Points to ask for something or to get help	Uses 3 words other than names Speaks in jargon Follows a verbal command without a gesture	Squats to pick up objects Climbs onto furniture Begins to run	Makes mark with crayon Drops object in and takes object out of a container
18 months[b,c]	Engages with others for play Helps dress and undress self Points to pictures in book Points to object of interest to draw attention to it Turns and looks at adult if something new happens Begins to scoop with spoon	Uses 6–10 words other than names Identifies at least 2 body parts	Walks up with 2 feet per step with hand held Sits in small chair Carries toy while walking	Scribbles spontaneously Throws small ball a few feet while standing
2 years[c]	Plays alongside other children (parallel) Takes off some clothing Scoops well with spoon	Uses 50 words Combines 2 words into short phrase or sentence Follows 2-step command Uses words that are 50% intelligible to strangers	Kicks ball Jumps off ground with 2 feet Runs with coordination	Stacks objects Turns book pages Uses hands to turn objects (eg, knobs, toys, and lids)
2½ years[b]	Urinates in a potty or toilet Engages in pretend or imitative play Spears food with fork	Uses pronouns correctly	Begins to walk up steps alternating feet Runs well without falling	Grasps crayon with thumb and fingers instead of fist Catches large balls
3 years	Enters bathroom and urinates by self Plays in cooperation and shares Puts on coat, jacket, or shirt by self Engages in beginning imaginative play Eats independently	Uses 3-word sentences Uses words that are 75% intelligible to strangers Understands simple prepositions (eg, *on, under*)	Pedals tricycle Climbs on and off couch or chair Jumps forward	Draws a single circle Draws a person with head and 1 other body part Cuts with child scissors

continued

Table 1 *(continued)*

Age	Social Language and Self-help	Verbal Language (Expressive and Receptive)	Gross Motor	Fine Motor
4 years	Enters bathroom and has bowel movement by self Brushes teeth Dresses and undresses without much help Engages in well-developed imaginative play	Uses 4-word sentences Uses words that are 100% intelligible to strangers	Climbs stairs alternating feet without support Skips on 1 foot	Draws a person with at least 3 body parts Draws simple cross Unbuttons and buttons medium-sized buttons Grasps pencil with thumb and fingers instead of fist

[a] Developmental milestones are intended for discussion with parents for the purposes of surveillance of a child's developmental progress and for developmental promotion for the child. They are not intended or validated for use as a developmental screening test in the pediatric medical home or in early childhood day care or educational settings. Milestones are also commonly used for instructional purposes on early child development for pediatric and child development professional trainees.

These milestones generally represent the mean or average age of performance of these skills when available. When not available, the milestones offered are based on review and consensus from multiple measures as noted.

[b] It is recommended that a standardized developmental test be performed at these visits.

[c] It is recommended that a standardized autism screening test be performed at these visits.

Sources: Capute AJ, Shapiro BK, Palmer FB, Ross A, Wachtel RC. Normal gross motor development: the influences of race, sex and socio-economic status. *Dev Med Child Neurol.* 1985;27(5):635-643; Accardo PJ, Capute AJ. *The Capute Scales: Cognitive Adaptive Test/Clinical Linguistic and Auditory Milestone Scale (CAT/CLAMS).* Baltimore, MD: Paul H. Brooks Publishing Co; 2005; Beery KE, Buktenica NA, Beery NA. *The Beery-Buktenica Developmental Test of Visual-Motor Integration, Sixth Edition (BEERY VMI).* San Antonio, TX: Pearson Education Inc; 2010; Schum TR, Kolb TM, McAuliffe TL, Simms MD, Underhill RL, Lewis M. Sequential acquisition of toilet-training skills: a descriptive study of gender and age differences in normal children. *Pediatrics.* 2002;109(3):E48; Oller JW Jr, Oller SD, Oller SN. *Milestones: Normal Speech and Language Development Across the Lifespan.* 2nd ed. San Diego, CA: Plural Publishing Inc; 2012; Robins DL, Casagrande K, Barton M, Chen CM, Dumont-Mathieu T, Fein D. *Validation of the Modified Checklist for Autism in Toddlers, Revised with Follow-Up (M-CHAT-R/F). Pediatrics.* 2014;133(1):37-45; Aylward GP. *Bayley Infant Neurodevelopmental Screener.* San Antonio, TX: The Psychological Corporation; 1995; Squires J, Bricker D. *Ages & Stages Questionnaires, Third Edition (ASQ-3): A Parent-Completed Child Monitoring System.* Baltimore, MD: Paul H. Brookes Publishing Co; 2009; and Bly L. Motor Skills Acquisition Checklist. Psychological Corporation; 2000.

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Self-regulation

Infants generally are born with unstable physiologic functions. With maturation and sensitive caregiving, physiologic stability; temperature regulation; sustained suck; coordinated suck, swallow, breath sequences; and consistent sleep-wake cycles will improve. During the first year, the infant's ability to self-regulate (eg, transition from awake to sleep) and modulate her behavior in response to stress are influenced by the environment, particularly by the consistency and predictability of the caregivers. The consistency and predictability of responses to the infant feeding cues and encouragement for regular sleep helps establish an infant's diurnal pattern of waking and sleeping. The infant also develops ways to calm herself and expands her ability to selectively focus on a particular activity. Large individual differences exist in self-regulatory abilities. Infants who are born with special health care needs, such as those who are of low birth weight or small for gestational age, or those born to mothers with diabetes or mothers who misused drugs or alcohol during pregnancy are at particular risk of problems with self-regulation.

A major component of infant health supervision consists of counseling parents about their infant's temperament, colic, tantrums, and sleep disturbances. The "goodness of fit" between parents and infant can influence their interaction. Helping

parents understand their infant's temperament and their own can help them respond effectively to their infant.

Crying is stressful for families and frustrating for parents. Health care professionals will want to help parents discover calming techniques and understand that a certain amount of crying is inevitable. A crying baby should be checked because she may need attention. But when an infant cries, she is never angry. The crying is not a parent's fault. Helping a parent recognize this is important in preventing abusive head trauma or other physical abuse. Parents should consider whom they can ask for help if they are having trouble coping or if they fear they might harm their baby.

Sleep

Parents need guidance on differentiating between active and quiet sleep because they may assume their infant is getting adequate sleep when taken to the mall, taken to a party, or left in a carrier or swing all day. During these times, infants are more apt to be in active sleep. Active sleep alone is not adequate for appropriate rest and often results in a fussy baby. Health care professionals should help parents understand their infant's need for a consistent, predictable, quiet sleep location, including for naptime. Table 2 presents the key characteristics of various infant states. Table 3 lists typical infant sleep patterns. *(For more information on sleep-related topics, including room sharing, bed sharing, and sleep position, see the Promoting Safety and Injury Prevention theme.)*

Table 2

Key Characteristics of Various Infant States[48]

Infant States	Characteristics
Quiet sleep	Very difficult to awaken; regular respirations; little movements; may startle
Active sleep	May awaken and go back to sleep; body movements, eyelid movements; irregular respirations
Drowsy	Increasing body movements, eyelid opening; more easily awakened for a feeding but may return to sleep with comforting
Alert	Alert expression, open eyes, and surveys surroundings, especially faces; optimum state for feedings
Active alert	Beginning to fuss and show need for a diaper change. If needs are not met, fussing escalates to crying.
Crying	Crying that lasts for >20 seconds. Usually, infant can be comforted with holding, feeding, or diaper change; exploring the duration, intensity, and frequency of crying is needed to determine strategies for interventions.

Table 3

Typical Infant Sleep Patterns and Sleep Location[a]						
Activities	**Birth–3 Months**	**3–6 Months**	**6–9 Months**	**9–12 Months**	**12–18 Months**	**18–48 Months**
Average sleep, hours	14	13	13	13	12–13	12–13 in 24 hours
Range of sleep, hours	12–16	12–15	10–14	10–14	12–14	12–14 in 24 hours
Night awakenings	Depends on feeding routine	2–3	1–3	1–2	0–1	0
Number of naps per day	Depends on feeding	2–4 (am and pm)	2 (am and pm)	1–2 (am and pm)	1–2	1
Length of naps, hours	1–3	2–3 each	1–3 each	1–3 each	1–3 each	1–2 each
Sleep location	Bassinette or crib in parents' room		Crib, ideally in parents room[a]		Crib	In own bed at 2–3 years

[a] AAP recommends that "infants sleep in the parents' room, close to the parents' bed but on a separate surface designed for infants, ideally for the first year of life, but, at least for the first 6 months."[25]

Derived from American Academy of Pediatrics Task Force on Sudden Infant Death Syndrome. SIDS and other sleep-related infant deaths: updated 2016 recommendations for a safe sleeping environment. *Pediatrics.* 2016;138(5):e20162938; Barnard KE, Thomas KA. *Beginning Rhythms: The Emerging Process of Sleep Wake Behavior and Self-Regulation.* 2nd ed. Seattle, WA: NCAST Programs, University of Washington; 2014; and Bright Futures Infancy and Early Childhood Expert Panels.

Discipline, Behavioral Guidance, and Teaching

The interaction between parents and their infant is central to the infant's physical, cognitive, social, and emotional development, as well as her self-regulation abilities. The infant brings her temperament style, physical attentiveness, health, and vigor to this interaction.

Parents need to understand the differences among discipline, teaching, and punishment so they can introduce appropriate measures for correcting and guiding their infant's behavior. All behavior has meaning, and for an infant, the motive for behavior is often based on a need, such as hunger or comfort. Correcting an infant's behavior is about teaching and guiding, not punishment and discipline. It is important to discuss distraction as a developmentally appropriate discipline for infants. It also may be beneficial to discuss strategies to prevent the need for disciplinary measures by avoiding overtiredness through consistent daily routines for feeding and sleep and by providing a developmentally appropriate safe home environment.

Parents' ability to respond appropriately to their child's behavior is determined by their own life stresses, their past experiences with other children, their knowledge, their temperament, their own experiences of being nurtured in childhood, and other responsibilities, such as other children in the household, work, and daily household tasks. Their perceptions of the infant also can influence the interaction. These perceptions come from their own expectations, needs, and desires, as well as from the reaction of other people to the child.

Parents' emotional health also significantly influences their ability to provide appropriate discipline, behavioral guidance, and teaching. Depression is common in many mothers of infants and can seriously impair the baby's emotional and even physical well-being. Babies of depressed mothers

show delays in growth and development, diminished responsiveness to facial expressions, reduced play and exploratory behaviors, and decreased motor skills.[49,50] Parental substance use disorder can have similar negative effects. Health supervision for the child must include monitoring the emotional health of the parents or primary caregivers. The health care professional should recognize and provide assistance if parents demonstrate or acknowledge their difficulty in responding to their infant's needs. *(For more information on this topic, see the Promoting Lifelong Health for Families and Communities theme.)*

Promoting Healthy Development: Early Childhood—1 Through 4 Years

At the beginning of this developmental period, a child's understanding of the world, people, and objects is bound by what he can see, hear, feel, and manipulate physically. By the end of early childhood, the process of thinking moves beyond the here and now to incorporate the use of mental symbols and the development of fantasy. For the infant, mobility is a goal to be mastered. For the active young child, it is a mechanism for exploration and increasing independence. The 1-year-old is beginning to use the art of imitation in his repetition of familiar sounds and physical gestures. The 4-year-old has mastered most of the complex rules of the languages that are spoken in the home and can communicate thoughts and ideas effectively (see Table 1).

The young child is beginning to develop a sense of himself as separate from his parents or primary caregivers. By the end of early childhood, the well-adjusted child, having internalized the security of early bonds, pursues new relationships outside the family as an individual in his own right. Understanding and respecting this evolving independence is a common parental challenge.

Because children in this age group grow and progress rapidly, parents anticipate and analyze how their child is reaching developmental milestones such as walking, talking, and socializing. When parents express concerns about how their child is developing, the health care professional should listen and observe carefully. A wait-and-see attitude will not suffice, particularly if the child falls into an at-risk group. A proactive approach is essential.

Young Children With Special Health Care Needs

Health care professionals who take care of children between the ages of 1 and 4 years have a responsibility to diagnose special health care needs. Parental concerns are highly accurate markers for developmental disability, and it is essential for the health care professional to be sensitive to these concerns. Several tools are available for identifying a child with special health care needs. If developmental delay or disability is suspected, a referral should be made to an appropriate early intervention program or developmental specialist for evaluation. The child should simultaneously be referred to an early intervention program that is matched to the child's and family's concerns. If significant developmental delay or disability is confirmed, appropriate services are in place and can be modified as indicated.

The health care professional provides a medical home for the child and, in partnership with the family, assists with ongoing care planning, monitoring, and management across agencies and professionals. The primary care practice team carries out these activities by providing care coordination services. *(For more information on this topic, see the Promoting Health for Children and Youth With Special Health Care Needs theme.)* Complicating factors, such as family finances, access to resources, language and culture, parental health and well-being, and sibling issues, also should be considered. Families whose young children have special health care needs usually find that referrals to parent-to-parent support programs are helpful.

Domains of Development

Gross and Fine Motor Skills

The physical abilities of children in the 1- through 4-year age range vary considerably. Some are endowed with natural grace and agility; others demonstrate less fine-tuning in their physical prowess, yet they "get the job done." As a fearless and tireless explorer and experimenter, the toddler is vulnerable to injury, but appropriate adult supervision and a physically safe environment provide the child with the freedom to take controlled risks.

Many children do not live in safe environments. Parents may try to provide a safe environment within the confines of their own dwelling, but the immediate community may be characterized by substandard housing conditions, overcrowding, residence in a shelter, or violence. Health care professionals who are aware of these circumstances can access or serve as a bridge to community resources to better support parents' efforts to find developmentally appropriate surroundings and experiences that allow their children to safely develop their motor skills.

Cognitive, Linguistic, and Communication Skills

Young children learn through play. If the toddler experienced nurturing and attachment during infancy, he now has a strong base from which to explore the world. The self-centered focus of the young child is related less to a sense of selfishness than to a cognitive inability to see things from the perspective of others. The child's growth in understanding the world around him is evidenced by his linguistic development (ie, by his capacity for naming and remembering the objects that surround him and his ability to communicate his wishes and feelings to important others).

Young children live largely in a world of magic; they often have difficulty differentiating what is real from what is make-believe. Such fantasies, unless scary to the child, are to be expected and encouraged at this stage of development. Some children have imaginary friends. Many children engage in elaborate fantasy play. Learning to identify the boundaries between fantasy and reality and developing an elementary ability to think logically are 2 of the most important developmental tasks of this age.

Parents and other caregivers need to provide a safe environment for these young learners to explore. Children need access to a variety of tools (books and toys) and experiences. They need opportunities to learn through trial and error, as well as through planned effort. Their seemingly endless string of repetitive questions can test the limits of the most patient parents. These queries, however, must be acknowledged and responded to in a manner that not only provides answers but also validates and reinforces the child's curiosity.

The development of language and communication during the early childhood years is of central importance to the child's later growth in social, cognitive, and academic domains. Communication is built on interaction and relationships. The greater the nurturing and the stronger the connection between parents and child, the greater the child's motivation to communicate will be, first with gestures and then with spoken or signed language. Unstructured, creative, face-to-face, and hands-on play and reading are wonderful forums for language enhancement.

Language

Language development usually is described in 3 separate categories: (1) speech, or the ability to produce sound, a concept that encompasses rhythm, fluency, and articulation; (2) expressive language, or the ability to convey information, feelings, thoughts, and ideas through verbal and other means, including facial expressions, hand gestures, and writing; and (3) receptive language, or the ability to understand what one hears and sees. Children can have problems in one area but

not in another. Exposure to books and reading aloud during the time that precedes the formal teaching and learning of reading are central to language development. Watching for vocalizations or naming of colors and objects when the child is given a book in the examination room can be helpful in assessing language development. Typical expressive and receptive language acquisitions in the early years include

- Between the ages of 12 and 18 months, children make the leap from sound imitation and babbling to the acquisition of a few meaningful words (eg, *Dada, Mama, mine, shoe*). Through repeated use, these first words teach them how words are used in communication. At the same time that the child gains expressive language, he also shows increased comprehension of simple commands (eg, "say bye-bye") and the names of familiar people and objects. Toddlers expand their communicative repertoire through a variety of gestures (eg, pointing, waving, and playing pat-a-cake) with and without vocalizations. The child's demonstration of "communicative intent" or proto-declarative pointing (ie, pointing to a desired object and watching to see whether the parent sees it) is an indication of normal social and language development. The absence of pointing and establishing joint attention is a red flag and merits screening for autism spectrum disorder. At about 18 months of age, most toddlers have begun a word-learning explosion, acquiring an understanding, on average, of 9 new words every day. This pattern continues throughout the preschool years.
- Between the ages of 18 months and 2 years, children recognize many nouns and understand simple questions. By the age of 2 years, the expressive language of most children includes 2-word phrases, especially noun-verb combinations that indicate actions desired or observed (eg, "drink juice," "Mommy give").
- Between the ages of 2 and 3 years, children usually are speaking in sentences of at least 4 to 5 words. They are able to tell stories and use what and where questions. They have absorbed the rules for regular plural word forms and for the use of past tense. Their speech can still be difficult for a nonfamily member to understand, but it becomes increasingly clear after 3 years of age. A good rule of thumb for normal development is that 75% to 80% of a 3-year-old's speech should be intelligible to a stranger.
- Between the ages of 3 and 4 years, children are learning fundamental grammar rules. They have a vocabulary that exceeds 1,000 words, and their pronunciation should be generally understandable. They frequently ask why and how questions. Their exuberant use of language in play and social interaction often suggests a process of "thinking out loud."

Parents may ask health care professionals about the effects of being raised in a bilingual home. They can be reassured that this situation permits the child to learn both languages simultaneously as though each language were the mother tongue. In the less common scenario when the child experiences language delays, however, language that is spoken by all caregivers or that is consistent to specific settings (ie, in the home, in child care settings) may be preferred.

Many aspects of language development seem to be robust because they develop normally despite environmental conditions. Certain aspects, notably vocabulary and language usage, however, depend heavily on the family and early school experiences if the child is to become proficient.[17] Thus, the young child who is exposed to an everyday environment that is rich in language through stories, word games, rhymes and songs, questions and conversation in the family and during play, and books will be well prepared for the language-laden world of school. *(For more information on this topic, see the Literacy section later in this theme.)*

Objective screening at birth and during early childhood, followed by timely assessment, makes it possible for hearing loss to be identified and intervention begun before language delays arise. Whenever language delays are present, an audiological evaluation is recommended even if hearing screening results were negative. A referral should also be made to early intervention services to optimize language development.

Social and Emotional Skills

Temperament and Individual Differences

The temperamental differences that were manifested in the feeding, sleeping, and self-regulatory behaviors of the infant are transformed into the varied styles of coping and adaptation demonstrated by the young child. The range of normal behavior is broad. Some young children appear to think before they act, whereas others are impetuous. Some children are slow to warm up to other people; others are friendly and outgoing. Some children accept limits and rules more easily than others. Some children are highly reactive to changes in their environment and to sensory experiences of all kinds, whereas others are less reactive. Some children tend to express themselves loudly and intensely; others are quieter.

Understanding the unique temperament profile of the child will better prepare the health care professional to assist parents and other caregivers in understanding the child's behavior, especially when the child's behavioral reactions are confusing or problematic. Discussing with parents how the child's behavior is interpreted within the family and counseling them when concerns or conflicts emerge between the child's temperament and their personal styles may prevent significant problems later on. Reading books or telling stories that some children can identify with may assist them in expressing feelings they are as yet unable to articulate.

Culture

The culture of the family and community provide a framework within which the socialization process unfolds. Children are heavily influenced by the culture, opinions, and attitudes of their families as they are taught to act, believe, and feel in ways that are consistent with the values of their communities.[51] Culture influences the roles of parents and extended family members in child-rearing practices and the ways in which parents and other adults interact with children. Cultural groups approach parenting in different ways. In some cultures, the mother is expected to be primarily responsible for all aspects of an infant's or a toddler's care. In other cultures, the care and nurturing of children is shared among mother, father, and extended family, including aunts, uncles, grandparents, and cousins. This wide circle of caregivers also may have responsibility for disciplining and making other decisions about a child's upbringing.

The increasingly self-aware young child grapples with complex issues, such as gender roles, peer or sibling competition, cooperation, and the difference between right and wrong, within this cultural milieu. Aggression, acting out, excessive risk-taking, and antisocial behaviors can appear at this time. Caregivers need to respond with a variety of interventions that set constructive limits and help children achieve self-discipline. Fun-filled family activities, such as playing games, reading, vacations, or holiday gatherings, serve as reminders of the joy and laughter the child brings to all. Ultimately, healthy social and emotional development depends on how children view themselves and the extent to which they feel valued by others. The quality of the parent-child relationship is the foundation for emotional well-being and the emerging sense of mastery and self-esteem. The pediatrician can learn from each family the culture and traditions that are important to them and that affect how the child is raised and nurtured.

Developmental Highlights of Early Childhood

Self-regulation and Daily Living Tasks

During the early childhood years, the relative dominance of biological rhythms is reduced through the development of self-control. Satisfactory self-control allows children to respond appropriately to events in their lives through delaying gratification until important facets of the situation are considered, modulating their responses, remaining calm, focusing on the task, recognizing that their responses have consequences, and behaving in the expected manner to adhere to rules and expectations established by their significant caregivers.[52] Usually, these behaviors begin to manifest by 2 to 3 years of age.

Children with inadequate self-control can be impulsive or hyperactive, heightening concerns for safety. At the opposite extreme, children with excessive self-control tend to be anxious or have fixed behaviors. Of course, behavior varies so that a child may exhibit a great variety of behaviors at any given time in response to the same external cues.

Mastering activities in daily life shows that the child is moving toward achieving self-control. Chief among these are learning how to calm himself (which is needed to establish a regular sleep pattern), feed himself, toilet train, and take the major step of attending school. Health care professionals should actively prepare parents and their toddlers for achieving these milestones through discussing these topics and, when concerns persist after counseling, should make referrals for appropriate consultation.

Sleep

By the end of the first year of life, most children should be able to sustain or return to sleep throughout the night, and most parents should allow children to regulate their own nighttime sleep patterns. A bedtime routine that promotes relaxation (eg, bath, book, or song) and the use of a transitional object are extremely helpful. Toddlers and preschoolers generally sleep 8 to 12 hours each night. Exact duration of nighttime sleep varies with the child's temperament, activity levels, health, and growth. The duration and timing of naps will affect nighttime sleeping. Most children awaken from sleep at times during the night but can return to sleep quickly and peacefully without parental intervention. Sleep problems sometimes reflect separation fears on the part of parents and children. Parents who feel especially anxious, depressed, or frightened can be reluctant to permit their young child to exercise self-control over sleep patterns at night. Children from 1 to 4 years of age should be allowed to sleep through the night without a nighttime feeding. Dreams and nightmares can accompany active stages of sleep beginning at these ages. At such times, children may require reassurance that they are protected from the dangers that stir their imagination and intrude on their calm sleep. Changes, such as acute illness, birth of siblings, and visits from friends and relatives, also can interfere temporarily with established sleep routines. Disorders, such as obstructive sleep apnea, and parasomnias, such as sleepwalking, can begin during these early years, and health care professionals should consider such a possibility in any child who has persistent sleep difficulties.

If health care professionals ask about sleep patterns at each of the visits during early childhood, they will gain rich insights into the child's and family's development. When parents have concerns about their child's sleep, the health care professional should explore, in more depth, the child's daytime behavior, temperament, and mood, as well as events, experiences, conditions, and feelings of family members. Although most issues lend themselves to open dialogue and counseling within the primary care relationship, some conflicts may require further exploration and intervention by a developmental-behavioral or mental health professional.

Toilet Training

For a child to successfully toilet train, he must have the cognitive capacity to respond to social cues and the neurologic ability to respond to bowel and bladder signals. Parents often want advice about when and how to toilet train a child. The first discussion about toilet training is best introduced at around the 18 Month Visit. Such early counseling can prevent harmful battles between the parents who might be focused on early toilet training and the child who is not yet physically or cognitively ready. In-depth discussion usually begins at the 2 Year Visit. The health care professional should explore the parents' thoughts about this task and provide guidance to fill in the gaps.

Control of urination and bowel movements is a major step forward in developmental integrity. Successful completion of this task is a source of pride and respect for the child and the parents.

Daytime control usually is achieved before nighttime dryness. Bed-wetting (nocturnal enuresis) is a common disorder with many possible therapies.[53] It is more common in boys and deep sleepers. Bed-wetting should be discussed with the child and family and investigation considered if the child continues to wet the bed after age 7 years, if bed-wetting results in problems within the family, or if infection or anatomic abnormalities are suspected. Fortunately, with time, most children with bed-wetting develop nighttime urination control. Bowel control is usually completely achieved by age 3 years.

Socialization

When provided the opportunity, toddlers and preschoolers acquire socialization skills and the ability to appropriately interact with other children and adults. Social interaction in early childhood promotes comfort and competence with relationships later in life. The social competencies are developmental assets[12] and therefore should be encouraged in children of these ages. Social competencies include planning and decision-making with others, positive and appropriate interpersonal interactions, exposure to other cultures and ethnicities, behavioral resistance to inappropriate or dangerous behavior, and peaceful conflict resolution. Young toddlers will observe these behaviors in others, and preschoolers will begin to practice them. Toddlers also are inclined to internalize positive or negative attitudes toward themselves and others. Children note differences between groups of people (eg, they express understanding of racial identity as early as 3 years of age[54]), but they do not ascribe a value; they learn that from the adults in their environments. Opportunities for social interaction can be encouraged in the home with visitors, in playgroups, in faith-based organizations, and in public places, such as the park or early care and education programs.

Discipline, Behavioral Guidance, and Teaching

Discipline is one tool parents can use to help modify and structure a child's behavior. It encompasses positive reinforcement of admired behavior (eg, praise for picking up toys) and negative reinforcement of undesirable behavior (eg, a time-out for fighting with a sibling). The eventual incorporation of a functional sense of discipline that reinforces social norms is critical to the child's development. Although often thought of in negative terms, positive discipline helps a child fit into the daily family schedule and makes childhood and child-rearing pleasant and fun. In fact, the Latin root for *discipline* means "to teach."

Family structure, values, beliefs, and cultural background influence approaches to behavioral guidance and teaching. Health care professionals should discuss with the parents how they were disciplined, how that discipline made them feel, and the most and least effective methods of discipline. In all families and cultures, discipline is a process whereby caregivers and other family

members teach the young child, by instruction and example, how to behave and what is expected of him. What the child learns at this stage and how the parent-child interactions surrounding discipline take form can have long-term effects on the child's and family's development.

Exploring the roles that siblings play in development also should be addressed. The methods parents use to guide siblings in helping raise the other family members should be reviewed. The special requirements of children and youth with special health care needs and foster care or adopted children are best discussed openly with all the family members, so everyone is aware of parental expectations.

Although parents often look to the health care professional as a resource for developing strategies related to behavioral guidance and teaching, many cultures also look to family, particularly elders. In most cases, discussions with parents regarding behavioral guidance should explore the parents' goals for the child, as well as the meaning behind the behaviors they wish to modify. Consideration of the child's developmental capacities and temperament profile should be a key component of this discussion. For instance, parents of a 2-year-old frequently overestimate the child's capacity to integrate rules into everyday behavior, because of their observations of the child's growing understanding of language. With respect to temperament, parents can misinterpret a child's intense and reactive responses as intentionally oppositional rather than as part of his inborn behavioral style. Through explaining these developmental attributes, the health care professional plays a crucially important role in helping parents understand the meaning of their child's behavior and in assessing the developmental readiness of the child to absorb new lessons about behavioral expectations.

Discussion of discipline is a high priority for the Bright Futures 15 and 18 Month Visits because it is important, for later child development, to establish a positive and successful foundation of parent-child interactions regarding behavior. Established negative behaviors can be extremely difficult to change, and, without help, many parents are not able to see the long-term effects of their child's behavior and their own choices in guiding them.

At times, the behavior of the child pushes all parents to their emotional limits. Many adverse behaviors, such as aggressive acts in the school-aged child, have their roots in behavior established in early childhood. Maintaining a sense of humor and taking time away can help parents deal with stressful events. Discussing dilemmas and sharing frustrations with other involved adults are important in maintaining a sense of perspective and humor during difficult periods with the young child. Referring parents to home visiting programs, early care and education programs, or parent support groups can also help them learn to cope with challenging situations, learn strategies and skills to assist their child, and learn about child development.

General features of effective behavioral guidance include several essential components, all of which are necessary for successful discipline.[55]

- A positive, supportive, loving relationship between the parents and child (Children want to please their parents.)
- Clear expectations communicated to the child in a developmentally appropriate manner
- Positive reinforcement strategies to increase desired behaviors (eg, having fun with the child and other family members, which sets the stage to reward and reinforce good behaviors with time together in enjoyable activities)
- Removal of reinforcements or use of logical consequences to reduce or eliminate undesired behaviors

Parents can increase the likelihood of achieving their behavioral goals for their child by establishing predictable daily routines and providing consistent responses to their child's behavior. Especially during early childhood, consequences should be administered within

close temporal proximity to the target behavior and, if possible, related to the behavior (eg, bring the child in from playtime if she is throwing sand when asked not to).[55] Some families (eg, first-time parents or adolescent parents) experience pressure from elders to use harsh or physical means of punishment. Culturally, it may be inappropriate to ignore what an elder has proposed. Parents may feel conflicted when they attempt to use new or different methods of discipline that are not supported within their families or communities.

The most potent tool for effective discipline is attention. By paying attention to desired behaviors and ignoring undesired ones, parents can use the following techniques to help foster good behavior in their child:

- Praise the child frequently for good behavior. Specific acknowledgment (rather than global praise) helps teach the child appropriate behaviors (eg, "Wow, you did a good job putting that toy away!" rather than "Great!"). Time spent together in an enjoyable activity is a valuable reward for desired behavior.
- Communicate expectations in positive terms. By noting when the child is doing something good, parents will help the child understand what they like and expect. Statements such as, "I like it when you play quietly with your brother," or, "I like that you climb into your car seat when I ask you to," are nonjudgmental and communicate to the child that these are behaviors the parents like.
- Model and role-play the desired behaviors.
- Prepare the child for change in the daily routine by discussing upcoming activities and expected behaviors.
- State behavioral expectations and limits for the child clearly and in a developmentally appropriate manner. These expectations should be few, realistic, and consistently enforced.
- Allow the child time for fun activities, especially as a reward for positive behaviors.
- Remove or avoid the places and objects that contribute to unwanted behavior.
- Use time-out or logical consequences to deal with undesirable behavior. Time-out is a structured method of avoiding paying attention to undesired behaviors.
- Promote consistent discipline practices across caregivers, but recognize that complete agreement is not always possible, and most children can learn more than one set of rules that are reasonable and logical.
- Ensure that the child understands the discipline is about his behavior and not about his worth as a person.
- Avoid responding to the child's anger with anger. This reaction teaches the wrong lesson and may escalate the child's response.
- Take time to reflect on their own physical and emotional response to the child's behavior so they can choose the most appropriate discipline technique.

Conventional disciplinary methods do not work well with children with certain physical or developmental conditions. The following examples illustrate the point that "one size does not fit all" with respect to behavioral guidance:

- Children with poor communication skills and language delay often use behavior as a means of communication. Caregivers should make every effort to help them develop more effective communication skills.
- Children who have hyperacute responses to their sensory environment require proactive interventions.

Because corporal punishment is no more effective than other approaches for managing undesired behavior in children, the American Academy of Pediatrics recommends that parents be encouraged and assisted in developing methods other than spanking in response to undesired behavior (Box 3).[55,56] Other forms of corporal punishment, such as shaking or striking a child with an object,

Box 3

Discipline: Key Messages for Parents

- Discipline means teaching, not punishing.
- All children need guidance, and most children need occasional discipline.
- Discipline is about a child's behavior, not about his worth as a person.
- Discipline is effective when it is consistent; it is ineffective when it is not consistent.
- Parents' discipline should be geared to the child's developmental level.
- Discipline is most effective when the parent can understand the child's point of view.
- Discipline should help a child learn from his mistakes. The child should understand why he is being disciplined.
- Disciplinary methods should not cause a child to feel afraid of his parents.
- A parent should not physically discipline a child if the parent feels out of control.

should never be used. In many jurisdictions, corporal punishment that leaves a mark or a bruise mandates a report to child protective services. Referral to high-quality parenting programs and counseling should be considered for children with difficult behavioral problems or any parent struggling with parenting strategies.

Literacy

Learning to read and write is a complex process that takes time and represents the coming together of a variety of skills and pathways in the brain. It requires that children have good, consistent relationships with caring adults who provide one-on-one interactions and who support the development of oral language. Literacy skills begin to develop in infancy, when parents and other caregivers talk or sign to their baby, and continue to develop in early childhood, when toddlers learn to communicate through language, explore their world through imaginary play, and listen to stories, whether read from books or spoken in an oral tradition. Because young children are active learners, they find joy in exploring and learning the meaning of language and communicating in increasingly sophisticated ways as they move toward literacy.

Parents' and health care professionals' expectations for a young child's literacy accomplishments should be based on developmentally appropriate activities, such as the encouragement of talking, singing, and imaginative play; simple art projects; easy access to books; and frequent reading times. Reading and writing are so linked to development, relationships, and environment that children will vary greatly in when and how they learn to read and write. This is true for other complex skills as well.

It is important to identify the literacy level of parents—not only when providing written educational materials but when encouraging parents to read to their child. Books do not have to be read to encourage literacy in children. Parents can use the books to tell stories, point out pictures, and let children make up their own story. Parents who use books in this way encourage their child in learning to read.

Health care professionals can support literacy by encouraging parents to tell stories, create or visit environments filled with books, find a place at home for imaginary play and art projects, ask their child questions and invite him to talk about his ideas, give time for reading daily, and set aside quiet times each day for reading with their child (eg, just before bed). By encouraging parents at every health supervision visit to find age-appropriate ways of incorporating books and reading aloud into children's daily routines, the health care professional

can give parents a way to help their children grow up associating books with positive parental attention. These discussions also can help parents understand the role that child care and preschool programs play in helping children get ready to read and write.[57]

The health care professional's office should reflect reading as a priority, with a specific area set aside to encourage imaginative play, a place with a collection of quality books and magazines in which children can look at books or be read to and a place with information about community libraries and adult and family literacy opportunities. *(For more information on this topic, see Box 2 of this theme.)* The presence of screen media in a waiting room can give a contradictory message. The evidence-based Reach Out and Read Program has increased the likelihood that parents will read to their children even among families at risk because of low-literacy among parents.[39,40] By giving a book at every health supervision visit from birth through age 5 years, especially to children at socioeconomic risk, the health care professional can intentionally build the skills of parents to actively participate in their children's cognitive and language development by increasing the frequency of parental reading aloud, improving the home environment, and helping parents increase children's language development.[35,39,40]

Play

A hallmark of the passage through early childhood is the emergence and steady elaboration of play activities. For the young toddler, play centers on direct explorations into the surrounding world, including the manipulation of objects to create interesting outcomes (eg, the sounds that banging a pot may produce or the interesting results of pouring water into a sandbox). With the development of language, from around age 18 months, play becomes progressively more reflective of the child's remembered experiences and imagined possibilities, as enacted through symbolic play. Thus, a doll comes to represent a living, imaginary person who can be fed, bathed, or scolded—just as the young child has personally experienced in real life.

In representational or symbolic play, which usually is evident by 2 years of age, the child has a new way of "replaying" the events in his life. Unlike real life, play allows him to control the events and their outcomes. Challenging experiences can be better understood through their re-creation as play. Play can enable the child to better cope with stressful experiences by taking charge and developing a preferred story. Confusing or difficult experiences can be mastered through the practice in experimentation and planning that play permits.

Many children at this age become attached to transitional objects and use them to help them fall asleep, comfort them when they are hurt or upset, and join them in their world of make-believe. The transitional object is a prime example of how the child's active imagination plays a central role in development toward independence and self-regulation.

From 3 to 5 years of age, the child's developmental gains in language and speech, cognitive ability, and fine and gross motor skills allow for increasingly complex forms of play. Play becomes an important modality for practicing and enhancing a broad range of skills, such as the motor skills and spatial understanding that comes with building with blocks or working with puzzles.

Play is a critical part of development, and toys are a critical part of play. Health care professionals often are asked to recommend appropriate toys for their patients. Toys should be educational and should promote creativity. Parents and health care professionals should avoid toys that make loud or shrill noises; toys with small parts, loose strings, cords, rope, or sharp edges; and toys that contain potentially toxic materials. Toys that promote violence, social distinctions, gender stereotypes, or racial bias also should be avoided. Video games

are not recommended for young children, but if used they should be screened for inappropriate content. Health care professionals can advise parents on distinguishing between safe and unsafe toys, choosing age-appropriate toys that help promote learning, and using books and magazines to read together.[58]

Play provides a window into many aspects of the child's developmental progress and into how she is attempting to understand the events, transitions, and stresses of everyday life. Parents and other caregivers should recognize the importance of play for the development of their young children. Play requires that children feel secure and that the play environment be sufficiently protected from intrusion and disruption. Parent-child play, in which the child takes the lead and the parent is attentive and responsive, elaborating but not controlling the events of play, is an excellent technique for enhancing the parent-child relationship and language development. When typical play is missing or delayed, the health care professional should consider the possibility of a developmental disability or emotional disorder, possible significant stresses in the child's environment, or both. The child's relationship to the family pets, if any, should be discussed and should include queries about attachment, responsibilities for pet care, and pet safety.

Play is no less important for children with physical or cognitive disabilities, but adaptations may be needed to allow such children to use the toy. These may include switches to allow the toy to activate or modifications to keep the toy in reach for children with limited mobility or dexterity. Therapists can be helpful in identifying and adapting toys for individual children.

Separation and Individuation

By the child's first birthday, he has likely secured a reasonably firm sense of trust that his primary caregivers are reliable, protective, and encouraging. In turn, the young toddler should begin to feel as though he can trust others enough to feel comfortable in communicating his feelings, needs, and interests. From this base of emotional security, the young child can dedicate his second year to begin growing increasingly independent from his caregivers—in actions, words, and thoughts. Periodically checking in with his parents for guidance and reassurance about safe and socially acceptable limits, the toddler waffles between testing bold new behaviors and exploring new environments and demanding to be consoled and protected. During this stage of development, parents can help their child by providing safe opportunities for freedom and encouragement with support. As the young child develops increasing comfort in exploring time, space, and relationships with adults and peers, he begins to discover more about his own identity, effectiveness, and free will. The more positive experiences a preschool-aged child enjoys with other children and adults, the better prepared he becomes for his subsequent adventures at school.

Early Care and Education

According to the *Child Health USA 2014* report, 64.8% of mothers with preschool-aged children were in the labor force (either employed or looking for employment) in 2013.[59] Census Bureau data show that children are cared for in a variety of settings. For example, nearly a half of preschool-aged children are cared for by family members. Other settings include day care centers, nursery schools, preschools, federal Head Start, kindergarten and grade schools, family day care, and nonrelatives (eg, babysitters, nannies, and housekeepers). All of these settings come under the comprehensive rubric of *early care and education,* and they vary across states, ages, health status, and family income levels. Children from lower-income families are less likely to be cared for in centers than are children from higher-income families and are more likely to be in the care of relatives.[60] Families with young children, especially those living at or near the poverty level and those with several children in child care, often find that child care costs strain

their budget, requiring them to balance competing family needs. Although federal subsidies for child care exist, most communities have waiting lists for openings. The health care professional and support staff who are familiar with community resources and sensitive to families' financial struggles can guide families as they make child care decisions.

Because child care for children with special health care needs is the most difficult to find and is in the shortest supply in most communities, a family's search for suitable child care can be frustrating and can sometimes cause a parent to stop working. This problem is compounded for families with low incomes, children who have more severe special health care needs, or both. In these situations, the health care professional and staff can help families by understanding their unique needs and the available community resources. Parents may benefit from being connected to local public health resources as well as contacts through the local Early Intervention Program agency, often referred to as IDEA Part C. These contacts can help with developmental concerns and also provide links to other community resources. The health care professional and staff also can work with the child care provider to ensure that the setting is appropriate and the staff has the training necessary to give the child a safe and healthy environment.

Preschools should never have more than 10 children per teacher. Providers for children with special health care needs may require specialized training and support. Parents should inquire whether their preschools adhere to national standards and are accredited by organizations such as the National Association for the Education of Young Children (**www.naeyc.org**).[43]

Quality child care gives young children valuable opportunities to learn to relate effectively with peers and adults, to explore the diverse physical and social world, and to develop confidence in their abilities to learn new skills, form trusting bonds of friendship, and process information from a variety of sources. High-quality early care and education and home visiting programs also are linked to positive health outcomes, supporting the foundations of health, which include stable and responsive relationships, secure and safe environments, nutrition, health-promoting behaviors, and healthy child development.[61] Health care professionals should learn about the health, developmental, and behavioral issues of their patients as they are manifested in child care. Health care professionals can integrate this information in their assessment, counseling, and advocacy for children and families in their practice and their community. The more sources of insight into the child's life the health care professional has, the better prepared the professional will be to support the child's health and development as he takes his first steps beyond the family. Many health care professionals provide formal consultative services to child care centers in their communities.

School Readiness

At the end of the early childhood developmental stage, the young child and his parents will begin the transition into kindergarten. The child will be challenged to demonstrate developmental capacities, including

- Language and speech or signing that is sufficient for communication and learning
- Cognitive abilities that are necessary for learning sound-letter associations, spatial relations, and number concepts
- Ability to separate from family and caregivers (especially for the child who has not already participated in preschool activities)
- Self-regulation with respect to behavior, emotions, attention, and motor movement
- Ability to make friends and get along with peers
- Ability to participate in group activities
- Ability to follow rules and directions
- Skills that others appreciate, such as singing or drawing

However, too many children today enter kindergarten significantly behind their peers in one or more of these abilities. Problems in self-regulation of emotions and behavior and problems in maintaining attention and focus are common at kindergarten entry and predict future educational and social problems.[62,63]

In an extensive survey, kindergarten teachers reported that roughly a half of kindergartners have difficulty following directions, and a third lack academic skills and have problems with working in a group.[64] Socioeconomic, racial, and ethnic cognitive gaps have been shown to exist at kindergarten entry and, if unaddressed, have the potential to persist and grow over time.[65]

Social and emotional development during early childhood (which was neglected in past research on school readiness) has been shown to be strongly connected to later academic success. Qualities that are crucial to learning and depend on early emotional and social development include self-confidence, curiosity, self-control of strong emotions, motivation to learn, and the ability to make friends and become engaged in a social group.[17,63]

The goal of having every child ready for school is a task that encompasses all of early childhood and depends on the efforts of everyone involved in the care of the young child during his first 5 years (Box 4). Throughout these years, the health care professional plays a vital role in promoting this goal through assessing and monitoring the

- General health of the child, including vision and hearing
- Child's developmental trajectory
- Emotional health of the child and family, especially when based on the health care professional's long-term knowledge of child-family relationships
- Child's social development (both skills and difficulties)
- Specific child-based, family-based, school-based, and community-based risk factors

Health care professionals have a unique opportunity to recognize problems and, when possible, to intervene early with effective referral for specific services as well as general evaluation so as to enhance the child's readiness for learning by the start of school. Intervention services for eligible children can begin at birth and continue through age 21 years. For details on eligibility and services, refer to the US Department of Education Office of Special Education and Rehabilitative Services (**www2.ed.gov/about/offices/list/osers/osep**).[66]

Box 4

Promoting School Readiness

In assessing school readiness, the AAP recommends that health care professionals encourage the 5 Rs.[67]

1. Reading together as a daily fun family activity
2. Rhyming, playing, talking, singing, and cuddling together throughout the day
3. Routines and regular times for meals, play, and sleeping, which help children know what they can expect and what is expected from them
4. Rewards for everyday successes, particularly for effort toward worthwhile goals such as helping, realizing that praise from those closest to a child is a potent reward
5. Relationships that are reciprocal, nurturing, purposeful, and enduring, which are the foundation of a healthy early brain and child development

Abbreviation: AAP, American Academy of Pediatrics.

Promoting Healthy Development: Middle Childhood—5 Through 10 Years

The middle childhood years are an important transitional period during which children build on the skills developed in the various domains of early childhood in preparation for adolescence. Middle childhood is an important time for families to strengthen their ties and to help children consolidate and build on their cognitive and emotional attributes, such as communication skills, sensitivity to others, ability to form positive peer relationships,

self-esteem, and independence. These attributes will help them cope with the stresses and potential risks of adolescence. Parents should be encouraged to appreciate the individual maturity level of their child. As a result, they can celebrate the child's evolving autonomy by granting new privileges. Parents who match each new entitlement with a new responsibility signal their respect for the child's growing capability to contribute to the family and the community.

Middle childhood is also a period when children become increasingly exposed to the world outside of their family through school and extended social interactions. Parents must begin to allow their child a degree of independence she had not experienced before.

Children and Youth With Special Health Care Needs

Children with special health care needs continue to define their sense of self in middle childhood and improve their ability to care for their own health. They will have emotional maturity that is appropriately reflective of their needs, developmental level, and physical challenges (Table 4). It is important to discuss family perspectives because families may have cultural beliefs and values regarding the independence of their special children. Inclusion in school and community life allows children with special health care needs to feel valued, develop friendships, and integrate their specific care needs with other aspects of their lives. Children adapt best to chronic illness when health care professionals, families, schools, and communities work together to foster their emerging independence. Child care providers and teachers can play an important supportive role and be a source of information for the parents and the children. *(For more information on this topic, see the Promoting Health for Children and Youth With Special Health Care Needs theme.)*

Domains of Development

Gross and Fine Motor Skills

Monitoring the child's growth patterns and conducting periodic physical examinations to assess growth and development are important components of health supervision. Major increases in strength and improvements in motor coordination occur during middle childhood. These changes contribute to the child's growing sense of competence in relation to her physical abilities and enhance her potential for participating in sports, dance, gymnastics, and other physical pursuits. A child's participation in sports or other physical activities can reinforce positive interaction skills and the establishment of a positive self-image that will serve the child throughout her life. Efforts to maintain good physical health and exercise patterns are important to achieving and maintaining a healthy weight. *(For more information on this topic, see the Promoting Healthy Weight theme.)*

Children develop at slightly different rates depending on their unique physical characteristics and experiences. Parental concerns are highly accurate markers for developmental problems. Parental observation of the child in relation to peers and concerns over loss of function or skills established earlier should be addressed immediately.

To support children's healthy physical development, health care professionals can work with communities to ensure that children have access to safe, well-supervised play areas; recreation centers; team sports and organized activities; parks; and schools. For children to flourish, communities must provide carefully maintained facilities to help their bodies and minds develop in a healthy way. Health care professionals can support their guidance by advocating for community facilities available to all children. *(For more information on this topic, see the Promoting Physical Activity theme.)*

Cognitive, Linguistic, and Communication Skills

Children's readiness to learn in school depends on cognitive maturation as well as their individual experiences. During middle childhood, the child moves from magical thinking to more logical thought processes. The synthesis of basic language, perception, and abstraction allows the child to read, write, and communicate thoughts of increasing complexity and creativity. Progress can appear subtle from month to month, but it is dramatic from one school year to the next. As the child's cognitive skills grow, she matures in her ability to understand the world and people around her and to function independently. Occasionally, children are impaired in their development because of learning problems, behavioral and emotional problems, or both. The health care professional can offer support by ensuring screening and evaluation for any suspected delays or problems.

The major developmental achievement of this age is self-efficacy, or the knowledge of what to do and the confidence and ability to do it. Success at school is most likely to occur when this achievement is encouraged by parents and valued by families. Families who reward children with enthusiasm and warmth for putting forth their best effort ensure their steady educational progress and prepare them to use their intelligence and knowledge productively. Through awareness of individual learning styles, including the need for necessary accommodations, parents and teachers can adapt materials and experiences to each child. School success is an important factor in the development of a child's self-esteem. In families in which parents have had unsuccessful educational experiences or have had limited education, support from health care professionals and others in the community is critical in supporting their children through the educational process.

Social and Emotional Skills

As children become increasingly independent and demonstrate initiative, they develop their own sense of personhood (Table 4). They begin to discern where they fit among their peers and in their family, school class, neighborhood, and community. When the fit is good and comfortable, children see themselves as effective and competent members of their family, group, team, school, and community. When the fit is tenuous or poor, the dissonance can be a source of distress and can predispose children to emotional illnesses with long-term consequences. *(For more information on this topic, see the Promoting Mental Health theme.)* Ongoing support for the child provides the best opportunity for acceptance and forms the basis for a strong self-worth. Support is especially important for children with special health care needs.

Children need both the freedom of personal expression and the structure of expectations and guidelines that they can understand and accept. Families should provide opportunities for the child to interact with other children in play environments without excessive adult interference. However, not all cultures accept this perspective. The health care professional and the family should discuss these issues. Most experts believe that children benefit from the experience of independent play with peers. Unfortunately, some neighborhoods or living arrangements restrict these opportunities. In addition, some children with special health care needs may need adaptive equipment or facilities to allow for inclusive play experiences. Children also need to have positive interactions with adults, reinforcing their sense of self-esteem, self-worth, and belief in their capability of personal success.

The child's sense of self evolves in a social context. Health care professionals can help families understand this dynamic and encourage specific roles for the children within the family. Parents who consciously assess their child's emotional maturity and role in the family at each birthday will appreciate the changes that have occurred subtly over time.

Table 4

Social and Emotional Development in Middle Childhood	
Topics	**Key Areas** *(Key areas in italics are especially important for children with special health care needs.)*
Self	**Self-esteem** • Experiences of success • Reasonable risk-taking behavior • Resilience and ability to handle failure • Supportive family and peer relationships
	Self-image • Body image, celebrating different body images • Prepubertal changes; initiating discussion about sexuality and reproduction; *prepubertal changes related to physical care issues*
Family	**What matters at home** • Expectation and limit setting • Family times together • Communication • Family responsibilities • Family transitions • Sibling relationships • *Caregiver relationships*
Friends	**Friendships** • Making friends, friendships with peers with and without special health care needs • Family support of friendships, *family support to have typical friendship activities, as appropriate*
School	**School** • Expectation for school performance; school performance developed and defined in IEP or Section 504 Plan • Homework • Child-teacher conflicts, building relationships with teachers • Parent-teacher communication • Ability of schools to address the needs of children from diverse backgrounds • Awareness of aggression, bullying, and being bullied • Absenteeism
Community	**Community strengths** • Community organizations • Religious groups • Cultural groups
	High-risk behaviors and environments • Substance use • Unsafe friendships • Unsafe community environments • *Particular awareness of risk-taking behaviors and unsafe environments because children may be easily abused or bullied*

Abbreviation: IEP, Individualized Education Program.

Developmental Highlights of Middle Childhood

Moral and Spiritual Development

The child's development as an individual involves an understanding of the life cycle—birth, growth and maturation, aging, and death. She becomes increasingly aware that an individual's life fits into a larger scheme of relationships among individuals, groups of people, other living creatures, and the earth itself. School-aged children become keenly interested in these topics, especially if they experience life events such as the birth of a sibling or the death of a grandparent. Children also become aware of violent death, on the highways or on street corners. When a death occurs, parents should be encouraged to discuss the loss with their children and provide assistance to children who are having difficulty with the grieving process.

As children experience these events and learn to view their personal encounters as part of a larger whole, families and communities provide an important structure. These experiences provide children with a basic foundation of value systems and encourage them to examine their personal actions in the context of those around them.

The relationship among values, competence, self-esteem, and personal responsibility needs to be modeled and affirmed by the child's parents, teachers, and communities. Parents need to help their child maintain a balance of responsibilities at school and home, time spent with family and friends, extracurricular and community activities, and personal leisure. Achieving this balance is essential for healthy development. Failures must be acknowledged, and supports might need to be offered. Transgressions may require discipline for accountability and trust to be learned. Genuine competence and self-esteem are strengthened when goals and standards are clear and the child is recognized for working hard in school, successfully completing chores and special projects, and participating in school and community activities.

Promoting Healthy Development: Adolescence—11 Through 21 Years

Adolescence is a dynamic experience, not a homogenous period of life. Adolescents differ widely in their physical, social, and emotional maturity because they enter puberty at different ages, progress at different paces, and experience different challenges in their developmental trajectories. To complicate the adolescent experience, parents also can experience changes in health, employment, geographic relocation, marital relationships, or the health of their parents and other family members. These experiences can be very formative in the lives of adolescents as they begin to understand more about effects of these changes on their family. However, although they may understand the changes intellectually, they may still lack the coping skills to deal with them.

Viewing adolescence in stages—early adolescence (11–14 years of age), middle adolescence (15–17 years of age), and late adolescence (18–21 years of age)—yields a better understanding of physical and psychological development and potential problems. Three key transitional domains (physiological, psychological, and social) can be used to chart adolescent changes and challenges (Table 5). The nature, length, and course of typical adolescent development can be viewed differently by families because cultural expectations for independence and self-sufficiency can differ. The health care professional should discern from families how they view this stage of life and note potential conflicts between the family's values and culture as opposed to those of the developing adolescent.

Youth With Special Health Care Needs

Like all youth, those with a special health care establish autonomy during adolescence, the final stage of development leading to adulthood. Limitations related to illness may further underscore physical dependence, which can limit the development of emotional independence. These adolescents may fear that their special need precludes autonomy.

Careful assessment of medical conditions, strengths, and risk-taking behaviors can allow sensitive discussions of the youth's perceived needs and goals. As with their typically developing peers, sexuality is an essential topic of concern for discussion. A goal of health supervision for adolescents with special needs is to maximize their physical development and support attainment of full emotional development and maturity. *(For more information on this topic, see the Promoting Health for Children and Youth With Special Health Care Needs theme.)*

Table 5

Domains of Adolescent Development			
	Early Adolescence (11–14 Years)	**Middle Adolescence (15–17 Years)**	**Late Adolescence (18–21 Years)**
Physiological	Onset of puberty, growth spurt, menarche (girls)	Ovulation (girls), growth spurt (boys)	Growth completed
Psychological	Concrete thought, preoccupation with rapid body changes, sexual identity, questioning independence, parental controls that remain strong	Competence in abstract and future thought, idealism, sense of invincibility or narcissism, sexual identity, beginning of cognitive capacity to provide legal consent	Future orientation; emotional independence; capacity for empathy, intimacy, and reciprocity in interpersonal relationships; self-identity; recognized as legally capable of providing consent[68]; attainment of legal age for some issues (eg, voting) but not all issues (eg, drinking alcohol)
Social	Search for same-sex peer affiliation, good parental relationships, and other adults as role models; transition to middle school, involvement in extra-curricular activities; sensitivity to differences between home culture and culture of others	Beginning emotional emancipation, increased power of peer group, conflicts over parental control, interest in sexual relationships, initiation of driving, risk-taking behavior, transition to high school, involvement in extracurricular activities, possible cultural conflict as adolescent navigates between family's values and values of broader culture and peer culture	Individual over peer relationships; transition in parent-adolescent relationship, transition out of home; may begin preparation for further education, career, marriage, and parenting
Potential problems	Delayed puberty; acne; orthopedic problems; school problems; psychosomatic concerns; depression; unintended pregnancy; initiation of tobacco, alcohol, or other substance use	Experimentation with health risk behaviors (eg, sex; tobacco, alcohol, or other substance use), motor vehicle crashes, menstrual disorders, unintended pregnancy, acne, short stature (boys), conflicts with parents, overweight, physical inactivity, poor eating behaviors, eating disorders (eg, purging, binge-eating, and anorexia nervosa)	Eating disorders, depression, suicide, motor vehicle crashes, unintended pregnancy, acne; tobacco, alcohol, or other substance use disorder

Domains of Development

Gross and Fine Motor Skills

Pubertal growth brings completion of physical development. Adult height and muscle mass are attained. Increasing size and strength are accompanied by enhanced coordination of both gross and fine motor skills. The boy or girl who can barely make the high school junior varsity basketball team as a ninth grader has the agility and strength necessary for varsity performance by 10th or 11th grade. Motor development continues into the final stage of development.

Cognitive, Linguistic, and Communication Skills

Success in school contributes substantially to the adolescent's self-esteem and progress toward becoming a socially competent adult. The National Longitudinal Study for Adolescent Health[69,70] found that school performance and choice of free-time activities were the most important determinants for every risky behavior studied, regardless of socioeconomic status, race, or if living in a 1- or 2-parent household. Students who have a high academic self-concept tend to have higher academic achievement and less test anxiety, take more advanced classes, and are less likely to drop out of school. Parental involvement and expectations and participation in extracurricular activities enhance adolescent academic achievement and educational attainment. Health care professionals should encourage conversations between parents and their adolescents on these issues.

Adolescents who feel connected to their school and who have a high academic self-concept are motivated to achieve. Peer relationships also influence adolescents' attitudes. Adolescents whose peers have or are perceived to have higher educational aspirations tend to be more engaged in school and to have higher hopes for continuing their education. Adolescents who work more than 20 hours a week tend to have a lower level of engagement in school.[71] The health care professional should encourage youth to participate in extracurricular activities. Factors such as disability and limited English proficiency can interfere with school success and need attention.

Some adolescents make the academic and social transition from middle school to high school easily. Others find this transition overwhelming, with an effect on motivation, self-esteem, and academic performance.

The Centers for Disease Control and Prevention National Center for Health Statistics estimates that among adolescents aged 12 to 17 years, nearly 10% have a learning disability.[72] Adolescents with a fair or poor health status were 6.5 times as likely to have a learning disability than adolescents with an excellent or a very good health status.[72] Students with learning disabilities can have difficulty with academics as well as social relationships. These students are more prone to depression and a lack of confidence.[73] Health care professionals should screen youth for declining grades and attendance issues, signs of learning disorders, and social adjustment concerns. With attention to adherence to specific school district policies, heath care professionals can interact with the school nurse, psychologist, counselor, or administrator to identify and address academic, social, and emotional difficulties that can interfere with school success.

Social and Emotional Skills

A consistent, supportive environment for the adolescent, with graded steps toward autonomy, is necessary to foster emotional and social well-being. This supportive environment requires the participation of the family, school, health care professional, and community and the adolescent himself.[10] Parents will struggle for a balance for their adolescent between restrictions that are designed to protect him and freedom that is intended to enhance growth. The adolescent will struggle for

this balance too. Parental difficulty with this balance may be recognized by excess anxiety regarding appropriate adolescent progress in separation and individuation or by apparent over-involvement in their adolescent's planning and decision-making. Discussion with parents may be indicated.

The emotional well-being of adolescents is tied to their sense of self-esteem. High self-esteem is generally associated with feelings of life satisfaction and a sense of control over one's life, whereas low self-esteem is correlated with lower reports of happiness and higher reports of feeling as if one is not in control of one's life. Adolescents who demonstrate good social and problem-solving skills also usually have enhanced self-esteem because these skills increase their sense of control over their world. This asset is essential in deriving the ability to handle stress and cope with challenging situations.

Another important developmental milestone that is critical to emotional well-being is the adolescent's growing sense of self. Long hours spent talking, grooming, being alone, and rushing to be part of a group—any group—are all part of the adolescent's search for a conception of self. Intelligence, in the narrow sense of the term, also is significant to the cognitive self. During adolescence, the individual has to learn the accumulated wisdom of society. As the adolescent becomes facile in using concepts and abstractions, he begins to combine new ideas in new ways to arrive at creative solutions.

Normal fluctuations of mood now are the adolescent's responsibility. With increasing autonomy, he may become unwilling to share feelings and, to a point, unconsciously seek to avoid dependence on family for mood modulation. Like other skills he acquires, managing feelings of sadness and anxiety requires guidance, practice, and experience.

During the course of adolescence, the increasingly autonomous and socially competent youth finds his place in family and community. Social competence can be defined as "the ability to achieve personal goals in social interaction while at the same time maintaining positive relationships with others over time and across situations."[74] The specific behaviors that characterize social competence will vary with the situation in which the adolescent is functioning. Socially competent youth are able to decode and interpret social cues and consider alternative responses along with their consequences.

To function in an adult world, a youth must become aware of his relations to others and learn the personal effect of relationships on his daily activities. Accordingly, he must appreciate the effects of his actions toward others if relationships are to be mature and reciprocal. Understanding how others might interpret a situation, recognizing another's predicament, and comfortably appreciating another's feelings are new and important experiences. Empathy must be achieved for healthy adult relationships to flourish.

The adolescent's social and emotional skills also are influenced by the young adult's growing interactions with the wider community through travel, higher education, volunteer activities, or structured job experiences. These activities can help adolescents realize that they have meaningful roles and can contribute productively to society. Through these activities, youth learn the importance of general adherence to rules and authority. External mandates are internalized in an appreciation of right or wrong and consequences.

Developmental Highlights of Adolescence

Assets

Health advocates have begun to look at the family and community factors that promote healthy development. This asset model, or strength-based approach, provides a broader perspective on adolescent development than the more traditional deficit model, which looks at the problems experienced by adolescents and develops preventive interventions (Table 6). The asset model reinforces health-promoting interactions or social involvement (eg, good parent-adolescent communication and participation in extracurricular activities[75]) and assists adolescents and their parents in setting goals to achieve healthy development.

Research demonstrates the value of parental involvement and quality parent-adolescent communication on healthy adolescent development.[76-78] Adolescents whose parents are authoritative, rather than authoritarian or passive, and who are involved in extracurricular and community activities appear to progress through adolescence with relatively little turmoil.[79]

Models of Care

On-site integrated health services in the schools—with referrals to health care professionals and community agencies and mental health centers for supplementary services—are an increasingly prevalent model for delivery of adolescent health care. In some situations, the school-based health center is the medical home for the youth enrolled in the center. School-based health centers can be especially effective in ensuring immunizations, promoting sports safety, and providing access for students with special health care needs. All services and programs should work to improve communication between school and home so parents stay involved in their adolescents' lives away from home and learn effective strategies to deal with some of the challenges that their adolescents face.

Health care professionals might ask young people how they learn about healthy living. Health promotion programs in schools help adolescents establish good health habits and avoid those that can lead to morbidity and mortality. Health promotion curricula can include family life education and social skills training, as well as information on pregnancy prevention, abstinence, conflict resolution, healthy nutrition and physical activity practices, and avoidance of unhealthy habits such as the use of tobacco products, alcohol, or other drugs. Referrals to appropriate, culturally respectful, and accessible community resources also help adolescents learn about and address mental health concerns, nutrition and physical health, and sexual health issues. When young people decide to seek assistance beyond their family, those resources should provide appropriate confidential counseling and support to them in making healthy choices while encouraging good communication with parents and family.

Table 6

Comparison of Asset and Deficit Models	
Asset Model	**Deficit Model**
• Positive family environment • Relationships with caring adults • Religious and spiritual anchors • Involvement in school, faith-based organization, or community • Accessible recreational opportunities	• Abuse or neglect • Witness to domestic violence • Family discord and divorce • Parents with poor health habits • Unsafe schools • Unsafe neighborhood

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