



Rationale and Evidence

Introduction

Health supervision of an *individual* child is a complex package of services that takes place over the child's lifetime. It includes not only preventive and screening interventions that are recommended for all children, but also addresses the particular needs of that child in the context of family and community. Studying the outcomes over a child's lifetime of health supervision at this level of integration can be a daunting task.

Evidence for effectiveness was a core criterion for including, or excluding, certain interventions in child health supervision in the *Bright Futures Guidelines*. However, it probably would be more accurate to describe this edition of the Guidelines as evidence informed rather than fully evidence driven. The most salient barrier to evidence-driven health supervision is that our evidence is incomplete. For many interventions that are commonly performed in child or adolescent care, no, or few, properly constructed studies have been done that link the intervention with intended health outcomes. Absent evidence does not demonstrate a lack of usefulness, however. The lack of evidence of effectiveness most often simply reflects the lack of study. Filling in the gaps in evidence is highly desirable, and additional research is strongly encouraged.

Approach Used to Develop the Bright Futures Recommendations

The Bright Futures Steering Committee used 3 approaches to develop the guidance and recommendations that are contained in this edition of the *Bright Futures Guidelines*.

- Multidisciplinary Expert Panels were convened to write recommendations for Bright Futures visit priorities, the physical examination, anticipatory guidance, immunizations, and universal and selective screening topics for each age and stage of development. In carrying out this task, the Expert Panels were charged with examining the evidence for each recommendation, and evidence was an important consideration in the guidance they provided. However, lack of evidence was particularly problematic for the physical examination (the elements of which can be considered screening interventions) and for counseling interventions. For these components, the Expert Panels relied on an indirect approach buttressed by their considerable expertise and clinical experience.
- A Bright Futures Evidence Panel, composed of consultants who are experts in finding and evaluating evidence from clinical studies, was convened to examine studies and systematic evidence reviews and to develop a method of informing readers about the strength of the evidence.

The Evidence Panel conducted literature searches for key questions using the MEDLINE® database of the National Library of Medicine. Key themes were searched in the Medical Subject Headings (MeSH) database to determine the most appropriate search terms. Searches were limited to clinical trials, meta-analyses, and randomized

controlled trials. Other limits included English language and designations for age, when appropriate. Standardized terms were used for counseling (ie, counseling, primary prevention, health promotion, health education, and patient education) and for screening (ie, mass screening and risk assessment). The Evidence Panel also used the systematic evidence reviews performed for the United States Preventive Services Task Force (USPSTF) and the Cochrane Collaboration. This approach was, by no means, exhaustive, but it did provide a sound assessment of the most relevant literature. The Evidence Panel's statements are found at the end of this chapter.

- Throughout the Guidelines development process, the Project Advisory Committee and Expert Panels consulted with individuals and organizations with expertise and experience in a wide range of topic areas. The entire Guidelines document also underwent public review twice in 2004 and once in 2006. More than 1,000 reviewers, representing national organizations concerned with infant,

child, and adolescent health and welfare, provided nearly 3,500 comments. The contributions of these reviewers provided a valuable opportunity to refine the guidelines and strengthen the scientific base for the guidance provided.

The result of these efforts is the third edition of the *Bright Futures Guidelines*. Unless a contraindication or extenuating circumstance exists, infants, children, and adolescents should receive mandated services and applicable services for which the evidence is strong. For those interventions that do not yet have supporting evidence, the health care professional who uses the *Bright Futures Guidelines* is guided by clinical experience, knowledge of the needs of the individual child, expert opinion that reflects recommendations from professional associations, and local practice.

The remainder of this chapter provides details on the evidence and science used to support the recommendations in the third edition of the *Bright Futures Guidelines*. The first section presents the rationale for certain Bright Futures recommendations. The second section presents the detailed findings of the Bright Futures Evidence Panel.

RATIONALE

The following section presents the scientific rationales used by the Expert Panels to craft Bright Futures recommendations, including some aspects of the physical examination, practice-based interventions, and universal and selective screening activities. These rationales were taken from policy statements and published reviews of the American Academy of Pediatrics (AAP) and other national organizations, and articles from the literature. Primary sources for each rationale are cited.

Physical Examination

Rationale for the Physical Examination

To help health care professionals prioritize aspects of the physical examination in the preventive services visit, health care professionals are alerted to the following USPSTF recommendations about cervical, breast, and testicular cancer screening and scoliosis screening. These recommendations do not preclude or preempt actions a health care professional may decide to take during a health supervision physical examination of a particular child.

The USPSTF strongly recommends **for**:

- Screening for cervical cancer in women who have been sexually active and have a cervix.

Screening should begin within 3 years of onset of sexual activity or age 21, whichever comes first.¹ The USPSTF found “good evidence from multiple observational studies that screening with cervical cytology (Pap smears) reduces incidence of and mortality from cervical cancer.

Direct evidence to determine the optimal starting and stopping age and interval for screening is limited. Indirect evidence suggests most of the benefit can be obtained by beginning screening

within 3 years of onset of sexual activity or age 21 (whichever comes first) and screening at least every 3 years). The USPSTF concludes that the benefits of screening substantially outweigh potential harms.”

The USPSTF concludes that the **evidence is insufficient** to recommend for or against:

- Routine clinical breast examination (CBE) alone to screen for breast cancer²

The USPSTF states that “no screening trial has examined the benefits of CBE alone (without accompanying mammography) compared to no screening, and design characteristics limit the generalizability of studies that have examined CBE. The USPSTF could not determine the benefits of CBE alone or the incremental benefit of adding CBE to mammography. The USPSTF, therefore, could not determine whether potential benefits of routine CBE outweigh the potential harms.”

- Teaching or performing routine breast self-examination (BSE)

The USPSTF “found poor evidence to determine whether BSE reduces breast cancer mortality. The USPSTF found fair evidence that BSE is associated with an increased risk for false-positive results and biopsies. Due to design limitations of published and ongoing studies of BSE, the USPSTF could not determine the balance of benefits and potential harms of BSE.”

The American Cancer Society recommends that, for average-risk asymptomatic women in their 20s and 30s, CBE be part of a periodic health examination, preferably every 3 years.³

The USPSTF recommends **against**:

- Routine screening for testicular cancer.

The USPSTF found no evidence “that screening with clinical examination or testicular self-examination is effective in reducing mortality from testicular cancer.”⁴ It further states that, “currently most testicular carcinomas are discovered by patients themselves...unintentionally or by self-examination,” but recommends against clinician-taught self-examination as unnecessary screening.

- Routine screening of asymptomatic adolescents for idiopathic scoliosis.

“The USPSTF did not find good evidence that screening asymptomatic adolescents detects idiopathic scoliosis at an earlier age than detection without screening.”⁵

The complete physical examination remains a core element of disease detection and prevention. Health care professionals must individualize these recommendations for their patients. For example, pelvic examinations are often indicated in adolescent females for abnormal bleeding or dysmenorrhea. Breast examinations are employed to determine sexual maturity rating. In adolescent males, health care professionals perform testicular examinations for hernia, varicocele or epididymitis. The USPSTF warns that “clinicians should be aware of testicular cancer as a possible diagnosis.”

The back is routinely inspected in all patients, with special attention to curvature during the adolescent growth spurt.⁶ The USPSTF scoliosis screening statement notes that “clinicians should be prepared to evaluate idiopathic scoliosis when discovered incidentally.”⁵

Therefore, the *Bright Futures Guidelines* recommend a complete physical examination, counseling, and screening as part of every health supervision visit.

Practice-based Intervention

Rationale for Practice-based Interventions

Two interventions have demonstrated important findings that could affect the health care professional's decisions about what to incorporate in their practice setting.

REACH OUT AND READ

When health care professionals promote literacy according to the Reach Out and Read (ROR) model, especially to low-income children, studies have demonstrated an effect on parental behavior, beliefs, and attitudes toward reading aloud, as well as improvements in the language scores of young children receiving the intervention. Components of the ROR model include anticipatory guidance about the importance of reading, volunteers reading aloud in waiting rooms, and distribution of developmentally and culturally appropriate books at health supervision visits of children ages 6 months to 5 years.^{7,8}

HEALTHY STEPS

The Healthy Steps for Young Children program (<http://www.healthysteps.org>) employs practice-based Healthy Steps specialists and has shown positive outcomes in parent behavior (less severe discipline) and quality and use of care. Components of the Healthy Steps program include office and home visits, ideas for telephone contact, and special materials keyed to each health supervision visit.⁹

Universal Screening

Rationale for Universal Medical Screening

Medical screening occurs at each Bright Futures Visit. Screening may be universal, meaning that it is performed for every child at a particular visit. For example, developmental and autism screening at 18 months of age are universal screens. Other screening is selective, based on positive findings from a risk assessment. (See the following section, [Rationale for Selective Medical Screening](#).)

For each universal screening test that is recommended in this edition of the *Bright*

Futures Guidelines, we provide, in this chapter, a rationale table that presents the health supervision visits at which the screening should take place, the scientific statement upon which our recommendation is based, and the primary supporting reference. The scientific statements are taken directly from these supporting references. The rationale tables are linked to the Medical Screening tables that are found in each of the Bright Futures Visits. The tables in the Visits contain specific information about the screening test, including the action to be taken.

Universal Screening

Newborn Metabolic and Hemoglobinopathy

BRIGHT FUTURES VISITS:	NEWBORN, FIRST WEEK; 1, 2 MONTH
Rationale:	Universal newborn screening is an essential public health responsibility that is critical for improving the health outcomes of affected children.
Citation:	American College of Medical Genetics, Newborn Screening Expert Group. Newborn screening: toward a uniform screening panel and system—executive summary. <i>Pediatrics</i> . 2006;117:296-307 (p 298)

Development

BRIGHT FUTURES VISITS:	9, 18 MONTH; 2½ YEAR
Rationale:	<p>Article Covers Ages: Birth Through 3 years</p> <p>All children, most of whom will not have identifiable risks or whose development appears to be proceeding typically, should receive periodic developmental screening using a standardized test. In the absence of established risk factors or parental or provider concerns, a general developmental screen is recommended at the 9-, 18-, and 30-month visits.</p> <p>These recommended ages for developmental screening are suggested only as a starting point for children who appear to be developing normally; surveillance should continue throughout childhood, and screenings should be conducted anytime that concerns are raised by parents, child health professionals, or others involved in the care of the child.</p>
Citation:	American Academy of Pediatrics, Council on Children With Disabilities, Section on Developmental Behavioral Pediatrics, Bright Futures Steering Committee and Medical Home Initiatives for Children With Special Needs Project Advisory Committee. Identifying infants and young children with developmental disorders in the medical home: an algorithm for developmental surveillance and screening. <i>Pediatrics</i> . 2006;118:405-420 (pp 409, 414)

Universal Screening

Autism

BRIGHT FUTURES VISITS:	18 MONTH, 24 MONTH
Rationale:	Article Covers Ages: 18 to 24 months The AAP has recommended administering autism-specific screening tool at the 18-month preventative care visit (in addition to a general developmental screening tool).
Citation:	Council on Children With Disabilities, Section on Developmental Behavioral Pediatrics, Bright Futures Steering Committee and Medical Home Initiatives for Children With Special Needs Project Advisory Committee. Identifying infants and young children with developmental disorders in the medical home: an algorithm for developmental surveillance and screening. <i>Pediatrics</i> . 2006;118:405-420
Rationale:	The policy statement recommends surveillance for developmental problems at all well-child preventative care visits and routine screening with a general screening tool at the 9-, 18-, and 30-month visits, plus screening with an autism-specific tool at the age of 18 months. ...[S]creening with an autism-specific screening tool should be repeated at the age of 24 months or at any encounter when a parent raises concern.
Citation:	Gupta VB, Hyman SL, Johnson CP, et al. Identifying children with autism early? <i>Pediatrics</i> . 2007;119:152-153

Oral Health

BRIGHT FUTURES VISITS:	6, 9 MONTH
Rationale:	Article Covers Ages: 6 to 12 months Referral by the primary care physician or health provider has been recommended, based on risk assessment, as early as 6 months of age, 6 months after the first tooth erupts, and no later than 12 months of age.
Citation:	American Academy of Pediatric Dentistry Council on Clinical Affairs. Policy on the dental home. In: <i>Oral Health Policies Reference Manual 2005-2006</i> . Chicago, IL: American Academy of Pediatric Dentistry; 2004:18-19. Available at: http://www.aapd.org/media/Policies_Guidelines/P_DentalHome.pdf . Accessed April 25, 2007
Citation:	Casamassimo P, Holt K, eds. <i>Bright Futures in Practice: Oral Health—Pocket Guide</i> . Washington, DC: National Maternal and Child Oral Health Resource Center; 2004

Vision

BRIGHT FUTURES VISITS:	3, 4, 5 YEAR
Rationale:	<p>Article Covers Ages: Preschool children</p> <p>The USPSTF recommends screening to detect amblyopia, strabismus, and defects in visual acuity in children younger than age 5 years.</p> <p>Traditional vision testing requires a cooperative, verbal child and cannot be performed reliably until ages 3 to 4 years.</p>
Citation:	US Preventive Services Task Force. Screening for Visual Impairment in Children Younger Than Age 5 Years: Recommendation Statement. Rockville, MD: Agency for Healthcare Research and Quality; 2004. Available at: http://www.ahrq.gov/clinic/3rduspstf/visionscr/vischrs.htm . Accessed April 25, 2007
BRIGHT FUTURES VISITS:	6, 8, 10 YEAR, AND ONCE DURING EACH PERIOD OF EARLY, MIDDLE, AND LATE ADOLESCENCE
Rationale:	<p>Article Covers Ages: 3 years and older</p> <ul style="list-style-type: none"> • Age appropriate visual acuity measurement • Attempt at ophthalmoscopy
Citation:	American Academy of Pediatrics Committee on Practice and Ambulatory Medicine, Section on Ophthalmology, American Association of Certified Orthoptists, American Association for Pediatric Ophthalmology and Strabismus, and American Academy of Ophthalmology. Eye examination in infants, children, and young adults by pediatricians. <i>Pediatrics</i> . 2003;111:902-907 (p 902)

Hearing

BRIGHT FUTURES VISITS:	NEWBORN, FIRST WEEK; 1, 2 MONTH; 4, 5, 6, 8, 10 YEAR
Rationale:	<p>Article Covers Ages: Newborn and Infant</p> <p>The American Academy of Pediatrics supports the statement of the Joint Committee on Infant Hearing (1994), which endorses the goal of universal detection of hearing loss in infants before 3 months of age, with appropriate intervention no later than 6 months of age. Universal detection of infant hearing loss requires universal screening of all infants.</p>
Citation:	American Academy of Pediatrics, Task Force on Newborn and Infant Hearing. Newborn and infant hearing loss: detection and intervention. <i>Pediatrics</i> . 1999;103:527-530
Rationale:	<p>Article Covers Ages: Beyond Neonatal to Adolescence</p> <p>The AAP promotes objective newborn hearing screening as well as periodic hearing screening for every child through adolescence.</p>
Citation:	Cunningham M, Cox EO, American Academy of Pediatrics, Committee on Practice and Ambulatory Medicine, Section on Otolaryngology and Bronchoesophagology. Hearing assessment in infants and children: recommendations beyond neonatal screening. <i>Pediatrics</i> . 2003;111:436-440 (p436)
Citation:	American Academy of Pediatrics, Committee on Practice and Ambulatory Medicine. Recommendations for preventive pediatric health care. <i>Pediatrics</i> . 2000;105:645-646

Universal Screening

Anemia

BRIGHT FUTURES VISITS: 12 MONTH	
Rationale:	Section in Book Covers Ages through 12 months Initial measurement of hemoglobin or hematocrit for all full-term infants between 9 and 12 months of age.
Citation:	American Academy of Pediatrics, Committee on Nutrition. Iron deficiency. In: Kleinman RE, ed. <i>Pediatric Nutrition Handbook</i> . 5th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2004:299-312 (p 309)

Lead

BRIGHT FUTURES VISITS: 12 MONTH, 2 YEAR (HIGH PREVALENCE AREA OR MEDICAID)	
Rationale:	Article Covers Ages: 9 to 72 months Universal screening was recommended for children 9 to 72 months of age except in communities with sufficient data to conclude that children would not be at risk of exposure. To prevent lead poisoning, lead screening should begin at 9 to 12 months of age and be considered again at ~24 months of age when blood lead levels (BLLs) peak. In communities where universal screening is recommended, pediatricians should follow this recommendation. In communities where targeted screening is recommended, pediatricians should determine whether each young patient is at risk and screen when necessary.
Citation:	American Academy of Pediatrics, Committee on Environmental Health. Screening for elevated blood lead levels. <i>Pediatrics</i> . 1998;101:1072-1078 (p 1072, 1076)

Dyslipidemia

BRIGHT FUTURES VISITS: OLDER ADOLESCENTS	
Rationale:	Article Covers Ages: Older Adolescents and Adults (Age 20 and above) In all adults aged 20 years or older, a fasting lipoprotein profile (total cholesterol, LDL cholesterol, high density lipoprotein [HDL] cholesterol and triglyceride) should be obtained once every 5 years.
Citation:	Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) final report. <i>Circulation</i> . 2002;106:3143-3421 (p 3200)

Selective Screening

Rationale for Selective Medical Screening

Selective medical screening is performed if risk assessment is positive. For example, tuberculosis screening is performed selectively. For each selective screening test that is recommended in this edition of the *Bright Futures Guidelines*, we provide a rationale table that presents the health supervision visit at which the screening should take place, the risk assessment criteria that should be used to

determine whether to conduct the screen, and the primary supporting reference from the literature (consensus, evidence informed, or evidence based). The scientific statements are taken directly from these supporting references.

The following rationale tables are linked to the Medical Screening tables found in each of the Bright Futures Visits. The tables in the Visits contain additional specific information about the screening test, including the criteria for testing and the action to be taken.

Selective Screening

Oral Health (Dental Home)

BRIGHT FUTURES VISITS:	12, 18 MONTH; 2, 2½, 3, 6 YEAR
Rationale:	Article Covers Ages: 6 to 12 months Referral by the primary care physician or health provider has been recommended, based on risk assessment, as early as 6 months of age, 6 months after the first tooth erupts, and no later than 12 months of age.
Citation:	American Academy of Pediatric Dentistry, Council on Clinical Affairs. Policy on the dental home. In: <i>Oral Health Policies Reference Manual 2005-2006</i> . Chicago, IL: American Academy of Pediatric Dentistry; 2004. Available at: http://www.aapd.org/media/Policies_Guidelines/P_DentalHome.pdf . Accessed April 25, 2007
Citation:	Casamassimo P, Holt K, eds. <i>Bright Futures in Practice: Oral Health—Pocket Guide</i> . Washington, DC: National Maternal and Child Oral Health Resource Center; 2004

Oral Health (Fluoride)

BRIGHT FUTURES VISITS:	12, 18 MONTH; 2, 2½, 3, 6 YEAR
Rationale:	Article Covers Ages: Older than 6 months The US Preventive Services Task Force (USPSTF) recommends that primary care clinicians prescribe oral fluoride supplementation at currently recommended doses to preschool children older than 6 months of age whose primary water source is deficient in fluoride.
Citation:	US Preventive Services Task Force. Prevention of Dental Caries in Preschool Children: Recommendations and Rationale. Rockville, MD. Agency for Healthcare Research and Quality; 2004. Available at: http://www.ahrq.gov/clinic/3rduspstf/dentalchild/dentchrs.htm . Accessed April 25, 2007
Rationale:	Systemic fluoride intake via optimal fluoridation of drinking water or professionally prescribed supplements is recommended to 16 years of age or the eruption of the second permanent molars, whichever comes first.
Citation:	American Academy of Pediatric Dentistry. <i>Clinical Guideline on Adolescent Oral Health Care: Reference Manual</i> . Chicago, IL: American Academy of Pediatric Dentistry; 2005

Selective Screening

Blood Pressure

BRIGHT FUTURES VISITS:	ALL VISITS OF CHILDREN YOUNGER THAN AGE 3 YEARS (THIS SCREEN BECOMES A COMPONENT OF THE ANNUAL PHYSICAL EXAMINATION AT AGE 3 YEARS.)
Rationale:	<ul style="list-style-type: none"> • History of prematurity, very low birth weight, or other neonatal complication requiring intensive care • Congenital heart disease (repaired or nonrepaired) • Recurrent urinary tract infections, hematuria or proteinuria • Known renal disease or urologic malformations • Family history of congenital renal disease • Solid-organ transplant • Malignancy or bone marrow transplant • Treatment with drugs known to raise blood pressure • Other systemic illnesses associated with hypertension (neurofibromatosis, tuberous sclerosis etc) • Evidence of increased elevated intracranial pressure
Citation:	National High Blood Pressure Education Program Working Group on High Blood Pressure in Children and Adolescents. The fourth report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescents. <i>Pediatrics</i> . 2004;114;555-576 (p 556)

Selective Screening

Vision

BRIGHT FUTURES VISITS:	NEWBORN, FIRST WEEK; 1, 2, 4, 6, 9, 12, 15, 18 MONTH; 2, 2½, 7, 9; AND ADOLESCENTS (11 TO 21 YEAR VISITS)
Rationale:	<p>Article covers ages: All ages</p> <p>Children should have an assessment for eye problems in the newborn period and then at all subsequent routine health supervision visits. These should be age-appropriate evaluations... Infants and children at high risk of eye problems should be referred for specialized eye examination by an ophthalmologist experienced in treating children. This includes children who are very premature; those with family histories of congenital cataracts, retinoblastoma, and metabolic or genetic diseases; those who have significant developmental delay or neurologic difficulties; and those with systematic diseases associated with eye abnormalities.</p> <p>Birth to age 3 years</p> <p>Eye evaluation should include:</p> <ul style="list-style-type: none"> • Ocular history • Vision assessment • External inspection of the eyes and lids • Ocular motility assessment • Pupil examination • Red reflex examination <p>Ocular history: Parents observations are valuable. Questions that can be asked include:</p> <ul style="list-style-type: none"> • Does your child seem to see well? • Does your child hold objects close to his or her face when trying to focus? • Do your child's eyes appear straight or do they seem to cross or drift or seem lazy? • Do your child's eyes appear unusual? • Do your child's eyelids droop or does 1 eyelid tend to close? • Have your child's eye(s) ever been injured? <p>Relevant family histories regarding eye disorders or preschool or early childhood use of glasses in parents or siblings should be explored.</p> <p>3 years and older</p> <p>Above criteria, plus:</p> <ul style="list-style-type: none"> • Age appropriate visual acuity measurement • Attempt at ophthalmoscopy
Citation:	American Academy of Pediatrics, Committee on Practice and Ambulatory Medicine; Section on Ophthalmology, American Association of Certified Orthoptists; American Association for Pediatric Ophthalmology and Strabismus; and American Academy of Ophthalmology. Eye examination in infants, children, and young adults by pediatricians. <i>Pediatrics</i> . 2003;111:902-907 (p 902)
BRIGHT FUTURES VISITS:	7, 9 YEAR; ADOLESCENTS (11 TO 21 YEAR VISITS — WHEN UNIVERSAL SCREENING IS NOT PERFORMED)
Rationale:	<p>Article covers ages: 3 years and older</p> <p>In addition, the following may be indicative of myopia:</p> <ul style="list-style-type: none"> • Complaint that the classroom blackboard has become difficult to see • Failure to pass a school vision screening test • Holds toys or books close to the eyes • Difficulty recognizing faces at a distance • Tend to squint
Citation:	Greenwald MJ. Refractive abnormalities in childhood. <i>Pediatr Clin N Am</i> . 2003;50:197-212 (p 200-201)

Selective Screening

Hearing

BRIGHT FUTURES VISITS:	4, 6, 12, 15, 18 MONTH; 2, 2½ YEAR
Rationale:	<p>Article Covers Ages: Birth to age 2 years</p> <ul style="list-style-type: none"> • Caregiver concern* regarding hearing, speech, language or developmental delay • Family history* of permanent childhood hearing loss • Neonatal intensive care of >5 days, which may include extracorporeal membrane oxygenation* (ECMO) assisted ventilation, exposure to ototoxic medications (gentamycin and tobramycin) or loop diuretics (furosemide/lasix), and hyperbilirubinemia requiring exchange transfusion • In-utero infections such as cytomegalovirus,* herpes, rubella, syphilis, and toxoplasmosis • Craniofacial anomalies, including those involving the pinna, ear canal, ear tags, ear pits, and temporal bone anomalies • Physical findings such as white forelock, associated with a syndrome known to include a sensorineural or permanent conductive hearing loss • Syndromes associated with hearing loss or progressive or late onset hearing loss* such as neurofibromatosis, osteopetrosis, and Usher’s syndrome. Other frequently identified syndromes include Waardenburg, Alport, Pendred, and Jervell and Lange-Nielson • Neurodegenerative disorders,* such as Hunter syndrome, or sensory motor neuropathies, such as Friedreich’s ataxia and Charcot-Marie-Tooth syndrome • Culture positive postnatal infections associated with sensorineural hearing loss,* including confirmed bacterial and viral (especially herpes viruses and varicella) meningitis • Head trauma, especially basal skull/temporal bone fracture* requiring hospitalization • Chemotherapy* <p>*Risk indicators that are marked with an asterisk are of greater concern for delayed onset hearing loss.</p> <p>The Joint Committee on Infant Hearing (JCIH) recognizes that an optimal surveillance and screening program within the medical home would include the following:</p> <ul style="list-style-type: none"> • At each visit consistent with the AAP periodicity schedule, infants should be monitored for auditory skills, middle ear status, and developmental milestones (surveillance). Concerns during surveillance should be followed by administration of a validated global screening tool. A validated global screening tool is administered at 9, 18, and 24-30 months to all infants, or sooner, if there is physician or parental concern about hearing or language. • Infants who do not pass the speech-language portion of the global screen in the medical home or if there is caregiver concern about hearing or spoken language development should be referred immediately for further evaluation by an audiologist and a speech language pathologist for a speech and language evaluation with validated tools. • A careful assessment of middle ear status (pneumatic otoscopy and/or tympanometry) should be completed at all well-child visits, and children with persistent middle ear effusion ≥3 months should be referred for otologic evaluation.
Citation:	Joint Committee on Infant Hearing. Year 2007 position statement: principles and guidelines for early hearing detection and intervention programs. <i>Pediatrics</i> . 2007;120:898-921

Selective
Screening

Hearing (continued)

BRIGHT FUTURES VISITS:	ADOLESCENTS (11 TO 21 YEAR VISITS)
Rationale:	<p>Article Covers Ages: Older children and adults</p> <ul style="list-style-type: none"> • Do you have a problem hearing over the telephone? • Do you have trouble following the conversation when two or more people are talking at the same time? • Do people complain that you turn the TV volume up too high? • Do you have to strain to understand conversation? • Do you have trouble hearing in a noisy background? • Do you find yourself asking people to repeat themselves? • Do many people you talk to seem to mumble (or not speak clearly)? • Do you misunderstand what others are saying and respond inappropriately? • Do you have trouble understanding the speech of women and children? • Do people get annoyed because you misunderstand what they say?
Citation:	National Institute on Deafness and Other Communication Disorders. <i>Ten Ways to Recognize Hearing Loss</i> . Bethesda, MD: National Institute of Health; 2006. NIH Publication No 01-4913. Available at: http://www.nidcd.nih.gov/health/hearing/10ways.asp . Accessed April 25, 2007

Anemia

BRIGHT FUTURES VISITS:	4, 18 MONTH; ANNUALLY BEGINNING WITH 2 YEAR VISIT
Rationale:	<p>4 Month Visit</p> <ul style="list-style-type: none"> • Prematurity • Low birth weight • Use of low-iron formula or infants not receiving iron-fortified formula • Early introduction of cow milk <p>18 Month; 2, 3, 4, 5 Year Visits</p> <ul style="list-style-type: none"> • At risk of iron deficiency because of special health needs • Low-iron diet (eg, nonmeat diet) • Environmental factors (eg, poverty, limited access to food)
Citation:	American Academy of Pediatrics, Committee on Nutrition. Iron deficiency. In: Kleinman RE, ed. <i>Pediatric Nutrition Handbook</i> . Elk Grove Village, IL: American Academy of Pediatrics; 2004:299-312 (p 309)
Rationale:	<p>6 to 10 Year Visits</p> <ul style="list-style-type: none"> • Children who consume a strict vegetarian diet and are not receiving an iron supplement
Citation:	American Academy of Pediatrics, Committee on Nutrition. Iron deficiency. In: Kleinman RE, ed. <i>Pediatric Nutrition Handbook</i> . Elk Grove Village, IL: American Academy of Pediatrics; 2004:299-312 (p 310)
Rationale:	<p>Adolescents (11 to 21 Year Visits)</p> <ul style="list-style-type: none"> • Starting in adolescence, screen all nonpregnant women for anemia every 5 to 10 years throughout their childbearing years during routine health examinations. • Annually screen for anemia women having risk factors for iron deficiency (eg, extensive menstrual or other blood loss, low iron intake, or a previous diagnosis of iron-deficiency anemia).
Citation:	Centers for Disease Control and Prevention. Recommendations to prevent and control iron deficiency in the United States. <i>MMWR Recomm Rep</i> . 1998;47(RR-3):1-36 (p 29)

Selective Screening

Lead

BRIGHT FUTURES VISITS:	6, 9 MONTH; 12 MONTH (LOW PREVALENCE, NOT ON MEDICAID); 18 MONTH; 2 YEAR (LOW PREVALENCE, NOT ON MEDICAID); 3, 4, 5, 6 YEAR
Rationale:	<p>Article Covers Ages: Article recommends for children 9 to 72 months</p> <ul style="list-style-type: none"> • Does your child live in or regularly visit a house or child care facility built before 1950? • Does your child live in or regularly visit a house or child care facility built before 1978 that is being or has recently been renovated or remodeled (within the last 6 months)? • Does your child have a sibling or playmate who has or did have lead poisoning?
Citation:	American Academy of Pediatrics, Committee on Environmental Health. Screening for elevated blood lead levels. <i>Pediatrics</i> . 1998;101:1072-1078 (p 1074)
Rationale:	Local practitioners should work with state, county, local health authorities to develop sensitive, customized questions appropriate to the housing and hazards encountered locally.
Citation:	American Academy of Pediatrics, Committee on Environmental Health. Lead exposure in children: prevention, detection, and management. <i>Pediatrics</i> . 2005;116:1036-1046 (p 1043)
Rationale:	<p>The Centers for Disease Control and Prevention recommends blood lead testing for all refugee children who are 6 months to 16 years old upon entering the United States.</p> <p>Repeat BLL testing of all refugee children who are 6 months to 6 years of age, 3 to 6 months after they are placed in permanent residences, should be considered a "medical necessity," regardless of initial test results.</p>
Citation:	Centers for Disease Control and Prevention. CDC Lead Poisoning Prevention and Treatment Recommendations for Refugee Children. In: <i>Lead Poisoning Prevention in Newly Arrived Refugee Children: Tool Kit</i> . Atlanta, GA: Centers for Disease Control and Prevention; 2006

Tuberculosis

BRIGHT FUTURES VISITS:	1, 6, 12, 18 MONTH; ANNUALLY BEGINNING AT THE 2 YEAR VISIT
Rationale:	<p>Article Covers Ages: All ages</p> <p>Children who should have annual Tuberculin Skin Test:</p> <ul style="list-style-type: none"> • Children infected with HIV • Incarcerated adolescents <p>Validated Questions for Determining Risk of Latent Tuberculosis Infection in Children in the United States</p> <ul style="list-style-type: none"> • Has a family member or contact had tuberculosis disease? • Has a family member had a positive tuberculin skin test? • Was your child born in a high-risk country (countries other than the United States, Canada, Australia, New Zealand, or Western European countries)? • Has your child traveled (had contact with resident populations) to a high-risk country for more than 1 week?
Citation:	American Academy of Pediatrics. Tuberculosis. In: Pickering LK, Baker CJ, Long SS, McMillan JA, eds. <i>Red Book: 2006 Report of the Committee on Infectious Diseases</i> . 27th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2006:678-698 (p 683-684)

Selective Screening

Dyslipidemia

BRIGHT FUTURES VISITS:	2, 4, 6, 8, 10 YEAR; ADOLESCENTS (11 TO 21 YEAR VISITS — WHEN UNIVERSAL SCREENING IS NOT PERFORMED)
<p>Rationale:</p>	<p>Article Covers Ages: 2 to 18 years</p> <ul style="list-style-type: none"> • Screen children and adolescents whose parents or grandparents, at ≤55 years of age, underwent diagnostic coronary arteriography and were found to have coronary atherosclerosis. This includes those who have undergone balloon angioplasty or coronary artery bypass surgery. • Screen children and adolescents whose parents or grandparents, at ≤55 years of age, had a documented myocardial infarction, angina pectoris, peripheral vascular disease, cerebrovascular disease, or sudden cardiac death. • Screen the offspring of a parent with an elevated blood cholesterol level (240 mg/dL or higher). • For children and adolescents whose parental history is unobtainable, particularly for those with other risk factors, physicians may choose to measure cholesterol levels to identify those in need of nutritional and medical advice. • Optional cholesterol testing by participating physicians may be appropriate for children who are judged to be at a higher risk for coronary heart disease independent of family history. For example, adolescents who smoke, consume excessive of saturated fats and cholesterol, or are overweight. • Other risk factors that contribute to earlier onset of coronary heart disease: <ul style="list-style-type: none"> • Family history of premature coronary heart disease, cerebrovascular disease, or occlusive peripheral vascular disease (definite onset before age of 55 years in siblings, parent, or sibling of parent) • Cigarette smoking • Elevated blood pressure • Diabetes mellitus • Physical inactivity
<p>Citation:</p>	<p>American Academy of Pediatrics, Committee on Nutrition. Cholesterol in childhood. <i>Pediatrics</i>. 1998;101:141-147 (p 143-145)</p>
<p>Rationale:</p>	<p>Article Covers Ages: 2 to 18 years</p> <p>The Expert Committee recommends that the following laboratory tests be considered in the evaluation of a child identified as overweight or obese:</p> <ul style="list-style-type: none"> • If the BMI for age and sex is 85th to 94th percentile (overweight) with no risk factors: fasting lipid profile (FLP) • If the BMI for age and sex is 85th to 94th with risk factors in history or physical exam obtain in addition: aspartate aminotransferase (AST) and alanine aminotransferase (ALT), fasting glucose • If the BMI for age and sex is greater than the 95th percentile (obese), even in the absence of risk factors: AST, ALT, plus blood urea nitrogen (BUN) and creatinine
<p>Citation:</p>	<p>The Expert Committee Recommendations on the assessment, prevention, and treatment of child and adolescent overweight and obesity. Supplement to <i>Pediatrics</i>. In press</p>

RATIONALE AND EVIDENCE

Selective Screening

Chlamydia

BRIGHT FUTURES VISITS: ADOLESCENTS (11 TO 21 YEAR VISITS), IF SEXUALLY ACTIVE	
Rationale:	Article Covers Age: Sexually active youth The USPSTF strongly recommends that clinicians routinely screen all sexually active women aged 25 years or younger, and other asymptomatic women at increased risk for infection, for chlamydial infection.
Citation:	US Preventive Services Task Force. <i>Screening for Chlamydial Infection: Recommendations and Rationale</i> . Rockville MD: Agency for Healthcare Research and Quality; 2001. Available at: http://www.ahrq.gov/clinic/ajpmsuppl/chlarr.htm . Accessed April 25, 2007 (Article originally in <i>Am J Prev Med</i> . 2001;20:90-94)
Rationale:	Sexually active adolescent females should be tested at least annually for chlamydia infection during preventative health care visits and gynecologic examinations, even if no symptoms are present and even if barrier contraception is reported. Screening of young adult women 20 to 24 years of age also is recommended.
Citation:	American Academy of Pediatrics. Chlamydia trachomatis. <i>Red Book: 2006 Report of the Committee on Infectious Diseases</i> . Pickering LK, Baker CJ, Long SS, McMillan JA, eds. 27th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2006:252-257

Gonorrhea

BRIGHT FUTURES VISITS: ADOLESCENTS (11 TO 21 YEAR VISITS), IF SEXUALLY ACTIVE	
Rationale:	Age: Sexually active youth The USPSTF recommends that clinicians screen all sexually active women, including those who are pregnant, for gonorrhea infection if they are at increased risk for infection (that is, if they are young or have other individual or population risk factors).
Citation:	US Preventive Services Task Force. <i>Screening for Gonorrhea: Recommendation Statement</i> . Rockville, MD: Agency for Healthcare Research and Quality; 2005. AHRQ Publication No 05-0579-A. Available at: http://www.ahrq.gov/clinic/uspstf05/gonorrhea/gonrs.htm . Accessed April 25, 2007

Selective
Screening

Human Immunodeficiency Virus Testing

BRIGHT FUTURES VISITS:	ADOLESCENTS (11 TO 21 YEAR VISITS), IF SEXUALLY ACTIVE
Rationale:	<p>Article Covers Age: Sexually active youth</p> <ul style="list-style-type: none"> • Past or present injection drug users • Men who have had sex with men • Men and women having unprotected sex with multiple partners • Men and women who exchange sex for money or drugs or have sex partners who do • Past or present sex partners were HIV-infected, bisexual or injection drug users • Persons being treated for sexually transmitted diseases (STDs) • Persons who request an HIV test despite reporting no individual risk factors • Persons who report no individual risk factors but are seen in high-risk or high-prevalence clinical settings <ul style="list-style-type: none"> • High-risk settings include STD clinics, correctional facilities, homeless shelters, tuberculosis clinics, clinics serving men who have sex with men, and adolescent health clinics with a high prevalence of STDs • High-prevalence settings are defined by the Centers for Disease Control and Prevention (CDC) as those known to have a 1% or greater prevalence of infection among the patient population being served
Citation:	US Preventive Services Task Force. <i>Screening for HIV: Recommendation Statement</i> . Rockville, MD: Agency for Healthcare Research and Quality; 2005. AHRQ Publication No 05-0580-A. Available at: http://www.ahrq.gov/clinic/uspstf05/hiv/hivrs.htm . Accessed April 25, 2007
Rationale:	<p>Article Covers Ages: 13 to Adult</p> <p>In all health-care settings, screening for HIV infection should be performed routinely for all patients aged 13-64 years. Health-care providers should initiate screening unless prevalence of undiagnosed HIV infection in their patients has been documented to be <1 per 1,000 patients screened, at which point such screening is no longer warranted.</p> <p>HIV screening should be discussed with all adolescents and encouraged for those who are sexually active. Providing information regarding HIV infection, HIV testing, HIV transmission, and implications of infection should be regarded as an essential component of the anticipatory guidance provided to all adolescents as part of primary care.</p>
Citation:	Centers for Disease Control and Prevention. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. <i>MMWR Recomm Rep</i> . 2006;55(RR-14):1-17

Syphilis Infection

BRIGHT FUTURES VISITS:	ADOLESCENTS (11 TO 21 YEAR VISITS), IF SEXUALLY ACTIVE
Rationale:	<p>Article Covers Age: Sexually active youth</p> <ul style="list-style-type: none"> • Men who have sex with men and engage in high-risk sexual behavior • Commercial sex workers • Persons who exchange sex for drugs • Those in adult correctional facilities
Citation:	US Preventive Services Task Force. <i>Screening for Syphilis Infection: Recommendation Statement</i> . Rockville, MD: Agency for Healthcare Research and Quality; 2005. Available at: http://www.ahrq.gov/clinic/3rduspstf/syphilis/syphilrs.htm . Accessed April 25, 2007

Selective Screening

Cervical Dysplasia

BRIGHT FUTURES VISITS:	ADOLESCENTS (11 TO 21 YEAR VISITS), IF SEXUALLY ACTIVE OR AGE 21
Rationale:	<p>Ages: Sexually active youth, within 3 years of onset of sexual activity</p> <ul style="list-style-type: none"> • The USPSTF strongly recommends screening for cervical cancer in women who have been sexually active and have a cervix. • The optimal age to begin screening is unknown. Data on natural history of HPV infection and the incidence of high-grade lesions and cervical cancer suggest that screening can safely be delayed until 3 years after onset of sexual activity or until age 21, whichever comes first. Although there is little value in screening women who have never been sexually active, many US organizations recommend routine screening by age 18 or 21 for all women, based on the generally high prevalence of sexual activity by that age in the U.S. and concerns that clinicians may not always obtain accurate sexual histories.
Citation:	US Preventive Services Task Force. <i>Screening for Cervical Cancer: Recommendations and Rationale</i> . Rockville, MD: Agency for Healthcare Research and Quality; 2003. AHRQ Publication No 03-515A. Available at: http://www.ahrq.gov/clinic/3rduspstf/cervcan/cervcanrr.htm . Accessed April 25, 2007

Alcohol or Drug Use

BRIGHT FUTURES VISITS:	ADOLESCENTS (11 TO 21 YEAR VISITS)
Rationale:	<p>Have you ever had an alcoholic drink?</p> <p>Have you ever used marijuana or any other drug to get high?</p>
Citation:	Levy S. Knight JR. Office management of substance use. <i>Adolesc Health Update</i> . 2003;15:1-11

References

1. US Preventive Services Task Force. *Screening for Cervical Cancer: Recommendations and Rationale*. Rockville, MD: Agency for Healthcare Research and Quality; 2003. Available at: www.ahrq.gov/clinic/3rduspstf/cervcan/cervcanrr.htm. Accessed September 13, 2007
2. US Preventive Services Task Force. *Screening for Breast Cancer: Recommendations and Rationale*. Rockville, MD: Agency for Healthcare Research and Quality; 2002. Available at: www.ahrq.gov/clinic/3rduspstf/breastcancer/brcanrr.htm. Accessed September 13, 2007
3. Smith RA, Saslow D, Sawyer KA, et al. American Cancer Society guidelines for breast cancer screening: update 2003. *CA Cancer J Clin*. 2003;53:141-169
4. US Preventive Services Task Force. *Screening for Testicular Cancer: Recommendation Statement*. Rockville, MD: Agency for Healthcare Research and Quality; 2004. Available at: www.ahrq.gov/clinic/3rduspstf/testicular/testiculrs.pdf. Accessed September 13, 2007
5. US Preventive Services Task Force. *Screening for Idiopathic Scoliosis in Adolescents: Recommendation Statement*. Rockville, MD: Agency for Healthcare Research and Quality; 2004. Available at: www.ahrq.gov/clinic/3rduspstf/scoliosis/scoliors.pdf. Accessed September 13, 2007
6. Stewart DG, Skaggs DL. Consultation with the specialist: adolescent idiopathic scoliosis. *Pediatr Rev*. 2006;27:299-306
7. Needlman R, Silverstein M. Pediatric interventions to support reading aloud: how good is the evidence? *J Dev Behav Pediatr*. 2004;25:352-363
8. Weitzman CC, Roy L, Walls T, Tomlin R. More evidence for Reach Out and Read: a home-based study. *Pediatrics*. 2004;113:1248-1253
9. Minkovitz CS, Hughart N, Strobino D, et al. A practice-based intervention to enhance quality of care in the first 3 years of life: the healthy steps for young children program. *JAMA*. 2003;290:3081-3091

EVIDENCE

Detailed Findings of the Bright Futures Evidence Panel

The following section presents the statements written by the Evidence Panel. These statements summarize the current status of evidence from clinical studies, meta-analyses, and randomized controlled trials regarding screening and counseling interventions that are covered in the *Bright Futures Guidelines*. The physical examination is reviewed first, followed by topics included in the medical screening tables. The final portion covers screening and counseling topics, organized by Bright Futures Themes.

The Physical Examination

Physical examination, including growth monitoring and developmental examination, traditionally has been considered an important part of the health supervision visit, perhaps the most basic screening procedure in health care. It is important to note that “screening” applies to patients who are not seeking help for a specific problem—if a parent or patient voices a concern, the evaluation of that concern becomes a diagnostic process and is no longer considered screening. The price of false-negative and false-positive findings in screening has often been underestimated. At the end of the visit, if the health care provider notes no abnormalities, parents and patients are reassured that nothing is wrong. If the provider has missed an abnormality, parents, when they notice it, may assume it is unimportant and fail to seek care because of false reassurance. If, on the other hand, the provider notes a concern, the previously healthy child is immediately considered less healthy, even if the concern turns out to be a false alarm. Further harm from false-positive findings may occur if follow-up testing is expensive or invasive, or if treatment is instituted for “disease” that is clinically unimportant (ie, it never would have affected the

child’s overall health). Evidence that any screening procedure is beneficial is thus very important, but, in the case of the physical examination, frustratingly elusive.

The best evidence would come from clinical trials of the physical examination, as a whole or in parts, with outcomes that are important to patients and parents. Few such studies are available. Most studies address isolated aspects of the physical examination, and are done from the perspective of a specific condition, such as growth failure, scoliosis, or speech delay, rather than from the perspective of the general examination. It is difficult to evaluate the usefulness of a screening test when the condition or conditions that are the target of screening are not specified. We found no trials evaluating the yield of repeated physical examination over the duration of well child care. One large trial¹ (n = 9712) of 1 versus 2 newborn examinations showed no difference in the use of health care resources between the 2 groups.

Aspects of repeated examination, including growth monitoring, routine blood pressure measurement, and screening for signs of physical and sexual abuse have not been rigorously evaluated, and concerns have been raised that false positive screening examinations for child abuse may cause significant harm. It is important to note that the physical examination and developmental evaluation may have uses other than screening for specific abnormalities; most importantly, the opportunity to reassure and educate parents and patients about the range of normal findings. Parents or patients may talk more readily or be reminded of concerns during the examination, so performing the examination might enhance communication and encourage a closer relationship with the health care provider. No studies have specifically evaluated these potential benefits of routine physical examination. Some aspects of the physical examination are mandated by payers (such as some state Medicaid requirements of a

standardized, validated, developmental-behavioral/mental health screening at all well child visits) or used to assess the quality of health care providers.

Medical Screening

NEWBORN METABOLIC AND HEMOGLOBINOPATHY

The evidence for newborn screening and metabolic screening was not evaluated because it is mandated by state laws.

DEVELOPMENTAL SCREENING (SPEECH AND LANGUAGE)

There is evidence of benefit from treatment of speech and language delay, such as improved speech and language.² However, no successful screening strategy for use in primary care has been identified.

SCREENING FOR SPEECH AND LANGUAGE DELAY IN PRESCHOOL-AGED CHILDREN

The USPSTF concluded that there is insufficient evidence to recommend for or against routine use of brief, formal screening instruments in primary care to detect speech and language delay in children up to 5 years of age. Specifically, the task force found that, although interventions for delayed speech and language appear effective (at least in the short term), there is insufficient evidence that formal screening in primary care would add to this effectiveness.³

ORAL HEALTH

No controlled trials were found that examined accuracy by the primary care clinician in identifying children who displayed one or more risk indicators for oral disease, other than identification of caries.

VISION SCREENING OF PRESCHOOL CHILDREN

Treatment for amblyopia, strabismus, and refractive error is effective. A randomized controlled trial (RCT)⁴ of intensive screening (versus usual care) of children 0 to 3 years of age demonstrated improved vision at school age. Screening tests have reasonable

accuracy. No high-quality evidence was found regarding vision screening for adolescents.

The USPSTF recommends **for** vision screening in children from birth to age 5 years.⁵

SCREENING FOR VISUAL IMPAIRMENT IN CHILDREN YOUNGER THAN 5 YEARS

The USPSTF recommended screening to detect amblyopia, strabismus, and defects in visual acuity in children younger than 5 years.⁵ Specifically, the USPSTF found fair evidence that screening tests have reasonable accuracy in identifying strabismus, amblyopia, and refractive error in children with these conditions, and that treatment of strabismus and amblyopia can improve visual acuity and reduce long-term amblyopia.

HEARING

There is good evidence⁶ that newborn hearing screening leads to earlier identification and treatment of infants with hearing loss. However, evidence to determine whether earlier treatment resulting from screening leads to clinically important improvement in speech and language skills at age 3 years or beyond is inconclusive. Newborn hearing screening is mandated in most states. No controlled trials were found regarding hearing screening for older children or adolescents.

ANEMIA

Screening for anemia has limited accuracy in defining iron-deficiency anemia. Treatment of iron-deficiency anemia shows improvement in iron deficiency, but not in developmental outcomes.⁷ There is evidence of harm⁸ due to increased incidence of iron poisoning when iron-containing medications are kept in the home. No controlled trials were found regarding screening adolescents for anemia.

LEAD

Controlled trials demonstrate no neurodevelopmental benefit from interventions to decrease blood lead levels in asymptomatic children.⁹ However, benefit may accrue to future children living in an environment where lead abatement has been done.

TUBERCULOSIS

There is no evidence of benefit or harm from screening asymptomatic children and adolescents for tuberculosis. Questionnaires that address contact with a tuberculosis case, birth in or travel to endemic areas, regular contact with high-risk adults, and human immunodeficiency virus infection in the child have been shown to have adequate sensitivity and specificity when compared with a positive tuberculosis skin test.¹⁰

LIPID SCREENING/CHOLESTEROL

No controlled trials of cholesterol screening in children or adolescents were found. One large RCT of dietary counseling (Special Turku Coronary Risk Factor Intervention Project [STRIP]) in infancy has shown no evidence of harm at repeated evaluations through age 10 years, although power is low to detect most potential harms.¹¹ One case-control study¹² showed behavioral and psychological abnormalities among 4- to 17-year-olds who were evaluated shortly after learning of high cholesterol on screening.

SEXUALLY TRANSMITTED INFECTIONS

The USPSTF found that routine sexually transmitted infection screening for low-risk women and men (including adolescents) do not result in improved outcomes. A benefit of screening for chlamydia, gonorrhea, human immunodeficiency virus (HIV), and syphilis has been found for women at high risk, and for men at high risk for HIV and syphilis. Benefit to the infant has been found for screening all pregnant women for syphilis, HIV, and hepatitis B, and for screening pregnant women at increased risk for chlamydia, gonorrhea, syphilis, HIV, and hepatitis B.

At this time, the USPSTF recommends for chlamydia screening in sexually active females.¹³

CERVICAL DYSPLASIA

The USPSTF found good evidence from multiple observational studies that screening with cervical cytology (Pap smears) reduces

incidence of, and mortality from, cervical cancer.¹⁴ Direct evidence to determine the optimal starting and stopping age and interval for screening is limited. Indirect evidence suggests most of the benefit can be obtained by beginning screening within 3 years of onset of sexual activity or age 21 years (whichever comes first) and screening at least every 3 years.

The USPSTF recommends **for** cervical dysplasia screening within 3 years of the onset of sexual activity.¹⁵

Screening and Counseling**PROMOTING FAMILY SUPPORT*****Screening for Family Social Support***

Evidence demonstrates mixed results of screening for psychosocial support for the mother antenatally through adolescence. Nurse home visits during the first 2 years of a child's life, especially among women with few psychological resources, demonstrate benefits to both maternal health and child's well-being many years after the intervention has ended.¹⁶

Screening for Parental Concerns

No controlled trials were identified regarding screening for parental concerns.

Counseling About Pregnancy Spacing

Studies regarding pregnancy planning demonstrate mixed results. Findings vary based on the target population (adolescents, women with limited resources, pregnant women) and the type of intervention implemented (health education, nurse home visit, paraprofessional home visitation). Women with limited psychosocial resources who received home visitation by a nurse demonstrated decreased rates of future pregnancy and increased intervals between pregnancies.¹⁶

PROMOTING CHILD DEVELOPMENT***Effects of Early Intervention Services***

The Healthy Steps for Young Children Program is a practice-based intervention to enhance quality of care in the first 3 years

of life.¹⁷ Positive, sustained effects of home visits have been demonstrated in 4-year follow-up results of a randomized trial. Nurse-visited families showed more benefit than paraprofessional-visited families, but both had effect demonstrable 2 years following the cessation of the program, especially if mothers had “low levels of psychologic resources.”¹⁸

Counseling About Appropriate Discipline Methods

Evidence¹⁷ demonstrates that, in a pediatric care setting, the use of a developmental specialist and developmental services among families with children from 0 to 3 years of age can decrease the odds of families that use severe discipline (eg, slapping the face or hitting with an object).

Infant Massage for Promoting Growth and Development of Preterm and/or Low Birth Weight Infants

Evidence that massage for preterm infants positively impacts developmental outcomes is weak.¹⁹

Media-based Behavioral Treatments for Behavioral Problems in Children

Eleven studies, which included 943 participants, were reviewed. Across these studies, media-based therapies for behavioral disorders had moderate, but variable, effects, and should likely be considered more as adjunctive therapy.²⁰

Early Skin-to-Skin Contact for Mothers and Healthy Newborns

Although the quality of the studies varies, early skin-to-skin contact appears to have some benefit relative to breastfeeding outcomes and infant crying.²¹

Office-based Literacy Intervention

A randomized controlled trial has demonstrated that a primary care ROR program led to an increase in home-reading activities as

measured by self-report.^{22,23} While nonexperimental studies support improved language acquisition among ROR participants, no RCTs have been published with language acquisition as an outcome.

PROMOTING MENTAL HEALTH

Screening for and Counseling About Alcohol Use

The USPSTF concludes that the evidence is insufficient to recommend for or against screening and behavioral counseling interventions to prevent or reduce alcohol misuse by adolescents in primary care settings.²⁴

Screening for and Counseling About Tobacco Use

The USPSTF found limited evidence that screening and counseling children and adolescents in the primary care setting are effective in either preventing initiation or promoting cessation of tobacco use. As a result, the USPSTF could not determine the balance of benefits and harms of tobacco prevention or cessation interventions in the clinical setting for children or adolescents.²⁵

Screening for and Counseling About Substance Misuse and Abuse

Substance abuse or misuse is broadly defined to include alcohol, illicit drugs, body image-changing substances (anabolic steroids or laxatives), and prescription medications. Chemical detection is the most valid method for screening, but tests may not exist for all available types of substances. Behavioral counseling can include brief, motivational, or intensive counseling.

The evidence is mixed regarding the benefit of screening for substance abuse/misuse, depending on the substance and target population. For adolescents, counseling regarding alcohol use has been associated with reported increased alcohol consumption.²⁶ As part of a larger risk reduction intervention among 13- to 16-year-olds and their parents,

intensive counseling demonstrated decreased use of illicit drugs, while no change in alcohol use was reported.²⁷

No studies were found that addressed the effectiveness of screening for substance abuse/misuse in the primary care setting. In the school setting, mandatory drug testing among athletes decreased the use of body image-changing substances and illicit drugs, but was associated with increased risk factors that are known to be associated with drug misuse.²⁸

Counseling About Body Image

No controlled trials were found regarding the effectiveness of discussing healthy body image.

Exercise to Improve Self-esteem in Children and Young People

Results suggest that exercise has positive short-term effects on self-esteem; however, it is noted that the conclusions are based on low-quality studies.²⁹

PROMOTING HEALTHY WEIGHT

Screening for Nutritional Intake in Primary Care

No studies were found regarding the outcomes of screening for infant, child, or adolescent nutritional intake in primary care.

Monitoring and Counseling About Infant Feeding Adequacy

There are no controlled trials that indicated whether physician monitoring of infant feeding resulted in improved outcomes. There are no controlled trials that indicated whether physician counseling regarding feeding frequency improved infant outcomes.

Counseling About Limiting Juice and Sweetened Beverages

No controlled trials were found regarding the outcomes of parental or patient counseling to limit intake of juice or sweetened beverages.

Counseling Parents About Watching TV During Meals

No clinical trials were found regarding counseling about eating while watching television.

PROMOTING HEALTHY NUTRITION

Counseling About Infant Feeding in General

There are no controlled trials that indicated whether physician nutritional counseling regarding infant feeding improves infant outcomes.

Counseling About Breastfeeding

A systematic review suggests that physician counseling can be effective as one part of a larger intervention to increase breastfeeding rates.³⁰ The USPSTF found fair evidence that programs that combine breastfeeding education with behaviorally oriented counseling are associated with increased rates of breastfeeding initiation and its continuation for up to 3 months, although effects beyond 3 months are uncertain. Effective programs generally involved at least 1 extended session, followed structured protocols, and included practical, behavioral skills training and problem solving, in addition to didactic instruction.³¹ One controlled trial indicated that use of pacifiers does not affect breastfeeding duration.³² One small RCT demonstrated improved bone mineralization and vitamin D levels in breastfeeding infants for whom vitamin D was prescribed.³³

Counseling About Formula Preparation

There are no controlled trials that indicated whether physician counseling regarding formula preparation resulted in improved infant outcomes. There are no controlled trials of counseling to promote use of iron-fortified formula.

Counseling About Infant Stooling and Voiding Patterns

There are no controlled trials that indicated whether physician counseling regarding infant stooling and voiding patterns improved infant outcomes.

Counseling About Introduction of Complementary Foods

No controlled trials were found on counseling regarding introduction of complementary foods. There is one systematic review³⁴ that suggests that early solid feeding may increase the risk of eczema. However, there is no study that supports an association between early solid feeding and other allergic conditions.

Counseling Parents and Children About Type of Nutritional Intake

Several controlled trials indicate that physician nutritional counseling regarding type of nutritional intake, as part of a larger intervention (ie, with counseling from other health professionals, or with additional educational support), improved pediatric outcomes.^{35,36}

PROMOTING PHYSICAL ACTIVITY***Counseling About Obesity Prevention and Treatment***

A 2005 Cochrane Review³⁷ studied the effectiveness of interventions that were designed to prevent obesity in childhood through diet, physical activity, and/or lifestyle and social support. The majority of studies were school- or community-based and primarily employed only short-term follow-up. The Cochrane Review concluded that studies that focused on combining dietary and physical activity approaches did not significantly improve BMI or showed a very small effect; however, nearly all studies did show some improvement in diet or physical activity.

The 2006 USPSTF Report on Screening and Interventions for Overweight in Children and Adolescents³⁸ found “insufficient evidence for the effectiveness of behavioral counseling or other preventive interventions with overweight children and adolescents that can be conducted in primary care settings or to which primary care clinicians can make referrals.”

PROMOTING ORAL HEALTH***Monitoring Maternal Oral Health***

No controlled trials were found that indicated whether monitoring maternal oral health, either prenatal or in the neonatal period, affects the child’s oral health.

Counseling About Preventing Dental Caries

No controlled trials were found that assessed the effectiveness of primary care-supplied counseling interventions (eg, about bottle propping or pacifier use) in preventing dental caries or improving other oral health outcomes.

Counseling About Tooth Eruption

No controlled trials were found that assessed the effectiveness of primary care-supplied counseling on tooth eruption.

Fluoride to Prevent Dental Caries

There is one systematic review of the literature that suggests that combination treatments that involve fluoride (eg, tooth brushing, professional tooth cleaning, varnish, and sealant) have a preventive effect on caries in children and adolescents.³⁹ No studies were found that examine the effectiveness of risk-assessment tools or physician screening for risk for low fluoride exposure.

Counseling About Brushing/Flossing Teeth

No controlled trials were found that indicated whether advising parents to brush/floss their children’s teeth improves outcomes.

PROMOTING HEALTHY SEXUAL DEVELOPMENT AND SEXUALITY***Screening for Condom Use Among Sexually Active Adolescents***

No controlled trials examined the effectiveness of physician counseling regarding condom use.

Screening for Sexual Activity

There are several controlled trials that suggested minimal effect of brief, office-based counseling targeted to adolescent and adult

populations resulting in decreased incidence of STDs.⁴⁰⁻⁴³

Counseling Adolescents About Pregnancy Prevention

A systematic review of primary prevention programs found that adolescents who received health education demonstrated no increase in use of contraception. Adolescents who received abstinence-only education had increased rates of pregnancy.⁴⁴

Counseling About Sexual Development/Puberty

No studies were found that examined the effectiveness of counseling regarding puberty.

Counseling About Sexual Behavior

No studies were found regarding the effectiveness of counseling adolescents in the primary care setting about sexual behavior.

Counseling About Alcohol

No evidence was found to support the effectiveness of counseling adolescents in the primary care setting about alcohol misuse.

PROMOTING SAFETY AND INJURY PREVENTION

General Statement

Approaches to injury prevention often involve multifaceted interventions (educational, environmental, and regulatory) as well as cross over multiple settings (primary care settings, community, and school). Furthermore, the strategy needed for a specific injury hazard varies depending on the age of the individual (infant vs adolescent), the target of the counseling (individual or family), and the type of injury (burns vs motor vehicle injuries).

Evidence demonstrates that behavioral counseling can increase the use (self-reported or observed) of safety equipment as well as decrease hazardous environments, especially when the counseling is intensive and repetitive. Fewer studies evaluate the impact of behavioral counseling on injuries. Those

addressing home-based safety devices demonstrate no impact on injury incidence compared to controls.

Counseling About Passenger Safety

There is evidence to support the benefit of counseling and demonstrating the use of child safety seats. While controlled trials in community settings demonstrate that education and distribution of booster seats increases use, no studies were found that addressed counseling for booster seats in the primary care setting. Controlled trials targeting safety belt use demonstrated no effect in the primary care setting.⁴⁵

Counseling to Discourage Driving Under the Influence of Alcohol

No controlled trials were found that address the effectiveness of counseling in the primary care setting about the risk of drinking and driving or riding in a motor vehicle.

Counseling About Using Smoke Detectors

Behavioral counseling demonstrates increased ownership of smoke detectors.⁴⁶ No trials were found linking the reduction of fire-related injuries with smoke detectors.

Counseling About Using Carbon Monoxide Detector/Alarms

No controlled trials were found that address the effectiveness of counseling regarding the use of carbon monoxide detector/alarms.

Counseling About Safe Water Temperature

Evidence supports the benefit of behavioral counseling in reducing hot-water temperatures. Studies also demonstrate the accuracy of parents' self-report.⁴⁷

No studies were found demonstrating reducing this burn hazard with injury incidence.

Counseling About Preventing Firearm Injury

A randomized trial demonstrated⁴⁸ no benefit of counseling in the primary care setting

regarding gun ownership, safe storage, or removal of firearms.

Counseling About Crib Safety

No controlled trials were found that address the effectiveness of counseling in the primary care setting regarding crib safety.

Counseling About Sunburn Protection

No controlled trials were found that address the effectiveness of counseling in the primary care setting regarding the prevention of sunburn injury.

Screening for, and Counseling About, Preventing Domestic Violence/Child Abuse

A systematic review under the auspices of the USPSTF found no studies identifying accurate screening tools to identify family violence among children or women in the primary care setting. The role of case findings was not addressed. Evidence was found to support the benefit of interventions when abuse was identified. Controlled trials of home visitation demonstrate benefits in the reduction of child abuse, but these interventions were conducted outside the primary care setting.^{49,50}

Counseling About Using Bicycle Helmets

Studies report conflicting results regarding the benefit of counseling for bicycle helmet use depending on the target age group. One study demonstrated that counseling increased helmet use among fourth to ninth graders, while another study found no benefit among 11- to 24-year-olds. Multifaceted community-based interventions do demonstrate an increase in helmet use.⁵¹⁻⁵³

Counseling About Preventing Sudden Infant Death Syndrome

The “Back to Sleep” campaign, initiated in the 1990s, has been associated with a significant decrease in the proportion of infants sleeping in the prone position, as well as a decreased incidence of SIDS.⁵⁴ One study that evaluated the impact of a multifaceted risk

reduction education program that included health care professional advice along with other strategies and targeted predominately black urban communities demonstrated a decrease in the proportion of families who reported placing infants in the prone position.⁵⁵

Counseling About Swimming Pool Safety

Epidemiologic studies support the effectiveness of pool fencing in the prevention of drowning. Fences that surround the pool are superior to fences that use the property as part of the enclosure. No studies were found that address the effectiveness of counseling in the primary care setting regarding pool fences.⁵⁶

Counseling for Smoking Cessation

Multiple interventions are used for smoking cessation. These included counseling that can be brief, motivational, or intensive. The education and counseling can be provided in person, via the phone, or on the Internet. Studies demonstrate that the benefit of smoking cessation interventions depend on the target audience (caregiver vs youth) and the modality used.²⁵

Studies that demonstrate increased cessation among parents or teenagers involve intensive counseling and result in only short-term impact (less than 1 year).⁵⁷ A Cochrane systematic review concluded that brief interventions effective for adults are not effective for caregivers in a pediatric setting. Rather, in this setting, intensive counseling is needed to increase caregiver smoking cessation.⁵⁸

PROMOTING COMMUNITY RELATIONSHIPS AND RESOURCES

Surveying the evidence base for preventive health services delivered in the community is beyond the scope of this edition. Excellent information is, however, available in the *Guide to Community Preventive Services* (the *Guide*), which can be found at www.thecommunityguide.org. The Guide represents the findings of the Task Force on

Community Preventive Services, an independent group of experts convened by the Centers for Disease Control and Prevention to make recommendations about interventions to promote community health. The Task Force on Community Preventive Services works in parallel with the USPSTF, which is convened by the Agency for Healthcare Research and Quality and considers the evidence for clinical preventive services. The Guide is updated regularly, and new topics are added as they are considered. Topics that are covered by the

Guide, as of early September 2006, include alcohol, cancer, diabetes, mental health, motor vehicle, nutrition, obesity, oral health, physical activity, pregnancy, sexual behavior, social environment, substance abuse, tobacco, vaccines, violence, and worksite. Clinicians are encouraged to take advantage of the information in the guide when making decisions for referral purposes about the likely effectiveness of a particular type of community-based intervention and in their advocacy efforts.⁵⁹

References

1. Glazener CMA, Ramsay CR, Campbell MK, et al. Neonatal examination and screening trial (NEST): a randomised, controlled, switchback trial of alternative policies for low risk infants. *BMJ*. 1999;318:627-632
2. Nelson HD, Nygren P, Walker M, Panoscha R. Screening for speech and language delay in preschool children: systematic evidence review for the US Preventive Services Task Force. *Pediatrics*. 2006;117(2):e298-e319. Available at: <http://pediatrics.aappublications.org/cgi/content/full/117/2/e298>. Accessed August 2, 2007
3. Nelson HD, Nygren P, Walker M, Panoscha R. *Screening for Speech and Language Delay in Preschool Children: Evidence Synthesis Review No. 41*. Rockville, MD: Agency for Healthcare Research and Quality; Prepared by the Oregon Health and Science University Evidence-based Practice Center; 2006. Available at: <http://www.ahrq.gov/downloads/pub/prevent/pdfser/speechsyn.pdf>. Accessed April 25, 2007
4. Williams C, Northstone K, Harrad RA, Sparrow JM, Harvey I, ALSPAC Study Team. Amblyopia treatment outcomes after screening before or at age 3 years: follow up from randomised trial. *BMJ*. 2002;324:1549
5. US Preventive Services Task Force. *Screening for Visual Impairment in Children Younger than Age 5 Years: Recommendation Statement*. Rockville, MD: Agency for Healthcare Research and Quality; 2004. Available at: www.ahrq.gov/clinic/3rduspstf/visionscr/vischrs.pdf. Accessed September 13, 2007
6. Helfand H, Thompson D, Davis R, et al. *Newborn Hearing Screening: A Summary of the Evidence for the U.S. Preventive Services Task Force*. Rockville, MD: Agency for Healthcare Research and Quality; 2001. Available at: www.ahrq.gov/clinic/3rduspstf/newbornscreen/newbornsum1.htm. Accessed September 13, 2007
7. Martins S, Logan S, Gilbert R. Iron therapy for improving psychomotor development and cognitive function in children under the age of three with iron deficiency anaemia. *Cochrane Database Syst Rev*. 2001;(2):CD001444
8. US Preventive Services Task Force. *Screening for Iron Deficiency Anemia—Including Iron Supplementation for Children and Pregnant Women: Recommendation Statement*. Rockville, MD: Agency for Healthcare Research and Quality; 2006
9. Rischitelli G, Nygren P, Bougatsos C, Freeman M, Helfand M. Screening for elevated lead levels in childhood and pregnancy: updated summary of evidence for the US Preventive Services Task Force. *Pediatrics*. 2006;118(6):e1867-1895. Available at: <http://pediatrics.aappublications.org/cgi/content/full/118/6/e1867>. Accessed August 2, 2007
10. Ozuah PO, Ozuah TP, Stein REK, Burton W, Mulvihill M. Evaluation of a risk assessment questionnaire used to target tuberculin skin testing in children. *JAMA*. 2001;285:451-453
11. Talvia S, Lagstrom H, Rasanen M, et al. A randomized intervention since infancy to reduce intake of saturated fat: calorie (energy) and nutrient intakes up to the age of 10 years in the special Turku Coronary Risk Factor Intervention Project. *Arch Pediatr Adolesc Med*. 2004;158:41-47
12. Rosenberg E, Lamping DL, Joseph L, Pless IB, Franco ED. Cholesterol screening of children at high risk: behavioural and psychological effects. *Can Med Assoc J*. 1997;156:489-496
13. US Preventive Services Task Force. Screening for chlamydial infection: recommendations and rationale. *Am J Prev Med*. 2001;20(3 Suppl):90-94
14. US Department of Health and Human Services, Agency for Healthcare Research and Quality. *Screening for Cervical Cancer: Systematic Evidence Review*. Research Triangle Park, NC: Research Triangle Institute—University of North Carolina; 2002
15. US Preventive Services Task Force. *Screening for Cervical Cancer: Recommendations and Rationale*. Rockville, MD: Agency for Healthcare Research and Quality; 2003
16. Olds DL, Robinson J, Pettitt L, et al. Effects of home visits by paraprofessionals and by nurses: age 4 follow-up results of a randomized trial. *Pediatrics*. 2004;114:1560-1568
17. Minkovitz CS, Hughart N, Strobino D, et al. A practice-based intervention to enhance quality of care in the first 3 years of life: the Healthy Steps for Young Children Program. *JAMA*. 2003;290:3081-1091
18. Olds DL, Robinson J, Pettitt L, et al. Effects of home visits by paraprofessionals and by nurses: age 4 follow-up results of a randomized trial. *Pediatrics*. 2004;114:1560-1568. Comment in: *Evid Based Nurs*. 2005;8(3):75 and *Pediatrics*. 2005;115(4):1113; author reply 1113-1114
19. Vickers A, Ohlsson A, Lacy JB, Horsley A. Massage for promoting growth and development of preterm and/or low birth-weight infants. *Cochrane Database Syst Rev*. 2004;(2):CD000390
20. Montgomery P, Bjornstad G, Dennis J. Media-based behavioural treatments for behavioural problems in children. *Cochrane Database Syst Rev*. 2006;(1):CD002206
21. Moore ER, Anderson G, Bergman N. Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database Syst Rev*. 2007:CD003519
22. Needlman R, Silverstein M. Pediatric interventions to support reading aloud: how good is the evidence? *J Dev Behav Pediatr*. 2004;25:352-363
23. Weitzman CC, Roy L, Walls T, Tomlin R. More evidence for Reach Out and Read: a home-based study. 2004;113:1248-1253
24. US Preventive Services Task Force. *Screening and Behavioral Counseling Interventions in Primary Care to Reduce Alcohol Misuse: Recommendation Statement*. *Ann Intern Med*. 2004;140:554-556
25. US Preventive Services Task Force. *Counseling to Prevent Tobacco Use and Tobacco-Caused Disease: Recommendations Statement*. Rockville, MD: Agency for Healthcare Research and Quality; 2003
26. Stevens MM, Olson AL, Gaffney CA, Tosteson TD, Mott LA, Starr P. A Pediatric, practice-based, randomized trial of drinking and smoking prevention and bicycle helmet, gun, and seatbelt safety promotion. *Pediatrics*. 2002;109:490-497

27. Foxcroft DR, Ireland D, Lowe G, Breen R. Primary prevention for alcohol misuse in young people. *Cochrane Database Syst Rev.* 2002;(3):CD003024
28. Goldberg L, Elliot DL, MacKinnon DP, et al. Drug testing athletes to prevent substance abuse: background and pilot study results of the SATURN (Student Athlete Testing Using Random Notification) Study. *J Adolesc Health.* 2003;32:16-25
29. Ekland E, Heian F, Hagen K, Abbott J, Nordheim L. Exercise to improve self-esteem in children and young people. *Cochrane Database Syst Rev.* 2004;(1):CD003683
30. Dyson L, McCormick F, Renfrew M. Interventions for promoting the initiation of breastfeeding. *Cochrane Database Syst Rev.* 2005;(2):CD001688
31. US Preventive Services Task Force. Behavioral Interventions to Promote Breastfeeding: Recommendations and Rationale. Rockville, MD: Agency for Healthcare Research and Quality; 2003
32. Kramer MS, Barr RG, Dagenais S, et al. Pacifier use, early weaning, and cry/fuss behavior: a randomized controlled trial. *JAMA.* 2001;286:322-326
33. Greer FR, Searcy JE, Levin RS, Steichen JJ, Asch PS, Tsang RC. Bone mineral content and serum 25-hydroxyvitamin D concentration in breast-fed infants with and without supplemental vitamin D. *J Pediatr.* 1981;98:696-701
34. Tarini BA, Carroll AE, Sox CM, Christakis DA. Systematic review of the relationship between early introduction of solid foods to infants and the development of allergic disease. *Arch Pediatr Adolesc Med.* 2006;160:502-507
35. Patrick K, Sallis JF, Prochaska JJ, et al. A multicomponent program for nutrition and physical activity change in primary care: PACE+ for adolescents. *Arch Pediatr Adolesc Med.* 2001;155:940-946
36. Saarilehto S, Lapinleimu H, Keskinen S, Helenius H, Simell O. Body satisfaction in 8-year-old children after long-term dietary counseling in a prospective randomized atherosclerosis prevention trial. *Arch Pediatr Adolesc Med.* 2003;157:753-758
37. Summerbell CD, Waters E, Edmunds LD, Kelly S, Brown T, Campbell KJ. Interventions for preventing obesity in children. *Cochrane Database Syst Rev* 2005;(3):CD001871
38. US Preventive Services Task Force. *Screening and Interventions for Overweight in Children and Adolescents: Recommendation Statement.* Rockville, MD: Agency for Healthcare Research and Quality; 2005
39. Axelsson S, Soder B, Nordenram G, et al. Effect of combined caries-preventive methods: a systematic review of controlled clinical trials. *Acta Odontol Scand.* 2004;62:163-169
40. Yamada J, DiCenso A, Feldman L, et al. *A Systematic Review of the Effectiveness of Primary Prevention Programs to Prevent Sexually Transmitted Diseases in Adolescents.* Hamilton, Ontario: Ontario Ministry of Health, Public Health Branch; 1999
41. Kim N, Stanton B, Li X, Dickersin K, Galbraith J. Effectiveness of the 40 adolescent AIDS-risk reduction interventions: a quantitative review. *J Adolesc Health.* 1997;20:204-215
42. Boekeloo BO, Schamus LA, Simmens SJ, Cheng TL, O'Connor K, D'Angelo LJ. A STD/HIV prevention trial among adolescents in managed care. *Pediatrics.* 1999;103:107-115
43. Kamb ML, Fishbein M, Douglas JM Jr, et al. Efficacy of risk-reduction counseling to prevent human immunodeficiency virus and sexually transmitted diseases: a randomized controlled trial. *JAMA.* 1998;280:1161-1167
44. Bennett SE, Assefi NP. School-based teenage pregnancy prevention programs: a systematic review of randomized controlled trials. *J Adolesc Health.* 2005;36:72-81
45. Williams SB, Whitlock EP, Edgerton EA, Smith PR, Beil TL. *Counseling about proper use of motor vehicle occupant restraints and avoidance of alcohol use while driving: a systematic evidence review for the US Preventive Services Task Force.* *Ann Intern Med.* 2007;147:194-206
46. Clamp M, Kendrick D. A randomised controlled trial of general practitioner safety advice for families with children under 5 years. *BMJ.* 1998;316:1576-1579
47. King WJ, Klassen TP, LeBlanc J, et al. The effectiveness of a home visit to prevent childhood injury. *Pediatrics.* 2001;108:382-388
48. Grossman DC, Cummings P, Koepsell TD, et al. Firearm safety counseling in primary care pediatrics: a randomized, controlled trial. *Pediatrics.* 2000;106:22-26
49. Nygren P, Nelson HD, Klein J. Screening children for family violence: a review of the evidence for the US Preventive Services Task Force. *Ann Fam Med.* 2004;2:161-169
50. Nelson HD, Nygren P, McInerney Y, Klein J. Screening women and elderly adults for family and intimate partner violence: a review of the evidence for the US Preventive Services Task Force. *Ann Intern Med.* 2004;140:387-396
51. Cushman R, James W, Waclawik H. Physicians promoting bicycle helmets for children: a randomized trial. *Am J Public Health.* 1991;81:1044-1046
52. Leverence RR, Martinez M, Whisler S, et al. Does office-based counseling of adolescents and young adults improve self-reported safety habits? A randomized controlled effectiveness trial. *J Adolesc Health.* 2005;36:523-528
53. Thompson DC, Rivara FP, Thompson RS. Effectiveness of bicycle safety helmets in preventing head injuries. A case-control study. *JAMA.* 1996;276:1968-1973
54. Willinger M, Ko C-W, Hoffman HJ, Kessler RC, Corwin MJ. Factors associated with caregivers' choice of infant sleep position, 1994-1998: the National Infant Sleep Position Study. *JAMA.* 2000;283:2135-2142
55. Rasinski KA, Kuby A, Bzdusek SA, Silvestri JM, Weese-Mayer DE. Effect of a sudden infant death syndrome risk reduction education program on risk factor compliance and information sources in primarily black urban communities. *Pediatrics.* 2003;111(4):e347-e354. Available at: <http://pediatrics.aappublications.org/cgi/content/full/111/4/e347>. Accessed August 2, 2007

56. Thompson DC, Rivara FP. Pool fencing for preventing drowning in children. *Cochrane Database Syst Rev.* 1998;(1):CD001047
57. Lipkus IM, McBride CM, Pollak KI, Schwartz-Bloom RD, Tilson E, Bloom PN. A randomized trial comparing the effects of self-help materials and proactive telephone counseling on teen smoking cessation. *Health Psychol.* 2004;23:397-406
58. Roseby R, Waters E, Polnay A, Campbell R, Webster P, Spencer N. Family and carer smoking control programmes for reducing children's exposure to environmental tobacco smoke. *Cochrane Database Syst Rev.* 2002;(3):CD001746
59. Ockene JK, Edgerton EA, Teutsch SM, et al. Integrating evidence-based clinical and community strategies to improve health. *Am J Prev Med.* 2007;32:244-252