



Introduction to the Bright Futures Visits

Health supervision visits are an important opportunity to assess the health and function of a family and child. The *Bright Futures Guidelines* exist “to improve the health and well-being of all children” by improving a practice’s clinical health promotion and disease prevention efforts and the organizational processes necessary to meet this goal.

Many texts and guidelines for the care of children discuss what should be done in the visit. This edition of the *Bright Futures Guidelines* provides an up-to-date and concise summary of the “what to do” in primary care practice today, with an expanded focus on the “how to do” of health care delivery.

We describe the visit content in terms of 4 components: disease detection, disease prevention, health promotion, and anticipatory guidance. Each is a large task; the aggregate is a remarkable task. Certainly, no health care professional has the time to take these *Bright Futures Guidelines* and do every possible intervention discussed for a particular age visit. How, then, can health care professionals choose what is most important for one child and family at this time in this community? Experienced health care professionals often say that a visit is made up of many “to dos”: things we **must** do, things we **need** to do, and things we **want** to do.

Families bring an agenda, and we **must** address these needs in the visit if we are to be successful. An overlap generally exists between what the family needs us to discuss and what we feel is important to discuss; thus, creating a shared agenda for the visit is valuable. Helping parents enumerate their

concerns and questions is an efficient and effective way of establishing this shared agenda. Using a tool such as a parent/patient questionnaire also can enhance the visit efficiency by identifying concerns at the beginning of the visit.

Certainly, we **need** to do things for which evidence of effectiveness exists. We also may **need** to provide other services that we consider essential to that particular child’s health and well-being as defined by professional guidelines, community protocol, or other representations of expert opinion.

What about the things that we **want** to do? We bring a personal view to health based on our training and experience, our knowledge of our unique community and its needs, and our desires to comply with guidelines from the American Academy of Pediatrics (AAP), American Academy of Family Physicians (AAFP), National Association of Pediatric Nurse Practitioners (NAPNAP), the American Academy of Pediatric Dentistry (AAPD), the American Dietetic Association (ADA), or others. Often, the interventions we **want** to include relate to disease prevention and health promotion. Elucidation and enumeration of a child and family’s strengths is an important undertaking and a good example of what many experienced health care professionals **want** to do.

This sounds like a pretty big task and an extremely long visit, unless a health care professional tailors the visit and possible interventions to **one** child and family in the community. Not everything needs to be done at every visit. Rather, examinations, screening, and anticipatory guidance may be covered

over a sequence of visits during an age range. The time frame for providing health supervision is not just one visit. Actually, it occurs over a child's development and may be provided by a variety of health care professionals in a variety of settings.

The following sections explore these ideas in further detail through a discussion of the content of the health supervision visit, the timing of the visit, and the structure of the visit. We also recognize both the importance and relative paucity of evidence supporting many components of the visit, and describe how supporting evidence is represented in the Guidelines.

The Content of the Visit

The value of a health supervision visit to the child and family in terms of measured outcomes is related to its content and effectiveness. Arguably, a visit is of value if one important task is done very well. Alternatively, a visit that seeks to do many things, and does them all poorly, would be judged ineffective. It follows that the most valuable visit includes as many appropriate interventions as possible, if they can be done effectively. Therefore, the task of the health care professional is to determine which interventions are the most important and how to accomplish them properly.

A visit is composed of many potential interventions or health care professional activities with the patient. Interventions include obtaining a medical history, administering questionnaires or screening tools, performing a physical examination, entering into discussion, and providing anticipatory guidance.

Some interventions, such as assessing growth and development, occur at most or all visits. In these Guidelines, we also propose promoting a healthy weight and assessing mental health and emotional well-being as universal interventions.

But how do we capture the elements of disease prevention and health promotion that are important to an individual child? And, when we find these elements, how are the best interventions chosen so that the best outcomes can be sought?

Many health care professionals see **one** child health visit as **one** encounter, a view encouraged by third-party payers and promulgated by many educators. It is one visit, which, in an ideal world, is focused and uninterrupted. Unlike sick care visits, which aim to remedy a certain malady, the health supervision visit seeks many unique outcomes, often related only in their shared goal of the child's health. Multiple desired outcomes inevitably drive many separate interventions within the one encounter of the visit. Would it not be better conceptualized as a visit of multiple encounters?

This question can be answered by considering 4 activities—disease detection, disease prevention, health promotion, and anticipatory guidance—of the health supervision encounter. Disease detection is the easiest to describe. Every professional in child health care has been trained in the disease model, in the care of children who are sick. However, the desired outcomes of the health supervision visit are broader than just detecting disease and they involve very different actions in the same encounter. Failure to recognize their inherent incongruence will lead to incongruent practice, with frustrations and compromised outcomes. The tone and content of disease detection should be remarkably different from that employed in discussing health-promoting behaviors.

Disease Detection

Child health care professionals generally report 2 techniques of disease detection over time—surveillance and screening. Dworkin discussed surveillance and screening in the context of child development and defined developmental surveillance as “a flexible,

continuous process whereby knowledgeable professionals perform skilled observations of children during the provision of health care. The components of developmental surveillance include eliciting and attending to parental concerns, obtaining a relevant developmental history, making accurate and informative observations of children, and sharing opinions and concerns with other relevant professionals.”¹ Screening, on the other hand, is a formal process that employs a standardized tool to detect a particular disease state. Surveillance for anemia in a 1-year-old child, for example, involves dietary history, family history, and knowledge of socioeconomic risk factors. Screening for anemia is a hemoglobin or hematocrit screening. Both surveillance and screening are essential elements of the disease-detection functions of the health supervision visit.

Screening and surveillance determine how the characteristics of an individual child compare with characteristics of other children. Through ongoing assessment, the developmental trajectory of an individual child can be plotted and compared, just as height and weight are plotted and compared. This edition of the *Bright Futures Guidelines* will broaden the health care professional’s detection skills by including or recommending appropriate screening and assessment tools according to a child’s age or clinical presentation. Screening tools alone, however, are not sufficient. Health care professionals should couple screening with careful attention to parental concerns and insights (particularly during crucial developmental stages). This is particularly important for families who may have a child or youth with special health care needs, as this combination of screening and careful attention is more likely to successfully identify these special health care needs early and allow the health care professional to provide quality follow-up and intervention.

Surveillance and screening for developmental disorders has been reviewed.²

Traditionally, health care professionals have used surveillance to assess development based on knowledge of the child over time and knowledge of child development milestones. It is held to be useful, but is certainly dependent on the health care professional, and has been shown to detect less than 30% of problems. Screening at select times, using a structured developmental assessment tool, increases the identification rate with sensitivities and specificities of 90% or higher.²

The standard of care dictates that visits should include a complete physical examination. The authors of this edition of the *Bright Futures Guidelines* agree. However, experienced health care professionals will simultaneously champion the complete examination based on their discovery of a previously asymptomatic neuroblastoma or murmur of aortic stenosis and point out the rarity of detecting significant pathology. Although the burden of suffering of these disease processes may be great, health analysts correctly question the cost effectiveness of this approach to disease detection: many normals must be assessed to detect one abnormal. So, we ask, “Does this standard of care represent the best care?” Despite the doubts regarding cost effectiveness, we conclude that, in current practice in the care of children and adolescents, the complete physical examination does comprise “best care.”

Disease Prevention

The second essential action of the child health encounter—disease prevention—may include both primary prevention activities applied to a whole population and secondary prevention activities aimed at patients with specific risk factors. The recommendation that all infants be placed on their back for sleep to reduce the risk of Sudden Infant Death Syndrome is an example of a successful primary prevention. “Back to Sleep,” like immunizations, is an essential disease prevention

activity for the care of the infant younger than 6 months. Bright Futures can assist the child and adolescent health care professional to individualize additional disease prevention strategies to the community and to the specific family and patient.

The *Bright Futures Guidelines* is an appropriate compendium of both primary and secondary prevention topics, again noted by age and stage of development; but a compendium such as ours cannot, by itself, drive an encounter. Where evidence exists for specific disease prevention activities at a particular age, it has been incorporated into the guidance for that encounter. In addition, clinical guidelines may be used to assist the health care professional in choosing appropriate activities. The Bright Futures Expert Panels have used clinical guidelines and other sources of evidence to feature 5 Priorities for each visit as particularly high in value to the clinical visit for health care professionals to consider. (For more information on this topic, see the Rationale and Evidence chapter.)

Health Promotion

Health promotion activities constitute the third action of the encounter. These actions distinguish health supervision from other work that health care professionals do with children and families. Other encounters with the health care system focus on disease detection and, often, on disease prevention; but, it is health promotion activities that focus the visit on **wellness**.

Health promotion activities add new opportunities to the encounter. They shift the focus from disease to assets and strengths, on what the family does well and how health care professionals can help them do even better. The skilled health care professional uses these strengths to help the family build assets. This is an opportunity to broach important safety topics, help the family address relationship issues, access community services,

and engage with the extended family, school, neighborhood, and faith communities.

Anticipatory Guidance

Brazelton described the process of anticipatory guidance as one in which child health care professionals assess emerging issues that a child and family face and give advice that is developmentally consistent.³ For anticipatory guidance to be effective, it must be **timely** (ie, delivered at the right age), **appropriate** to the child and family in their community, and **relevant**, so that key recommendations are adopted by the family. Again, the health care professional must prioritize and select; but how? The Bright Futures system of care provides techniques to assist the health care professional in designing effective and time-efficient child health supervision interventions. An extensive collection of sample questions and anticipatory guidance highlighted by the Bright Futures Expert Panels are included.

The Timing of the Visit

Health supervision visits usually are scheduled as a longer encounter than a sick call visit. Data from a survey of pediatricians found that the average length of a preventive care visit, including all care by all personnel, ranges from 28 to 30 minutes, depending on the age of the patient. Pediatricians personally spend an average of 17 to 20 minutes with patients/parents, depending on the patient's age.⁴ The complexity of family questions is often a determinant in visit duration, as are the needs of the child that are anticipated before the visit or detected during the visit. The pressures of practice cost and the day's queue of patients may limit the time available.

Experienced health care professionals see the visit as an opportunity, but most also report a genuine tension as they seek to accomplish so much in so little time.

Resolving this tension is important to the success of the visit and is key to family and health care professional satisfaction. This edition of the *Bright Futures Guidelines* provides solutions to improve clinical and organizational processes in health supervision care. Using the Bright Futures materials, committed health care professionals who work with office or clinic staff can create effective encounters that meet their goals of disease detection, disease prevention, health promotion, and anticipatory guidance.

For purposes of discussion, as well as practice efficiency, we chose 15 to 18 minutes as the target time for the face-to-face encounter of the health care professional and the patient. This time does not include screening time for the patient, which may include parent questionnaires, developmental screenings, and professional nursing time with the patient. Consequently, the patient's time of encounter will exceed that of the health care professionals.

Green, Palfrey, and colleagues emphasized the need for time management in health promotion activities,⁵ and this issue also is discussed in the *Bright Futures Pocket Guide*. To maximize the time available for health promotion in the visit, they urge that the health care professional clarify the goals for the visit, identify family needs, prioritize shared goals with the family for the visit, and consider other ways to address issues that cannot be covered in the visit.

The Structure of the Visit: 2 Models for Health Supervision

Each visit includes multiple tests or examinations. Growth, development, and sensory functions (vision and hearing) always will be considered. Certain disease states, such as lead poisoning and anemia, will be specifically considered at some encounters, but not all, yet may be suspected or uncovered in the process of the general disease detection activity. Additionally, time must be allotted for

health promotion. To carry out this work during the valuable face-to-face time with the child and family, health care professionals often use the Subjective, Objective, Assessment, and Plan (SOAP) model or the Guidelines for Adolescent Preventive Services⁶ (GAPS) model, 2 familiar and useful constructs for health supervision. The Bright Futures Visit is a new model for health supervision that health care professionals may adopt as an alternative or enhanced approach to SOAP or GAPS. Experienced health care professionals will note close similarities between the Bright Futures Visit approach and GAPS. Bright Futures is indebted to the American Medical Association and the authors of GAPS⁶ for their important contribution to our work.

The SOAP Model

In the SOAP model, the health care professional obtains and analyzes the patient's **S**ubjective history along with **O**bjective findings of the physical examination and tests. An **A**ssessment is made and a **P**lan is developed to address any positive finding.⁷ The subjective information can be obtained by an electronic or paper questionnaire. The HEEDSSS (Home, Education/Employment, Eating, Activities, Drugs [including smoking and alcohol use], Sexuality, Suicide/Depression, and Safety) assessment can be incorporated into the subjective category to provide information about how well school-aged children and adolescent youth are functioning in key life areas.⁸ As shown in the following list, the categories under "Subjective" are consistent with the Bright Futures Health Promotion Themes.

As outlined by Polisky et al, in *SOAP for Pediatrics*,⁹

Subjective

- Open-ended question that solicit concerns and questions
- Developmental surveillance

- Nutrition, physical activity, and sleep
- Home, school, mental health, and strengths
- Safety, substances, and puberty

Objective

- Body mass index (BMI), vision, hearing, and other screening test results
- Physical examination

Assessment

- Well child
- Normal physical and emotional development

Plan

- Anticipatory guidance
- Immunizations

Individual and family strengths also can be highlighted in the Subjective assessment. If a problem is identified in any of these areas, it is listed under Assessment with a separate plan for action. If a need for a behavior change is identified, shared decision-making strategies are suggested. Motivational interviewing has been demonstrated to help adolescents and adults change their substance abuse behavior.¹⁰ Prochaska's stages of change also contribute to the health care professional's knowledge in this area.¹¹

The Gaps Model

The GAPS model, developed by Art Elster, MD, Missy Fleming, PhD, and colleagues, is a particularly effective method for health supervision because it prioritizes essential secondary prevention activities.⁶ Originally applied to adolescent health promotion, the GAPS technique is readily applicable to disease detection in all age groups. The following schema shows how health care professionals can apply the GAPS model.

THE GAPS MODEL: GROWTH AND DEVELOPMENT, AGE-SPECIFIC RISK FACTORS

1. **G**ather information.

- Take history from child or parent.
 - Bright Futures parent or adolescent questionnaire
 - GAPS Trigger Questionnaire

- Assess strengths.
 - Measurements
 - Height
 - Weight
 - Head circumference
 - BMI
 - Physical examination
 - Screening tools
 - Parents' Evaluation of Developmental Status¹² (PEDS)
 - Ages & Stages Questionnaires^{®13} (ASQ)
 - Family psychosocial screen¹⁴

Is there an abnormality?

No: Advance to health promotion activities.

Possibly: Advance to Step 2: **A**ssess further.

2. **A**ssess further.

- Developmental screening assessment
- Hearing or vision testing
- Laboratory tests (eg, hemoglobin [Hgb] or lead)

What do the results indicate?

3. **P**roblem Identification.

- Probably normal
- Uncertain
- Abnormal

What should I do next?

4. **S**olutions.

- Reassure and acknowledge child and family strengths; advance to health promotion activities.
- Plan follow-up.
- Refer to specialist for further evaluation.

One important application of the GAPS model to Bright Futures is its powerful improvement to the effectiveness of the screening physical examination. Although the GAPS model uses the same screening tool of the physical examination for all ages, this approach emphasizes key elements of the physical examination for each age and stage

of development, which helps health care professionals focus on the unique needs of, for example, a 3-year-old versus a 13-year-old. The GAPS model is an easily implemented and highly effective technique of sorting through the many possible clinical elements for any health supervision encounter so that the work of the visit can be focused on the individual child and family. Further assessment is specific and patient driven. Use of a properly designed questionnaire, such as the Bright Futures parent or adolescent questionnaires, analyzed with a technique such as GAPS, helps the visit more effectively address the specific needs of an individual family and child. This addresses the question: How do we determine what we **should** do in the visit from what we **could** do, and of what we **could** do, what **can** we do?

Employing Evidence

Satisfactory studies on preventive health issues in children are uncommon. Few studies have evaluated effectiveness of components of the physical examination, for example. Absent evidence does not demonstrate a lack of usefulness, however. The lack of evidence of effectiveness most often simply reflects the lack of study. This edition of the *Bright Futures Guidelines* relies on a range of sources to ensure that relevant evidence and expert opinion is included in the construct of every Bright Futures encounter. (For more information on this topic, see the Rationale and Evidence chapter.)

Components of the Bright Futures Visit

The Bright Futures Expert Panels and Project Advisory Committee view the relationship of parents and pediatric health care professionals as a partnership, consistent with the “medical home” philosophy. The *Bright Futures Guidelines* support the care of children and youth in their families, in their personal cultures, and in their community.

Bright Futures practitioners recognize the importance of a family’s strengths in caring for their children. We seek to identify strengths in each encounter, and move the focus of the health supervision visit away from the disease detection model toward a strength-based approach to health promotion and disease prevention. Each visit is an essential opportunity to help a family enhance its assets and health.

Over time, this emphasis on family strength assessment and asset development broadens to include the strengths and assets of the child. This supports the child’s essential developmental task of developing autonomy, competence, self-efficacy, and the ability to form healthy relationships. We wish the child to see his own strengths and use them to make good health and safety decisions. We seek to reward the child’s accomplishments, rather than admonish mistakes, in his development toward autonomy.



The remainder of this section describes the health supervision visit as presented in the *Bright Futures Guidelines* and illustrated in Table 1.

A. Context

For each visit, the Bright Futures Expert Panels begin with a description of children at the age of the visit, their developmental milieu,

their family development, and their environment. This information reminds health care professionals of key developmental tasks and milestones for that age. Contextual discussions describe expected growth and development over time and set the stage for the priorities and tasks that follow. It is intended to assist the practitioner in focusing on the unique qualities of a child this age, as opposed to their near-age peers.

TABLE 1	
Bright Futures Visit Outline, Using a Strength-based Approach	
A. Context	
B. Priorities for the Visit	<ul style="list-style-type: none"> • The first priority is to attend to the concerns of the parents. • The Bright Futures Expert Panel has given priority to 5 additional topics for discussion in each visit.
C. Health Supervision	
C1. History	
C2. Observation of Parent-Child Interaction	
C3. Surveillance of Development	
C4. Physical Examination	<ul style="list-style-type: none"> • Assessment of Growth <ul style="list-style-type: none"> – Younger than 2 years: Weight, length, head circumference, and weight-for-length – Older than 2 years: Weight, height, and BMI • Listing of particular components of the examination that are important for the child at each age visit
C5. Screening	<ul style="list-style-type: none"> • Universal Screening • Selective Screening <ul style="list-style-type: none"> – Risk Assessment – Action if Risk Assessment is positive
C6. Immunizations	
C7. Other Practice-based Interventions	
D. Anticipatory Guidance	<ul style="list-style-type: none"> • Information for the health care professional • Health promotion questions for the 5 priorities for the visit • Anticipatory guidance for the parent and child

B. Priorities for the Visit

For the visit to be successful, the needs and agenda of the family must be addressed. Thus, the Bright Futures Expert Panels note that the first priority is to attend to the concerns of the parents.

Each Bright Futures Expert Panel has enumerated 5 additional priorities for each visit. These priorities and their component elements assist the practitioner to focus the visit on the most important priorities for a child this age. The priorities are drawn from available evidence, relevant expert opinion, and the rich conversation of Expert Panel members. They are offered as a representation of current practice in the care for children of each age. Knowing the evidence for an intervention strengthens the health care professional's knowledge of child health supervision and assists in setting priorities and managing time, but it must be remembered that, even though evidence regarding health supervision activities is sparse, a lack of evidence does not imply lower priority, lack of value, or irrelevance.

C. Health Supervision

C1. HISTORY

In each Bright Futures Visit, the History component begins with the following guidance:

- “Interval history may be obtained according to the concerns of the family and the health care professional's preference or style of practice, or by using a [AGE-SPECIFIC] Visit parent questionnaire.”

The importance and utility of history in the health supervision visit was considered in the discussion of the SOAP and GAPS models in the previous section. History that is relevant to the age-specific health supervision encounter is determined to assess strengths, accomplish surveillance, and enhance the health care professional's understanding of

the child and family and to guide their work together.

The Bright Futures Expert Panels also suggest questions that can encourage an in-depth discussion about certain priorities for this visit.

C2. OBSERVATION OF PARENT-CHILD INTERACTION

Health supervision activities begin with observation of the parent-child interaction. Often accomplished without formal thought, this assessment is a starting point for the work of the visit.

C3. SURVEILLANCE OF DEVELOPMENT

Developmental surveillance occurs with each clinical encounter with the child and adolescent, and these observations are central to health supervision for children. Surveillance is the observation over time by experienced eyes of a child's acquisition of *developmental milestones*. To assist health care professionals in their observations, each Bright Futures Visit includes a rich discussion of developmental nuance for that age.

As children grow older, the “*developmental tasks* of childhood and adolescence” assume a central position in this assessment. One definitive list of developmental tasks does not exist, but the Bright Futures Adolescent Expert Panel has included connection to family and peers, competence, self-efficacy, autonomy, and empathy as important components of healthy development in adolescents. The foundation for these developmental tasks of adolescence is found in early and middle childhood.

Formal screening for developmental progress occurs in the Screening portion of the Bright Futures Visit. (See C5. Screening.) Developmental Screening employs a normed developmental screening assessment tool of known sensitivity and specificity. Structured developmental screening is recommended at the 9 Month, 18 Month, 2 Year, and 2½ Year Visits.² Targeted screening is performed

when indicated by the comprehensive history or findings of surveillance and the physical examination.

C4. PHYSICAL EXAMINATION

The physical examination is the cornerstone of any pediatric evaluation. It is the one portion of the evaluation that only a licensed child health care professional can perform. Molded by a thoughtful acquisition of medical history, a complete physical examination is included as part of every visit. The physical examination must be comprehensive, yet also focus on specific assessments that are appropriate to the child's or adolescent's age, developmental attainment, and needs, which are discerned from the patient history. This portion of each Bright Futures Visit opens with the following guidance:

- “A complete physical examination is included as part of every health supervision visit.”

In the context of a complete physical examination, the experienced health care professional incorporates certain specific components that are necessary to the examination of a child of a specific age or stage of development. To set this stage, the following statement also is made in each visit:

- “When performing a physical examination, the health care professional's attention is directed to the following components of the examination that are important for a child this age:”

No evidence-based data exist to indicate that a complete physical examination dramatically improves health care outcomes. However, evidence does demonstrate the importance of key elements of the complete physical examination at different ages. (For more information on this topic, see the Rationale and Evidence chapter.) In addition, there are numerous reasons why the examination may be in the best interests of the child and family. Most important is the possibility that a silent or subtle illness could

be identified. Furthermore, the examination provides an opportunity for the child health care professional to model respect for the child, to educate both the child and the parents about the child and her body and growth, and to acknowledge the child's individuality.

The majority of children in the United States are healthy and have normal physical examinations, although exceptions may be found more commonly among children in poverty, some immigrant children, children with special health care needs, and others. Regardless of health status, for all children, each year's examination will be different, will demonstrate growth and maturation, and will provide the opportunity for discussion of the physical changes associated with healthy development.

The yearly physical examination should be unhurried, with adequate uninterrupted time set aside for questions and discussion by parents and the child. Ensuring privacy can help the parents and the child address a variety of issues in a comfortable and non-pressured setting. Beginning in middle childhood and by adolescence, the rules of privacy and confidentiality must be developed and reviewed for the child and family (Box 1). Children are

BOX 1

Privacy, Confidentiality, and the Health Visit

Practices may want to establish formal confidentiality policies. Parents are important participants in these policies. A sample confidentiality statement addressed to youth could look like this:

“Our discussions with you are private. We hope you will feel free to talk openly with us about yourself and your health. Information is not shared with other people without your permission unless we are concerned that someone is in danger.”*

*This confidentiality statement is used with permission from Jack Mayer, MD, MPH, Rainbow Pediatrics, Middlebury, VT.

reminded that we want them to begin to make good health decisions, that good decisions require good information, and that our questions are aimed at really understanding them. Children and adolescents are always encouraged to discuss any concerns with their parents, the adults who know them best and, in most families, the people who can best help them find answers and solve problems. But, if young patients prefer to discuss concerns privately with their health care professional, they should be supported and allowed to do so.

The practice's or clinic's policies regarding privacy should be shared and discussed with parents and children by the 7 or 8 Year Visit. At this time, it is appropriate to offer the option of part of the visit without the parent present. Most health care professionals will always excuse the parent from part of the visit by the 12 Year Visit. It is useful to frame confidentiality and privacy as part of the child's increasing self-reliance.

The physical examination always should include an assessment of growth.

- Younger than 2 years: Weight, length, head circumference, and weight-for-length
- Older than 2 years: Weight, height, and BMI¹⁵

Most health care professionals no longer measure chest circumference. Measurements should be plotted on Centers for Disease Control and Prevention (CDC) growth and BMI-for-age charts, looking for appropriate changes over time. Deviations from normed percentiles require further investigation or anticipatory guidance. Certain immigrant children may not fit the CDC norms, but the growth charts can be used to determine growth patterns.

Children and youth with special health care needs have, or are at risk of, chronic physical, developmental, behavioral, or emotional conditions, including genetic or chromosomal

disorders (Box 2). Their growth may be further affected by illness, medication use, congenital anomalies, and impaired motor skills. Assessment of growth is a key component of care for children with special health care needs, and use of CDC growth charts, especially weight and height charts, for early detection of growth trends is important. The CDC also has evaluated reference growth charts for some children with special health care needs, including trisomy 21, achondroplasia, Prader-Willi syndrome, Turner syndrome, and Williams syndrome. Use of these specialized charts may be considered for affected children. Important limitations of these charts are the small sample sizes on which these charts are based, the lack of BMI data, and the risk of underestimating the child's growth potential. It is recommended that these charts be used in conjunction with the standard-reference CDC growth and BMI-for-age charts. The child's growth then can be assessed against that of the general population of children and can be monitored more accurately for inadequate growth or overweight. These CDC charts and guidance regarding their use is available at <http://www.cdc.gov/growthcharts/>.¹⁶

Body mass index should be calculated at each visit beginning at age 2 or 3 years, when the measurement of height replaces the measurement of length. (For more information on this topic, see the Promoting Healthy Weight theme.) At earlier visits, when length is measured, the weight-for-length should be plotted on the standard growth chart. Body mass index charting can improve recognition of an underweight or overweight problem, prompt health care professional concerns, and enhance guidance about techniques to promote a healthy weight (Box 3).¹⁷ Enlisting the help of parents in recognizing and addressing a tendency toward overweight is recommended.

At this time, studies do not demonstrate that addressing overweight in younger

BOX 2**Children and Youth With Special Health Care Needs**

The care of children and youth with special health care needs requires a dual approach consisting of both (1) screening and ongoing assessment to identify the special health care needs and (2) health supervision and anticipatory guidance.

The first task of a Bright Futures visit is to identify children with special health care needs. Ongoing surveillance over sequential Bright Futures visits, careful attention to parental concerns, and screening allow practitioners to find and diagnose these children. Screening may be structured and generalized to be applicable for all children or it can be specific to address concerns in one child.

The second task emphasizes that children and youth with special health care needs are, of course, children, and they have health care needs like all their peers. Their special health care needs, while important, do not negate their needs for health supervision, identification of strengths, and anticipatory guidance. Immunizations, nutrition and physical activity, screening for vision and hearing, school adjustment, and vehicle or gun safety are only a few of the topics that are important to the health of every child and youth. Sufficient time and attention to identifying and reinforcing youth strengths and their healthy emotional development are key. Through ongoing assessment, the developmental trajectory of an individual child can be plotted and compared, just as height and weight are plotted and compared, and the process of providing care is normalized.

Children and youth with special health care needs can present unique challenges, which often require extended visit time. Subspecialists often are involved in the care of the child or adolescent. The primary health care professional serves as the coordinating hub, but, more importantly, ensures that the focus of care is on the child as a whole, in her family and community, and not simply a child in a disease category. Thus, the primary care visit is used not only for the physical examination but also for discussion of the subspecialists' information and recommendations. Availability and access to needed subspecialty pediatric services vary by community, which affects the scope and intensity of direct care services provided to children and youth with special health care needs and their families by the primary health care professional. The "medical home" approach affords varying levels of shared care between primary care clinicians and subspecialty consultants.

The primary health care professional has a pivotal role in coordinating care for all children and adolescents whether or not they have special health care needs. Subspecialty care provided outside the primary care setting needs to be integrated into the overall health and developmental care plans for the child as a means of ensuring proper follow-up care, appropriate surveillance of the child, and necessary coordination of services for the child and family. It is important to link results of recommended screening and assessments performed by consultants, subspecialists, and allied health care providers to a child's medical home. Integrating all this information is a key role for the generalist as it sustains the parent-clinician partnership that is essential to the care of children with unique medical and developmental challenges.¹⁸

Child and adolescent health care professionals, who couple clinical observation with careful attention to parental concerns and insights, particularly during crucial developmental stages, competently serve children and youth with special health care needs. The Bright Futures visits support that goal.

BOX 3**Interpreting BMI**

Growth Indicator	Anthropometric Indices	Percentile Cutoff
Underweight	Low BMI for age and gender	<5th percentile
Normal	Normal BMI for age and gender	≥5th percentile but <85th percentile
Overweight	High BMI for age and gender	≥85th percentile but <95th percentile
Obese	High BMI for age and gender	≥95th percentile

patients is effective in reducing adult overweight or its consequences.¹⁹ Nonetheless, some populations, such as Native Americans, Mexican Americans, Asian and Pacific Islanders, and non-Hispanic blacks, are at a greater risk of developing overweight than whites. Following BMI curves in these groups may offer long-term benefits.

C5. SCREENING

- Universal Screening
- Selective Screening
 - Risk Assessment
 - Action if Risk Assessment is positive

Recommended screening occurs at each Bright Futures visit. Certain screening is *universal*—it is applied to each child at that visit. Other screening is selective and occurs only if a risk assessment is positive. For example, 1-year-old children are *universally* screened for lead poisoning in most states, but only those children with parental concern are *selectively* screened with a hearing test. Where specific screening tools or tests are indicated, they are noted in the visit.

Screening recommendations were developed by the Expert Panels, the Bright Futures Users' Panel, and other experts, based on the child's age and stage and the visit priorities and derived from the Recommendations for

Preventive Pediatric Health Care.²⁰ Screening tasks were chosen based on available evidence or on expert opinion statements from the Maternal and Child Health Bureau, CDC, AAP, AAFP, NAPNAP, and others. Broad consultation was obtained to achieve consensus.

C6. IMMUNIZATIONS

Assessing the completeness of a child's or adolescent's immunizations is a key element of preventive health services. The value of immunizations in avoiding preventable diseases and disease complications is an important discussion for providers to have with parents.

Bright Futures uses the following sources for up-to-date immunization schedules:

- The CDC National Immunization Program, <http://www.cdc.gov/vaccines>²¹
- American Academy of Pediatrics *Red Book*, <http://www.aapredbook.org>²²

Both sources include professionals' and parents' guides, address evidence behind immunizations, and discuss myths regarding immunization. The CDC National Immunization Information Hotline, <http://www.vaccines.ashastd.org> (telephone: 800-CDC-INFO) is an additional source of useful information.²³

See the Recommendations for Preventive Pediatric Health Care in Appendix C.

C7. OTHER 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.

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 reports of behavior, beliefs, and attitudes toward reading as well as improvements in language scores.^{24,25} Components of the ROR model include anticipatory guidance about the importance of reading, volunteers reading aloud in the waiting rooms, and distribution of developmentally and culturally appropriate books at health supervision visits of children aged 6 months to 5 years.

The Healthy Steps for Young Children program employs practice-based Healthy Step specialists and has shown positive outcomes in parent behavior (less severe discipline) and quality and use of care.²⁶ Components of the Healthy Steps program include office and home visits, ideas for telephone contact, and special materials keyed to each health supervision visit for young children.

D. Anticipatory Guidance

The Bright Futures Expert Panels have provided extensive detail for anticipatory guidance activities. The breadth of the guidance that a practitioner **could** do does not address what really **can** be done in the context of one visit. Thus, for each visit, anticipatory guidance activities are presented in several ways, including information for health care professionals, sample questions, discussion points, and suggested guidance for parents, children, and youth.

For each visit, anticipatory guidance is organized by the visit's 5 priorities and their component elements (eg, school readiness is a priority for the 4 Year Visit; its component elements are structured learning experiences,

opportunities to socialize with other children, fears, and friends). Within each component element of a priority, the anticipatory guidance begins with a brief note for the health care professional. These notes provide a developmental context for the sample questions and guidance that follow, and they may highlight aspects of a topic that are of particular importance for discussion. The sample questions and anticipatory guidance points provide a possible script for discussion and help frame a relevant conversation with the family and child. Though some questions are framed as Ask the Parent, the term "parent" encompasses all types of caregivers who care for and raise children. Health care professionals are encouraged to adjust and enhance the questions and guidance as needed.

Examining Children and Adolescents at Each Stage: Useful Information to Make the Visit Go Smoothly

Infancy

The health care professional should examine the infant in front of the parents so that the parents can ask questions and the health care professional can comment on the physical findings. This is a wonderful opportunity to evaluate parent-infant interactions. During the examination, the health care professional can reinforce positive interactions between infant and parents as well as provide guidance for dealing with upcoming changes in infant development. The neurodevelopmental assessment is an ideal opportunity to discuss developmental milestones. The health care professional can incorporate anticipatory guidance regarding developmental stimulation and injury prevention in a developmental context.

The health care professional can speak about sounds, light, touch (both light and firm), body movement, and position (proprioceptive and vestibular input), while stressing that every baby is unique. The parents need

TABLE 2

Calming Techniques to Improve Physical Examination Accuracy in 1- to 4-Year-Old Children

Preparation: Read stories about health checkups or health visits before the appointment.

Parent contact: The child sits or lies in the parent's lap or is held chest-to-chest by the parent.

Distraction:

Auditory: Gentle, relaxed, reassuring constant banter from the examiner or parent; singing or music; or nonsense buzzing noises or whispering.

Manual: The child holds a tongue blade in each hand or feels the stethoscope head, holds jingling keys, or brings dolls or toys to the appointment.

Visual: The otoscope is shown to the child while lighting the examiner's palm, then the child's, before the ear examination; or the examiner puts the otoscope into his or her own ear declaring, "See! It's okay! Just a flashlight. Do you have a flashlight at home?"

Demonstration: A doll or stuffed animal is examined before the patient, or the child's shoe is "listened" to with the stethoscope before listening to the patient.

Recruitment: Request the child's help in holding the stethoscope head or tongue blade; "blowing out" the otoscope light; or while listening to the chest, asking the child to blow on a piece of tissue held in front of the mouth to encourage deep breathing.

Comfort measures:

Avoidance of fear-inducing actions: avoid direct looks into the eyes of a young toddler until the eyes are examined; delay invasive portions of the examination (eg, otoscopy) until last; or examine toes or fingers first.

Pleasant office surroundings: books, toys, and pictures or drawings on the walls.

to understand the individual aspects of their baby, which will enable them to comfort and support his development.²⁷ Approaching the baby's development this way helps parents recognize those very important qualities of the caretaking environment. Demonstrating ways to interact with the infant helps give parents a sense of confidence in making changes to best fit their infant.

Early Childhood

Successfully accomplishing an accurate physical examination of a young child requires both skill and art. An ordered approach to

the child as a whole and to each individual organ system reduces the likelihood of missing a problem. Younger children need close contact with a parent to reduce anxiety and ease performance of the examination, whereas older children may take the lead in guiding the health care professional through the examination. Table 2 summarizes some calming techniques to improve cooperation in 1- to 4-year-old children.

Middle Childhood

Middle childhood includes many important milestones for children—learning to read and

write, development of important relationships outside the family with friends and teachers, and, for some, the onset of puberty. This is a period of time when lifelong habits that can influence health promotion and disease prevention become established.

The identification of learning barriers and mental health problems are important issues in this age group. Close monitoring of physical health and development are essential for preventive care and the early identification of neurodevelopmental and mental health problems.

In middle childhood, children are developing a growing consciousness about their bodies and may feel uncomfortable without an examination gown or a curtain around the examination table. The child's privacy should be respected.

Adolescence

Adolescence is often thought of as the healthiest age group in the human lifespan. The infectious diseases and developmental issues that constitute the majority of visits to health care professionals during the childhood years are much less common during adolescence, and the chronic illnesses of adulthood are not yet an issue for most adolescents. One exception may be adolescents who recently immigrated to the United States who may have infectious diseases or effects of poor early nutrition and health care.

Despite their relatively good health, adolescents have significant physical issues that require attention on preventive health visits. The significant growth and major hormonal changes that mark the adolescent years, for example, make it necessary to follow growth parameters, including height, weight, and

sexual maturity rating,²⁸ to ensure that they are proceeding appropriately and to watch for the development of possible problems (eg, scoliosis, myopia, or acne) that accompany changes in growth and hormonal milieu.

Other medical issues are related to adolescent health-risk behaviors. Because 47% of adolescents are sexually active,²⁹ and with a pregnancy rate of 84.5 per 1,000,³⁰ among female adolescents aged 15 to 19 years, managing sexuality-related issues, including contraception, sexually transmitted infections (STIs), and Pap smear abnormalities, is an important component of adolescent health care. The CDC has estimated that approximately 3 million adolescents acquire an STI each year and that one half of all individuals who acquire STIs are younger than 25 years.³¹ An American College of Obstetricians and Gynecologists tool kit helps health care professionals manage these issues in the practice setting.³²

The health care professional also can help prevent the onset of diseases in adulthood, particularly cardiovascular disease and malignancies. Factors associated with the onset of cardiovascular disease in adults (eg, overweight, hypertension, hyperlipidemia, and cigarette smoking) may have antecedents in the adolescent age group. Screening for these cardiovascular risk factors is increasingly important. With rising levels of overweight and obesity in all age groups, the association between overweight and adult-onset diabetes mellitus in adolescents also has become a major concern. Appropriate Pap smear testing and counseling about sun protection and tobacco use also are important to prevent future malignancies.

References

1. Dworkin PH. Detection of behavioral, developmental, and psychosocial problems in pediatric primary care practice. *Curr Opin Pediatr.* 1993;5:531-536
2. 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. *Pediatrics.* 2006;118:405-420
3. Brazelton TB. Symposium on behavioral pediatrics. Anticipatory guidance. *Pediatr Clin North Am.* 1975;22:533-544
4. American Academy of Pediatrics, Division of Health Policy Research. Periodic Survey of Fellows #56. Executive Summary. Pediatricians' Provision of Preventative Care and Use of Health Supervision Guidelines. Elk Grove Village, IL: American Academy of Pediatrics; 2004
5. Green M, Palfrey JS, eds. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents.* 2nd ed. Arlington, VA: National Center for Education in Maternal and Child Health; 2002
6. American Medical Association. *Guidelines for Adolescent Preventative Services (GAPS).* Chicago, IL: American Medical Association; 1994
7. Weed LL. Medical records that guide and teach. *N Engl J Med.* 1968;278:593-600
8. Goldenring J, Rosen D. Getting into adolescent heads: an essential update. *Contemp Pediatr.* 2004;21:64
9. Polisky M. *SOAP for Pediatrics.* Malden, MA: Blackwell Publishing Inc; 2005
10. Sindelar HA, Abrantes AM, Hart C, Lewander W, Spirito A. Motivational interviewing in pediatric practice. *Curr Probl Pediatr Adolesc Health Care.* 2004;34:322-339
11. Prochaska J, Norcross J, DiClemente C. *Changing for Good.* New York, NY: Avon Books Inc; 1994
12. Parents' Evaluation of Developmental Status (PEDS). Available at: <http://www.pedstest.com/>. Accessed February 25, 2007
13. Bricker D, Squires J, Mounts L, et al. *Ages & Stages Questionnaires (ASQ): A Parent-Completed, Child-Monitoring System.* 2nd ed. Baltimore, MD: Paul H. Brookes Publishing Co; 1999
14. Jellinek M, Patel BP, Froehle MC, eds. *Bright Futures in Practice: Mental Health, Volume II, Toolkit. Pediatric Intake Form.* Arlington, VA: National Center for Education in Maternal and Child Health; 2002
15. Accurately Weighing and Measuring: Technique. Available at: <http://depts.washington.edu/growth/module5/text/contents.htm>. Accessed April 11, 2006
16. Centers for Disease Control and Prevention. 2000 CDC Growth Charts: United States. Available at: <http://www.cdc.gov/growthcharts/>. Accessed July 7, 2006
17. Perrin EM, Flower KB, Ammerman AS. Body mass index charts: useful yet underused. *J Pediatr.* 2004;144:455-460
18. American Academy of Pediatrics, Medical Home Initiatives for Children With Special Health Care Needs Project Advisory Committee. The medical home. *Pediatrics.* 2002;110:184-186
19. Saunders N, Shouldice M. Health maintenance visits: a critical review. In: Feldman W, ed. *Evidence-Based Pediatrics:* Hamilton, British Columbia: Decker Inc; 2000:17-37
20. American Academy of Pediatrics, Committee on Practice and Ambulatory Medicine. Recommendations for preventive pediatric health care. *Pediatrics.* 2000;105:645-646
21. Centers for Disease Control and Prevention, National Immunization Program. Available at: <http://www.cdc.gov/vaccines/>. Accessed July 7, 2006
22. American Academy of Pediatrics. *Red Book: 2006 Report of the Committee on Infectious Diseases.* Pickering LK, Baker CJ, Long SS, McMillan JA, eds. 27th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2006.
23. National Immunizations Information Hotline. Available at: <http://www.vaccines.ashastd.org>. Accessed July 7, 2006
24. Weitzman CC, Roy L, Walls T, Tomlin R. More evidence for Reach Out and Read: a home-based study. *Pediatrics.* 2004;113:1248-1253
25. Needlman R, Silverstein M. Pediatric interventions to support reading aloud: how good is the evidence? *J Dev Behav Pediatr.* 2004;25:352-363
26. 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
27. Greenspan S, Greenspan N. First Feelings: *Milestones in the Emotional Development of Your Baby and Child.* New York, NY: Penguin Books USA Inc; 1985
28. Rosen DS. Physiologic growth and development during adolescence. *Pediatr Rev.* 2004;25:194-200
29. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance—United States, 2005. *MMWR Surveill Summ* 2006. 2006;55(SS-5):1-108
30. Hamilton BE, Martin JA, Ventura SJ. Births: preliminary data for 2005. *Natl Vital Stat Rep.* 2006;55:1-18
31. Centers for Disease Control and Prevention. *Sexually Transmitted Disease, Surveillance, 2005. Special Focus Profiles.* Atlanta, GA: Centers for Disease Control and Prevention, US Department of Health and Human Services; 2006
32. American College of Obstetricians and Gynecologists Web site. Available at: <http://www.acog.org/>. Accessed May 24, 2007

