

# Brief Approaches to Developmental-Behavioral Promotion in Primary Care: Updates on Methods and Technology

## abstract

Well-child visits are a critical opportunity to promote learning and development, encourage positive parenting practices, help children acquire behavioral self-control, enhance the development and well-being of children and their families, identify problems not amenable to brief in-office counseling, and refer for services when needed. This article outlines the communication skills, instructional methods, and resource options that enable clinicians to best assist families. Also covered is how to monitor progress and outcomes. A total of 239 articles and 52 Web sites on parent/patient education were reviewed for this study. Providers require a veritable armamentarium of instructional methods. Skills in nonverbal and verbal communication are needed to elicit the parent/patient agenda, winnow topics to a manageable subset, and create the “teachable moment.” Verbal suggestions, with or without standardized spoken instructions, are useful for conveying simple messages. However, for complex issues, such as discipline, it is necessary to use a combination of verbal advice, written information, and “teach-back,” aided by role-playing/modeling or multimedia approaches. Selecting the approaches most likely to be effective depends on the topic and family characteristics (eg, parental literacy and language skills, family psychosocial risk and resilience factors, children’s developmental-behavioral status). When providers collaborate well (with parents, patients, and other service providers) and select appropriate educational methods, families are better able to act on advice, leading to improvements in children’s well-being, health, and developmental-behavioral outcomes. Provided are descriptions of methods, links to parenting resources such as cell phone applications, Web sites (in multiple languages), interactive technology, and parent training courses. *Pediatrics* 2014;133:884–897

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### KEY WORDS

patient education, parent-provider communication, teachable moment, family centered care, referral, collaboration, preventive care, well-child visits, parent training

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A state-of-the-art review article from 1998 covered research on brief methods for educating parents and patients in primary care.<sup>1</sup> Much has changed since then, including new Web sites offering information on child-rearing, interactive multimedia approaches to instruction, and well-researched curricula for parent education. New and long-standing policy initiatives from the American Academy of Pediatrics encourage anticipatory guidance and developmental-behavioral promotion at all well visits.<sup>2–5</sup> Current studies focus on creation of the “teachable moment” wherein parents are particularly likely to capitalize on advice from clinicians. The goals of this update are as follows: (1) to describe optimal methods for engaging and teaching families, (2) to provide supporting evidence for various developmental-behavioral promotion methods, (3) to assist clinicians in selecting techniques appropriate for the topic raised that are workable within the time constraints of short primary care visits, (4) to identify ways to determine whether families benefited from advice or when more intensive approaches are needed, and (5) to list Web sites and other content sources for patient education.

## METHODS

To update the 1998 review, we used our original search terms (eg, “patient education,” “parent training,” “information handouts,” “video,” “recall,” “literacy,” “role-playing,” “group well visits,” and “verbal advice”) and added others such as “multi-media,” “email,” “web-sites,” “teach-back,” and “teachable moment.” We scrutinized 4 databases including the National Library of Medicine (PubMed), Education Resources Information Center (ERIC), research literature from the American Psychological Association (PsychInfo), and the Cochrane Database of Systematic Reviews. Because studies on developmental-behavioral promotion are voluminous, when researchers

( $N = 22$ ) summarized multiple investigations in chapters or books, we used these, along with policy statements from the American Academy of Pediatrics ( $N = 4$ ), to minimize the overwhelming number of citations. We also viewed Web sites and smartphone applications devoted to parenting guidance. Online offerings and essential textbooks for professionals are described in a table along with uniform resource locators, that is, Web site addresses. Of the 239 studies reviewed, we condensed these to 116 and organized results around major themes, methods, and selection criteria, with 6 tables providing practical summaries. In addition, we describe 52 professional and/or family resources (textbooks, Internet offerings, parent training curricula, etc).

## RESULTS

### Goals and Precepts in Developmental-Behavioral Promotion

It is helpful to understand the “big picture” of instructional content to be covered across visits. Table 1 describes the broad focus including ascertainment of sensory, health, and developmental status to ensure that other needed interventions are established and that promotional efforts are developmentally appropriate.

### Facilitating Parent-Provider Communication and Creating the “Teachable Moment”

Clinicians’ effectiveness in educating parents/patients depends on establishing a collaborative relationship.<sup>20–28</sup> A working alliance is created by thoughtful communication skills, garnering trust, identifying shared goals, explaining problems, reaching a mutual understanding about treatments, and encouraging adherence. Although parents come to appointments with respect for providers’ opinions, professionals

should regard parents as having their own sphere of expertise. Clinicians are experts in diagnosis and treatment, whereas families are experts in their own experiences, concerns, and challenges. Both professionals and parents find that efforts to value and understand each other’s perspectives contribute to quality of care and to satisfaction with services. Satisfaction with health care experiences increases the probability that patients will keep future appointments and comply with clinicians’ recommendations.<sup>20–31</sup> Because well-child encounters are brief and the list of potential topics voluminous, family-centered care is essential for refining visit focus. Table 2 describes the processes of establishing rapport and identifying families’ pressing issues.

### Methods in Parent/Patient Education

Having identified the foci for the visit, the next step is to select among the many techniques to aid families in absorbing professionals’ advice. Each method has strengths and weaknesses and optimal selection depends, in large part, on topic complexity. Covered are research on verbal advice, role-playing/modeling and rehearsal, written information (ie, education handouts), group well visits, Web sites, multimedia instruction, and parent-training programs.

#### *Verbal Advice: Strengths and Weaknesses*

The most common intervention approach in primary care, verbal advice, is used in 99% of encounters, along with repeating key information (92%) and covering only 2 to 3 main points (76%).<sup>40</sup> Verbal advice works well when the content is straightforward; for example, simple messages such as “Make sure your baby sleeps on her back” or “Don’t smoke inside your home” are powerful and effective.<sup>40–43</sup> Clear statements are a useful opening salvo (eg, “Do not hit

**TABLE 1** Overall Goals for Developmental-Behavioral Promotion Across Well Visits

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- Preventing, detecting, and intervening with developmental delays  
Many developmental deficits, subsequent school failure, and concomitant behavior problems arise in families with psychosocial risk factors. Risk factors include parents with less than a high school education; who are single and lack social support; who are impoverished; who have housing, food, and employment instability; who do not speak English well; who have mental health problems including depression; and, most especially, who have parenting styles that fail to build skills needed for school success.<sup>6–9</sup> So, a critical goal in preventing problems is to teach resilience, meaning positive parent-child interactions that promote development (eg, encouraging parents to talk about children's interests, share books, and engage infants in vocal play).<sup>10–13</sup>  
Providers should: identify and intervene with psychosocial risk factors; explain the value of language stimulation; show parents various ways to verbalize with their young children; monitor parents' response to suggestions and children's developmental-behavioral status; refer to more intensive parent-training and other social services if parents are unable to benefit from in-office advice; assess and intervene with parental depression; and ensure that children are promptly enrolled in early intervention when delays are found.<sup>9,14–16</sup>
- Preventing behavior problems and injuries  
Various committees of the American Academy of Pediatrics advise providers to use well-child care as a platform for averting conduct problems and thus accidental injuries. During well visits clinicians should offer anticipatory guidance (eg, explaining that emerging motor skills can increase risk of injury such as when infants learn to crawl, hidden choking hazards may be discovered under furniture). Providers should also teach preventive disciplinary techniques to assist children in acquiring behavioral self-control (eg, bedtime hassles can be prevented by putting infants to bed while still awake to promote independent sleeping skills).<sup>17–19</sup>
- Demystifying/reframing behavior challenges and teaching appropriate disciplinary techniques  
Because behavioral issues are a particularly common complaint, parents almost always need guidance on this issue (eg, learning that "disobedience" is often a healthy striving for autonomy and that children are social creatures who seek attention in almost any manner offered). Clinicians should help parents focus on positive behaviors, that is, "time-in" in which children are praised for complying, and to use "time-out" less often than time-in.<sup>17,18</sup> Parents may not realize that punishment is rarely effective and simply "drives problem behavior underground." Discipline, in contrast, teaches children better ways to behave.<sup>17–19</sup>  
The contingent use of praise for prosocial behavior increases the occurrence of desirable conduct. The use of severe or loud reprimands dramatically actually increases disruptive behavior.<sup>17,18</sup> Developmentally, this makes sense because children are pre-abstract thinkers: they do not process words quickly, readily generalize to new situations, and lack the skills in planning and foresight required to change future behavior. Even compliant children typically require 6–9 seconds to understand instructions and act on them, but are often peppered with the same instructions without sufficient time to obey.<sup>17–20</sup> Too often, parents give commands that are actually choices. A question such as "Can you pick up your toys please?" does not convey what is meant, that is, "It is time to pick up your toys now."  
Providers should help parents understand that developmental status affects behavioral self-control. Acting out is often caused by difficulties with self-expression, whether children's language skills are age-appropriate but inherently limited, or because of age-inappropriate deficits in understanding and talking. An intervention example is having parents model short phrases so that children learn to use words instead of tantrums to express feelings and needs.<sup>7–11,17–20</sup>  
Before embarking on developmental-behavioral interventions, it is absolutely imperative to make sure children are healthy, hear and see well, and that untreated developmental deficits are not contributors to acting out (the most common parental complaint). Many noncompliant children are those who cannot hear their parents' requests; do not understand what is being said to them; lack the motor, memory, or attentional skills to execute commands; or who are frustrated by difficulties communicating. Health/sensory plus broadband developmental-behavioral screening should be a first step in deciding on types of needed interventions.

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your child or call him names"). Verbal advice along with brief motivational interviewing (in which providers encourage families to create their own implementation plans) are helpful for teaching slightly more complicated skills (eg, safe firearm storage and limiting media exposure).<sup>44,45</sup>

Yet, verbal advice as the sole approach to family education has enormous limitations; clinicians' vocabulary may not be understood by families, parents and patients may have difficulty comprehending lengthy sentences, and human memory has inherent constraints. These challenges compound

with topic complexity (eg, the multiple steps needed in behavior management, learning home management for conditions such as diabetes).<sup>40,46–49</sup> Stress and depression also interfere with recall of verbal instructions. Even in the absence of ongoing anxiety or other internalizing disorders, families arriving at visits with preexisting worries are, at a minimum, situationally stressed and more likely to remember their own suppositions than to acquire new information.<sup>47</sup>

The limits of human recall compounded by duress take a particular toll on parents' ability to act on verbal instructions regarding developmental-behavioral topics. In a recent survey, only 13% of parents followed advice on discipline, putting children to sleep, or limiting media exposure.<sup>50</sup> There are several approaches for helping families capitalize on information delivered orally, as shown in Table 3.

### *Group Well-Child Visits and Group Education*

Brief well visits rarely offer sufficient time to cover topics in anticipatory guidance or assessment of psychosocial risk and developmental-behavioral status.<sup>65</sup> An invaluable alternative is group well visits. These offer a multiplicity of learning opportunities including more contact time with professionals during which live demonstrations, role-playing, practice/repetition of messages, and social support (eg, peer role models) can be offered.<sup>43,64–67</sup> Typically organized by same-age groups (although sometimes by specific illnesses or challenges such as temper tantrums or sleep problems), group well visits last for ~60 minutes rather than the usual 10 to 15 minutes.<sup>68</sup> Group well visits improve the likelihood that parents will attend future visits, use appropriate at-home safety practices, acquire needed skills, and engage in personalized

**TABLE 2** Facilitating Parent-Provider Collaboration and Defining the “Teachable Moment”

1. Nonverbal behavior. Nonverbal factors are vital for creating a working relationship. One of the first elements is comfortable eye contact at the same physical level as parents/patients, that is, clinicians should sit down. This conveys genuine interest in listening to and helping families. Other nonverbal behaviors include a forward, attentive, but relaxed body posture. Although providers must write down pertinent information during the visit, note-taking and looking at the patient record should be minimized during conversations.<sup>32</sup>
2. Opening channels of communication. Warm greetings, “small talk,” questions about well-being, and a search for shared interests help families feel comfortable raising troubling issues. Parents can be asked, “How have you and your family been since our last visit?” Children and adolescents can be asked, “Tell me some of the fun things you’ve been doing.” Such questions enable providers to proffer appropriate and well-timed self-disclosure (eg, “Very exciting. I’m also interested in ...”).<sup>29,30,33,34</sup>
3. Identifying the parent/patient agenda. The value of communicating well with families is enormous and known to increase visit uptake/patient retention and positive parenting practices.<sup>21,30,51,53–56</sup> Open-ended statements such as “Tell me any questions you have today” convey an interest in families’ issues and perspectives. Active listening skills (eg, summarizing, restating, questioning, and seeking further clarification) are needed to ensure mutual understanding. Incorporating parents’ own words and phrases in subsequent questions is useful (eg, if a parent says, “I think she is hyper,” clinicians can restate and request details [eg, “Please tell me more about why you think she is hyper”]).  
It takes time and encouragement for families to fully state their worries and describe relevant symptoms (which are rarely listed in order of diagnostic importance).<sup>35–37</sup> Yet, families are often redirected before they can list their worries, resulting in “late-arising/door-knob” issues and extended visit length. Particularly effective is to use accurate measures eliciting parents/patients concerns before the encounter (eg, paper/pencil in waiting rooms, self-administration via parent portals from home or public school/library computers). Such tools are known to help families identify their main concerns, decrease disruptive “oh by the way” concerns that often occur at the end of encounters when there is little time to address them, and contain visit length to expected intervals.<sup>33–38</sup> Additional methods for focusing visits include posters in waiting rooms listing topics that may be of interest, and checklists of topics/previsit questionnaires, which families can use to identify their specific information needs (and which topics were covered at previous visits).<sup>20,33,34,39</sup> A distinct advantage of previsit questionnaires and screening tools eliciting parent/patient concerns is that clinicians can prepare materials (eg, information handouts, brochures about referral sources, etc) before entering the examination room.
4. Further defining the teachable moment. To a carefully elicited list of families’ concerns, clinicians should observe and then comment on parents’ and/or children’s behavior (eg, “He sure is a busy little boy. Tell me how he is at home.” or “She looks very tired today. Please tell me about her sleep habits.” or “You seem down. How are you doing?”).<sup>21,30</sup> Synthesizing professionals’ observations with parents’ concerns leads to a family-centered agenda known to improve parents’ willingness to follow through with suggestions and recommendations. As a consequence, clinicians’ own agenda list (eg, routine health and safety tips) have a greater chance of efficacy.<sup>35–39</sup>

parent-provider discussions of specific concerns.<sup>43,64–68</sup> Although challenging to organize, practical guidance on implementation is available.<sup>69</sup> Group well visits and group counseling can also reduce literacy and language barriers to patient education.

### *Use of Written Information*

Another approach to circumventing the limits of human recall is to use printed information. This method has established effectiveness in developmental-behavioral promotion and offers opportunities for parent/patient reminders and self-instruction.<sup>43,58</sup> The Internet is an ever-expanding source for health information often used by clinicians to

find topic-specific information handouts and also independently by families. In 2010, the US Census Bureau reported that 77% of households have at least 1 member who has access to the Internet, and 69% of US households had Internet access at home.<sup>70</sup> Smartphones, which have inherent Internet access, are in greater use by minorities than by whites, with the former more likely to use social media sites and downloadable apps and to receive e-mail by phone, but less likely to seek informational Web sites.<sup>71</sup>

Information provided on the Internet has much potential for helping families arrive at visits with (what we hope are) informed choices about diagnoses and treatments. Computer-literate parents

(and older patients) inevitably seek information to better manage health and development. And there is some evidence that at least certain sites are helpful. For example, randomized controlled trials of Internet-based interventions for anxiety and depression were found to be beneficial.<sup>72–74</sup> Another study showed decreases in depression symptoms in a group of adolescents who used an Internet intervention in primary care.<sup>75</sup>

Nevertheless, parents arriving at visits armed with printouts from Web sites change the dynamic and focus of encounters. Media (television, newspapers, videos, Internet) present an array of “expert information” with messages that may be mixed if not contradictory. Although families sometimes ask clinicians for clarification, it is wise to provide families with a list of sites with trusted information (and perhaps a list of sites to avoid). Without guidance on which Web sites provide quality information, parents may find those with questionable facts, requiring clinicians to “un-teach” as well as teach.<sup>71</sup>

When written information is offered during visits, the delivery method has a decided impact on families’ acquisition of information. Brochures left in waiting rooms often become fodder for children’s artwork rather than for parent/patient education. Clinicians confer credibility to printed information by the following: (1) selecting 1 to 2 topics of express interest to families, (2) hand-delivering information, (3) highlighting main points, and (4) establishing a follow-up date (eg, a request that families call back or make an appointment to discuss progress and challenges).<sup>45,54,76</sup>

There are many different types of written information resources including the following:

- brochures (eg, from the American Academy of Pediatrics’ The Injury Prevention Program [TIPP]);

**TABLE 3** Methods for Improving Recall of Spoken Directives

- Use of standardized verbal instructions. With this method, clinicians use scripted information tested for intelligibility.<sup>51,52</sup> Use of everyday language is essential as is pairing commonly understood terms with medical ones and speaking more slowly with parents/patients than with colleagues (eg, “pushy” rather than “aggressive”; “stopping bad habits” rather than “behavior modification”; “problems with learning” rather than “developmental delay”).
- Repetition is essential for new learning (hence why television ads are endlessly repeated, why schoolchildren have abundant spelling and math fact drills, and why opportunities for practice are inherent in medical training but preferably via this modified adage, “See many, do many, teach many”).<sup>53</sup> Families benefit when messages are reexplained with clarity and when clinicians highlight specifics. For example, major points can be numbered (eg, “The first thing I want you remember is... The second thing is...”).<sup>20</sup>
- Follow-up phone calls or e-mails are associated with enormous improvement in outcomes. Follow-up can be automated and include prerecorded messages/postdated scheduled e-mails reinforcing directives.<sup>46,54–56</sup>
- “Teach-back” has well-established effectiveness in strengthening recall. Teach-back involves asking parents or patients to tell you what they understood in their own words. For example, providers can say, “Please explain that back to me so we make sure I was clear.”<sup>40,52,57–59</sup>
- Visual aids are useful adjuncts to verbal directions and often include pictograms, diagrams, physical models, decision-support graphics, etc.<sup>60–62</sup>
- Demonstrations are powerful memory aids because they are personalized and vivid. Modeling, role-playing, and coaching are helpful in the teachable moment, such as when parents fail to comment on children’s interests or simply yell when children touch harmless objects (eg, providers can say, “Let me show you a good way to talk with him,” followed by modeling desired interactions and having parents practice). With an unruly young patient, clinicians might say, “Ok! We are going to play the ‘Obey Game.’ I will ask you to do something and then I’ll tell you ‘good obeying.’ Ready? Now, I want you to stand up. Great! Good obeying. Now your parents will play the ‘Obey Game.’” Providers can then turn it over to parents and have them ask their child to sit down, bring something over, and so forth, all while encouraging parents’ efforts to praise their children and create a positive behavioral momentum.<sup>17,18,20,52</sup>

- printouts from reputable parenting Web sites (eg, Kids Health, Bright Futures Initiative);
- read-aloud children’s books focused on anticipatory guidance<sup>77</sup>;
- book-sharing (eg, Reach Out and Read) for promoting resilience, that is, language and literacy skills needed for future school success<sup>9</sup>;
- age-paced newsletters, delivered by mail, e-mail, or cell phone text services (in which parents sign up, often when children are born and receive “just in time” age-appropriate health and safety guidance, encouragement to talk with their children, vaccination reminders, etc)<sup>78,79</sup>;
- clinic-created lists of approved Web sites including social media and smartphone apps with appropriate content, including guidance on how to find access (eg, public schools, libraries, clinic kiosks, etc)<sup>80</sup>;
- clinic Web sites with links to preferred parent-education resources<sup>81</sup>;
- electronic health records often house parent portals (through which families can view growth charts and instructions for home care and find child-rearing information between visits)<sup>81</sup>;
- paper (and increasingly electronic) hand-held patient records usually include parenting tips and mechanisms for simultaneous updates to findings from recent well visits<sup>82</sup>;
- information prescriptions, especially with e-mail reminders, encourage parents to visit specific content on approved Web sites<sup>55,56,81</sup>;
- e-mail between clinicians and families offers personalization along with instrumental and emotional support<sup>55,56</sup>; and
- visit summary reports (eg, created by software programs or online developmental-behavioral screening

services) offer a content-specific written account of visit content and recommendations.<sup>15,37,83</sup>

### *Issues in Literacy, Language Barriers, and Internet Access*

Adult educational attainment in the United States has changed little in the past decade and high school graduations hover at 85% (<http://quickfacts.census.gov>; accessed April 2013), although there is wide variability across states, regions, and municipalities. It is not uncommon to find graduation rates of  $\leq 50\%$  in inner cities and among minority youth. Even so, a high school diploma is not a guarantee of ability to read at the 12th-grade level; most high school graduates read at the 8th-grade level but still have difficulty understanding health care terminology, that is, have challenges with health literacy.<sup>51,52</sup> Approximately 20% of adults read at the fifth-grade level or lower. Meanwhile, information on health care topics tends to be written at the 10th-grade level or higher, thus complicating rather than alleviating the burden of reading deficits.<sup>51,52,84–88</sup>

The consequences of limited literacy, including health literacy, are enormous: sicker patients, errors in medication use, increased hospitalization rates, and substantial disparities in quality of health care for children. Literacy challenges are the single greatest predictor of psychosocial risk and are also associated with low income, domestic violence, difficulties promoting development, and a perpetuating cycle of limited literacy in children.<sup>85,86</sup> Note that adults who do not read well are more than twice as likely to exhibit negative parenting behaviors. Adolescents with low literacy skills are far more likely to exhibit antisocial or aggressive behavior.<sup>86</sup>

Language barriers often combine with reading deficits to further exacerbate difficulties in delivering effective parent/

patient education. For example, >60% of families who speak only Spanish have difficulty comprehending providers' verbal and written directives, and even among English speakers 35% have difficulties.<sup>85,87,89</sup> For families speaking languages other than English or Spanish, clinicians may have difficulty finding appropriate written information (or quality translation support). Finally, in the midst of an encounter, it is difficult to judge whether families understand what is being said and whether they read well in any language.<sup>51,52,89</sup> But neither reading problems nor language barriers deter parents' interest in receiving written information,<sup>52</sup> implying that parents often seek "community helpers" to assist them in understanding content. Table 4 lists findings and recommendations for the use of written information in patient education (including circumvention of language and literacy barriers).

### Multimedia Methods for Parent Education

For the many parents who need extra help "taking our messages to home and heart," multimedia approaches offer vivid and memorable instructional opportunities. Such methods include videos, Internet and Web-based programs, computer-based CD-ROM and touch-screen kiosks, voice-response technologies (ie, telephony), telemedicine, mass media, and interactive electronic medical records including parent portals (where parents can often complete screening/surveillance tools, access information about their children's health and development, update online "baby books," or find Web sites and smartphone apps approved by providers). Because patient education on complex procedures is time-consuming, multimedia approaches to developmental-behavioral interventions have enormous potential to both engage families and provide the repetition needed for learning

**TABLE 4** Effective Use of Written Information in Primary Care

- Patient information should be written at the reading level of a 9–10 year old, fourth-grade level or lower. Even highly educated families prefer succinct and easy-to-read materials.<sup>84,87</sup> Readability formulas are useful for testing and refining written information.<sup>89</sup>
- Adding graphics to text helps when parents are asked to choose among treatment options, rate quality of care, or complete developmental-behavioral screening tools (eg, pairing traffic light colors with bullet points, using the pictorial version of the Pediatric Symptom Checklist).<sup>88</sup>
- Offering a "face-saving" literacy probe before asking parents to complete questionnaires or screens with multiple-choice items to prevent random answers (eg, "Would you like to complete this on your own or have someone go through it with you?").<sup>15,37,88</sup>
- Video presentations accompanying text are useful as is video instruction in child-rearing issues (described below).
- Use "teach-back," that is, asking parents to restate in their own words the messages given. This method identifies whether information needs to be repeated and reexplained (in simpler language).<sup>40,52,57–59</sup>
- Consider group counseling/well visits for same-language speakers to engender social support and "community helpers."<sup>43,49,64,88</sup>
- Ask families if they can find someone to help them go through written information again once they have left the office.<sup>15,37,88</sup>
- Include on clinic Web sites or on printed lists of approved sites those offering parenting information in multiple languages.
- The brevity and clarity of text messages on developmental-behavioral promotion and anticipatory guidance sent by services such as the Maternal Child Health Bureau's Text4Baby reach many families with literacy challenges and have established effectiveness (eg, increase uptake of vaccinations).<sup>78</sup>
- When new translations are needed, back-translation is insufficient (see Professional Resources in Table 5 below for links to the International Test Commission guidelines). Wording must be vetted by bilingual parents and providers because even plausible back-translations can be freighted with unexpected meaning (eg, the word "concerns" is prominent in Somali warlord slogans [making families reluctant to answer questions about their worries], but in Asian languages, "concerns" is a synonym for "care" as in "Do you care about your child's health?" and thus renders needless worries).<sup>37,90</sup>
- Make sure that interpretation/translation services have links to Web sites with information in multiple languages and copies of vetted translations of questionnaires, screening tools, etc.
- Screen reading and other academic skills in school-age children and intervene when deficits are apparent or in the presence of psychosocial risk factors. There are a variety of ways to detect academic dysfunction such as reviewing school records or administering a brief literacy screener.<sup>91</sup>

new ways to deal with the inevitable challenges of child-rearing.<sup>92</sup>

#### Videos

One of the earliest of multimedia methods, video interventions are known to be highly effective in changing knowledge, attitudes, and behaviors, particularly with at-risk and culturally diverse populations.<sup>92–99</sup> For example, parents using abusive punishment methods watched a series of videos about better solutions to common behavior problems or parent-child conflicts. Parents gained knowledge of normal child development, insight into why children misbehave, and learned alternative behavior management strategies.<sup>96–99</sup> It is important to note that videos, including public service announcements on television, work best when the speaker is a peer (eg, an

African American teenage mother speaking to other African American teenage mothers about the virtues of breastfeeding).<sup>1</sup> Mendelsohn et al<sup>100</sup> showed that replaying videotapes in which parents served as their own role models and when aided by live professional commentary is an effective way to increase positive parent-child interactions.

#### Interactive Technology

Although videos continue to be a relatively affordable and easy method of delivering behavioral information, interactive approaches transform instruction from passive viewing to active engagement. Interactive technology includes computer-based tools (eg, Internet and Web-based programs, CD-ROM interventions using computers or touch-screen kiosks, voice-recognition systems, ie, telephony, personal digital

assistants, and interactive electronic medical records). An extended review by Glasgow et al<sup>101</sup> focused on health-related behavioral change, but the authors also described how technology can address developmental-behavioral interventions and both inform and enhance patient-clinician discussions. Some approaches enable families to complete assessments before an encounter and then families and providers receive advice on recommended approaches.<sup>102,103</sup> Clinicians can then reinforce the information families received. Kelleher and Stevens<sup>25</sup> described the use of touchpad computers or information centers in waiting rooms to overcome practice time constraints. For kiosk-style information centers, only minimal staff supervision may be needed for administering screenings or completing family history by interview. Such approaches engender individualized assessment and counseling during face-to-face visits.

### Interactive Computer-Based Training and Waiting-Room Kiosks

Among the technologies in greatest use are interactive waiting-room kiosks to provide patient education. A large clinical trial showed that 21 of 22 computer-based trainings produced positive results, including reduction in targeted symptoms or behaviors, improvements in patient knowledge and understanding of information, and high parent satisfaction rates.<sup>103</sup> Sanghavi<sup>97</sup> used a waiting-room kiosk as an interactive, self-guided, computerized delivery of tutorials providing anticipatory guidance and then assessed the impact on parents' knowledge. The intervention required no additional physician time and automatically printed a summary report for the medical record. Parents who completed the intervention showed superior knowledge of child development, behavior, and safety issues than did

**TABLE 5** Developmental-Behavioral Promotion Resources for Professionals

Textbooks	
Dixon S, Stein M. <i>Encounters With Children: Pediatric Behavior and Development</i> . 4th ed. Chicago, IL: Mosby-Year Book; 2005. Describes developmental-behavioral progress and issues well visit by well visit.	
Christophersen ER, Mortweet SL. <i>Parenting That Works: Building Skills That Last a Lifetime</i> . Washington, DC: APA LifeTools; 2003. Includes practical examples of positive disciplinary techniques across a range of common topics.	
Glascoe FP, Marks KP, Poon JK, Macias MM. <i>Identifying and Addressing Developmental-Behavioral Problems: A Practical Guide for Medical and Non-Medical Professionals, Trainees, Researchers and Advocates</i> . Nolensville, TN: PEDStest.com, LLC; 2013. Includes screening tools for psychosocial risk, resilience, and on its Web site, <a href="http://www.pedstest.com">www.pedstest.com</a> , downloadable age-specific encounter forms, and milestones checklists for teaching and learning.	
Parker S, Zuckerman BS, Augustyn M. <i>Developmental and Behavioral Pediatrics: A Handbook for Primary Care</i> . 3rd ed. Philadelphia, PA: Lippincott, Williams & Wilkins; 2011. Covers an enormous range of unique family and child issues, communication methods, resources for providers, etc.	
Web sites	
Teach-Back: <a href="http://www.teachbacktraining.com">www.teachbacktraining.com</a>	Free, interactive, online toolkit for clinicians, office staff, and others to confirm that health messages are understood by families.
Plain Language Medical Dictionary: <a href="http://itunes.apple.com">http://itunes.apple.com</a>	From the University of Michigan's Taubman Health Sciences Library, this free app converts medical language into everyday English.
Readability Formulas: <a href="http://www.readability-score.com">www.readability-score.com</a>	Enables clinicians to write, analyze, recraft, and retest (written) health care messages using a range of reading formulas.
Early Brain and Child Development: <a href="http://www.aap.org">www.aap.org</a> and <a href="http://developingchild.harvard.edu">http://developingchild.harvard.edu</a>	Explains transactional models of learning and development, translation of science into practice, guidelines for promoting resilience, relevant research, etc.
PEDStest.org: <a href="http://www.pedstest.org">www.pedstest.org</a>	The site houses training videos, training modules, and slide shows along with free downloadable measures of psychosocial risk, resilience, literacy, reviews of screening tests, information handouts for parents, well-visit templates, implementation guides for primary care, free downloadable 2-way consent forms, etc.
Wellness Proposals: <a href="http://www.wellnessproposals.com">www.wellnessproposals.com</a>	An information consolidator drawing from multiple federal sites, Wellness Proposals has a plethora of downloadable posters, information handouts, and a newsletter on health, mental health, etc. The site also addresses health care insurance issues while also providing comparative information about carriers and insurance quotes.
American Academy of Pediatrics (AAP): <a href="http://patiented.aap.org">http://patiented.aap.org</a>	A subscription-based site enabling providers to generate information handouts for parents, teenagers, and children on psychosocial care, health, and safety. The AAP main Web site, <a href="http://www.aap.org">www.aap.org</a> , offers purchasable child care books, videos, hand-held health records, and waiting-room magazines and includes a "pediatrician finder" by specialty and zip code.
Bright Futures: <a href="http://brightfutures.aap.org">http://brightfutures.aap.org</a>	Helps health care providers offer prevention-based, family-focused, and developmentally oriented care; Bright Futures also emphasizes partnerships among families, providers, and communities. The initiative includes books, newsletters, professional training, and videos for parents (and trainees) providing guidance across well visits in the birth to 16-year age range (eg, safety, socialization, school readiness, developmental promotion).
Healthy Steps: <a href="http://www.healthysteps.org">www.healthysteps.org</a>	Provides "how to's" on the teachable moment, training on adding a Healthy Steps specialist into primary care to optimally address and intervene psychosocial risk factors (along with information on practice reimbursement), guidance on training medical students and residents, and research on the effectiveness of Healthy Steps.
At Health: <a href="http://www.athealth.com">www.athealth.com</a>	Offers information for providers (and sophisticated parents) on an enormous range of health issues that often have mental health consequences (eg, acne, psoriasis) as well as issues such as bullying. The site includes downloadable handouts, newsletters, practitioner directories, treatment center directions, resource centers, and a bookstore.
First Signs: <a href="http://www.firstsigns.org">www.firstsigns.org</a>	This site is dedicated to educating professionals (and parents) about autism and other related disorders. The Web site includes guidance on screening, diagnosis, and treatment, and resources with links to the Autism Video Glossary showing side-by-side comparisons of typical and atypical development.
AAP Mental Health Initiatives: <a href="http://www.aap.org">www.aap.org</a>	

TABLE 5 Continued

Houses information from the AAP Mental Health Toolkit including a review paper called "Evidence-Based Child and Adolescent Psychosocial Interventions."
Motivational Interviewing: <a href="http://www.motivationalinterview.org">www.motivationalinterview.org</a>
Describes how to interview families in a way that encourages them to avoid substance abuse and comply with medication and treatment recommendations regarding obesity management, diabetes, and other health and mental health issues. Free downloadable worksheets and purchasable books are housed on the site.

a comparison group who received written information only.

Scholer et al<sup>95,96,98,99</sup> conducted numerous studies on "Play Nicely," an interactive DVD approach to managing children's aggression. Parents viewing the program (within which they can select specific topics of interest) were significantly more likely than controls to report better management of children's problematic behavior. Similarly, interactive programs significantly increased caregivers' knowledge of asthma and decreased children's asthma symptoms as well as emergency department visits.<sup>104–106</sup> The intervention was implemented without disruption of the regular visit flow, and the site, by identifying which parts of the program parents selected, provided feedback to providers who could then provide encouragement and redirection. Overall, the use of multimedia educational material along with clinician guidance appears to be a more effective means of affecting parents' skills than are physician-parent discussions alone, although clinicians' guidance and affirmation remain essential.<sup>95–99</sup>

### *Telephony, Telemedicine, E-mail, and Cell Phone Messages*

Automated phone calls, or telephone support services, and e-mails can be used not only for appointment reminders but also for reinforcing important health and safety messages, behavior intervention issues, and follow-up dates. Cell phone messaging (eg, Text4Baby, Baby Center) is another approach that sends texts on health, safety, and developmental promotion

based on the child's age. Text messages are helpful for augmenting face-to-face interactions with health care providers by repeating basic directives, which is essential for mastery of new information.<sup>78,107</sup> The Text4Baby cell phone text messaging service sponsored by the Maternal Health Bureau is 1 example. Low-income mothers are enrolled when their child is born and then receive age-paced safety, health, and developmental promotion messages. Among participating mothers, 63% reported that Text4Baby helped them remember an appointment or needed immunizations, 75% reported that Text4Baby messages informed them of medical warning signs they did not know, 71% reported talking to their doctor about a topic they had read in a Text4Baby message, and 38% reported they had called a service recommended by Text4Baby.<sup>78</sup> Meanwhile, telemedicine and nonautomated e-mails offer effective opportunities for personalized interaction with families.<sup>55,56,108</sup>

### **Following Up**

When providers communicate effectively with families (ie, use clear language, elicit and address parents' concerns, and provide practical examples relevant to children's ages), families are far more likely to act on recommendations. In 1 study, 94% of families who rated clinicians' skills as "excellent" on the above approaches followed through with suggestions. However, there is a precipitous drop in compliance (to 46%) when quality

ratings fall into the "good/fair/poor" range.<sup>50</sup> Even so, low-income and minority families are far less likely to follow advice. Regardless of socioeconomic status, recommendations about screen time, discipline, and sleep are implemented by only 13% to 46% of families. The brevity of developmental-behavioral promotion (eg, a few minutes once or twice a year) compounded by topic complexity shows the importance of checking with families on uptake (and having readily available alternative recommendations).

Similarly, when referrals are made (eg, after problematic performance on developmental-behavioral screening tests) not all families follow through, although this is more likely if parents' concerns are elicited and appointments made for families.<sup>38</sup> In all cases, families need to know that clinicians are willing to rediscuss issues and are prepared to help in other ways if problems persist.

Follow-up, whether to determine appointment keeping or effectiveness of advice, should occur in <3 months.<sup>46</sup> Considerations when families have not sought services or implemented advice include the following:

- Using motivational interviewing to encourage families to establish goals, plans, and time frames.<sup>46,47</sup>
- Asking whether parents' efforts actually worsened problem behaviors. Sometimes children engage in "response bursts," that is, escalating challenging behavior. Response bursts actually mean parents' new disciplinary methods are starting to work and that more time is needed.<sup>109</sup> In these cases, parents need encouragement to continue their efforts (together with professionals' suggestions on finding additional information and for updating providers [eg, in another 4–6 weeks]). Table 5 provides a list of professional resources on

developmental-behavioral promotion, and Table 6 lists resources for parents/patients.

- When parents have not tried or did not understand behavioral recommendations, more than brief interventions are required. Markers include parents with repeated behavioral concerns, those who are depressed or anxious or have other psychosocial risk factors such as limited literacy or major life stressors, and families who have a history of neglect or abuse (whether in the child's or the parents' own history). Table 7 provides a brief description of options for more intensive parent training.
- When parents do not follow through with referrals, readministration of developmental-behavioral screens is helpful as is facilitating follow-through (eg, by contacting referral sources for families, a process much aided if 2-way consent forms can be established).<sup>15,110–112</sup>

## DISCUSSION

Few parents are trained to do their most important job: raise their children well. Health care providers are often the only professionals in contact with families of young children and so preventive care visits must help parents with child-rearing, health and safety, and promoting optimal development. Open-ended questions and careful consideration of families' responses establish the collaborative relationship essential to quality care.<sup>113</sup> Thoughtful dialog culls topics to those focused on families' issues while establishing the "teachable moment" wherein parents and patients are most likely to benefit from clinicians' recommendations.<sup>21,31,34,35</sup>

But defining the visit agenda also depends on providers' own observations and ability to identify, with evidence, parents'/patients' challenges

**TABLE 6** Developmental-Behavioral Promotion Resources for Parents and Patients

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Cell phone apps	
Text4Baby (T4B): <a href="http://www.Text4Baby.org">www.Text4Baby.org</a>	T4B is a free cell phone text-messaging service sending crisp, age-paced messages on health, safety, and developmental-behavioral issues. For children birth through 36 months, parents who register can opt for texts in English or Spanish.
Parenting: <a href="http://www.parenting.com">www.parenting.com</a>	Searchable directory of guidance from pregnancy through school-age covering sleep, toileting, discipline, homework, and health issues including product recalls. Customizable by age and by uploading photos.
Web sites addressing common developmental-behavioral issues	
KidsHealth: <a href="http://kidshealth.org">http://kidshealth.org</a>	From the Nemours Foundation, this site has a well-visit guide for each age, anticipatory guidance information, and an easily searchable database for handouts (in English and Spanish) on health and safety, emotional and social development, and positive parenting for infants through adolescence.
American Academy of Pediatrics (AAP): <a href="http://www.healthychildren.org">www.healthychildren.org</a>	The AAP has numerous parent information handouts that can be downloaded without cost. Provides information on a variety of topics including health conditions, safety and prevention, and mental health issues from birth through adolescence.
American Psychological Association (APA): <a href="http://www.apa.org">www.apa.org</a>	The APA has a psychology help center that includes brochures (1 copy is free) and articles for a variety of situations including health and emotional wellness, work and school, and family and relationships. It has information on how to find a psychologist.
Mayo Clinic: <a href="http://www.mayoclinic.com">www.mayoclinic.com</a>	Easy-to-read information about various conditions including diseases and behavioral issues; useful for both providers and parents.
National Association of School Psychologists (NASP): <a href="http://www.nasponline.org">www.nasponline.org</a>	NASP provides handouts and materials in a variety of languages focused on resilience, school readiness, coping with crises, diversity, child behavior, etc. The site also explains the role of school psychologists and what to expect from a referral to public school special education services.
British Columbia Council for Families: <a href="http://www.bccf.bc.ca">www.bccf.bc.ca</a>	Provides advocacy and information focused in large part on family issues such as marital issues, divorce, cohesion, extramarital affairs, as well as child-rearing, especially raising adolescents. The site provides thoughtful articles (for providers and parents with good literacy skills) and a bookstore offering "Nobody's Perfect."
Center for Effective Parenting: <a href="http://www.parenting-ed.org">www.parenting-ed.org</a>	Funded by the US Department of Education, this site offers free downloadable information in Spanish and English on promoting academic skills, chores, selecting a day care center, dealing with a death in the family, self-esteem, television issues, etc.
Children and Youth Health: <a href="http://www.cyh.sa.gov.au">www.cyh.sa.gov.au</a>	Houses extensive information on health, development, and behavioral issues for young children through adolescence.
Patient/parent information in multiple languages	
Specific Patient Information in Asian Languages (SPIRAL): <a href="http://spiral.tufts.edu">http://spiral.tufts.edu</a>	Hosts parenting and health information in Cambodian, Laotian, Vietnamese, Chinese, Thai, Hmong, etc.
American Academy of Child and Adolescent Psychiatry: <a href="http://www.aacap.org">www.aacap.org</a>	One of the first professional organizations to develop downloadable handouts for families on such topics as divorce, sleep problems, specific mental health diagnoses, help for military families, and how and where to find a psychiatrist. Handouts are written in many different languages including Spanish, Malaysian, Urdu, Arabic, Icelandic, Polish, and Hebrew.
Raising Children: <a href="http://raisingchildren.net.au/">http://raisingchildren.net.au/</a>	Offers "parenting in pictures," videos on child-rearing in multiple languages and interactive videos on health, safety, recognition of infant cues, dealing with teenage behavior, etc.
Here to Help: <a href="http://heretohelp.bc.ca">http://heretohelp.bc.ca</a>	Focuses on substance abuse and mental health. Downloadable information is available in multiple languages including Russian, Chinese, Persian, Korean, French, Japanese, Punjabi, etc. The site also has wellness modules and links to other helpful resources.
Sites focused on specific skill-building or disabilities	
Reach Out and Read: <a href="http://www.reachoutandread.org">www.reachoutandread.org</a>	Offers parenting handouts on how to share books, literacy milestones, and guidance for professionals. Tabs within the site include Parents and Educators Home, Importance of Reading Aloud, Literacy Milestones, Reading Tips, Books for Children, and Books for Parents.
US Department of Education: <a href="http://www2.ed.gov/parents">www2.ed.gov/parents</a>	

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**TABLE 6** Continued

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Includes helpful guidance (in English and Spanish). This site provides guidance for families (in English and Spanish) on how to help their child learn to read, how to help with homework, how to collaborate with teachers, along with helpful information about selecting postsecondary schools and financial aid for college-age students.
Play Nicely: <a href="http://playnicely.vueinnovations.com">http://playnicely.vueinnovations.com</a>
Focuses on decreasing aggressive behavior. Parents take a pretest that identifies which among the 20 modules (eg, ignoring hurtful behavior, speaking angrily, or physical punishment) are most needed. The site has video clips, research, assessment tools for trainers, and ordering information.
Kentucky Center for School Safety: <a href="http://www.kysafeschools.org">www.kysafeschools.org</a>
Houses downloadable information on cyberbullying, sexting, Internet safety, social networks, gangs, etc.
Black Dog Institute: <a href="http://www.blackdoginstitute.org.au">www.blackdoginstitute.org.au</a>
Focused on depression and bipolar disorder, this site offers interactive tests, self-training information, charts for monitoring progress, fact sheets, etc.
National Dissemination Center for Children with Disabilities: <a href="http://www.nichcy.org">www.nichcy.org</a>
This site offers brief fact sheets on specific disabilities and offers tips for parents and teachers with links to related information and organizations with special expertise in that disability. It also has a Spanish version.
Adults and Children Together Against Violence: <a href="http://actagainstviolence.apa.org">http://actagainstviolence.apa.org</a>
The purpose of this site is to mobilize communities and educate families to create safe, nurturing, healthy environments that protect children and youth from violence. It includes a variety of resources: articles, books, handouts. These resources are available in English and Spanish.

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**TABLE 7** Parent Training Programs

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Positive Parenting Program (Triple P): <a href="http://www.triplep.net">www.triplep.net</a>
Children with behavioral difficulties present with elevated frequency to primary care. Triple P is designed to reduce visit length by offering 5 levels of intervention intensity, 3 of which can be carried out during well visits, including group well visits. Higher levels add social work and mental health services and are conducted apart from well visits. Triple P has well-constructed and tested materials, and abundant evidence of positive changes in parenting skills. The site includes key findings and references for >200 studies.
Incredible Years (IY): <a href="http://www.incredibleyears.com">www.incredibleyears.com</a>
Used in educational and health care settings, the program's goals are to prevent conduct problems, promote social competence, intervene in problematic parenting, reduce symptoms of attention-deficit/hyperactivity disorder, and build school readiness skills. Studies on IY are extensive and the site houses videos, research findings, and teaching materials.
Parents as Teachers (PAT): <a href="http://www.parentsasteachers.org">www.parentsasteachers.org</a>
One of the largest nationwide parenting education organizations, PAT offers parents of young children access to monthly home visits and group visits conducted by trained parent educators who provide guidance on child development and ways to encourage learning. Research (listed on the Web site) indicates particular effectiveness with low-income, American-Indian, and Spanish-speaking families.
Systematic Training for Effective Parenting (STEP): <a href="http://www.steppublishers.com">www.steppublishers.com</a>
STEP offers training for parent educators in use of its 9-week group education program and relies on well-written, easy-to-read books along with multimedia approaches. There are unique versions focused on teenagers, early youth, Christian families (Bible STEP), and Spanish-speakers (Next STEP). Leadership training covers discrete issues such as "Understanding Yourself and Your Child," "Understanding Beliefs and Feelings," "Encouraging Your Child and Yourself," "Listening and Talking to Your Child," and "Helping Children Learn to Cooperate, Discipline that Makes Sense." Research on STEP is reasonably extensive and shows program effectiveness particularly with middle- and upper-income families.
Parents Anonymous (PA): <a href="http://www.parentsanonymous.org">www.parentsanonymous.org</a>
One of the largest national and international self-help organizations, PA is designed to break the cycle of child abuse by providing "safe, supportive weekly meetings where parents under stress can discuss their problems with their peers and with trained volunteer professionals." PA groups are cofacilitated by volunteer human service professionals called "sponsors," along with a parent member or chairperson for each group. After joining, members receive a handbook explaining the goals of PA, its basic guidelines for operation, information about anger management, a needs assessment, and a list of other members' telephone numbers. The site includes research findings on effectiveness in reducing physical and verbal abuse.
Home visiting programs
Home visiting programs have proven effectiveness especially when using evidence-based curricula aimed at a targeted group (eg, low-income adolescent mothers). Because these initiatives are rare (at least in the United States), we provide links to 2 programs worth exploring for local availability: <a href="http://www.strengtheningfamilies.org">www.strengtheningfamilies.org</a> and <a href="http://www.parentsasteachers.org">www.parentsasteachers.org</a> .

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and unique learning needs, that is, children's developmental-behavioral/mental health status, family psychosocial risk and resilience factors, primary language(s) spoken, and the amount and type of repetition required to ensure families leave encounters comprehending the instructions given. Also essential is an understanding of cultural diversity and competence in working with families of varying ethnic and social backgrounds. The professional resources list (Table 5) includes resources and further reading in cultural competence, along with links for evidence-based measurement of developmental-behavioral status, risk, and resilience.

Current technologies offer customized interactive approaches to patient education that enhance learning. Multimedia methods are engaging, vivid, and, like a riveting movie, stick in the memory for a long while. But even simple approaches such as written handouts provide an opportunity for parents to reread and thus reinforce learning. It is wise to share Web sites and written information even if parents do not read well or lack Internet access. Almost all parents will find a way to make sense of the information shared by providers, but some families need more help learning than others.

Whatever methods are used, these need to be accompanied by providers' verbal approval and highlighting of contents. Clinicians' advice is powerful and confers enormous credibility on the services and information recommended. Not every problem can be solved with brief recommendations because some parenting challenges are complex and need to be backed by other opportunities to learn, including hands-on parent training and interventions aimed at children's development and behavior/mental health. But even so, families benefit greatly when providers offer a verbal overview of recommendations

and facilitate any needed referrals. Nevertheless, clinicians should proceed with the humble recognition that brief primary care interventions may be insufficient for new learning and that monitoring outcomes is essential (eg, whether appointments were kept, parents/patients actually deployed instructions) to determine needs for alternative strategies and interventions. Ideally, clinics should become learning centers where families come to understand that health care is also about development and behavior, where families are prompted to identify issues

of interest (and providers notice any problems parents have yet to recognize), where families receive good advice and information about community resources, and where they potentially can make use of a lending library or take parenting classes. Care coordination via the many available models (eg, Medical Home, Healthy Steps, Bright Futures, Help Me Grow) is invaluable for families and helps providers recognize that effective parent/patient education often depends on collaboration with nonmedical services.<sup>4,114</sup>

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