

Early Detection of Developmental and Behavioral Problems

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OBJECTIVES:

After completing this article, readers should be able to:

1. List the percentage of children who drop out of school and have undetected disabilities or known environmental risk factors.
2. Describe the ways in which early intervention is effective.
3. Delineate methods of detecting disabilities and development delays.
4. Describe the percentage of children in whom assessment tools can detect disabilities correctly.
5. Determine how often children should undergo developmental testing.
6. Describe the role of parents in detecting and addressing developmental and behavioral problems.

Epidemiology and Issues for Clinicians

Approximately 15% to 18% of children in the United States have developmental or behavioral disabilities. An additional 7% to 10% experience substantive school failure and drop out before completing high school. Overall, one in four children has serious psychosocial problems. To ensure that these children are detected early and their difficulties addressed, the American Academy of Pediatrics' Committee on Children with Disabilities recommends that pediatricians use validated screening tools at each health supervision visit.

Many pediatricians find it difficult to comply with this recommendation because of minimal reimbursement, young patients' limited compliance with requests to stack blocks or answer questions, time constraints, and concerns about the accuracy and length of well-known screening tools. Finally, children who are at environmental risk for developmental delays and subsequent school failure due to poverty, limited parental education, and similar risk factors do not always receive health supervision visits. Accordingly, they are unavailable at times when pediatricians typically are most vigilant in their search for developmental problems.

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UNDERDETECTION

Most physicians depend on clinical judgment rather than screening tools. Unfortunately, research shows that clinical judgment detects fewer than 30% of children who have mental retardation, learning disabilities, language impairments, and other developmental disabilities. Clinical judgment also identifies fewer than 50% of children who have serious emotional and behavioral disturbances. Use of improved classification systems, such as the Primary Care version of the American Psychiatric Association's *Diagnostic and Statistical Manual (DSM-PC)*, may lead to higher identification rates, although research on this possibility is needed.

Why is the identification of psychosocial problems so poor? One culprit may be the developmental checklists typically embedded in pediatric encounter forms. Although these contain different tasks for patients of different ages, checklists are neither validated nor standardized. None provides proof that specific items measure important skills, and none has scoring criteria that enable clinicians to determine how many failed items is too many. Should the child who misses one out of the typically four or five tasks listed (eg, puts two words together, stands on one foot for 10 seconds) be referred? Two of five? Three of five? No one knows. Physicians never would use such haphazard and unproven methods for screening

blood lead levels, thalassemia, or hypothyroidism. Why do we accept less for development and behavior?

Even when screening tests are used, many clinicians administer them only after noticing a problem, rather than using them with asymptomatic patients, as recommended. Other contributions to limited detection include nonstandardized applications of standardized measures, such as administration of only selected items on the Denver Developmental Screening Test-II. These violations to test validity also may leave professionals without clear information on children's developmental and behavioral status.

THE CONTRIBUTION OF DEVELOPMENT

The nature of developmental problems adds to the challenges of early detection. Young children's symptoms are often subtle and difficult to discriminate from normal development. For example, most children who have disabilities talk, but they may not talk well. They usually read, but may not read well. Similarly, a child who has serious attentional or behavioral problems may be obedient and focused during a brief office visit. Few children who have disabilities are dysmorphic or show other symptoms likely to be apparent on physical examination.

Development is also a "moving target." Developmental disabilities develop just as normal development does. It is impossible to determine that a 12-month-old child has a language impairment until vocabulary or word combinations fail to emerge or emerge only in an attenuated state. Learning disabilities and attention deficit disorder rarely are detected until 4 to 7 years of age, when children initially are exposed to reading instruction and other structured academic tasks. Not apparent until 2 to 3 years of age is the adverse impact of environmental risk factors, including single parenthood, less than a high school education for the parent, limited social

support, parental mental health problems (eg, depression), poverty, frequent life events (eg, household moves), more than three children in the home, an authoritarian parenting style in which children are the recipients of abundant commands but little conversation, and minority status.

The Value and Availability of Early Intervention

Early intervention is effective because development is malleable and readily affected by the environment. In large part, early intervention works by systematically removing external risk factors. Early intervention programs place children in developmentally enriching settings, train parents in responsiveness and effectiveness, and provide continuous positive redirection and focused building of skills.

Two years of intervention prior to kindergarten produces substantial economic, academic, and social benefits and saves society between \$30,000 and \$100,000 per child (see Meisels and Shonkoff in Suggested Reading for additional information). Children receiving early intervention are more likely to complete high school, maintain jobs, live independently, and avoid teen pregnancy and criminality. Recognizing these positive outcomes, Congress enacted the Individuals with Disabilities Education Act, which ensures the national availability of early intervention and public school special education for children up to age 22 who either have disabilities or have a high degree of biologic risk. Children at environmental risk typically are not eligible for these programs, but they are served by other federally funded services, such as Chapter I, Head Start, and other developmental stimulation programs.

The benefits of early intervention clearly depend on early detection, which requires that clinicians know how to identify accurately patients who have disabilities. Because time and reimbursement are limited, clinicians also should know how to identify patients quickly. Fortunately, a number of recently published measures offer both accuracy and brevity.

Standards for Developmental/Behavioral Screening Measures

Hundreds of assessment measures are on the market in the United States, and their publication is an unregulated industry in which no governmental agencies or scholarly societies prevent tests of poor quality from being advertised and sold. Accordingly, clinicians must be familiar with standards for screening measures so they can select tools that have appropriate levels of accuracy. Such tests bear the burden of proof that the majority of children who do or do not have problems will be identified correctly.

Because of the malleability and age-related manifestations of development, standards for developmental/behavioral screening tests are somewhat lower than is accepted for medical screens. Even so, good developmental/behavioral tools have sensitivity to psychosocial problems of 70% to 80% and specificity to normal development of 70% to 80%. Although 20% to 30% of children will be over-referred, false-positive identifications often are children whose intellectual, language, or academic skills are below average. These children may not qualify for special education, but they still need unique care from clinicians (eg, their parents will benefit from suggestions for developmental promotion and children will benefit from Head Start or other developmental stimulation programs, summer school, tutoring, and vigilant clinical monitoring to detect emerging disabilities). The 20% to 30% of children who have disabilities and are not detected by the single administration of a screening measure are likely to be identified subsequently if clinicians comply with the recommendation of the Committee on Children with Disabilities and screen development repeatedly at all health supervision visits.

The Value of Tools Relying on Information from Parents

The most effective tools for use in primary care are those that rely on information from parents. Parent-based tools eliminate the need to obtain cooperation from children

who are noncompliant, afraid, asleep, or even sick. Such tests can be completed in waiting rooms, sent home in preparation for a follow-up appointment, or administered by interview or over the telephone when illiteracy is likely or when families do not make regular health supervision visits. Many parent-based tools are published in Spanish and other languages. Most screens relying on information from parents are far briefer than tools that elicit children's skills directly and can be equally accurate. Finally, some measures have options for directly eliciting skills from children when communication between parent and provider is problematic (eg, new foster parents or nonprimary caretakers who may not know much about the child).

The question has been raised whether information from parents can be trusted. What about parents who are less educated, live in isolated rural areas, have little parenting experience, or appear highly anxious or depressed? Research shows that almost all parents, if presented with well-constructed questions, can give accurate information about their child, regardless of differences in socioeconomic status, geographic location, or parental well-being. One of the reasons is that parents usually derive their responses by comparing their child to others, often while waiting for pediatric care. Comparison is a simple intellectual task, which seems to explain why almost all parents can provide quality information about their children. Nevertheless, parents who have limited education often have limited literacy, and they may respond randomly to questionnaires or omit many items. To circumvent this, it always is wise to ask parents before giving them forms whether they would like to complete measures on their own or have someone go through them with them.

Developmental and Behavioral Screening Tools for Primary Care

Several high-quality tools relying on parent report (descriptions of children's behavior, skills, and environments) are described in Table 1. All

TABLE 1. Accurate Developmental and Behavioral Screening Tests That Rely on Information From Parents

SCREENS	AGE RANGE	DESCRIPTION	SCORING	ACCURACY*	TIME FRAME
Developmental Child Development Inventories (formerly Minnesota Child Development Inventories) Behavior Science Systems Box 580274 Minneapolis, MN 55458 612-929-6220 (\$41.00)	3 to 72 mo	Three separate instruments, each having 60 yes-no descriptions. Can be mailed to families, completed in waiting rooms, or administered by interview or by direct elicitation. A 300-item assessment- level version may be useful in follow-up studies or subspecialty clinics and produces age- equivalent and cutoff scores in each domain.	A single cutoff tied to 1.5 standard deviations below the mean.	Sensitivity in detecting children who have difficulties is excellent (greater than 75% across studies), and specificity in correctly detecting normally developing children is good (70% across studies).	About 10 min
Ages and Stages Questionnaire (formerly Infant Monitoring System) Paul H. Brookes, Publishers PO Box 10624 Baltimore, Maryland 21285 1-800-636-3775 (\$130)	0 to 60 mo	Clear drawings and simple directions help parents indicate children's skills. Separate copyable forms of 10 to 15 items for each age range (tied to health supervision visit schedule). Can be used in mass mail-outs for child-find programs.	Single pass/fail score.	Sensitivity ranges from 70% to 90% at all ages except the 4-month level. Specificity ranges from 76% to 91%.	About 7 min
Parents' Evaluations of Developmental Status (PEDS) Ellsworth & Vandermeer Press, Ltd. PO Box 68164 Nashville, TN 37206 Phone: 615-226-4460 Fax: 615-227-0411 http://www.pedstest.com (\$38.99 English materials)	Birth to 8 y	10 questions eliciting parental concerns. Waiting room, interview, and Spanish versions. Written at the 5th grade level. Identifies when to refer; provide a second screen; counsel; or monitor development, behavior, and academic progress.	Identifies when to refer, screen, counsel, reassure, or monitor more vigilantly.	Sensitivity ranging from 74% to 79% and specificity ranging from 70% to 80% across age levels.	About 2 min

Table 1. Accurate Developmental and Behavioral Screening Tests That Rely on Information From Parents—Continued

SCREENS	AGE RANGE	DESCRIPTION	SCORING	ACCURACY*	TIME FRAME
<p>Behavioral/Emotional Eyeberg Child Behavior Inventory Psychological Assessment Resources P.O. Box 998 Odessa FL 33556 1-800-331-8378 (\$63.00)</p>	<p>2½ to 11 y (best used to age 4)</p>	<p>A total of 36 short statements of common behavior problems. More than 16 suggests referral for behavioral interventions. Fewer than 16 enables the measure to function as a problems list for planning in-office counseling and selecting handouts.</p>	<p>Single refer/nonrefer score for externalizing problems (eg, conduct, attention, aggression).</p>	<p>Sensitivity 80%, specificity 86%.</p>	<p>About 7 min</p>
<p>Pediatric Symptom Checklist Jellinek MS, Murphy JM, Robinson J, et al. Pediatric Symptom Checklist: Screening school age children for psychosocial dysfunction. <i>J Pediatr.</i> 1998;112:201–209 (the test is included in the article) and in the book <i>Collaborating With Parents</i> Ellsworth & Vandermeer Press, Ltd. PO Box 68164 Nashville, TN 37206 Phone: 615-226-4460 Fax: 615-227-0411 (\$69.99)</p>	<p>4 to 16 y</p>	<p>35 short statements of problem behaviors, including both externalizing (conduct) and internalizing (depression, anxiety, adjustment). Ratings of never, sometimes, or often are assigned a value of 0, 1, or 2. Scores totaling 28 or more suggest referrals. Item patterns can help decide whether mental health services (best for internalizing disorders) or behavior interventions (for externalizing disorders) are needed.</p>	<p>Single refer/nonrefer score, although forthcoming research may illustrate how to identify children who have depression from those who have conduct and attentional problems.</p>	<p>All but one study showed high sensitivity (80% to 95%), but somewhat scattered specificity (68% to 100%).</p>	<p>About 7 min</p>
<p>Family Psychosocial Screening. Kemper KJ, Kelleher KJ. Family psychosocial screening: instruments and techniques. <i>Ambul Child Health.</i> 1996;4:325–339 (the measures are included in the article) and in the book <i>Collaborating with Parents</i> Ellsworth & Vandermeer Press, Ltd. PO Box 68164 Nashville, TN 37206 Phone: 615-226-4460 Fax: 615-227-0411 (\$69.99)</p>	<p>Screens parents and is best used along with the previously listed screens.</p>	<p>A two-page clinic intake form that identifies psychosocial risk factors associated with developmental problems, including: a four-item measure of parental history of physical abuse as a child, a six-item measure of parental substance abuse, and a three-item measure of maternal depression.</p>	<p>Refer/nonrefer scores for each risk factor.</p>	<p>All studies showed sensitivity and specificity to larger inventories greater than 90%.</p>	<p>About 15 min</p>

*Sensitivity is the percentage of children correctly detected who have problems. Minimum standards for sensitivity are 70% to 80%. Specificity is the percentage of children correctly detected who have no problems. Minimum standards for specificity are 70% to 80%.
 Adapted with permission from Glascoe FP, Collaborating with Parents: Using Parents' Evaluation of Developmental Status to Detect and Address Developmental and Behavioral Problems in Children. Nashville, Tenn: Ellsworth & Vandermeer Press, Ltd; 1998.

meet standards for screening test accuracy, and all take 10 or fewer minutes to complete. One of the tools is the standard clinic intake form used at the University of Washington in Seattle. It detects environmental risk factors for developmental problems, such as limited parental education, parental mental health problems (including depression), history of abuse as a child (which is associated with too permissive or too punitive parenting), limited social support, and substance abuse. Imbedded within the form are questions about parental interest in seeking services for these problems, which makes it easier for clinicians to offer focused in-office counseling and referrals. The children of these parents may be identified by developmental/behavioral screening measures, but identifying children who have a high degree of environmental risk helps clinicians know when to suggest developmental stimulation activities and other services (eg, Head Start, quality child care, family training, and social work/mental health intervention).

The Parents' Evaluation of Developmental Status (PEDS) was developed out of four cross-validation studies on a nationally representative sample of families. This tool is especially useful in primary care because it is brief and makes use of parents' concerns or judgments about their child's developmental and behavioral status. Probabilities of disabilities are assigned to parental complaints. This information, which takes about 2 minutes to elicit and interpret, enables physicians to determine the need to refer and where, when to provide advice about child-rearing and developmental stimulation, when to provide reassurance, when children should be monitored more vigilantly, and when additional screening is needed. Thus, this evidenced-based triage tool and guidance system helps to manage a wide range of psychosocial issues that arise in pediatric offices while also offering a high degree of accuracy in selecting among the many possible responses to parental complaints. A completed PEDS response form is presented in Figure 1.

PEDS RESPONSE FORM

Child's Name Billy Merris Parent's Name Linda Merris
 Child's Birthday 4/17/94 Child's Age 3 Today's Date 4/27/97

1. Please list any concerns about your child's learning, development, and behavior.
As I said, I don't think he talks as well as he should for his age. Otherwise, he's just a great little boy, very loving, watches everything carefully. Figures things out quickly. Very bright!

2. Do you have any concerns about how your child talks and makes speech sounds?
 Circle one: No Yes **A little** COMMENTS:
He's kind of quiet and doesn't say very much. Seems to prefer watching to interacting.

3. Do you have any concerns about how your child understands what you say?
 Circle one: **No** Yes A little COMMENTS:

4. Do you have any concerns about how your child uses his or her hands and fingers to do things?
 Circle one: **No** Yes A little COMMENTS:

5. Do you have any concerns about how your child uses his or her arms and legs?
 Circle one: **No** Yes A little COMMENTS:

6. Do you have any concerns about how your child behaves?
 Circle one: **No** Yes A little COMMENTS:

7. Do you have any concerns about how your child gets along with others?
 Circle one: **No** Yes A little COMMENTS:

8. Do you have any concerns about how your child is learning to do things for himself/herself?
 Circle one: **No** Yes A little COMMENTS:

9. Do you have any concerns about how your child is learning preschool or school skills?
 Circle one: **No** Yes A little COMMENTS:

10. Please list any other concerns.
None.

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FIGURE 1. Sample PEDS response form.

Use of the PEDS

CLINICAL ADVANTAGES

Although many clinicians routinely ask questions not unlike those presented in PEDS, research shows that parents do not respond well to alternative wordings. For example, "Do you have any worries about your child's development?" is not effective because only 50% of parents understand the word "development" and because the word "worries" is too onerous. Parents do not always respond the first time they are asked about their concerns. Across several studies, about 40% of parents reported having concerns but not sharing them with their child's clinician. Finally, when parents do

respond to informal questions about concerns, they are not always fully prepared to discuss them. Parents, unlike professionals, may not think about development as a series of domains (eg, expressive and receptive language, fine and gross motor, personal-social). For these reasons, PEDS gives parents multiple opportunities to express their concerns and prompts them to consider how their children are doing in each area. This helps the parent who initially complains about obedience, for example, to consider whether the child hears well enough; has the motor skills, memory, or attention to comply with requests; or has the language skills to understand what he or she was asked to do.

PEDS also provides much-needed guidance on scoring and interpreting parents' concerns. For example, many parents present their concerns tentatively (eg, "I used to be worried, but I think he's doing better now" or "She's my first, so I'm not really sure but . . ."). Research shows that unless such responses are categorized as concerns, developmental delays will be underdetected. Interpretation of parents' concerns also is challenging because only some concerns are strong predictors of problems. Further, the predictive concerns change according to the age of the child. To account for this, PEDS includes a longitudinal score form that illustrates the changing nature of predictive concerns and includes a column for each age at which the American Academy of Pediatrics recommends a health supervision visit. The PEDS score form then directs clinicians to one of five paths on the PEDS Interpretation Form (Fig. 2). The interpretation form provides a single continuous record of developmental/behavioral surveillance, anticipatory guidance, and developmental promotion efforts.

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PEDS AND PROBABILISTIC DECISION-MAKING

Path A (Fig. 2) is followed when parents have two or more checks in the shaded boxes, which indicate that there are multiple significantly predictive concerns. Their children have 20 times the risk of disabilities compared with children whose parents do not have concerns, and almost 70% of affected children meet criteria for special education services or perform below average in language, intelligence, and academics. Referrals for diagnostic evaluations are needed, and further screening should be avoided because it leads to under-referrals.

The PEDS interpretation form also helps test users decide on the necessary broad types of evaluations. Almost 80% of children requiring audiologic and speech-language evaluations to determine eligibility for special services have parents who raise two or more concerns about receptive language, school, social, or self-help skills. More than 70% of children whose parents raise two or more concerns in other areas need an assessment by a psychologist or educational diagnostician (who can give educational or adaptive behavior measures) to determine eligibility. Even with this referral guidance, clinicians should use their judgment to decide if mental health services, occupational or physical therapy, Head Start, or other interventions also are needed.

Path B is followed when parents have a single significant concern (65% of the time parents are concerned about expressive language

Child's Name Billy Morris

PEDS INTERPRETATION FORM

Path A: Two or more significant concerns? **Yes** → Two or more concerns about self-help, social school, or receptive language skills?

Yes → Refer for audiological and speech-language testing. Use professional judgment to decide if referrals are also needed for social work, occupational/physical therapy, mental health services, etc.

No → Refer for intellectual and educational evaluations. Use professional judgment to decide if speech-language, audiological, or other evaluations are also needed.

Path B: One significant concern? **Yes** → Screen or refer for screening.

If screen is passed, counsel in areas of concern and watch vigilantly.

If screen is failed, refer for testing in area(s) of difficulty.

Path C: Nonsignificant concerns? **Yes** → Counsel in areas of difficulty and follow up in several weeks.

If unsuccessful, screen for emotional/behavioral problems and refer as indicated. Otherwise refer for parent training, behavioral intervention, etc.

Path D: Parental difficulties communicating? **Yes** → Foreign language a barrier?

No → Use a second screen that directly elicits children's skills or refer for screening elsewhere.

Yes → Use foreign language versions, send PEDS home in preparation for a second visit, seek a translator, or refer for screening elsewhere.

Path E: No concerns? **Yes** → Elicit concerns at next checkpoint.

No → Use PEDS between checkpoints (e.g. sick- or return-visit).

Specific Decisions

0-4 mos. _____

4-6 mos. _____

6-12 mos. _____

12-15 mos. _____

15-18 mos. _____

18-23 mos. _____

2 yrs. _____

3 yrs. Sent home with PDI to return 4/28

4/28: passed counseled no re: S&L return

4-4 1/2 yrs. _____

4 1/2-6 yrs. _____

6-7 yrs. _____

7-8 yrs. _____

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FIGURE 2. Sample PEDS interpretation form.

skills). Their children have eight times the risk of disabilities; 46% have either disabilities or below-average achievement. Although it is possible to refer this entire group for diagnostic testing because of their moderate but not high rate of disabilities, over-referrals can be reduced by administering a second developmental screening test. The results of screening tests are used to determine which children need referrals for developmental evaluations and which children and parents need suggestions for promoting development.

Busy clinicians may wish to refer to the public schools or to child-find services for additional screening or they can send families home with one of the other tools listed in Table 1 in preparation for a follow-up appointment. Research showed that many children in Path B who received passing scores on screening still performed in the below-average range on diagnostic measures. This suggests that children in Path B (and Path A) who are found ineligible for early intervention programs should be enrolled in early stimulation programs or quality preschools if possible to prevent potentially emerging problems. Otherwise, the development of children on Path B should be monitored frequently (eg, twice a year) because of their continuing risk for delays and emerging problems. Their parents also should be advised about techniques for stimulating areas of development critical for school success, such as language and cognitive skills.

Path C is followed when parents have nonsignificant concerns (83% of the time these are about behavior). Their children have only 1.3 times the risk of developmental problems (7%). Administering additional developmental screening tests to this group produces excessive over-referrals (because the error inherent in screening is compounded for very low or very high prevalence samples). This suggests that the best

response is to advise parents about behavior management and discipline. However, families who do not respond well to brief advice may have children who have undiagnosed mental health problems. In such cases, behavioral/emotional screening can help identify which children need referrals for mental health services. Several such screens, again relying on information from parents, are listed in Table 1. Families whose children pass such screening but continue to demonstrate problematic behavior need referrals for somewhat less intensive services, such as parent training classes or behavior intervention programs.

Path D is followed when parents have no concerns, but there are obvious communication barriers, such as speaking a foreign language not spoken by the clinician or appearing to have mental health or language impairments. Their children have almost five times the risk of disabilities; 54% either meet criteria for special education services or are below average in intelligence, language, or academic skills. Due to this moderate level of risk for disabilities and academic difficulties, additional screening is needed (preferably with measures in which children's skills are elicited directly rather than via a screening test relying on parental report). Clinicians may find it most effective to refer this group to the public schools or to child-find services for additional screening because translators or social workers are more likely to be available. Children who fail screening and are referred for diagnostic testing but who are found not to qualify for programs require vigilant observation, and their parents need suggestions for promoting development. These children have a high likelihood of below-average intellectual, linguistic, or academic performance and a high concomitant risk for school failure. After-school literacy programs, summer school, and tutoring also may be needed.

Path E is followed when parents have no concerns and no apparent communication barriers. Only 5% of these children have disabilities, and only 11% score below average. Additional screening is not needed because it leads to excessive over-referrals. Reassuring parents that their child appears to be developing normally and providing routine monitoring during subsequent health supervision visits appear sufficient for this group.

Summary

There are many approaches to organizing pediatric offices so that screening tests can be used effectively for detection of problems and monitoring and counseling families. Table 2 lists methods that many pediatricians and residents have found effective and efficient. By following some of these suggestions and using one or more parent-based tools, clinicians should be able to detect and address children's psychosocial problems quickly and accurately while maintaining patient flow and working within the time constraints of primary care. Such efforts will have substantial long-term impact on the developmental and behavioral health of pediatric patients and their families.

SUGGESTED READING

- Glascoe FP. *Collaborating with Parents: Using Parents' Evaluation of Developmental Status to Detect and Address Developmental and Behavioral Problems in Children*. Nashville, Tenn: Ellsworth & Vandermeer Press, Ltd; 1998
- Meisels SJ, Shonkoff JP, eds. *Handbook of Early Childhood Intervention*. Cambridge, England: Cambridge University Press; 1990
- Parker S, Zuckerman B, eds. *Behavioral and Developmental Pediatrics: A Handbook for Primary Care*. Boston, Mass: Little Brown & Company; 1995
- Wolraich ML, ed. *Disorders of Development and Learning: A Practical Guide to Assessment and Management*. 2nd ed. St. Louis, Mo: Mosby-Year Book, Inc; 1996

TABLE 2. Organizing Pediatric Offices for Developmental/Behavioral Promotion and Detection*

1. Ask parents to complete parent-report instruments while in waiting or examination room.
2. To avoid incomplete, incorrect, or nonreturned parent report screens, ask parents if they would like to complete the measure on their own or have someone go through it with them. Almost all poor readers will select the latter.
3. Consider mailing parent-report tests in advance of health supervision visits so that physicians need only score and interpret during the visit. This often improves the quality of parental report because it allows families sufficient time to respond more thoughtfully. Advance mailings also are helpful with families whose English is limited because they usually can find someone in the community to help translate items.
4. Set up a return visit devoted to screening when developmental concerns are raised unexpectedly toward the end of an encounter. A similar alternative is to have office staff call families after such an encounter and administer a screen over the telephone.
5. Tape-record directions and items on parent-report instruments and use simplified answer sheets to circumvent illiteracy. This may be particularly helpful for parents whose primary languages are not spoken by office staff. Refugee resettlement workers may be able to assist in producing foreign language translations.
6. Train office staff to administer, score, and even interpret screening tests.
7. Pool resources with partners so that the practice can hire a developmental specialist to administer screening tests (and perhaps provide parent counseling, run parent training groups, assist with group health supervision visits, diagnostic evaluations, and referrals).
8. Recruit education majors or train volunteers to administer screening tests periodically and set a regular screening day in your office.
9. Maintain a current list of telephone numbers for local service providers (eg, speech-language centers, school psychologists, mental health centers, private psychologists and psychiatrists, parent training classes). The availability of brochures describing services may promote parental follow-through on referral suggestions. The following Website lists child-find/disabilities coordinators state by state: http://www.nectas.unc.edu/
10. Encourage professionals involved in hospital-based care (eg, child-life workers) to screen patients.
11. Collaborate with local service providers (eg, child care centers, Head Start programs, public health clinics, department of human services workers) to establish community-wide child-find programs that use valid, accurate screening instruments.
12. Keep parent information sheets handy. My clinic keeps them in plastic binders (so that originals are not lost). When an issue arises, I retrieve the original handout, copy it, read it on the way back to the examination room (to refresh myself on the contents), and go through the highlights with parents. Good sources for parent information include: <ul style="list-style-type: none"> • Barton Schmitt. <i>Instructions for Patient Education</i>. (W.B. Saunders Co., Independence Square West, Philadelphia, Pa 19106) • Wyckoff and Unell. <i>Discipline Without Shouting or Spanking</i>. (Simon & Schuster, 1230 Avenue of the Americas, NY, NY 10020) • Downloadable handouts from the American Academy of Child and Adolescent Psychiatry at http://www.aacap.org/web/aacap/factsFam/. These include 51 fact sheets written in Spanish, French, and English on such topics as divorce, disaster recovery, how to choose a psychiatrist. • Downloadable handouts from the Ambulatory Pediatric Association for developmental promotion and other nonmedical issues at http://www.ambpeds.org/ParentHandouts/APAHandoutsTOC.html
13. Use screens as designed, adhering to standard wording, scoring, and decision-making. Violating test standardization decreases validity and increases the likelihood of underdetection.
14. It is possible that experienced pediatricians memorize test items and internalize norms, which may lead them to rely heavily on clinical judgment. Because human reasoning is not infallible and judgment can drift over time, professionals should test their decisions periodically by comparing them with the results of standardized screening tests.
*Adapted with permission from Glascoe FP, Collaborating with Parents: Using Parents' Evaluation of Developmental Status to Detect and Address Developmental and Behavioral Problems in Children. Nashville, Tenn: Ellsworth & Vandermeer Press, Ltd; 1998.

PIR QUIZ

*Quiz also available online at
www.pedsinreview.org.*

9. The prevalence of developmental or behavioral disabilities in the United States is approximately:
 - A. 1% to 5%.
 - B. 5% to 10%.
 - C. 15% to 20%.
 - D. 25% to 30%.
 - E. 35% to 40%.
10. A major barrier preventing consistent developmental/behavioral screening at health supervision visits is a lack of:
 - A. Adequate reimbursement for screening.
 - B. Intervention programs for referral once a delay is found.
 - C. Parental concerns about developmental and behavioral issues.
 - D. Professional interest by the clinician.
 - E. Reliable screening tests.
11. When physicians rely on their own clinical judgment to detect developmental disabilities, their accuracy rate has been shown to be:
 - A. less than 10%.
 - B. 20% to 30%.
 - C. 40% to 50%.
 - D. 60% to 70%.
 - E. better than the detection rate of behavioral problems.
12. A *true* statement about strategies for detecting developmental disabilities is that:
 - A. A diagnostic developmental evaluation should be performed on all children living in high-risk environments.
 - B. A physical examination to search for dysmorphic features is more helpful in detecting subtle developmental problems than are screening tests.
 - C. Developmental surveillance is necessary only in those children who are at biologic and environmental risk for a developmental disorder.
 - D. Screening tests are used best in children whose parents already have a concern about developmental or behavioral issues.
 - E. Screening tests are designed to be applied to all children in a clinical practice.
13. "Early intervention," defined as developmental intervention in children ages birth to 3 years who have disabilities,:
 - A. Has never been shown to be effective.
 - B. Is financially dependent on parent fees.
 - C. Is mandated by public law.
 - D. Is not yet available in most communities.
 - E. Usually is hospital-based.
14. Parental concerns about their child's development:
 - A. Are not influenced by parental mental illness.
 - B. Are usually accurate.
 - C. Do not need to be validated with a diagnostic evaluation.
 - D. Need not be taken seriously.
 - E. Will always be expressed regardless of the manner in which questions are asked.
15. A helpful practice that will facilitate efficient developmental/behavioral screening is to:
 - A. Abandon screening after the child has passed three consecutive tests.
 - B. Defer screening of all children to a developmental specialist.
 - C. Rely solely on testing performed in a health clinic environment.
 - D. Train office staff to administer, score, and interpret screening tests.
 - E. Use only those portions of a screening test that relate directly to the parent's concern.

Untreated behavioural disorders in children may mean they grow up to be dysfunctional adults.Â Temperament â€“ children who are difficult to manage, temperamental or aggressive from an early age are more likely to develop behavioural disorders later in life. Family life â€“ behavioural disorders are more likely in dysfunctional families. For example, a child is at increased risk in families where domestic violence, poverty, poor parenting skills or substance abuse are a problem. Learning difficulties â€“ problems with reading and writing are often associated with behaviour problems. Intellectual disabilities â€“ children with intellectual disabilities are twice as likely to have behavioural diso Behavior problems in preschool children: Clinical and developmental issues. New York: Guilford Press. Campbell, S. B. (1991). Longitudinal studies of active and aggressive preschoolers: Individual differences in early behavior and outcome. In Cicchetti, D. & Toth, S. L. (Eds.), Rochester Symposium on Developmental Psychopathology: Vol. 2. Internalizing and externalizing expressions of dysfunction (pp. 57â€“90). Hillsdale, NJ: Erlbaum. Campbell, S. B., Pierce, E. W., March, C. L., & Ewing, L. J. (1991).Â Toward a conceptual model for under-standing the early development of disruptive behavior problems. Unpublished manuscript. Greenberg, M. T., Speltz, M. L., DeKlyen, M., & Endriga, M. C. (1991). Current State of Detection of Behavioral and Emotional Problems in Pediatric Settings. Behavioral and emotional problems and concerns in children and adolescents are not being reliably identified or treated in the US health system.6,22â€“25 Current estimates suggest that fewer than 1 in 8 children with identified mental health problems receive treatment.Â Behavioral and emotional screening instruments have many of the same advantages and limitations as developmental screening instruments. They involve a time commitment for parents or guardians to complete and for staff and clinicians to score, interpret, and report the results.32. Screening instruments can be used to predict risk of a disorder but do not make the diagnosis.