Clinical Clues, Developmental Milestones, and Early Identification/Assessment of Children With Disabilities
Practical Applications and Conceptual Considerations

Raymond G. Romanczyk, PhD; Jennifer M. Gillis, MA; Donna M. Noyes-Grosser, PhD; John P. Holland, MD, MPH; Carole L. Holland, MA; Demie Lyons, PNP

The New York State Department of Health initiated the development of 6 clinical practice guidelines for children under 3 years of age with those developmental conditions most often seen in the state's Early Intervention Program. Separate guidelines were developed for autism/pervasive developmental disorders, communication disorders, Down syndrome, hearing impairment, motor disorders, and vision impairment. Professionals providing early intervention services are confronted with complex issues regarding service provision. This article focuses upon identification and assessment methods recommended by these 6 guidelines. The guidelines specifically emphasize the importance of routine developmental surveillance where primary healthcare providers use both clinical clues and developmental milestones, as signals for further focused screening and in-depth assessment to detect possible developmental conditions. Given the wide variation in timing for reaching specific milestones seen among typically developing children, the use of developmental milestone tables alone may miss opportunities for early identification, which may result in unnecessary "wait and see" recommendations to parents. The use of disorder-specific clinical clues may offer a more efficient and accurate method of developmental surveillance that facilitates earlier identification of infants and young children with developmental disabilities who may benefit from early intervention services. Key words: autism, clinical clues, clinical practice guidelines, communication disorders, developmental disabilities, developmental surveillance, Down syndrome, early intervention, hearing loss, motor disorders, vision impairment, young children

EARLY Intervention has received significant, societal, political, professional, and research attention for several decades. Effectiveness of early intervention is a complex topic, but clear research support exists. As Guralnick (1997) stated in his book The Effectiveness of Early Intervention,

As this book goes to press in 1996, it marks 10 years since the passage of the Education of the Handicapped Act Amendments of 1986, PL 99-457, landmark legislation that marked the national prominence of early intervention programs. This has been an important and heady decade, one filled with justifiable optimism and exuberance.

Many challenges are faced by early childhood practitioners, families, and public officials when identifying children who may need intervention and differentiating them from children who are experiencing normal
variations in development. Once a decision has been made to intervene, families, early interventionists, and public officials must decide on the outcomes to be achieved by intervening and the intervention strategies that will be most effective in achieving outcomes, enhancing child development, and assisting families. The New York State Department of Health (NYSDOH, 1999a, 1999b) Early Intervention Program (EIP) developed 6 evidence-based clinical practice guidelines to assist professionals, families, and public officials in this decision-making process. These guidelines address the following developmental problems, which combined account for the vast majority of developmental disabilities experienced by young children: autism/pervasive developmental disorders, communication disorders, Down syndrome, motor disorders, vision impairment, and hearing loss.

A series of 3 articles describe and review the NYSDOH guidelines. The first article reviews the development and methodology of the 6 guidelines (Holland et al., 2005). This article, the second in the series, presents a review of the assessment and early identification issues addressed in the 6 guidelines. Our purpose is to present important recommendations and implications from the guidelines, but space constraints prevent a detailed review of all the 6 guidelines. The reader is encouraged to examine specific guidelines of interest.

By way of introduction to the guidelines, we will briefly present an overview of their development and methodology. In 1996, the NYSDOH Early Intervention Program (EIP) initiated a program to develop evidence-based clinical practice guidelines focused on identification, assessment, and intervention for young children with developmental problems, and this process has recently been completed. The goal of the project was to improve the quality and consistency of care by providing families, service providers, and public officials with recommendations about best practices based on scientific evidence and expert clinical opinion. Specific objectives were: improve knowledge about care with accurate background information and evidence-based recommendations; enhance communication among parents, professionals, and EIP administrators when deciding upon assessment and intervention approaches; facilitate program evaluation and quality improvement efforts by defining appropriate outcomes measures and quality criteria for early intervention services; and promote research by identifying gaps in current knowledge.

NYSDOH officials assembled multidisciplinary panels of clinicians and parents, assisted by a research and methodology staff. These independent panels developed the clinical practice guidelines. It is important to underscore the methodology used by these panels. Unlike consensus panels, which are typically composed of a selected group of professionals who provide their expert opinion, these panels were formed of a cross section of professionals and consumers, both with and without specific expertise in the specific disorder. The panels relied on an evidence-based methodology rather than on personal opinion. The specific methodology was developed by the US Agency for Health Care Policy and Research (AHCPR) in the process of developing 19 evidence-based clinical practice guidelines, which were released from 1992 to 1996. This agency, now named the US Agency for Healthcare Research and Quality (AHRQ), is part of the US Public Health Service and is the primary federal agency involved with health services research (Holland, 1995). The AHCPR clinical practice guideline methodology uses principles recommended by the US Institute of Medicine. This AHCPR methodology is considered to be the standard for developing evidence-based clinical practice guidelines (Eddy & Hasselblad, 1994; Holland, 1995; Schriger, 1995; Woolf, 1991, 1994).

Using this methodology, specialists completed a comprehensive review of the literature specific to each disorder. The resulting published articles were subjected to analysis of methodological integrity and articles meeting minimum standards were then rated as to strength of results. These research studies
were then used by the panels to draw conclusions and produce the guidelines.

One important focus of all the 6 guidelines is the importance of early identification and assessment of children with developmental problems. Clearly, a prerequisite for effective intervention is the early identification and accurate assessment/diagnosis of specific disorders. Because the accurate identification and assessment of very young children is a complex task, the NYSDOH clinical practice guidelines provide significant, detailed recommendations on this process. As an example, Guralnick states in the Foreword to the Communication Disorders Clinical Guideline (NYSDOH, 1999b),

Young children with communication disorders comprise a heterogeneous group and have available to them a corresponding heterogeneous array of assessments and interventions. Especially when an early intervention program is being considered, selecting the most appropriate assessments and intervention strategies for individual children constitutes a considerable challenge even for experienced professionals in the field. 

This observation can be applied to each of the guideline topics.

EARLY IDENTIFICATION AND CLINICAL CLUES

The strongest common element to emerge from the guidelines concerning the identification and assessment process was the endorsement of routine developmental surveillance by primary healthcare providers. The guidelines also recommend that families and all early childhood professionals with regular and ongoing contact with young children (such as child care providers) are important resources for identifying developmental concerns. Normal development proceeds for the individual child in a generally upward trend, but with periods of plateaus and spurts. That is, a chronological growth of 6 months does not necessarily produce 6 months of developmental growth across all domains of development, consistently through childhood.

Further, significant variation exists for precisely when a typically developing child will achieve individual developmental milestones. Thus, the process of developmental surveillance is needed to avoid false conclusions that development is progressing normally, and to make sure that recommendations for further in-depth assessment and intervention are not based on an inadequate sample of the child’s developmental pattern.

This process is defined in all 6 guidelines as follows: “Developmental surveillance is a flexible, continuous process in which knowledgeable professionals monitor a child’s developmental status during the provision of healthcare services.” While developmental surveillance does not have a formal, generally accepted protocol with respect to specific assessment instruments and procedures, it is described as follows:

During the course of surveillance, the professionals may note certain behavioral characteristics that increase concerns that the child may have a specific developmental problem. These concerns may be based on clinical clues noted during the exam, information about risk factors, and parental concerns. Abnormal results on a general developmental screening test may also raise concerns about specific developmental problems. Such suspicions may lead the health care provider to do selective screening for a particular developmental problem (for example, autism or communication disorder). Selective screening sometimes involves the use of screening tests specifically designed to identify children with that particular developmental problem. (NYSDOH Clinical Practice Guideline: Autism/PDD.)

The general process of identification can occur in several contexts:

- Parent concern reported to a professional;
- Professional’s concern reported to parent in the context of evaluation for some other healthcare problem; and
- Developmental surveillance at periodic examinations, particularly at 6, 12, 15, 18, and 24 months.

Given this common approach, each guideline panel developed both a table of typical
developmental milestones and a set of "clinical clues" specific to the developmental problem addressed by the guideline. These clues can serve as a "red flag" that can be used by primary healthcare providers to identify a potential problem during the developmental surveillance, and serve as a possible step prior to use of formal screening instruments. These clinical clues can also be used by parents who may suspect a problem with their child, and provide a basis for discussion with a primary healthcare provider or other early childhood professionals. Such clinical clues are not specific enough to be diagnostic, but rather serve to motivate further focused screening and/or in-depth assessment efforts. Although formal research has not yet been conducted, it would appear reasonable that the greater the number of clinical clues observed, the greater the need for timely formal assessment. Thus, use of clinical clues may be seen as an initial part of a screening process that may also involve use of formal screening tests. Each of the 6 guidelines provides recommendations on the use of focused screening instruments and strategies for in-depth assessment when a clinician develops a heightened concern that a child may have a particular developmental condition or delay. The increased level of clinical concern that triggers such further assessment efforts might in some cases result from the clinician noting specific clinical clues or missed developmental milestones when examining the child and interviewing the parents. However, clinicians might also appropriately decide to carry out further focused screening and assessment in response to a specific parental concern, or because the child or family have known risk factors for a developmental condition.

Each of the guidelines contains tables presenting clinical clues (indicating possibly a developmental problem) and developmental milestones (indicating a typical development sequence) that are linked to specific chronological ages (usually at birth and at 6, 12, 18, 24, and 36 months of age). Since the clinical clues and developmental milestones tables in the guidelines are based on chronologica age, clinicians are instructed to correct for prematurity when using these tables to determine if a particular child may have a developmental condition or delay. As an example, the Communication Disorders Clinical Guideline lists the following as clinical clues, which, if present at 18 months of age, raise the level of concern that the child might have a communication disorder:

- Lack of communicative gestures
- Does not attempt to imitate or spontaneously produce single words to convey meaning
- Does not persist in communication (eg, may hand object to adult for help, but then give up if adult does not respond immediately).
- Limited comprehension vocabulary (understands <50 words or phrases without gesture or context clues)
- Limited production vocabulary (speaks <10 words)
- Lack of growth in production vocabulary over a 6-month period from 12 to 18 months

Similarly, the NYSDOH Hearing Loss Clinical Guideline lists the following as clinical clues, which, if present at 18 months of age, indicate the child may have a hearing loss:

- Does not attempt to imitate words
- Does not spontaneously produce single words to convey meaning
- Limited comprehension vocabulary (understands <50 words or phrases without gesture or context clues)
- Limited production vocabulary (speaks <10 words)
- Speech largely unintelligible
- Lack of progress in vocabulary development from 12 to 18 months (plateau or lack of progress at any age)
- Limited consonant production

Table 1 presents the number of clinical clues and developmental milestones presented in each guideline, along with (by way of comparison) the number of matches to the 135 developmental milestones 0–3 presented by the American Academy of Pediatrics (2002) on their Web site. In comparing the guidelines,
Table 1. A comparison across all guidelines of the number of developmental milestones and clinical clues recommended for use in the process of developmental surveillance

<table>
<thead>
<tr>
<th></th>
<th>Autism/PDD</th>
<th>Communication disorders</th>
<th>Hearing loss</th>
<th>Vision impairments</th>
<th>Motor disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of guideline</td>
<td>16</td>
<td>41</td>
<td>27</td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>developmental milestones</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of guideline</td>
<td>13</td>
<td>38</td>
<td>29</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td>clinical clues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of clinical</td>
<td>10</td>
<td>13</td>
<td>14</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>clues that correspond</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to American Academy of</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Pediatrics (AAP)</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>developmental milestones</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical clues that</td>
<td>77%</td>
<td>34%</td>
<td>48%</td>
<td>33%</td>
<td>23%</td>
</tr>
<tr>
<td>correspond to AAP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>developmental milestones</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Interesting patterns emerge. For example, the NYSDOH Autism/PDD Clinical Practice Guideline lists the fewest developmental milestones and proposes the fewest number of clinical clues.

However, the NYSDOH Autism/PDD Clinical Practice Guideline has the best percentage of clinical clues that correspond to specific American Academy of Pediatrics developmental milestones. Note the variation in both number of clinical clues and number of guideline-specific milestones presented across the guidelines. The developmental milestones presented are substantially different in each of the guidelines, reflecting no doubt the particular emphasis of each topic area, and are in turn substantially different than the developmental milestones presented by the American Academy of Pediatrics. Such variation is understandable given the lack of a universally agreed-upon developmental milestone chart. A "complete" chart would be extremely lengthy and "partial" charts reflect the above variation as a function of the chart's intended use. Thus, various developmental milestone charts promoted for use by physicians may not in fact be that helpful in screening for some disorders—hence a source of the common parental concern over a "wait and see" recommendation by physicians. Use of disorder-specific clinical clues may offer a more efficient and accurate method of developmental surveillance that can prompt formal screening and assessment procedures.

Where available, clinical clues presented in the 6 guidelines were derived from specific research findings. As an example, the clinical clues from the NYSDOH Autism/PDD Clinical Practice Guideline were taken from empirical studies that assessed diagnostic criteria for autism according to the *DSM-III-R* and *DSM-IV*. Each clinical clue had been validated in empirical studies and had been shown to have a sensitivity and specificity of greater than 50%.

An important, yet challenging, part of the early identification screening process is deciding which method (eg, clinical procedure, screening instrument, or assessment) to use to diagnose a particular childhood disorder/condition. Clinicians often rely upon an interpretation of the sensitivity and specificity of the available instruments and methods. Sensitivity and specificity, when considered together, allow clinicians to determine how useful a given instrument or method will
be at identifying a child with or without a suspected disorder/condition. For example, in evaluating the accuracy of a screening test to detect autism, an acceptable reference standard would be a formal diagnosis of autism by an experienced clinician using the DSM-IV TR (the current version of the Diagnostic and Statistical Manual of the American Psychiatric Association). When evaluating an instrument/method, a reference standard is used to calculate the sensitivity and specificity. A reference standard is the "Gold standard" or most accurate current method used to conclusively determine whether a child has or does not have a disorder/condition.

Cutoff scores are also important when determining sensitivity and specificity. A cutoff score is simply the test score (from the instrument) that determines if an individual's test score is considered to be a positive or negative result (indicating that the disorder/condition is or is not present). Sensitivity refers to the percentage of individuals the assessment instrument/method identifies as having a disorder/condition, who, according to the reference standard, do have the disorder/condition. The specificity of an instrument/method is the percentage of individuals identified as not having a disorder/condition who, according to the reference standard, do not have the disorder/condition. Both sensitivity and specificity are expressed as percentages. Thus, instruments having a high percentage in both sensitivity and specificity are most desirable for screening purposes.

Each guideline panel reviewed studies that evaluated the sensitivity and specificity of commonly used screening instruments/methods. A common finding across the recommendations included in the guidelines is that it is very difficult to identify a screening instrument with both high sensitivity and specificity for identifying a specific developmental problem or disorder. An example of this is found in NYSDOH Communication Disorders Guideline. The Preschool Language Checklist (PLC) was evaluated as a screening instrument (Burden, Stott, Forge, & Goodyer 1996). The PLC is a parent questionnaire that can be mailed to parents for the detection of children with possible communication problems. The results from this study indicated that the cutoff scores of both the PLC and the reference standard influenced the sensitivity and specificity of the PLC for identifying children with communication disorders. As the cutoff score on the PLC increased, the sensitivity decreased and the specificity increased (the sensitivity of the PLC ranged from 28% to 87% and the specificity ranged from 45% to 96%). When the cutoff score for the reference standard varied, the best combination of sensitivity and specificity achieved was 70% and 71%, respectively. Thus, identifying an instrument/method and determining the optimal cutoff score that will have both high sensitivity and specificity are complex endeavors and continuing research is required.

The question of validity of such clinical clues or screening instruments is also a critical point when discussing large-scale screening for specific disorders. As a brief example, we illustrate this point, using the Autism/PDD Clinical Practice Guideline. (Note: the following illustration is not intended as a comprehensive review of all current screening and assessment efforts in the area of autism spectrum disorders [eg, Filipek et al., 2000]. Rather, we are making specific reference to the NYSDOH guidelines.) Based on the evidence at the time, the Autism/PDD Clinical Practice Guideline recommended the use of the Checklist for Autism in Toddlers (CHAT) for general use. The CHAT is a screening tool for the detection of autism in children between the ages of 18 to 36 months (Baron-Cohen, Allen, & Gillberg, 1992). The CHAT has 2 parts: Part A is a 9-item parent questionnaire about the child's development and part B is a 5-item questionnaire to be completed by a physician or health visitor. If a child lacks 2 of the 5 items in part B, then the child should be referred for a full diagnostic assessment. Because the CHAT is brief (usually 10 minutes for both administration and scoring) and does not require specific training, it has been recommended as a screening tool for autistic children (Filipek et al., 2000).
Such recommendations were based on research (Baron-Cohen et al., 1992) that reported the unusual results that the CHAT had both a sensitivity and specificity of 100%. However, subsequent research on the CHAT has reported a significantly decreased sensitivity and specificity (Baron-Cohen et al., 1996). The major difference in the 2 studies was an increased sample size, from 91 participants in the 1992 study to more than 16,000 participants at the age of 18 months in the second study in 1996. In an attempt to further assess the predictive value of the CHAT, the 16,000 children screened with the CHAT at 18 months of age in the 1996 study were contacted again at 7 years of age, and using diagnosis of autism at age 7 as a reference standard, the CHAT was found to have a low sensitivity of 38% but a high specificity of 98% (Baird et al., 2000). Very recently one of the core research authors on the CHAT concluded that it is not a useful instrument (Baron-Cohen, Charman, Wheelwright, & Richler, 2002). Thus, the research indicates that the CHAT is not as appropriate a screening tool as was once thought and illustrates the dynamic nature of clinical practice that is based on ongoing research.

The clinical clues that are part of the NYSDOH Autism/PDD Clinical Practice Guideline were taken from empirical studies that listed diagnostic criteria for autism according to the DSM-III-R and DSM-IV. As was seen with the CHAT, continuing research regarding the efficacy of a screening tool is critical. Prior to the use of a screening instrument/method, empirical study of its sensitivity and specificity is necessary to prevent the misidentification of children with or without a specific disorder/condition. It is also imperative to be aware of the advantages and limitations (eg, length of administration, qualifications required to administer the test, age range of children, etc) of specific screening instruments. The use of clinical clues as specified in each of the guidelines, derived from the literature, may serve as an important tool for developmental surveillance while further formal research is conducted on the utility of specific screening instruments.

**SIMILARITIES AND DIFFERENCES OF CLINICAL CLUES AND DEVELOPMENTAL MILESTONES ACROSS THE GUIDELINES**

Table 2 presents an analysis of which developmental milestones, typically linked to

<table>
<thead>
<tr>
<th>Developmental milestones</th>
<th>Typical age range, months</th>
<th>Autism/ PDD</th>
<th>Communication disorders</th>
<th>Hearing loss</th>
<th>Vision impairments</th>
<th>Motor disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watches faces intently</td>
<td>0-7</td>
<td></td>
<td></td>
<td></td>
<td>(Partial)</td>
<td></td>
</tr>
<tr>
<td>Smiles at the sound of your voice</td>
<td>0-7</td>
<td></td>
<td></td>
<td></td>
<td>(Partial)</td>
<td></td>
</tr>
<tr>
<td>Babbles chains of consonants</td>
<td>0-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to track moving objects matures</td>
<td>0-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imitates facial expressions and familiar sounds (and actions)</td>
<td>7-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uses simple phrases</td>
<td>18-24</td>
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<td></td>
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</table>
clinical clues, are most common among the guidelines. While the number of such items that overlap is small in comparison to the large number of clinical clues presented in most of the guidelines, the results support a screening approach that differentiates motor disorders from the others. Even though the clinical clues are not repeated verbatim across the guidelines, the meaning and importance of some clinical clues is consistent across the guidelines.

As an example, with respect to language, the following clinical clues are seen across several guidelines:

- Delay or absence of spoken language—Autism/PDD Clinical Practice Guideline
- Limited production vocabulary (speaks <50 words)—Hearing Loss Guideline
- Limited production vocabulary (speaks <50 words)—Communication Disorders Guideline

All of these clues speak to a common delay in expressive language, with the hearing loss and communication disorders guidelines providing a more specific definition of the delay.

The following guidelines provide clinical clues that share a common concern for a lack of social and environmental reactivity:

- Does not seem to respond to parent’s face—Visual Loss Guideline
- Does not seem to follow movement of objects or people—Visual Loss Guideline
- Lack of awareness of environmental sound—Hearing Loss Guideline and Communication Disorders Guideline
- Does not associate a sound with its source—Hearing Loss Guideline and Communication Disorders Guideline
- Lack of connection with adult—Communication Disorders Guideline
- Unusual reactions or lack of reaction to sensory stimuli—Autism/PDD Guideline
- Not responsive to other people’s facial expressions/feeling—Autism/PDD Guideline

The commonality of some clinical clues among the guidelines illustrates a degree of overlap that may help primary care providers, and other early childhood professionals involved in developmental surveillance, to identify children in need of further assistance. However, this overlap reduces utility for differentiation between disorders at an early age by individuals with limited clinical experience. In the interest of identifying children with potential developmental problems as early as possible, it may be most important, therefore, for primary healthcare providers to be able to identify and recognize a succinct number of clinical clues that are relatively robust in identifying a developmental problem in need of further assessment by developmental specialists.

The clinical clues in the various guidelines were taken from the clinical and research literature, which gives them good face validity. However, when used in real-world clinical settings, individual interpretation may create ambiguity as to the meaning of the clues and whether or not to endorse them. This is a problem with all compilations of clinical clues—the translation of research and expert opinion to clear, unambiguous, precise terms that allow for observation in actual clinical and educational settings.

ASSESSMENT

Each of the 6 NYSDOH guidelines contains reference to focused, highly specific assessment instruments and procedures that are available for evaluating the target condition (e.g., autism) addressed by that guideline. However, there is agreement among all 6 guidelines as to a general approach to assessment. The first principle is that assessment should not be viewed as a single event, but be seen as a dynamic process that should be influenced by the child’s performance and circumstances. Thus assessment should be a multi-method, multisession, and multienvironment process with emphasis placed upon assessment in the child’s natural environment. This permits convergent validity (i.e., similar results
are obtained from different assessment instruments or methods), observation of stability over time as well as situational specificity of child behavior (ie, does the child behavior change significantly in different settings?), and this process allows the clinician to place in perspective anomalous reactions.

The major components of the assessment process are:

- Reviewing previous assessment/diagnostic reports
- Obtaining information/perspective from parents
- Performing a developmental assessment
  - Standardized assessment
  - Curriculum-based assessment
  - Behavioral observations across settings and time
- Observation in the natural environment
- Performing disorder-specific assessments
- Performing general health examination
- Investigating associated risk factors—comorbid conditions as warranted

The areas of development that should be assessed include:

- Cognitive ability
- Communication
- Motor/physical skills
- Adaptive skills
- Social, emotional, and behavioral functioning
- Sensory processing

Additional important components and principles include:

- Assessment by professionals experienced with young children
- Utilize procedures that are reproducible by other professionals
- Assessment is an ongoing process
- Use of age-appropriate testing and scoring methods
- Focus on child’s presenting problems
- Assess both strengths and weaknesses
- Consider and respect the family’s culture and life circumstance
- Sensitivity and thoroughness of communicating results to parents

Each of the clinical practice guidelines (autism, communication disorders, Down syndrome, hearing loss, vision impairments, and motor disorders) presents, in detail, commonly used and recommended assessment instruments in the context of developmental surveillance. Information is presented on strengths and weaknesses, based on published research and cost-benefit. While the guidelines share a common base with respect to the process of assessment, and there is some overlap across guidelines concerning specific assessment instruments, the differences are sufficient that utilization of the specific guideline for a disorder is highly recommended.

**SUMMARY**

Perhaps the most important principle expressed across guidelines was that assessment must be individualized, utilizing procedures that have strong research support. Individualization does not imply the use of novel or clinician-specific procedures, but rather requires extensive knowledge of assessment and specific valid instruments and procedures to allow the most appropriate choices for the individual child. For screening instruments/methods, sensitivity and specificity for published, commonly used instruments/methods cannot be assumed adequate for clinical use. Because identifying and interpreting the research specific to the myriad of screening and assessment instruments/methods is such a daunting task, it is essential that empirically based practice guidelines, such as the NYSDOH series of clinical practice guidelines, be developed and disseminated. It is also critical that practice guidelines be periodically updated to reflect continuing research into the multiple complex components of early intervention services.

With respect to the process of developmental surveillance, given the wide variation in timing for reaching specific developmental milestones seen among typically developing children, the use of developmental milestones alone may miss opportunities for early identification. In many cases, the exclusive use of developmental milestones may result in
unnecessary "wait and see" recommendations to parents. Use of disorder-specific clinical clues may facilitate earlier identification of infants and young children with developmental disabilities who may benefit from early intervention services.

REFERENCES


