

BIRTH TO 5: WATCH ME THRIVE!
A COMPENDIUM OF SCREENING
MEASURES FOR YOUNG
CHILDREN



US DEPARTMENT OF
HEALTH AND HUMAN SERVICES
MARCH 2014

Birth to 5: Watch Me Thrive!

A Compendium of Screening Measures for Young Children

Acknowledgments

We would like to acknowledge the work of the Office of the Deputy Assistant Secretary for Early Childhood Development and the Office of Planning, Research, and Evaluation (OPRE) within the Administration for Children and Families, U.S. Department of Health and Human Services who provided the vision and support for this project.

The background, summary tables, profiles of individual screening tools, and appendices in this report were prepared under OPRE's **Child Care and Early Education Policy and Research Analysis and Technical Expertise Project** with Child Trends (contract #GS10F0030R). For the complete technical report of this work, see: Moodie, S., Daneri, P., Goldhagen, S., Halle, T., Green, K., & LaMonte, L. (2014). *Early childhood developmental screening: A compendium of measures for children ages birth to five* (OPRE Report 201411). Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

The quality parameters, which were used to identify the particular screening instruments included in this report, were set by the federal partners of the *Birth to Five: Watch Me Thrive!* effort, including the Administration for Children and Families, Administration for Community Living, Centers for Disease Control and Prevention, Centers for Medicaid and Medicare, Health Resources and Services Administration, Eunice Kennedy Shriver National Institute of Child Health and Human Development, and Substance Abuse and Mental Health Services Administration at the US Department of Health and Human Services as well as the Office of Special Education Programs at the US Department of Education.

Table of Contents

<i>Birth to 5: Watch Me Thrive!</i>	1
Background	2
Summary Tables	9
General Information about Screeners.....	10
Screeners: Evidence of Reliability and Validity	13
Screeners: Evidence of Reliability and Validity for Different Languages and Different Populations	14
Profiles of Individual Measures: Developmental Screeners	15
<i>Ages and Stages Questionnaire—3rd Edition</i>	16
<i>Ages and Stages Questionnaire—Social-Emotional</i>	25
<i>Brigance Screens</i>	34
<i>Developmental Assessment of Young Children – Second Edition</i>	43
<i>Early Screening Profiles</i>	51
<i>FirstSTEp Screening Test for Evaluating Preschoolers</i>	61
<i>Learning Accomplishment Profile—Diagnostic Screens</i>	70
<i>Parents’ Evaluation of Developmental Status</i>	78
<i>Parents’ Evaluation of Developmental Status—Developmental Milestones</i>	87
Profiles of Individual Measures: Abbreviated Profiles	96
<i>Infant Development Inventory</i>	97
<i>Survey of Well-Being of Young Children</i>	100
Appendix A: Glossary of Terms	104
Appendix B: Psychometric Documentation and Rationale	109

Birth to 5: Watch Me Thrive!

Recent statistics indicate that as many as 1 in 4 children, ages 0-5, are at moderate or high risk for developmental, behavioral, or social delay.¹ As a result, the Administration for Children and Families, Administration for Community Living, Centers for Disease Control and Prevention, Centers for Medicaid and Medicare, Health Resources and Services Administration, Eunice Kennedy Shriver National Institute of Child Health and Human Development, and Substance Abuse and Mental Health Services Administration at the Department of Health and Human Services as well as the Office of Special Education Programs at the Department of Education have partnered to launch *Birth to Five: Watch Me Thrive!*, a coordinated effort to encourage developmental and behavioral screening and support for children, families, and the providers who care for them. *Birth to 5: Watch Me Thrive!* seeks to:

- **Celebrate milestones.** Every family looks forward to seeing a child's first smile, first step, and first words. Regular screenings with the support of early childhood providers help raise awareness of a child's development, making it easier to expect and celebrate developmental milestones.
- **Promote universal screening.** All of our children need support in the early years to make sure they stay healthy and happy. Just like hearing and vision screenings assure that children can hear and see clearly, developmental and behavioral screenings assure that children are making developmental progress, in areas such as language, social, or motor development. Screening is a regular part of growing up.
- **Identify possible delays and concerns early.** Screenings can help kids succeed in and beyond their school years. With regular screenings, families, teachers, and other professionals can assure that young children get the services and supports they need, as early as possible to help them thrive alongside their peers.
- **Enhance developmental supports.** Families are children's first and most important teachers. Combining the love and knowledge families have of their children with tools, guidance, and tips recommended by experts, can help optimize the developmental support children receive.

The purpose of this compendium is to identify a set of first line screening tools that meet certain quality parameters set by the aforementioned federal partners. Building on a broader technical review of screening tools by Child Trends, *Early childhood developmental screening: A compendium of measures for children ages birth to five*², the federal partners identified 11 screening tools that met the following quality criteria: (a) tool accuracy (sensitivity and specificity of 0.7 and above), (b) inclusion of family input, and (c) inclusion of the social and emotional domain of development. We believe these aspects of quality are important considerations to ensure responsible screening practices. Programs should not interpret this list as recommending or requiring the use of a particular tool. Rather, it should be used to learn about a selection of screening tools that are supported by research and to help make informed decisions about best fit for programs or practices. We hope you find *Birth to 5: Watch Me Thrive!* helpful in supporting young children and their families on their developmental journey. Visit www.hhs.gov/WatchMeThrive for a complete set of resources.

¹ National Survey of Children's Health, 2011-12. With funding and direction from MCHB, these surveys were conducted by the Centers for Disease Control and Prevention's [National Center for Health Statistics](http://www.cdc.gov/nchs/nhanes).

² Moodie, S., Daneri, P., Goldhagen, S., Halle, T., Green, K., & LaMonte, L. (2014). *Early childhood developmental screening: A compendium of measures for children ages birth to five* (OPRE Report 2014-11). Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

Background

For children age birth to five, physical, cognitive, linguistic, and social-emotional growth and development occur at a rapid pace. While all children in this age range may not reach developmental milestones (e.g., smiling, saying first words, taking first steps) at the same time,³ development that does not happen within an expected timeframe can raise concerns about developmental disorders, health conditions, or other factors that may negatively impact the child’s development.⁴ Early, frequent screening⁵ of young children for healthy growth and development is recommended to help identify potential problems or areas needing further evaluation. By catching developmental issues early, children can be provided with treatment or intervention more effectively, and additional developmental delays or deficits may be prevented.⁶

For developmental screening to be effective, it should begin early in a child’s life; be repeated throughout early childhood; and use reliable, valid screening tools appropriate to the age, culture, and language of the child.⁷ This can be a challenge, since very few developmental screening tools are developed or tested with linguistically or culturally diverse samples of children.⁸ Further, practitioners⁹ may lack the technical training to review and compare complex psychometric information on the quality of developmental screening tools. This compendium has been created to help practitioners better understand this information and make informed choices about the developmental screening tools they use with children birth to age five.

Purpose of this Compendium

This document has several purposes. First, the compendium aims to discuss the purpose of developmental screening and how it differs from child assessment. Second, the compendium aims to “translate” technical psychometric information about the reliability and validity of commonly-used developmental screening tools into language that is easily understood by early childhood practitioners. Being able to access this information more easily can help early childhood practitioners evaluate whether a developmental screening tool is appropriate for the population with which it will be used. Finally, this compendium aims to highlight areas in which the early childhood field is lacking information on reliability and validity of available developmental screening tools.

³ Center on the Developing Child at Harvard University (2007). A science-based framework for early childhood policy: Using evidence to improve outcomes in learning, behavior, and health for vulnerable children. <http://developingchild.harvard.edu>

⁴ Johnson-Staub, C. (2012). Charting progress for babies in child care project. Promote access to early, regular, and comprehensive screening. Washington, DC: The Center for Law and Social Policy.

⁵ Screening can take place in both medical settings (i.e. pediatrician’s offices) and in early care and education settings. For instance, in Early Head Start, Head Start Program Performance Standards specify that within 45 days of entry into the program, each child should be screened for “developmental, sensory (visual and auditory), behavioral, motor, language, social, cognitive, perceptual, and emotional skills,” using age and culturally appropriate tools. (45 CFR 1304.20)

⁶ American Academy of Pediatrics, Committee on Children with Disabilities (2001). Developmental surveillance and screening of infants and young children. *Pediatrics*, 108(1), 192-196.

⁷ Shepard, L., Kagan, S.L., & Wurtz, E. (Eds.) (1998). Principles and recommendations for early childhood assessments: The National Education Goals Panel. Goal 1 Early Childhood Assessments Resource Group.

⁸ Peña, E. D. & Halle, T. (2011). Assessing preschool English learners: Traveling a multi-forked road. *Child Development Perspectives*, 5 (1), 28-32.

⁹ The term “practitioners” is used throughout this document to represent administrators, teachers, caregivers, and early intervention staff who may be conducting developmental screenings with children ages birth to five.

This compendium has been designed primarily to support early childhood practitioners in the choices they make when selecting or changing their developmental screening tools. Practitioners should not interpret this compendium as recommending or requiring the use of a particular tool.

What is the Purpose of Developmental Screening?

To better understand the information covered in this compendium, it is important to articulate the purpose of developmental screening and how it differs from assessment.

Screening provides a quick snapshot of a child’s health and developmental status and indicates whether further evaluation is needed to identify potential difficulties that might necessitate interventions or special education services.¹⁰ Important considerations regarding developmental screenings that early childhood practitioners should be aware of include:

- Screenings are designed to be brief (30 minutes or less).
- Screenings cannot capture the full range of development, skill, or capacity among children. Because screenings are designed to identify risk or potential developmental issues, they tend to focus on distinguishing developmental skills and abilities in the lower range of performance and are not useful for capturing skills and abilities in the higher range of performance.
- Screening only indicates the *possible* presence of developmental delay or difference and cannot definitively identify or describe the nature or extent of a disability.
- Screening must be followed by a more comprehensive and formal evaluation process in order to confirm or disconfirm any red flags raised by the screening procedure.

Assessment is a continual process of observing, gathering, recording, and interpreting information to answer questions and make developmental and instructional decisions about children. Child assessment differs from screening in the following ways:

- Assessments can be used to serve several purposes, such as documenting children’s developmental progress or helping early childhood practitioners plan to meet the individual needs of children; whereas screenings are used only to monitor whether children are at risk for delays in their growth and development.
- Assessment measures young children’s *performance over time* rather than attempting to measure their skills and abilities at one point in time.
- Assessment is often a lengthier process than screening and may require collecting information about children from multiple sources in order to create a comprehensive picture of their skills and abilities.

What are Reliability and Validity and Why Are They Important?

It is also very important to define reliability and validity, and to highlight why they are important to

¹⁰ Florida Partnership for School Readiness (2004). Birth to three screening and assessment resource guide. Jacksonville, FL: University of North Florida.

early childhood practitioners. Information on the reliability and validity of a developmental screening tool is critical to determining whether that tool is appropriate for use with a particular population. If an instrument does not produce reliable or valid information, one cannot trust that information to provide a good sense of how children are developing.

Reliability means that the scores on the tool will be stable regardless of *when* the tool is administered, *where* it is administered, and *who* is administering it. Reliability answers the question: Is the tool producing consistent information across different circumstances? Reliability provides assurance that comparable information will be obtained from the tool across different situations. **Validity** means that the scores on the tool accurately capture what the tool is meant to capture in terms of content. Validity answers the question: Is the tool assessing what it is supposed to assess?

There are many types of reliability and validity, and each has a role to play in the development of screening tools. For example, *content validity* assures that a tool is measuring the behaviors or skills of interest by examining all key indicators of those skills. *Construct validity* indicates that the items of a developmental screener are capturing the aspects of development that are the focus of the instrument and of importance to the practitioner.¹¹ *Internal consistency reliability* refers to how closely items within an instrument are related to one another; this type of reliability ensures that all of the items within a particular domain¹² actually are related to each other but still are distinct enough as to not be redundant within the measurement tool. *Convergent and divergent validity* refers to how closely different domains within the measurement tool are related to one another. Similarly, *convergent and divergent criterion validity* refers to the degree to which constructs within one measurement tool are related in an expected pattern to other established measurement tools.¹³

Not only should a measurement tool capture what it is supposed to be capturing, it also should do so consistently over time and across assessors. *Inter-rater reliability* refers to whether different people administering the measurement tool can do so in a consistent way. *Test-retest reliability* tells us whether a measurement tool provides a consistent evaluation of a skill, regardless of other factors such as a child's mood or health, the time of day, or the time of year that the child was evaluated.

For screening tools, it is particularly important that the tools have information regarding how well they identify children who do indeed have a developmental delay (i.e., **sensitivity**), and how well they guard against misclassifying children as needing additional screening for a developmental delay who are, in fact, developing normally (i.e., **specificity**).

It is generally understood that not all children with or at risk for delays will be identified by a screener.

¹¹ Based on the American Psychological Association's Standards for Educational and Psychological Testing, a *construct* is "the concept or characteristic that a test is designed to measure" (National Research Council of the National Academies, 2008, p. 186). A common method to determine construct validity is factor analysis, which sorts individual items into sets that fit together the best. Items that fit together should be measuring a single construct. Another approach to examining construct validity is to analyze the relationship between sets of items (i.e., scales) and characteristics of the child or family, such as child age or parent education, to determine whether the sets of items are related in expected ways to these child or family characteristics.

¹² A domain is a set of related skills, behaviors, or information that is classified as a single area of study or development. Domains typically cover multiple, related constructs within a broad area of study or development, such as fine motor development or approaches toward learning.

¹³ Sometimes manuals refer to convergent criterion validity as concurrent validity, which could be interpreted to mean that the two measurement tools concur or "agree" in the measurement of a particular construct. However, another meaning of concurrent validity is that the two separate assessments were administered at the same time to measure criterion validity.

While this understandably may raise questions, various circumstances, including the severity of the suspected delay, or the child's performance or mood on the day the screener is given, all affect the results. This is why opportunities for repeat screenings are essential.

Of critical importance in understanding reliability and validity:

- **The reliability and validity of a screening instrument is dependent upon the purpose for which it is used.** As mentioned above, **there are important differences between the purposes of screening and child assessment.** Child assessment aims to provide information on children's competencies or abilities over time and can be used to guide instruction for individuals or groups of children or to make decisions about program improvement efforts. Screening aims to identify children who need further evaluation to identify developmental delays. An instrument may provide reliable and valid information for the purpose of assessment, but be inaccurate at identifying children who may need further assessment or special services. Likewise, screening instruments are rarely appropriate for assessing the developmental progress of children over time, since they cover only a limited range of development.
- **The reliability and validity of a screening instrument is dependent upon the population to whom it is given and the language in which it is administered.** It is important to know for whom a tool is reliable and valid. A tool may have been found to be reliable and valid for one group of children, but not others. For instance, its reliability may be established for children whose sole language is English, but not for dual language learners.
- **The reliability and validity of the information you get from screening instruments depend upon the instrument's implementation.** No matter how well-documented the reliability and validity of a screening tool, if an individual does not closely follow the training procedures outlined by the developer or if he or she alters the approach to implementing the screening tool, one cannot be confident that the information provided by the tool will be reliable or valid.

This document does not address every way that reliability and validity can be measured. We have chosen to report the methods for determining evidence of different forms of reliability and validity that were found in the majority of the developmental screening tools that were reviewed. Throughout the document, we introduce the different types of reliability and validity by identifying the question each type addresses. For example, the technical term "inter-rater reliability" addresses the question, "Do different raters agree when screening the same children?" Similarly, the technical term "sensitivity" addresses the question, "How accurately does the developmental screener correctly identify children who are at risk for developmental problems?" By providing both the technical terms and the descriptive questions that are addressed, the profiles of the tools in this compendium communicate psychometric information in an accessible and easy-to-use format.

How to Use this Compendium

The compendium includes five parts:

- 1) **Introduction:** a review of the purpose of this compendium, the purpose of developmental screening, the importance of reliability and validity of developmental screeners, and the organization and use of the compendium
- 2) **Summary Tables:** a set of tables summarizing common information from each of the screening tools examined
- 3) **Individual Instrument Profiles:** a set of profiles providing more detailed information for each of the screening tools reviewed
- 4) **Definition of Standards:** an overview of the standards used to evaluate the reliability and validity of the tools (Appendix A)
- 5) **Glossary:** a glossary defining key terms used throughout this compendium (Appendix B)

Each piece of this compendium provides different information, and a practitioner might use the compendium differently depending upon his or her goals. Those who want to look across the most commonly used developmental screening tools for certain information—such as what developmental domains are covered or how reliable the screener is for dual language learners—would want to start with the summary tables. They might then choose a smaller set of tools to examine in more detail by looking at the individual profiles for these tools. In contrast, those who currently use one of the developmental screening tools included in the compendium and are interested in seeing detailed information on the reliability and validity of that screener may want to turn directly to the individual profile for that tool.

Using and Interpreting the Summary Tables

The summary tables are intended to provide an “at-a-glance” overview of the range of information about different screening tools included in this compendium. The three summary tables provide the following:

- An overview of Screeners: Evidence of Reliability and Validity on the developmental screener, such as the age ranges covered, the languages in which the tool is available, and whether training on how to use the screener is available through the tool’s publisher or developer;
- Evidence of reliability and validity for the instrument, including sensitivity and specificity, regardless of the population with which this information has been examined; and
- Evidence of reliability and validity for particular populations of interest—dual language learners, children with special needs, and American Indian/Alaskan Native children.

Which Developmental Screening Tools are Included in the Compendium and Why?

This compendium builds on a broader technical review of screening tools conducted by Child Trends, *Early childhood developmental screening: A compendium of measures for children ages birth to five*.¹⁴ That work included an extensive review of other developmental screening and assessment compendia, as well as a web search for additional resources on commonly-used developmental screening tools were conducted to identify tools for potential inclusion in this document. First, Child Trends expanded and updated the work completed under two prior compendia of measures: *Understanding and Choosing Assessments and Developmental Screeners for Young Children Ages 3-5: Profiles of Selected Measures*¹⁵ and *Resources for Measuring Services and Outcomes in Head Start Programs Serving Infants and Toddlers*.¹⁶ Information about the screening tools identified under these previous efforts were consolidated and combined to provide a single resource on screening tools available for children from birth through age five. Additionally, Child Trends updated the screener profiles where new information was available since the publication of the previous compendia. Then, they conducted a search of the literature to identify additional screening tools not included in the previous compendia.

The developmental screening tools included in this compendium are not meant to represent an exhaustive list of all available tools. Rather, certain inclusion criteria were applied at different stages in the development of this compendium. First, Child Trends used the following set of criteria to determine whether a developmental screening tool should be reviewed and profiled for their technical report:

- The tool must be designed for the purpose of screening (not child assessment).
- The screening tool must be appropriate for use with children between birth and age five.
- The screening tool must cover multiple developmental domains (i.e. physical/motor, cognitive, linguistic, social and emotional development).
- The screening tool must be available for use by early childhood practitioners (early care and education providers, primary care practitioners, behavioral health service providers, home visitors, early intervention specialists, etc.).
- Information about the screening tool's administration, training, reliability and validity (i.e., sensitivity and specificity) must be readily available.

Then, the federal partners of *Birth to 5: Watch Me Thrive!* identified additional quality criteria which had to be met to be included in this compendium:

- The tool must cover the domain of social and emotional development.

¹⁴ Moodie, S., Daneri, P., Goldhagen, S., Halle, T., Green, K., & LaMonte, L. (2014). *Early childhood developmental screening: A compendium of measures for children ages birth to five* (OPRE Report 201411). Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

¹⁵ Halle, T., Zaslow, M., Wessel, J., Moodie, S., and Darling-Churchill, K. (2011). *Understanding and Choosing Assessments and Developmental Screeners for Young Children: Profiles of Selected Measures*. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from: https://www.acf.hhs.gov/sites/default/files/opre/screeners_final.pdf

¹⁶ Mathematica Policy Research, Inc. (2011). *Resources for Measuring Services and Outcomes in Head Start Programs Serving Infants and Toddlers*. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from: https://www.acf.hhs.gov/sites/default/files/opre/resources_for_measuring_services_and_outcomes.pdf

- The tool must include family input.
- The tool must have a sensitivity and specificity of 0.7 or greater.

The developmental screening tools in this compendium include:

Ages and Stages Questionnaire—3rd Edition
Ages and Stages Questionnaire—Social-Emotional
Brigance Screens
Developmental Assessment of Young Children-2nd Edition
Early Screening Profiles
FirstSTEP Screening Test for Evaluating Preschoolers
Learning Accomplishment Profile—Diagnostic Screens
Parents’ Evaluation of Developmental Status
Parents’ Evaluation of Developmental Status: Developmental Milestones

As part of the technical review conducted by Child Trends, the information included in each individual profile was drawn from technical manuals and information provided directly by the developer. The developer of each tool was asked to review the profile for accuracy and completeness. Profiles were updated and revised based on their input. Outside resources such as research articles were not consulted in the development of this compendium.

For each developmental screener tool within this compendium, the profiles summarize the following information:

- **Background Information**
- **Availability and Cost of Assessment**
- **Training and Other Requirements for Assessors**
- **Availability of an Information Reporting System**
- **Approaches to Parental/Family Input**
- **Appropriateness for Children from Different Backgrounds**
- **Reliability and Validity Information**
- **Sensitivity and Specificity Information**
- **Availability of Guidance for Follow-up Actions**

Abbreviated Profiles

Two developmental screening tools, the **Survey for the Well-being of Young Children** and the **Infant Developmental Inventory**, are included in this compendium as “abbreviated” profiles. These tools were identified during the planning phase of this document as meeting the criteria for inclusion; however, technical manuals are not available for consultation. As a result, these profiles are a modified version of the full profile, intended to summarize the information about each tool that is publicly available.

Summary Tables

SUMMARY TABLE 1 - General Information About Screeners

Screener Title	Developmental Domains Covered (As listed by publisher)	Age Range	Languages of Screener Materials	Training Available Through Publisher or Developer	Must Be Administered by Someone with Technical Background	Scoring Options (Manual, Electronic)	Screener Includes Parent and Family Input	Screener Includes Guidance on Follow-Up Steps
Ages and Stages Questionnaire	Communication Gross Motor Fine Motor Problem Solving Personal-Social	1 - 66 months	English Spanish French	Yes	No	Manual Electronic	Yes	Yes
Ages and Stages Questionnaire: Social-Emotional	Self-regulation Compliance Communication Adaptive functioning Autonomy Affect Interaction with people	6 - 60 months	English Spanish	Yes	No	Manual Electronic	Yes	Yes
Brigance Screens	Expressive language Receptive language Gross motor Fine motor Academics/pre-academics Self-help Social-emotional skills	Birth through end of 1 st grade	English	Yes	No	Manual Electronic	Yes	Yes
Developmental Assessment of Young Children, 2nd Edition	Cognition Communication Social-emotional Physical Development Adaptive Behavior	Birth through 5 years	English	No	Yes	Manual Electronic (Available Fall 2013)	Yes	No
Early Screening Profiles	Cognitive Language Motor Self-Help/Social, Articulation Home Health History Behavior	2 years 0 months through 6 years 11 months	English	Yes	No	Manual	Yes	Yes

SUMMARY TABLE 1 - General Information About Screeners

Screener Title	Developmental Domains Covered (As listed by publisher)	Age Range	Languages of Screener Materials	Training Available Through Publisher or Developer	Must Be Administered by Someone with Technical Background	Scoring Options (Manual, Electronic)	Screener Includes Parent and Family Input	Screener Includes Guidance on Follow-Up Steps
FirstSTEP	Cognitive Language Motor Social- emotional skills Adaptive functioning	2 years 9 months through 6 years 2 months	English	No	No	Manual	Yes	No
Infant Development Inventory	Cognitive Language Motor Social-emotional skills Adaptive functioning	Birth to 18 months	English	No	No	Manual	Yes	No
Learning Accomplishment Profile-Diagnostic Screens	Social Development Self-Help Gross Motor Fine Motor Language	3 years to 6 years	English Spanish	Yes	No	Manual	Yes	No
Parents' Evaluation of Developmental Status	Global/Cognitive Expressive Language and Articulation Receptive Language Fine Motor Gross Motor Behavior Social-Emotional Self-Help School	Birth through 7 years 11 months	English (Forms also translated into 14 other languages.)	Yes	No	Manual Electronic	Yes	Yes
Parents' Evaluation of Developmental Status- Developmental Milestones	Expressive Language Receptive Language Fine Motor Gross Motor Social-Emotional Self-Help Academic: Pre-Reading; Pre-Math, and Written Language	Birth through 7 years 11 months	English Spanish	Yes	No	Manual Electronic	Yes	Yes

SUMMARY TABLE 1 - General Information About Screeners

Screener Title	Developmental Domains Covered (As listed by publisher)	Age Range	Languages of Screener Materials	Training Available Through Publisher or Developer	Must Be Administered by Someone with Technical Background	Scoring Options (Manual, Electronic)	Screener Includes Parent and Family Input	Screener Includes Guidance on Follow-Up Steps
Survey of Well-being of Young Children	Cognitive Motor Language Social-Emotional-Behavioral Functioning Autism Family Factors	2 – 60 months	English Spanish	No	No	Manual Electronic (Available 2015)	Yes	No

SUMMARY TABLE 2 – Screeners: Evidence of Reliability and Validity

Screener Title	Reliability			Validity				
	Inter-Rater Reliability (Acceptable, Low/Weak, Not examined by developer)	Test-Retest Reliability (Acceptable, Low/Weak, Not examined by developer)	Internal Consistency Reliability (Acceptable, Low/Weak, Not examined by developer)	Content Validity (Content was reviewed by experts)	Construct Validity (Strong/High, Moderate, Low/Weak, Not examined by developer)	Concurrent Validity (Strong, Moderate, Not examined by developer)	Sensitivity* (High, Moderate, Low)	Specificity* (High, Moderate, Low, Not examined by developer)
Ages and Stages Questionnaire	Acceptable	Acceptable	Not examined	Yes	Strong	Moderate	Moderate	Moderate
Ages and Stages Questionnaire: Social-Emotional	Not examined	Acceptable	Acceptable	Yes	Not examined	Strong	Moderate	High
Brigance Screens	Acceptable	Acceptable	Acceptable	Yes	Moderate	Strong	Moderate for infants, toddlers and 3-5 year olds High for 2 and 5 year olds	Moderate
Developmental Assessment of Young Children, 2nd Edition	Acceptable	Acceptable	Acceptable	Not examined by the developer	Strong	Strong	Moderate	Moderate
Early Screening Profiles	Acceptable	Acceptable	Acceptable	Yes	Moderate	Moderate	Moderate	Moderate
FirstSTEP	Acceptable	Acceptable	Acceptable	Yes	Moderate	Strong	Moderate	Moderate
Infant Development Inventory	Not examined	Not examined	Not examined	Not examined by the developer	Not examined	Not examined	Moderate	Moderate
Learning Accomplishment Profile-Diagnostic Screens	Acceptable	Acceptable	Acceptable	Yes	Not examined	Strong	Moderate	Not examined
Parents' Evaluation of Developmental Status	Acceptable	Acceptable	Acceptable	Yes	Not examined	Strong	Moderate	Moderate
Parents' Evaluation of Developmental Status-Developmental Milestones	Acceptable	Acceptable	Acceptable	Yes	Not examined	Strong	Moderate	Moderate
Survey of Well-Being of Young Children	Not examined	Acceptable	Acceptable	Yes	Moderate	Not examined	Moderate	Moderate

* Sensitivity and specificity refer to the accuracy with the instruments identifying children at-risk for developmental problems.

Note: Ratings reported in this table reflect the majority finding when developers examined separate domains for the different types of reliability or validity. For example, if content validity was examined for the cognitive, language, physical, and social domains, and 3 of the 4 domains were found to have "Strong" evidence of validity while the fourth domain was "Moderate", the aspect was rated as "Strong" overall. See individual profiles for detailed findings.

SUMMARY TABLE 3 – Screeners: Evidence of Reliability and Validity for Different Languages and Different Populations

Screener Title	Reliability and Validity for Different Languages		Reliability and Validity for Different Populations		
	Evidence of Reliability and Validity in English?	Evidence of Reliability and Validity in Other Languages?	Evidence of Reliability and Validity for Dual Language Learners?	Evidence of Reliability and Validity for Children with	Evidence of Reliability and Validity for American Indian/Alaskan Native Children?
Ages and Stages Questionnaire	Yes	No	No evidence ¹	Yes	No evidence ²
Ages and Stages Questionnaire: Social-Emotional	Yes	No	No evidence ¹	No evidence ¹	No evidence ²
Brigance Screens	Yes	No	No evidence ¹	No evidence ¹	No evidence ²
Developmental Assessment of Young Children, 2nd Edition	Yes	No	No evidence ¹	Yes	No evidence ¹
Early Screening Profiles	Yes	No	No evidence ¹	No evidence ¹	No evidence ²
FirstSTEP	Yes	No	No evidence ¹	No evidence ¹	No evidence ²
Infant Development Inventory	Yes	No	No evidence ¹	No evidence ¹	No evidence ¹
Learning Accomplishment Profile-Diagnostic Screens	Yes	No	No evidence ¹	No evidence ¹	No evidence ²
Parents' Evaluation of Developmental Status	Yes	No	No evidence ¹	No evidence ¹	No evidence ²
Parents' Evaluation of Developmental Status-Developmental Milestones	Yes	No	No evidence ¹	Yes	No evidence ²
Survey of Well-Being of Young Children	Yes	No	No evidence ¹	Yes	No evidence ¹

Content Key

YES: At least one measure of acceptable reliability or validity is presented by the developer.
NO: The developer did not examine whether the instrument was reliable or valid for this population.
¹ No information about this population is provided by the developer.
² While this population was included in the total sample of children, separate analyses for this sub-group were not conducted by the developer.

Profiles of Individual Measures: Developmental Screeners

Ages and Stages Questionnaires-3rd Edition (ASQ-3)

Developers: Jane Squires and Diane Bricker
Publisher: Paul H. Brookes Publishing Co., Inc.

www.agesandstages.com

Developmental domains addressed in the developmental screener, as stated by the publisher:

- Gross motor
- Fine motor
- Problem solving
- Personal-social
- An overall section addresses general parental concerns.

Intended age range:

1-66 months

Number of items:

Each of the 21 questionnaires contains 30 items. There is also an overall section addressing general parental concerns.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?

Settings in which the ASQ-3 can be used include screening clinics, education and child care facilities, home settings, and doctors' offices or clinics.

Background

Purpose:

The Ages and Stages Questionnaires-3rd Edition (ASQ-3) is a developmental screening system made up of 21 age-specific questionnaires completed by parents or primary caregivers of young children. The questionnaires can identify children who are in need of further assessment to determine whether they are eligible for early intervention or early childhood special education services.

What is the appropriate time period between administering, recording, or reviewing the data?

The ASQ-3 manual suggests that it is ideal to screen children at regular intervals, from 2 months to 5 years, 6 months, if possible. Ideally, children should be screened initially at 2 and 4 months, then at 4-month intervals until they are 24 months old, and at 6-month intervals until they are 5 years, 6 months old. The developers do not recommend screening children more frequently than every 4-6 months (except at the 2- and 4- month intervals) unless there is some reason to suggest that more frequent screening would be useful (e.g., the child has suffered a serious illness, parents feel their child has changed, etc.).

How long does it take to administer the developmental screener?

The ASQ-3 questionnaires are completed by parents. Each questionnaire can be completed in 10-15 minutes.

Language(s) developed for:

The ASQ-3 was developed in English and translated into Spanish and French. Earlier editions of the ASQ are available in Korean. Translations of the ASQ-3 are in development in a number of languages; however, the developers did not provide information about which languages will be available.

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

Yes, the ASQ-3 is available to programs without restrictions.

What is the cost of the developmental screener?

As of 2013, the ASQ-3 Starter Kit, which includes 21 paper masters of the questionnaires (in English or in Spanish), scoring sheets, a CD-ROM with printable PDF questionnaires, the ASQ-3 User's Guide, and a laminated ASQ-3 Quick Start Guide, cost \$275.00. The starter kit contains all 21 questionnaires. Additional copies of the 21 questionnaires (in English or in Spanish) can be purchased separately for \$225.00. Costs associated with the information reporting system for the ASQ-3 are described below.

Training and Other Requirements for Assessors

Is training available on how to administer and score the developmental screener? Who offers the training?

Yes, ASQ-3 training is available through the publisher. Training DVDs are available that show staff how to screen, score, and interpret the results of the ASQ-3. Programs may also arrange for onsite seminars or attend the training seminars held every year by the developers of ASQ-3. Costs associated with the seminars range from \$2,500 to \$3,500 while the training DVDs can be purchased separately for \$50.00. Detailed information is available on the company's website (<http://www.agesandstages.com/training/>).

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to administer or complete the developmental screener?

No, it is not necessary to have a professional background or technical training to complete the ASQ-3. The ASQ-3 was developed as a parent-completed screening tool, and having parents and caregivers complete the screener is the preferred method. Completing a questionnaire independently requires reading skills at a 4th- to 6th-grade reading level. If parents or caregivers are unable to complete questionnaires independently (due to cognitive disability, limited reading skills, etc.), teachers and program staff can provide support. The manual does suggest that all ASQ-3 users become familiar with the information in the manual, in particular, the information regarding administering the ASQ-3 which appears in chapter 6.

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to score the developmental screener?

A parent, caregiver, or teacher can score the ASQ-3 without a professional background or technical training. The manual does suggest that ASQ-3 users become familiar with the information in the manual, in particular the information regarding scoring the ASQ-3.

Are regular checks on administration required or recommended to ensure appropriate administration? If so, when and by whom?

Information is not provided regarding the performance of regular checks on administration.

Information Reporting System for the Developmental Screener

Electronic Data Entry. *Does the developmental screener come with a process for entering information from the screener electronically?*

Yes, the ASQ-3 can be used with online systems called the ASQ Pro (for single sites) and the ASQ Enterprise (for multisite programs). These online management systems help with screening administration, automated scoring, and information storage. An annual subscription to the ASQ Pro costs \$149.95. An annual subscription to the ASQ Enterprise costs \$499.95

Electronic Reports. *Can programs generate electronic reports of individual children's data?*

Yes, the ASQ Pro and the ASQ Enterprise online systems can store questionnaire results and follow-up decisions in individual child records. The ASQ Enterprise can also generate multisite reports to show trends across programs.

Approaches to Family/Parent Input

Tools for Family Input. *Does the developmental screener include specific tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development?*

The ASQ-3 questionnaires were designed to be completed by parents. They indicate "yes," "sometimes," or "not yet" regarding whether the child exhibits certain skills or behaviors within five areas: communication, gross motor, fine motor, problem-solving, and personal-social. The final overall section provides space for parents and caregivers to note any general concerns.

Sharing Results. *Does the developmental screener include recommendations on how to share developmental screener results with the child's family?*

Yes, the ASQ-3 manual gives suggestions about how to communicate results of the screening with families. There are suggestions for families of children whose scores indicate typical development and for children whose results indicate the need for further assessment. An example of a feedback letter for parents and caregivers of children whose scores indicate typical development is found in Appendix D (in English and in Spanish) of the manual. The manual suggests that providing feedback to families with children whose scores indicate the need for further assessment should always be done in person due to the sensitive nature of the conversation.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

Yes, the ASQ-3 is a screener with developmental norms. The sample on which the norms are based included 15,138 children and their families, and is representative of the U.S. population in geography and ethnicity, and includes representation across socioeconomic groups.

Which populations are included in the norming sample?

Norms for the ASQ-3 were developed using questionnaire data collected between January 2004 and June 2008. This norming sample was 53 percent male and 47 percent female. 54 percent of mothers in the sample had at least four years of college, whereas 12 percent had an associate's degree, 23 percent had a high school education, and 3.5 percent had not completed high school. The majority of the reporting caregivers for this sample indicated incomes greater than \$40,000. See the table on the next page for more information about these children.

Availability of Versions in Languages Other than English. *Is the developmental screener available in languages other than English? Which languages?*

The ASQ-3 is available in Spanish and French. Previous editions of the ASQ are available in Korean.

How were versions in languages other than English developed?

Information is not provided about the development of the French version of the ASQ-3.

In order to develop the Spanish translation of the ASQ-3, pediatric experts, developmental pediatricians, and practitioners working with young children and families who speak a variety of Spanish dialects reviewed the Spanish-language version of the second edition of the

ASQ. Translation errors that were found in the second edition were corrected and minor wording changes were made.

The ASQ-3 Spanish questionnaires have been tested with Spanish-speaking parents in various geographic regions of the United States; however, separate cutoff scores have not been developed for children of Spanish-speaking parents.

What are the findings on the reliability and validity of versions of the developmental screener in languages other than English?

The reliability and validity of the translations of the ASQ-3 have not been examined.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

The ASQ-3 is based on parent, family, or teacher report and therefore information is not provided regarding accommodations for screening children with identified or suspected special needs.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted with diverse populations to determine the appropriateness of this developmental screener for these populations?*

Information is not provided about whether the appropriateness of the ASQ-3 for diverse populations was addressed in this way.

Risk Levels. *What terminology is used to describe risk levels (e.g., delay, no delay, at risk, caution, rescreen, okay, etc.)?*

The risk levels on the ASQ-3 are described as "typical development," "need for monitoring," or "need for further assessment"

Characteristics of 2008 Norming Sample

Number of children in the sample: 15,138

	Percentage of Children
Race/Ethnicity	
White	66.4
African American	11.6
Latino/Hispanic	10.5
Asian/Pacific Islander	3.9
Native American/Alaskan	1.1
Other	1.1
Mixed	4.5
Unknown	0.9
Gender	
Male	52.6
Female	47.4
Maternal Education	
Less than High School Graduation	3.5
High School Graduation	22.7
Associate's Degree	12.0
4 Years of College or Above	54.0
Unknown	7.7
Family Income	
\$0-\$12,000	12.8
\$12,001-\$24,000	9.3
\$24,001-\$40,000	13.7
More than \$40,000	57.1
Unknown	7.0

Reliability and Validity Information

What is known about the reliability and validity of the developmental screener...

In English?

There is information about reliability, validity, sensitivity, and specificity of the ASQ-3 in English. This information is outlined in responses to later questions in this profile.

In other languages?

While the ASQ-3 has been translated into Spanish, information is not provided about the reliability, validity, sensitivity, and specificity of the Spanish translation.

For dual language learners?

Information has not been provided about this population, and the reliability, validity, sensitivity, and specificity of the ASQ-3 for dual language learners have not been examined.

For children with special needs?

There is information about the sensitivity and specificity of the ASQ-3 for children with special needs. The extent to which the ASQ-3 correctly identifies children at risk for developmental delays was examined with a sample of 257 children participating in early intervention or early childhood special education programs in California, New York, and Oregon. The results of the screenings suggest that the ASQ-3 is moderately accurate at correctly identifying children who are at risk for developmental delays. Additionally, the extent to which the ASQ-3 correctly identifies children not at risk for developmental delays was examined with the same sample. Results show that the ASQ-3 is moderately to highly accurate in correctly identifying children who are not at risk for developmental delays. The developers did not provide additional information about the characteristics of this sample. The developers have not examined other types of reliability and validity for this population.

For American Indian/Alaskan Native children?

While American Indian/Alaskan Native children were included in the norming sample (1.1 percent of children), there is no separate information about the reliability, validity, sensitivity, and specificity for this specific group.

For children of migrant and seasonal farm workers?

Information is not provided about the children of migrant and seasonal farm workers and the reliability, validity, sensitivity, and specificity of the ASQ-SE for this population have not been examined.

Reliability: Does the instrument obtain the same results, consistently, under the same conditions with the same children?

Interrater Reliability. *Do different raters agree when they are assessing the same children?*

To test whether different raters agree when they are screening the same children, questionnaires completed by parents were compared with questionnaires completed by trained test examiners for the same children. The results showed acceptable agreement between parents and trained examiners when completing the ASQ-3 for the same children. The strongest agreement was in the personal-social area and the weakest agreement was in the communication area. This may be due to parents and test examiners observing different types of behavior in different settings while completing the communication area.

The agreement between raters was examined with 107 children based on the parents' and examiners' completion of the ASQ-3. This sample was taken from the norming sample. Information is not provided about the characteristics of the children in this analysis. Demographic information is not provided on the trained examiners.

Test-Retest Reliability. *How consistent are scores if the developmental screener is administered once and then administered again soon?*

The consistency of scores on the ASQ-3 is acceptable if it is administered once and then again soon. This was tested by comparing two questionnaires completed by the same parent at a two-week interval. Questionnaires completed by 145 parents taken from the norming sample were included in this analysis (no specific information is provided about the characteristics of this sample). Parents did not have access to the first questionnaire when they completed the second one, and did not know whether the scores indicated a need for further follow-up. The results of the comparisons of the two questionnaires show that the scores were consistent.

Internal Consistency Reliability. *How strongly related are items that are intended to reflect the same set of skills or behaviors?*

The developers did not examine relationships between the items within a developmental area. However, the developers did examine the relationships between developmental area scores and overall scores on the ASQ-3. This information is summarized under "Construct Validity" in the next section of this profile.

Validity: Does the instrument measure what it is supposed to?

Content Validity. *Were experts consulted regarding whether the items in the developmental screener do a good job of reflecting what the developmental screener is supposed to be assessing?*

Yes, experts, parents, and practitioners were consulted during the development of items for the ASQ-3.

Construct Validity. *How closely related to each other are sets of items within the developmental screener that aim to address similar skills and behaviors, compared to sets of items that aim to address different skills and behaviors? Do the developers examine whether scores on sets of items relate to children's age as expected?*

The developers have not examined relationships between sets of items that aim to address similar skills and behaviors.

Validity: Does the instrument measure what it is supposed to? (cont.)

The developers did examine the relationships between developmental area scores and overall score on the ASQ-3 for 20 questionnaire age intervals. The results showed strong relationships between developmental area scores and overall ASQ-3 scores.

Information about whether scores on sets of items relate to children's age as expected is not provided.

Convergent Validity. *How strongly do the scores of this developmental screener show a relationship to the scores of other developmental screeners of similar domains?*

Please see response below to how accurately the developmental screener correctly identifies children at risk for developmental delays.

Scores for Further Evaluation. *Are specific scores used to identify whether further evaluation is needed? How are these scores determined by the developer?*

Yes, cutoff scores for the five areas of development covered in each questionnaire age interval have been determined using data from 18,572 questionnaires. The manual indicates several different levels of cutoff scores that a program can choose to use when interpreting the scores.

Sensitivity. *How accurately does the developmental screener correctly identify children at risk for developmental delays?*

To test how accurately the ASQ-3 correctly identifies children at risk for developmental delays, both the ASQ-3 and the Battelle Developmental Inventory (BDI) were administered to two groups of children: those not receiving special education services and presumed to be developing without problems (322 children), and those participating in early intervention or early childhood special education programs in California, New York, and Oregon (257 children).

The BDI was administered to both groups of children by trained examiners. The ASQ-3 was completed by parents or caregivers. The results of the screenings suggest that the ASQ-3 is moderately accurate at correctly identifying children at risk for developmental delays. The accuracy of identifying children at risk for developmental problems depends on the children's age. For children ages 2-12 months, the ASQ-3 is 84.6 percent accurate at correctly identifying children at risk for developmental delays. For children 14-24 months, it is 89.2 percent accurate. For children 27-36 months, the ASQ-3 is 85.9 percent accurate. For children ages 42-60 months, it is 82.5 percent accurate. Additionally, accuracy varies depending on which cutoff scores have been used.

Specificity. *How accurately does the developmental screener correctly identify children who are not at risk for developmental delays?*

The ASQ-3 is moderately to highly accurate at correctly identifying children who are not at risk for developmental delays. The accuracy of identifying children not at risk for developmental problems depends on the children's age. For children ages 2-12 months the ASQ-3 is 91.3 percent accurate at correctly identifying children not at risk for developmental delays. For children 14-24 months, it is 77.9 percent accurate. For those 27-36 months, the ASQ-3 is 85.7 percent accurate. For those ages 27-36 months, the ASQ-3 is 85.7 percent accurate. For children ages 42-60 months, the ASQ-3 is 92.1 percent accurate. Additionally, accuracy varies depending on which cutoff scores have been used.

Follow-Up Guidance

Program Follow-Up Steps. *Does the developmental screener come with guidance about follow-up steps based on the results?*

Yes, the ASQ-3 Information Summary sheet provides a list of potential actions that may follow the screening, based on the child's scores and the parent's responses to the overall questions. For example, if the child's scores indicate typical development, children can be rescreened at 4- to 6-month intervals, and parents can be given suggestions for activities to do with their children to support their continued development. If a child's scores indicate the need for further assessment, a referral to a community agency or specialist may be made.

Family Follow-Up Steps. *Does the developmental screener include recommendations on how families might follow-up on the results of the screening?*

The recommended follow-up steps included on the ASQ-3 Information Summary Sheet provide recommendations for how families might follow up on the results of the screening. In addition, parents can use the activities that are included in the manual for children with typical results or for children who need monitoring and/or referrals. Children may benefit from practicing the skills targeted in these activities.

References

Squires, J., Twombly, E., Bricker, D., & Potter, L. (2009). *Ages and Stages Questionnaires: Third Edition*. Baltimore, MD: Paul H. Brookes Publishing.

Ages and Stages Questionnaires-Social-Emotional (ASQ:SE)

Developers: Jane Squires, Diane Bricker, and Elizabeth Twombly

Publisher: Paul H. Brookes Publishing Co., Inc. <http://www.brookespublishing.com/store/books/squires-asqse/index.htm>

Developmental domains addressed in the developmental screener, as stated by the publisher:

- Self-regulation
- Compliance
- Communication
- Adaptive functioning
- Autonomy
- Affect
- Interaction with people

Intended age range:

6-60 months

Number of items:

The ASQ:SE is a series of eight separate questionnaires based on age intervals:

6 months (19 items),
12 months (22 items),
18 months (26 items),
24 months (26 items),
30 months (29 items),
36 months (31 items),
48 months (33 items), and
60 months (33 items).

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?

The ASQ:SE can be used in home settings, clinical settings (e.g., primary health care clinics, immunization clinics, mental health clinics), center-based settings (e.g., child care, preschool), and other settings (e.g., health fairs, school screenings, community Child-Find activities).

Background

Purpose:

The Ages and Stages Questionnaires-Social Emotional (ASQ:SE) is a developmental screener designed to complement the Ages and Stages Questionnaires by providing information specifically addressing the social and emotional behavior of children.¹ The ASQ:SE identifies infants and young children whose social or emotional development requires further evaluation to determine if a referral for intervention services is necessary.

What is the appropriate time period between administering, recording, or reviewing the data?

The ASQ:SE is intended for use at six month intervals between 6 months and 3 years of age, and then at one year intervals through age 5.

How long does it take to administer the developmental screener?

The ASQ:SE questionnaires are completed by parents. The questionnaires take approximately 10-15 minutes to complete.

Language(s) developed for:

The ASQ:SE was developed in English and translated into Spanish.

¹ For more information see the Ages and Stages Questionnaire profile in this document.

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

Yes, the ASQ:SE is available to programs without restrictions.

What is the cost of the developmental screener?

As of 2013, a complete ASQ:SE Starter Kit costs \$225.00. This kit contains everything needed to start screening children with the ASQ:SE: eight photocopiable print masters of the questionnaires and scoring sheets, a CD-ROM with printable PDF questionnaires, and the ASQ:SE User's Guide. The Starter Kit is also available with Spanish questionnaires. Additional master copies of the eight questionnaires (in English and Spanish) can be purchased separately for \$175.00. Costs associated with the information reporting system for the ASQ:SE are described below.

Training and Other Requirements for Assessors

Is training available on how to administer and score the developmental screener? Who offers the training?

Yes, training is available through the publisher on how to administer and score ASQ:SE. There are many different types of training available including onsite seminars and training by DVD. Costs associated with the training seminars range from \$2,500 to \$3,500 while the training DVDs can be purchased separately for \$50.00. Detailed information is available on the company's website: <http://www.agesandstages.com/training/>.

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to administer or complete the developmental screener?

The original ASQ and ASQ:SE were developed as parent-completed screening tools, and it is best that parents or caregivers complete the screeners. However, child care providers, teachers, and early interventionists can also complete the ASQ:SE. Parents, caregivers, and teachers do not need to have technical training to complete the ASQ:SE.

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to score the developmental screener?

A parent, caregiver, or teacher can score the ASQ:SE without technical training.

Are regular checks on faithful administration required or recommended? If so, when and by whom?

Information is not provided regarding the performance of regular checks on faithful administration.

Information Reporting System for the Developmental Screener

Electronic Data Entry. *Does the developmental screener come with a process for entering information from the screener electronically?*

Yes, both the ASQ:SE and the ASQ-3 can be used with online systems called the ASQ Pro (for single sites) and the ASQ Enterprise (for multisite programs). These online management systems help with screening administration, automated scoring, and information storage. An annual subscription to the ASQ Pro costs \$149.95. An annual subscription to the ASQ Enterprise costs \$499.95

Electronic Reports. *Can programs generate electronic reports of their data and if so, at what level can those reports be made available (at the level of the individual child, classroom, or institution)?*

The ASQ Pro and the ASQ Enterprise create both individual child reports and program-level reports. The ASQ Enterprise can also generate multisite reports to show trends across programs.

Approaches to Family/Parent Input

Tools for Family Input. *Does the developmental screener include specific tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development?*

The ASQ:SE is designed to be completed by parents or caregivers.

Sharing Results. *Does the developmental screener include recommendations on how to share developmental screener results with a child's family?*

Yes, the ASQ:SE does include some recommendations on how to share the screening results with the child's family.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

Yes, the ASQ:SE is a screener with developmental norms. The sample on which the norms are based included 3,014 preschool-age children and their families, and is representative of the U.S. population in terms of ethnicity, geographic region, parent education, income, and gender of children (based on 2000 U.S. Census data).

Which populations are included in the norming sample?

The ASQ:SE norming sample included 2,633 children whose families contributed at least one completed questionnaire and 381 whose families contributed two or more questionnaires at different age intervals (e.g., at 6 and 12 months). The children in the sample were between the ages of 3 and 66 months. See the table on the next page for more information about these children.

Availability of Versions in Languages Other than English. *Is the developmental screener available in languages other than English? Which languages?*

Yes, the ASQ:SE is available in Spanish. The reliability and validity of the Spanish questionnaires have not been examined.

How were versions in languages other than English developed?

The final English version of the ASQ:SE was translated into Spanish by Spanish-speaking staff from the Migrant Head Start program in Oregon. The Spanish translation was used with 153 children whose families were non-English speakers. These translated questionnaires were not used included in ASQ: SE reliability and validity tests.

What are the findings on the reliability and validity of versions of the developmental screener in languages other than English?

The reliability and validity of the Spanish-language questionnaires have not been examined.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

The ASQ:SE is based on parent observation; therefore, accommodations for children with identified or suspected special needs are not needed.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted to determine whether this developmental screener is appropriate for use with diverse populations?*

Items for the ASQ:SE were assembled into a preliminary version called the Behavior-Ages and Stages Questionnaires (B-ASQ). Practitioners in approximately 50 programs across the United States used the B-ASQ with a diverse population of young children and parents. Practitioners and parents then completed questionnaires to provide feedback on the clarity of the meaning of the items and the appropriateness of the items, and suggestions for revisions and additions of items. This input was included in the final revisions of the B-ASQ, which was renamed the Ages and Stages Questionnaires-Social-Emotional (ASQ:SE).

Risk Levels. *What terminology is used to describe risk levels? (e.g., delay, no delay, at risk, caution, rescreen, okay, etc.)?*

Children are classified as "okay" (no further evaluation of social-emotional competence is indicated) or "at risk" (further evaluation of their social-emotional status is indicated).

Characteristics of the Norming Sample

Number of children in the sample: 3,014

	Percentage of Children
Race/Ethnicity	
White	58.9
African American	8.9
Hispanic	8.6
Asian/Pacific Islander	6.3
Native American	1.1
Mixed Ethnicity	16.0
Maternal Education	
Less than High School Graduation	13.0
High School Graduation or Equivalent	47.4
Associate's Degree	11.9
4-Year College or Above	25.3
Unknown	2.4
Family Income	
\$0-\$12,000	20.6
\$12,001-\$24,000	19.9
\$24,001-\$40,000	22.8
More than \$40,000	29.9
Unknown	6.8

Reliability and Validity Information

What is known about the reliability and validity of the developmental screener...

In English?

There is information about reliability, validity, sensitivity, and specificity of the measure in English. This information is outlined in responses to later questions in this profile.

In other languages?

While the ASQ:SE has been translated into Spanish, information is not provided about the reliability, validity, sensitivity, and specificity of the Spanish translation.

For dual language learners?

Information is not provided about dual language learners and the reliability, validity, sensitivity, and specificity of the ASQ:SE for this population have not been examined.

For children with special needs?

Information is not provided about children with special needs and the reliability, validity, sensitivity, and specificity of the ASQ:SE for this population have not been examined.

For American Indian/Alaskan Native children?

While American Indian/Alaskan Native children were included in the sample on which the screener was tested (1.1 percent of children), the developers have not examined the reliability, validity, sensitivity, and specificity of the ASQ:SE for American Indian/Alaskan Native children.

For children of migrant and seasonal farm workers?

Information is not provided about the children of migrant and seasonal farm workers and the reliability, validity, sensitivity, and specificity of the ASQ:SE for this population have not been examined.

Reliability: Does the developmental screener obtain the same results, consistently, under the same conditions with the same children?

Interrater Reliability. *Do different raters agree when they are assessing the same children?*

The developers have not examined the agreement between raters when they are screening the same children.

Test-Retest Reliability. *How consistent are scores if the developmental screener is administered once and then administered again soon?*

The consistency of scores on the ASQ:SE if the screener is administered once and then again soon is acceptable. This was tested with a sample of 367 parents by comparing two questionnaires completed one to three weeks apart. No additional information about this sample of parents or their children is provided. The results showed that the ASQ:SE scores were consistent across time intervals.

Internal Consistency Reliability. *How strongly related are items that are intended to reflect the same set of skills or behaviors?*

The relationships between items that are intended to reflect the same sets of skills or behaviors are acceptable. These relationships were examined for each ASQ:SE age interval described in the table on a previous page.

Validity: Does the developmental screener measure what it is supposed to?

Content Validity. *Were experts consulted regarding whether the items in the developmental screener do a good job of reflecting what the developmental screener is supposed to be assessing?*

Yes, an interdisciplinary group of experts helped develop the items for the ASQ:SE.

Construct Validity. *How closely related to each other are sets of items within the developmental screener that aim to address similar skills and behaviors, compared to sets of items that aim to address different skills and behaviors? Do the developers examine whether scores on sets of items relate to children's age as expected?*

The developers have not examined relationships between sets of items on the ASQ:SE that aim to address similar skills and behaviors, compared to sets of items that aim to address different skills and behaviors.

Information about whether scores on sets of items relate to children's age as expected is not provided.

Convergent Validity. *How strongly do the scores of this developmental screener show a relationship to the scores of other developmental screeners of similar domains?*

Please see response below to see how accurately the developmental screener correctly identifies children at-risk for developmental delays.

Scores for Further Evaluation. *Are specific scores used to identify whether further evaluation is needed? How are these scores determined by the developer?*

Yes, the developers used specific scores (called cutoff scores) to identify whether further evaluation is needed. To develop the cutoff scores, a method of analysis was used that compares the probability of getting an accurate result (indicating that the child is either "okay" or "at risk") for a range of cutoff scores.

A sample of 1,041 children with completed ASQ:SE questionnaires were then assessed with either the Child Behavior Checklist (CBCL), the Vineland Social-Emotional Early Childhood Scale (SEEC), or they had a professionally diagnosed social-emotional disability. The results of these screenings were then compared for this sample of children in order to determine appropriate cutoff points for the ASQ:SE.

Sensitivity. *How accurately does the developmental screener correctly identify children at risk for developmental problems?*

The ASQ:SE is moderately accurate at correctly identifying children at risk for developmental problems. To test this, children in the norm sample were classified as either "okay" or "at risk" based on their ASQ:SE scores, and classified as either "okay" or "at risk/disabled" using either the CBCL, the SEEC, or based on professional diagnosis. The results showed that the ASQ:SE and the CBCL (or SEEC) classified children the same way 78 percent of the time.

Specificity. *How accurately does the developmental screener correctly identify children who are not at risk for developmental problems?*

The ASQ:SE is highly accurate at correctly identifying children who are not at risk for developmental problems. This was determined using the comparisons between the ASQ:SE and the CBCL, the SEEC, or a professional diagnosis, described in the previous question. The results showed that the ASQ:SE and the CBCL (or SEEC) classified children the same way 94.5 percent of the time.

Follow-Up Guidance

Program Follow-Up Steps. *Does the developmental screener come with guidance about follow-up steps based on the results?*

Yes, the manual contains criteria that provide program staff with guidelines for how to interpret ASQ:SE scores and what types of follow-up are recommended. For example, if a child scores above the cutoff (indicating that there is the potential for a developmental delay or social/emotional concern), possible follow-up steps include:

- 1) Refer the child for diagnostic social-emotional or mental health assessment or
- 2) Provide the parent with information and support, and monitor the child using the ASQ:SE.

The manual also recommends that program staff look at other factors that may have influenced the results of the screening (e.g., setting/time of screening, the child's health, developmental factors, and family/cultural factors) and gather additional information before making a referral decision.

Family Follow-Up Steps. *Does the developmental screener include recommendations on how families might follow up on the results of the screening?*

The manual suggests providing parents with information or referrals to appropriate agencies for areas of concern. There is no additional information in the manual on how families might follow up on the results of the screening.

References

Squires, J., Bricker, D., & Twombly, E. (2003). *The ASQ: SE User's Guide for the Ages and Stages Questionnaires: Social Emotional*. Baltimore, MD: Paul H. Brookes Publishing.

BRIGANCE® Screens

Developers: Albert Brigance and Frances Page Glascoe
Publisher: Curriculum Associates, Inc.

<http://www.curriculumassociates.com/products/detail.asp?title=BrigEC-Screens>

Developmental domains addressed in the developmental screener, as stated by the publisher:

See below

Intended age range:
Birth through first grade

Number of items:
Each BRIGANCE® Screen has at least 32 domain- and skill-specific sections. Each section contains between 2 and 24 items.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?
The BRIGANCE® Screens can be used in early childhood program settings, pediatric clinics, and at screening fairs, which are often offered in communities in collaboration with health care providers.

Background

Purpose:

The BRIGANCE® Screens are developmental screeners used to quickly and accurately identify those children who may have developmental problems such as language impairments, learning disabilities, or cognitive delays, or who may be academically talented or gifted. The BRIGANCE® Screens include the Early Childhood Screen II (0-35 months), the Early Childhood Screen II (3-5 years), the K & 1 Screen II (kindergarten and first grade), the Early Head Start Screen (0-35 months), and the Head Start Screen (3-5 years). The Head Start editions contain the same assessments as the early childhood editions, but the introduction is specific to Head Start and relates the content of the assessments to the Head Start domains. The technical information profiled here pertains to all of the screens that are appropriate for use with 3- to 5-year-olds.

What is the appropriate time period between administering, recording, or reviewing the data?

According to the *BRIGANCE® Screens* manual, screening can be scheduled at any time during the year and should be offered in response to concerns by parents and teachers. In addition, children at psychosocial risk should be rescreened within six months of initial screening to review progress and make any needed referral decisions.

How long does it take to administer the developmental screener?

The *BRIGANCE® Screens* can be administered and scored in about 15 minutes.

Language(s) developed for:

The *BRIGANCE® Screens* were developed in English. Some materials are available in Spanish.

Developmental domains addressed in the developmental screener, as stated by the publisher:

- Communication
 - Expressive vocabulary
 - Syntax
 - Articulation
 - Fluency
 - Receptive language
- Academics/preacademic
 - Knowledge of colors
 - Knowledge of letters
 - Knowledge of letter sounds
 - Knowledge of numbers
- Motor
 - Gross motor
 - Fine motor
 - Graphomotor (handwriting skills)

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

Yes, the BRIGANCE® Screens are available to programs without restrictions.

What is the cost of the developmental screener?

As of 2013, the complete BRIGANCE® Screening Kit for Early Childhood Screen II (3-5 years) or the Head Start Screen cost \$279.00. The BRIGANCE® Screening Kit for Early Childhood Screen II (0-3 years) or the Head Start Screen cost \$309.00. Both kits include: The Early Childhood Screen II (3-5 years or 0-3 years) or the Head Start Screen, 60 assorted data sheets, screen accessories, tote bag, free 24/7 online training, and free online scoring. Costs associated with the information reporting system for the BRIGANCE® screens are described below.

Training and Other Requirements for Assessors

Is training available on how to administer and score the developmental screener? Who offers the training?

Yes, training is available on how to administer and score the BRIGANCE® Screens. The screener's publisher, Curriculum Associates, offers free online inservice training on the BRIGANCE® Screens. Please see www.CAtraining.com for more information.

Is it necessary to have professional a background or technical training (over and above training on the developmental screener) to administer or complete the developmental screener?

The BRIGANCE® Screens can be used by teachers, paraprofessionals, special educators, psychologists, occupational and physical therapists, child care and early childhood teachers, and speech-language pathologists. The BRIGANCE® Screens manual suggests that all BRIGANCE® Screens administrators become familiar with the directions and that they administer the screens in accordance with the instructions. The manual also suggests that those administering the screens, especially to the youngest age groups, have experience and a background in child development.

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to score the developmental screener?

Administrators of the BRIGANCE® Screens do not need a technical training to score the measure. However, the manual suggests that all administrators become familiar with the directions and scoring procedures, and that they score the screens in accordance with the instructions.

Are regular checks on faithful administration required or recommended? If so, when and by whom?

No information is provided regarding the performance of regular checks on faithful administration of the screens.

Information Reporting System for the Developmental Screener

Electronic Data Entry. *Does the developmental screener come with a process for entering information from the developmental screener electronically?*

Yes, the BRIGANCE® Screens can be scored by hand or with the BRIGANCE® Online Management System. The software for the BRIGANCE® Online Management System must be purchased. A year's license to use the *Online Management System* costs \$8.00 per child.

Electronic Reports. *Can programs generate electronic reports of their data and if so, at what level can those reports be made available (at the level of the individual child, classroom, or institution)?*

Yes, the BRIGANCE® Online Management System can generate reports of screening data for individual children, the classroom, and the whole program or school system.

Approaches to Family/Parent Input

Tools for Family Input. *Does the developmental screener include specific tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development?*

Yes, the BRIGANCE® Screens contain a Parent's Rating Form that asks parents a series of questions about their child that address motor skills and health status, fine-motor and visual skills, self-help skills, speech and language, general knowledge and comprehension, and social and emotional skills. Parents respond to questions by checking the appropriate box (no, uncertain, yes). Parents are also asked for additional information that would help school staff in working with the child.

Sharing Results. *Does the developmental screener include recommendations on how to share developmental screener results with a child's family?*

Yes, the BRIGANCE® Screens include several recommendations on how to share the screening results with a child's family.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

Yes, the BRIGANCE® Screens are screeners with developmental norms. The items for the BRIGANCE® Screens were selected from the BRIGANCE® Diagnostic Inventory of Early Development (IED), created in 1979. The original IED was normed with a sample of 1,156 children ranging in age from 1 year, 1 month to beyond 6 years. The group was 50 percent male, 73 percent White, 15 percent African American, and 12 percent Hispanic. In 2005, the BRIGANCE® Screens were renormed using both new and existing data. Existing data included: 1) children assessed as part of the norming for the BRIGANCE® Inventory of Early Development II, 2) the BRIGANCE® Comprehensive Inventory of Basic Skills-Revised, 3) the BRIGANCE Infant and Toddler Basic Assessments, and 4) the 1995 norming and 2005 renorming of the BRIGANCE® Screens.

Which populations are included in the norming sample?

The BRIGANCE® Screens were tested on a nationally representative sample of children from 29 U.S. states and included African Americans, Hispanics, Asian and Pacific Islanders, and Native Americans in proportion to their prevalence in the US population according to the U.S. Census Bureau. Socioeconomic variables such as parents' level of education and income were also considered, again in proportion to prevalence in the U.S. population. Children in the sample whose primary language was Spanish were tested in Spanish using standardized Spanish directions. The demographic information is reported in the manual by geographic location for the 2005 study. See the table on the next page for more information about these children.

Availability of Versions in Languages Other than English. *Is the developmental screener available in languages other than English? Which languages?*

Spanish-language directions booklets are available

for administering the screens in Spanish, but there is no separate *Spanish* version of the screens.

How were versions in languages other than English developed?

The BRIGANCE® Screens are not available in languages other than English.

What are the findings on the reliability and validity of versions of the developmental screener in languages other than English?

The BRIGANCE® Screens are not available in languages other than English.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

Yes, the BRIGANCE® Screens manual includes several accommodations and adaptations for children with motor impairment, hearing impairment or deafness, vision impairment or blindness, severe speech impairments, emotional disturbance and behavioral problems, significant health problems, autism and developmental disorders, and traumatic brain injury.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted to determine whether this developmental screener is appropriate for use with diverse populations?*

Information is not provided about whether the appropriateness of the *BRIGANCE® Screens* for diverse populations was addressed in this way.

Risk Levels. *What terminology is used to describe risk levels (e.g., delay, no delay, at risk, caution, rescreen, okay, etc.)?*

The BRIGANCE® Screens have a range of results, including: below cutoff with risk factors, below cutoff without risk factors, above cutoffs (i.e., within normal limits), and above cutoffs for gifted/talented.

Characteristics of 2005 Norming Sample

Number of children in the sample: 1,366

	Percentage of Children			
Age (in years and months)	South	West	North	Central
0-0 to 0-11	4.0	3.7	5.2	4.6
1-0 to 1-11	3.8	2.2	6.2	2.7
2-0 to 2-5	1.6	0.5	1.3	1.9
2-6 to 2-11	1.3	0.6	1.2	1.9
3-0 to 3-11	1.9	1.7	1.4	2.0
4-0 to 4-11	2.0	0.9	1.4	2.0
5-0 to 5-11	4.4	1.7	3.3	3.8
Race/Ethnicity				
White	17.5	7.3	17.8	22.5
African American	4.8	5.0	3.0	1.0
Hispanic	5.6	0.0	5.5	3.2
Asian/Other	1.3	1.1	2.4	2.0
Gender				
Male	14.1	6.4	13.3	15.6
Female	15.0	6.9	15.4	13.1
Parental Education				
Less than High School	7.5	4.5	5.8	2.8
High School	9.2	3.9	6.7	6.9
High School +	6.7	3.1	7.7	9.9
College +	5.8	2.0	8.3	9.0

Reliability and Validity Information

What is known about the reliability and validity of the developmental screener...

In English?

There is reliability, validity, sensitivity, and specificity information for the BRIGANCE® Screens in English. This information is outlined in later questions in this profile.

In other languages?

The BRIGANCE® Screens are not available in other languages.

For dual language learners?

While dual language learners were included in the sample with which the screener was tested¹, the reliability, validity, sensitivity, and specificity of the BRIGANCE® Screens for this population have not been examined.

For children with special needs?

Information is not provided about children with special needs, and the reliability, validity, sensitivity, and specificity of the BRIGANCE® Screens for this population have not been examined.

For American Indian/Alaskan Native children?

While American Indian/Alaskan Native children were included in the sample with which the screener was tested, the developers did not examine the reliability, validity, sensitivity, and specificity for this population.

For children of migrant and seasonal farm workers?

Information is not provided about the children of migrant and seasonal farm workers, and the reliability, validity, sensitivity, and specificity of the BRIGANCE® Screens for this population have not been examined.

¹The developers state that children whose primary language was Spanish were tested in that language, but do not indicate what percentage of the norming sample were dual language learners.

² Native Americans and Pacific Islanders are included under "Asian/other" in the demographic table. The developers do not report what percentage of the norming sample is Native American or Pacific Islander.

Reliability: Does the developmental screener obtain the same results, consistently, under the same conditions with the same children?

Interrater Reliability. *Do different raters agree when they are assessing the same children?*

There is acceptable agreement between raters when they are screening the same children using the BRIGANCE® Screens. Agreement between raters was examined across numerous sites. The process involved examiners who were paraprofessionals, teachers, and health care providers working with a range of children, including those with and without risk factors and special needs.

Test-Retest Reliability. *How consistent are scores if the developmental screener is administered once and then administered again soon?*

The consistency of scores when the BRIGANCE® Screens are administered once and then administered again soon is acceptable. To examine this, Enright (1991) administered the Inventory of Early Development (IED) twice to 1,156 students (14 percent were African American and 11 percent were Hispanic). Additional evidence for the consistency of scores comes from the norming of the Inventory of Early Development II (IED II) and the Comprehensive Inventory of Basic Skills-Revised (CIBS-R), which contain all items of the BRIGANCE® Screens. The results of the norming studies showed that the scores on the IED, IED II, and the CIBS-R are very consistent over short periods of time.

Internal Consistency Reliability. *How strongly related are items that are intended to reflect the same set of skills or behaviors?*

Relationships between items on the BRIGANCE® Screens that are intended to reflect the same set of skills or behaviors are acceptable. This was examined with the 2005 standardization study population described above.

Validity: Does the developmental screener measure what it is supposed to?

Content Validity. *Do experts agree that the items in the developmental screener do a good job of reflecting what the developmental screener is supposed to be assessing?*

Yes, the development of the BRIGANCE® Screens was based on collaboration with other educators who helped with item selection.

Construct Validity. *How closely related to each other are sets of items within the developmental screener that aim to address similar skills and behaviors, compared to sets of items that aim to address different skills and behaviors? Do the developers examine whether scores on sets of items relate to children's age as expected?*

There are moderate to high relationships between related subtests on the BRIGANCE® Screens that aim to address similar skills and behaviors, for example, between expressive and receptive language and between gross and fine motor skills.

Yes, the developers examine whether scores on sets of items relate to children's age as expected.

Convergent Validity. *How strongly do the scores of this developmental screener show a relationship to the scores of other developmental screeners of similar domains?*

The BRIGANCE® Screens are strongly related to other well-established measures aimed at measuring the same skills and behaviors. This was examined with the sample described in the earlier table by comparing the total scores on the BRIGANCE® Screens to scores from the IED II or the CIBS-R during the 2005 norming studies, as well as to a range of other diagnostic and screening tools. There are strong relationships between similar domains across these measures. It should be noted that the items on the BRIGANCE® Screens are taken from the IED II, so there is overlap between the two tools.

Scores for Further Evaluation. *Are specific scores used to identify whether further evaluation is needed? How are these scores determined by the developer?*

Yes, specific scores called cutoffs are used to identify children who may need further evaluation. Statistical analyses were done to determine which cutoff scores for each of the screens best identify children with disabilities or those who are at risk for academic difficulties.

Sensitivity. *How accurately does the developmental screener correctly identify children at risk for developmental problems?*

The BRIGANCE® Screens for infants and toddlers are moderately accurate at correctly identifying children at risk for developmental delays, while the BRIGANCE® Screens for 2-year-olds are highly accurate. The screens for 3-year-olds and 4-year olds are also moderately accurate at correctly identifying children at risk for developmental delays. The screens for 5-year-olds are highly accurate at correctly identifying children at risk for developmental delays.

Specificity. *How accurately does the developmental screener correctly identify children who are not at risk for developmental problems?*

The BRIGANCE® Screens are moderately accurate at correctly identifying children who are not at risk for developmental problems for children 2 through 5 years old.

Follow-Up Guidance

Program Follow-Up Steps. *Does the developmental screener come with guidance about follow-up steps based on the results?*

Yes, the manual includes thorough guidance about follow-up steps based on the results of the screening.

Family Follow-Up Steps. *Does the developmental screener include recommendations on how families might follow up on the results of the screening?*

Yes, the manual includes many recommendations on how families might follow-up on the results of the screening.

References

Enright, B. (1991). *BRIGANCE® Diagnostic Inventory of Early Development-Revised: A technical report*. North Billerica, MA: Curriculum Associates, Inc.

Glascoc, F.P. (2010). *Technical Report for the BRIGANCE® Screens*. North Billerica, MA: Curriculum Associates, Inc.

Developmental Assessment of Young Children – 2nd Edition

Developers: Judith K. Voress and Taddy Maddox

Publisher: Pro-Ed

<http://www.proedinc.com/customer/productView.aspx?id=5157>

Developmental domains addressed in the developmental screener, as stated by the publisher:

cognition, communication, social-emotional development, physical development, and adaptive behavior

Intended age range:

Birth through 5 years

Number of items:
380 total items. The number of items assessed depends on the child's level of development and the number of domains the examiner wishes to assess.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?

Skills may be assessed through observation, interview of caregivers, and direct assessment; therefore possible settings include home, school/center, day care center, or medical facilities, among others.

Background

Purpose:

The *Developmental Assessment of Young Children – Second Edition* (DAYC-2) is an individually administered, norm-referenced measure of early childhood development for children from birth through age 5 years 11 months. It has three major purposes: 1) to help identify children who are significantly below their peers in cognitive, communicative, social-emotional, physical, or adaptive behavior abilities; 2) to monitor children's progress in special intervention programs; and 3) to be used in research studying abilities in young children.

What is the appropriate time period between administering, recording, or reviewing the data?

Information is not provided regarding the appropriate time between initial screening and rescreening.

How long does it take to administer the developmental screener?

10-20 minutes for each of the 5 domains

Language(s) developed for:

English

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

Yes, the DAYC-2 is available to programs without restrictions.

What is the cost of the developmental screener?

As of 2013, the cost of the DAYC-2 complete kit was \$345. The complete kit contains the examiner's manual, 25 scoring forms for each domain (cognitive, communication, physical development, social-emotional development, and adaptive behavior), 25 mini poster-packs of the Early Child Development Chart, and 25 examiner summary sheets. Additional DAYC-2 scoring forms (in packages of 25) can be purchased for \$41. Additional examiner summary sheets (in packages of 25) can be purchased for \$27. Costs associated with the information reporting system for the DAYC-2 are described below.

Training and Other Requirements for Assessors

Is training available on how to administer and score the developmental screener? Who offers the training?

The publisher does not offer training on the DAYC-2; however, a qualified examiner should not have difficulty administering the DAYC-2 appropriately when following the instructions in the examiner's manual. The developers do advise that examiners consult local school policies, state regulations, and position statements of professional organizations regarding test administration, interpretations, and issues of confidentiality before administering the DAYC-2.

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to administer or complete the developmental screener?

The developers report that qualified examiners are likely to be early childhood specialists, school psychologists, diagnosticians, speech-language pathologists, physical therapists, occupational therapists, or other professionals who have some formal training in assessment and early childhood development.

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to score the developmental screener?

According to the developers of this screener, the same qualifications pertain to examiners and those scoring the screener: qualified examiners will be able to score the DAYC-2.

Are regular checks on administration required or recommended to ensure appropriate administration? If so, when and by whom?

Information is not provided about the performance of regular checks on faithful administration.

Information Reporting System for the Developmental Screener

Electronic Data Entry. *Does the developmental screener come with a process for entering information from the developmental screener electronically?*

Software will be available in the fall of 2013. Examiners will be able to enter total scores for each Domain or enter scores on individual items. However, the examiner will need the paper protocols for administration, however.

Electronic Reports. *Can programs generate electronic reports of individual children's data?*

Software will be available in the fall of 2013. Results will be reported at the individual child level.

Approaches to Family/Parent Input

Tools for Family Input. *Does the developmental screener include specific tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development?*

The DAYC-2 includes a parent or other caregiver interview as one option for gathering information that the examiner cannot observe during the assessment.

Sharing Results. *Does the developmental screener include recommendations on how to share developmental screener results with a child's family?*

Information is not provided about how to share the screening results with the child's family.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

The DAYC-2 is a screener with developmental norms.

Which populations are included in the norming sample?

The norming of the DAYC-2 was completed with a sample of 1,832 children ages birth through 5 years, 11 months. The DAYC-2 norming sample is representative of the US population according to the 2010 Statistical Abstract of the United States. See the table on the next page for more information about these children.

Availability of Versions Other than English. *Is the developmental screener available in languages other than English? Which languages?*

The DAYC-2 is only available in English.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

Information is not provided about suggested accommodations for screening children with identified or suspected special needs.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted to determine whether this developmental screener is appropriate for use with diverse populations?*

The DAYC-2 manual does not provide information about cognitive testing or focus groups regarding diverse populations. It does, however, provide reliability information that supports the use of this tool with diverse populations. The screener shows little to no bias by gender, race or ethnicity.

Risk Levels. *What terminology is used to describe risk levels (e.g., delay, no delay, at risk, caution, rescreen, okay, etc.)?*

The DAYC-2 describes children as very superior, superior, above average, average, below average, poor, and very poor. Children who fall within the below average, poor, and very poor ranges may not have attained developmental levels that are expected for children their age.

Characteristics of Norming Sample

Number of children in the sample: 1,832

Characteristics	Percentage of Sample
Geographic Region	
Northeast	19
South	36
Midwest	22
West	23
Gender	
Male	51
Female	49
Ethnicity	
White	77
Black/African American	15
Asian/Pacific Islander	3
Two or more	4
Other	1
Hispanic Status	
Yes	18
No	82
Parents' Education	
Not high school graduate	16
High school graduate, some college	53
Associate's degree	7
Bachelor's degree	16
Advanced degree	8
Household Income	
Under \$15,000	11
\$15,000 to \$24,999	9
\$25,000 to \$34,999	10
\$35,000 to \$49,999	15
\$50,000 to \$74,999	21
\$75,000 and above	35

Reliability and Validity Information

What is known about the reliability and validity of the developmental screener...

In English?

There is information about reliability, validity, sensitivity, and specificity of the DAYC-2 in English. This information is outlined in responses to later questions in this profile.

In other languages?

The DAYC-2 has not been developed in other languages.

For dual language learners?

Information about dual language learners is not provided, and the reliability, validity, sensitivity, and specificity of the screener for this population have not been examined.

For children with special needs?

The developers have examined sensitivity and specificity for children with special needs, but not other aspects of reliability and validity with this population.

For American Indian/Alaskan Native children?

Information is not provided about American Indian/Alaskan Native children, and the reliability, validity, sensitivity, and specificity of the DAYC-2 for this population have not been examined.

For children of migrant and seasonal farm workers?

Information is not provided about the children of migrant and seasonal farm-workers, and the reliability, validity, sensitivity, and specificity of the DAYC-2 for this population have not been examined.

Reliability: Does the developmental screener obtain the same results, consistently, under the same conditions with the same children?

Interrater Reliability. *Do different raters agree when they are screening the same children?*

Agreement among different raters of the same children is acceptable in the DAYC-2. Agreement was found between the two authors of the DAYC-2 who independently scored the same 50 children drawn from the norming sample. Of these 50 children, 28 were males. Children ranged in age from 1 to 69 months, and resided in all four regions of the country.

Test-Retest Reliability. *How consistent are scores if the developmental screener is administered once and then administered again soon?*

The consistency of DAYC-2 scores is acceptable when the developmental screener is administered once and then administered again to the same children.

To examine this, the DAYC-2 was administered twice to 90 children. The interval between the test dates ranged from 1 to 2 weeks. Children in the test-retest sample were between birth and 5 years of age, and half were girls.

The sample was 92% White, 4% Black/African American, and 10% Hispanic. In addition, 7% of children were premature. Children in this sample came from New York (84%) and Idaho (16%).

Internal Consistency Reliability. *How strongly related are items that are intended to reflect the same set of skills or behaviors?*

There are strong relationships among items on the DAYC-2 that are intended to reflect the same set of skills or behaviors; relationships among items within domains are strong for each domain. These relationships were examined with the norming sample described above.

Validity: Does the developmental screener measure what it is supposed to?

Content Validity. *Do experts agree that the items in the developmental screener do a good job of reflecting what the developmental screener is supposed to be assessing?*

Information is not provided regarding whether experts were consulted on the content of the DAYC-2.

Construct Validity. *How closely related to each other are sets of items within the developmental screener that aim to address similar skills and behaviors, compared to sets of items that aim to address different skills and behaviors? Do the developers examine whether scores on sets of items relate to children's age as expected?*

There are strong relationships among sets of items within the DAYC-2. In addition, domain scores have strong relationships to children's age.

Convergent Validity. *How strongly do the scores of this developmental screener show a relationship to the scores of other developmental screeners of similar domains?*

The DAYC-2 was compared to two other early childhood screeners, the *Battelle Developmental Inventory- Second Edition* and the *Developmental Observation Checklist System – Second Edition (DOCS-2)*. A total of 83 children completed the two additional measures. This sample ranged in age from birth to 69 months and was 51% male. They were also 92% White, 4% African American, and 11% Hispanic. All children were from New York.

Results showed strong relationships between scores from similar domains on the DAYC-2 and the Battelle Developmental Inventory.

Follow-Up Guidance

Program Follow-Up Steps. *Does the developmental screener come with guidance about follow-up steps based on the results?*

Information is not provided about follow up steps based on the results of the screening.

Family Follow-Up Steps. *Does the developmental screener include recommendations on how families might follow up on the results of the screening?*

Information is not provided regarding recommendations for how families might follow up on the results of the screening.

References

Voress, J. K., & Maddox, T. (2013). *Developmental Assessment of Young Children, Second Edition*. Austin, Texas: Pro-Ed.

Early Screening Profiles

Developers: Patti Harrison, Alan Kaufman, Nadeen Kaufman, Robert Bruininks, John Rynders, Steven Ilmer, Sara Sparrow, and Domenic Cicchetti

<http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=PAa3500&Mode=summary>

Publisher: Pearson

Developmental domains addressed in the developmental screener, as stated by the publisher:

The Early Screening Profiles consists of seven parts: the Cognitive/Language Profile, the Motor Profile, the Self Help/Social Profile, the Articulation Survey, the Home Survey, the Health History Survey, and the Behavior Survey. These components can be used individually or in combination.

Intended age range:

2 years 0 months through 6 years 11 months

Number of items:

Cognitive/Language Profile (78); Motor Profile (8); Self-Help/Social Profile (60); Articulation Survey (20); Home Survey (12) Behavior Survey (22); Health History Survey (12)

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?

The Early Screening Profiles can be administered in educational, community, medical or other settings.

Background

Purpose:

The Early Screening Profiles (ESP) is designed to test children to identify possible handicaps, developmental problems or giftedness, and to determine whether further evaluation is needed to prescribe specialized intervention services.

What is the appropriate time period between administering, recording, or reviewing the data?

The publisher typically recommends at least 6 weeks before retesting after initial screening.

How long does it take to administer the developmental screener?

Testing time for the Early Screening Profiles ranges from 15 to 30 minutes, depending on the age and developmental level of the child. The parent and teacher questionnaires are completed in 10 to 15 minutes.

Language(s) developed for:

The Early Screening Profiles were developed in English.

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

The Early Screening Profiles can be purchased by individuals with certification or membership in a professional organization that requires training and experience in assessment or someone who has a master's degree in a relevant field or license to practice in the healthcare field.

What is the cost of the developmental screener?

As of 2013, The Early Screening Profiles cost \$385. The kit includes the manuals, test easel, materials, test records and questionnaires for 25 children. Costs associated with the information reporting system for the ESP are described below.

Training and Other Requirements for Assessors

Is training available on how to administer and score the developmental screener? Who offers the training?

The publisher offers a training video available for purchase (\$143) that provides information about administering and scoring the developmental screener.

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to administer or complete the developmental screener?

No, examiners do not need specialized training, experience or coursework to administer the ESP. Necessary qualifications include the ability to read and follow the directions, accuracy in writing responses, and the ability to interact with young children in a kind and patient manner.

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to score the developmental screener?

No, scorers do not need to have a professional background or technical training other than training on the ESP's scoring procedures. However, the interpretation of the results must be completed by professionals with training in tests and measurement.

Are regular checks on administration required or recommended to ensure appropriate administration? If so, when and by whom?

Screening coordinators with training, skills and experience working with young children, child development theory and research, and assessment are responsible for supervising examiners. Information is not provided on whether or not, or how often, checks on administration are completed.

Information Reporting System for the Developmental Screener

Electronic Data Entry. *Does the developmental screener come with a process for entering information from the developmental screener electronically?*

No, there is no software for entering information from the screener electronically.

Electronic Reports. *Can programs generate electronic reports of individual children's data?*

No, electronic reports cannot be generated.

Approaches to Family/Parent Input

Tools for Family Input. *Does the developmental screener include specific tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development?*

The Self-Help/Social Profile is a questionnaire completed by the child's parent (or teacher, daycare provider, or a combination of them) that assesses the child's typical performance in the areas of communication, daily living skills, socialization, and motor skills. Parent input is additionally gathered through the parent-reported Home and Health History surveys. The Home survey asks questions about the child's environment and the Health History survey identifies child health problems.

Sharing Results. *Does the developmental screener include recommendations on how to share developmental screener results with a child's family?*

Information is not provided about sharing the results with a child's family.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

Yes, the Early Screening Profiles has developmental norms.

Which populations are included in the norming sample?

The norms are based on a nationally representative sample (1990 Census data) of 1,149 children from ages 2 years 0 months to 6 years 11 months of age. Half of the sample (50.4 percent) was female. Since many of the children did not attend school or school programs, data for the Self-Help/Social Profile completed by teachers were obtained for only 366 children. The following table provides information on race/ethnicity, parent education level, and geographic region for children in the sample among 5 age groups.

Availability of Versions Other than English. *Is the developmental screener available in languages other than English? Which languages?*

No, the Early Screening Profiles is not available in languages other than English.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

Information is not provided regarding accommodations for screening children with special needs.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted to determine whether this developmental screener is appropriate for use with diverse populations?*

Information is not provided about whether the appropriateness of the Early Screening Profiles for diverse populations was examined in this way.

Risk Levels. *What terminology is used to describe risk levels (e.g., delay, no delay, at risk, caution, rescreen, okay, etc.)?*

The developers define children identified for further assessment on the profiles as at-risk. The Articulation, Home, Health History, and Behavior Surveys use the following descriptive risk categories: below average, average, and above average.

Characteristics of 1990 ESP Norming Sample

Number of children in the sample: 1,149

	Percentage of Children				
	2-0 to 2-11	3-0 to 3-11	4-0 to 4-11	5-0 to 5-11	6-0 to 6-11
Race/Ethnicity					
White	71.2	69.9	69.4	68.3	69.0
Black	19.0	16.0	16.4	16.8	17.9
Hispanic	7.4	10.7	11.6	10.6	9.4
Other	2.4	3.4	2.6	4.3	3.7
Parent Education					
<12 years	8.7	11.5	11.1	11.3	15.7
12 years	31.0	36.3	39.7	41.8	41.4
1-3 years college or technical school	27.0	22.1	25.5	27.9	25.1
4+ years of college	33.3	30.1	23.7	19.0	17.5
Geographic Region					
Northeast	14.1	20.9	20.3	18.1	11.8
North Central	27.0	24.3	25.4	35.3	37.2
South	39.9	34.4	32.3	31.7	36.7
West	19.0	20.4	22.0	14.9	14.3

Reliability and Validity Information

What is known about the reliability and validity of the developmental screener...

In English?

There is information about reliability, validity, sensitivity, and specificity of the Early Screening Profiles in English. This information is outlined in responses to later questions in this profile.

In other languages?

The ESP is not available in other languages.

For dual language learners?

Information is not provided about dual language learners and the reliability, validity, sensitivity, and specificity of the ESP for this population have not been examined.

For children with special needs?

Information is not provided about children with special needs and the reliability, validity, sensitivity, and specificity of the ESP for this population have not been examined.

For American Indian/Alaskan Native children?

While American Indian/Alaskan Native children may have been included in the "Other" category of the standardization sample, the developers did not examine the reliability and validity for this group.

For children of migrant and seasonal farm workers?

Information is not provided about the children of migrant and seasonal farm-workers and the reliability and validity for this population have not been examined.

Reliability: Does the developmental screener obtain the same results, consistently, under the same conditions with the same children?

Interrater Reliability. *Do different raters agree when they are screening the same children?*

To test whether different raters agree when they are screening the same children, the Motor Profile was completed by one examiner and compared with questionnaires completed by another examiner. The results showed acceptable agreement between examiners for the motor items. The developers do not provide information about agreement between raters on the other profiles.

What are the characteristics of the teachers and children this has been examined with?

The agreement between raters was examined with 63 children based on two different examiners' completion of the Early Screening Profiles. This study was conducted during the development of the ESP. The developers did not provide specific information about the characteristics of the children in this analysis. The developers did not provide demographic information on the trained examiners.

Test-Retest Reliability. *How consistent are scores if the developmental screener is administered once and then administered again soon?*

To test whether scores on the Early Screening Profiles are consistent if the screener is administered once and then administered again soon, the ESP was conducted five to 21 days apart with 74 children ages 2 years, 0 months to 6 years, 11 months. There was acceptable consistency among the scores on all components, but the consistency of the scores was slightly lower on the Motor Profile. The developers do not provide additional information on the sample or examiners.

Internal Consistency Reliability. *How strongly related are items that are intended to reflect the same set of skills or behaviors?*

Relationships between sets of items that are intended to reflect the same set of skills or behaviors were examined for each subtest and domain of the Cognitive/Language and Self-Help/Social Profiles with the five age groups from the standardization sample. With the exception of the Motor Profile, items that are meant to reflect the same set of skills or behaviors as other items meet the criteria for acceptable relationships.

Validity: Does the developmental screener measure what it is supposed to?

Content Validity. *Do experts agree that the items in the developmental screener do a good job of reflecting what the developmental screener is supposed to be assessing?*

Yes, experts agree that the ESP does a good job of measuring what it is supposed to be measuring. Items on the ESP that the expert reviewers considered unsatisfactory were dropped during the development of the ESP.

Construct Validity. *How closely related to each other are sets of items within the developmental screener that aim to address similar skills and behaviors, compared to sets of items that aim to address different skills and behaviors? Do the developers examine whether scores on sets of items relate to children's age as expected?*

Sets of items that are intended to address similar skills and behaviors are moderately to strongly related to each other. Relationships between subtests or domains within the same Profile are stronger than those with subtests or domains in other Profiles. Weaker relationships among the Articulation, Behavior, and Home Surveys show that they measure distinct areas. Scores on the Profiles, the Articulation Survey, the Behavior Survey, and the Home Survey relate to children's age as expected.

Convergent Validity. *How strongly do the scores of this developmental screener show a relationship to the scores of other developmental screeners of similar domains?*

The developers of the ESP examined the relationships between children's scores on the ESP and their scores on the Battelle Developmental Inventory Screening Test, the Developmental Indicators for the Assessment of Learning-Revised (DIAL-R), three draw-a-person measures, the screening test from the Bracken Basic Concepts Scale, and the Denver Developmental Screening Test.

The results of these analyses showed weak to moderate relationships between children's scores on the ESP and scores on the other developmental screening tools, with the exception of a strong relationship between scores on the Cognitive/Language Profile and subscales (Visual Discrimination, Logical Relations, Verbal Concepts, and Basic School Skills) of the ESP and the Bracken screening test.

Scores for Further Evaluation. *Are specific scores used to identify whether further evaluation is needed? How did the developers determine these scores?*

Yes, specific scores (called cutoff points) are used to identify children who may need further evaluation. Administrators of the ESP can use one of two scoring systems to determine the need for further evaluation, based on the needs and purposes of the screening. The first scoring system, called the Total Screening Index, provides a brief estimate of general, overall development. The Screening Index cutoff point used to identify children needing further assessment should take into account the desired referral rate (the percentage of children who will be referred for further assessment). For example, the lowest possible Total Screening Index, 1, may be chosen as the criteria for possible at-risk status. In this case, only children whose Total Screening Index is 1 are referred for comprehensive assessment. The second scoring system, referred to in the manual as Level II, allows users to make screening decisions based on one, two, or all three of the Profiles (Cognitive/Language, Motor, and Self-Help/Social). This scoring system provides more detailed information about a child's level of performance compared to the performance of children the same age.

Validity: Does the developmental screener measure what it is supposed to? (cont.)

Sensitivity. *How accurately does the developmental screener correctly identify children at risk for developmental problems?*

The developers used two studies, Norton, n.d., (as cited in Harrison, 1990) and LaQua, 1989, to examine how accurately the ESP correctly identifies children at risk for developmental problems.

In the Norton study (n=93), the sample contained the following groups of children: learning disabled, speech-language impaired, multi-handicapped, and educable mentally retarded. Across all groups, the ESP was highly accurate at identifying children at risk for developmental problems when parents completed the Self-Help/Social Profile, and moderately accurate when teachers completed the Self-Help/Social Profile.

The LaQua study (n=336) contained the following groups of children: preschool/early education, transitional kindergarten, speech/language, and special education (self-contained). Across these groups, the ESP had low accuracy at correctly identifying children at risk for developmental delay when either parents or teachers completed the Self-Help/Social Profiles.

Specificity. *How accurately does the developmental screener correctly identify children who are not at risk for developmental problems?*

The developers used two studies, Norton, n.d., (as cited in Harrison, 1990) and LaQua, 1989, to examine how accurately the ESP correctly identifies children at risk for developmental problems.

The Norton study found that the ESP had moderate accuracy at identifying children not at risk for developmental problems when parents completed the Self-Help/Social Profile, and low accuracy when teachers completed the Self-Help/Social Profile. In the LaQua study, both the parent and teacher versions of the Early Screening Profiles had high accuracy at correctly identifying children not at risk for developmental delay.

Follow-Up Guidance

Program Follow-Up Steps. *Does the developmental screener come with guidance about follow-up steps based on the results?*

The manual suggests that results from the Profiles can be used to refer children for follow-up comprehensive assessment and to plan the procedures and instruments used in that follow-up assessment. The developers suggest that the referral and selection of instruments should be based on the particular needs of the child and family and the focus of the screening agency. The manual cites numerous compatible instruments that can be used for more detailed follow-up assessment: the Kaufman Assessment Battery for Children [K-ABC], Vineland Adaptive Behavior Scales, and Bruininks-Oseretsky Test of Motor Proficiency, the Scales of Independence Behavior battery, The Social Skills Rating System, and The Battelle Developmental Inventory (although this is not an all inclusive list).

Family Follow-Up Steps. *Does the developmental screener include recommendations on how families might follow up on the results of the screening?*

The manual includes a template report for parents that includes a short description of the different components of the test, the child's scores, and a recommendation section for the screening agency to fill out unique to each child.

References

Harrison, P.L. (1990). Early Screening Profiles Manual. Minneapolis, MN: NCS Pearson, Inc.

LaQua, D. (1989). Assessing the predictive validity and factor structure of the AGS Early Screening Profiles. Unpublished doctoral dissertation. University of Minnesota, Minneapolis.

FirstSTeP Screening Test for Evaluating Preschoolers

Developers: Lucy J. Miller

Publisher: Developmental Technologies, Inc.

<http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8182-707&Mode=summary>

Developmental domains addressed in the developmental screener, as stated by the publisher:

Cognitive, communication (language), motor, social-emotional, and adaptive functioning.

Intended age range:

2 years, 9 months to 6 years, 2 months

Number of items:

FirstSTeP includes 143 items.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?

FirstSTeP is designed to be administered in large-scale screening in such settings as public school systems, public health settings, and pediatricians' offices. Specifically, FirstSTeP can be given in a school, an office, a clinic, or any quiet area.

Background

Purpose:

FirstSTeP is an individually-administered developmental screener designed to identify young children who may have developmental delays. The screener will result in a determination as to whether a child is functioning within normal limits or is in need of a complete diagnostic evaluation.

What is the appropriate time period between administering, recording, or reviewing the data?

Information is not provided regarding the appropriate time period between initial screening and rescreening.

How long does it take to administer the developmental screener?

FirstSTeP is designed to be administered in approximately 15 minutes.

Language(s) developed for:

English

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

FirstSTeP can be purchased by individuals with certification or membership in a professional organization that requires training and experience in assessment or someone who has a master's degree in a relevant field or a license to practice in the healthcare field.

What is the cost of the developmental screener?

As of 2013, the complete FirstSTeP screening kit can be purchased for \$292. This kit includes: the manual, the Stimulus Booklet, 5 Record Forms each for Levels 1, 2, and 3, 25 Social-Emotional/Adaptive Behavior Booklets, 25 Parent Booklets; Manipulatives, and a carrying case. Costs associated with the information reporting system for the FirstSTeP are described below.

Training and Other Requirements for Assessors

Is training available on how to administer and score the developmental screener? Who offers the training?

Yes, training is available through an on-line webinar. It includes descriptions on how to administer, score and interpret the screener. The training can be purchased for \$75.00. Detailed information is available on the company's website: <http://spduniversity.org/2011/10/27/121/>

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to administer or complete the developmental screener?

FirstSTeP has been designed for a variety of user groups including educators; special educators; nurses; physicians; occupational, physical, speech, and language therapists; psychologists; day care teachers, Head Start teachers; aides in these professions, and others with an interest in early childhood screening. The developers recommend that users should be familiar with child development. The developers also state that users should follow closely all directions for administration. They are encouraged to utilize the Procedural Reliability Checklist to become competent in the administration of FirstSTeP.

Is it necessary to have a professional background or technical training (over and above training on the developmental screener) to score the developmental screener?

FirstSTeP can be scored by users who follow the standardized administration instructions in the manual.

Are regular checks on administration required or recommended to ensure appropriate administration? If so, when and by whom?

Information is not provided about regular checks on faithful administration.

Information Reporting System for the Developmental Screener

Electronic Data Entry. *Does the developmental screener come with a process for entering information from the developmental screener electronically?*

No, FirstSTEp provides a Record Form with space to score the child's responses by hand.

Electronic Reports. *Can programs generate electronic reports of individual children's data?*

No, electronic reports cannot be generated.

Approaches to Family/Parent Input

Tools for Family Input. *Does the developmental screener include specific tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development?*

Yes, FirstSTEp includes an optional Parent/Teacher scale that was developed to add information about the child's performance at home or at school that may not be observable at the time of the screening. The wording and scoring of this scale is simplified so that parents and teachers can fill out the rating scale independently.

Sharing Results. *Does the developmental screener include recommendations on how to share developmental screener results with a child's family?*

No, the manual does not include recommendations on how to share the screening results with the child's family.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

Yes, FirstSTeP is a screener with developmental norms.

Which populations are included in the norming sample?

The sample on which the norms are based included 1,433 children aged 2 years, 9 months through 6 years, 2 months who were selected to be representative of the population of children at these ages in the United States (based on 1988 U.S. Census data). Norms for the FirstSTeP were developed from June 1990 to January 1991. Approximately 54 administrators including occupational, speech, and physical therapists, psychologists, special educators, early childhood teachers, nurses, social workers, and pediatricians conducted screenings with children from 40 states and the District of Columbia. See the table below for more information about these children.

Availability of Versions Other than English. *Is the developmental screener available in languages other than English? Which languages?*

FirstSTeP is not available in languages other than English.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

Information is not provided about suggested accommodations for screening children with identified or suspected special needs. However, the manual does provide guidance on establishing rapport with the child before screening begins and suggests administration of the developmental screener should be sensitive to the specific needs of the child.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted to determine whether this developmental screener is appropriate for use with diverse populations?*

Information is not provided about whether the appropriateness of the FirstSTeP for diverse populations was addressed through cognitive testing or focus groups.

Risk Levels. *What terminology is used to describe risk levels (e.g., delay, no delay, at risk, caution, rescreen, okay, etc.)?*

Children's scores on the FirstSTeP classify them as either "normal" or "at risk."

Characteristics of 1991 Norming Sample

Number of children in the sample: 1,433

	Percentage of Children
Age of Children	
2:9-3:2	13.9
3:3-3:8	14
3:9-4:2	14.5
4:3-4:8	15.1
4:9-5:2	15.2
5:3-5:8	13.7
5:9-6:2	13.5
Race/Ethnic Group	
White	67.6
African American	13.4
Hispanic	14.4
Other	4.6
Gender	
Male	51.6
Female	48.4
Region	
Northeast	17.5
North Central	22.7
South	31.9
West	27.8
Parent Education	
Less than High School	18.4
High School	43.1
≥ 1 Year College	38.4
Unknown	0.1

Reliability and Validity Information

What is known about the reliability and validity of the developmental screener...

In English?

There is information about reliability, validity, sensitivity, and specificity in English. This information is outlined in later questions in this profile.

In other languages?

FirstSTEp is not available in other languages.

For dual language learners?

Information is not provided about dual language learners and the reliability, validity, sensitivity, and specificity of the FirstSTEp for this population have not been examined.

For children with special needs?

Four studies were conducted in order to assess the ability of FirstSTEp to discriminate among different clinical groups (cognitive delay, language delay, motor delay, and social-emotional problems). However, reliability and validity were not examined separately for this population; furthermore, children with special needs were excluded from the norming sample.

For American Indian/Alaskan Native children?

While American Indian/Alaskan Native children were included in the sample with which the FirstSTEp was developed, the developer has not examined the reliability, validity, sensitivity, and specificity separately for this population.

For children of migrant and seasonal farm workers?

Information is not provided about the children of migrant and seasonal farm workers and the reliability, validity, sensitivity, and specificity for this population have not been examined.

Reliability: Does the developmental screener obtain the same results, consistently, under the same conditions with the same children?

Interrater Reliability. *Do different raters agree when they are screening the same children?*

There is acceptable agreement between two different raters when they screen the same children with FirstSTeP. This was examined with 43 children from the standardization sample. The racial/ethnic composition of the sample was 62.8% White, 20.9% African American, 11.6% Hispanic, and 4.7% Other. Fifty-eight percent of the sample was male. Two raters simultaneously scored the children's performance. The developers do not provide any information about the characteristics of the teachers/assessors who were involved in the study.

Test-Retest Reliability. *How consistent are scores if the developmental screener is administered once and then administered again soon?*

Scores on all four of the FirstSTeP domains met the criteria for acceptable consistency when the assessment was administered twice (one to two weeks apart). This was examined with 86 children who were randomly selected from the standardization sample. Just over sixty percent (60.5) of the sample was male. The racial/ethnic composition of the sample was 82.6% White, 1.2% African American, 7.0% Hispanic, and 9.3% Other. The developers do not provide any information about the characteristics of the teachers/assessors who were involved in the study.

Internal Consistency Reliability. *How strongly related are items that are intended to reflect the same set of skills or behaviors?*

Within each of the domains addressed by FirstSTeP, the strength of the relationships between items intended to reflect the same set of skills met the criteria for acceptable relationships. The weakest relationships among items were in the motor and cognitive domains, but they still met the criteria for acceptable relationships. The developers do not provide any information about the characteristics of the sample that was used to examine these relationships.

Validity: Does the developmental screener measure what it is supposed to?

Content Validity. *Do experts agree that the items in the developmental screener do a good job of reflecting what the developmental screener is supposed to be assessing?*

Yes, experts were consulted on whether FirstSTeP does a good job at reflecting what it is supposed to be measuring.

Construct Validity. *How closely related to each other are sets of items within the developmental screener that aim to address similar skills and behaviors, compared to sets of items that aim to address different skills and behaviors? Do the developers examine whether scores on sets of items relate to children's age as expected?*

There are low to moderate relationships between related subtests on the FirstSTeP that aim to address similar skills and behaviors.

Information is not provided about whether scores on sets of items related to children's age as expected.

Convergent Validity. *How strongly do the scores of this developmental screener show a relationship to the scores of other developmental screeners of similar domains?*

To examine how closely FirstSTeP is related to other well-established assessments, scores on the FirstSTeP from a sample of 226 children aged 2 years, 9 months to 6 years, 2 months were compared with their scores on The Miller Assessment for Preschoolers (MAP). Results showed strong relationships between the two tools.

Scores for Further Evaluation. *Are specific scores used to identify whether further evaluation is needed? How did the developers determine these scores?*

Yes, the developers used specific scores (called cutpoints) to identify whether further evaluation is needed. Cutpoints were determined using data from two subsamples comprised of children in the standardization sample and clinical samples (children with cognitive, language, or motor skill deficits).

Sensitivity. *How accurately does the developmental screener correctly identify children at risk for developmental problems?*

To test how accurately the FirstSTeP correctly identifies children at risk for developmental delays, FirstSTeP was administered to children in the two subsamples comprised of children in the standardization sample and clinical samples described above. The results of the screenings suggest that FirstSTeP is moderately accurate at correctly identifying children at risk for developmental delays.

Specificity. *How accurately does the developmental screener correctly identify children who are not at risk for developmental problems?*

FirstSTeP is moderately accurate at correctly identifying children who are not at risk for developmental delays. This was tested with the two subsamples comprised of children in the standardization sample and clinical samples described above.

Follow-Up Guidance

Program Follow-Up Steps. *Does the developmental screener come with guidance about follow-up steps based on the results?*

Information is not provided about specific recommendations for follow-up steps. However, they do recommend that children whose scores suggest possible developmental delays should receive a comprehensive evaluation (in deficit areas) prior to beginning any special programming.

Family Follow-Up Steps. *Does the developmental screener include recommendations on how families might follow up on the results of the screening?*

Information is not provided regarding recommendations for how families might follow up on the results of the screening.

References

Miller, L.J. (1993). FirstSTEp Screening Test for Evaluating Preschoolers Manual. San Antonio, TX: Pearson.

Learning Accomplishment Profile-Diagnostic Screens (LAP-D Screens)

Developer: The Chapel Hill Training-Outreach Project

Publisher: Kaplan Early Learning Company

<http://chtop.org/Products/The-LAP-D-Screens.html>

Developmental domains addressed in the developmental screener, as stated by the publisher:

- Gross motor
- Fine motor
- Cognitive
- Language

Intended age range:
3 to 5 years. There are three versions of the LAP-D Screens: one each for 3-, 4-, and 5-year-olds. The 5-year-old version is meant for children in kindergarten.

Number of items:
The number of items depends on the version. The 3-year-old version has 18 items. The 4-year-old version has 55 items. The 5-year-old version has 25 items. However, not all items are administered to all children.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?

The LAP-D Screens can be used in early childhood programs, universities, research laboratories, hospitals, rehabilitation centers, and other medical practices.

Background

Purpose:

The Learning Accomplishment Profile-Diagnostic Screeners (LAP-D Screens) is a brief developmental screener that provides an initial snapshot of whether a child might be at risk for a developmental delay. Four of the tools that are included in this document are from the Learning Accomplishment System (LAP). The four tools are distinct from each other, but are from a comprehensive system of assessment and developmental screening. The Learning Accomplishment System-3rd Edition (LAP-3) is a criterion-referenced assessment, too, meaning that a child's scores on the assessment are compared to developmental benchmarks. The Learning Accomplishment System-Diagnostic (LAP-D) is not a diagnostic tool, but is a norm-referenced assessment, meaning that a child's scores on the assessment are compared to the scores of a group of children with which the assessment was developed and on which it was tested. There is a separate profile for the LAP-D assessment in Spanish. Finally, there is a profile for the Learning Accomplishment System-Diagnostic Screener (LAP-D Screen), a shorter version of the LAP-D assessment that is used for screening for potential developmental delays.

What is the appropriate time period between administering, recording, or reviewing the data?

Information is not provided regarding the appropriate time period between initial screening and rescreening.

How long does it take to administer the developmental screener?

The LAP-D Screens takes about 10-15 minutes to administer; however, administration time depends on the child's age and ability.

Language(s) developed for:

The LAP-D Screens was developed for English-speaking children. The materials are also available in Spanish.

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

Yes, the developmental screener is available to programs without restrictions.

What is the cost of the developmental screener?

As of 2013, each version of the LAP-D Screens cost \$124.95. Additional records sheets can be purchased for an additional \$30. A complete kit that includes all three screening levels (ages 3 to 5 years) costs \$349.95. Costs associated with the information reporting system for the LAP-D Screens are described below.

Training and Other Requirements for Assessors

Is training available on how to administer and score the developmental screener? Who offers the training?

Yes, Kaplan Early Learning Company offers training on the LAP System. Information is available on the Kaplan website (http://www.kaplanco.com/services/profDev_onSiteTraining.asp), however the website does not detail which LAP tools are covered in the training. Contact the company directly for cost information.

Is it necessary to have a professional background or technical training over and above training on the developmental screener to administer or complete the developmental screener?

Yes, it is necessary to have a professional background to administer and complete the LAP-D Screens. Teachers can administer the LAP-D Screens, but they must have at least a Child Development Associate (CDA) credential. Additionally, the LAP-D Screens can be administered by clinical psychologists, school psychologists, occupational and physical therapists, physicians, nurses, and social workers.

Is it necessary to have a professional background or technical training over and above training on the developmental screener to score the developmental screener?

Anyone who can administer the LAP-D Screens can score it.

Are regular checks on faithful administration required or recommended to ensure appropriate administration? If so, when and by whom?

Regular checks on faithful administration are recommended but not required. Information is not provided regarding when to perform regular checks on administration or who should perform these checks.

Information Reporting System for the Developmental Screener

Electronic Data Entry. *Does the developmental screener come with a process for entering information from the developmental screener electronically?*

Yes, the LAP-D Screens information can be entered electronically, but the software must be purchased in addition to the materials needed to administer the measure. The information can be entered on a computer or on a hand-held electronic scoring pad. As of 2013, a single web user license for the "E-LAP Computer Scoring Assistant (CSA) Licenses can be purchased for \$265.00

Electronic Reports. *Can programs generate electronic reports of individual children's data?*

Yes, programs can generate electronic reports of the LAP-Screens information at the child level. There is also an electronic parent report.

Approaches to Family/Parent Input

Tools for Family Input. *Does the developmental screener include specific tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development?*

No, there is no specific information about gathering information from parents or family members about the child.

Sharing Results. *Does the developmental screener include recommendations on how to share developmental screener results with a child's family?*

No, there are no recommendations on how to share the results with a child's family.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

The LAP-D Screens is a screener with developmental norms. A program director can choose to use the norms presented by the developers or can establish local norms, which would be centered around the type of children the program serves and who is being screened with the LAP-D Screens. However, the manual suggests that a program director consult a measurement specialist if local norms will be established.

Which populations were included in the norming sample?

The LAP-D Screens norms were developed with a group of 907 children ages 3 to 5. The children were from the Northeast (29 percent), North Central (13 percent), West (13 percent), and South (45 percent) regions of the United States. See the table on the next page for more information about these children.

Availability of Versions in Languages Other than English. *Is the developmental screener available in languages other than English? Which languages?*

Yes, the LAP-D Screens have been translated into Spanish.

How were versions in languages other than English developed?

Information is not provided about how the Spanish-language version was developed.

What are the findings on the reliability and validity of versions other than English?

Information is not provided about the development of the Spanish-language version of the LAP-D Screens.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

No, there are no suggested accommodations for screening children with identified or suspected special needs.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted to determine whether this developmental screener is appropriate for use with diverse populations?*

Information is not provided regarding whether the appropriateness of the LAP-D Screens for diverse populations has been examined in this way.

Risk Levels. *What terminology is used to describe risk levels (e.g., delay, no delay, at risk, caution, rescreen, okay, etc.)?*

The only terminology used by the LAP-D Screens is “pass” and “refer.” If a child passes the screener, it indicates that at the time, he or she is not at risk for developmental delay. If a child is given a “refer” on a certain number of items, which depends on age and the cutoff score being used, then the child should be evaluated further.

Characteristics of 1996 Norming Sample

Number of children in the sample: 907

	Percentage of Children		
	3 year olds	4 year olds	5 year olds
Gender			
Male	44.4	51.6	47.4
Female	55.6	48.4	52.6
Race/Ethnicity			
White	46.2	55.3	53.7
African American	36.4	24.4	25.8
Hispanic	15.3	14.0	14.3
Other	2.1	6.3	6.2

Reliability and Validity Information

What is known about the reliability and validity of the developmental screener...

In English?

There is reliability, validity, and sensitivity information for the LAP-D Screens in English. This information is outlined in responses to later questions in this profile.

In other languages?

The LAP-D Screens is available in Spanish; however, the reliability, validity, sensitivity, and specificity for the Spanish-language version have not been examined.

For dual language learners?

Information is not provided about dual language learners, and the reliability, validity, sensitivity, and specificity for this population have not been examined.

For children with special needs?

The developers have not examined the reliability, validity, sensitivity, and specificity for children with special needs.

For American Indian/Alaskan Native children?

While American Indian/Alaskan Native children were included in the sample (1-2 percent of children), the developers have not examined the reliability, validity, sensitivity, and specificity for this population.

For children of migrant and seasonal farm workers?

Information is not provided about the children of migrant and seasonal farm workers, and the reliability, validity, sensitivity, and specificity for this population have not been examined.

Reliability: Does the instrument obtain the same results, consistently, under the same conditions with the same children?

Interrater Reliability. *Do different raters agree when they are assessing the same children?*

Yes, different raters agree when they are screening the same children and the relationships meet the criteria for acceptable. The raters agreed most strongly when using the LAP-D Screens with 5-year-old children. This was examined with 18 3-year-olds, 21 4-year-olds, and 13 5-year-olds. There is no information about the teachers who administered the LAP-D Screens.

Test-Retest Reliability. *How consistent are scores if the developmental screener is administered once and then administered again soon?*

The LAP-D Screens meets the criteria for acceptable when it is administered once and then administered again soon. In order to examine this, the LAP-D Screens was administered twice within a two- to three- week period (with an average of 14 days between the screener administrations). The scores were all very consistent, but the 4-year-old developmental screener was the most consistent. No information is provided about the teachers and children with whom this was examined.

Internal Consistency Reliability. *How strongly related are items that are intended to reflect the same set of skills or behaviors?*

There are acceptable relationships among items on the LAP-D Screens that are intended to reflect the same set of skills or behaviors. The relationships were stronger with the 4- and 5-year-old versions of the LAP-D Screens than with the 3-year-old version. No information is provided about the teachers and children with whom this was examined.

Validity: Does the instrument measure what it is supposed to?

Content Validity. *Were experts consulted regarding whether the items in the developmental screener do a good job reflecting what the developmental screener is supposed to be assessing?*

The items that are in the LAP-D Screens are taken from the LAP-D Assessment, also profiled in this document. Experts agreed upon the items in the LAP-D Assessment and agree that they reflect what the tool is supposed to measure. However, experts were not consulted separately about the items on the LAP-D Screens.

Construct Validity. *How closely related to each other are sets of items within the developmental screener that aim to address similar skills and behaviors, compared to sets of items that aim to address different skills and behaviors? Do the developers examine whether scores on sets of items relate to children's age as expected?*

While the manual states that sets of items within the LAP-D Screens are related, specific information about how closely they are related is not provided.

Information about whether scores on sets of items relate to children's age as expected is not provided.

Convergent Validity. *How strongly do the scores of this developmental screener show a relationship to the scores of other developmental screeners of similar domains?*

The LAP-D Screens shows a strong relationship when compared to the LAP-D Standardized Assessment, which is a comprehensive assessment for children between the ages of 30 and 72 months. However, it should be noted that many of the items on the LAP-D Screens are taken from the LAP-D Standardized Assessment, so there is overlap between the two tools.

Scores for Further Evaluation. *Are specific scores used to identify whether further evaluation is needed? How are these scores determined by the developer?*

Yes, specific scores are used to identify whether a child may need further evaluation. There are different levels from which a program may choose. If the program chooses a higher level cutoff score, then more children will be recommended for further evaluation. If the program chooses a lower cutoff score, then fewer children will be recommended for further evaluation. The cutoff scores are determined by looking at the average score of the children in the appropriate age range (3, 4, or 5 years old). These averages are given in the manual and are based on the distributions of scores in the norming sample. Then, there are certain levels below this average score that can be used for the cutoff. These scores vary by the age of the child.

Sensitivity. *How accurately does the developmental screener correctly identify children at risk for developmental problems?*

The LAP-D Screens is moderate to highly accurate at correctly identifying children at risk for developmental delay. To test this, the LAP-D Screens was compared to the Early Screening Profile (ESP), which is a comprehensive developmental screener used with children from 2 to 7 years of age. The ESP was administered to 84 children from the larger study group. The LAP-D Screens and the ESP identified children in the same way (either passed or referred) 83 percent of the time.

Specificity. *How accurately does the developmental screener correctly identify children who are not at risk for developmental problems?*

Information is not provided on how accurate the LAP-D Screens is at identifying children who are not at risk for developmental delay.

Follow-Up Guidance

Program Follow-Up Steps. *Does the developmental screener come with guidance about follow-up steps based on the results?*

Information is not provided about follow up steps based on the results of the screening.

Family Follow-Up Steps. *Does the developmental screener include recommendations on how families might follow up on the results of the screening?*

Information is not provided regarding recommendations for how families might follow up on the results of the screening.

References

Lockhart, C.S. (1997). Technical and Examiner's Manual for LAP-D Screens: 5 Year Old (Kindergarten), 3 Year Old and 4 Year Old Children. Chapel Hill, NC: Chapel Hill Training Outreach Project, Inc. Kaplan Early Learning Company.

Parents' Evaluation of Developmental Status (PEDS)

Developer: Frances P. Glascoe

Publisher: Ellsworth & Vandermeer Press LLC

<http://www.pedstest.com/>

Developmental domains addressed in the developmental screener, as stated by the publisher:

- Global/cognitive
- Expressive language and articulation
- Receptive language
- Fine motor
- Gross motor
- Behavior
- Social-emotional
- Self help
- School

Intended age range:
Birth through age 8

Number of items:
PEDS includes 10 items that are the same for all children.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?

PEDS can be used in many settings, including medical practices, clinics and other primary care facilities, public health departments, Child Find programs, Head Start or other early childhood programs, pediatric and other professional training programs, and research projects.

Background

Purpose:

PEDS is a developmental screener used to help detect early developmental and behavioral problems. PEDS relies on parent-completed questionnaires to gather information about how a child is developing. It is used to gather information about specific areas of child development and to see if further evaluation may be needed. PEDS can be used with a related measure called PEDS-Developmental Milestones (PEDS-DM), which has a separate profile in this document, but will be referred to in this profile.

What is the appropriate time period between administering, recording, or reviewing the data?

PEDS follows the guidelines of the American Academy of Pediatrics, which recommends setting up a regular screening schedule with a child's pediatrician.

How long does it take to administer the developmental screener?

PEDS takes under 30 minutes for parents to complete.

Language(s) developed for:

The developmental screener was developed for English-speaking families, but there are forms available in 14 different languages.

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

Yes, the developmental screener is available to programs without restrictions.

What is the cost of the developmental screener?

As of 2013, a starter kit for PEDS cost \$36 and includes 50 PEDS response forms, 50 reusable score/interpretation forms, and a 12-page brief guide to scoring and interpreting results. PEDS in print is available in English, Spanish, and Vietnamese. Additional translations into Arabic, Chinese, Farsi, French, Galician, Haitian-Creole, Hmong, Indonesian, Malaysian, Portuguese, Russian, Somali, Swahili, Thai, and Taiwanese have been requested by programs and completed through a contract with PEDS publishers.

An optional comprehensive manual, *Collaborating with Parents*, includes information on brief approaches to parent intervention, background research on relying on the parent report, and PEDS' psychometrics. It is available for \$79.95. Costs associated with the information reporting system for the PEDS are described below.

Training and Other Requirements for Assessors

Is training available on how to administer and score the developmental screener? Who offers the training?

Self-training for those who ask parents to complete the PEDS is available on the PEDS website (<http://www.pedstest.com/default.aspx>) in the form of videos, slide shows, and case examples. A free 30-day trial is provided by the company; licensure to use the on-line training can be purchased for \$1.00-3.00 after 30-days. Live training or contacts with local professionals are often available.

Is it necessary to have a professional background or technical training over and above the training on the developmental screener to administer or complete the screener?

No, it is not necessary. The PEDS response form is usually completed by a parent rather than a teacher. Teachers or examiners score the PEDS and are encouraged to add their own observations before scoring.

Is it necessary to have a professional background or technical training over and above the training on the developmental screener score the screener?

No, a teacher, administrator, or other professional familiar with the PEDS can score the developmental screener without a technical background or training as long as they adhere to the PEDS brief guide when scoring or make use of PEDS Online.

Are regular checks on faithful administration required or recommended to ensure appropriate administration? If so, when and by whom?

Since the PEDS is usually completed by a parent or family member, regular checks of faithful administration are not necessary. However, teachers and examiners must faithfully use the PEDS brief guide to scoring and administration if they are scoring the screener by hand. PEDS Online corrects for common errors that may arise during administration (e.g., it prompts users if nothing is written on the PEDS response form for an item suggesting parents may not have understood the questions, skipped items, etc.).

Information Reporting System for the Developmental Screener

Electronic Data Entry. *Does the developmental screener come with a process for entering information from the developmental screener electronically?*

Yes, information from the PEDS can be entered and scored online. There is a parent portal on the website that allows parents to complete the forms on their own. The results are then sent to the doctor or other professional who will speak with the parents about the results. Additionally, there are other features for administrators to enter data, and view, export, and sort results (e.g., by name, school/clinic, teacher/examiner, birthdate, etc.).

Electronic Reports. *Can programs generate electronic reports of individual children's data?*

Yes, reports can be generated electronically using PEDS Online. Reports can be generated by child or by risk group based on the results of the developmental screener. (More information about risk groups is provided below.) A database of all results can be exported for use with EXCEL or other statistical software.

Approaches to Family/Parent Input

Tools for Family Input. *Does the developmental screener include specific tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development?*

The developmental screener mainly comprises input from parents or other caregivers on various developmental skills. Teachers and examiners are encouraged to add their own observations (but these observations cannot detract from or override those from families).

Sharing Results. *Does the developmental screener include recommendations on how to share developmental screener results with a child's family?*

Yes, the developmental screener comes with very extensive recommendations on how to share the screening results with a child's family.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

Yes, the PEDS is a screener with developmental norms. The norms were created based on a sample of families from five sites selected to represent the broad geographic regions of the U.S. According to the developer, the characteristics of this sample were comparable to U.S. Census data from 1996.

Which populations were included in this norming sample?

The development norms were developed with 771 families from five cities across the United States.

Families were recruited from education programs and pediatric practices, but the majority were from education programs. About half (53.7 percent) of the children were male, and 69.8 percent of the children had parents who were married. Children ranged in age from birth to age 8. See the table on the page after next for more information about these children.

Availability of Versions in Languages Other than English. *Is the developmental screener available in languages other than English?*

The developmental screener was developed in English, but has been translated into 17 other languages.

Options for Use with Special and Diverse Populations

How were versions in languages other than English developed?

All translations were developed with a group of bilingual professionals with a background in child development. The developers do not provide additional information regarding the development of the PEDS in other languages.

What are the findings on the reliability and validity of versions of the developmental screener in languages other than English?

The reliability and validity for versions other than English have not been examined.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

Because the PEDS relies on parents' concerns and observations, accommodations for children with identified or suspected special needs are not needed.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted to determine whether this developmental screener is appropriate for use with diverse populations?*

Information is not provided regarding whether cognitive testing or focus groups have been conducted with diverse populations to determine the appropriateness of the screener.

Risk Levels. *What terminology is used to describe risk levels (e.g., delay, no delay, at risk, caution, rescreen, okay, etc.)?*

There are five categories used to describe risk levels based on the results of the PEDS (follow-up steps based on risk levels are described in the next question).

Path A: Children who receive two or more predictive concerns on the PEDS fall into Path A. This is the high risk group. Path A is also divided into two subgroups depending on patterns of concerns which will indicate whether speech-language, developmental psychology or autism specialists are needed. Teachers and examiners are encouraged to use their observations to add to referral recommendations.

The manual indicates that about 1 in every 10 children screened will fall into Path A, although the rate will vary depending upon the population being screened.

Path B: Children who receive one predictive concern on the PEDS fall into Path B. This is the moderate risk group. Path B is also divided into two subgroups depending on whether the concerns are mainly health related (for which a referral for medical care is needed) or non-health related (for which follow-up screening is recommended, such as with the 6- to 8- question PEDS-Developmental Milestones). If additional screening is passed, developmental promotion—i.e., teaching parents how to teach their children well—and careful monitoring is recommended. About 2 in every 10 children screened will fall into Path B, although the rate will vary depending upon the population being screened.

Path C: Children who have nonpredictive concerns on the PEDS fall into Path C. This is the elevated risk group for behavioral and mental health problems, but these children are often at low risk of a developmental disability. Path C is divided into two subgroups based on the child's age (younger or older than 4 ½ years). For younger children, the PEDS recommends that parenting guidance is needed, along with careful monitoring of progress. For older children, mental health risks are higher and so mental health screening or referrals for services and evaluations are needed. The manual indicates that about 2 in every 10 children screened will fall into Path C, although the rate will vary depending upon the population being screened.

Options for Use with Special and Diverse Populations

Path D: Children whose parents or family members have difficulty communicating their concerns on the PEDS forms fall into Path D. The recommendation here is either to repeat the PEDS via interview or to use a measure like PEDS: Developmental Milestones. About 3 percent of families fall into Path D. This problem occurs less often with online administration of the PEDS because there are prompts asking for written responses and when a parent has missed an item, although the rate will vary depending upon the population being screened.

Path E: Children with no concerns fall into Path E. The manual indicates that about 5 in every 10 children screened will fall into Path E, although the rate will vary depending upon the population being screened.

Characteristics of Norming Sample

Number of children in the sample: 771

	Percentage of children
Race	
White	64.5
African American	21.5
Hispanic/Other	14.0
Parental Education	
Less than High School	18.0
High School	31.5
High School and Some College	22.6
College	27.9
Family Income Level	
Low Income	25.4
Not Low Income ¹	74.6
Parental Employment Status	
Full-Time	48.5
Part-Time	18.5
Unemployed	33.1

¹ Low income is defined by meeting one of the following criteria: child participated in free or reduced meals at school, child was enrolled in a federally subsidized child care program, or the characteristics of the child's family are consistent with the characteristics of families falling into the first two categories.

Reliability and Validity Information

What is known about the reliability and validity of the developmental screener...

In English?

There is reliability, validity, sensitivity, and specificity information for the PEDS in English. This information is outlined in later questions of this profile.

In other languages?

Information is not provided about the reliability, validity, sensitivity, and specificity information for the PEDS in languages other than English.

For dual language learners?

Information is not provided about dual language learners and the reliability, validity, sensitivity, and specificity of the PEDS for this population have not been examined.

For children with special needs?

While children with special needs were included in the norming sample, the developers have not examined the reliability, validity, sensitivity, and specificity of the PEDS for children with special needs.

For American Indian/Alaskan Native children?

Information is not provided about American Indian/Alaskan Native children and the reliability, validity, sensitivity, and specificity of the PEDS for this population have not been examined.

For children of migrant and seasonal farm workers?

Information is not provided about the children of migrant and seasonal farm workers and the reliability, validity, sensitivity, and specificity of the PEDS for this population have not been examined.

Reliability: Does the instrument obtain the same results, consistently, under the same conditions with the same children?

Interrater Reliability. *Do different raters agree when they are assessing the same children?*

Yes, different raters agree when they are screening the same children. In order to test this, the PEDS was completed by parents or family members and then interpreted by a trained rater. The raters interpreted the information the same way an average of 95 percent of the time. Additionally, the developers looked at whether parents give the same information based on who interviewed them, if the developmental screener was administered orally. Parents gave the same information 88 percent of the time. The PEDS evaluations for 68 percent of children in the PEDS standardization sample were examined and summarized by pairs of trained raters. These children were enrolled in education programs including Head Start, subsidized day care, and private preschools; however, the developers do not provide further detail.

Test-Retest Reliability. *How consistent are scores if the developmental screener is administered once and then administered again soon? What about much later?*

When the developmental screener was given two times, with a two-week period in between administrations, the scores met the criteria for adequate consistency. The scores were the same an average of 88 percent of the time. This was examined with a subsample of 20 percent of the parents from the group described in the previous table. Parents were first given the PEDS during a pediatric encounter, such as a well-child visit, and then were given the PEDS over the phone the second time.

Internal Consistency Reliability. *How strongly related are items that are intended to reflect the same set of skills or behaviors?*

Overall, the items that are intended to reflect the same set of skills and behaviors meet the criteria for acceptable relationships. The items reflecting fine motor skills and gross motor skills have strong relationships. The self-help and motor skills items also have strong relationships. This was examined with the population described in the table. The developers do not provide any additional information about the population.

Validity: Does the instrument measure what it is supposed to?

Content Validity. *Do experts agree that the items in the developmental screener do a good job of reflecting what the developmental screener is supposed to be assessing?*

Yes, experts agree the PEDS does a good job at reflecting what it is supposed to be measuring.

Construct Validity. *How closely related to each other are sets of items within the developmental screener that aim to address similar skills and behaviors, compared to sets of items that aim to address different skills and behaviors? Do scores on sets of items relate to children's age as expected?*

The developers have not examined the relationships among sets of items that address the same skills and behaviors in comparison with different skills and behaviors.

Information about whether scores on sets of items relate to children's age as expected is not provided.

Validity: Does the instrument measure what it is supposed to? (cont.)

Convergent and Divergent Validity. *How strongly do the scores of this developmental screener show a relationship to the scores of other developmental screeners of similar domains?*

The PEDS was compared with 14 other developmental assessments and screeners. There were strong relationships between many of the developmental areas of the PEDS and developmental areas of the comparison tools aimed at measuring the same skills and behaviors. Developmental areas were most strongly related on the following tools: Child Development Inventory (including socialization self-help, gross motor, fine motor, expressive language, and listening comprehension), Kaufman Assessment Battery for Children (diagnostic measure of intelligence), Bayley Scales of Infant Development (mental development index), Stanford-Binet Intelligence Scale, 4th Edition (diagnostic measure of intelligence), Test of Language Development (expressive and receptive language skills), Developmental Profile-II (parent report measure of socialization, communication, academic self-help, and motor development), Brigance Screens (short screening test), and Batelle Developmental Inventory Screening Test.

Several developmental areas of the PEDS were not strongly related to other developmental assessments or screeners aimed at measuring different skills and behaviors, providing evidence of divergent validity. For example, the gross and fine motor developmental areas of the PEDS were not strongly related to the Articulation Screening Test, which is a screener aimed at measuring speech production.

Scores for Further Evaluation. *Are specific scores used to identify whether further evaluation is needed? How are these scores determined by the developer?*

Yes, specific scores are used to identify whether further evaluation is needed. In order to develop these specific scores, the PEDS was completed by 711 parents as described in the table earlier in this profile. The developers looked at the trends among the responses from these parents and examined the outcome of the screener based on the parents' responses. This created five distinct cutoff scores that are used to identify whether further evaluation is needed. See the question on the terminology used to describe risk levels (below) for more information about these cutoff scores and what they indicate about a child's development.

Sensitivity. *How accurately does the developmental screener correctly identify children at risk for developmental problems?*

To determine how accurately PEDS identifies children at risk for developmental delays, the results of children's diagnostic tests were compared to the concerns that parents identified on PEDS. Results showed that PEDS is moderately accurate at correctly identifying children who are at risk for developmental delays.

Specificity. *How accurately does the developmental screener correctly identify children who are not at risk for developmental problems?*

To determine how accurately PEDS identifies children who are not at risk for developmental delays, results of children's diagnostic tests were compared to the absence of parental concerns on PEDS. Results showed that PEDS is moderately accurate at correctly identifying children who are not at risk for developmental delays..

Follow-Up Guidance

Program Follow-Up Steps. *Does the developmental screener come with guidance about follow-up steps based on the results?*

Yes, the developmental screener comes with guidance about follow-up steps based on the path on which the child is placed, as explained in a previous question.

When a child is on Path A, multiple concerns are present and the child should be referred for further evaluation. This may include, for example, audiological (speech and language) testing or another form of educational evaluation that is deemed necessary by a professional. If a child is placed on Path B, one main concern is present. These children should be further evaluated using a health screener and/or the PEDS-DM. Follow up for a Child on Path C includes screening in which areas parents raised concerns and counseling parents about their concerns since issues for these children are nonpredictive and not as severe. For children on Path D, the PEDS-DM should be administered since the parents had difficulty communicating their concerns or lack of concerns. Finally, for children on Path E, screening with PEDS should take place at the next doctor's visit or during regular yearly screenings since there are no concerns.

Family Follow-Up Steps. *Does the developmental screener include recommendations on how families might follow up on the results of the screening?*

Yes, the developmental screener includes extensive recommendations on how parents might follow up on the results of the screening.

References

- Glascoe, F.P. (2002). Collaborating with parents: Using parents' evaluation of developmental status (PEDS) to detect and address developmental and behavioral problems. Nashville, TN: Ellsworth & Vandermeer Press LLC.
- Glascoe, F.P. (2007). Using parents' evaluation of developmental status (PEDS) and PEDS-Developmental milestones (PEDS-DM): A case example. Retrieved November 17, 2009, from <http://pedstest.com/dm/casestudy-1.php>
- Glascoe, F.P. (2008). Parents' evaluation of developmental status: Guide to using PEDS. Retrieved November, 2009, from <http://www.forepath.org/custom.php>
- Glascoe, F.P. (2009). Parents' evaluation of developmental status: Brief administration and scoring guide. Nashville, TN: Ellsworth and Vandermeer Press, LLC.
- Wake, M., Gerner, B., & Gallagher, S. (2005). Does parent's evaluation of developmental status at school entry predict language, achievement and quality of life two years later? *Ambulatory Pediatrics*, 5(3), 143-149.
- What is PEDS-Developmental Milestones (PEDS-DM©)? Retrieved November 17, 2009, from <http://pedstest.com/dm/dm-whatisit.php>.

Parents' Evaluation of Developmental Status-Developmental Milestones (PEDS-DM)

Developers: Frances Page Glascoe and Nicholas Robertshaw

Publisher: PEDSTest.com (formerly Ellsworth & Vandermeer Press LLC)

<http://pedstest.com>

Developmental domains addressed in the developmental screener, as stated by the publisher:

- Expressive language
- Receptive language
- Fine motor
- Gross motor
- Social-emotional
- Self help
- Academic
- Prereading
- Premath
- Written language

Intended age range:

Birth through age 7 years, 11 months

Number of items:

The PEDS-DM screen has 6 to 8 items per age. The PEDS-DM Assessment Level involves about 45 items per age.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?

The PEDS-DM can be used in many settings, including medical practices, subspecialty health clinics, primary care services including public health departments, Child Find programs, Head Start or other early childhood programs, pediatric and other professional training programs, and research projects.

Background

Purpose:

PEDS-DM is a 6- to 8- item screener that tracks a child's development in several domains. The PEDS-DM screener can be administered by parent report, parent-child interview, or direct administration with the child. It tracks progress over time on a recording form with multiple time periods, through which strengths and weakness in various domains become apparent. The PEDS-DM can be used with the PEDS developmental screener (to capture parents' concerns) or separately, but the developers recommend using them together to get a full picture of a child's development. There is a separate profile of PEDS in this document.

What is the appropriate time period between administering, recording, or reviewing the data?

PEDS-DM follows the guidelines of the American Academy of Pediatrics, which recommends setting up a regular screening schedule with a child's pediatrician.

How long does it take to administer the developmental screener?

The PEDS-DM screen takes about five minutes for families to complete.

Language(s) developed for:

The PEDS-DM was developed with English- and Spanish-speaking families and the screener is available in both languages. PEDSTest.com offers research/translation support and financial assistance for translations into other languages. For example, a Taiwanese translation was requested by programs and was completed through a contract with the PEDS-DM publisher. Arabic and Portuguese translations are under way.

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

Yes, the developmental screener is available to programs without restrictions.

What is the cost of the developmental screener?

As of 2013, the PEDS-DM Screen Starter Kit cost \$275; this includes the manual, materials needed to screen children, and 100 reusable record sheets. Additional packs of 100 forms are available for \$32 each. The PEDS-DM Screener with PEDS cost \$315. The PEDS-DM Assessment Level cost \$318 alone, and with the PEDS \$399. The Starter Kit is also available in Spanish. Costs associated with the information reporting system for the PEDS-DM are described below.

Training and Other Requirements for Assessors

Is training available on how to administer and score the developmental screener? Who offers the training?

The PEDS-DM website, Pedstest.com, offers self-training through videos and slide shows. Live training may also be available, but there is not information in the manual. A free 30-day trial is provided by the company; licensure to use the on-line training can be purchased for \$1.00-3.00 after 30-days.

Is it necessary to have a professional background or technical training over and above training on the assessment to administer or complete the developmental screener?

No, the PEDS-DM is best completed by a parent rather than a teacher or professional. If the PEDS-DM is completed by a parent, it may be necessary for a professional to give parents guidance and directions on completing the forms. This professional could be anyone from the list of applicable settings mentioned earlier. The developmental screener can also be completed by a professional, if necessary, through observations of the child and the child's behavior. If the PEDS-DM is completed through direct observation, some training needs to be completed. This training material is available from the PEDS and PEDS-DM websites.

Is it necessary to have a professional background or technical training over and above training on the assessment to score the developmental screener?

No, a teacher, administrator, or other professional can score the developmental screener without a technical background or training.

Are regular checks on faithful administration required or recommended to ensure appropriate administration? If so, when and by whom?

Since the PEDS-DM is usually completed by a parent or family member, regular checks of faithful administration are not necessary.

Information Reporting System for the Developmental Screener

Electronic Data Entry. *Does the developmental screener come with a process for entering information from the developmental screener electronically?*

The PEDS-DM is available online. The site provides automated scoring, summary reports for parents, referral letters, billing and procedure codes for optimizing reimbursement, and a searchable administration database (e.g., by birth date, date of test, type of result, etc.).

Electronic Reports. *Can programs generate electronic reports of individual child's data?*

Yes, child-level reports can be generated electronically.

Approaches to Family/Parent Input

Tools for Family Input. *Does the developmental screener include specific tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development?*

Yes, the PEDS-DM is a parent/family report developmental screener.

Sharing Results. *Does the developmental screener include recommendations on how to share developmental screener results with a child's family?*

Yes, the developmental screener comes with extensive recommendations on how to share the screening results with a child's family.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

Yes, the PEDS-DM is a screener with developmental norms. However, the items for the PED-DM were selected from the BRIGANCE® Inventory of Early Development-II (IED-II), created in 2004, and the BRIGANCE® Comprehensive Inventory of Basic Skills-Revised (CIBS-R), developed in 1999. Thus, the norms for the PEDS-DM are based on the norms for these two other tools.

Which populations were included in the norming sample?

Data from all children who participated in the IED-II norming study and all children between 5 and 8 years of age in the CIBS-R norming study were used in the norming sample for the PEDS-DM. In total, there were 1,619 children ages 0-95 months. This PEDS-DM norming sample was compared to U.S. demographics using 2006 data from the U.S. Census Bureau and is considered representative of the U.S. population as a whole. More information is provided in the table on the next page.

Availability of Versions in Languages Other than English. *Is the developmental screener available in languages other than English? Which languages?*

The PEDS-DM is available in English; some of the forms are translated into Spanish.

How were versions in languages other than English developed?

Information is not provided about the development of the PEDS-DM in other languages.

What are the findings on the reliability and validity of versions of the developmental screener in languages other than English?

The reliability and validity in languages other than English have not been examined.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

Yes, there are suggested accommodations for screening children who have identified or suspected special needs. While the PEDS-DM is usually completed by parents, when a hands-on administration is needed, guidelines are provided for establishing rapport, managing children with behavioral problems, and making accommodations for children with autism spectrum disorders as well as visual, hearing, and motor impairment.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted to determine whether this developmental screener is appropriate for use with diverse populations*

Information is not provided regarding whether the appropriateness of the PEDS-DM for diverse populations was examined in this way.

Risk Levels. *What terminology is used to describe risk levels (e.g., delay, no delay, at risk, caution, rescreen, okay, etc.)?*

The PEDS-DM screener describes milestones in each domain as "met" or "unmet." Guidance is provided on how to explain results to families using appropriate language.

Characteristics of 2006 Norming Sample

Number of children in the sample: 1,619

	Percentage of Children
Gender	
Male	51
Female	49
Ethnicity	
White	66
African American	15
Hispanic	16
Asian/other	3
Geographic Region	
West	32
South	26
Central	23
Northern	19
Site Location	
Pediatrician's Office	37
Day Care Center/Preschool	22
Child Find Program	14
Public School	27

Reliability and Validity Information

What is known about the reliability and validity of the developmental screener...

In English?

There is reliability, validity, sensitivity, and specificity information for the PEDS-DM in English. This information is outlined in response to later questions in this profile.

In other languages?

While Spanish-speaking children and children from the Spirit Spirit (Dakota) tribe who speak the native tribal language were included in the sample, the developers have not examined the reliability, validity, sensitivity, and specificity for this population.

For dual language learners?

Information is not provided about dual language learners and the reliability, validity, sensitivity, and specificity for this population have not been examined.

For children with special needs?

The developers have examined the sensitivity and specificity of the PEDS-DM for children with special needs; however, they have not examined other aspects of reliability and validity for children with special needs.

For American Indian/Alaskan Native children?

While American Indian children and Hawaiian/Pacific Islander children were included in the sample, reliability, validity, sensitivity, and specificity have not been examined separately for these groups.

For children of migrant and seasonal farm workers?

Information has not been provided about children of migrant and seasonal farm workers and the reliability, validity, sensitivity, and specificity for the PEDS-DM for this population have not been examined.

Reliability: Does the developmental screener obtain the same results, consistently, under the same conditions with the same children?

Interrater Reliability. *Do different raters agree when they are assessing the same children?*

Yes, different raters meet the criteria for acceptable agreement when they are screening the same children. Raters agreed between 82 percent and 96 percent of the time. Additionally, parents and professionals agreed 81 percent of the time when the screeners were directly administered to the children. Agreement between raters was examined with a sample of 77 children; however the developers do not provide further information about the children or adults involved.

Test-Retest Reliability. *How consistent are scores if the developmental screener is administered once and then administered again soon?*

There is acceptable consistency of scores when the developmental screener was administered and then administered again within one week. This was examined with a sample of 153 children from the larger group previously described.

Internal Consistency Reliability. *How strongly related are items that are intended to reflect the same set of skills or behaviors?*

There are acceptable relationships between items that are intended to reflect the same set of skills and behaviors. This was examined with all of the children in the sample described in the table.

Validity: Does the developmental screener do what it is supposed to?

Content Validity. *Do experts agree that the items in the developmental screener do a good job of reflecting what the developmental screener is supposed to be assessing?*

Items on the IED-II and CIBS-R from which the PEDS-DM was drawn were generated with the help of teachers, pediatricians, and others. Additionally, a panel of experts helped refine the unique item set for the PEDS-DM.

Construct Validity. *How closely related to each other are sets of items within the developmental screener that aim to address similar skills and behaviors, compared to sets of items that aim to address different skills and behaviors? Do scores on sets of items relate to children's age as expected?*

Because the PEDS-DM is very short, the developers have not examined this question.

Convergent and Divergent Validity. *How strongly do the scores of this developmental screener show a relationship to the scores of other developmental screeners of similar domains?*

To examine the relationships between the PEDS-DM and other developmental screeners, children were screened using the PEDS-DM and either the IED-II or CIBS-R. Overall, the results of the PEDS-DM and the two measures with which it was compared meet the criteria for strong relationships. For example, children who score highly on the IED-II or CIBS-R are likely to "pass" the PEDS-DM, which would suggest that both tools agree that the children are not at risk for delay. It should be noted that the items on the PEDS-DM are taken IED II and the CIBS-R, so there is inherent overlap between the tools.

Scores for Further Evaluation. *Are specific scores used to identify whether further evaluation is needed? How are these scores determined by the developer?*

Yes, specific scores are used to identify whether further evaluation is needed. If a child scores at or below the 16th percentile on an item, then he or she failed the item. At this level, 84 percent or more of typically developing children can complete that item.

Sensitivity. *How accurately does the developmental screener correctly identify children at risk for developmental delays?*

To determine how accurately PEDS-DM identifies children at risk for developmental delays, children's scores on PEDS: DM were compared to scores on similar domains of the IED-II and CIBS-R. Results showed that PEDS: DM meets the criteria for moderately accurate at correctly identifying children at risk for developmental problems.

Specificity. *How accurately does the developmental screener correctly identify children who are not at risk for developmental problems?*

To determine how accurately PEDS-DM identifies children not at risk for developmental delays, children's scores on PEDS: DM were compared to scores on similar domains of the IED-II and CIBS-R. The PEDS-DM meets the criteria for moderately accurate at correctly identifying children who are not at risk for developmental problems.

Follow-Up Guidance

Program Follow-Up Steps. *Does the developmental screener come with guidance about follow-up steps based on the results?*

Yes, the PEDS-DM comes with guidance and follow-up steps based on the results, including information about additional developmental screeners or assessments that can be used for further evaluation.

Family Follow-Up Steps. *Does the developmental screener include recommendations on how families might follow up on the results of the screening?*

Yes, the PEDS-DM manual includes many recommendations for families, including a resource guide, informational handouts, and parent education information.

References

Glascoe, F.P., & Robertshaw, N.S. (2007). PEDS: Developmental milestones: A tool for surveillance and screening, Professionals Manual. Ellsworth & Vandermeer Press, LLC.

Glascoe, F.P. (2007). Using Parents' Evaluation of Developmental Status (PEDS) and PEDS-Developmental Milestones (PEDS-DM): A case example. Retrieved November 17, 2009, from <http://pedstest.com/dm/casestudy-1.php>.

Parents' Evaluation of Developmental Status--Developmental Milestones (PEDS-DM). Retrieved December 7, 2009, from <http://www.pedstest.com/dm/>.

What are the components of the PEDS: DM? Retrieved December 7, 2009, from <http://www.pedstest.com/dm/dm-components.php>.

Profiles of Individual Measures: Abbreviated Profiles

Infant Development Inventory (IDI)

Background

The Infant Development Inventory (IDI) is a brief screening questionnaire for use with children from birth to 18 months. The IDI asks parents to describe their baby, report the infant's activities, their questions and concerns about the baby's health, development, and behavior, and how they are doing as parents. Parents report their child's developmental skills in five areas: social, self-help, gross motor, fine motor, and language by completing the Infant Development Chart on the backside of the parent questionnaire. The IDI is designed to take approximately 10 minutes to administer and five minutes to score.

Availability and Cost of the Developmental Screener

What is the cost of the developmental screener?

As of 2013, the cost of the Infant Development Inventory is \$45.00 for a pack of 75 forms. The forms can be purchased at <http://www.childdevrev.com/page47/Store.html>. Costs associated with the information reporting system for the IDI are described below.

Training and Other Requirements for Assessors

Is training available on how to administer and score the developmental screener? Who offers the training?

Training videos for the IDI are available on the Web at <http://www.health.state.mn.us/divs/fh/mch/devscm/training.html>. The developers do not provide any additional information about requirements for administering the IDI or the cost of training.

Information Reporting System for the Developmental Screener

Electronic Data Entry. *Does the developmental screener come with a process for entering information from the developmental screener electronically?*

The IDI is administered and scored on paper using the Parent Questionnaire and Infant Chart. There is no electronic version of the IDI.

Approaches to Family/Parent Input

Tools for Family Input. *Does the developmental screener include specific tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development?*

The IDI is a parent report, so parents/families complete all sections of the tool.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

Information is not provided about the sample with which the IDI was developed.

Availability of Versions Other than English. *Is the developmental screener available in languages other than English? Which languages?*

The IDI is available in both English and Spanish.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

Information is not provided about suggested accommodations for screening children with identified or suspected special needs.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted to determine whether this developmental screener is appropriate for use with diverse populations?*

Information is not provided about whether cognitive testing or focus groups to determine whether this developmental screener is appropriate for use with diverse populations.

Reliability and Validity Information

What is known about the reliability and validity of the developmental screener...

In English?

The developers of the IDI have examined the accuracy with which the tool correctly identifies children at risk for developmental problems (sensitivity) as well as the accuracy with which the tool correctly identifies children not at risk for developmental problems (specificity). Additional details about these analyses can be found at: <http://www.childdevrev.com/page11/page43/idicdrresearch.html>.

Follow-Up Guidance

Program Follow-Up Steps. *Does the developmental screener come with guidance about follow-up steps based on the results?*

Information is not provided about follow-up steps based on the results of the IDI.

References

Behavior Science Systems, Inc. (2013). Child development review: Screening and assessing the development of young children using parent report and professional observations.

<http://www.childdevrev.com/page11/page43/idicdrresearch.html>

Minnesota Department of Education (2007). Infant Development Inventory (IDI).

<http://www.health.state.mn.us/divs/fh/mch/devscm/instr/idi.html>

Survey of Well being of Young Children

Background

The Survey of Well-being of Young Children (SWYC) is a comprehensive screening instrument completed by parents typically during regular well-child pediatric visits for children under five years of age, but easily accessed by parents, pediatricians, preschool teachers, nurses, and other professionals involved in early care and education. The SWYC is made up of several different scales: the Baby Pediatric Symptom Checklist (BPSC), the Preschool Pediatric Symptom Checklist (PPSC), the Parent's Observations of Social Interactions (POSI), *The Developmental Milestones* checklist and *Family Risk Factors* questions. The SWYC is designed to take approximately 10-15 minutes to complete.

The BPSC (18 items) measures social-emotional development for children up to 18 months, and the PPSC (25 items) measures social-emotional development for children 18-60 months. *The Developmental Milestones* checklist (10 items) contains questions for parents about their child's motor, language, social and cognitive development, and parents of children between 16 and 30 months of age also complete the Parent's Observations of Social Interactions (POSI), which is an autism-specific screener.

Availability and Cost of the Developmental Screener

The SWYC is available on the internet (www.theswyc.org) at no cost and can easily be accessed by parents, pediatricians, preschool teachers, nurses, and other professionals involved in child care and education.

Training and Other Requirements for Assessors

The SWYC was designed to be easily administered and scored by health, education, and child care professionals. No additional training is needed to use the SWYC. Scoring instructions are available on the SWYC website (www.theswyc.org). Interpretation and follow-up of the results should be tailored to individual settings and communities.

Information Reporting System for the Developmental Screener

An electronic version of the SWYC that can be used via the internet or on a tablet is under development (planned release in 2015; updates available at www.theswyc.org). Because the SWYC is available at no cost, it can be incorporated into existing database systems, such as Electronic Health Record systems.

Approaches to Family/Parent Input

Parents complete all scales included in the SWYC. They are asked to report on their child's developmental milestones, social and emotional behaviors, and any additional concerns they have about their child's development or behavior. They are also asked to report about parental discord, depression, or substance use.

Options for Use with Special and Diverse Populations

Developmental Norms. *Is this a developmental screener with developmental norms?*

Each scale of the SWYC was developed with two samples of parents (an initial validation sample and an independent replication sample). For the *Milestones* checklist the initial validation sample was 864 (469 from primary care, 395 from specialty clinics), and there were 308 in the replication sample. For the BPSC, 259 were in the original validation sample, and 146 were in the replication sample. For the PPSC, 646 were in the initial validation sample (292 from primary care, and 354 from referral clinics), and 171 were in the replication sample. For the POSI, there were 217 in the original sample and 232 in the replication sample. Participants all had children under age five years, six months and were recruited from seven urban practices and community health centers, seven suburban practice groups, two developmental-behavioral assessment clinics, two NICU follow-up clinics, two child psychiatry clinics, two occupational therapy clinics, and one speech and language clinic. All recruitment sites were in Eastern Massachusetts and therefore are not representative of the full population of the United States.¹

¹ This information was provided via personal communication with a SWYC developer in December 2013.

Availability of Versions Other than English. *Is the developmental screener available in languages other than English? Which languages?*

All of the SWYC forms are available in both English and Spanish. Translations of the SWYC are currently in process into Portuguese, Nepali, Burmese, and Bulgarian.

Accommodations for Children with Special Needs. *Are there suggested accommodations for assessing children with special needs?*

Information is not provided about suggested accommodations for screening children with identified or suspected special needs.

Consultation with Diverse Populations. *Have cognitive testing or focus groups been conducted to determine whether this developmental screener is appropriate for use with diverse populations?*

Cognitive interviews have been conducted with Hispanic parents in the process of translating the forms into Spanish. Cognitive interviews are currently underway with Native American and Alaskan Native populations.

Reliability and Validity Information²

Information is not provided about whether the full SWYC obtains the same results consistently across conditions or assessors (i.e., the tool's reliability). Rather, the developers provide this information for three of the five scales used in the full SWYC (BPSC, PPSC, and POSI).

For the BPSC and the PPSC, developers have examined whether children's scores are consistent if the scales are administered once and then administered again soon (test-retest reliability). Results showed acceptable consistency on both scales. For the BPSC, the PPSC, and the POSI, developers have also examined the strength of the relationships between items that are intended to reflect the same set of skills or behaviors (internal consistency reliability). Results showed that relationships between items on these scales range from moderate to strong.

Information is not provided about the extent to which the full SWYC measures what it is supposed to measure (i.e., the tool's validity). The developers do provide this information for four of the five scales used in the full SWYC (Milestones, BPSC, PPSC and POSI).

For *The Developmental Milestones* checklist, the BPSC and the PPSC, developers have examined the extent to which children's scores on these scales are related to their scores on other developmental screening tools of similar domains (convergent validity). Results showed moderate relationships between children's scores on these scales and their scores on other developmental screening tools. For *The Developmental Milestones* checklist, the PPSC and the POSI, developers have examined the accuracy with which these scales correctly identify children at risk for developmental delays (sensitivity) and the accuracy with which the scales correctly identify children not at risk for developmental delays (specificity). Results showed that *The Developmental Milestones* checklist, the BPSC, and the PPSC are moderately accurate at correctly identifying children at risk for developmental delays and demonstrate low to moderate accuracy at correctly identifying children not at risk for developmental delays.

² This information was provided via personal communication with a SWYC developer in January 2014.

References

Sheldrick, R. C., & Perrin, E. C. (2013). Evidence-Based Milestones for Surveillance of Cognitive, Language, and Motor Development. *Academic Pediatrics*, 13(6), 577-586. DOI: 10.1016/j.acap.2013.07.001.

Smith, N, Sheldrick, R.C., Perrin, E.C. (2012). An abbreviated screening instrument for Autism Spectrum Disorders. *Infant Mental Health J.* doi: 10.1002/imhj.21356. E-pub July 26, 2012.

Sheldrick, R.C., Henson, B.S., Merchant, S., Neger, E.N., Murphy, J.M., & Perrin, E.C (2012). [The Preschool Pediatric Symptom Checklist \(PPSC\): Development and initial validation of a new social-emotional screening instrument.](#) *Academic Pediatrics*, 12(5):456-67. PMID: 22921494.

Sheldrick, R.C., Henson, B.S., Neger, E.N., Merchant, S., Murphy, J.M., & Perrin, E.C (2012). [The Baby Pediatric Symptom Checklist \(BPSC\): Development and initial validation of a new social-emotional screening instrument.](#) *Academic Pediatrics*, epub ahead of print Oct 20 2012. PMID:23092547.

www.theswyc.org

Appendix A: Glossary of Terms

APPENDIX A: Glossary of Terms

Adaptation or Accommodation – A change in the way screeners are presented or in how the child is allowed to respond so that children with disabilities or limited English proficiency can be assessed or screened. For example, one might include Braille forms for blind children (adaptation) or allow more time for children whose primary language is not English (accommodation). This term generally refers to changes that do not substantially alter what is being measured.

Assessment – A tool used to measure skills and abilities which helps determine progress over time.

Battery – An array of similar tools intended for use together, such as “a battery of assessments” for different developmental areas.

Concurrent validity – This term describes the relationship between two separate measures of similar constructs which, when administered at the same time, provide results that are consistent with one another. Note: Sometimes manuals refer to this as convergent criterion validity, which could be interpreted to mean that the two tools concur or agree in the measurement of a particular construct.

Construct – The concept, idea, or theory that an assessment or screener is designed to measure.

Construct validity – The extent to which a tool measures a clearly defined theoretical concept. The instrument should be based on a theory, and scores from the instrument should reflect what would be expected based on that theory.

Content validity – The extent to which a tool reflects the range of possible skills or behaviors that make up the domain or construct being assessed. This is often determined through expert review.

Convergent validity – A subtype of criterion-related validity. This term indicates the degree to which a tool correlates with other tools assessing the same construct.

Correlation – A statistic that tells the strength of the relationship between different variables, items, constructs, or responses. When two measures correlate highly, one cannot necessarily be used as a substitute for the other. For example, students’ reading test scores may correlate highly with their math test scores, but giving the students extra help and practice in math is not likely to improve their reading skills. Although a correlation tells how strongly two measurements tend to agree, it cannot tell why they agree. A *positive* correlation means that when one variable increases, the other increases as well, such as when language skills increase as a child gets older. A *negative* correlation means that as one variable increases, the other decreases, such as when children with more advanced language skills are less likely to show aggressive behaviors.

Criterion-related validity – The degree to which the scores of one tool are related to the scores of another existing tool which measures the same construct. This other well-established tool is referred to as the criterion. The comparison between the tool and the criterion can be done either concurrently (i.e., concurrent validity), or later in time (i.e., predictive validity).

Cutoff scores – Minimum scores used to decide whether further evaluation is needed, usually differentiated by age in months and years. A score at or below the cutoff score indicates that the child needs to be referred for further testing. A child’s score above the cutoff indicates that the child has demonstrated mastery of the skills and abilities in that domain for his/her age.

Developmental delay – A delay in the appearance of some steps or phases of growth and development. NOTE: Programs serving at-risk populations may expect to find higher rates of children being identified as at risk for developmental delay than typically found when looking at the total population of both at-risk and not-at-risk children.

Developmental norms – Standards by which the progress of a child's development can be measured

APPENDIX A: Glossary of Terms

relative to the development of a representative cross section of children, i.e. the norm. For example, the average age at which a child walks, learns to talk, or achieves toileting independence would be a standard used to judge whether the child is progressing normally. While norms are usually thought of as age-related, norms can also be tied to other developmental variables such as race, ethnicity, and gender. Norms can inform teachers, parents, and others in judging the appropriateness of certain types of activities for different children.

Discriminant or divergent validity – A subtype of criterion-related validity that indicates the degree to which the tool is less closely related to measures of theoretically different constructs.

Domain – A set of related skills, behaviors, or information that is classified as a single area of study or development. Domains typically cover multiple, related constructs within a broad area of study or development, such as fine motor development or approaches toward learning.

Factor analysis – A procedure used to examine the relationships among items or questions to see whether the items group together, or are distinct, in expected ways. Researchers sometimes describe this as how well items being measured “hang together.”

Faithful administration – Individuals demonstrate consistency in the skill and accuracy with which they administer a screening tool to children. Such accuracy is verified through regular checks on faithful administration, using training materials or guidance from the developer of that tool.

Indicators – Questions included in the tool that are related to the developmental skill or ability being measured.

Internal consistency reliability – How closely items or indicators within a construct are interrelated.

Interrater reliability – How similar the results of an assessment are when different individuals administer the same assessment with the same child.

Population – The total number of all possible subjects or elements which could be included in a study. If the data are valid, the results of research on a sample of individuals drawn from a much larger population can then be generalized to the population.

Psychometrics – The science concerned with evaluating the attributes of tests used to measure various skills and abilities. Three of these attributes of particular interest include (1) the type of data (scores) generated by the application of such tests, (2) the reliability of data from such tests, and (3) issues concerning the validity of data obtained from such tests.

Reliability – A term which describes whether a tool produces consistent information across different circumstances. Scores will be stable regardless of *when* the tool is administered, *where* it is administered, and *who* is administering it. Therefore, reliability is an indication of the consistency of scores across raters, over time, or across different tasks or items that measure the same thing. An unreliable assessment or screener cannot be valid.

Sample – A subset of a population. Samples are collected and statistics are calculated from the samples so that one can draw conclusions about the total population. A *representative sample* refers to a carefully chosen number of representatives of a specific group, such as children of a certain age, race/ethnicity, or income status, whose characteristics represent as accurately as possible the entire population of children with these characteristics.

Screener – A tool used to evaluate whether a child may be at risk for a developmental delay.

Sensitivity – A term which describes the degree to which children who are at risk for developmental delay are accurately identified as needing further evaluation by a screening tool.

APPENDIX A: Glossary of Terms

Specificity – A term which describes the degree to which children who are not at risk for developmental delay are accurately identified as typically developing by a screening tool.

Subscales – A set of items within a domain that capture a particular aspect of the domain. For example, the domain of language development might have the following subscales: receptive communication, expressive communication, and alphabet knowledge.

Test-retest reliability – An indicator of whether the tool will yield the same score across two administrations of the tool within a short period of time. This tells us whether the tool provides a consistent assessment of a skill, regardless of other factors, such as the child’s mood or health, the time of day, or the time of year that the child was assessed. A child should score similarly (within a defined range) if tested within a short period of time, usually defined as within three months.

Typically developing – Children who pass a set of predictable milestones at expected times as they grow and develop.

Validity – A term which describes whether a tool assesses what it is supposed to assess and indicates that scores are accurately capturing what the tool is meant to measure in terms of content. For example, if a child performs well on a vocabulary test, a valid measure would mean there is confidence that the child is good at word comprehension. An assessment or screener cannot be valid if it is not reliable.

Variable – A quality, characteristic, or attribute that may change depending on the sample being studied. For example, commonly used variables include age, gender, race/ethnicity, poverty status, or levels of education.

References

Corekin, K. (2009). Anecdotal notes in early childhood education: Use objective record keeping to evaluate children’s development. Retrieved from http://preschool.suite101.com/article.cfm/anecdotal_notes_in_early_childhood_education

Correlation. (2004,). In North Western University’s Holmgren Lab glossary. Retrieved from <http://www.biochem.northwestern.edu/holmgren/Glossary/Definitions/Def-C/correlation.html>

Educational Testing Service. (2004). *Definitions of statistical terms relating to tests*. Retrieved from http://www.ets.org/Media/Log_On_Lets_Talk/stat_terms_english.pdf

Educational Testing Service (n.d.). *Glossary of assessment terms*. Retrieved from <http://www.ets.org/portal/site/ets/menuitem.c988ba0e5dd572bada20bc47c3921509/?vgnnextoid=3f1caf5e44df4010VgnVCM1000022f95190RCRD&vgnnextchannel=8bod253b164f4010VgnVCM10000022f95190RCRD#NormReferenced>

Furr, R.M., & Bachrach, V.R. (2008). *Psychometrics: An introduction*. Thousand Oaks, CA: Sage Publications.

Leach, P. (1997). *Your baby and child: From birth to age five*. New York: Knopf.

Maryland State Department of Education. (2010). *Assessment literacy glossary*. Retrieved from http://mdk12.org/process/cfip/Assessment_Literacy_Glossary.html

National Center for Research on Evaluation, Standards, and Student Testing (CRESST) at UCLA. (2008). *Products and resources: Glossary*. Retrieved from http://www.cse.ucla.edu/products/glossary_2.html/

National Research Council of the National Academies (2008). *Standards for educational and psychological testing*. Washington, DC: National Academy Press.

Riley Child Development Center. (2010). *Terminology*. Retrieved from <http://www.child-dev.com/page.cfm?id=23>

APPENDIX A: Glossary of Terms

Schaefer, C.E. & Digeronimo, T.F. (2000). *Ages and stages: A parent's guide to normal childhood development*. New York: Wiley.

The National Assessment of Education Progress (NAEP). (2010). *Processing assessment materials*. Retrieved from http://nces.ed.gov/nationsreportcard/tdw/process_materials/

University of St. Andrews. (n.d.). [Statistics: Glossary](http://psy.st-andrews.ac.uk/resources/glossary.shtml). Retrieved from <http://psy.st-andrews.ac.uk/resources/glossary.shtml>

White, S. (n.d.) *Pre-K assessment*. Retrieved from <http://www.preknow.org/policy/assessment.cfm>

Appendix B:

Psychometric Documentation and Rationale

APPENDIX B: Psychometric Documentation and Rationale

In order to describe reliability and validity in these profiles, the information presented in each technical manual was analyzed against a range of values, or cutpoints, that represent varying levels of evidence for each type of reliability and validity. For each type of reliability and validity, statistical indicators representing the strength of the relationship between two variables or items were examined. These scores can range from 0 to 1. A set of criteria or cutpoints were established for each type of reliability and validity. Wherever possible, these criteria were based on generally accepted standards in the field. Where there is no generally accepted standard in the field, the cutpoints were established by consulting research literature on early childhood assessment, statistical texts related to measurement development, criteria used in the *Resources for Measuring Services and Outcomes in Head Start Programs Serving Infants and Toddlers* (published by the U.S. Department of Health and Human Services), and recommendations made by professional organizations such as the American Academy of Pediatrics. The criterion and terminology used in the profiles to describe each type of reliability and validity are outlined in the table below.

Please refer to the Glossary in Appendix A for more details about each type of reliability and validity.

Type of Reliability or Validity	Description and Source of Evidence Used to Establish Criteria	Criterion and Terminology Used
Construct Validity	Measured by examining associations between subscales within the developmental screener. Also measured by examining associations between subscale scores and child characteristics, such as age. No established standard in the field	0.50 or higher=strong/high 0.30 – 0.49=moderate 0.29 or below=weak/low
Content Validity	Measured by whether tool was reviewed by experts to determine if content reflects what the assessment or developmental screener is supposed to be measuring	Content was or was not reviewed by experts
Convergent/ Concurrent Validity	Measured by correlating the scores of the developmental screener with scores on other developmental screeners of similar content to determine the strength of relationships between the two Source: Administration for Children and Families (2003)	0.50 or higher=strong/high 0.30 – 0.49=moderate 0.29 or below=weak/low
Sensitivity	Measured by how often the developmental screener correctly identifies children at risk for developmental delays Source: Council on Children with Disabilities (2006)	0.90 or higher=high 0.70 – 0.89=moderate 0.69 or below=low
Specificity	Measured by how often the developmental screener correctly identifies children not at risk for developmental delays Source: Council on Children with Disabilities (2006)	0.90 or higher=high 0.70 – 0.89=moderate 0.69 or below=low

APPENDIX B: Psychometric Documentation and Rationale

Type of Reliability or Validity	Description and Source of Evidence Used to Establish Criteria	Criterion and Terminology Used
Internal Consistency Reliability	Measured by correlating items within a construct to determine the interrelatedness of the items No established standard in the field	0.70 or higher=acceptable 0.69 or below=low/weak
Interrater Reliability	Measured by the level of agreement between two raters when assessing the same children No established standard in the field	0.80 or higher=acceptable 0.79 or below=low/weak
Test-Retest Reliability	Measured by correlating the scores on two administrations of the same assessment/ developmental screener given to the same child within a short period of time to determine consistency No established standard in the field	0.70 or higher=acceptable (across a period of three months or less) 0.69 or below=low/weak

Sources Consulted in Determining Cutpoints

Bentler, P.M., & Bonett, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588-606.

Brown, M.W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K.A. Bollen & J.S. Long (Eds.), *Testing structural equation models*. Newbury Park, CA: Sage.

Carmines, E.G., & Zeller, R. A. (1979). *Reliability and validity assessment*. Sage University Series on Quantitative Applications in the Social Sciences, 07-001. Beverly Hills, CA, and London: Sage.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.) Hillsdale, NJ: Lawrence Erlbaum.

Council on Children with Disabilities, Section on Developmental Behavioral Pediatrics, Bright Futures Steering Committee, Medical Home Initiatives for Child with Special Needs Project Advisory Committee. (2006). Identifying infants and young children with developmental disorders in the medical home: An algorithm for developmental surveillance and screening. *Pediatrics* 118(1), 405-420.

Lewis-Beck, M.S. (1995). *Data analysis: An introduction*. Thousand Oaks, CA: Sage.

Robinson, J.P., & Shaver, P.R., Wrightsman, S. (1991). *Measures of personality and social psychological attitudes*. San Diego, CA: Academic Press.

Snow, C.E., & Van Hemel, S.B. (Eds.). (2008). *Early childhood assessment: What, why, and how*. Washington, DC: National Research Council of the National Academies.

Administration for Children and Families (2003). *Resources for measuring services and outcomes in Head Start Programs Serving Infants and Toddlers*. E. Kisker, K. Boller, C. Nagatashi, C. Sciarrino, V. Jethwani, T. Zavitsky, M. Ford, J. Love, & Mathematica Policy Research, Inc. Washington, DC: U.S. Department of Health and Human Services. Retrieved February 15, 2009 from http://www.acf.hhs.gov/programs/opre/ehs/perf_measures/reports/resources_measuring/res_meas_cdi.html

APPENDIX B: Psychometric Documentation and Rationale