EARLY CHILDHOOD DEVELOPMENTAL SCREENING: A COMPENDIUM OF MEASURES FOR CHILDREN AGES BIRTH TO FIVE

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Early Childhood Developmental Screening: A Compendium of Measures for Children Ages Birth to Five

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Introduction

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,[1] 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.[2] Early, frequent screening[3] 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.[4]

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.[5] This can be a challenge, since very few developmental screening tools are developed or tested with linguistically or culturally diverse samples of children.[6] Further, practitioners[7] 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.

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[1] 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

[2] 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.

[3] 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)*

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

[5] 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.

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

[7] 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.

INTRODUCTION

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.[8] 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

8 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.[9] *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 domain[10] 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.[11]

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.

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[9] 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.

[10] 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.

[11] 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 general information 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?

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, this compendium builds on and updates 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*[12] and *Resources for Measuring Services and Outcomes in Head Start Programs Serving Infants and Toddlers*.[13] 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, the screener profiles were updated where new information has become available since the publication of the previous compendia. Then, a search of the literature was conducted to identify additional screening tools not included in the previous compendia for inclusion in this new compendium. However, the developmental screening tools included in this compendium are not meant to represent an exhaustive list of all available tools. Rather, the following set of criteria was utilized to determine whether a developmental screening tool should be reviewed and profiled in this compendium:

- 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-emotional).
- The screening tool must be available for use by early childhood practitioners (e.g., early education teachers, child care providers, primary care practitioners, mental health service providers, home visitors, early intervention providers, etc.).
- Information about the screening tool's administration, training, reliability and validity (i.e., sensitivity and specificity) must be readily available.

The developmental screening tools in this compendium include:

Ages and Stages Questionnaire—3rd Edition
Ages and Stages Questionnaire—Social-Emotional
Battelle Developmental Inventory Screening Test
Bayley Scales of Infant and Toddler Development Screening Test-3rd Edition
Brigance Screens
Denver II

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[12] 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

[13] 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

Developmental Assessment of Young Children-2nd Edition
Developmental Indicators for the Assessment of Early Learning—4th Edition
Early Screening Inventory
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

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 (ASQ-3)	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 (ASQ:SE)	Self-regulation Compliance Communication Adaptive functioning Autonomy Affect Interaction with people	6 - 60 months	English Spanish	Yes	No	Manual Electronic	Yes	Yes
Battelle Developmental Inventory Screening Test	Adaptive Personal-Social Communication Motor Cognitive	Birth through age 7	English Spanish	Yes	No	Manual Electronic	No	Yes
Bayley Third Edition	Cognitive Language Motor Functioning	1-42 months	English	Yes	Yes	Manual	Yes	No
Brigance Screens	Expressive language Receptive language Gross motor Fine motor Academics/pre-academics Self-help Social-emotional skills	Birth through end of 1st grade	English	Yes	No	Manual Electronic	Yes	Yes
Denver II	Personal-Social Fine Motor-Adaptive Language Gross Motor	0 months to 6 years	English Spanish	Yes	No	Manual Electronic	Yes	Yes

For definitions and standards used to determining levels of evidence, see Appendix B. 9

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
Developmental Assessment of Young Children, 2nd Edition (DAYC-2)	Cognition Communication Social-emotional Physical Development Adaptive Behavior	Birth through 5 years	English	No	Yes	Manual Electronic (Available Fall 2013)	Yes	No
DIAL-4 (Developmental Indicators for the Assessment of Learning)	Motor Concepts Language Self-Help Social-emotional skills	2 years 6 months through 5 years 11 months	English Spanish	Yes	No	Manual Electronic	Yes	Yes
Early Screening Inventory [ESI-R]	Visual-Motor/Adaptive Language and Cognition Gross Motor	ESI-P: 3 years 0 months through 4 years 5 months ESI-K: 4 years 6 months through 5 years 11 months	English Spanish	Yes	No	Manual Electronic	Yes	Yes
Early Screening Profiles (ESP)	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
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 (IDI)	Cognitive Language Motor Social-emotional skills Adaptive functioning	Birth to 18 months	English	No	No	Manual	Yes	No

For definitions and standards used to determining levels of evidence, see Appendix B. 10

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
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
Survey of Well-being of Young Children (SWYC)	Cognitive Motor Language Social-Emotional-Behavioral Functioning Autism Family Factors	2 – 60 months	English Spanish	No	No	Manual Electronic (Available 2015)	Yes	No

For definitions and standards used to determining levels of evidence, see Appendix B. 11

SUMMARY TABLE 2 – Screeners: Evidence of Reliability and Validity

	Reliability			Validity				
Screener Title	Inter Rater Reliability (Acceptable, Low/Weak, Not Examined)	Test Retest Reliability (Acceptable, Low/Weak, Not Examined)	Internal Consistency Reliability (Acceptable, Low/Weak, Not Examined)	Content Validity (Content was reviewed by experts)	Construct Validity (Strong/High, Moderate, Low/Weak, Not Examined)	Concurrent Validity (Strong, Moderate, Not Examined)	Sensitivity* (High, Moderate, Low)	Specificity* (High, Moderate, Low)
Ages and Stages Questionnaire (ASQ-3)	Acceptable	Acceptable	Not examined by the developer	Yes, content was reviewed by experts	Strong	Moderate	Moderate	Moderate
Ages and Stages Questionnaire: Social-Emotional	Not examined by the developer	Acceptable	Acceptable	Yes, content was reviewed by experts	Not examined by the developer	Strong	Moderate	High
Battelle Developmental Inventory Screening Test	Not examined by the developer	Not examined by the developer	Acceptable	Yes, content was reviewed by experts	Not examined by the developer	Not examined by the developer	Moderate	Moderate
Bayley Third Edition	Not examined by the developer	Acceptable	Acceptable	Yes, content was reviewed by experts	Not examined by the developer	Strong	Low	High
BRIGANCE Screens	Acceptable	Acceptable	Acceptable	Yes, content was reviewed by experts	Moderate	Strong	Moderate for infants, toddlers and 3-5 year olds High for 2 and 5 year olds	Moderate
Denver II	Acceptable	Acceptable	Not examined by the developer	Not examined by the developer	Not examined by the developer	Not examined by the developer	Moderate	Low
Developmental Assessment of Young Children, 2nd Edition (DAYC-2)	Acceptable	Acceptable	Acceptable	Not examined by the developer	Strong	Strong	Moderate	Moderate
DIAL-3 (Developmental Indicators for the Assessment of Learning)	Not examined by the developer	Acceptable	Not examined by the developer	Not examined by the developer	Not examined by the developer	Strong	Low	High
DIAL-4	Acceptable	Acceptable	Acceptable	Yes, content was reviewed by experts	Moderate	Strong	Low	High

For definitions and standards used to determining levels of evidence, see Appendix B. 12

SUMMARY TABLE 2 – Screeners: Evidence of Reliability and Validity

	Reliability			Validity				
Screener Title	Inter Rater Reliability (Acceptable, Low/Weak, Not Examined)	Test Retest Reliability (Acceptable, Low/Weak, Not Examined)	Internal Consistency Reliability (Acceptable, Low/Weak, Not Examined)	Content Validity (Content was reviewed by experts)	Construct Validity (Strong/High, Moderate, Low/Weak, Not Examined)	Concurrent Validity (Strong, Moderate, Not Examined)	Sensitivity* (High, Moderate, Low)	Specificity* (High, Moderate, Low)
Early Screening Inventory [ESI-R]	Acceptable	Acceptable	Not examined by the developer	Not examined by the developer	Not examined by the developer	Not examined by the developer	High	Moderate
Early Screening Profiles (ESP)	Acceptable	Acceptable	Acceptable	Yes, content was reviewed by experts	Moderate	Moderate	Moderate	Moderate
FirstSTEP	Acceptable	Acceptable	Acceptable	Yes, content was reviewed by experts	Moderate	Strong	Moderate	Moderate
IDI	Not examined by the developer	Not examined by the developer	Not examined by the developer	Not examined by the developer	Not examined by the developer	Not examined by the developer	Moderate	Moderate
Learning Accomplishment Profile-Diagnostic Screens	Acceptable	Acceptable	Acceptable	Yes, content was reviewed by experts	Not examined by the developer	Strong	Moderate	Not examined by the developer
Parents' Evaluation of Developmental Status	Acceptable	Acceptable	Acceptable	Yes, content was reviewed by experts	Not examined by the developer	Strong	Moderate	Moderate
Parents' Evaluation of Developmental Status-Developmental Milestones	Acceptable	Acceptable	Acceptable	Yes, content was reviewed by experts	Not examined by the developer	Strong	Moderate	Moderate
Survey of Well-Being of Young Children (SWYC)	Not examined by the developer	Acceptable	Acceptable	Yes, content was reviewed by experts	Moderate	Not examined by the developer	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

	Reliability and Validity for Different Languages		Reliability and Validity for Different Populations		
Screener Title	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 Special Needs?	Evidence of Reliability and Validity for American Indian/Alaskan Native Children?
Ages and Stages Questionnaire (ASQ-3)	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]
Battelle Developmental Inventory Screening Test	Yes	No	No evidence[1]	Yes	No evidence[2]
Bayley Third Edition	Yes	No	No evidence[1]	Yes	No evidence[2]
Brigance Screens	Yes	No	No evidence[1]	No evidence[1]	No evidence[2]
Denver II	Yes	No	No evidence[1]	Yes	No evidence[2]
Developmental Assessment of Young Children, 2nd Edition (DAYC-2)	Yes	No	No evidence[1]	Yes	No evidence[1]
DIAL-3 (Developmental Indicators for the Assessment of Learning)	Yes	No	No evidence[1]	Yes	No evidence[1]
DIAL-4	Yes	Yes	No evidence[2]	Yes	No evidence[2]
Early Screening Inventory-Revised [ESI-R]	Yes	No	No evidence[1]	No evidence[1]	No evidence[1]
Early Screening Profiles (ESP)	Yes	No	No evidence[1]	No evidence[1]	No evidence[2]
FirstSTEP	Yes	No	No evidence[1]	No evidence[1]	No evidence[2]
IDI	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 (SWYC)	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 $3,5000 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 indentifying 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 $3,5000 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.

Battelle Developmental Inventory, 2nd Edition- Screening Test

Developers: U.S. Office of Education, Columbus Laboratories of Battelle Memorial Institute
Publisher: Riverside Publishing http://www.riversidepublishing.com/products/bdi2/index.html

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

- Adaptive
- Personal-social
- Communication
- Motor
- Cognitive

Intended age range: Birth through age 7

Number of items: The BDI-2 Screening Test contains 100 items. However, not all 100 items are used for every child. There are 2 items for each of the five developmental areas for 10 age groups. Thus, a child will most likely complete only 10 items. The Screening Test can be used to determine whether or not to administer the full BDI-2.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)? The BDI-2 Screening Test can be used in a variety of settings, including Head Start Centers, programs funded for children with special needs, pre-schools, child care centers, homes, and medical facilities.

Background

Purpose:

The Battelle Developmental Inventory, 2nd Edition Screening Test (BDI-2 Screening Test) is a developmental screener that can be administered to get an initial snapshot of a child's development. The BDI-2 Screening Test is made up of items from the Battelle Developmental Inventory-2nd edition, which is a 450-item standardized assessment. The full assessment can be administered after the Screening Test if the administrator believes the child may be at risk for developmental delay. This profile will focus only on the Screening Test, not the full BDI-2 Assessment.

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

Rescreening with the BDI-2 Screening Test could be done in as little as six months, especially if interventions or services have been put in place for a child.

How long does it take to administer the developmental screener?

The BDI-2 Screening Test can take 10 to 30 minutes, depending on the age of the child.

Language(s) developed for:

The Screening Test was developed for English, but there are also materials available in Spanish (more information on this is provided later in this profile).

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

In order to purchase the developmental screener, the person purchasing it must have the following (these restrictions do not necessarily apply to the person administering the developmental screener):

1. Certification as an occupational therapist, physical therapist, or another medical profession. Other medical professions include pediatricians, nurse practitioners, office nurses, visiting nurses, home health care workers for infants and young children, and Head Start specialists. Further information about these restrictions can be found on the publisher's website (see 1st page) or by calling the publisher.
2. Specific undergraduate-level training in one or more of the following: intelligence/cognitive testing, basic tests and measurements, speech, hearing, language assessments, education diagnostics, and developmental milestone assessment.

Costs associated with the information reporting system for the BDI-2 are described below.

What is the cost of the developmental screener?

As of 2013, the BDI-2 Screening Test could be purchased separately from the BDI-2 for $371.50. This includes materials for 30 children. An electronic package can also be purchased for $436.00 for use of the BDI-2 Screening Test on a computer or a hand-held device.

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 BDI-2 Screening Test. Training is available through the publishing company, as well as through independent trainers across the country. Independent trainers may be contacted for individualized training prices. Detailed information is available on the publishing company's website: http://www.riversidepublishing.com/products/bdi2/training.html.

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 developmental screener?

Yes, the developers recommend that people administering the Screening Test have college-level training. The primary user groups include preschool, kindergarten, and primary school teachers, special educators and early intervention providers. Additionally, the BDI-2 developmental screener is appropriate for use by speech-language pathologists, psychologists, and diagnosticians. Users should have significant understanding of the purpose of the measure and familiarity with child development.

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

No, however, people who interpret and report the results of the screener should have a higher level of training and supervised experience. The manual suggests that they have college-level training.

Training and Other Requirements for Assessors (cont.)

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

Yes, the developers recommend that a professional train and be available to those who are administering the BDI-2 Screening Test for consultation and to make sure the data are being collected accurately.

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 BDI-2 developmental screener can be entered electronically. Using the electronic score pad replaces the need for a paper record pad. The Spanish-language version can also be entered electronically.

Electronic Reports. *Can programs generate electronic reports of individual children's data?*
Yes, electronic reports can be generated. Reports are available for the child level, for program monitoring by program directors or administrators. There are also special reports that are available for use in Head Start monitoring and for Individualized Education Plan development.

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, the BDI-2 Screening Test does not include tools or guidance for gathering and incorporating parental/family input on an individual child's skills and development.

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

Yes, the manual includes some recommendations on how to share the screening results with a child's family. The manual emphasizes that families have a right to be informed of the results in simple and clear language so they understand them. Thus, the people who administer the developmental screener have an ethical responsibility to communicate the results, explain the meaning of the scores, and provide possible implications or recommendations based on the results. There are several charts that can help parents visualize the results and how their child is developing in comparison to other children of the same age. Additionally, there is guidance for talking with families of children with disabilities.

Options for Use with Special and Diverse Populations

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

Yes, the BDI-2 does have developmental norms that were created using a sample of 2,500 children ages 0-7 years old. However, the BDI-2 Screening Test does not have separate norms from the full BDI-2. There are no developmental norms for the Spanish-language version of the BDI-2 Screening Test.

Which populations were included in the norming sample?

There were 2,500 children in the norming sample. Please see the table on the next page for additional information about these children. The BDI-2 Screening Test has not been examined separately.

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

Yes, the BDI-2 Screening Test is available in Spanish. The developers state that the Spanish version can be administered after a child is given the English version if it becomes apparent that the child does not know enough English to complete the English version. Or, the items that the child scored incorrectly on the English version can be administered from the Spanish version. Additionally, they state that the scoring process for the Spanish version is not different from the English version. This means that the scores for Spanish-speaking children are compared to the norms and developmental abilities of the English-speaking children with whom the BDI-2 Screening Test was developed.

How were versions in languages other than English developed?

The Spanish version of the BDI-2 Screening Test is not a complete translation of the BDI-2 Screening Test in English. The visual materials needed for administering the measure were translated, as well as the record forms and score reports.

Ninety-six percent of the full BDI-2 assessment English items were translated into Spanish. Twenty of the full BDI-2 assessment items needed significant modification when translated from the communication, motor, and cognitive domains. Three of the items were a part of the BDI-2 Screening Test. The modifications occurred when there was not a comparable word in Spanish for the original English word, or when the item had to do with rhyming words that did not rhyme when translated into Spanish. Translation occurred through a consensus process to determine what would be appropriate for many different groups of Spanish speakers in the United States. After items were translated the first time, they were reviewed for grammar issues and cultural biases. Items were revised and reviewed twice more before a final set was published.

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

The reliability and validity of Spanish versions of the BDI-2 Screening Test have not been examined.

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

Yes, there are accommodations for screening children with identified or suspected special needs. The person administering the BDI-2 Screening Test should be familiar with behaviors that may interfere with a child's ability to respond, limitations based on the disability of the child, and relevant information about the child, such as medication and assistive technology. There is particular guidance for children with motor, vision, hearing, or speech impairments or deafness, emotional or behavioral disturbance, and multiple disabilities. For example, a child with a motor impairment might take longer to make small movements, so allowing more time for the child to complete the task might be necessary.

Options for Use with Special and Diverse Populations (cont.)

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

During the development of the BDI-2 Screening Test, individuals from five racial/ethnic/linguistic groups (African American, American Indian and Alaskan Native, Asian, Hispanic, and White) and representing both sexes reviewed items from the original BDI. These groups compiled the information and used it to select, revise, or delete items for the final version of the full BDI-2 assessment and the BDI-2 Screening Test.

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

If the BDI-2 Screening Test is administered first, the scores indicate "pass" or "refer." If the scores indicate that the child should be referred, then the full BDI-2 can be administered.

Characteristics of 2003 Norming Sample

Number of children in the sample: 2,500

Age	Gender		Race/Ethnicity					Parental Education		
	Male	Female	White	African-American	Hispanic/Latino	Asian	Other	Less than High School	High School or GED	Beyond High School
0-2 Months	46.4	53.6	57.6	14.4	20.0	2.4	5.6	19.2	30.4	50.4
3-5 Months	52.8	47.2	52.8	16.0	20.0	3.2	8.0	18.4	30.4	51.2
6-8 Months	52.8	47.2	57.6	14.4	20.8	2.4	4.8	17.6	29.6	52.8
9-11 Months	49.6	50.4	58.4	16.0	18.4	3.2	4.0	16.0	31.2	52.8
12-14 Months	52.8	47.2	62.4	14.4	19.2	1.6	2.4	15.2	32.8	52.0
15-17 Months	49.6	50.4	57.6	14.4	19.2	3.2	5.6	16.8	29.6	53.6
18-20 Months	52.8	47.2	56.8	15.2	19.2	3.2	5.6	16.0	29.6	54.4
21-23 Months	51.2	48.8	60.8	14.4	19.2	1.6	4.0	19.2	32.0	48.8
24-29 Months	49.6	50.4	60.0	14.4	17.6	3.2	4.8	20.0	29.6	50.4
30-35 Months	51.2	48.8	56.0	16.0	18.4	4.0	5.6	19.2	31.2	49.6
36-41 Months	48.0	52.0	61.6	12.8	17.6	3.2	4.8	17.6	32.0	50.4
42-47 Months	51.2	48.8	58.4	13.6	19.2	4.0	4.8	18.4	33.6	48.0
48-53 Months	47.2	52.8	60.0	14.4	18.4	3.2	4.8	19.2	31.2	49.6
54-59 Months	50.4	49.6	56.8	14.4	20.0	4.0	5.6	19.2	35.2	45.6
60-65 Months	48.8	51.2	59.2	14.4	20.0	2.4	4.0	17.6	32.0	50.4
66-72 Months	52.8	47.2	61.6	12.8	16.8	3.2	5.6	19.2	30.4	50.4

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 BDI-2 Screening Test in English. This information is provided in response to later questions of this profile.

In other languages?

Information is not provided about the reliability, validity, sensitivity, and specificity of the BDI-2 Screening Test in other languages.

For dual language learners?

While the developers discuss use of the BDI-2 Screening Test with dual language learners, information is not provided about the reliability, validity, sensitivity, and specificity for this population.

For children with special needs?

The developers have examined the sensitivity and specificity of the BDI-2 Screening Test for children with special needs; however, information is not provided about other aspects of reliability and validity.

For American Indian/Alaskan Native children?

While American Indian/Alaskan Native children were included in the sample with which the BDI-2 Screening Test was tested (these children were included in the Other category and thus a specific percentage cannot be extracted), the developers have not examined the reliability, validity, sensitivity, and specificity of the BDI-2 Screening Test 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 BDI-2 Screening Test 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 did not examine agreement between raters.

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

The developers did not examine the consistency of scores.

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 set of skills on the BDI-2 Screening Test meet the criteria for acceptable.

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 items in the BDI-2 Screening Test do a good job of reflecting what it is supposed to be measuring. A national task force was created to make sure that important issues of development were included in the measure. When considering the areas to include in the measure, the task force also focused specifically on family, economic, demographic, and cultural issues that might impact a child's development. It is important to note that the task force examined the full BDI-2 assessment, not just the Screening Test.

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 the relationships between sets of items that aim to address similar skills compared to those 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?*

The developers have not compared the BDI-2 Screening Test to other developmental screeners.

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

Yes, there are specific scores, called cutoff scores, used with the BDI-2 Screening Test to decide whether further evaluation is needed.
There are cutoff scores for each of the five domains, as well as the total screening test. In order to develop these scores, the developers used data from the group of children described in the earlier table. There are cutoff scores for each age in months from birth to 7 years. A score at or below the cutoff score indicates that the child needs to be referred for further testing. A score above the cutoff indicates that the child passed that domain for his or her 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 BDI-2 Screening Test is moderately accurate at correctly identifying children who are at risk for developmental delay. In order to test this, 512 children divided into five groups completed the BDI-2 Screening Test. In each group, some children had a previously diagnosed developmental delay, including autistic delay, developmental delay, cognitive delay, motor delay, and speech and language delay. The remaining children were developing typically. The BDI-2 Screening Test accurately identified the children who are at risk in the autistic and cognitive delay group better than in the other delay groups. The developmental and speech and language delay groups had many fewer children who were correctly identified as being at risk for developmental delay.

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

The BDI-2 Screening Test is moderately accurate at correctly identifying children who are not at risk for developmental problems. In order to test this, 512 children divided into five groups completed the BDI Screening Test. In each group, some children had a previously diagnosed developmental delay, including autistic delay, developmental delay, cognitive delay, motor delay, and speech and language delay; the remainder of the children were developing typically. For all groups, 79% or more children who were not at risk for developmental problems were identified as not having developmental problems. The BDI-2 Screening Test accurately identified the children who were not in a risk group in the motor and developmental delay group better than in the other delay groups.

Bayley III Screening Test

Developer: Nancy Bayley
http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8027-23X

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

- Cognitive
- Language
- Motor

Intended age range:
1 to 42 months

Number of items:
The Bayley III Screening Test contains 136 items.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?
The Bayley III Screening Test can be administered in any environment free of distractions. Ideally, the room should be quiet, free of distraction, and large enough for the child to crawl/walk/jump. The optimal arrangement would include the examiner, the child, and one caregiver in the room during testing.

Background

Purpose:

The Bayley III Screening Test is designed to assess the cognitive, language and motor functioning of infants and young children to quickly determine whether a child is progressing according to normal expectations and to determine if future evaluation is needed. The Bayley-III Screening Test is made up of items from the Bayley Scales of Infant and Toddler Development, Third Edition, which is a 326-item standardized assessment. When in-depth assessment of cognition, language or motor functioning is needed, the full Bayley-III scales should be used. This profile will focus only on the Screening Test, not on the full Bayley-III assessment.

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

Information is not provided about the appropriate time period between initial screening and possible re-screening.

How long does it take to administer the developmental screener ?

Testing time for children 12 months and younger is 15-20 minutes; testing time for children 13 months and older is approximately 30 minutes.

Language(s) developed for: English

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

The Bayley III Screening Test 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. Costs associated with the information reporting system for the Bayley III Screening Test are described below.

What is the cost of the developmental screener?

As of 2013, the Bayley Scales of Infant and Toddler Development, Third Edition (Bayley-III) Screening Test cost $220.00. It includes materials and forms needed to assess 25 children, the screening test manual and stimulus book, the picture book and manipulative set.

Training and Other Requirements for Assessors

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

Members of the Pearson Training and Consultation Team provide training for users of the Bayley-III Screening Test. The need and objectives for the training are determined based on customer request. Independent trainers may be contacted for individualized training prices. The training may be delivered in-person or via live webinar and an enhanced administration training DVD may be purchased for $130.00.

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, examiners must have experience and training in assessment to administer the screener. Eligible examiners include psychologists, early childhood specialists, trained technicians and other professionals with experience and training in assessment and an understanding of testing young children.

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

Those scoring and interpreting the Bayley-III Screening Test must have experience and training in assessment. Eligible scorers include psychologists, early childhood specialists, and other professionals with experience and training in assessment and an understanding of testing young children. Test interpretation should adhere to the *Standards for Educational and Psychological Testing* (see *http://teststandards.org/* for more information).

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

No, reliability checks are not required.

Information Reporting System for the Developmental Screener

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

No, there is no scoring software for the Bayley-III Screening Test.

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)?*

No, electronic reports cannot be generated.

Approaches to Parental/Family Input

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

Yes, the Bayley III Screening Test includes parent and family input on a child's skills and development. Behaviors may be scored only if they are observed by the examiner; caregiver reports are insufficient for scoring but should be noted on the Record Form. The presence of a parent or caregiver during the administration is recommended. Given adequate instructions, examiners can ask the caregiver to help encourage the child to respond to test items.

Sharing Results. *Does the developmental screener include recommendations on how to share the screening results with the 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 Bayley III Screening Test has developmental norms. The norms are based on a sample of 1,675 children (from the larger Bayley III sample of 1,700 children).

Which populations were included in the norming sample?

This group of 1,675 children is based on national standardization samples representative of the U.S. population for ages 1 to 42 months (October 2000 Census data). The following table provides information on race/ethnicity, parent education level, and geographic region for children in the sample among 9 age groups. Children with a variety of disabilities were excluded from participation. However, a representative proportion (approximately 10%) of children with special needs (including Down syndrome, Cerebral Palsy, Pervasive Developmental Disorder, premature birth, language impairment, and those at risk for developmental delay) was added to the normative sample.

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

No, the Bayley III Screening Test is not available in languages other than English.

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

According to the developer, the Bayley III Screening Test is an appropriate for use with children who are diagnosed with special needs. Flexibility and modifications may be necessary for children with physical or language impairments, but results should be evaluated with professional judgment. Children who may not be functioning at age level can still be screened with this developmental screener as long as their level of functioning is at a level above the minimum age for the assessment. However, they may not begin at the item corresponding with their chronological age. The manual gives guidance as to where to begin for these children.

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 developers did not examine appropriateness for diverse populations 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 Bayley III Screening Test are described as "At Risk," "Emerging," or "Competent."

Characteristics of the 2000 Norming Sample

Number of children in the sample: 1,675

	Percentage of Children								
	1-3 Months	**4-6 Months**	**7-9 Months**	**10-12 Months**	**13-18 Months**	**19-24 Months**	**25-30 Months**	**31-36 Months**	**37-42 Months**
Race/Ethnicity									
White	60.6	59.6	60.0	58.5	60.9	63.5	61.7	61.7	60.0
Hispanic	21.3	20.3	22.1	21.4	18.0	14.5	18.2	17.3	17.6
Black	14.3	14.1	12.1	15.5	15.1	16.0	16.0	14.7	15.3
Other	3.6	5.8	5.7	4.1	4.3	6.0	4.0	6.0	6.8
Parent Education									
<12 years	17.0	16.0	17.1	13.3	16.5	12.5	14.8	13.0	13.8
12 years	24.0	24.0	25.7	25.9	24.3	24.5	26.8	28.7	22.3
>12 years	59.0	60.0	57.1	60.7	59.0	63.0	58.2	58.2	63.8
Geographic Region									
Midwest	24.3	23.6	24.2	24.4	23.4	25.0	22.2	21.7	22.3
Northeast	15.3	13.8	18.5	17.7	16.1	17.5	15.4	20.0	17.6
South	34.6	33.4	31.4	33.3	36.5	38.5	36.0	33.9	35.3
West	25.6	29.0	25.7	24.4	23.9	19.0	26.2	24.3	24.6

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 Bayley III Screening Test in English. This information is outlined in responses to later questions in this profile.

In other languages?

The Bayley III Screening Test is not available in other languages.

For dual language learners?

Information is not provided about dual language learners.

For children with special needs?

A number of studies were conducted to examine the clinical utility of the Bayley III Screening Test with the following 9 special groups: children with Down syndrome, children with Pervasive Developmental Disorder (PDD), children with Cerebral Palsy (CP), children with Specific Language Impairment (SLI), children who are at risk for developmental delay, children with asphyxiation at birth, children with prenatal alcohol exposure, children small for gestational age (SGA), and children born premature or with low birth weight. Samples for these studies were selected based on specific inclusion and exclusion criteria and availability and therefore may not be representative of the diagnostic category as a whole. The developers report group performances for each special group and their demographically matched control group.

Internal consistency results from special group reliability studies with 622 children with clinical diagnoses suggest the tool is acceptable for use with all 9 special populations groups. This is because the special group studies showed that a low number of children who are "typically developing" would be classified as At Risk for a developmental delay and a high number of children who were at risk for delay were classified correctly.

The developers provide sensitivity and specificity information for children in four of these special groups: Down Syndrome, Pervasive Developmental Disorder (PDD), Specific Language Impairment (SLI), and Cerebral Palsy (CP). Additional information on these results can be found in later sections.

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 have not examined 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, validity, sensitivity, and specificity of the Bayley III Screening Test 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?*

The developers have not examined the agreement between raters when they are assessing the same child.

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

The Bayley III Developmental Screener was administered on two separate occasions to a subset of 203 children from the overall standardization sample. The interval between the test dates ranged from 2 to 30 days with a mean retest interval of 7 days. The age range of this sample was 2 to 42 months, and was 51% males and 49% females. The sample was 48% White, 23% Hispanic, 18% African American, 8% Asian American, and 3% children of other racial/ethnic groups.

Information is not provided about the characteristics of the examiners. The results of the assessments showed that the scores in all subtests of the Bayley III Screener Test were very similar on the first and second assessment for all children. This suggests that the consistency of individual scores is acceptable over short intervals of time.

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

The relationships among items intended to reflect the same set of skills or behaviors was examined with the nationally representative normative sample of 1,675 children described above and 622 children with clinical diagnoses described above. Overall, the items within each of the five subtests meet the criteria for acceptable relationships. In other words, items in each subtest of the Bayley III Screening Test, which are intended to reflect the same set of skills or behaviors, are related.

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?*

Yes, experts agree that the items included in the Bayley III Screening Test do a good job of reflecting what the screener 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?*

Information is not provided about the relationship between sets of items that address similar and different skills and behaviors or on how scores on sets of items relate to child 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 relationship between the Bayley III Screening Test and Bayley III full assessment was examined with the Bayley III Screening Test standardization sample (described above). Among children with very low scores (1-4) on the Bayley III full assessment, the Bayley III Screening Test was moderately accurate at correctly identifying children as At Risk.

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

Among children with mid-range scores (5-7) on the Bayley III full assessment, the Bayley III Screening Test was even more accurate at correctly identifying children as Emerging. Finally, among children with higher scores (8-19) on the Bayley III, the Bayley III Screening Test was highly accurate at identifying children as Proficient.

In summary, the Bayley III Screening Test shows moderate to high accuracy when correctly identifying children in low (1-4), mid (5-7) and high (8-19) scoring groups on the Bayley III full assessment as At Risk, Emerging, and Proficient on the Bayley III Screening Test. The least accurate classification was within the low performing group (those with low scores (1-4) on the Bayley III and in the At Risk category on the Bayley III Screening Test). It should be noted that many of the items on the Bayley III Screening Test are taken from the Bayley III full 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?*

Specific cut sores are used to identify the development of the infant or toddler as At Risk, Emerging Risk, or Lowest Risk (Competent). If a child scores in the Competent category, the child is considered to be at low risk for a developmental delay and in most cases does not need further evaluation. If a child scores in the Emerging Risk category, the child is considered to be at some risk for a developmental delay; however, the need for further evaluation should be made in light of all information collected about the child. The practitioner has the choice to either recommend a comprehensive evaluation (such as with the Bayley–III) or to monitor the child's progress and rescreen and refer as necessary after a time interval. If a child scores in the At Risk category, it is most likely that the child needs further evaluation using an appropriate comprehensive evaluation tool such as the Bayley–III.

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

The accuracy of the Bayley III Screening Test at correctly identifying children at risk for developmental problems was examined with a sample of children with the following diagnoses: Down Syndrome, Pervasive Developmental Disorder (PDD), Specific Language Impairment (SLI), and Cerebral Palsy (CP). Overall, results showed that the Bayley III Screening Test had low accuracy 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?*

The accuracy of the Bayley III Screening Test at correctly identifying children who are not at risk for developmental problems was examined with a sample of children with the following diagnoses: Down Syndrome, Pervasive Developmental Disorder (PDD), Specific Language Impairment (SLI), and Cerebral Palsy (CP). Overall, results showed that the Bayley III Screening Test had high accuracy at correctly identifying children 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?*

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

Bayley, N. (2006). Bayley Scales of Infant and Toddler Development Screening Test Third Edition. San Antonio, TX: NCS Pearson, Inc.

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
- Motor
  - Gross motor
  - Fine motor
  - Graphomotor (handwriting skills)
- Academics/preacademic
  - Knowledge of colors
  - Knowledge of letters
  - Knowledge of letter sounds
  - Knowledge of numbers

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 tested[1], 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.

[1]The 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.

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

Denver II

Developers: William Frankenberg and Josiah Dodds
Publisher: Denver Developmental Materials, Inc.

http://www.denverii.com/

Developmental domains addressed in the developmental screener, as stated by the publisher:
There are four developmental areas in the Denver II:

- Personal-social
- Fine motor-adaptive
- Language
- Gross motor

Intended age range:
0 months to 6 years

Number of items:
The Denver II includes 125 items; there are 5 additional behavior items that are administered at the end. However, all 125 items are not administered to each child. The number of items administered depends on how much time is available and whether the goal of the screening is to determine only if the child is at risk or also the child's relative strengths.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)?
The Denver II can be used in many settings, including schools, early childhood programs, doctors' offices, public health clinics, and home visiting programs.

Background

Purpose:
The Denver II is a developmental screener that examines children's ability on age-appropriate activities to see if there might be a delay. The Denver II is meant to compare the child's ability to other children of the same age.

What is the appropriate time period between administering, recording, or reviewing the data?
If the person administering the measure thinks that there might be any concerns with a child, the child should be rescreened using the Denver II one to two weeks after the initial screening. This can rule out whether the child was showing his or her true ability, or whether the screening results were influenced by other factors such as fatigue, fear, or illness.

How long does it take to administer the developmental screener?
The amount of time it takes to administer the Denver II depends on the age and developmental level of the child. Infants may take 10 minutes; 5 year-olds may take 30 minutes.

Language(s) developed for:
The Denver II was developed in English, but the materials have been translated into Spanish.

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

Yes, the Denver II is available without restrictions.

What is the cost of the developmental screener?

As of 2013, the materials and the test kit cost $110. These materials can screen 100 children. The Spanish-language kit can be purchased for $150. Another resource for parents and families to fill out, the Prescreening Developmental Questionnaire (PDQ II), is available in English and Spanish and costs about $32 for 100 sheets. Costs associated with the information reporting system for the Denver II 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, the publishers offer in person training on how to administer and score the Denver II. Training is available in Colorado several times a year. Onsite training is also available upon request. Those who administer the Denver II can become certified trainers to train teachers or professionals within their programs. Training may also be available through videotapes; contact the publisher for more information regarding individualized training prices: (http://www.denverii.com/training.html).

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, the Denver II can be administered by many different types of people and they do not need to professional background of technical training over and above training on the screener. However, they must be trained to administer the screener in the standardized manner. They must also pass a proficiency test before administering the Denver II. The proficiency test is included in the Denver II technical manual and can be photocopied.

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, if the person administering the Denver II has successfully completed the training and passed the proficiency test, he or she can also score the developmental screening tool.

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

Master instructors are required to recertify every three years. It is recommended that their screener-trainees be recertified yearly or at most, within three years.

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 Denver II comes with a process for entering information electronically. It is linked to an internet site where those administering the Denver II can create a secure account with a log-in ID. All of the scores from the Denver II can be saved in the online account (see http://www.denveriionline.com/).

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

Yes, programs can generate electronic reports; however the manual does not provide information about what type of reports can 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, the Denver II includes parent and family input on a child's skills and development. The Denver II is often administered with an adult (e.g., parent, teacher, someone who knows the child well) in the room. This allows for the administrator to ask the parents or another adult who knows the child questions about the child's behavior that cannot be examined while the child is being screened—for example, can the child dress without help. Many of the questions asked about younger children need more parental or familial input. If the Denver II is administered without a parent or family member present, the person administrating can ask for input at a later time.

Additionally, the Prescreening Developmental Questionnaire (PDQ II), available in English and Spanish, can be filled out by parents or another family member. This is a 105-item questionnaire, but parents or another family member complete only a handful of questions based on the child's age. It takes about 10 minutes to complete. When this is filled out, the Denver II administrator has some initial information about the child and can use the information from the PDQ II when talking with the family of the child being screened.

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

No information is 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 Denver II has developmental norms. The norms for the Denver II are based on a sample of 2,096 children from Colorado from 1990.

Which populations are included in the norming sample?

This group of 2,096 children were from either Denver County (1,039 total) or another county in Colorado (1,057 total). They were from three types of areas: urban (50,000+ residents), semi-rural (2,500-50,000 residents), or rural (not fitting into either of the other categories). The information in the table that follows is for children in the 0 to 5 year old age range. Children in this group were recruited from health care settings, child care centers, preschools, Head Start programs, churches, and social services agencies. 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 Denver II has been translated into Spanish.

How were versions in languages other than English developed?

The Spanish-language version is translated from the English version. No additional information is provided about the development of the Spanish version of the Denver II.

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

Information is not provided about findings on reliability and validity of the Spanish version.

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

Information is not provided about specific 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 Denver II 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.)?*

The Denver II uses several terms for the scores on each item. Children can *"pass"* an item if they do it correctly. Children can *"fail"* an item if they do it incorrectly. Children can score a *"normal"* on an item if they fail or refuse to do it correctly and it is an item that is indicated to be much above their age level (25-75 percent). Children can score a *"caution"* on an item if they fail or refuse to do it correctly and 75-90 percent of children their age can do the item. These percentages are based on the developmental norms that are mentioned earlier in this profile. Finally, children can score a *"delay"* on an item if they fail or refuse to do an item that is at or below their age level.

There are also several terms used to describe the overall score on the Denver II and the child's risk level. The test result is considered *"normal"* if there are no delays on any items and only one caution. If the test has two or more cautions and/or one or more delay, then the test result is considered *"suspect."* Lastly, if a child refuses to complete one or more items that are at or below age level or more than one item that 75-90 percent of children of the same age can do, then the test result is considered *"untestable."*

Demographic Information (2008) about the Colorado Sample of Children

Number of children in the sample: 2,096

	Percentage of Children										
	0-6 Months	6-12 Mo.	12-18 Mo.	18-24 Mo.	24-36 Mo.	36-42 Mo.	42-48 Mo.	48-54 Mo.	54-60 Mo.	60-66 Mo.	66-72 Mo.
Race/ Ethnicity											
White	56	54	50	51	54	60	58	54	55	58	38
Hispanic	24	29	32	29	30	25	26	27	32	26	38
Black	19	16	18	18	16	15	14	19	12	14	24
Other[1]	1	1	0	2	0	0	2	0	1	2	0
Gender											
Male	50	52	50	47	51	44	48	41	54	49	41
Female	50	48	50	53	49	56	52	59	46	51	50
Maternal Education (in years)											
<12	32	28	35	27	29	20	26	22	37	32	24
12	34	37	33	32	35	31	32	32	20	36	44
>12	34	35	32	41	35	49	42	46	39	32	32
Residence											
Urban	70	67	70	70	69	62	74	76	75	66	64
Rural	13	17	15	15	13	21	15	9	15	20	18
Semi-rural	17	16	15	15	18	17	11	15	10	14	18

Reliability and Validity Information

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

In English?

There is information about reliability and validity of the developmental screener in English. To test the reliability and validity of the Denver II in English, the screener was tested on a sample of children from Colorado, mentioned earlier in the profile.

In other languages?

Information is not provided about the reliability, validity, sensitivity, and specificity of the Denver II in other languages.

For dual language learners?

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

For children with special needs?

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

For American Indian/Alaskan Native children?

While American Indian/Alaskan Native children were included in the sample with which the developmental screener was tested (these children were included in the Other category, so a specific percentage cannot be extracted), the developers have not examined the reliability, validity, sensitivity, and specificity of the Denver II 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 Denver II 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 different raters when they screen the same children with the Denver II. This was examined with 38 children ages birth to 78 months with about 3 children per each 3-month age group from the Colorado sample. The maternal education of these children ranged from 12 to 20 years with an average of 15.5 years. Seventeen trained raters administered the Denver II. The developers did not provide additional information about these raters.

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

Consistency of scores for the Denver II was examined in two different ways. First, consistency of scores was examined with 5 to 10 minutes between administering the Denver II. For most of the 125 items, the consistency met the criteria for acceptable, but for 18 items, the consistency met the criteria for weak. Next, consistency of scores was examined with 7 to 10 days between administering the Denver II. Again, most items showed acceptable consistency, but 24 items had moderate to weak consistency. This was examined with 38 children ages birth to 78 months with about 3 children per 3-month age group from the Colorado sample. The maternal education of these children ranged from 12 to 20 years with an average of 15.5. Seventeen trained raters administered the Denver II. There is no additional information about these raters.

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

The developers have not examined the relationship between items that are intended to reflect the same set of skills or behaviors.

Follow-Up Guidance

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

Yes, the Denver II has guidance about follow-up steps based on the results. If is the test result is *"normal,"* then the child should be screened when he or she next goes to the doctor for a well-visit or at a comparable time. If the test result is *"suspect,"* the child should be rescreened in one or two weeks to rule out factors such as fatigue, fear, or illness. If the test result is *"untestable,"* then he or she should be rescreened in one or two weeks.

If the rescreening results indicate the child is *"suspect"* or *"untestable,"* then the child should see a professional. The professional may want to take into consideration items on which the child received cautions or delays, as well as the total number of cautions or delays. Additionally, if there is other information available, such as rate of past development, other clinical considerations, and availability of referral resources, the professional should take them into account.

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

If the program in which the child is enrolled does not offer recommendations, there are handouts that can be purchased. These Denver Developmental Activities can guide parents in activities to help in their child's development.

References

Frankenburg, W.K., Dodds, J., Archer, P., Bresnick, B., Maschka, P., Edelman, N., & Shapiro, H. (1996). Technical manual: Denver II. Denver, CO: Denver Developmental Materials.

Glasco, F.P., Bryne, K.E., Ashford, L.G., Johnson, K.L., Chang, B., & Strickland, B. (1992). Accuracy of the Denver-II in developmental screening. *Pediatrics 89(6)*, 1221-1225.

http://www.denverii.com/DenverII.html

http://www.denverii.com/denveriionline.html

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 D*evelopmental 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.

Developmental Indicators for the Assessment of Learning (DIAL-4)

Developer: Carol Mardell and Dorothea S. Goldenberg
Publisher: Pearson

http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=14753

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

- Motor
- Concepts
- Language
- Self-help
- Social-emotional skills

Intended age range: 2 years, 6 months - 5 years, 11 months

Number of items: The full assessment contains 20 items, each of which contains several tasks. It is not always necessary to administer the full assessment based on the child's level of development.

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

The DIAL-4 can be used in settings where developmental screening often takes place, including centers, school districts, homes, pediatric offices, and health fairs.

Background

Purpose:

The Developmental Indicators for the Assessment of Learning, Fourth Edition (DIAL-4) is an individually administered developmental screener designed to identify children who are in need of intervention or diagnostic assessment in the following areas: motor, concepts, language, self-help, and social-emotional skills. A shorter version of the DIAL-4, called Speed DIAL-4, is also available. The Speed DIAL-4 consists of 10 DIAL-4 items and takes approximately 20 minutes to administer.

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?

The DIAL-4 takes 30-45 minutes to administer.

Language(s) developed for:

The DIAL-4 was developed in English and Spanish.

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

Yes, the DIAL-4 is available to programs without restrictions.

What is the cost of the developmental screener?

As of 2013, the cost of the DIAL-4 complete kit was $647. The complete kit contains materials in both English and Spanish, including the manual, 50 record forms (in English), 1 record form (in Spanish), 50 cutting cards (used to assess a child's ability to cut straight and curved lines), 50 parent questionnaires (in English), 25 Teacher Questionnaires (in English), manipulatives, dials, operator's handbooks (in English and Spanish for motor, concepts, and language areas) plus the Speed DIAL and training packet. Additional DIAL-4 record forms (in packages of 50, available in English and Spanish) can be purchased for $36.20. Additional parent questionnaires (in packages of 50 in English or Spanish) can be purchased for $36.25, and additional teacher questionnaires (in packages of 50 in English) can be purchased for $18.50. Costs associated with the information reporting system for the DIAL-4 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, some training is available on how to administer and score the DIAL-4 through Psych Corps, a division of Pearson, the publisher of the DIAL-4. The information needed for training is contained in the DIAL-4 kit. This includes the manual, the training packet, and the training presentation (DVD or through the Internet).

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?

Teachers, professionals, or paraprofessionals can administer the DIAL-4 or Speed DIAL-4 if they have been trained in the use of the test materials. The manual suggests that the screener be administered by a team of adults. This team is composed of a professional coordinator and three other adults called operators, each of whom administers the items in one of the three performance areas: motor, concepts, and language. The DIAL-4 coordinator is responsible for making sure that each operator is adequately trained to administer the six or seven items in the performance area they have been assigned to screen. Three children can be assessed at the same time by the team of three administrators, each working with individual children on a different performance area. The DIAL-4 kit contains all the necessary materials for conducting a DIAL-4 training workshop.

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

The DIAL-4 or Speed DIAL-4 can be scored by a professional or paraprofessional who has been trained in the use of the test materials.

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

Information is not provided about the need for 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?*

Yes, users can enter information on Q-Global, a website available through Pearson.

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

Yes, electronic reports may be generated at the individual child level for a fee using the Q-Global website. The developers do not provide information about whether Q-Global generates reports at the classroom or institution level. Cost estimates are available by contacting Pearson.

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 DIAL-4 includes a parent questionnaire that concentrates on the child's self-help and social development. It also requests information regarding general concerns about development.

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

Yes, the DIAL-4 manual provides information on how to hold a conference with parents about the results of the screening. This information includes guidelines for talking to parents about concerns, suggestions about how to use score reports, and how to go about scheduling further evaluations, if necessary.

Options for Use with Special and Diverse Populations

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

The DIAL-4 is a screener with developmental norms. The norming of the DIAL-4 was completed with a sample of 1,400 children aged 2 years, 6 months through 5 years, 11 months.

Which populations were included in the norming sample?

The sample consisted of both English- and Spanish-speaking children and was selected to be highly representative of the U.S. population (according to the U.S. Census data taken from the March 2008 Current Population Survey). See the tables on the next pages 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 DIAL-4 is available in Spanish.

How were versions in languages other than English developed?

The Spanish version was equated with the English version so that children are compared to the same set of norms, regardless of whether they are tested in English or Spanish. To equate the two versions, experts first selected common items that would require children to do the same thing, had the same meaning in both languages, and had the same difficulty level. Then the common items were calibrated on the same scale so that raw scores for each item represent the same difficulty level across both languages.

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

The manual provides information about the reliability of the Spanish version of the DIAL-4. To examine the consistency of the scores, the Spanish version of the DIAL-4 was administered twice to 81 children drawn from the norming sample. The 81 children included participants of both genders, different countries of origin, and different socio-economic status, though most children came from the Southern region. The test-retest sample was divided into two groups based on age. One group consisted of children ages 2 ½ years to 3 years 11 months, and the other group consisted of children ages 4 years to 5 years 11 months. The test-retest sample was 49.4% female and 50.6% male. There were 27 children from the Caribbean, 42 children from Mexico, and 12 children from other countries of origin. Thirty-nine children had parents who were high school graduates and 42 children had parents with 1 to 3 years of college or technical school. Six children were from the Midwest region of the United States, 69 were from the South, and 6 were from the West. The developers do not provide information about the teachers in this sample.

The results showed that the Spanish DIAL-4 has acceptable consistency when administered once and then administered again to the same children. In addition, there are acceptable relationships among items on the Spanish DIAL-4 area scores that are intended to reflect the same set of skills or behaviors.

The manual also provides some information about the validity of the Spanish version. There are acceptable relationships among sets of items within the DIAL-4. Specifically, areas that are expected to be related, such as Concepts and Language, are indeed related.

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

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.

Options for Use with Special and Diverse Populations (cont.)

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 that were difficult to administer, were biased, or did not discriminate between age groups were eliminated from this trial version of the DIAL-4. In addition, the norming sample was diverse. No other information regarding the use of cognitive testing or focus groups with diverse populations is provided.

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

The risk levels are described in the DIAL-4 as "potential delay" and "OK."

Characteristics of 1996 Norming Sample

Number of children in the sample: 907

	Percentage of Children							
	2-6 to 2-11	**3-0 to 3-5**	**3-6 to 3-11**	**4-0 to 4-5**	**4-6 to 4-11**	**5-0 to 5-5**	**5-6 to 5-11**	**Total Sample**
Gender								
Female	50.5	49.5	50.5	50.0	49.5	49.5	49.5	49.9
Male	49.5	50.5	49.5	50.0	50.5	50.5	50.5	50.1
Race/Ethnicity								
African American	13.0	15.0	14.5	13.0	13.5	13.5	13.0	13.6
Asian	3.5	3.5	3.0	1.0	3.0	2.5	4.0	2.9
Hispanic	25.0	24.5	28.0	24.5	23.5	24.5	25.5	25.1
White	53.0	52.0	51.5	55.5	54.0	56.0	53.5	53.6
Other	5.5	5.0	3.0	6.0	6.0	3.5	4.0	4.7
Geographic Region								
Northeast	17.5	15.0	13.5	17.0	15.5	16.0	15.5	15.7
Midwest	16.5	23.0	25.0	21.5	25.0	26.0	23.5	22.9
South	44.0	38.0	38.0	40.5	40.5	38.0	41.0	40.0
West	22.0	24.0	23.5	21.0	19.0	20.0	20.0	21.4
Mother's Education Level								
Grade 11 or Less	15.5	15.5	14.0	15.5	15.5	13.0	13.5	14.6
High School Graduate or GED	24.0	24.0	24.5	25.5	26.5	27.5	27.5	25.6
1-3 Years of College or Tech	27.0	28.5	27.5	28.5	27.0	26.5	28.0	27.6
4 or more years	33.5	32.5	34.0	30.5	31.0	33.0	31.0	32.2

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 DIAL-4 in English. This information is outlined in responses to later questions in this profile.

In other languages?

There is information about reliability and validity of the DIAL-4 in Spanish. This information is outlined in responses to previous questions in this profile.

For dual language learners?

While dual language learners may have been included in the sample with which the DIAL-4 was tested,[1] the developers have not examined the reliability, validity, sensitivity, and specificity of the screener for this population.

For children with special needs?

The developers have examined the 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?

While American Indian/Alaskan Native children were included in the sample with which the DIAL-4 was tested (these children were included in the Other category and thus a specific percentage cannot be extracted), the developers have not examined the reliability, validity, sensitivity, and specificity for this population.

Information is not provided about American Indian/Alaskan Native children, and the reliability, validity, sensitivity, and specificity of the DIAL-4 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 DIAL-4 for this population have not been examined.

[1]The 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.

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, multiple raters scored items on the DIAL-4 considered more subjective: Objects and Actions, Problem Solving, Cutting, Copying, and Writing Name. There was acceptable agreement between raters on these items. The developers do not provide information about the sample children with whom this was examined.

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

The consistency of DIAL-4 scores is acceptable when the developmental screener is administered once and then administered again to the same children. To examine this, the DIAL-4 was administered twice to 93 children. The 93 children were drawn from the norming sample and were selected to be representative of the U.S. population, although minority groups had a greater representation. The test-retest sample was divided into two groups based on age. One group consisted of children ages 2 ½ years to 3 years 11 months, and the other group consisted of children ages 4 years to 5 years 11 months.

The test-retest sample was 46.2 percent female and 53.8 percent male. There were 12 African American children, 3 Asian children, 21 Hispanic children, 50 White children, and 7 children classified as Other. Sixteen children had parents with 11 years of education or less, 26 children had parents who were high school graduates, 29 children had parents with 1 to 3 years of college or technical school, and 22 children had parents with 4 or more years of college. Sixteen children were from the Northeast region of the United States, 15 were from the Midwest, 39 were from the South, and 23 were from the West. The developers do not provide information about the teachers in this sample.

It should be noted that information is not provided about how much time passed between administrations of the screener.

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

There are acceptable relationships on the DIAL-4 (both the English and Spanish versions) among items that are intended to reflect the same set of skills or behaviors. In general, the relationship was weakest among items in the Motor area and the Self-help domains of the Parent and Teacher Questionnaires, and stronger for the Concepts Area, the Language Area, and the Total score. 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?*

Yes, early childhood experts were consulted during the development of items for the DIAL-4.

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 relationships among sets of items within the DIAL-4 that are anticipated to be related. Such areas as Concepts and Language, that are expected to be related are indeed related.

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 DIAL-4 was compared to six other early childhood measures. Approximately 70 children completed each additional measure. The interval between tests ranged from 1 to 25 days, with a mean of 7 days.

Sixty children who were part of the norming sample were also administered the DIAL-3, the previous version of the DIAL-4. Results showed close relationships between scores on the same domains of the DIAL-4 and the DIAL-3. The DIAL-4 and DIAL-3 had the strongest relationships in the Total scores, Speed DIAL scores, as well as Concepts and Language areas. The age range of the sample was 2 years 6 months to 5 years 11 months. The sample was 60% female and 40% male. Seventeen percent of children were African American, 2% were Asian, 15% were Hispanic, 62% were White, and 5% were categorized as Other. Five percent of children had mothers with 11 years of education or less, 18% had parents with a high school diploma or GED, 40% had parents with 1-3 years of college or technical school, and 37% had parents with 4 or more years of college. Thirty-two percent of children were from the Northwest region of the United States, 48% were from the Midwest, 12% were from the South, and 8% were from the West.

Sixty-three children who were part of the norming sample were also administered the Early Screening Profiles (ESP). Results showed moderate relationships between scores in similar domains of the DIAL-4 and ESP. The DIAL-4 Language area and the ESP Language subscale showed a strong relationship, as did the DIAL-4 Concepts and Language areas with the ESP Cognitive/Language profile. The DIAL-4 Motor area and the ESP Motor profile had a moderate relationship. The DIAL-4 Self-Help and
Social-Emotional domains showed moderate relationships with the ESP self-help/social profile.

The age range of the sample was 2 years 6 months to 5 years 11 months. The sample was 56% female and 44% male. Ten percent of children were African American, 3% were Asian, 16% were Hispanic, 65% were White, and 6% were categorized as Other. Thirteen percent of children had mothers with 11 years of education or less, 16% had parents with a high school diploma or GED, 37% had parents with 1-3 years of college or technical school, and 35% had parents with 4 or more years of college. Thirty-eight percent of children were from the Northwest region of the United States, none of the children were from the Midwest, 33% were from the South, and 29% were from the West.

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

Sixty-seven children who were part of the norming sample were also administered the Battelle Developmental Inventory (BDI-2). Results showed that relationships between scores in similar domains of the DIAL-4 and BDI-2 ranged between strong and moderate. The total scores for each measure had a strong relationship, as did the DIAL-4 Language area and the BDI-2 Communication domain. The DIAL-4 Concept area showed a strong relationship with the BDI-2 Cognitive domain and the DIAL-4 Language area showed a strong relationship with the BDI-2 Communication domain.. The DIAL-4 Motor area and the BDI-2 Motor domain had a moderate relationship. The age range of the sample was 2 years 6 months to 5 years 11 months. The sample was 57% female and 43% male. Eight percent of children were African American, 2% were Asian, 9% were Hispanic, 77% were White, and 5% were categorized as Other. Nine percent of children had mothers with 11 years of education or less, 8% had parents with a high school diploma or GED, 40% had parents with 1-3 years of college or technical school, and 43% had parents with 4 or more years of college. Fifty-seven percent of children were from the Northwest region of the United States, none of the children were from the Midwest, 10% were from the South, and 33% were from the West.

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 DIAL-4 Total, Speed DIAL-4, and the five performance areas (motor, concepts, language, self-help, and social development) offer a range of cutoff scores to decide whether further evaluation is needed. These cutoffs give programs the option to identify lower or higher proportions of children for referral (ranging from 2 percent to 16 percent). The cutoffs are designed to identify children who, when compared with children their own age, score at the lower end of a range of scores. The cutoff level chosen corresponds to the approximate percentage of children nationally, based on the DIAL-4 norming sample described earlier, who would be identified as having "potential delay" using that cutoff score. Both the English- and the Spanish-language versions of the DIAL-4 use the same cutoffs. The five cutoff levels will identify approximately 16, 10, 7, 5, or 2 percent of the total screening population as "potential delay."

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

The developers conducted several studies to see how well the developmental screener correctly identifies children who are at risk for developmental problems. In the first four studies, two groups of children were tested. One group was normally developing and the other group was a clinical sample. The children in the sample were matched on age, sex, race, and parents' education level. For the fifth study, children from both groups completed the DIAL-4 as well as the DAS-II. Each child's score on the DIAL-4 was categorized as "below 85" or "85 and above" and as "below 90" or "90 and above." The DIAL-4 showed a low level of accuracy in identifying children at risk for physical impairments at the 85 point cutoff, but a moderate level of accuracy at the 90 point cutoff. The DIAL-4 showed a low level of accuracy in identifying children at risk for developmental delays at the 85 point cutoff, but a moderate level of accuracy at the 90 point cutoff. The DIAL-4 showed a low level of accuracy in identifying children at risk for speech and language impairments at the 85 point cutoff and the 90 point cutoff. The DIAL-4 showed a moderate level of accuracy in identifying children with autism at the 85 point cutoff and the 90 point cutoff. Finally, when compared to the DAS-II, the DIAL-4 showed a low level of accuracy in identifying children at risk for clinical problems at the 85 point cutoff, but a moderate level of accuracy at the 90 point cutoff.

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

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

The same studies that investigated the DIAL-4's ability to identify children at risk for developmental problems described above were used to investigate the DIAL-4's ability to correctly identify children who are not at risk for developmental problems. The DIAL-4 showed a high level of accuracy in identifying children not at risk for physical impairments at the 85 point cutoff, but a moderate level of accuracy at the 90 point cutoff. The DIAL-4 showed a moderate level of accuracy in identifying children not at risk for developmental delays at the 85 point cutoff and the 90 point cutoff. The DIAL-4 showed a moderate level of accuracy in identifying children not at risk for speech and language impairments at the 85 point cutoff and the 90 point cutoff. The DIAL-4 showed a high level of accuracy in identifying children not at risk for autism at the 85 point cutoff and a moderate level of accuracy at the 90 point cutoff. Finally, when compared to the DAS-II, the DIAL-4 showed a high level of accuracy in identifying children not at risk for clinical problems at the 85 point cutoff and the 90 point cutoff.

Follow-Up Guidance

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

The manual briefly discusses follow-up steps based on whether the child scores as "potential delay" or "OK." If a child's overall screening score on the DIAL-4 falls within the potential delay score range for his or her age, the child should be referred for a diagnostic case study evaluation. It should be noted that remedial or special education placement should not be made solely on the basis of the DIAL-4. In addition, scores should be interpreted in the context of the child's socioeconomic status and cultural and language background.

If a child's overall screening score falls within the "OK" range for his or her age, the screening administrator may still wish to give the child's parents or teachers suggested activities that will allow the child to practice specific skills. The activities will depend on the age of the child and developmental appropriateness. Some children score "OK" on a developmental screener at one age and show evidence a year later that warrants further evaluation. For this reason, development should be assessed on a yearly basis. Since children grow and develop at different rates, it is important to offer developmental evaluation on a continuing time frame rather than just once.

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 that the administrator of the screener discuss the results with the child's parent or caregiver privately and in person, and request permission if further evaluation is needed. There is no additional information in the manual regarding follow-up steps the family might take based on the results of the screening.

References

Mardell, C., & Goldenberg, D. S. (2011). *Developmental Indicators for the Assessment of Learning – 4th Edition manual*. Bloomington, MN: Pearson.

Early Screening Inventory-Revised (ESI-R)

Developers: Samuel J. Meisels, Dorothea B. Marsden, Martha Stone Wiske, and Laura W. Henderson
Publisher: Pearson Assessments

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

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

- Visual motor/adaptive
- Language and cognition
- Gross motor

Intended age range: The Early Screening Inventory-Preschool (ESI-P) is used with children ages 3 years, 0 months to 4 years, 5 months, and the Early Screening Inventory-Kindergarten (ESI-K) is used with children ages 4 years, 6 months to 5 years, 11 months.

Number of items: The ESI-R contains 25 items.

In what settings can this developmental screener be used (e.g., centers, homes, medical facilities, other)? According to the developer, the ESI-R has been successfully used in schools, clinics, and medical facilities.

Background

Purpose:

The Early Screening Inventory-Revised (ESI-R) is a brief developmental screener designed to identify children who may need further evaluation in order to determine if they require special educational services. The ESI-R is divided into two separate screeners: the Early Screening Inventory-Preschool (ESI-P) and the Early Screening Inventory-Kindergarten (ESI-K). This profile includes information about both the ESI-P and the ESI-K.

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

A child's score on the ESI-R determines whether the child should be rescreened. If so, the ESI-R should be readministered in 8 to 10 weeks.

How long does it take to administer the developmental screener?

The ESI-R takes approximately 15-20 minutes to administer, although this may vary depending on the age of the child.

Language(s) developed for:

The ESI-R was developed in English and Spanish.

Availability and Cost of the Developmental Screener

Is the developmental screener available to programs without restrictions?

Yes, the ESI-R is available to programs without restrictions.

What is the cost of the developmental screener?

As of 2013, the cost of the ESI-R screening kit cost $137.50. The screening kit contains the ESI-R examiner's manual, screening materials, ESI-P score sheets or ESI-K score sheets (in English or Spanish) for 30 children, and parent questionnaires (in English or Spanish). Each of these items can also be purchased separately. The examiner's manual cost $59.15. The screening materials cost $22.95. The score sheets (30 per package) cost $31.95. The parent questionnaires (package of 30) cost $27. Costs associated with the information reporting system for the ESI-R 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 videos, DVDs, and a training manual for the ESI-R are available through Pearson, the publisher of the screener. Some information about these materials is available on the Pearson website (http://www.pearsonassessments.com/pai/ca/training/training.htm), but readers should contact Pearson directly for more specific training information and the cost of trainings.

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 manual states that proper use of the ESI-R requires an understanding of the basic principles of standardized assessment and knowledge in early childhood behavior and development. Therefore, the person administering the developmental screener should have some formal background in early childhood assessment. The manual also says that individuals with less training and experience can administer the ESI-R under the supervision of a person with the qualifications mentioned above.

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

As mentioned above, the manual states that proper use of the ESI-R requires an understanding of the basic principles of standardized assessment and knowledge of early childhood behavior and development. Therefore, the person scoring the developmental screener should have some formal background in early childhood assessment. This may include teachers, paraprofessionals, social workers, and psychologists.

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

While regular supervision of a screener administrator during the process of learning to administer the ESI is suggested, 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?*

Yes, ESI-R Online is the online scoring and training system for the ESI-R. ESI-Online is licensed annually and priced according to the number of children to be entered online and screened. ESI-Online costs $2.95 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)?*

ESI-Online can generate reports for individual children and can provide summarized screening results for an entire class. ESI-Online does not generate reports at the institutional 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 ESI-R contains a parent questionnaire that consists of five sections. The first three provide basic information about the child, the child's family, and his or her school history. The fourth section contains the child's medical history, which includes an overview of the child's illnesses, hospitalizations, and health conditions. The fifth section deals with the child's overall development and addresses issues other than medical concerns that may pose problems for the child in a school setting.

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

The manual suggests that every parent should receive feedback about screening results either verbally after the administrator has had time to determine the total score or in writing after a team review. The manual also says that screening gives only tentative conclusions and this should be communicated clearly to parents. Parents should also be given the opportunity to ask questions both before and after screening, especially when screening indicates that further evaluation is necessary.

Options for Use with Special and Diverse Populations

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

Yes, the ESI-R is a screener with developmental norms. The ESI-P was first normed between 1993 and 1996 with a sample of 977 children divided among three groups of 6-month age spans between 3 years, 0 months and 4 years, 5 months. Data for the ESI-K norms were collected between 1986 and 1990, and then again between 1992 and 1994, with a sample of 5,034 children ages 4 years, 6 months through 5 years, 11 months. Both the ESI-P and the ESI-K were renormed in 2007.

What characteristics of the sample are the norms are based on?

The 2007 ESI-P and ESI-K norming samples included 1,200 children from 89 sites (including Head Start centers, public and private preschools, and elementary schools) in all four geographical regions in the United States. Additional data were collected from individual examiners (school psychologists, speech-language pathologists, and special-education teachers) to ensure that the norming sample matched the U.S. population on various demographic characteristics. See the tables on the next pages for more information about these children.

Children who speak both English and Spanish were screened in the language judged by their parents and the program to be their primary language. The Spanish-language versions of the ESI-P and ESI-K were used with 13 percent of the norming sample.

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

Both the ESI-P and the ESI-K are available in Spanish.

How were versions in languages other than English developed?

To develop the Spanish-language version of the ESI-P and ESI-K, scores on the Spanish-language version were calibrated to be comparable to scores on the English version so that equal scores on both versions represent the same level of ability.

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

The developers have not examined the reliability and validity of the Spanish-language versions.

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 ESI-R 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 risk levels on the ESI-R are labeled "OK," "rescreen," and "refer."

Characteristics of ESI-P 2008 Norming Sample

Number of children in the sample: 600

	Percentage of Children
Age (in years and months)	
3-0 to 3-5	33.3
3-6 to 3-11	33.3
4-0 to 4-5	33.3
Gender	
Male	50.0
Female	50.0
Race/Ethnicity	
White	57.2
African American	15.2
Hispanic	21.8
Other	0.06
Maternal Education	
Grade 11 or Less	15.8
High School Graduate	28.5
1-3 Years of College	28.5
4 or More Years of College	27.2
Region	
Northeast	18.2
North Central	39.3
South	21.3
West	21.2
Language Version	
English	86.6
Spanish	13.3

Characteristics of ESI-K 2008 Norming Sample

Number of children in the sample: 600

	Percentage of Children
Age	
4 years, 6 months to 4 years, 11 months	33.3
5 years to 5 years, 5 months	33.3
5:6-5:11	33.3
Gender	
Male	50.0
Female	50.0
Race/Ethnicity	
White	57.5
African American	15.3
Hispanic	21.6
Other	0.05
Maternal Education	
Grade 11 or less	16.2
High School graduate	27.2
1-3 years of college	28.3
4 or more years of college	28.3
Region	
Northeast	19.6
North Central	29.8
South	26.5
West	24.0
Language Version	
English	88.2
Spanish	11.8

Reliability and Validity Information

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

In English?

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

In other languages?

Information is not provided about the reliability, validity, sensitivity, and specificity of the Spanish-language version of the ESI-R.

For dual language learners?

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

For children with special needs?

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

For American Indian/Alaskan Native children?

Information is not provided about this population, and the reliability, validity, sensitivity, and specificity of the ESI-R for American Indian/Alaskan Native children 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 ESI-R 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?*

Agreement between raters when they are screening the same children was tested during the first standardization of the ESI-P and ESI-K. The initial ESI-P sample included 977 children. Approximately 53 percent of the children in this sample were White, 21 percent were African American, and 25 percent were included in an Other category for race/ethnicity. The parents of more than 25 percent of the sample had not completed high school. The majority of the children attended Head Start programs, and the remaining children attended either public or private preschools or child care. The initial ESI-K sample included 5,034 children. Approximately 70 percent of this sample was White (non-Hispanic) and 30 percent were non-White children. The mothers of 20 percent of the children had not completed high school.

For the ESI-P, both an administrator and an observer independently scored the ESI-P as it was being administered. Results from 35 administrator-observer pairs showed that agreement between the two raters was acceptable when screening the same child. Agreement between two raters was also tested during the standardization of the ESI-K. Results from 586 administrator-observer pairs who scored the same child simultaneously showed acceptable agreement between the two raters.

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

Scores on the ESI-K were studied to determine how consistent they are if the screener is administered once and then administered again soon. Two different administrators used the ESI-K with the same child 7 to 10 days apart. The results showed acceptable consistency from the first to the second administration. One hundred seventy four children from the initial ESI-K norming sample were used in this analysis.

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

The developers have not examined relationships between items that are intended to reflect the same set of skills or behaviors.

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 screener is supposed to be assessing?*

Information is not provided about whether experts agree that the items in the ESI-R do a good job of reflecting what the ESI-R 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?*

Information is not provided about relationships between sets of items on the ESI-R.

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 developers have not examined relationships between a child's scores on the ESI-R and his or her scores on other developmental screeners of similar domains.

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 cutoff scores) are used to identify whether further evaluation is needed. The cutoff scores were developed with the norming sample of the original version of the ESI.

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. For this analysis, ESI scores were compared with scores on the General Cognitive Index of the McCarthy Scales of Children's Abilities for 251 children. The results of these screenings, performed 7 to 9 months apart, were then compared for this sample of children in order to determine appropriate cutoff points for the ESI. These initial cutoff scores were reexamined during the standardization of the 2008 version of the ESI-R. The cutoff scores identified approximately the same percentage of children in both samples as at risk for developmental problems, indicating that the cutoffs can continue to be used with the 2008 edition.

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

Both the ESI-P and the ESI-K are highly accurate in 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?*

The ESI-P and the ESI-K are moderately accurate in identifying children who are not at risk for developmental problems.

Follow-Up Guidance

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

Children who score in the "OK" category are considered to be developing normally and are not in need of further assessment. Children who score in the "rescreen" category have borderline ESI-R scores. The manual suggests that the ESI-R should be readministered to these children in 8 to 10 weeks. If a child's score is in the "refer" category, he or she should be evaluated by an assessment team and, if the problems identified in the screening are confirmed, a definitive plan of action or individualized education plan should be developed.

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

Meisels, S.J., Marsden, D.B., Wiske, M.S. & Henderson, L.W. (2008). Early Screening Inventory-Revised (ESI-R) examiner's manual, 2008 Edition. Minneapolis, MN: NCS Pearson, Inc.

Early Screening Profiles

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

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

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 if 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 indentified 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[14]	74.6
Parental Employment Status	
Full-Time	48.5
Part-Time	18.5
Unemployed	33.1

[14] 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 need. 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

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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.

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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/devscrn/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

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

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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 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 Information[2]

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.

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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

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.

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.

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APPENDIX A: Glossary of Terms

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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

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

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