Early Development Standards for Children Aged 2 to 12 Months in a Low-Income Setting

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Abstract
The aim of this study was to develop a screening tool to screen children for development problems in a low-income setting. Childhood development problems are a major health issue faced by low-income countries. A validated screening tool is needed for early identification of developmental delays. This article contains the first phase of a study that established a relatively simple tool to screen children for developmental problems. The aim of the first phase was to define a set of development indicators for the period of 2 to 12 months of life. The study methodology consisted of an extensive literature review, to develop a set of indicators to measure child development in infancy. The indicators were placed within a framework developed and used by experts in other countries. It consists of major domains, subdomains, specific aspects, and standards of development. This was followed by content validation of the indicators. Following review of literature, 171 indicators were compiled under the framework. At the end of content validation, 125 indicators were retained in the framework. These were pretested, and another 26 were removed following pretesting. The study developed a framework of indicators that could be used as a development tool following a reference-based validation. The second phase of the study that included the assessment of psychometric characteristics and reference-based validation would be published in a separate article.

Keywords
child development, development screening, development standards

Introduction
Childhood developmental delays and their sequelae are a major public health concern for low-income countries. Grantham-McGregor and colleagues (2007) state that many children in developing countries are exposed to multiple risks for poor development including poverty, poor health, and nutrition. The conservative estimate is that more than 200 million children below 5 years of age in developing countries are not developing to their full potential.

Developmental problems affect both developed and developing countries. For example, in the United Kingdom, an analysis of a cross-sectional survey of 16,000 children aged 0 to 18 years revealed that 7.3% of children were reported as having a developmental disability (Blackburn, Read, & Spencer, 2010). In a comprehensive review done of studies on disability covering intellectual, hearing, speech, vision, motor, and neurologic impairment in low- and middle-income countries (Maulik & Darmstadt, 2007), a 12% overall disability rate was reported among 2- to 9-year-old children from one community-based study in India (n = 640).

Early identification of delays by screening is vital, as interventions could make a big difference to the individual and family, and place less demand on health expenditure (Grantham-McGregor et al., 2007). Development screening of a child is currently measured by a range of developmental screening tests (Frankenburg et al., 1996). Developing countries face a big obstacle in systematic screening due to three factors:

1. Established development screening tools need to be validated to a country before being used.
2. Trained people are needed to administer them.
3. To identify developmental problems, a large number of apparently normal children have to be examined. These three factors require considerable expertise, money, and time, all rare attributes in a developing setup.

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To overcome these obstacles, middle- and low-income countries need instruments that could be used in the field by a primary health care worker or caregiver. Normative development standards for young children called Early Child Development Standards (ECDS) could serve this purpose. Standards are statements that specify an expectation for achievement of skills or knowledge that may be used as a basis of comparison in measuring or judging capacity, quality, value, or quantity (Kagan & Britto, 2008).

The age at which development skills appear can be given as a range. These ranges can be considered as age percentiles. A percentile of a development indicator is the age a particular skill is achievable by a percentage of children. Based on the percentiles, norms can be defined. These norms can be used to make relative assessment of children in relation to their level or status of development (Fernald, Kariger, Engle, & Raikes, 2009).

Development of ECDS therefore consists of two components:

1. development of a tool where early developmental indicators are initially defined and placed in a development framework, and
2. age validation of the tool to obtain ECDS.

The methods adopted to develop ECDS were recommended in two global workshops held in Shanghai, China, and Kathmandu, Nepal (Kagan & Britto, 2008), in collaboration with the United Nations Children’s Educational Fund (UNICEF).

Aim

This report gives the first component of a study where a series of early developmental indicators for children in second to 12th months of life were defined and adapted to ensure their content and cultural appropriateness.

Method

Development tools generally use a three- to four-domain approach in categorizing the items. For example, the Bayley’s scale uses a three-domain approach (Motor, Cognitive, and Language) in the main scale (Bayley, 2005). The Denver Developmental Screening Test (Frankenburg et al., 1996) uses a three-domain method as well. These scales do not further subdivide the items. The present study further subdivides the items and uses a hierarchy to place the items (refer to Table 1). This hierarchy has been used by countries that have addressed ECDS (Tennessee Department of Education, 2013). In this, there are four domains of development, their subdomains, specific aspects, standards, and indicators. The four major subdomains were utilized as all major development scales used this categorization. The items under the major domains conformed to the placement of items found in widely used scales such as the Bayley’s and Denver Developmental Tool. The subdomains are broad areas of the domain. The specific aspects are the main components of those subdomains. The standards are the expected skills that depict the specific aspects. Standards are measured by the final indicators. The indicators are very specific statements that can be actually measured.

Once the skills are defined, they are made measurable by converting them to indicators; hence, the final hierarchy of a domain is given in Figure 1.

There are several steps involved in developing and validating an instrument. As the first step, an extensive review of literature is needed to operationalize the construct to be measured (Benson & Clarke, 1982). When the construct is operationalized, the items that can measure the construct as accurately as possible are identified. The team that developed the Denver Developmental Tool identified 336 items initially as the components needed to measure development (Frankenburg et al., 1996). In development of the Canadian Early Development Index (EDI), the items for the EDI were derived from existing instruments, key informant interviews, and focus groups (Janus & Offord, 2007). Content validation is the next step where the items and the table of specifications are given to a panel of experts who are asked to place the items in the suitable grids within the table of specifications. When absolute agreement is not reached, the item is revised until a consensus on its placement is reached. Cronbach and Meehl (1955) state that content validity is established by showing that the test items are a sample of a universe in which the investigator is interested.

Development tools can either use an a priori structure to categorize their indicators or an empirically driven method. An empirically driven structure will decide on the categories where the items will be placed following a mathematical evaluation like factor analysis. Most of the widely used scales like Bayley’s scale have not used an empirically driven method but utilized an a priori structure method. The Bayley Scales of Infant Development II (BSID II) has been subjected to factor analysis to explore the factor structure. For example, one such study is the analysis carried out by Thompson and others (Thompson et al., 1994). The authors conclude that at a second-order factor analysis, the mental and motor components emerge as discrete constructs. Countries developing ECDS have all used an a priori structure method. The present study uses this method as well. The authors are of the view that as the hierarchy used in the present study consists of numerous categories, it would render it unfeasible to do a construct validity at all levels. But a factor analysis at the topmost category that has the four domains of development could certainly be attempted.

Thus, the first phase of the study is comprised of two components:

A. desk review to generate a tentative list of relevant indicators and
B. qualitative study to carry out content and cultural validation of the above.

**Component A: Desk Review to Generate a Tentative List of Relevant Indicators**

The purpose of the desk review was to gather the generic list of expectations on what children should know and be able to do at a given age during the period of 2 to 12 months of their life and to define indicators to reflect them. Therefore, the data items included a comprehensive list of indicators that reflected a particular child’s developmental performance pertaining to each developmental domain (Motor, Socio-emotional, Cognitive, and Language domains). These indicators were finally organized into the hierarchy. The data for the desk review were gathered after review of several sources. These included review of textbooks on child development, existing developmental standards, and developmental scales.

Textbooks reviewed were *Child Development* by John W. Santrock (2001), *Child Psychology: A Contemporary Viewpoint* by Hetherington and Parke (1999), *The Development of Children* by Cole and Cole (1989), *Child Development Principles and Perspectives* by Cook and Cook (2009) and *Psychology: The Science of Behavior* by Neil R. Carlson (1984).

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| Domain                        | Subdomain                     | Specific aspect | Standard                                                                 |
|-------------------------------|-------------------------------|----------------|---------------------------------------------------------------------------|
| Cognitive Development         | Logical Thinking and Numeracy Skills | Comparison and measurement/spatial awareness | • Child demonstrates the ability to make comparisons and measure to some extent  
  |                               | Numbers                    | • Child develops spatial sense                                           |
|                               |                               | Scientific inquiry       | • Child demonstrates awareness of numbers                                |
|                               |                               | Awareness of world around | • Child develops an inquiring mind                                        |
|                               |                               | Awareness of community   | • Shows interest in surroundings (people and objects)                     |
| Approaches to Learning        | Problem solving               |                             | • Child demonstrates ability to use different strategies for problem solving |
|                               | Creativity and imagination    |                             | • Child demonstrates creativity and imagination                           |
|                               | Curiosity and persistence     |                             | • Child demonstrates curiosity and persistence                             |
| Social and Emotional          | Social                        | Relationship with adults  | • Responds to and interacts with familiar adults                           |
| Development                   |                               | Relationship with peer    | • Identifies unfamiliar people                                             |
|                               |                               | Prosocial behavior        | • Infants develops positive relationships with peers                      |
|                               | Emotional                     | Self-concept              | • Develops perception of routines                                          |
| Language and Early Literacy   | Language                      | Receptive language        | • Demonstrates awareness of some responsibilities (acts independently)     |
| skills                        |                               | Expressive language       | • Demonstrates self-control                                               |
|                               | Early Literacy                | Participating in           | • Shows some ability for aesthetic appreciation                           |
|                               |                               | experiences that include  |                                                                             |
|                               |                               | books; discovering and    |                                                                             |
|                               |                               | appreciating books        |                                                                             |
|                               |                               | Prereading                | • Demonstrates prereading skills                                           |
|                               |                               | Prewriting                | • Demonstrates prewriting skills                                           |
| Motor                         | Motor                         | Gross motor               | • Demonstrates ability for movement and coordination                       |
|                               |                               | Fine motor                | • Demonstrates ability to manipulate things briefly/shows visual coordination |
| Physical Well-Being           | Taken as not applicable       |                             |                                                                           |
Subsequent to this, a review of articles on ECDS in the form of an electronic search was done to cover the standards and indicators already developed in the world. The articles were the following:

1. “South Africa National Early Learning and Development Standards for children birth to four years. Department of Basic Education, Pretoria, South Africa” (Department of Basic Education, Pretoria, 2009).
2. “Revised Tennesse Early Learning Developmental Standards” (Tennesse Department of Education, 2013)
3. Ohio’s infant and toddler guidelines (U.S. Department of Health and Human Services, National Infant & Toddler Child Care Initiative, Child Care Bureau, Office of Family Assistance, Administration for Children and Families, 2006).
4. “Washington state early learning and development guidelines.” (Washington State Department of Early Learning, 2011)
5. “Macedonia Early Learning and Development Standards from 0-6 years” (Damovska, Janeva, Palevska, Panova, & Shaehu, 2006).

Searches in Medline (1970 to present), PsycINFO (1960 to present), and Embase (1960 to present) did not yield any additional information. The search terms used were “development,” “child,” and “standards.” A keyword search and a title search were done.

Next, scales of development commonly in use were reviewed. These were the Bayley Scales of Infant and Toddler Development (Bayley, 2005), the Denver Developmental Screening Tool (Frankenburg et al., 1996), the Parents’ Evaluation of Development Status (Glascoe, 1997), and the Ten Questions Screening Interview (Landers & Kagitcibasi, 1990).

Additional items appearing in these instruments which did not include highly specified test material and items that were not too complex so that it would be understood by the average caregiver were included.

Finally, a comprehensive list of items was obtained, and they were assigned to the domain, subdomain, specific aspect, and standard hierarchy. They were placed in the relevant age groups reflecting the ages of 2 to 3 months, 3 to 6 months, 6 to 9 months, and 9 to 12 months.

The indicators chosen had the following characteristics:

- Reflecting only a single skill or activity
- Being specific for a particular skill
- Having the ability to capture the performance as the skill advances

### Qualitative Study to Carry Out Content and Cultural Validation

This was to assess whether the indicators were comprehensive in covering the domains, were actually reflecting the domain under which they were included, and were actually reflecting the specific aspects and standards given. Modified Delphi technique was used for this process. For this, six experts comprising of three local consultant pediatricians (two qualified in developmental pediatrics), two psychologists, and a consultant child psychiatrist were utilized.

They were requested to go through each indicator with regard to the following and give their verdict:

1. Comprehensiveness of the standards and indicators in covering all aspects of the domain.
2. Adequacy in reflecting the scope of the domain.
3. Reflection of the standard, specific aspect, subdomain, and domain under which they were included.
4. Representation of domains in comparatively equal distribution.
5. Observability and measurability.
6. Are a reflection of what children in the age group are expected to know and be able to do.

After the initial round, the comments were analyzed for each item. If four or more out of six agreed on an indicator, it was taken as valid and included in the final instrument. If four or more experts disagreed, they were removed from the list. If three agreed, those indicators were again presented to all six experts. After completion of the second round, if the disagreement still stood at 50% (three disagreeing), the item was removed.

The finalized list of indicators at the end of this phase was transformed into measurable items with the help of a pediatrician involved in development assessment of children. This was brought about by laying out specific instructions to elicit a skill. To maintain uniformity in testing, a testing procedure had to be explained precisely so that the data collectors could...
conform to the procedure. The Bayley Scales of Infant and Toddler Development was consulted to decide on the positions, objects, and distance that items should be held when testing was done.

Next, a focus group discussion (FGD) of parents was held to gather information required to fine-tune the indicators to ensure their cultural appropriateness. Four FGDs were held on four different occasions, each consisting of eight parents. The indicators were then pretested. Pretesting was done using 10 children from age category. All the indicators in the age group were administered and assessed whether any difficulty arose to their observability.

Results

Following the first component which was the desk review, 171 indicators were compiled under the framework. They were organized under 25 standards which reflected 23 specific aspects in four main domains of development. Table 1 gives the framework of domains, subdomains, specific aspects, and standards.

Tables 2-5 give the 171 indicators arranged in the framework. Some indicators appeared in more than one age group as the indicators which suited the best age group could be selected once they were age validated.

Out of the 171 indicators, 46 indicators were removed at the end of content validation. Tables 6 and 7 summarize how these indicators were reduced during content validation.

As 46 indicators were removed at the end of content validation, 125 indicators proceeded to the next step of the study which was the FGD with parents to ensure cultural appropriateness. Although removal of 48 indicators is shown, in actuality, only 46 indicators were removed as two were relocated elsewhere. No major modifications were needed following the FGDs.

The development framework with the 125 indicators is given in Tables 8-11.

Next, the indicators were pretested. Following pretesting, 26 indicators had to be removed due to issues in measurability. Table 12 gives the indicators removed following pretesting.

Discussion

Due to lack of trained personnel and funds, developing countries are not in a position to hold a regular development screening program. Recognizing this fact, several countries have developed ECDS. The ECDS developed in this study was used as a pilot to develop national standards for child development in Sri Lanka. The first objective of the study was to define a set of tentative indicators to reflect the development in the four domains of development. This took the form of a desk review that generated a tentative list of indicators. The indicators were placed in the development framework described in the methodology. The main issue faced by the researchers was that most literature on child development gives indicators only under the four main domains. Fitting these indicators into the framework was a complicated task. The dearth of measurable indicators in the social and cognitive domains was another issue.

During content validation, the domain in which the most number of indicators was removed was the socio-emotional domain. Twenty-four were removed as they were not observable, and three were removed as they were too advanced for the given age groups in which the indicator would be tested. The reason for this is that social and emotional skills depict an unquantifiable aspect of a person and therefore are more qualitative than quantitative. Development scales like the Bayley Scales of Infant and Toddler Development therefore do not include socio-emotional skills in their scoring component (Bayley, 2005). Indicators for social development skills taken from Western literature tend to cause issues when used in a non-Western setup. In a preliminary survey done for the Malawi Developmental Assessment Tool, it was found that a significant amount of social indicators taken from Western literature had to be discarded as they did not qualify following a logistic regression analysis to obtain population norms (Gladstone et al., 2010).

The Cognitive domain had altogether 14 indicators removed. Eight of these indicators were initially placed under the two standards: (a) comparison and sorting and (b) spatial awareness which were in the subdomain Logical Thinking and Mathematics in the Cognitive domain. The issue arose as to whether these standards were applicable in infancy. Although it is said that mathematical skills operate even in early infancy, there is a problem in including it in an instrument for two reasons. First, it cannot be accurately said that functions like comparison and sorting operate in very early life. Although research has found that even newborns have rudimentary mathematical knowledge (Cook & Cook, 2009), there is not enough evidence to include these skills in a document such as this.

In the Language domain, four indicators were removed as they overlapped with other indicators in measuring the standard.

In the Motor domain, only one indicator was removed as it was not objectively measurable. This domain shows indicators that are less complicated and have fewer aspects than other domains. This could be the reason that indicators belonging to this domain form the bulk in assessment systems of child development in the first half of the 20th century (Gessel & Amatruda, 1947). Improvements in psychometrics in the latter half of the century have made it possible to measure less straightforward aspects in development like socio-emotional components.

Conclusion

The development indicators in the framework could be used as a tool to screen children for development delays after undergoing a reference-based validation. The second part of
### Table 2. Indicators for Age 2 to 3 Months.

| Domain: Physical Development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|-----------------------------|-----------------------------------------|------------------------------|----------------------------------------------------------|
| Subdomain: Motor | Subdomain: Social Development | Subdomain: Logical Thinking and Mathematics | Subdomain: Language |
| Specific aspect: Gross motor | Specific aspect: Relationship with adults | Specific aspect: Comparison, measurement, and spatial awareness | Specific aspect: Receptive language |

**Standard 1:** Demonstrates ability of movement and coordination
1. Turns head from side to side when lying on back
2. Raise head and chest when lying on stomach
3. Holds head erect and steady when held on shoulder
4. Extends and flexes legs at will
5. Follows moving person through midline to left and right
6. Moves arm at sight of toy or object

**Specific aspect:** Fine motor

**Standard 2:** Demonstrates ability to hold things briefly/visual coordination
7. Eyes follow an object from left to right/top to bottom (cognitive)
8. A small object placed in hand is accepted and brought to the mouth

| Subdomain: Emotional Development | Subdomain: Awareness of the Environment | Subdomain: Early Literacy |
|----------------------------------|----------------------------------------|----------------------------|
| Specific aspect: Self-concept | Specific aspect: Scientific inquiry | Specific aspect: Participating in experiences that include books; discovering and appreciating books |
| Standard 4: Demonstrates the development of a positive self-concept | Standard 3: Child develops an inquiring mind | Standard 3: Shows an interest in books |
| 14. Uses crying to signal needs | 26. Looks at surroundings in a new place | Specific aspect: Prereading |
| 15. Conveys desires—Makes vocal protests when not picked up when he wants | 27. Waves arms to touch dangling toy overhead | Specific aspect: Prewriting |

(continued)
### Table 2. (continued)

| Domain: Physical Development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|-----------------------------|-----------------------------------------|-----------------------------|---------------------------------------------------------|
| Standard 5: Develops the ability to control impulses and regulate himself | 16. Stops crying on seeing a familiar person | Specific aspect: Awareness of living and nonliving world |  |
| 17. Calms self—Sucks on hand before going to sleep |  | Standard 4: Shows interest in surroundings (people and objects) |  |
| Specific aspect: Self-expression |  | 28. Focuses on objects which are at close range |  |
| Standard 6: Develops the ability to express emotions appropriately |  | 29. Gazes continuously at objects for at least 3 s |  |
| 18. Uses specific kinds of sounds to signal needs |  | 30. Child freely turns eyes/ head in visual exploration of surroundings |  |
| 19. Is responsive to an adult’s attempts to comfort—Relaxes when massaged |  | Specific aspect: Awareness of the community |  |
| 20. Conveys primary desires such as hunger—Protests when not picked up when he wants | | Standard 5: Child demonstrates an awareness of the community he lives in |  |
| | | Subdomain: Approaches to learning |  |
| | | Specific aspect: Curiosity, initiative, and persistence |  |
| | | Specific aspect: Creativity and imagination |  |
| | | Standard 6: Child demonstrates creativity and imagination |  |
| | | Specific aspect: Problem solving |  |
| | | Standard 7: Child demonstrates ability to use different strategies for problem solving |  |
Table 3. Indicators for 3 Plus to 6 Months.

| Domain: Physical development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|------------------------------|----------------------------------------|-------------------------------|---------------------------------------------------------|
| Subdomain: Motor             | Specific aspect: Gross motor           | Standard 1: Demonstrates ability of movement and coordination | Subdomain: Language                                      |
|                              | Standard 1: Demonstrates ability of movement and coordination | 1. Supports upper body on arms when lying on stomach | Specific aspect: Receptive language                        |
|                              |                                        | 2. Swipes at dangling objects with hands and feet |                                                         |
|                              |                                        | 3. Rolls both ways (front to back, back to front)—Rolls to prone position |                                                         |
|                              | Specific aspect: Fine motor            | Standard 2: Demonstrates ability to hold things briefly/shows visual coordination | Standard 1: Child demonstrates the ability to understand expressions and body language |
|                              | Standard 2: Demonstrates ability to hold things briefly/shows visual coordination | 4. Can follow a circular motion of an object (upper and lower quadrants as well) | 30. Begins to turn head toward sounds that are out of sight |
|                              | Specific aspect: Fine motor            | 5. Rotates wrist from palm up to palm down when manipulating an object | 31. Responds appropriately to tone of speaker’s voice (distressed when harsh, happy when pleasant) |
|                              | Standard 2: Identifies unfamiliar people | Standard 3: Infant develops positive relationships with peers | 32. Identifies familiar sounds and responds |
|                              | Standard 3: Infant develops positive relationships with peers | 12. Directs smiles and vocalizations toward other infants/babies | Specific aspect: Expressive language |
|                              | Specific aspect: Prosocial behavior     | 13. Looks toward a peer who is interacting with an interesting object | Standard 2: Child demonstrates the ability to express needs, feelings, and experiences for a variety of purposes |
|                              | Standard 4: Develops perception of routines | Specific aspect: Numbers | 33. Laughs out loud |
|                              |                                          | Standard 3: Child demonstrates awareness of numbers | 34. Imitates short string of vowel sounds (double sounds—Ba . . . Ba) |
|                              |                                          | Indicators | 35. Makes sounds that go up and down in pitch |
|                              |                                          | No indicators for this age group | 36. Likes to babble |
|                              |                                          |                                          | Specific aspect: Language Comprehension |
|                              |                                          |                                          | Standard 4: Child demonstrates the ability to comprehend gestures and sounds |
|                              |                                          |                                          | 37. Responds to mother’s/caregiver’s gestures—Responds when mother calls him |
| Subdomain: Emotional         | Specific aspect: Self-concept           | Subdomain: Awareness of the Environment | Subdomain: Early Literacy                                |
| Development                  |                                          | Specific aspect: Scientific inquiry     | Specific aspect: Participating in experiences that include books; discovering and appreciating books |
|                              |                                          |                                          | (continued)                                               |
| Domain: Physical development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|-----------------------------|-----------------------------------------|-------------------------------|----------------------------------------------------------|
| Standard 5: Demonstrates the development of a positive self-concept |
| 14. Responds positively to adults’ attempts to comfort |
| 15. Conveys desires/needs through sounds |
| Specific aspect: Self-control |
| Standard 6: Develops the ability to control impulses and regulate himself |
| Specific aspect: Self-expression |
| Standard 7: Develops the ability to express emotions appropriately |
| 16. Uses sounds/facial expressions or actions to show preferences |
| Specific aspect: Aesthetic appreciation |
| Standard 8: Shows some ability for aesthetic appreciation |
| 17. Calms when sung to/falls asleep listening to music/lullabies |
| Standard 4: Child develops an inquiring mind |
| 19. Grabs and probes objects |
| 20. Reaches out toward objects |
| 21. Visually follows object as it moved out of direct line of vision |
| Specific aspect: Awareness of living and nonliving world |
| Standard 5: Shows interest in surroundings (people and objects) |
| 22. A toy is held, touched, and tasted |
| 23. Inspects own hands |
| 24. Eye moves from one object to another in response to sound |
| 25. Prefers novel object |
| Specific aspect: Awareness of the community |
| Standard 6: Child demonstrates an awareness of the community he lives in |
| 26. Discriminates family members from others |
| 27. Shows awareness of unfamiliar surroundings |
| Subdomain: Approach to Learning |
| Specific aspect: Curiosity, initiative, and persistence |
| Specific aspect: Creativity and imagination |
| Standard 7: Child demonstrates creativity and imagination |
| 28. Shows delight in producing sounds—Smacks lips, squeals on purpose |
| Specific aspect: Problem solving |
| Standard 8: Child demonstrates ability to use different strategies for problem solving |
| 29. Pulls a cloth with rattle on it to obtain rattle |
| Standard 3: Shows an interest in books |
| 38. Looks intently at pictures for several seconds with thoughtful expression |
| Specific aspect: Prereading |
| Specific aspect: Prewriting |
| Domain: Physical development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|----------------------------|------------------------------------------|---------------------------------|---------------------------------|
| Subdomain: Motor | Subdomain: Social Development | Subdomain: Logical Thinking and Mathematics | Subdomain: Language |
| Specific aspect: Gross motor | Specific aspect: Relationship with adults | Specific aspect: Comparison and sorting and spatial sense | Specific aspect: Receptive language |
| Standard 1: Demonstrates ability for movement and Coordination | Standard 1: Responds to and interacts with familiar adults | Standard 1: Child develops ability to compare and sort spatial sense | Standard 1: Child demonstrates the ability to understand expressions and body language |
| 1. Moves from lying down to sitting position | 9. Smiles when familiar person smiles or talks | 23. Pulls a string attached to a toy making it come closer | 37. Temporarily stops action in response to “no” |
| 2. Can sit unsupported | 10. Babbles and coos to get attention of someone familiar nearby | | |
| 3. Supports whole weight on legs when adult is holding both hands | Standard 2: Identifies unfamiliar people | Specific aspect: Numbers | Specific aspect: Expressive language |
| 4. Holds railing to move from sitting to standing position | 11. Stops activity and stares at a new person entering room | Standard 3: Child demonstrates awareness of numbers | Standard 2: Child demonstrates the ability to express needs, feelings, and experiences for a variety of purposes |
| | Specific aspect: Relationship with peers | Indicators | 38. Vocalizes in response to speaker’s attention |
| | Standard 3: Infant develops positive relationships with peers | No indicators for this age group | 39. Vocalizes at least two different vowel sounds |
| | 12. Kicks feet in excitement at sight of other child/children | | 40. Begins to babble in strings—Ba-ba-ba-ba |
| | 13. Uses hands to explore face/hair of peer | Specific aspect: Fine motor | Specific aspect: Language Comprehension |
| | Specific aspect: Prosocial behavior | Standard 2: Demonstrates ability to hold things/shows visual coordination | Standard 3: Child demonstrates the ability to comprehend gestures and sounds |
| | Standard 4: Develops perception of routines | 5. Grasps and object with thumb and first and second fingers | 41. Complies with a request—Examiner shows placement of cube in box and requests baby to do same |
| | 14. Responds positively to when feeding time approaches | 6. Bangs two hand-held items together | |
| | 15. Complies with bathing/washing | 7. Transfers objects from hand to hand | |
| | Standard 5: Develops empathy | 8. Moves his head to search for object which has fallen from the table | |
| | 16. Watches with an expression of distress when another child cries | | |
| | Standard 6: Develops the ability to cooperate | | |
| | 17. Begins to watch other children in a group and shows interest in their play | Subdomain: Emotional Development | Subdomain: Early literacy |
| | Subdomain: Social Development | Specific aspect: Self-concept | Specific aspect: Participating in experiences that include books; discovering and appreciating books |
| | Standard 5: Demonstrates the development of a positive self-concept | | |
| | Subdomain: Cognitive Development | Specific aspect: Scientific inquiry | |
| | Subdomain: Development of Language and Early Literacy Skills | |

(continued)
| Domain: Physical development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|-----------------------------|----------------------------------------|-------------------------------|--------------------------------------------------|
| 18. Does not release an object easily | Standard 4: Child develops an inquiring mind | Standard 4: Shows an interest in books | 42. Holds book using both hands and manipulates the book to make the pages open |
| 19. Tries to grab object from other’s hand | Explores inside and outside surface of objects—for example, cup | Specific aspect: Prereading | Specific aspect: Prewriting |
| Specific aspect: Self-control | Repeatedly turns and object over | Standard 5: Shows interest in surroundings (people and objects) | |
| Standard 6: Develops the ability to control impulses and regulate himself | Explores and inspects the smallest details floor | 28. Searches for fallen object | |
| 20. Seeks reassurance from adult when encountering new experience | Discovers difference between moving and static objects | 29. Plays with mirror image by patting, smiling/laughing, reaching playfully | |
| Specific aspect: Self-expression | Specific aspect: Awareness of living and nonliving world | 30. Holds bell by handle and purposefully bangs it | |
| Standard 7: Develops the ability to express emotions appropriately | Standard 5: Shows interest in surroundings (people and objects) | Specific aspect: Aesthetic appreciation-Standard 8: Shows some ability for aesthetic appreciation | |
| 21. Makes responses to express how he feels about what is happening | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| Specific aspect: Aesthetic appreciation-Standard 8: Shows some ability for aesthetic appreciation | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 22. Enjoys kids songs | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 23. Enjoys kids songs | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 24. Explores inside and outside surface of objects—for example, cup | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 25. Repeatedly turns and object over | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 26. Explores and inspects the smallest details floor | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 27. Discovers difference between moving and static objects | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| Specific aspect: Awareness of living and nonliving world | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 28. Searches for fallen object | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 29. Plays with mirror image by patting, smiling/laughing, reaching playfully | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 30. Holds bell by handle and purposefully bangs it | Specific aspect: Aesthetic appreciation-Standard 8: Shows some ability for aesthetic appreciation | Specific aspect: Aesthetic appreciation-Standard 8: Shows some ability for aesthetic appreciation | |
| Specific aspect: Awareness of the community | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 31. Knows difference between mother and grandmother | Specific aspect: Awareness of the community | Specific aspect: Awareness of the community | |
| 32. Recognizes different rooms in the home | Specific aspect: Awareness of the community | Specific aspect: Awareness of the community | |
| Subdomain: Approaches to Learning | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| Specific aspect: Curiosity, initiative, and persistence | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| Specific aspect: Creativity and imagination | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 33. Child enjoys noises—Bangs objects together over and over again | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 34. Uses body to make sounds—Splashes water, slaps objects | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| Specific aspect: Problem solving | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| Standard 8: Child demonstrates ability to use different strategies for problem solving | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 35. Pulls cloth on table to obtain object | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
| 36. Searches for item that has been covered completely (covering bangle with cloth) | Standard 6: Child demonstrates an awareness of the community he lives in | Standard 6: Child demonstrates an awareness of the community he lives in | |
Table 5. Indicators for 9 Plus to 12 months.

| Domain: Physical Development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|------------------------------|------------------------------------------|-------------------------------|----------------------------------------------------------|
| Subdomain: Motor            | Subdomain: Social Development            | Subdomain: Logical Thinking and Mathematics | Subdomain: Language                                       |
| Specific aspect: Gross motor| Specific aspect: Relationship with adults | Specific aspect: Comparison and measurement | Specific aspect: Receptive language                        |
| Standard 1: Demonstrates ability for movement and coordination | Standard 1: Responds to and interacts with familiar adults | Standard 1: Child demonstrates the ability to make comparisons and measure to some extent | Standard 1: Child demonstrates the ability to understand language to some extent |
| 1. Crawls forward on hands and knees | 8. Reaches to the caregiver when hurt or upset | 23. Uses props as aids—Uses a chair to stand up | 38. Follows one-step routines when presented with gestures—Clapping hands |
| 2. Raises self to standing position using a chair/other aid | 9. Actively clings or cries when familiar person says good bye | 24. Begins to enjoy putting items in a container/getting objects out of a container | 39. Knows own name and responds by looking when called |
| 3. May walk 2 to 3 steps without support | 10. Tugs on caregiver or makes noises when felt ignored | Standard 2: Child develops spatial sense | 40. Understands the names of familiar objects (leg, cup chain, etc.) by pointing or touching them when they are uttered |
| 4. Can pivot in the sitting position | Standard 2: Identifies unfamiliar people | 25. Explores inside and outside surface of objects |                           |
| Specific aspect: Fine motor | 11. Needs to be comforted or close to the caregiver on arrival of an unfamiliar person | Specific aspect: Numbers |                           |
| Standard 2: Demonstrates ability to manipulate things briefly/shows visual coordination | 12. Demonstrates joy when caregiver returns after being away | Standard 4: Child demonstrates awareness of numbers |                           |
| 5. Uses thumb and first finger to pick up things | | Indicators |                           |
| 6. Puts objects into a container and takes objects out of a container | | No indicators for this age group |                           |
| 7. When given a cube, opens his hand and extends it when requested but does not release it | | |                           |

Specific aspect: Relationship with peers
Standard 3: Infant develops positive relationships with peers
13. Tries to imitate playing with the toy after watching peer play with it
14. Watches intently when older children play
15. Crawls into an adult’s lap if adult is talking with other children
Specific aspect: Prosocial behavior
Standard 4: Develops perception of routines
16. Shows anticipation of meal times

Specific aspect: Scientific inquiry
Standard 5: Child develops an inquiring mind
26. Repeatedly turns an object over
27. Explores and inspects the smallest details—for example, bread crumbs fallen on the floor, beads—Also given in previous age group
Specific aspect: Awareness of living and nonliving world
Standard 6: Shows interest in surroundings (people and objects)
28. Regards one or more familiar pictures with interest

Specific aspect: Expressive language
Standard 2: Child demonstrates the ability to express needs, feelings, experiences for a variety of purposes
41. Vocalizes to get attention
42. Produces at least two different distinct consonant sounds
43. May say a word—“bah” for bottle, “ma” for mother
44. Uses at least one gesture to make wants known
45. Babbles extensively
Specific aspect: Language Comprehension

(continued)
### Table 5. (continued)

| Domain: Physical Development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|------------------------------|-----------------------------------------|------------------------------|----------------------------------------------------------|
| Standard 5: Demonstrates awareness of some responsibilities (acts independently) | 29. Interested in three blocks and picks up at least two blocks and visually attends to 3rd block | 46. Understands a simple gesture—Gives the cube in his hand when mother asks for it |
| 17. Tries to feed self without help—Can feed himself a biscuit | 30. Begins to imitate familiar motions such as stirring | Subdomain: Early Literacy |
| Standard 6: Develops empathy | 31. Demonstrates what an object can do (understands function—Dolls walk) | Specific aspect: Participating in experiences that include books; discovering and appreciating books |
| 18. Cries when hearing another child cries | | |
| Standard 7: Develops the ability to corporate | | |
| | Subdomain: Emotional Development |
| | Specific aspect: Self-concept |
| | Standard 5: Demonstrates the development of a positive self-concept |
| 19. Pays attention to own reflection in mirror | 32. Shows awareness of neighbors |
| Standard 6: Develops the ability to control impulses and regulate himself | Subdomain: Approaches to Learning |
| 21. Halts action on reprimand “no” but may cry simultaneously | Specific aspect: Curiosity, initiative, and persistence |
| Specific aspect: Self-expression | Standard 8: Shows curiosity and persistence |
| Standard 7: Develops the ability to express emotions appropriately | 33. Pokes fingers into holes, gaps |
| 22. Indicates desire for specific items—for example, favorite toy | Specific aspect: Creativity and imagination |
| Specific aspect: Aesthetic appreciation | Standard 8: Child demonstrates creativity and imagination |
| Standard 8: Shows some ability for aesthetic appreciation | 34. Claps or bounces up and down on his own |
| | 35. Experiments with sound—Dumps blocks, pots, and pans on floor and repeats |
| Specific aspect: Problem solving | |
| Standard 9: Child demonstrates ability to use different strategies for problem solving | Specific aspect: Prereading |
| 36. Pulls things off shelves, baskets | Standard 7: Prereading: Child demonstrates interest in interacting with story |
| 37. Begins to put knowledge of inside to use—Stack two to three cups | Specific aspect: Prewriting |
| | Standard 4: Shows an interest in books |
| 38. Shows an increase in visual attention to book | 47. Shows an increase in visual attention to book |
| 48. Turns pages, has some difficulty in separating papers but succeeds | |
| 49. Laughs or smiles to show recognition of pictures | 50. Makes appropriate noises when he sees familiar animal/object (Booh, booh for dog) |
| 51. Points to individual pictures and vocalizes | Specific aspect: Prereading |
| | 52. Makes appropriate noises when sees familiar animal or object |
| | 53. Laughs or smiles to show recognition of pictures |
| | 54. Points to individual pictures and vocalizes while pointing |
| | Specific aspect: Prewriting |
| | 55. Points to individual pictures and vocalizes while pointing |
### Table 6. Indicators Removed in 2 to 3 Months and 3 Plus to 6 Months Age Groups.

| Indicator                                                                 | Age 2 to 3 months                                                                 | Age 3 plus to 6 months                |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------|
| 1 11. Cuddles into caregiver’s shoulder when being held (trusts)          | Not age appropriate                                                               |                                     |
| 2 16. Stops crying on seeing a familiar person                            | Standard itself Removed—Not age appropriate                                        |                                     |
| 3 17. Calms self—Sucks on hand before going to sleep                      | Not objectively measurable                                                         |                                     |
| 4 20. Conveys primary desires such as hunger—Protests when not picked up when he wants | Relocated under standard—Develops an inquiring mind                                |                                     |
| 5 21. Watches actions of others                                          |                                                                                 |                                     |
| 6 22. Reacts to disappearance of caregiver’s face                         | Not appropriate for the age                                                        |                                     |
| 7 23. Reacts to caregiver/people/objects                                 | Not appropriate for the age                                                        |                                     |
| 8 24. Looks at own hands and observes                                   | Was relocated under standard—Shows interest in surroundings                        |                                     |
| 9 25. Explores object placed in hands                                    | Not appropriate for the age                                                        |                                     |
| 10 37. Makes sound of comfort and displeasure                            | Not appropriate for the age                                                        |                                     |

| Indicator                                                                 | Age 2 to 3 months                                                                 | Age 3 plus to 6 months                |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------|
| 11 8. Looks at and touches the face of someone familiar who moves in closer to baby | Not objectively measurable                                                         |                                     |
| 12 10. Reaches to a familiar adult to be picked up when a stranger greets him |                                                                                 |                                     |
| 13 11. Facial expressions change at the sight of an unfamiliar person      |                                                                                 |                                     |
| 14 12. Directs smiles and vocalizations toward other infants/babies        |                                                                                 |                                     |
| 15 16. Uses sounds/facial expressions or actions to show preferences      |                                                                                 |                                     |
| 16 17. Calms when sung to/sleep listening to music/lullabies              |                                                                                 |                                     |
| 17 18. Sorts out familiar faces from among a group                        | Not age appropriate                                                               |                                     |
| 18 26. Discriminates family members from others                           | Not age appropriate                                                               |                                     |
| 19 30. Begins to turn head toward sounds that are out of sight             | Not objectively measurable                                                         |                                     |
| 20 35. Makes sounds that go up and down in pitch                          | Not objectively measurable                                                         |                                     |
Table 7. Indicators Removed in 6 Plus to 9 Months and 9 Plus to 12 Months Age Groups.

| Age 6 plus to 9 months | Why indicator was removed |
|------------------------|---------------------------|
| 21                     | Not objectively measurable |
| 22                     |                           |
| 23                     |                           |
| 24                     |                           |
| 25                     |                           |
| 26                     |                           |
| 27                     |                           |
| 28                     |                           |
| 29                     |                           |
| 30                     |                           |
| 31                     |                           |
| 32                     |                           |
| 33                     |                           |
| 34                     |                           |
| 35                     |                           |
| 36                     |                           |

| Age 9 plus to 12 months | Why indicator was removed |
|-------------------------|---------------------------|
| 37                     | Not objectively measurable |
| 38                     |                           |
| 39                     |                           |
| 40                     |                           |
| 41                     |                           |
| 42                     |                           |
| 43                     |                           |
| 44                     |                           |
| 45                     | Did not reflect the standard properly— |
| 46                     | Demonstrates the ability to make comparisons and measurements |
| 47                     | Better indicator No. 37 present |
| 48                     | Did not reflect the standard |
Table 8. Final Indicators for Age 2-3 Months.

| Domain: Physical Development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|-----------------------------|----------------------------------------|------------------------------|------------------------------------------------------|
| Subdomain: Motor            | Subdomain: Social Development          | Subdomain: Logical Thinking and Mathematics | Subdomain: Language                                   |
| Specific aspect: Gross motor| 1. Demonstrates ability of movement and coordination | Specific aspect: Relationship with adults | Specific aspect: Receptive language                    |
| Standard 1:                 | 9. Follows the caregiver with eyes     | Standard 1: Child demonstrates the development of comparison concepts | Standard 1: Responds to sights and sounds               |
| Turns head from side to side when lying on back | 10. Stops crying when familiar voice is heard | Standard 2: Child develops spatial sense | Standard 2: Startles, cries or wakes when there is a loud sound |
| 2. Raises head and chest when lying on stomach | Specific aspect: Relationship with peers | Specific aspect: Numbers | Standard 3: Attentive when spoken to                     |
| 3. Holds head erect and steady when held on shoulder | Standard 3: Infant develops positive relationships with peers | Standard 3: Child demonstrates awareness of numbers | Standard 4: Focuses on objects and sound-making toys     |
| 4. Extends and flexes legs at will | 11. Looks in direction of a child nearby | Subdomain: Awareness of the Environment | Standard 5: Recognizes mother’s voice and is soothed by it |
| 5. Follows moving person through midline to left and right | 12. Smiles/coos in response to older children’s attention | Specific aspect: Scientific inquiry | Standard 2: Uses sounds and body movements to communicate |
| 6. Moves arm at sight of toy or object | Specific aspect: Prosocial behavior | Standard 4: Child develops an inquiring mind | Standard 2: Produces soft, gurgling sounds               |
| Specific aspect: Fine motor | Standard 4: Develops perception of routines | 17. Watches actions of others | Standard 3: Smiles in response to speaker’s attention   |
| Standard 2: Demonstrates ability to hold things briefly/shows visual coordination | Subdomain: Emotional Development | 18. Looks at surroundings in a new place | Subdomain: Early Literacy                               |
| Specific aspect: Fine motor | Specific aspect: Self-concept          | 19. Waves arms to touch dangling toy overhead | Specific aspect: Participating in experiences that include books; discovering and appreciating books |
| 7. Eyes follow an object from left to right/top to bottom (cognitive) | Standard 5: Demonstrates the development of a positive self-concept | Specific aspect: Awareness of living and nonliving world | Standard 3: Shows an interest in books                   |
| 8. A small object placed in hand is accepted and brought to the mouth | 13. Uses crying to signal needs | Standard 5: Shows interest in surroundings (people and objects) | Specific aspect: Prereading                             |
| 9. Conveys desires—Makes vocal protests when not picked up when he wants | 14. Conveys desires—Makes vocal protests when not picked up when he wants | 20. Focuses on objects which are at close range | Specific aspect: Prewriting                            |
| Specific aspect: Self-control | Standard 6: Develops the ability to control impulses and regulate himself | 21. Looks at own hands and observes | Standard 8: Child demonstrates ability to use different strategies for problem solving |
| Standard 6: Develops the ability to control impulses and regulate himself | Standard 7: Develops the ability to express emotions appropriately | 22. Gazes continuously a objects for at least 3 s | Specific aspect: Expressive language                     |
| Standard 7: Develops the ability to express emotions appropriately | 15. Uses specific kinds of sounds to signal needs | 23. Child freely turns eyes/head in visual exploration of surroundings | |
| Domain: Physical Development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|----------------------------|----------------------------------------|------------------------------|-----------------------------------------------|
| **Subdomain: Motor**       | **Subdomain: Social Development**      | **Subdomain: Logical Thinking and Mathematics** | **Subdomain: Language** |
| Specific aspect: Gross motor | Specific aspect: Relationship with adults | Specific aspect: Comparison and sorting | Specific aspect: Receptive language |
| Standard 1: Demonstrates ability of movement and coordination | Standard 1: Responds to and interacts with familiar adults | Standard 1: Child develops ability to compare and sort sounds and expressions | Standard 1: Child demonstrates the ability to understand sounds/expressions and body language |
| 1. Supports upper body on arms when lying on stomach | 6. Coos or smiles when talked to | 22. Responds appropriately to tone of speaker's voice (distressed when harsh, happy when pleasant) | 22. Responds appropriately to tone of speaker's voice (distressed when harsh, happy when pleasant) |
| 2. Swipes at dangling objects with hands and feet | 7. Kicks legs or reaches with arms when familiar person approaches | 23. Identifies familiar sounds and responds | 23. Identifies familiar sounds and responds |
| 3. Rolls both ways (front to back, back to front) | 8. Smiles or laughs in response to tickling | Specific aspect: Expressive language | Specific aspect: Expressive language |
| **Specific aspect: Fine motor** | **Standard 2: Demonstrates ability to hold things briefly/shows visual coordination** | **Standard 2: Child develops the ability to compare and sort** | **Standard 2: Child demonstrates the ability to express needs, feelings, experiences for a variety of purposes** |
| 4. Can follow a circular motion of an object (upper and lower quadrants as well) | 9. Looks toward a peer who is interacting with an interesting object | **Standard 1: Child demonstrates awareness of numbers** | **Standard 2: Child demonstrates awareness of numbers** |
| 5. Rotates wrist from palm up to palm down when manipulating an object | **Specific aspect: Prosocial behavior** | **Subdomain: Awareness of the Environment** | **Subdomain: Awareness of the Environment** |
| **Standard 2: Identifies unfamiliar people** | **Standard 4: Develops perception of routines** | **Specific aspect: Scientific inquiry** | **Specific aspect: Scientific inquiry** |
| **Specific aspect: Relationship with peers** | **Subdomain: Emotional Development** | **Standard: Child develops an inquiring mind** | **Standard: Child develops an inquiring mind** |
| **Subdomain: Motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Specific aspect: Emotions** | **Specific aspect: Emotions** |
| **Specific aspect: Physical Development** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| **Specific aspect: Fine motor** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Specific aspect: Self-control** | **Specific aspect: Self-control** |
| 10. Responds positively to adults' attempts to comfort | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| 11. Conveys desires/needs through sounds | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| Specific aspect: Self-control | **Specific aspect: Fine motor** | **Specific aspect: Self-control** | **Specific aspect: Self-control** |
| Standard 6: Develops the ability to control impulses and regulate himself | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| Specific aspect: Self-expression | **Specific aspect: Fine motor** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| Standard 7: Develops the ability to express emotions appropriately | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| Specific aspect: Aesthetic appreciation | **Specific aspect: Fine motor** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| Standard 8: Shows some ability for aesthetic appreciation | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| **Specific aspect: Awareness of living and nonliving world** | **Standard 5: Demonstrates the development of a positive self-concept** | **Specific aspect: Aesthetic appreciation** | **Specific aspect: Aesthetic appreciation** |
| **Standard 4: Shows interest in surroundings (people and objects)** | **Standard 5: Demonstrates the development of a positive self-concept** | **Specific aspect: Emotional appreciation** | **Specific aspect: Emotional appreciation** |
| 15. A toy is held, touched, and tasted | **Specific aspect: Fine motor** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| 16. Inspects own hands | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| 17. Eye moves from one object to another in response to sound | **Specific aspect: Fine motor** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| 18. Prefers novel object | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| **Specific aspect: Awareness of the community** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Specific aspect: Aesthetic appreciation** | **Specific aspect: Aesthetic appreciation** |
| **Standard 12: Child demonstrates an awareness of the community he lives in** | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| 19. Shows awareness of unfamiliar surroundings | **Specific aspect: Fine motor** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| **Subdomain: Approaches to Learning** | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| **Specific aspect: Curiosity, initiative, and persistence** | **Specific aspect: Fine motor** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| **Specific aspect: Creativity and imagination** | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| **Standard 7: Child demonstrates creativity and imagination** | **Specific aspect: Fine motor** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| 20. Shows delight in producing sounds—Smacks lips, squeals on purpose | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| **Specific aspect: Problem solving** | **Specific aspect: Fine motor** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| **Standard 8: Child demonstrates ability to use different strategies for problem solving** | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| 21. Pulls a cloth with rattle on it to obtain rattle | **Specific aspect: Fine motor** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** | **Standard 6: Child demonstrates the ability to control impulses and regulate himself** |
| **Specific aspect: Prereading** | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
| **Specific aspect: Prewriting** | **Specific aspect: Fine motor** | **Standard 5: Demonstrates the development of a positive self-concept** | **Standard 5: Demonstrates the development of a positive self-concept** |
### Table 10. Final Indicators for 6 Plus to 9 Months.

| Domain: Physical Development | Domain: Social and Emotional Development | Domain: Cognitive Development | Domain: Development of Language and Early Literacy Skills |
|-----------------------------|-----------------------------------------|------------------------------|---------------------------------------------------------|
| Subdomain: Motor | Subdomain: Social Development | Subdomain: Logical Thinking and Mathematics | Subdomain: Language |
| Specific aspect: Gross motor | Specific aspect: Relationship with adults | Specific aspect: Comparison and sorting and spatial sense | Specific aspect: Receptive language |
| Standard 1: Demonstrates ability for movement and coordination | Standard 1: Responds to and interacts with familiar adults | Standard 1: Child develops ability to compare and sort | Standard 1: Child demonstrates the ability to understand expressions and body language |
| 1. Moves from lying down to sitting position | 9. Smiles when familiar person smiles or talks | Standard 2: Child develops spatial sense | Specific aspect: Expressive language |
| 2. Can sit unsupported | 10. Babble and coos to get attention of someone familiar nearby | Specific aspect: Numbers | Standard 2: Child demonstrates the ability to express needs, feelings, experiences for a variety of purposes |
| 3. Supports whole weight on legs when adult is holding both hands | Standard 2: Identifies unfamiliar people | Standard 3: Child demonstrates awareness of numbers | 23. Vocalizes in response to speaker's attention |
| 4. Holds railing to move from sitting to standing position | 11. Stops activity and stares at a new person entering room | | 24. Vocalizes at least two different vowel sounds |
| Specific aspect: Fine motor | | | 25. Begins to babble in strings—Ba-ba-ba |
| Standard 2: Demonstrates ability to hold things/shows visual coordination | Specific aspect: Relationship with peers | Standard 4: Child develops an inquiring mind | |
| 5. Grasps and object with thumb and first and second fingers | Standard 3: Infant develops positive relationships with peers | | |
| 6. Bangs two hand-held items together | 12. Kicks feet in excitement at sight of other child/children | | |
| 7. Transfers objects from hand to hand | 13. Uses hands to explore face/hair of peer | | |
| 8. Moves his head to search for object which has fallen from the table | | | |
| Specific aspect: Prerational behavior | Standard 4: Develops perception of routines | Specific aspect: Language Comprehension | Specific aspect: Language Comprehension |
| Standard 4: Develops perception of routines | Standard 5: Develops empathy | Standard 3: Child demonstrates the ability to comprehend gestures and sounds | Standard 3: Child demonstrates the ability to comprehend gestures and sounds |
| Standard 6: Develops the ability to corporate | Standard 5: Shows interest in surroundings (people and objects) | | |
| Subdomain: Emotional Development | 16. Searches for fallen object | | |
| Specific aspect: Self-concept | 17. Plays with mirror image by patting, smiling/laughing, reaching playfully | | |
| Standard 5: Demonstrates the development of a positive self-concept | 18. Holds bell by handle and purposefully bangs it | | |
| Specific aspect: Self-control | | | |
| Standard 6: Develops the ability to control impulses and regulate himself | | | |
| Specific aspect: Self-expression | Specific aspect: Awareness of the community | Subdomain: Early Literacy | Specific aspect: Prerational behavior |
| Standard 7: Develops the ability to express emotions appropriately | Standard 6: Child demonstrates awareness of community he lives in | | |
| Specific aspect: Aesthetic appreciation | Specific aspect: Awareness of the community | | |
| Standard 8: Shows some ability for aesthetic appreciation | Standard 6: Child demonstrates awareness of community he lives in | | |
| | | | |
| | | | |
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| | | | |
### Table 11. Final Indicators for 9 Plus to 12 Months.

| **Domain: Physical Development** | **Domain: Social and Emotional Development** | **Domain: Cognitive Development** | **Domain: Development of Language and Early Literacy Skills** |
|--------------------------------|---------------------------------------------|---------------------------------|-------------------------------------------------------------|
| **Subdomain: Motor** | **Subdomain: Social Development** | **Subdomain: Logical Thinking and Mathematics** | **Subdomain: Language** |
| **Specific aspect: Motor** | **Specific aspect: Relationship with adults** | **Specific aspect: Comparison and measurement** | **Specific aspect: Receptive language** |
| **Specific aspect: Gross motor** | **Specific aspect: Social Development** | **Standard 1: Child demonstrates the ability to make comparisons and measure to some extent** | **Standard 1: Child demonstrates the ability to understand language to some extent** |
| **Standard 1: Demonstrates ability for movement and coordination** | **Specific aspect: Logical Thinking and Mathematics** | **Standard 2: Child develops spatial sense** | **Standard 2: Child develops spatial sense** |
| 1. Crawls forward on hands and knees | **Specific aspect: Relationship with peers** | **Standard 1: Child demonstrates the ability to make comparisons and measure to some extent** | **Standard 1: Child develops an inquiring mind** |
| 2. Raises self to standing position using a chair/other aid | **Specific aspect: Logical Thinking and Mathematics** | **Standard 2: Child develops spatial sense** | **Standard 2: Child develops an inquiring mind** |
| 3. May walk two to three steps without support | **Specific aspect: Numbers** | **Standard 2: Child develops spatial sense** | **Specific aspect: Expressive language** |
| 4. Can pivot in the sitting position | **Standard 1: Child demonstrates awareness of numbers** | **Standard 2: Child develops spatial sense** | **Standard 2: Child demonstrates the ability to express needs, feelings, experiences for a variety of purposes** |
| **Specific aspect: Fine motor** | **Specific aspect: Language** | **Specific aspect: Scientific inquiry** | **Standard 2: Child demonstrates the ability to express needs, feelings, experiences for a variety of purposes** |
| **Standard 2: Demonstrates ability to manipulate things briefly/shows visual coordination** | **Comprehension** | **Standard 4: Child develops an inquiring mind** | **Standard 2: Child demonstrates the ability to express needs, feelings, experiences for a variety of purposes** |
| 5. Uses thumb and first finger to pick up things | **Specific aspect: Scientific inquiry** | **Standard 5: Demonstrates awareness of some responsibilities (acts independently)** | **Specific aspect: Expressive language** |
| 6. Puts objects into a container and takes objects out of a container | **Specific aspect: Awareness of living and nonliving world** | **Standard 5: Shows interest in surroundings (people and objects)** | **Specific aspect: Expressive language** |

(continued)
| Domain: Physical Development | Domain: Social and Emotional Development | Domain: Cognitive development | Domain: Development of Language and Early Literacy Skills |
|-------------------------------|----------------------------------------|-------------------------------|-----------------------------------------------------|
| Standard 6: Develops empathy  | Standard 7: Develops the ability to cooperate | 17. Regards one or more familiar pictures with interest | Standard 3: Shows ability to comprehend information |
| Subdomain: Emotional Development | Specific aspect: Self-concept | 18. Interested in three blocks and picks up at least two blocks and visually attends to third block | 34. Understands a simple gesture—Gives the cube in his hand when mother asks for it |
| Standard 5: Demonstrates the development of a positive self-concept | 19. Begins to imitate familiar motions such as stirring | 20. Demonstrates what an object can do (understands function—Dolls walk)—Small doll | Subdomain: Early literacy |
| 13. Pays attention to own reflection in mirror | Specific aspect: Awareness of the community | Standard 6: Child demonstrates an awareness of the community he lives in | Specific aspect: Participating in experiences that include books; discovering and appreciating books |
| 14. Responds to name being called | Standard 6: Child demonstrates an awareness of the community he lives in | 21. Shows awareness of neighbors |
| Specific aspect: Self-control | Subdomain: Approaches to Learning | | Standard 4: Shows an interest in books |
| Standard 6: Develops the ability to control impulses and regulate himself | Specific aspect: Curiosity, initiative, and persistence | 35. Shows an increase in visual attention to book |
| Specific aspect: Self-expression | Standard 7: Shows curiosity and persistence | 36. Turns pages, has some difficulty in separating papers but succeeds |
| Standard 7: Develops the ability to express emotions appropriately | 22. Pokes fingers into holes, gaps | 37. Laughs or smiles to show recognition of pictures |
| Specific aspect: Aesthetic appreciation | Specific aspect: Creativity and imagination | 38. Makes appropriate noises when he sees familiar animal/object (booh, booh for dog) |
| Standard 8: Shows some ability for aesthetic appreciation | Standard 8: Child demonstrates creativity and imagination | 39. Points to individual pictures and vocalizes |
| 23. Claps or bounces up and down on his own | 24. Experiments with sound—Dumps blocks, pots and pans on floor an repeats | Specific aspect: Prereading |
| 25. Begins to put knowledge of inside to use—Stack two to three cups | Specific aspect: Problem solving | Standard 7: Child demonstrates interest in interacting with story |
| Standard 8: Child demonstrates ability to use different strategies for problem solving | 40. Makes appropriate noises when sees familiar animal or object | 41. Laughs or smiles to show recognition of pictures |
| Specific aspect: Problem solving | 42. Points to individual pictures and vocalizes while pointing | Specific aspect: Prewriting |
| Age group          | Indicator with number                                                                 |
|-------------------|---------------------------------------------------------------------------------------|
| 2 to 3 months     | 6. Moves arm at sight of toy or object                                                |
|                   | 8. A small object placed in hand is accepted and brought to the mouth                 |
|                   | 12. Smiles/coos in response to older children’s attention                              |
|                   | 13. Uses crying to signal needs                                                       |
|                   | 15. Uses specific kinds of sounds to signal needs                                      |
|                   | 19. Waves arms to touch dangling toy overhead                                          |
|                   | 23. Child freely turns eyes/head in visual exploration of surroundings                 |
| 3 plus to 6 months| 3. Rolls both ways (front to back, back to front)                                     |
|                   | 4. Can follow a circular motion of an object (upper and lower quadrants as well)      |
|                   | 5. Rotates wrist from palm up to palm down when manipulating an object                 |
|                   | 15. A toy is held, touched, and tasted                                                |
|                   | 19. Shows awareness of unfamiliar surroundings                                         |
|                   | 20. Shows delight in producing sounds—Smacks lips, squeals on purpose                  |
| 6 plus to 9 months| 1. Moves from lying down to sitting position                                          |
|                   | 8. Moves his head to search for object which has fallen from the table                 |
|                   | 18. Holds bell by handle and purposefully bangs it                                     |
|                   | 20. Uses body to make sounds—Splashes water, slaps objects                             |
| 9 plus to 12 months| 4. Can pivot in the sitting position                                                  |
|                   | 6. Puts objects into a container and takes objects out of a container                  |
|                   | 9. Tugs on caregiver or makes noises when felt ignored                                 |
|                   | 10. Tries to imitate playing with the toy after watching peer play with it             |
|                   | 17. Regards one or more familiar pictures with interest                               |
|                   | 21. Shows awareness of neighbors                                                       |
|                   | 22. Pokes fingers into holes, gaps                                                    |
|                   | 23. Claps or bounces up and down on his own                                           |
|                   | 24. Experiments with sound—Dumps blocks, pots, and pans on floor and repeats          |

the study (to be included in a separate article) describes the assessment of psychometric properties of the tool along with reference-based validation. The tool utilizes simple equipment and does not need highly specialized training. This allows it to be used in a low-income setting.

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