Communication assessment of the very young child (0-2 years)

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COMMUNICATION ASSESSMENT OF THE
VERY YOUNG CHILD (0–2 years)

By
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B.A., University of Montana, 1986

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for the degree of
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[Signatures]
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CHAPTER 1: INTRODUCTION

Public Law 99-457, the Education of the Handicapped Amendment of 1986, requires all states to provide intervention by three years of age to all handicapped children. Therefore, it makes the early identification of handicapped children necessary. The purpose of this paper is to develop a composite communication assessment tool for high risk infants from birth two years of age by using items from seven published sources.

Prevalence of Communication Disorders and Delays

Prevalence in overall preschool population

Estimates of the number of young children with communication disorders or delays vary. Fein (1983) cited the National Health Interview Survey of the National Center for Health Statistics data from 1977 which reported the rate of speech impairment to be .92 out of one hundred for children aged five years and under. He raised two concerns about the accuracy of this data. First, that the survey did not include institutionalized persons who evidenced speech impairment. Secondly, the survey classified "deaf persons who cannot speak" (Fein, 1983, p. 37) as hearing-impaired only and did not include them as speech impaired. Leske (1981) cited various studies from The American Speech-Language-Hearing Association and the National Advisory Board.
which estimated the prevalence of speech delays and communication disorders. Leske concluded that "It appears from available evidence that language impairment is present in 2-3 percent of three year old children and in 1 percent of children entering school." (Leske, 1981, p. 232) Leske did not specifically mention whether or not hearing impaired children were included in these estimates. Based on the above cited estimates it appears that approximately 1-3 percent of preschool children in the United States were affected by some form of communication disorder or delay.

Prevalence in High Risk Infants

There are many factors which have been used to describe the high risk infant. One of the more comprehensive definitions was provided by Rossetti (1986). Rossetti described the high risk infant as one who "because of low birth weight, prematurity or the presence of serious medical complications associated with or independent from birth weight or prematurity, has a greater than normal chance of developing a developmental delay." (Rossetti, 1986, p.2)

The following four studies showed that the prevalence of communication disorders and delays was markedly greater in high risk infants than in the general population. In the first study Vohr, Coll and Oh (1988) found that 28% of the low birth weight infants they assessed had language delays which they defined as 1.5 standard deviations below the
mean. Cyrnie, Ragozin, Greenberg, Robinson and Basham (1983) assessed subjects at four and twelve months of age with the Bayley Scales of Infant Development. At twelve months they took a measure of the children's protoimparitives in communication. They found that preterm infants performed significantly below their full term peers on measures of cognitive and language development, even when corrected for gestational age. Hubach, Johnson and Kistler (1985) assessed children with a receptive vocabulary test, which was designed specifically for the study; the Linguistic Concept Assessment and a parent-child language sample administered in a random order. They found that among children at the single word level full term control children had significantly better receptive vocabulary and expressive verbosity than their high risk peers. Finally, Largo et al. (1986) compared premature children to their full term peers. They used the results of a home protocol which required parents to note the age at which their child acquired a given skill. They also observed the children's language behavior while the children were undergoing developmental testing at 1, 3, 6, 9, 12, 18, 24, 36, and 60 months. They found that premature children had mild language delays when compared to full-term children.

The four studies above found a greater prevalence of communication problems in high-risk children than in infants who were not considered to be high-risk. It follows that high-risk children should be assessed more routinely and in
more depth than their "normal" peers. Ironically, high-risk children often require modifications of assessment tools due to a higher incidence of other disabilities.

Assessing High Risk Infants

Disabilities which are found in the high risk population include: sensory deficits, motoric disabilities (Blackburn, 1983) neurological immaturity and mental retardation (Rossetti, 1986). These disabilities should be compensated for during testing to assess the child's true competency. Most currently used assessment devices do not allow the examiner to compensate for these disabilities.

Sensory deficits include loss or impairment of vision and/or hearing. A child with a sensory deficit may not respond to a given item due to its presentation mode. This lack of response may be due to a child's inability to hear or see a necessary stimulus or instruction rather than to a lack of a particular skill. Presentation of instructions and materials may have to be modified to utilize the child's intact sensory modalities.

Common motoric disabilities in premature infants include cerebral palsy and other possible fine or gross motor deficits such as hypotonicity (Blackburn, 1983). The examiner may need to modify materials so that motor movements which are not possible for the child do not affect results.
Mental retardation and neurological immaturity are both factors that may require an alteration of the starting age used for a given tool. Children with mental retardation who do not have associated sensory deficits or motoric disabilities, may require that the test start at a lower age level than that predicted by the child's chronological age. (Alpern and Boll, 1972)

In addition to considering the above four disabilities a correction of age for prematurity is often used when working with preterm infants. This correction is used in order to give the preterm infant a chance to mature neurologically and physically which may help the child to catch up with his "normal" peers. The usual method of correction is to get a determination of the amount of prematurity in months and subtract that number from a child's chronological age. (Seigel, 1983) The child's test scores are then be compared to this corrected age rather than to the child's chronological age. (Rossetti, 1986)

Early Identification and Intervention

Stangler, Huber and Routh (1980) stated that "the earlier a speech and language delay can be identified the better the chance for early intervention during the critical sensitive period [preschool years]." (p. 191) A number of studies have indicated that early intervention
for developmental delays was effective. Leib, Benfeild and Guidubald (1980) used the Bayley Scales of Infant Development, both the mental and motor sections, to test the effectiveness of an early intervention and stimulation program on infants in a neonatal intensive care unit. They found that infants who received early intervention through a multimodal sensory stimulation program had significantly higher overall developmental status than untreated children. Castro and Mastropieri (1986) found that early intervention programs resulted in moderately large immediate benefits in I.Q., motor, language and academic skills for handicapped populations. In a review of literature, Stark (1989) reported that "available evidence suggests that language learning occurs at a rapid rate early in life when intervention is most likely to be effective." (Stark, 1989, p. 44) Finally, Miller, Yoder and Scheifelbush (1983) reported in their literature review that the earlier one intervenes with appropriate services the better the prognosis for normal language development. Public Law 99-457 noted that the benefits of early intervention and preschool services can "produce substantial gains in physical development, cognitive development, language and speech development, psychosocial development and self help skills."

Summary

The prevalence of communication disorders and delays in
high risk infants appears to be much higher than in the general population. High risk infants are often more difficult to assess than their age peers due to associated disabilities. The earlier that language intervention is started the better the prognosis for improved communication skills. (Stark, 1989) PL 99-457 requires that states provide early intervention to all handicapped children by three years of age. In order to provide intervention to these children, the children must first be identified. One method of identifying children with communication delays or disorders is through assessment. Communication delays are considered a handicapping condition in PL 99-457. The following chapter will contain a comparison of seven currently used assessment tools and a description of the Infant Communication Screening Tool (I.C.S.T.), which is a composite tool developed from these tools.
CHAPTER 2: INFANT COMMUNICATION SCREENING TOOL DEVELOPMENT

Six criteria were used to describe the assessment tools used in the development of a the I.C.S.T.: examiner qualifications, method of administration, areas assessed, item placement, number of communication items and presentation of results. The I.C.S.T. is also described according to the same criteria.

The source tools included both communication tests and communication portions of developmental tests. The source tools which assessed communication only were the Sequenced Inventory of Communication Development (S.I.C.D.) (Hedric, Prather, and Tobin, 1975), The Early Language Milestone Scale (ELM) (Copeland, 1983), and the Communication Evaluation Chart (CEC) (Anderson, Miles and Matheney, 1963). Source tools which covered a number of developmental areas including communication were the Denver Developmental Screening Test (DDST) (Frankenberg, Dodds and Fandal, 1970), The Vineland Adaptive Behavior Scales (Vineland) (Sparrow, Ballu and Ciccati, 1984), the Communication Development Assessment from the Developmental Profile, (Alpern and Boll, 1972), and The Boyd Developmental Progress Scale (Boyd) (Boyd, 1974).

Examiner qualifications vary among the individual tools, although all tools require that the examiner be familiar with the test prior to administration. The Boyd and the Developmental Profile have the most open criteria for
examiner qualifications. The Boyd is designed to be administered by members of any discipline among the "helping" professions. The Developmental profile is designed to be used by any person with some skill in interviewing. The S.I.C.D. does not specifically address examiner qualifications. However, in order to properly score sections which require phonetic transcriptions and calculation of mean length of utterance, the examiner must have some experience in the field of communication disorders. The CEC indicates that the examiner should be a specialist in a field related to communication disorders. The ELM is designed to be used by physicians or other professionals who work with children. The DDST is designed to be used by physicians and para-medical personnel. The Vineland has the strictest examiner qualifications. It requires that the examiner be a psychologist, a social worker or any other professional with a graduate degree and specific training in individual assessment and test interpretation.

Five of the seven source tools are administered through a parent or caregiver interview supplemented by direct assessment and/or observation. There are two exceptions, the Vineland and the Developmental Profile, which are designed to be administered entirely through interview of parents or caregivers. The tests which require either observation or direct assessment of the child allow the examiner to see the child performing particular test items.
This gives the examiner proof that the child had a given skill. However, some children may not perform a given task at a given time, therefore information obtained through interviews is also important.

These source tools divide communication into different areas of assessment. The ELM, The S.I.C.D. and the Vineland divide communication into expressive and receptive areas. The ELM has an auditory expressive portion, an auditory receptive portion and a visual portion. The S.I.C.D. yields an expressive communication score and a receptive communication score. The Vineland yields an expressive score, a receptive score and an overall communication score. All other tools have only one assessment portion on communication which combines both expressive and receptive communication. Since children may have differences in receptive and expressive communication skills there is an advantage to the those tools which allow an examiner to look at the above skills separately, thereby clarifying a possible area of delay.

Item placement on most of the source tools was standardized on a normal population. The S.I.C.D., the Vineland and the Developmental Profile place items at an age level at which over 75% of the children in their standardization populations were able to demonstrate a particular skill. The DDST and the ELM use the age at which 90% of their standardization populations were able to master an item as their cut off level for pass or fail. The CEC
and the Boyd are not standardized. Items on the Boyd are placed at age levels based on "research evidence" from standardized tools which indicate that 60-70% of children at a particular age level demonstrated that skill. There was no information available on how age levels were determined on the CEC. Variations in criteria for item placement can affect a child's score on different tools. On one tool a given item might be placed at a level at which 75% of the standardization population passed the item. On a different tool the same item may be placed at a level at which 90% of the standardization population passed the item. Therefore, a child who develops a skill at an age where 80% of children of that age have the skill would fail the item on the former and pass the item on the later.

The number of communication test items in the birth to two year age level varies from tool to tool. Those tools which assessed the area of communication only (the S.I.C.D., the ELM and the CEC.) have more communication items in the birth to two year range, (38-69) than those tools which assessed more than one area of development. The DDST, the Boyd, the Vineland and the Developmental Profile have only 12-25 communication items in the birth to two year range. Most tests have four or fewer communication items in each four month interval or have five or fewer items in each six month interval. Even some communication only tests, have some age levels with very few items. While the S.I.C.D. typically has at least five items per four month level, the
receptive portion of the S.I.C.D. has only one item at the four month level and three items at the twelve month level. The expressive portion of the S.I.C.D. has three items at the eight month level and only four at the sixteen month level. The CEC has at least six items at each level but when items were divided according to oral-motor, expressive and receptive, there are four or fewer items in both the expressive and receptive areas at all age levels through the eighteen to twenty four month level.

Lastly, the seven assessment tools present their results differently. The S.I.C.D., the Developmental Profile and the Vineland all yield performance or developmental age scores for each area assessed. These tools allow the examiner to estimate the level of the child's functioning by a comparison of the obtained age-score to the child's chronological or adjusted age. This method allows the examiner to look at the amount of delay a given child has. The CEC and the Boyd yield an age range from the level at which all items were passed to the level at which all items were failed. These tools allow the examiner to see the range within which a given child is performing and demonstrate whether the child was beginning to develop some skills at a higher age level. They allow the examiner to see the scatter of the child's skills. The ELM and the DDST both yield a pass if the child presents with all of the skills which were mastered by over 90% of their standardization populations; otherwise the child fails.
the test. Tests which simply pass or fail the child are easy to interpret but do not give additional information regarding amount of delay or the scatter of skills.

The Infant Communication Screening Tool was developed from the source tools in order to create a tool with a greater number of communication items at each age level. It was developed by compiling items from the source tools discussed above. This tool was not standardized. It can be used as part of a screening protocol for high risk infants in conjunction with a standardized tool. The additional information obtained by multiple items at each age level can be useful in designing therapy intervention programs.

The seven source tools were selected because they were easily available at the clinical setting at the Child Development and Rehabilitation Center in Portland Oregon. (CDRC) The I.C.S.T. contains most items through the two year level from each assessment tool. There are four exceptions. The Boyd included two items which required that the child get a pellet out of a bottle. These two items were felt to be strictly cognitive in nature rather than communicative. One item "hears and plays with noisemaking toys" from the CEC, was excluded because it was difficult for the parent to judge whether or not the child heard the toys. Finally, one item "gesturing or making a statement about a novel object" from the S.I.C.D., was excluded because client's rooms were not assigned beforehand and was difficult to put a balloon into the examination room prior.
to the family's arrival. Although, this item was not administered directly the examiner did note if the child responded to a novel object in the testing environment. Some items were modified so that information from more than one source could be covered in one question. The modifications allow information to be obtained in a relatively timely manner. For example the question "approximately how many different words does your child use?" was a modification of several source test items which used questions such as "does your child use two to four words?" and "does your child use five words other than moma dada?"

The I.C.S.T. tool will now be described according to the same six criteria as the source tools: examiner qualifications, method of administration, areas assessed, item placement, number of communication items and presentation of results. Since this tool was not standardized and is not meant to be used to replace a standardized assessment tool, it was designed to be used by people familiar with normal communication development who have experience in the area of communication disorders and delays. Examiners using this tool should also be familiar with the I.C.S.T. and the source tools.

The I.C.S.T. has a combined method of administration. It consists mainly of interview questions plus some direct testing and observation items. The test protocol and scoring procedures for the I.C.S.T. are contained in

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appendix A. The I.C.S.T. itself, appendix B, contains two portions: the interview/observation portion and the test portion. Results from both the interview/observation and the direct testing portions of the I.C.S.T. are divided into receptive and expressive areas. On the interview/observation portion of the tool the expressive communication area contains a vocalization section and an imitation section. On the direct testing portion of the tool the receptive communication area contains an auditory awareness section and a direction following section. The interview/observation portion also includes two precommunicative areas: social and feeding skills.

The key to interpret and score results from the I.C.S.T. is found in appendix C. Items are placed onto this key in six age intervals, 0-4 months, 5-8 months, 9-12 months, 13-16 months, 17-20 months and 21-24 months. This key contains receptive, expressive and precommunicative areas. The compiled age range from all of the sources which included a given item is illustrated on this key. Items were placed in an age interval that corresponded to the maximum age level on the compiled range. For example, an item with an age range of 2-6 months would be placed at the 5-8 month interval. There is one exception. Some items at the twenty four month level have a range extended beyond the twenty four month level.

There are more items on the I.C.S.T. than on any one of the reviewed tools. It contains at least five items for
both expressive and receptive communication at each age interval.

Results from the I.C.S.T. are presented in an age range. The criteria for scoring the I.C.S.T. are presented in appendix A. This appendix also contains criteria for passing or failing the screening.
CHAPTER 3: Pilot Study

A pilot study was done in order to field test the administration of the I.C.S.T. The tool was administered to a group of ten subjects. Each subject was scored on the I.C.S.T. based on the predetermined scoring protocol. Following the initial testing each infant's results on the I.C.S.T. were compared to their results from follow up visits to the clinic.

Subjects

The infants used in this study were in the neonatal intensive care follow-up clinic at the Child Development and Rehabilitation Center (CDRC) in Portland Oregon in January, 1989. This clinic screens the developmental progress of neonatal intensive care nursery graduates. This clinic saw infants between the ages four months and five years for developmental progress screening. The typical follow-up schedule was at six month intervals from the adjusted ages of four months to two years and then at three years and five years of age. The subjects were the first ten children between the ages of four months and two years who were assessed during four consecutive weeks. There were 3 boys and 7 girls in the sample. Their adjusted age range was from four months to sixteen months with a chronological age range of seven to twenty months. There were two children at the four month level, two children at the five month level, three children at the eight month level, one child at the
thirteen and one at the sixteen month level. The sixteen month child was the only child with a known handicapping condition (retinal detachment).

Test Administration

Testing time of the I.C.S.T. ranged from 15-25 minutes. Based on the limited sample size the potential testing time could be shorter or longer than this.

The test environment during the pilot study was a quiet distraction free room with the infant, the infant's family and the examiner present. The items which require that the infant respond to sounds requires a quiet environment. The items which require the infant to follow directions should be given in an area which is free of distractions.

The materials required to administer the I.C.S.T. were taken from the tools from which the individual item was derived. These materials consisted mainly of common objects and pictures and it would be fairly easy to compile a test kit from items obtained from a toy or drug store.

Results

All testing was completed by one examiner using the test protocol in appendix A and the test form in Appendix B. The interview/observation portion of the tool was administered first, followed by the test portion. Individual scores for each of the ten infants are presented in table number 1. The overall screening results yielded
three children who should receive follow up assessment according to the criteria presented in appendix A.

Of the three children who failed the initial I.C.S.T.: one was referred for additional assessment at the time of the initial screening, one was referred for additional assessment based on clinical findings from the follow up screening and one was found to be performing within normal limits at the follow up screening and was not referred for additional assessment.

Of the seven children who passed the initial I.C.S.T. five returned for follow up assessment. Based on the results of their follow up assessments none of these five children were referred for additional assessments. Follow up testing data was not available on the two children who did not return for follow up assessments.

Therefore, of the available clinical validation data there were no false positives and one false negative, which is consistent with the preferred bias of an effective screening tool.
# TABLE 1
Results of Infant Communication Screening tool
(ages presented in months)

<table>
<thead>
<tr>
<th>CASE</th>
<th>A.A</th>
<th>BASAL EXP</th>
<th>CEILING EXP</th>
<th>CONSOLIDATED P/F</th>
<th>A.A</th>
<th>BASAL REC</th>
<th>CEILING REC</th>
<th>CONSOLIDATED P/F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8</td>
<td>* 5-8</td>
<td>9-12</td>
<td>5-8</td>
<td>A.A</td>
<td>EXP- Adjusted age</td>
<td>REC- Expressive</td>
<td>P/F - pass or fail (see Appendix B for scoring)</td>
</tr>
<tr>
<td>B</td>
<td>13</td>
<td>9-12</td>
<td>17-20</td>
<td>13-16</td>
<td></td>
<td>9-12</td>
<td>17-20</td>
<td>9-12</td>
</tr>
<tr>
<td>C</td>
<td>5</td>
<td>0-4</td>
<td>9-12</td>
<td>0-4</td>
<td></td>
<td>5-8</td>
<td>5-8</td>
<td>P</td>
</tr>
<tr>
<td>D</td>
<td>8.5</td>
<td>5-8</td>
<td>9-12</td>
<td>5-8</td>
<td></td>
<td>13-16</td>
<td>5-8</td>
<td>P</td>
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<tr>
<td>E</td>
<td>4</td>
<td>* 0-4</td>
<td>5-8</td>
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<td>0-4</td>
<td>P</td>
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<tr>
<td>F</td>
<td>8</td>
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<td>5-8</td>
<td>0-4</td>
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<td>5-8</td>
<td>5-8</td>
<td>F</td>
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<tr>
<td>G</td>
<td>5.5</td>
<td>0-4</td>
<td>9-12</td>
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<td>5-8</td>
<td>5-8</td>
<td>P</td>
</tr>
<tr>
<td>H</td>
<td>4</td>
<td>* 0-4</td>
<td>5-8</td>
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<td>0-4</td>
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<td>16</td>
<td>* 0-4</td>
<td>13-16</td>
<td>0-4</td>
<td></td>
<td>13-16</td>
<td>13-16</td>
<td>F</td>
</tr>
</tbody>
</table>

* - No basal age range
CHAPTER 4: DISCUSSION AND RECOMMENDATIONS

The results of this limited study found that two of the three infants who failed the I.C.S.T. were referred for additional assessments. However, none of the infants who passed the I.C.S.T. and returned for follow up appointments were referred for additional testing. These results need to be verified with additional studies with more children at each of the age ranges and larger sample sizes, in order to show whether or not this compiled tool could be used as a screening tool for high risk infants. Future studies should target possible standardization and reliability of this tool.

If this tool is to be used as the primary screening device, a standardization study should be done to determine the appropriateness of the item placement and age ranges. Since this tool is designed to compare high-risk infant's communication skills to those of their normal peers, the standardization sample should be made up of a group of infants who have age appropriate communication. This standardization population should include infants ranging in age from birth to two years with similar numbers of children at each age range. An approximately equal number of boys and girls should be used. These children should come from a variety of socioeconomic levels and represent different ethnic cultures. The primary language used at home should be English. The I.C.S.T. should be administered to this
standardization group. Data should be collected for each child noting which items the child passed and how old the child was. This information should be used in determining item age ranges for the test. Items should be placed into an age range using criteria that provides chronological ordering of the item. This may change the item placement somewhat from the initial I.C.S.T.

The reliability of the Infant Communication Screening Tool should also be assessed. Reliability studies should include; interexaminer reliability, intraexaminer reliability and test-retest reliability.

To test for the interexaminer scoring reliability of this tool a follow up study could be done using video tapes of an examiner administering the I.C.S.T. to a number of children. These video tapes could each be scored by two or more speech pathologists and their interexaminer reliability for the individual tapes could be computed.

To examine the intraexaminer reliability of this tool, each video tape of a child receiving the tool could be scored by a speech language pathologist on two different occasions, with an interval of time occurring between the first scoring procedure and the second.

To test for the test-retest reliability of this tool, the tool could be readministered to a group of children at an interval of one week. The individual's scores for each of these screenings could then be compared to assess the test-retest reliability.
The pilot study of this tool did have some measure of validity. Infant's results from the I.C.S.T. were compared to the clinical findings of speech pathologists on follow up visits to the clinic. The pilot study indicated that this tool was effective in discriminating between those children who did not have communication disorders or delays and those who did. Following further studies on this tool, a more accurate estimation of this tool's uses in the clinical setting should be possible. Unless follow up studies are done on this tool, it should only be used as an aid for screening infants and it should not be used as a diagnostic tool.
Appendix A

Infant Communication Screening Tool: Protocol and Scoring Criteria

The interview/observation portion of the Infant Communication Screening Tool should be administered first, followed by the test portion. On the interview/observation portion of the test the five questions under the precommunicative section are to be observed during the course of the evaluation for all children evaluated. These questions should be recorded by the examiner as they are observed and not asked of the parents. For the rest of the interview/observation portion of the test questions should be asked in the following manner: First the examiner asks the initial (numbered) question in each section, then the examiner records parent examples under the follow-up (lettered) question to which the example applied. For example, under the expressive communication section the examiner initially asks question number 1. "What types of sounds is your child making?" and asks for examples. If the parent responded that the child made raspberries and laughed out loud the examiner noted these examples under the lettered questions G and F respectively. (Question G is "Does your child make raspberries?", question F is "Does your child laugh out loud or squeal?") The examiner continues the assessment at the question following the most advanced skill reported by the parent. In the example above the tester would continued with question number 1 H. "does
your child babble?"

A suggested basal level is determined when a child passes at least three consecutive follow up items under a numbered question. When a child does not pass three items from the starting level, questions are asked in a descending order from last item passed until the child passes at least three items or there are no more items below that point. All interview items are administered in this manner until the child fails four consecutive follow up questions. This is considered a suggested ceiling level for the numbered question. When a ceiling is reached on one question the testing begins at the next numbered question. This is continued until all questions in that section of the assessment are asked. In cases where parents are not able to generate examples under the initial (numbered) question. All follow up questions are asked under each question until a ceiling is reached for that question.

After the interview portion is complete the direct testing portion is administered. Items on the receptive section of the direct test are administered to all children. Items on the expressive portion are administered only to children with a corrected age of eight months or older. Direct test items are administered until the child fails four consecutive items. On the auditory receptive portion of the receptive language section a lack of response from the child is considered a fail. Following the administration of the I.C.S.T. an age range for each child
is determined with the use of appendix C. Each skill which is reported or observed is noted in the response column of appendix C. The total number of skills observed or reported at each age interval is then divided by the total number of skills assessed at each age interval. This gives the percent of items passed at each age interval. A suggested basal age range is determined by finding the highest age interval at which all items are passed. The suggested ceiling age range is the age interval prior to the interval at which all items were failed. The range from the lower of these intervals to the higher is considered to be the overall range for each child. The results can also be presented as a consolidated age range which is the highest age range at which 80% of all items within two consecutive age intervals were passed. These age ranges can be computed separately for expressive and receptive communication. The consolidated age range is used for the comparisons which will be made between the composite tool and the reviewed tools. For children who do not pass 80% of the items at two consecutive age ranges a consolidated age range of 0-4 months can be used provided the child passes at least 80% of the items at the 0-4 month level.

Infants scores are considered to be a fail if the highest score on the obtained consolidated age range falls two or more months below the child's adjusted age. A fail on either the expressive or receptive portion of the I.C.S.T. is considered to be a fail overall.
Appendix B

Infant Communication Screening Tool

PRECOMMUNICATIVE

Observation

The following five items are to be observed during the course of the assessment. If they are not demonstrated spontaneously by the infant the examiner can attempt to elicit them. There is a Y and an N in front of each question the examiner should circle the appropriate letter depending on whether or not a child exhibits the skill. There is space provided under each item for any examiner comments.

A. Does the child smile spontaneously?

Y/N

B. Does the child smile in response to parent/others?

Y/N

C. Does the child respond to facial expressions?

Y/N

D. Does the child track faces or people visually?

Y/N

E. Does the child blink to threat?

Y/N

Interview/Observation

The following questions concern the child's feeding and eating skills. If parents are unable to answer the questions the examiner may ask the parent if the child can have a snack. Also the examiner may be able to observe some of the following skills while the child is drinking from a bottle or playing.
F. "Does your child suck and swallow well?"
   Y/N

G. "What does your child's tongue do when he is sucking?"
   Y/N

H. "Is your child able to eat a cookie easily?"
   Y/N

I. "Does your child drool?" (If yes how often?)
   Y/N

J. "Does your child have any difficulty sucking and swallowing?"
   Y/N

K. "Does your child seem to have good movement of his tongue lips and palate?"
   Y/N

L. "Does your child eat table food including chewy meat?"
   Y/N

EXPRESSIVE COMMUNICATION

Interview/Observation

The following items are interview items to be asked of the parent or caregiver. Items can also be scored if they are observed by the examiner. The examiner should request examples of all skills that are reported and also note examples of skills observed and reported. The initial question for each portion covers a wide topic. Items which require a yes or no answer have a Y/N in front of them. The examiner should circle the appropriate letter depending on if the caregiver reports that a child has or does not have a given skill. Most items require a description or examples and there is space provided under each item for comments and examples to be recorded.
Vocalizations

1. "What types of sounds is your child using?" (request examples)

A. "Does your child cry?" (have parents describe the child's cry.)
   Y/N

B. "Can you tell a difference between your child's cries, for example does he have different cries for anger or hunger or pain?" (Have parent describe different cries examples of each are needed for a yes score.
   Y/N

C. "Does your child coo?" (Have parent describe)
   Y/N

D. "Does your child ever change his pitch while he is making his sounds?" (Have parent describe)
   Y/N

E. "What sounds does your child use for play?" (Ask parent for examples)

F. "Does your child laugh out loud or squeal?"
   Y/N

G. "Does your child babble?" (Have parent describe, from parent's description determine if the child's babbling is monosyllabic or polysyllabic, if necessary use additional questions to make this decision.)
   Y/N

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H. "Besides laughing and crying, what different types of sounds is your child making?" (Ask parents for examples)

(if needed follow-up with the following specific questions. Two example of each are required for a yes answer.)

Y/N — "Does your child make raspberries or blow bubbles?"

Y/N — "Does your child use vowels?"

Y/N — "Does your child use consonants?"

Y/N — "Does your child use consonant vowel combinations?"

I. "Does your child ever sound like he is talking in phrases or sentences?" (Have parent describe, if "no" determine if jargon has been discarded.)

Y/N

J. "Does your child ever sound like he or she is asking a question?" (Have parent describe, Score as yes if child uses question inflection.)

Y/N

2. "When does your child use his sounds?" (Ask for examples.)
A. "Does he make vocalizations or sounds to people, toys or things that move?" (ask for examples.)
   Y/N

B. "If you approach your child and you are talking to him will he respond by talking back?" (Ask parent to describe.)
   Y/N

C. "Does he vocalize when something he likes is taken away?" (Have parent give example.)
   Y/N

D. "Does he use his sounds for vocal play?" (Have parent describe sounds.)
   Y/N

3. "Is your child using any consistent words or sound combinations for objects or people?" (Ask for examples.)
   Y/N

A. "Does your child say mamma or dada?" (if Yes determine if child's "mamma dada" is specific or nonspecific based on parent's examples.)
   Y/N

B. "Does your child use any words other than mamma of dada?" (ask for examples. If No skip other questions under this section except for question F.)
   Y/N
C. "Approximately how many different words does your child use?"

D. "Does he use at least five different words that would be understandable to a stranger?" (Ask for examples.)
   Y/N

E. "Does he attempt to use new words?"
   Y/N

F. "Does he have a word or gesture for want or no?" (ask for example.)
   Y/N

G. "Does your child name objects?"
   Y/N

H. "Does your child Combine words?" (Yes/No) (if Yes request examples.)
   Y/N

I. "Does your child use nouns/verbs and/or plurals?" (if Yes request examples.)
   Y/N

J. "Does your child ask questions?" (if Yes request examples.)
   Y/N

K. "Does your child the name or nick name any of his peers?"
   Y/N
4. "How is your child using his gestures or words?"

A. "Does he use a gesture or a word to make a request or to protest?"
  Y/N

B. "Does your child say "Hi" when someone says "Hi" to him?"
  Y/N

C. "Does your child ever point to pictures or objects as if he wants you to name them."
  Y/N

D. "Does he use a gesture or word to indicate a preference when he is offered a choice?"
  Y/N

E. "Does he use a word or gesture to indicate when he wants more or another?"
  Y/N

F. "Does he wave bye bye?"
  Y/N

G. "Does he answer questions with gestures such as a head shake for "no?"
  Y/N
5. "Does your child imitate sounds or games at home?"
   Y/N

---
A. "Will he imitate his own sounds if you repeat them?"
   (if the answer is yes ask if the child will imitate the sounds that other people make.)
   Y/N

---
B. "Does your child imitate motor acts or gestures?"
   (if yes ask if child imitates putting blocks into a box stacking blocks, rolling a ball back and forth, playing peek-a-boo and clapping hands.)
   Y/N

---
C. "Does your child imitate intonational patterns?"
   (If parent is unsure ask if child ever sounds like he/she is talking on the phone or scolding, request examples.)
   Y/N

---
D. "Does your child imitate games or household routines?"
   Y/N

---
E. "Does your child imitate new words?"
   Y/N

---
F. "Does your child imitate non-speech sounds such as a tongue click, a cough or a motor sound?"
   Y/N

---
G. "Does your child initiate games?"
   Y/N
Receptive Communication

1. "Does your child respond to words or sounds around the home?" (if yes ask if child responds appropriately.)
   Y/N

2. "What sounds does your child recognize or anticipate?"

A. "Does he recognize his bottle." (Check to see if child recognizes it by name or sight)
   Y/N

B. "Does he anticipate his bath?" (Check to see if child anticipates bath by situation, name or the sound of bath water)
   Y/N

3. "What words or gestures does your child understand?" (Check bye-bye)

A. "Does he inhibit to "no"?"
   Y/N

B. "Does he understand Shh, Yes, or Okay?" (if yes note which ones child understands)
   Y/N
C. "Does your child understand the following?"
   (request examples, three answers of no in a row constitute a ceiling for this item.)

Y/N _names of toys ________________________________

Y/N _names of family members________________________

Y/N _names of items of clothing_______________________

Y/N _verbs _________________________________________

Y/N _names of acquaintances __________________________

Y/N _names of outdoor items __________________________

Y/N _descriptive words ______________________________

Y/N _names of household tools _________________________

Y/N _pronouns ______________________________________

Y/N _names of buildings ______________________________

Y/N _names of games _________________________________

D. "Does your child understand simple commands?"
   (come here, bring, show, get)
   Y/N

E. "Does your child listen to stories?" (for how long?)
   Y/N
Appendix B Continued

TEST

All items on the test portion of the appendices must be elicited or observed by the examiner in order to score.

Receptive

1. Auditory Responsiveness.
   (All of the following items require the examiner to note the child's response to the presented stimulus. Possible responses include: a startle, eye widening, quieting, alerting, head turning or localizing. If the child responds with a head turn to localize the stimulus, the examiner should attempt to elicit localization to both the right and left. The sides to which the child localizes a given stimulus should be noted.

A. How does the child respond to sounds and voices in the test environment? (note sounds which child responds to and the child's response, check whispered sounds.)

B. What is child's response to his name? (When child is not looking at examiner should say "Hi" and the child's name. If the child looks toward the examiner should repeat at 90 degrees from the child's line of vision.)
C. How does child respond to the following noisemakers? (presented at 90 degrees from the child's line of vision.)

- crinkling cellophane ____________________________

- a rattle ____________________________

- a bell ____________________________
  (bell should also be presented below child's line of vision and to one side, child's response should be noted to see if child looks to side and then down or looks directly down.)

D. How does child respond to his name while playing with a quiet toy? (both examiner and parent should call child both should be at a 90 degree angle from the child's line of vision.)

E. How does child respond to examiner's request to come up or come here? (examiner should hold hands out to child.)

Many of the following items require test materials. Materials include mainly small toys and pictures. When appropriate materials were taken from the test from which the test item was derived. All materials needed are listed after each question in parenthesis. If the examiner repeats or modifies any portion of the item these modifications and the child's response should be noted. Most items can be scored with a yes or no response. The examiner should circle the Y or the N depending on whether of not the child exhibits a skill. Directions for administering the item are given following the materials list. There is space provided under each question for the examiner to note any comments or examples.
F. Does the child inhibit to "no" when said in a stern voice? (cup, shoe, spoon) The examiner waits until the child moves toward one of the objects and then says "no" in a stern voice. The item is scored as correct if the child stops or pauses and looks to examiner. Y/N

G. Does the child respond to "Don't touch" said in a stern voice. This item is administered in the same manner as the above item and depending on the child's response the examiner may decide to administer this item slightly later during the testing. Y/N

H. Does the child point to, touch or pick up a desired object? (cup, shoe, spoon) Objects are placed in front of child, examiner asks child to "show me the _" indicating an object that the child is not already touching. Item is scored as correct if the child indicates the correct object.

I. Does the child follow a command with a gesture? (ball, car, doll) Objects are placed in front of child after child takes an object examiner asks for object by placing hands palm up towards the child and saying "Give it to me. " Item is scored as correct if child give the object.
J. Does the child follow situational commands without a gesture? (car, piece of paper, bear) The paper is placed on the table the bear is placed to the child's right within reach is the child should lean forward the car is hidden in the examiner's hand and placed behind the bear the bear is then lifted up and the following commands are given in this order.

Y/N _"get the car" If child responds go to

Y/N _"put it on the paper" If the child responds go to

Y/N _"give it to me" No gesture should be used

Each portion is correct if the child follows the direction.

K. Does child point to body parts on self or doll? (doll, stuffed animal or none) Examiner asks child to point to the following body parts.

Y/N _ears Y/N _eyes Y/N _hair

Y/N _mouth Y/N _nose

Items are scored as correct if the child points to the specified body part on either himself or on the doll.
L. Does the child stand up or sit down on command. The examiner asks the child to either stand up or sit down depending on the child's position at the time the question is asked. The item is scored as correct if the child stands up or sits down.

Y/N

M. Does the child discriminate between the following words? (bear, chair, key, tree, box, socks) Items are placed in front of the child in the order listed above. As the examiner places each item the examiner says "see the _". The examiner then cues the child to listen and administers the following commands.

Y/N _"Show me the socks."

Y/N _"Show me the tree."

Y/N _"Show me the bear."

Y/N _"Show me the chair."

Y/N _"Show me the key."

Y/N _"Show me the box."

Items are scored as correct if the child points to or touches the correct item.
N. Does child point to a indicated object. (dog, man, hat, ball, cup, spoon) The examiner ask the child to "Show me the _." Items are scored as correct if the child points to the specified object.

Y/N _"Show me a dog."

Y/N _"Show me a man."

Y/N _"Show me a hat."

O. Does the child look to a familiar person when named. Examiner asks child "Where is _?" and names the person who accompanied the child to the assessment.

Y/N

P. Does child respond to commands involving block and box. (block, small open box) Examiner places the box in front of the child with one half open and facing up and the other half facing down to form a flat surface. The child is then asked to perform the following directions.

Y/N _"Put the block on a box."

Y/N _"Put the block in a box."

Y/N _"Put the block on the table."

Y/N _"Put the block on the floor."
Y/N _"Give the block to me."

Items are scored as correct if the child places the block in the correct location.

Q. Does the child respond to "BYE-BYE" said without a gesture? The examiner says "BYE-BYE" to the child but does not wave or gesture. The item is scored as correct if the child responds.
Y/N

R. Does the child follow two step commands without gestures? (spoon, ball, cup) Place the items in front of the child and give the following commands

Y/N _"give me the spoon and then give the ball to mommy"

Y/N _"give me the ball and give mommy the spoon."

Y/N _"give mommy the ball and then give the cup to me."

Items are scored as correct if the child performs both actions. Reversed actions are acceptable.

Expressive

1. Does the child have normal voice quality. This item is scored as correct if the examiner judges the child's voice quality as normal.
Y/N
2. Does the child imitate the following motor acts? The examiner demonstrates each of the following and then asks the child to try it.

Y/N placing blocks in a box

Y/N stacking blocks

Y/N returning a ball by rolling

Y/N clapping hands

Y/N peek-a-boo

Items are scored as correct if child imitates examiner.

3. Does the child imitate non speech sounds?" The examiner makes the following sound for the child and then asks the child to try it.

Y/N tongue click

Y/N cough

Y/N motor sound (a car may be used when making this sound)
4. Does the child name pictures? (picture of a baby, a shoe, and a ball) The examiner shows the child the picture one at a time and asks the child "What is this?" Items are scored as correct if the child names the picture.

Y/N _child names baby

Y/N _child names shoe

Y/N _child names ball

5. Does child answer question "What is your name?" Examiner asks child his name. Item is scored as correct if child answers correctly.

Y/N

6. Does child answer the following questions correctly?

Y/N _"What does a doggie say?"

Y/N _"What does a kitty say?"

Items are scored as correct if child makes barking or meowing noise or any attempt at the animal's sound.
Appendix C

Composite Tool Sources, Age Ranges and Response Sheet

This checklist should be used to give estimated age ranges for items on Appendix B. This appendix contains both the compiled age range that was obtained by combining the age range from each of the source tools and the source tools from which the range was compiled. The test item from appendix A is noted in the third column. In the final column the examiner should circle a + if a child has a skill and a - if a child does not have a skill. The total number of +'s should be tallied at the end of the age interval.

<table>
<thead>
<tr>
<th>Item Response</th>
<th>Age Range/ Source</th>
<th>Test #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expressive</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>0–4 months</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precommunicative Items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>_sucks and swallows</td>
<td>(0–3)/3</td>
<td>F</td>
</tr>
<tr>
<td>_well</td>
<td>(0–3)/3</td>
<td></td>
</tr>
<tr>
<td>Interview/Observation Items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>_cries</td>
<td>(0–4)/1</td>
<td>1A</td>
</tr>
<tr>
<td>_strong cry</td>
<td>(0–3)/3</td>
<td>1A</td>
</tr>
<tr>
<td>_Coos</td>
<td>(1–3)/2</td>
<td>1C</td>
</tr>
<tr>
<td>_laughs</td>
<td>(0–4)/1–4</td>
<td>1F</td>
</tr>
<tr>
<td>_vocalizations other than crying</td>
<td>(1–3)/3,4</td>
<td>1H</td>
</tr>
<tr>
<td>_differentiated cries</td>
<td>(0–4)/1</td>
<td>1B</td>
</tr>
<tr>
<td>_vocalizes to self, others and objects</td>
<td>(0–6)/1</td>
<td>2A</td>
</tr>
<tr>
<td>_vocalizes to protest removal of toy</td>
<td>(0–4)/1</td>
<td>2C</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Item</th>
<th>Age Range/ Source</th>
<th>Test #</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>_continues to make own sounds when imitated</td>
<td>(0-4)/1</td>
<td>5A</td>
<td></td>
</tr>
<tr>
<td>_reciprocal vocalizations</td>
<td>(1-3)/2</td>
<td>5A</td>
<td>+ -</td>
</tr>
<tr>
<td>_vocalizes when approached by someone vocalizing</td>
<td>(0-4)/1</td>
<td>2B</td>
<td>+ -</td>
</tr>
</tbody>
</table>

**Test Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>Age Range/ Source</th>
<th>Test #</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>_normal voice quality</td>
<td>(0-3)/3</td>
<td>1</td>
<td>+ -</td>
</tr>
</tbody>
</table>

**Total Number**

---

**5-8 months**

**Precommunicative Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>Age Range/ Source</th>
<th>Test #</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>_Smiles spontaneously</td>
<td>(0-6)/7</td>
<td>A</td>
<td>+ -</td>
</tr>
<tr>
<td>_responds to facial expression</td>
<td>(3-5)/2</td>
<td>C</td>
<td>+ -</td>
</tr>
<tr>
<td>_visual tracking</td>
<td>(3-5)/2</td>
<td>D</td>
<td>+ -</td>
</tr>
<tr>
<td>_blinks to threat</td>
<td>(3-5)/2</td>
<td>E</td>
<td>+ -</td>
</tr>
<tr>
<td>_tongue retracts in sucking</td>
<td>(3-6)/3</td>
<td>G</td>
<td>+ -</td>
</tr>
<tr>
<td>_eats cookie easily</td>
<td>(3-6)/3</td>
<td>H</td>
<td>+ -</td>
</tr>
</tbody>
</table>

**Interview Items**

<table>
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<th>Item</th>
<th>Age Range/ Source</th>
<th>Test #</th>
<th>Response</th>
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</thead>
<tbody>
<tr>
<td>_makes raspberries</td>
<td>(1.5-7.5)/2</td>
<td>1H</td>
<td>+ -</td>
</tr>
<tr>
<td>_squeals</td>
<td>(2.5-4.5)/4</td>
<td>1F</td>
<td>+ -</td>
</tr>
<tr>
<td>_uses vocal sounds for play</td>
<td>(0-6)/7</td>
<td>2D</td>
<td>+ -</td>
</tr>
<tr>
<td>_uses variety of vowels and consonant vowel combinations</td>
<td>(4-8)/1</td>
<td>1H</td>
<td>+ -</td>
</tr>
<tr>
<td>_uses inflected vocal play (changes pitch)</td>
<td>(4-8)/1</td>
<td>1D</td>
<td>+ -</td>
</tr>
</tbody>
</table>

**Total Number**

---

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<th>Item</th>
<th>Age Range/ Source</th>
<th>Test #</th>
<th>Response</th>
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</thead>
<tbody>
<tr>
<td>Precommunicative Items</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_little or no drooling</td>
<td>(6-9)/3</td>
<td>I</td>
<td>+ -</td>
</tr>
<tr>
<td>_good chewing, sucking</td>
<td>(9-12)/3</td>
<td>J</td>
<td>+ -</td>
</tr>
<tr>
<td>and swallowing movements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview Items</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_imitate gestural games</td>
<td>(8-9)/2</td>
<td>5</td>
<td>+ -</td>
</tr>
<tr>
<td>_initiate gestural games</td>
<td>(10-12)/2</td>
<td>5G</td>
<td>+ -</td>
</tr>
<tr>
<td>_monosyllabic babbling</td>
<td>(8-10)/2,5,7</td>
<td>1G</td>
<td>+ -</td>
</tr>
<tr>
<td>_uses variety of consonants</td>
<td>(8-12)/1</td>
<td>1H</td>
<td>+ -</td>
</tr>
<tr>
<td>_polysyllabic babbling</td>
<td>(8-10.5)/2,3,7</td>
<td>1G</td>
<td>+ -</td>
</tr>
<tr>
<td>_nonspecific &quot;mamma/dada&quot;</td>
<td>(8-12)/2-4</td>
<td>3A</td>
<td>+ -</td>
</tr>
<tr>
<td>_imitates speech sounds of others</td>
<td>(5.5-12)/1, 3-6</td>
<td>5A</td>
<td>+ -</td>
</tr>
<tr>
<td>_uses motions or gestures to communicate</td>
<td>(7-12)/7,6,3,2</td>
<td>4A&amp;D</td>
<td>+ -</td>
</tr>
<tr>
<td>_answers and adult question with a gesture</td>
<td>(7-12)/7</td>
<td>4D</td>
<td>+ -</td>
</tr>
<tr>
<td>_imitates parent's motor acts (clap hands,</td>
<td>(8-12)/1</td>
<td>5B</td>
<td>+ -</td>
</tr>
<tr>
<td>peek a boo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_uses variety of consonants and consonant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vowel combinations that sound like words</td>
<td>(8-12)/1</td>
<td>1H</td>
<td>+ -</td>
</tr>
<tr>
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<tr>
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<tr>
<td><strong>13-16 months</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Interview Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>uses sentence like intonation patterns (jargon)</em></td>
<td>(12-16)/1</td>
<td>1I</td>
<td></td>
</tr>
<tr>
<td><em>uses &quot;momma/dada&quot; specific</em></td>
<td>(7-14)/2-5</td>
<td>3A</td>
<td></td>
</tr>
<tr>
<td><em>uses question inflection</em></td>
<td>(12-16)/1</td>
<td>1J</td>
<td></td>
</tr>
<tr>
<td><em>first word other than mom/dad</em></td>
<td>(6-18)/2,5</td>
<td>3B</td>
<td></td>
</tr>
<tr>
<td><em>uses words or word like sounds to express wants</em></td>
<td>(13-18)/7</td>
<td>4A</td>
<td></td>
</tr>
<tr>
<td><strong>Test Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>imitates adult putting blocks into box</em></td>
<td>(12-16)/1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Total Number</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| <strong>17-20 months</strong> | | |
| <strong>Precommunicative Items</strong> | | |
| <em>good movement of tongue, lips and palate</em> | (12-18)/3 | K |
| <strong>Interview Items</strong> | | |
| <em>returns ball by rolling back to parent (at home)</em> | (16-20)/1 | 5B |
| <em>imitates parents tongue click, cough, motor sound</em> | (16-20)/1 | 5F |
| <em>uses consistent sound combinations as words</em> | (16-20)/1 | 3B |
| <em>returns the greeting &quot;Hi&quot;</em> | (16-20)/1 | 4B |
| <em>imitates adults intonational patterns</em> | (16-20)/1 | 5C |</p>
<table>
<thead>
<tr>
<th>Item</th>
<th>Age Range/ Source</th>
<th>Test #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses 5+ words</td>
<td>(12-18)/3, 7</td>
<td>3D</td>
</tr>
<tr>
<td>Extensive vocalizations</td>
<td>(12-18)/3</td>
<td>3C&amp;5E</td>
</tr>
<tr>
<td>Attempts new words</td>
<td>(12-18)/3</td>
<td>5E</td>
</tr>
</tbody>
</table>
| Uses 2-4 words other than
  "momma/dada"             | (13-20)/4, 5      | 5C     |
| Test Items               |                   |        |
| Imitates adult stacking  | (16-20)/1         | 2      |
| Block                    |                   |        |

Total Number __________

21-24 months

Precommunitive Items

Smiles in response to
  caregiver/other            | (<24)/6           | B      |

Eats table food including
  chewy meat                 | (18-24)/3         | L      |

Interview Items

Points to pictures or
  objects as if requesting
  a name                     | (20-24)/1         | 4C     |

Uses negation "no/no-no"    | (20-24)/1         | 3F     |

Discards jargon             | (18-24)/3         | 1I     |

Simple phrases or sentences
  2+ words                   | (12-24)/1-3, 5-7  | 3H     |

Uses nouns, verbs,
  some pronouns             | (19-24)/7         | 3I     |

Let adult know when wants
  more or another through
  words or gestures         | (19-24)/7         | 4E     |

Uses 15+ single words       | (19-24)/7         | 3D     |

Uses 50+ single words       | (18-26)/3, 2      | 3D     |
<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Age Range/ Source</th>
<th>Test #</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Items</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>names picture of baby in response to question &quot;what's that?&quot;</td>
<td>(20-24)/1,3</td>
<td>4</td>
<td>+ -</td>
</tr>
<tr>
<td></td>
<td>names familiar objects</td>
<td>(18-24)/3</td>
<td>4</td>
<td>+ -</td>
</tr>
<tr>
<td></td>
<td>answers questions (&quot;what is your name?&quot;, &quot;what does a doggie say?&quot;, &quot;what does a kitty say?&quot;</td>
<td>(18-24)/3</td>
<td>6</td>
<td>+ -</td>
</tr>
</tbody>
</table>

Total Number

**Receptive Communication**

0-4 months

**Interview Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Age Range/ Source</th>
<th>Test #</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>recognizes sounds</td>
<td>(0-3)/2</td>
<td>1</td>
<td>+ -</td>
</tr>
<tr>
<td></td>
<td>responds to different sounds at home</td>
<td>(0-4)/1</td>
<td>1</td>
<td>+ -</td>
</tr>
</tbody>
</table>

**Test Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Age Range/ Source</th>
<th>Test #</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>alerts/responds to voice</td>
<td>(0-3)/1,2,3</td>
<td>1A.</td>
<td>+ -</td>
</tr>
<tr>
<td></td>
<td>orients to lateral voice</td>
<td>(0-3)/2</td>
<td>1B.</td>
<td>+ -</td>
</tr>
<tr>
<td></td>
<td>reacts/startles to sudden sound</td>
<td>(0-3)/3</td>
<td>1</td>
<td>+ -</td>
</tr>
</tbody>
</table>

Total Number

5-8 months

**Test Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Age Range/ Source</th>
<th>Test #</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>responds to bell</td>
<td>(0-6)/4,5.</td>
<td>1C</td>
<td>+ -</td>
</tr>
<tr>
<td></td>
<td>turns to locate rattle/cellophane both sides</td>
<td>(4-8)/1</td>
<td>1C</td>
<td>+ -</td>
</tr>
<tr>
<td>Item</td>
<td>Age Range/ Source</td>
<td>Test #</td>
<td>Response</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------</td>
<td>--------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>_responds to &quot;look here&quot; right</td>
<td>(4-8)/1</td>
<td>1B</td>
<td>+ -</td>
<td></td>
</tr>
<tr>
<td>_turns to lateral bell</td>
<td>(2-5)/2</td>
<td>1C</td>
<td>+ -</td>
<td></td>
</tr>
<tr>
<td>_turns to locate bell</td>
<td>(2-5)/4</td>
<td>1C</td>
<td>+ -</td>
<td></td>
</tr>
<tr>
<td>_turns to whisper</td>
<td>(0-6)/5</td>
<td>1A</td>
<td>+ -</td>
<td></td>
</tr>
<tr>
<td>_turns to voice</td>
<td>(3-9)/6,4,3,1</td>
<td>1B</td>
<td>+ -</td>
<td></td>
</tr>
<tr>
<td>_turns to unfamiliar voice calling name</td>
<td>(4-8)/1</td>
<td>ID</td>
<td>+ -</td>
<td></td>
</tr>
<tr>
<td>while engrossed with toy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_indirectly locates bell at diagonal</td>
<td>(3-8)/2</td>
<td>1C</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

Total Number __________

9-12 months

Interview Items

_inhibits to "no"                             | (5-12)/3,5,6,2    | 3A     | + -      |

Item                                      | Age Range/ Source | Test # |
Response                                   |                   |       |
_respects to "bye-bye" (gesture)            | (6-12)/5          | 3      | + -      |
_understands gestures                       | (9-12)/3          | 3      | + -      |
_respects to "come up" or "come here" for parent | (8-12)/1,6       | 1D     | + -      |
_understands at least ten words             | (<12)/6           | 3C     | + -      |

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<th>Age Range/ Source</th>
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<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>_looks toward sounds</td>
<td>(0-12)/3,7</td>
<td>1C</td>
<td>+ -</td>
</tr>
<tr>
<td>_responds to &quot;look here&quot; left</td>
<td>(8-12)/1</td>
<td>1B</td>
<td>+ -</td>
</tr>
<tr>
<td>response to familiar voice calling name while engrossed with toy</td>
<td>(8-12)/1</td>
<td>1D</td>
<td>+ -</td>
</tr>
<tr>
<td>_inhibits to &quot;no&quot;</td>
<td>(5-12)/3,5,6,2</td>
<td>1F</td>
<td>+ -</td>
</tr>
<tr>
<td>_understands and responds to own name</td>
<td>(6-9)/3</td>
<td>1B&amp;D</td>
<td>+ -</td>
</tr>
<tr>
<td>_listens when spoken to by parent</td>
<td>(&lt;12)/6</td>
<td>1A</td>
<td>+ -</td>
</tr>
</tbody>
</table>

**Total Number**

**13-16 months**

<table>
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<tr>
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<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>_appropriate response to different sounds around the house</td>
<td>(12-16)/1</td>
<td>1</td>
<td>+ -</td>
</tr>
<tr>
<td>_responds to specific words at home</td>
<td>(12-16)/1</td>
<td>3C</td>
<td>+ -</td>
</tr>
<tr>
<td>_understands names of toys family members, items of clothing, verbs</td>
<td>(12-16)/1</td>
<td>3C</td>
<td>+ -</td>
</tr>
</tbody>
</table>

**Test Items**

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<th>Response</th>
</tr>
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<tbody>
<tr>
<td>_localizes to bell (diagonal)</td>
<td>(10-14)/2</td>
<td>1C</td>
<td>+ -</td>
</tr>
<tr>
<td>_responds to &quot;come up&quot; or &quot;come here&quot;</td>
<td>(12-16)/1</td>
<td>1E</td>
<td>+ -</td>
</tr>
</tbody>
</table>

**Total Number**

**17-20 months**

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<th>Age Range/ Source</th>
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<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>_identifies body parts at home</td>
<td>(16-20)/1</td>
<td>3C</td>
<td>+ -</td>
</tr>
<tr>
<td>Item</td>
<td>Age Range/ Source</td>
<td>Test #</td>
<td>Response</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------------</td>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td><em>shows item of clothing</em></td>
<td>(12-18)/5</td>
<td>3C</td>
<td>+ -</td>
</tr>
<tr>
<td><em>follows one step command</em></td>
<td>(8-18)/2,7</td>
<td>3D</td>
<td>+ -</td>
</tr>
<tr>
<td><em>understands: names of acquaintances, outdoor items, descriptive words.</em></td>
<td>(16-20)/1</td>
<td>3C</td>
<td>+ -</td>
</tr>
<tr>
<td><strong>Test Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>understands simple questions</em></td>
<td>(12-18)/3</td>
<td>1P</td>
<td>+ -</td>
</tr>
<tr>
<td><em>responds to intonation (don't touch)</em></td>
<td>(16-20)/1</td>
<td>1G/I-3D**</td>
<td>+ -</td>
</tr>
<tr>
<td><em>response to &quot;sit down&quot; and/or &quot;stand up&quot;</em></td>
<td>(16-20)/1</td>
<td>1M</td>
<td>+ -</td>
</tr>
<tr>
<td><em>responds to &quot;give it to me&quot; with gesture</em></td>
<td>(16-20)/1</td>
<td>1I</td>
<td>+ -</td>
</tr>
<tr>
<td><em>responds to &quot;get the car&quot;</em></td>
<td>(16-20)/1</td>
<td>1J</td>
<td>+ -</td>
</tr>
<tr>
<td><em>identifies object by pointing</em></td>
<td>(12-18)/3</td>
<td>IH</td>
<td>+ -</td>
</tr>
</tbody>
</table>

Total Number __________

**21-24 months**

**Interview Items**

| _understanding of meaning of yes/okay_                              | (12-24)/6         | 3B     | + -      |
| _listens to a story for at least five minutes_                       | (12-24)/6         | 3E     | + -      |
| _brings object on request_                                           | (18-24)/5         | 3D     | + -      |

**Test Items**

<p>| <em>identifies at least one body part</em>                                  | (12-24)/1-6       | 1K     | + -      |</p>
<table>
<thead>
<tr>
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<th>Age Range/ Source</th>
<th>Test # Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>understands situational commands without gesture</td>
<td>(16-24)/1</td>
<td>1J + -</td>
</tr>
<tr>
<td>follows prepositional command (in)</td>
<td>(20-24)/1</td>
<td>1P + -</td>
</tr>
<tr>
<td>follows directions (put the block on the table, give the block to me/mommy put the block on the floor)</td>
<td>(18-24)/3</td>
<td>1N + -</td>
</tr>
<tr>
<td>follows directions (show me a dog, show me a man, show me a hat)</td>
<td>(18-24)/3</td>
<td>1N + -</td>
</tr>
<tr>
<td>responds to specific words</td>
<td>(20-24)/1</td>
<td>1H + -</td>
</tr>
<tr>
<td>responds to &quot;give it to me&quot; (car)</td>
<td>(20-24)/1</td>
<td>1J + -</td>
</tr>
<tr>
<td>finds socks, tree, bear (socks, tree, bear, key, chair, box)</td>
<td>(20-24)/1</td>
<td>1M + -</td>
</tr>
<tr>
<td>responds to name of familiar person</td>
<td>(20-24)/1</td>
<td>1N + -</td>
</tr>
<tr>
<td>listens attentively to instructions</td>
<td>(12-24)/6</td>
<td>1J + -</td>
</tr>
<tr>
<td>follows two step command without gesture</td>
<td>(12-25)/2,6</td>
<td>1R + -</td>
</tr>
</tbody>
</table>

Total Number __________

* - This item can also be scored correct if the child passes the expressive test item number 6

** - This item can also be scored as correct if the child passes the receptive interview item number 3 D
Key to Tests

1. Sequenced Inventory of communication development
2. Early Language Milestone Scale
4. Denver Developmental Screening Test
5. The Boyd Developmental Progress scale
6. The Vineland Adaptive Behavior Scales
7. The Communication Development Age Scale from the Developmental profile.
REFERENCES


