

Early Childhood Measurement and Evaluation Tool Review

Early Childhood Measurement and Evaluation (ECME), a portfolio within CUP, produces *Early Childhood Measurement Tool Reviews* as a resource for those who conduct screening, assessment, and evaluation. To learn more about ECME and CUP, provide feedback, or to access additional reviews, visit our website at www.cup.ualberta.ca or email us at cup@ualberta.ca

Nipissing District Developmental Screen (NDDS)

Measurement Areas:

The NDDS is a developmental screen, which is a short checklist of some of the most critical skills that a child should master by a particular age. It is a quick survey to determine any areas that may require some extra help. The questionnaire addresses the following developmental areas:

Vision

- Hearing
 - Communication (Speech and Language)
 - Gross motor
 - Fine motor
 - Cognitive
 - Social-emotional
 - Self-help skills
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- } In the child's first language

The NDDS screens coincide with immunization schedules and provide parents with reminders of key developmental stages. There are 13 age specific forms of the NDDS ranging from 1 month to six years. The forms are specific to 1 & 2 months, 4 months, 6 months, 9 months, 12 months, 15 months, 18 months, 2 years, 30 months, 3 years, 4 years, 5 years and 6 years.

Purpose:

The NDDS was designed to provide a user-friendly method for documenting the development and progress of infants and children. The NDDS provides a general overview of the child's development the day the screening takes place. According to author report, the NDDS allows parents to:

- Learn about their child's development
- Recognize their child's skills and abilities
- Identify developmental areas that may need extra attention

The NDDS is designed to be completed by parents or health / childcare professionals

Length and Structure:

On the 13 age specific forms of the NDDS the number of items, on each questionnaire, ranges from 4 to 22. The parent or caregiver is required to answer the questionnaire, which takes about 5 minutes to complete. The NDDS was designed to elicit a "Yes" or "No" response, with "No" indicating a possible developmental delay. If two or more "No" responses (two-flag rule) are marked, a referral to a healthcare and/or childcare professional is recommended.

Materials:

A complete set of NDDS screens consists of 13 pads (corresponding to the 13 age ranges) of 50 sheets with detachable activity sheets for \$100 Canadian. A specific screen (at a specific age range) can be ordered, which consists of one pad of 50 sheets with detachable activities sheets for \$8 Canadian.

Each page of the screen can only be used once for an individual infant/child. The screen form can only be photocopied for archival purposes, or in order to provide a copy to a healthcare/childcare professional.

Accessibility:

The NDDS is available in English, French, Spanish, Chinese and Vietnamese.

Administration, Scoring, and Interpretation:

The NDDS is completed by parents or caregivers with the support of a professional. If two or more "No" responses are marked a referral to a health care and/or child care professional is recommended. The NDDS will provide training to assist customers with the correct use of the NDDS. Fees payable to the trainer/facilitator are: for groups of 50 people or fewer (one facilitator will be provided at a rate of \$500.00/half day, plus expenses), for groups of more than 50 people (two or more facilitators are recommended at a cost of \$500.00/half day/plus expenses). NDDS also offers training through distance education technology.

Subscales:

The NDDS measures development across several domains, however, they do not calculate a total score or subscale score to determine developmental level.

Documentation:

Each questionnaire in the NDDS has instructions on the back of the form and instructions for use are available on the website at www.ndds.ca. There is no published manual for the use of the NDDS.

Norming Sample:

The NDDS items and questionnaires were not developed utilizing a normative sample. The items and questionnaires were developed by a multi-disciplinary committee using their expertise and standardized and non-standardized developmental instruments.

Validity and Reliability:

As part of the "Healthy Babies/Healthy Children" (HBHC) evaluation, the reliability and validity of the NDDS was examined. They determined that the NDDS has face validity to the extent that the items in the NDDS were designed by a multi-disciplinary committee using standardized and non-standardized developmental instruments (Nagy, Ryan, & Robinson, 2002).

- The flagging rates for the 12 month screen: 31.1% of children were identified by parents and 40.5% by non-parents, as missing one or more behaviours. If the flagging were changed to require two absent behaviours, parent's identification would be reduced to 13.5%.
- The overall rate between parent and non-parent agreement (inter-rater agreement) when they completed the 12 month screen was 71%, and the item rate of agreement was 92.5%.
- The agreement between the Nipissing and the ASQ was 78.3%. The Nipissing results in the identification of many more cases (**these results are based on the child missing one or more behaviours**). When HBHC changed the flagging rule of the Nipissing to missing two behaviours, the rate of agreement rose to 93.3%.
- The Nipissing was shown to be consistent over time with an overall agreement of 65% between the 12 and 18 month questionnaires.

Dahinten and Ford (2004) evaluated the concurrent validity of the NDDS for a sample of 118 children aged 4, 18 and 24 months. This was accomplished by comparing the NDDS results to a standardized measure of child development (*Bayley Scales of Infant Development-II*).

- They evaluated the effectiveness of using one-flag or two-flag criteria. They determined that using the two-flag rule improves the probability of identifying that a child has a developmental delay.
- The sensitivity and specificity rates are not provided for the NDDS, however, Dahinten and Ford (2004) used cross-tabulated data to demonstrate the agreement between the parent completed NDDS and the BSID-II. With this they produced a **sensitivity** rate of 83% and a **specificity** rate of 95% when using the two-flag rule.
- Results indicated that the NDDS is effective at identifying children with severe delays; however, children with mild to moderate delays were not as easily identified.
- They found that the selection of cut-off points is very important when determining the psychometric validity of an instrument and when designing the cut-off points to be used for screening instruments. For more specific details, of the cut-off points used in this study the read is referred to the original paper (Dahinten & Ford, 2004).

Publication Information:

Publisher website: www.ndds.ca

Materials Used for Tool Review:

Benzie, K.M. (2004). Early Childhood Developmental Screening State-of-the-Evidence Review. Community Partnership Branch, Alberta Children's Services, Edmonton, AB.

Dahinten, S.V., & Ford, L. (2004). Validation of the Nipissing District Developmental Screen for use with infants and toddlers – working paper.

[http://www.earlylearning.ubc.ca/documents/NDDS%204.1%20Dev%20Screening%20Research%20Report%20\(2004%2011%2015\)%20Final.pdf](http://www.earlylearning.ubc.ca/documents/NDDS%204.1%20Dev%20Screening%20Research%20Report%20(2004%2011%2015)%20Final.pdf) [retrieved March 12, 2007]

Nagy, P., Ryan, B., & Robinson, R. (2002, December). Nipissing Instrument Validation Report, 2001-2002. In *Evaluation of the Healthy Babies, Healthy Children Program*. Unpublished Report of the Early Years and Healthy Child Development Branch, Ontario Ministry of Community, Family and Children's Services.

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