

EARLY IDENTIFICATION AND INTERVENTION: IT DOES MAKE A DIFFERENCE

By Christine Yoshinaga-Itano, PhD

The technology now available to implement universal newborn hearing programs affords the profession of audiology an opportunity, for the first time, of examining the impact of early identification-and intervention of deaf and hard-of-hearing infants. The research findings both provide substantiation of some previously held clinical beliefs while also demonstrating some surprising results.

- Early identification of hearing loss followed by immediate and appropriate intervention can now be defined as prior to six months of age.
- The benefits of early identification and intervention (prior to 6 months) can be demonstrated from twelve months of age through seven years of age (Moeller, 1998; Yoshinaga-Itano, Sedey, Coulter & Mehl, in press).
- Children who are early identified and receive intervention prior to six months of age have significantly better receptive language, expressive language, personal-social skills, receptive vocabulary, expressive vocabulary and speech production (Apuzzo & Yoshinaga-Itano, 1995; Moeller, 1998; Yoshinaga-Itano et al, in press; Yoshinaga-Itano & Apuzzo, in press;).
- Early-identified children with hearing loss and no secondary disability, beginning intervention prior to 6 months of age, demonstrate language development throughout the early childhood period (birth through five years of age) within the low normal range of development.
- Cognitive abilities and language abilities are similar for children who are early identified with early intervention regardless of whether their skills fall within the normal or significantly delayed range.
- Early-identified children whose hearing losses are identified between birth and two months of age, three and four months of age, and five and six months of age, evidence almost identical language developmental functioning (Yoshinaga-Itano, in press).
- Late-identified children, whose hearing losses were identified between 7-12 months of age, 13-18 months of age, 19-24 months of age and 25-30 months of age, have similar language developmental profiles which are not significantly different from one another (Apuzzo & Yoshinaga-Itano, 1995; Yoshinaga-Itano et al, in press).
- Late-identified children have developmental language quotients which remain at fifty to sixty percent of their chronological age throughout their early childhood period (Yoshinaga-Itano et al, in press).
- Language development of children who are early-identified with early intervention does not differ by degree of hearing loss, from mild through profound (Yoshinaga-Itano et al, in press; Yoshinaga-Itano & Apuzzo, under review).
- The language development of children with later-identified hearing loss does differ significantly by degree of hearing loss (Lyders-Gustason, 1998).

- Children with mild, moderate, moderate-severe, severe and profound hearing losses benefit from early identification and intervention (Yoshinaga-Itano et al, in press).
- Children with both normal and low cognitive abilities benefit from early identification and intervention (Yoshinaga-Itano et al, in press).
- Children of both genders benefit from early identification and intervention (Yoshinaga-Itano et al, in press).
- Children who use speech as their mode of communication and those who use sign language benefit from early identification and intervention. (Yoshinaga-Itano et al, in press).
- Children whose mothers have a sixth grade education or less and mothers with high school education through graduate degrees benefit from early identification and intervention (Yoshinaga-Itano et al, in press).
- Children from ethnic minority populations and those from Caucasian backgrounds benefit from early identification and intervention (Yoshinaga-Itano et al, in press).
- Children with hearing loss only and those with secondary disabilities benefit from early identification and intervention (Yoshinaga-Itano et al, in press).
- Children at all test ages between twelve months and seven years of age benefit from early identification and intervention (Moeller, 1998; Stredler-Brown, 1998; Yoshinaga-Itano et al, in press).
- Early babbling of deaf and hard-of-hearing infants, in the first year of life, cannot be predicted by degree of hearing loss, age of identification or presence of secondary disabilities (Wallace, 1998 Yoshinaga-Itano, 1998;).
- Early babbling of deaf and hard-of-hearing infants does not predict later speech intelligibility (Yoshinaga-itano, 1998; Wallace, 1998).
- Babbling at twelve months of age is predicted by degree of hearing loss and also predicts later speech intelligibility.
- Degree of hearing loss is the most powerful predictor of later speech intelligibility.
- Children with no speech ability in the first two years of life can develop intelligible speech (Obenchain, 1998).
- Parents of early-identified children report significantly less stress than parents of later-identified children (Pipp-Siegel, Pressman & Yoshinaga-Itano, under preparation).

Acknowledgments

These studies were supported by the National Institutes of Health (NOI-DC-4-2141), Maternal and Child Health, the Colorado Department of Education, the University of Colorado, Boulder, and the Colorado Department of Public Health and Environment.

References

Apuzzo, M., & Yoshinaga-Itano, C. (1995). Early identification of infants with significant hearing loss and the Minnesota Child Development Inventory, *Seminars in Hearing*, 16(2), 124-139.

- Lyders-Gustason, R. (1998). The effect of degree of hearing loss on language ability of early- and late identified deaf and hard-of-hearing children. Unpublished masters thesis, May, 1998.
- Moeller, M.P. (1998). *A diagnostic early intervention project: Strategies and outcomes*. National Symposium on Hearing in Infants, Denver, CO, July, 1998.
- Obenchain, P. (1998). *Factors and linguistic predictors of competence in speech development by children with hearing impairments*. Unpublished manuscript. University of Colorado, Boulder, CO.
- Pipp-Siegel, S., Pressman, L., & Yoshinaga-Itano, C. (Under preparation). *The relationship between parental stress and early identification of hearing loss*.
- Stredler-Brown, A. (1998). *The development of preschool-aged deaf and hard-of-hearing children in Colorado*. Report to the Colorado Department of Education.
- Wallace, V. (1998). *The development of babble and meaningful vocalization in deaf and hard-of-hearing infants*. Unpublished manuscript. University of Colorado: Boulder, CO.
- Yoshinaga-Itano, C. (in press). *Exploring predictors of successful communicative outcome of deaf and hard-of-hearing children of hearing parents*. Proceedings of the 7th Symposium: Cochlear Implants in Children, Iowa City, IA.
- Yoshinaga-Itano, C. (1998). *Factors predictive of successful outcomes of deaf and hard-of-hearing children of hearing parents*. National Symposium on Infant Hearing, Denver, CO, July, 1998.
- Yoshinaga-Itano, C., Sedey, A., Coulter, D., & Mehl, A. (in press). The language of early- and later-identified children with hearing loss. *Pediatrics*, 102(5).
- Yoshinaga-Itano, C., & Apuzzo, M. (1999). Identification of hearing loss after 18 months is not early enough. *American Annals of the Deaf*, December, 1999.
- Yoshinaga-Itano, C., & Apuzzo, M. (1999). The development of deaf and hard-of-hearing children identified early through the high risk registry. *American Annals of the Deaf*, December 1999..

Christine Yoshinaga-Itano, Ph.D., is Chair, Department of Speech, Language, and Hearing Sciences, University of Colorado at Boulder, and a researcher in early identification of hearing loss in infants.