

Newborn hearing screening linked with improved developmental outcomes for hearing impaired children

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Children with permanent hearing impairment who received hearing screening as newborns had better general and language developmental outcomes and quality of life at ages 3 to 5 years compared to newborns who received hearing screening through behavioral testing, according to a study in the October 20 issue of *JAMA*.

Permanent childhood [hearing impairment](#) is a serious, relatively common condition. Auditory input is essential for development and social functioning, so early awareness of a child's hearing ability is important in creating opportunities for early amplification when necessary, according to background information in the article. "Until some years ago, distraction hearing screening (behavioral testing) was used for hearing screening around the age of 9 months. Newborn hearing screening (within 2 weeks of birth) was introduced in many developed countries because it was thought that the earlier permanent childhood hearing impairment was diagnosed, the less developmentally disadvantaged children would become. However, to date no strong evidence exists for universal implementation of newborn hearing screening," the authors write.

Anna M. H. Korver, M.D., Ph.D., of Leiden University Medical Center, Leiden, the Netherlands, and colleagues studied the association between developmental outcomes and newborn hearing screening compared with distraction hearing screening in 3- to 5-year-old children with permanent

childhood hearing impairment. Between 2002 and 2006, 65 regions in the Netherlands replaced distraction hearing screening with newborn hearing screening. The type of hearing screening offered was based on availability at the place and date of birth and was independent of developmental prognoses of individual children. All children born in the Netherlands between 2003 and 2005 were included. At the age of 3 to 5 years, all children with permanent childhood hearing impairment were identified. Evaluation ended December 2009.

During the study period, 335,560 children were born in a region where newborn hearing screening was offered and 234,826 in a region where distraction hearing screening was offered. At follow-up, 263 children in a newborn hearing screening region had been diagnosed with permanent childhood hearing impairment (0.78 per 1,000 children) and 171 children in a distraction hearing screening region (0.73 per 1,000 children).

Three hundred one children (69.4 percent) participated in analysis of general performance measures. In this analysis, the 2 groups (newborn hearing screening, $n = 183$; distraction hearing screening, $n = 118$) were comparable in degree of hearing impairment and type of education. Analysis of extensive developmental outcomes included 80 children born in newborn hearing screening regions and 70 in distraction hearing screening regions. The analysis showed that overall, children in newborn hearing screening regions had higher developmental outcome scores compared with children in distraction hearing screening regions, including on measures of social development, gross motor development and quality of life.

"The results of [this] study add evidence to the presumed importance and effectiveness of the implementation of universal newborn hearing screening programs. Because this study was performed nationwide, among all [children](#) born in the Netherlands in 3 subsequent years, we

believe our results can be generalized to other countries with universal hearing screening programs, but the feasibility and effectiveness of newborn hearing screening programs in other countries remain to be studied," the authors write.

More information: JAMA. 2010;304[15]:1701-1708.

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