

Newborn Screening for Congenital Cytomegalovirus Infection

University of Minnesota

Up to 200 babies every year are born deaf or hearing impaired in Minnesota. Validated research shows that when a deaf child who is identified and exposed to language before 6 months of age, that child will have educational skills equal to that of hearing children. Deaf children who are identified later have difficulty in catching up and some never are able to catch up to other children.

In our own clinical practice, we take care of children who are deaf, but who were not picked up by newborn screening because hearing screening does not yet test for CMV infection. These children who missed the opportunity to receive early care inspired us as doctors to perform research studies that would potentially help children obtain an early diagnosis of deafness.

Currently, babies are screened for hearing loss using devices called automated brain stem response or otoacoustic emissions. Both tests are hearing tests where a headphones or tiny microphones are put on the baby's ears and the hearing is recorded. In order to help identify children with hearing loss as early as possible, we are conducting a study on newborn screening blood spots to determine if infants who have a genetic or infectious form of hearing loss can be identified by newborn hearing screening.

We are asking the question: Is newborn hearing screening adequate or should we be using a biological marker for hearing loss by testing the most common genetic and infectious causes of hearing loss from newborn screening bloodspots?

To perform our studies, we obtained two sets of blood spots from the Department of Health. One set comes from infants who passed hearing screening and the other from infants who failed newborn hearing screening. We are in the process of determining if infants who have a genetic or infectious form of deafness have passed or failed newborn hearing screening and how frequently this happens.

This study protocol underwent close scrutiny and approval from the Institutional Review Board of the University of Minnesota and the Minnesota Department of Health. This study is funded by the March of Dimes. Only hearing loss genes and cytomegalovirus are tested in the study; no individual can be identified from the study.

Our hope for the future is that we can diagnose hearing loss using blood spots and help infants obtain appropriate care for hearing loss as early as possible.