

Completed Research Projects With CDC-EHDI Funding

Intrauterine Cytomegalovirus Infection and Hearing Loss in Young Children - Utah Department of Health, University of Utah School of Medicine, and University of Utah School of Medicine

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Background: Human cytomegalovirus (CMV) is the most frequently transmitted intrauterine virus, affecting an estimated 0.5 to 1% of live births. Congenital CMV infection is associated with an increased risk of several developmental disabilities, including cerebral palsy, seizures, mental retardation, vision loss, and hearing loss. Congenital CMV infection is symptomatic in about one third of cases and completely asymptomatic in two thirds of cases. It is estimated that 50-90% of newborns with symptomatic CMV infections will develop a sensorineural hearing loss. Likewise, about 5-15% of newborns with asymptomatic CMV infections develop hearing loss. Thus, approximately 3,000-4,000 infants each year in the United States will develop permanent hearing loss because of intrauterine CMV infections, making it a major non-genetic cause of hearing loss among children, and representing a substantial economic burden for the health care systems of the United States. Although the effect of congenital CMV infection upon the health of children is undisputed, the role and cost-effectiveness of screening newborns for CMV infection have not been determined.

Purpose: The purpose of this study was to investigate the feasibility of CMV screening.

Methods: Saliva samples were collected from a sample of newborns at four Utah hospitals.

Summary of Results: Out of 1,555 saliva samples, 6 were positive for CMV infection (none of the children from whom these samples were collected failed their hearing screening). The cost of the CMV assay was about \$20 per infant. While Utah appears to have a low prevalence of CMV infection, the study demonstrates the feasibility of universal screening for CMV. Results of the study have been published as "Universal Screening of Newborn Infants for Congenital Cytomegalovirus Infection and Hearing Loss," Petheram et al., *Journal of Investigative Medicine*, Vol. 53, Issue 01, January 2005. (Updated 10/2006)