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Effect of Breastfeeding and Additional Household Children on Cytomegalovirus Seroprevalence among U.S. Children 1 to 5 Years of Age

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Congenital cytomegalovirus (CMV) infection may occur as a consequence of primary or nonprimary maternal infection during pregnancy (1). Postnatal CMV infection may develop in up to 40% of infants who are fed breast milk for ≥1 month by a CMV-seropositive mother (1). Further spread of CMV may result from child-to-child transmission in the household or day care center (2).

In the 2011–2012 National Health and Nutrition Examination Survey (NHANES), overall CMV IgG seroprevalence among U.S. children 1 to 5 years of age was 21%, with a significant increase among those who were 5 years old (31%) compared to those who were 1 year old (12%) (3). CMV seroprevalence was significantly higher among non-Hispanic black (25%) and Hispanic (31%) children than among non-Hispanic white children (11%) and among children living below versus at or above the poverty line (31% versus 15%) (3). Here, we describe additional results for the history of breastfeeding and number of household children ≤5 years old.

NHANES, a nationally representative cross-sectional survey of the civilian noninstitutionalized U.S. population (4), included CMV antibody testing for 699 (62%) of the 1,135 children who were 1 to 5 years old examined in 2011 to 2012. To assess independent predictors of CMV IgG seroprevalence, we repeated the analysis as described in the previous report (3) and performed additional logistic-regression modeling on 636 children with complete data (out of the 682 children in the survey born in the 50 U.S. states and the District of Columbia). We performed all analyses using SUDAAN version 9.0 (Research Triangle Institute, Research Triangle Park, NC); results for which the *P* value was <0.05 were considered statistically significant.

After adjusting for age, race/Hispanic origin, and poverty level, CMV IgG seroprevalence was significantly higher among children who were breastfed for >6 months (adjusted odds ratio [aOR] = 3.1; 95% confidence interval [CI] = 1.3 to 7.5), but not among children who were breastfed for up to 6 months (aOR = 1.4; 95% CI = 0.9 to 2.1), than among children who were not breastfed and among children living with 1 or more ≤5-year-old children in the household versus no other children (aOR = 2.0; 95% CI = 1.2 to 3.5).

In the United States, demographic differences in CMV seroprevalence among children 1 to 5 years of age likely result from demographic differences in maternal CMV seroprevalence, breastfeeding, and child care practices. CMV seroprevalence is ≥90% among non-Hispanic black and Hispanic mothers and 53% among non-Hispanic white mothers (5); black mothers are the least likely to initiate and maintain breastfeeding compared to Hispanic and white mothers (6). In our study, the maternal CMV serostatus

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and attendance of the child in day care were not available, and children <1 year of age were not tested because of the possible residual presence of maternal antibodies.

Young children who acquire CMV infection rarely present symptoms but tend to shed large amounts of virus in saliva and urine for long durations (7). Susceptible pregnant women who have contact with young children are at risk of acquiring a primary CMV infection (8). Strategies that reduce child-to-child CMV transmission, including CMV vaccines, may reduce child-to-mother transmission and thus reduce the burden of congenital CMV infection (9, 10).

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