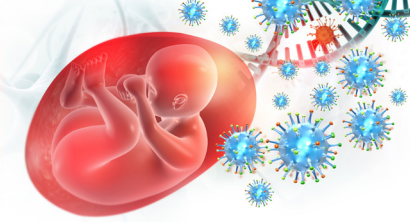
CYTOMEGALOVIRUS — NEONATE



NEONATE

	Congenital Cytomegalovirus (cCMV)
Incidence	• cCMV occurs in about 1 out of 200 births in the U.S. • cCMV is the most common infectious cause of birth defects in the U.S. • 90% of infants born with cCMV will have no apparent signs or symptoms but can go on to develop symptoms. • 20% of babies born with cCMV will have hearing loss or other long-term symptoms.
Mortality	• U.S. Indigenous and African Americans are twice as likely to die of cCMV than non-Hispanic White infants. • In symptomatic infants, death attributable to cCMV is 3-10%.
Risks Factors	• People caring for children, in home or at work, specifically childcare workers • Race • Low socio-economic status • oung maternal age • HIV infection
Signs and Symptoms	About 10% of newborns with cCMV infection have signs at birth: • A petechial rash • Jaundice • Microcephaly • Fetal growth restriction • Enlarged spleen • Seizures • Retinitis • Hearing loss in one or both ears
Newborn Screening/ Diagnostic Labs	Targeted hearing screening programs are in some states. • If a newborn hearing screen is referred, a CMV test is done typically by a buccal swab. • Confirmation by urine testing. Some states have mandated universal screening. • Every newborn is screened at birth. • Saliva buccal swab screening has a > 95% sensitivity. • Confirmation by urine testing.
Treatments	• Moderate to severe symptoms (with or without CNS involvement) = oral valganciclovir for 6 months o Doses will be adjusted each month to adjust for infant weight changes. • Neonates with isolated sensorineural hearing loss have improved audiologic outcomes after 6 weeks of oral valganciclovir treatment when started within 13 weeks of birth. • For neonates unable to absorb medications via the GI tract (i.e., NEC or other bowel disorders), IV ganciclovir is used initially. • All infants born with cCMV should have their hearing and development monitored. • cCMV is an automatic qualifier for early intervention services in many states

CONGENITAL CMV TREATMENT

Disease Severity	Signs & Symptoms	Treatment
Moderate – severe	1 or more: • Single severe or multiorgan disease • Multiple persistent (>2 weeks) CMV manifestations: thrombocytopenia, petechiae, hepatomegaly, splenomegaly, hepatitis • CNS involvement • >2 milk disease manifestations	Valganciclovir – orally for 6 **months**, started within 13 weeks of birth.
Asymptomatic with isolated sensorineural hearing loss	No apparent signs of disease other than sensorineural hearing loss	Valganciclovir – orally for **6 weeks,** started within 13 weeks of birth.
Mild symptoms	<2 transient (less than 2 weeks) or clinically insignificant findings	Currently insufficient data to recommend routine treatment, but decisions should be made on a case-by-case basis.
Asymptomatic	No apparent signs, no hearing loss	Treatment not recommended.

References

American Academy of Pediatrics (2024). *Red book: 2024-2027 report of the committee on infectious diseases* (33rd ed.). Author.

Bristow, B.N., O'Keefe, K.A., Shafir, S.C., Sorvillo, F.J. (2011). Congenital cytomegalovirus mortality in the United States 1990-2006. *PLoS Neglected Tropical Diseases, 5*(4), e1140

Centers for Disease Control and Prevention (2024). *Congenital CMV and hearing loss.* U.S. Department of Health and Human Services. https://www.cdc.gov/cytomegalovirus/congenital-infection/hearing-loss.html

Grosse, S.D., Fleming, P., Pesch, M.H. & Rawlinson, W.D. (2024). Estimates of congenital cytomegalovirus – attributable infant mortality in high-income countries: A review. *Reviews in Medical Virology, 34*(1), e2502. https://doi.org/10.1002/rmv.2502

Kimberlin, D.W., Jester, P.M., Sanchez, P.J., Ahmed, A., Arav-Boger, R., Michaels, M.G., Ashouri, N., Englund, J.A., Estrada, B., Jacobs, R.F., Romero, J.R., Sood, S.K., Whitworth, M.S., Abzug, M.J., Caserta, M.T., Fowler, S., LujanZilbermann, J., Storch, G.A., DeBiasi, R.L.,...Whitley, R.J. (2015). Valganciclovir for symptomatic congenital cytomegalovirus disease. *New England Journal of Medicine, 372*, 933-943. https://doi.org/10.1056/NEJMoa1404599