

# Testing newborn saliva for virus linked to hearing loss

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The 12-month study hopes to determine whether timely diagnostic testing for congenital CMV is possible in Victoria, with potential to roll out the screening across the state. Credit: Irina Murza, Unsplash

Victorian newborns who do not pass their routine hearing screening tests

are being invited to join a pilot program screening for the most common viral cause of disability.

The study, a collaboration between the University of Melbourne, Murdoch Children's Research Institute and four maternity hospitals and supported by the Deafness Foundation, aims to discover ways to speed up time to diagnosis of young infants with [hearing](#) loss born with cytomegalovirus (CMV) infection.

Congenital CMV can be harmless, but in some [babies](#), it can lead to hearing loss and in the long term other neurodevelopmental disorders such as cerebral palsy and [vision loss](#).

Under the pilot, newborn babies from the Mercy (Heidelberg), Monash, Sunshine and the Royal Women's hospitals who do not pass their second newborn hearing check, will be offered a saliva swab test in the hope of detecting the virus within the first three weeks of life.

University of Melbourne and Murdoch Children's Research Institute researcher Valerie Sung said that accurate diagnosis of congenital CMV must involve testing within the first few weeks of life, because a positive test after about three weeks can suggest the infection was acquired after birth, which is harmless. She said between one and seven percent of live births will test positive to congenital CMV.

"We're hoping to screen about 200 babies in this pilot study. Of those, we would estimate about three or four will have congenital CMV," Dr. Sung said. "Early diagnosis can really help families."

Dr. Sung's collaborator Professor Cheryl Jones, who leads research into childhood infections, said CMV is a common herpes virus transmitted through bodily fluids like saliva, urine, tears, blood and semen—that affects up to 80 percent of Australians at some point in their lives.

"In most people the virus causes no symptoms; in some, a flu-like illness. CMV can cause damage however to the developing fetus with long term consequences," Professor Jones said.

Once a person becomes infected, the virus remains alive but usually dormant in that person for life. Infection or reactivation can occur at pregnancy, carrying a small risk that the unborn baby may contract the virus in-utero.

Dr. Sung said that, while rare, congenital CMV is the most common viral cause of disability. But because there is no vaccine or treatment for pregnant women they are not routinely screened.

An additional complication is that when women and babies are discharged early, screening of newborns becomes more difficult and cases of CMV can be missed.

As hearing loss is one of the symptoms of congenital CMV, the [pilot program](#) is working with the Royal Children's Hospital's Victorian Infant Hearing Screening Program, which conducts routine hearing screening assessments on newborns in Victoria.

If the baby does not pass two consecutive hearing tests within three weeks of life, the family will receive a saliva swab kit, which they will be invited to complete and post back to the research team. Once posted back, the results take up to two business days to be known.

Babies testing positive would receive fast-tracked hearing assessments and consultations with an infectious diseases physician to discuss possible treatment options.

"In the rare case the baby not only has hearing loss but also has other symptoms or signs related to congenital CMV, treatment would be

recommended," Dr. Sung said.

"But if the baby only has hearing loss, the doctor will discuss the pros and cons of possible treatment, because the side effects of the treatment may outweigh the benefits. If the baby does not have hearing loss or any other symptoms, the recommendation would be to monitor the child's hearing closely, as hearing loss can develop with time."

The 12-month study hopes to determine whether timely diagnostic testing for congenital CMV is possible in Victoria, with potential to roll out the screening across the state.

"Because new mothers are being discharged quite soon after the delivery of their babies, we are doing the study to see if screening outside the hospital setting is feasible," Dr. Sung said.

"Early discharge can be a big problem because it means we might miss cases of congenital CMV."

The study is funded by the University of Melbourne Stevenson Chair of Paediatrics Strategic Support 2017-2018, Deafness Foundation, Mercy Hospital for Women and Monash Children's Hospital.

Pregnant women can take steps to reduce their risk of exposure to CMV by:

- Washing hands often with soap and running water for at least 15 seconds and drying them thoroughly, particularly after contact with young children or handling toys
- Not sharing food, drinks, eating utensils or toothbrushes with young children
- Avoiding contact with saliva when kissing a child
- Using simple detergent and water to clean toys, countertops and

other surfaces that come into contact with children's urine, mucous or saliva.

Provided by University of Melbourne

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