

# **NIH workshop identifies complex health problems among Zika-affected infants**

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# Growing Up AFTER ZIKA

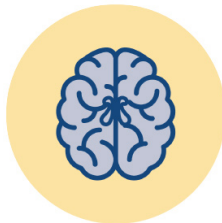
We are still learning about Zika virus and how it affects pregnancy. We hope to find answers that will help inform care for children exposed to Zika in the womb.

## Zika's Effects on the Developing Brain

Infants exposed to Zika in the womb can be born with a small head, a condition called microcephaly. But a small head is only the most visible result. Researchers are finding that Zika also can affect the structure and function of a baby's brain, regardless of head size.

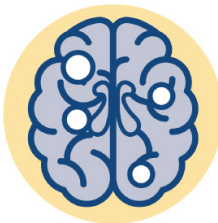


**Healthy brain**



**Microcephaly**

Zika disrupts cells in the developing brain so that the brain and head do not reach full size.



**Brain calcifications**

Calcium builds up in brain tissue and interferes with brain function.



**Enlarged ventricles**

Spaces inside the brain, called ventricles, are too big, leading to fluid buildup (hydrocephalus) and pressure.

Other Zika-associated brain abnormalities include a smooth brain with no or few folds (lissencephaly), the collapse of the skull (fetal brain disruption sequence), an asymmetrical brain, and the absence of some normal brain structures.

The long-term consequences of exposure to Zika in the womb are still unclear. Based on what is known about fetal exposure to Zika and other infections, problems may include:

- Hearing problems
- Vision problems
- Balance issues
- Developmental and learning delays
- Problems swallowing
- Seizures
- Stiffness and impaired movement
- Low birth weight
- Behavioral issues

**NICHD investigates development throughout the entire life process, including fetal development and early childhood.**

Studying Zika and its effects will help us care for children—both now and as they grow—so they can reach their potential for healthy lives. Learn more about NICHD-supported research on Zika virus at [www.nichd.nih.gov/zikaresearch](http://www.nichd.nih.gov/zikaresearch).



Eunice Kennedy Shriver National Institute  
of Child Health and Human Development



The long-term consequences of exposure to Zika in the womb are still unclear, but the virus can affect the structure and function of a fetus' developing brain and nervous system. Credit: NICHD/NIH

Children exposed to Zika virus in the womb may face complex health and developmental problems as they grow older, according to discussions at a National Institutes of Health workshop. A summary of the proceedings, authored by researchers from NIH's Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), is available in the latest issue of *JAMA Pediatrics*.

Zika virus is a global [public health threat](#). Infection in pregnant women can lead to [birth defects](#) in developing fetuses and newborns, but long-term outcomes for children exposed to the virus in the womb are largely unknown. Participants at the NIH workshop aimed to address these knowledge gaps by discussing clinical observations of Zika-affected infants, similar congenital infections, treatment options, management guidelines and research needs.

For example, clinicians from Brazil and Puerto Rico described a spectrum of health issues seen in Zika-affected infants, including abnormal reflexes, limb abnormalities, epilepsy, respiratory infections and problems with vision, hearing and digestion. Their observations indicate that Zika exposure during any trimester in pregnancy can lead to health problems. In some case reports, infants who appeared normal at birth later developed brain defects, such as [microcephaly and hydrocephalus](#).

Workshop participants also discussed how to best engage parents and

caregivers in the treatment of their children. Participants recognized the importance of caring for the parents, caregivers and families of Zika-affected children, in addition to collaborating across specialties to meet the children's diverse medical needs. According to the workshop summary, the complete picture of long-term outcomes will require more research and should include all Zika-exposed children, not just those who show symptoms at birth.

Provided by National Institutes of Health

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