CONDITION

# Torch infection

TORCH infection is a group of infections that can pass during pregnancy or birth and affect a developing baby.

**WHAT IT IS**
Group of infections affecting a fetus or newborn

**BODY SYSTEM**
Whole body, especially brain, eyes, hearing, and liver

**MAIN SYMPTOMS**
Poor growth, jaundice, rash, small head

**WHAT CAUSES IT**
Infections passed during pregnancy or around birth

**HOW IT IS DIAGNOSED**
Organism-specific PCR, antibody tests, cultures, and newborn assessment

**MAIN TREATMENT**
Organism-specific antimicrobial treatment and supportive care

**CAN IT BE CURED?**
Sometimes - infection may clear, but damage can remain

**IS IT AN EMERGENCY?**
Sometimes - seizures, breathing trouble, or severe sleepiness

**LONG-TERM OUTLOOK**
Many do well; organ injury can cause lasting disability

## Overview

TORCH infection is not one specific infection. It is a term for several infections that can pass from a pregnant person to a developing baby, or reach a baby around the time of birth.

The letters traditionally stand for:

The exact meaning of "other" is not consistent. Health professionals now often name the suspected infection rather than use TORCH as a single diagnosis.

These infections matter because a fetus's organs are still developing. An infection may affect growth, the brain, hearing, eyesight, blood cells, liver, or other organs. The effects depend on the organism, when infection happens, and whether the fetus or newborn is infected.

Many babies exposed during pregnancy are not infected. Some infected babies have no

symptoms at birth and remain well. Others need treatment or long-term monitoring.

- T: toxoplasmosis
- O: other infections, such as syphilis, chickenpox, parvovirus B19, and HIV
- R: rubella
- C: cytomegalovirus, usually called CMV
- H: herpes simplex virus, or HSV

## Symptoms

Symptoms are different for each infection. They may be found during pregnancy, at birth, or later in childhood.

During pregnancy, an ultrasound may show poor fetal growth, unusual fluid around the brain, an enlarged liver or spleen, or excess fluid in body tissues. These findings have many possible causes and do not prove that an infection is present.

A newborn with a congenital infection-an infection present from birth-may have:

Some infections have more specific patterns. Congenital rubella can affect hearing, eyesight, and the heart. CMV may affect hearing and brain development. Toxoplasmosis can cause eye inflammation and changes in the brain. Syphilis may cause rash, nasal discharge, anemia, or bone and liver problems. Newborn herpes can affect the skin, eyes, mouth, brain, or several organs.

A baby may look healthy even when infection is present. For example, hearing loss from congenital CMV can appear or worsen later.

- Low birth weight or poor growth
- Jaundice, which causes yellow skin or eyes
- A rash, bruising, or small red-purple spots
- An enlarged liver or spleen
- A head smaller or larger than expected
- Feeding problems, marked sleepiness, or irritability
- Seizures
- Eye inflammation or problems with vision
- Hearing loss

- Breathing difficulty

## Causes and risk factors

TORCH infections are caused by viruses, bacteria, or parasites. They may cross the placenta during pregnancy, move upward from the genital tract, or pass to the baby during birth.

The chance of transmission and the likely effects are not the same for every infection. Timing is important. Some infections are more likely to cause organ damage early in pregnancy, while others are more likely to pass to the fetus later.

Possible risk factors include:

An exposure does not mean that the fetus has become infected. Symptoms such as fever or rash during pregnancy also have many causes.

- A first CMV infection during pregnancy
- Close contact with young children's saliva or urine, which can carry CMV
- Eating undercooked meat or food contaminated with the toxoplasma parasite
- Handling contaminated soil or cat litter without careful handwashing
- Having syphilis, HIV, or genital herpes without diagnosis or treatment
- Exposure to rubella or chickenpox without immunity
- A genital herpes outbreak near delivery
- Limited access to prenatal testing and treatment

## Diagnosis

There is no single test that reliably diagnoses every TORCH infection. Testing is usually chosen according to symptoms, pregnancy history, ultrasound findings, and possible exposures.

A broad "TORCH panel" often measures antibodies in the blood. Antibodies are proteins made by the immune system. A positive result may only show a past infection or vaccination and may not mean that the fetus or baby is infected. Some early-response antibody results can also be falsely positive.

More specific testing may include:

For suspected congenital CMV, saliva or urine testing must be done soon after birth to distinguish infection acquired before birth from infection acquired later. A positive saliva result

is commonly confirmed with urine testing.

A newborn may also have blood tests, hearing and eye examinations, brain imaging, or testing of the fluid around the brain and spinal cord. These tests assess which organs are affected; they do not all identify the organism.

- PCR testing: looks for genetic material from an organism in blood, urine, saliva, spinal fluid, amniotic fluid, or a skin lesion
- Antibody testing: helps assess infections such as toxoplasmosis, rubella, and syphilis, but results need careful interpretation
- Culture: attempts to grow an organism from a sample and may be used in selected infections
- Placental testing: examines placental tissue after birth when appropriate

## Treatment and management

Treatment is based on the specific infection. There is no single TORCH treatment.

Bacterial infections such as syphilis are treated with antibiotics like amoxicillin or doxycycline . Herpes simplex is treated with an antiviral medicine. Selected babies with symptomatic congenital CMV may receive antiviral treatment under specialist care. Toxoplasmosis is treated with a combination of medicines that act against the parasite.

Rubella has no treatment that removes the virus from an affected fetus or newborn, so care focuses on any heart, hearing, eye, or developmental problems. Parvovirus B19 can sometimes cause severe fetal anemia; specialist monitoring and, in some cases, a blood transfusion before birth may be considered.

Treatment may require monitoring because some antimicrobial medicines can affect blood cell counts, the liver, or the kidneys. The length and type of treatment differ greatly between infections.

Other care may include:

Treating the infection cannot always reverse organ changes that occurred before treatment began. Early care can still reduce further harm and connect a child with useful support.

- Feeding and growth support
- Treatment for seizures or breathing problems
- Hearing aids or other hearing support

- Eye treatment
- Physical, occupational, or speech therapy
- Developmental and educational support

## Complications

Possible complications depend on the infection and the organs involved. They may include:

Not every infected baby develops complications. The presence of one symptom also does not predict the child's full long-term course.

Congenital CMV deserves ongoing attention because hearing can change over time, including in children who appeared well as newborns. Other infections may also require repeated hearing, vision, growth, or developmental checks.

- Hearing or vision loss
- Delayed movement, speech, learning, or development
- Seizure disorders
- Poor growth
- Heart defects
- Liver, lung, or blood problems
- Inflammation or structural changes in the brain
- Pregnancy loss, stillbirth, or serious newborn illness

## Prevention

TORCH infection cannot be prevented as one condition because it includes several unrelated infections. However, some individual infections can be prevented, and the risk of others can be reduced.

Rubella and chickenpox vaccination before pregnancy can prevent these infections. These are live vaccines and are generally not given during pregnancy. Immunity can be checked when there is uncertainty.

Routine prenatal screening can identify infections such as syphilis and HIV so treatment can reduce harm to the baby. Attending prenatal appointments also allows new symptoms or exposure concerns to be assessed.

To reduce toxoplasmosis risk, cook meat thoroughly, wash produce, wash hands after handling raw meat or soil, and avoid direct contact with cat litter when possible. If litter must be changed, use gloves and wash your hands afterward.

To reduce CMV exposure, especially when caring for young children, wash your hands after changing diapers or wiping saliva. Avoid sharing food, drinks, or eating utensils with young children.

Condoms and other barrier methods can lower the chance of sexually transmitted infections. If genital herpes is known or suspected, pregnancy and maternity teams can plan care around delivery.

These steps lower risk but cannot guarantee prevention.

## Living with it and what to expect

There is no single course for TORCH infection. Some babies have no lasting effects. Some recover from the active infection but need follow-up for hearing, vision, growth, or development. Others have lifelong health or support needs.

The infection and its consequences are not always the same thing. An antimicrobial medicine may clear or control the organism, while changes to the brain, eyes, ears, or other organs may remain.

Follow-up over months or years may involve childhood specialists, hearing tests, eye examinations, developmental assessments, and routine primary care. The schedule is based on the specific infection and the child's findings.

Development is assessed over time because skills emerge at different ages. Early support can help with communication, movement, feeding, learning, and daily activities. Many children with mild or well-supported effects take part in family life, childcare, school, and community activities.

Uncertainty can be difficult for families, particularly when a baby appears well but needs continued monitoring. Follow-up is preventive and does not mean that a problem will necessarily develop.

## When to get medical help

During pregnancy, seek prompt medical advice after possible exposure to rubella, chickenpox, parvovirus, syphilis, toxoplasmosis, or another infection that may affect pregnancy. Also

arrange prompt assessment for a new widespread rash, genital blisters, unexplained fever, or reduced fetal movement.

Contact a healthcare professional promptly if a newborn has poor feeding, worsening jaundice, an unusual rash, increasing sleepiness, repeated vomiting, or difficulty gaining weight. A temperature of 38°C or higher in a baby younger than 3 months needs urgent medical assessment.

Call emergency services if a baby:

Routine follow-up is appropriate for scheduled hearing, vision, growth, and developmental checks when the child is otherwise well. Contact the child's care team sooner if hearing, eyesight, movement, speech, or previously gained skills seem to change.

- Has a seizure
- Is struggling to breathe
- Develops blue, grey, or very pale skin
- Is difficult to wake or does not respond normally
- Suddenly becomes floppy
- Stops breathing

## Common questions

Is TORCH infection one disease?

No. It is a label for several infections that can affect a fetus or newborn. Diagnosis and treatment should identify the specific organism whenever possible.

Does a positive TORCH blood test mean my baby is infected?

Not necessarily. Some antibodies show an old infection or immunity from vaccination. Other results may need confirmation. The meaning depends on the antibody type, timing, symptoms, and organism-specific tests.

Can a baby have a TORCH infection and look healthy?

Yes. Some infected babies have no signs at birth. Many remain well, but certain infections can cause later problems, particularly changes in hearing. Follow-up is based on the confirmed infection.

Can TORCH infections be cured?

Some can be cleared or controlled with antibiotics, antiviral medicines, or antiparasitic

medicines. Others, such as rubella, have no treatment that removes the infection. Treatment may not reverse organ damage that happened before birth.

Can TORCH infection happen in more than one pregnancy?

Yes, but the risk depends on the infection and immunity. A previous rubella infection or vaccination usually provides lasting immunity, while CMV, herpes, syphilis, and toxoplasmosis involve different patterns of recurrence or reinfection.

Is TORCH infection contagious after birth?

Some organisms can still be passed to other people, while others are not spread through ordinary contact. The route and duration differ by infection. Routine hand hygiene is especially important when handling saliva, urine, blood, or skin lesions.

## Sources

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