



## TETANUS

### ABOUT THIS DISEASE

Tetanus is an infection caused by a bacterium called *Clostridium tetani*. Spores of tetanus bacteria are everywhere in the environment, including soil, dust, and manure. These spores develop into bacteria when they enter the body through breaks in the skin, usually through injuries from contaminated objects.

*Clostridium tetani* produce a toxin (poison) that causes painful muscle contractions. Tetanus is often called “lockjaw” because the first sign is most commonly spasms of the jaw muscles. Tetanus can lead to serious health problems, including being unable to open the mouth and having trouble swallowing and breathing, possibly leading to death (10% to 20% of cases).

Tetanus is uncommon in the United States, with an average of 30 reported cases each year. Nearly all cases of tetanus in the U.S. are among people who have never received a tetanus vaccine, or adults who don't stay up to date on their 10-year booster shots.

### SIGNS AND SYMPTOMS

Symptoms of tetanus include:

- Jaw cramping
- Sudden, involuntary muscle tightening (muscle spasms) – often in the stomach
- Painful muscle stiffness all over the body
- Trouble swallowing
- Jerking or staring (seizures)
- Headache
- Fever and sweating
- Changes in blood pressure and a fast heart rate.

Serious health problems that can happen because of tetanus include:

- Laryngospasm (uncontrolled/involuntary tightening of the vocal cords)
- Fractures (broken bones)
- Hospital-acquired infections (Infections caught by a patient during a hospital stay)
- Pulmonary embolism (blockage of the main artery of the lung or one of its branches by a blood clot that has travelled from elsewhere in the body through the bloodstream)
- Aspiration pneumonia (lung infection that develops by breathing in foreign materials)
- Breathing difficulty, possibly leading to death (1 to 2 in 10 cases are fatal)

### TRANSMISSION

Tetanus is different from other vaccine-preventable diseases because it does not spread from person to person. *Clostridium tetani* enter the body through breaks in the skin.

Certain breaks in the skin are more likely to get infected with *Clostridium tetani*. These include:

- Wounds contaminated with dirt, feces (stool), or saliva
- Wounds caused by an object puncturing the skin, like a nail or needle
- Burns
- Crush injuries
- Injuries with dead tissue

Rarely, tetanus has been linked to breaks in the skin caused by:

- Clean superficial wounds (when only the topmost layer of skin is scraped off)
- Surgical procedures
- Insect bites
- Dental infections
- Compound fractures (a break where the bone is exposed)
- Chronic sores and infections
- Intravenous (IV) drug use
- Intramuscular injections (shots given in a muscle)

## DIAGNOSIS

Doctors can diagnose tetanus by examining the patient and looking for certain signs and symptoms. There are no laboratory tests that can confirm tetanus. *Clostridium tetani* is recovered from the wound in only 30% of cases and can be isolated from patients who do not have tetanus.

## TREATMENT

Tetanus is a medical emergency requiring:

- Care in a hospital
- Immediate treatment with medicine called human tetanus immune globulin (TIG)
- Aggressive wound care
- Drugs to control muscle spasms
- Antibiotics
- Tetanus vaccination

Depending on how serious the infection is, a machine may be required to help the patient breathe.

## IMMUNITY

Because of the extreme strength of the toxin, tetanus disease may not result in tetanus immunity. Persons with tetanus should begin or continue vaccination as soon as they are getting better.

Protection provided by vaccination, as well as having a prior infection, does not last a lifetime. Persons who had tetanus or were vaccinated before, still need to get vaccinated regularly to keep a high level of protection against this serious disease.

## RISK IN HAWAII

Summary of Reported Cases of Notifiable Diseases:

<http://health.hawaii.gov/docd/resources/reports/summary-of-reported-cases-of-notifiable-diseases/>

## PREVENTION

Vaccination and good wound care are important to help prevent tetanus infection.

Tetanus vaccines are recommended for people of all ages, with booster shots throughout life. There are four vaccines used to protect against tetanus, all of which are combined with vaccines for other diseases:

- [Diphtheria, tetanus, and pertussis \(DTaP\) vaccines](#)
- Diphtheria and tetanus (DT) vaccines
- [Tetanus, diphtheria, and pertussis \(Tdap\) vaccines](#)
- [Tetanus and diphtheria \(Td\) vaccines](#)

Each of these vaccines prevents diphtheria and tetanus; DTaP and Tdap also help to prevent pertussis (whooping cough). DTaP and DT are given to children younger than 7 years old. Tdap and Td are given to children 7 years and older, teens, and adults.

#### **ROUTINE VACCINATION:**

**Infants and children** need 5 doses of DTaP vaccine for maximum protection, at ages 2, 4, 6, 15-18 months, and at 4-6 years. DT can be given instead of DTaP for children who should not get pertussis vaccines.

**Preteens** need a booster dose of Tdap vaccine at age 11-12 years.

**Teens or adults** who didn't receive Tdap as a preteen should receive one dose. Td is recommended every 10 years.

**Pregnant women** should receive a dose of Tdap vaccine during the 3<sup>rd</sup> trimester of **each** pregnancy, preferably during the early part of gestational weeks 27 through 36.

Tetanus toxoid-containing vaccines are estimated to protect essentially all people for approximately 10 years. Protection decreases over time, so adults need to get a Td booster shot every 10 years to stay protected.

#### **VACCINATION FOLLOWING INJURY:**

Although a tetanus booster is routinely recommended every 10 years, a shot may be needed sooner after a wound or burn. The need for tetanus vaccination following an injury depends on the type and condition of the wound, and the number and timing of vaccine doses previously received. A health care provider should determine if a dose of tetanus vaccine is necessary.

Persons with wounds who are either unvaccinated or not up-to-date with their tetanus vaccinations should receive Tetanus Immune Globulin (TIG), which provides temporary protection, in addition to tetanus vaccine. Persons with contaminated wounds, who have severe problems with their immune system (including people with HIV infection), should also receive TIG, regardless of the number of tetanus vaccines they've received.

#### **ADDITIONAL RESOURCES**

- CDC Website: <https://www.cdc.gov/tetanus/index.html>
  
- Vaccine Information Statements:
  - DTaP: <https://www.cdc.gov/vaccines/hcp/vis/vis-statements/dtap.pdf>
  - Tdap: <https://www.cdc.gov/vaccines/hcp/vis/vis-statements/tdap.pdf>
  - Td: <https://www.cdc.gov/vaccines/hcp/vis/vis-statements/td.pdf>

#### **INFORMATION FOR CLINICIANS**

- CDC Website: <https://www.cdc.gov/tetanus/clinicians.html>