Epidemiology of tetanus
Tetanus is rare in the United States, where 50 or fewer cases of tetanus occur each year, deaths are more likely to occur in persons 60 years of age and older. However, continued success depends upon maintaining high vaccination rates. Tetanus disease can occur anytime of the year, but is most frequently seen in warmer climates or during the warmer months.

Tetanus appears in three forms:
- **Generalized tetanus** is the most common type (about 80%) of reported tetanus. The disease usually presents with a descending pattern. The first sign is trismus or lockjaw, followed by stiffness of the neck, difficulty in swallowing, and rigidity of abdominal muscles. Other symptoms include elevated temperature, sweating, elevated blood pressure, and episodic rapid heart rate. Spasms may occur frequently and last for several minutes. Spasms continue for 3–4 weeks. Complete recovery may take months. Between 5-10% of cases are fatal.
- **Local tetanus** is an uncommon form of the disease, in which patients have persistent contraction of muscles in the same anatomic area as the injury. These contractions may persist for many weeks before gradually subsiding. Local tetanus may precede the onset of generalized tetanus, but is generally milder. Only about 1% of cases are fatal.
- **Cephalic tetanus** is a rare form of the disease, occasionally occurring with otitis media in which *C. tetani* is present in the flora of the middle ear, or following injuries to the head. There is involvement of the cranial nerves, especially in the facial area.

Neonatal tetanus is a form of generalized tetanus that occurs in newborn infants. Neonatal tetanus occurs in infants born without protective passive immunity, because the mother is not immune. It usually occurs through infection of the unhealed umbilical stump, particularly when the stump is cut with an unsterile instrument. Neonatal tetanus is common in some developing countries (estimated more than 215,000 deaths worldwide in 1998), but very rare in the United States.

Diagnosing tetanus
The diagnosis is entirely clinical and does not depend upon bacteriologic confirmation. Symptoms usually confirm the diagnosis of tetanus.

**Tetanus** is characterized by the following:
- stiffness of jaw (also called lockjaw)
- stiffness of abdominal and back muscles
- contraction of facial muscles
- fast pulse
- fever
- sweating
- painful muscle spasms near the wound area (if these affect the larynx or chest wall, they may cause asphyxiation)
- difficulty swallowing

Treating tetanus
Treatment is supportive. All wounds should be thoroughly cleaned. Necrotic tissue and foreign material should be removed. If spasms are occurring, supportive therapy and maintenance of an adequate airway are critical. Tetanus immune globulin (TIG) is recommended for persons with tetanus.

Communicability of tetanus
- Tetanus is not contagious from person to person. It is the only vaccine-preventable disease that is infectious, but not contagious.
- The incubation period for tetanus is usually 8 days but can range from 3 to 21 days.

Preventing transmission of tetanus
Vaccination is the primary means to prevent disease.

Handling exposure to tetanus
- Vaccine, theoretically, may prevent disease.
- Tetanus Immune globulin (TIG) is recommended for postexposure prophylaxis in certain individuals. See the “Summary Guide to Tetanus Prophylaxis in Routine Wound Management” for more information: [www.health.state.mn.us/divs/idepc/diseases/tetanus/hcp/tetwdmgmt.html](http://www.health.state.mn.us/divs/idepc/diseases/tetanus/hcp/tetwdmgmt.html).
Vaccination recommendations

- Children should receive DTaP vaccines at 2, 4, and 6 months of age.
- Booster dose given at 12 to 18 months.
- Booster dose given again at 4 to 6 years.
- Booster dose of Tdap is given at 11-12 years of age.
- Booster shots given every 10 years after that to maintain protection.
- All adults who have not had a tetanus shot in the past 10 years should receive a Td booster dose.
- Women who received a Td within the past 10 years should receive a dose of Tdap in the immediate post-partum period.
- Pregnant women who received the last Td more than 10 years previously should generally receive Td instead of Tdap, preferably in the second or third trimester. Pregnant women who have not received the 3-dose primary tetanus vaccination series should begin this series during pregnancy, using Td.

Floods and Tetanus

There is usually no increased risk of getting vaccine-preventable diseases, like tetanus or hepatitis A, during a flood. However, those working in clean up may be wounded and exposed to soil that contains the bacteria that causes tetanus.

All wounds should be cleaned and dead tissue or foreign materials (dirt, debris, etc) removed. Proper wound management is essential to avoid secondary infections.

Persons without a history of tetanus vaccination within the past 5 years should receive a tetanus-containing vaccination. If person has never received a primary series of a tetanus-containing vaccine, they should also receive tetanus immune globulin (TIG). A wound management algorithm can be found at: www.health.state.mn.us/divs/idepc/diseases/tetanus/hcp/tetwdmgmt.html.