

**Transmission**

Transmission occurs when spores are introduced into the body through a puncture wound, lacerations, burns and trivial or unnoticed wounds. It has also occurred when spores are introduced into the body through injecting drug use and occasionally through abdominal surgery.

**Incubation period**

The incubation period is 3-21 days but can range from one day to several months depending on the extent and location of the wound. Most cases occur within 14 days - the most severe cases are associated with a shorter incubation period, more heavily contaminated wounds and a worse prognosis.



Photo courtesy of CDC

**Signs and symptoms**

Initially: muscle stiffness of the jaw ("Lock-jaw") occurs in 50% cases. This is followed by neck stiffness, difficulty swallowing, stiffness of stomach muscles, muscle spasms, sweating and fever

Complications include;

- Fractures
- Hypertension
- Laryngospasm
- Pulmonary embolism
- Aspiration
- Death

**Vaccine schedule in Ireland**

Tetanus vaccine is administered at 2, 4 and 6 months with diphtheria, pertussis Hib and hepatitis B and IVP (referred to as the "6-in-1" vaccine). A booster dose is given at 4-5 years and at 11-14 years. Prevention of tetanus is dependent on the administration of five doses of tetanus vaccine at appropriate time intervals and early recognition and appropriate treatment of potential tetanus wounds.

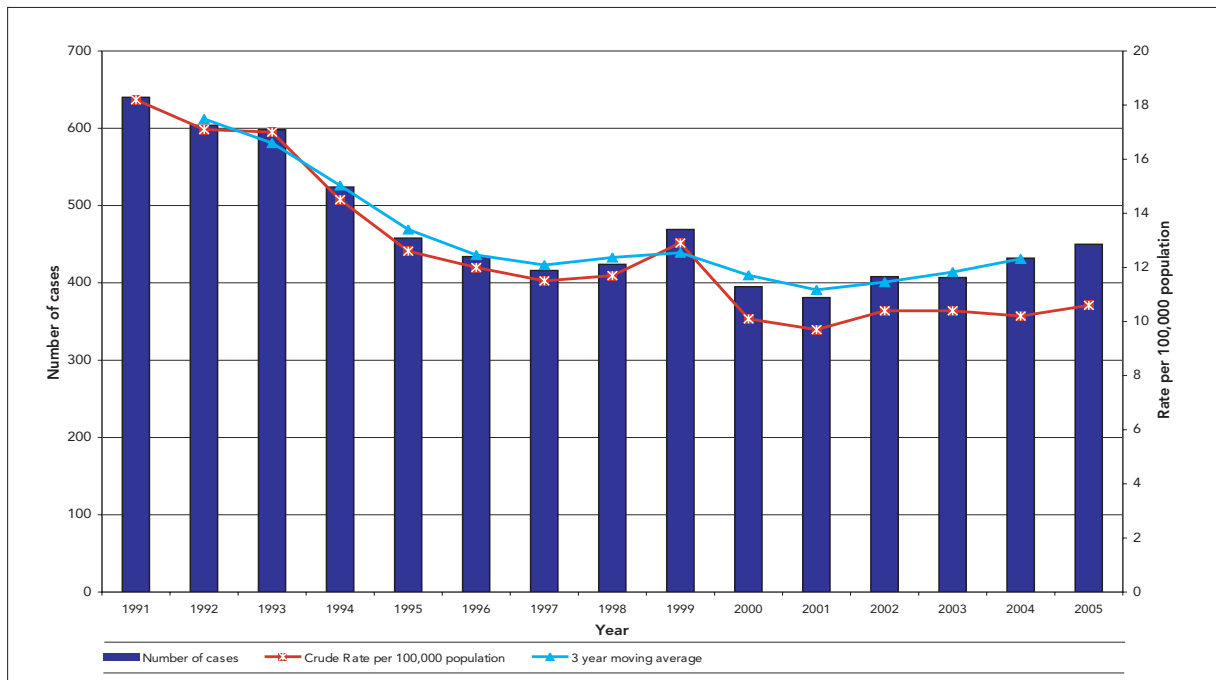
**4.2.12 Tuberculosis****Epidemiology of disease and impact of vaccination**

Tuberculosis (TB) is an infection of the lungs and other organs caused usually by *Mycobacterium tuberculosis*. Less than 1% of humans acquire bovine TB by ingestion of unpasteurised milk from infected cows or more rarely through airborne spread. Whilst the incidence of TB has declined since the 1950s, the number of TB cases notified has risen annually since 2003 (Figure 4.12).

Some people who are infected do not develop active disease and have latent TB infection. These individuals have a positive tuberculin skin test but normal chest x-ray. They have a 5-10% lifetime risk of developing TB disease.

**Transmission**

Transmission is from person to person by airborne droplet spread by people with pulmonary or laryngeal TB, predominantly by coughing although sneezing and singing may contribute to spread. The risk of transmission depends on the amount of bacilli in the sputum, the closeness and duration of the contact, and the susceptibility of the contact. People with TB are considered infectious if the bacilli are demonstrable on direct sputum stain.



**Figure 4.12: Number of TB cases, crude rate per 100,000 population and 3-year rolling average 1991-2005.**

Source: Health Protection Surveillance Centre

### **Incubation period**

The incubation period, defined by reaction to a tuberculin skin test is usually between 3-12 weeks.

### **Period of infectivity**

The patient is infectious as long as there are viable TB organisms in the sputum.

### **Clinical features**

The symptoms of TB depend on the organ affected. Two-thirds of those diagnosed with TB infection suffer from pulmonary TB. Early symptoms may be constitutional such as fatigue, night sweats and weight loss. Chest symptoms occur later in the disease and include cough which is usually productive, coughing blood and chest pain. Hoarseness is associated with laryngeal TB, a highly infectious form of TB.

### **Vaccine schedule in Ireland**

The *Bacille Calmette Guerin* (BCG) vaccine contains a weakened ("attenuated") form of a bacteria related to the one that causes tuberculosis. This stimulates the immune system to protect against tuberculosis. BCG has contributed to the dramatic decline in TB over the past 40 years. BCG vaccination is usually given to newborn babies, but can also be given to older children and adults who are considered to be at risk of developing TB.

## **4.3 Disease where vaccination is recommended for specific "at-risk" Groups**

### **4.3.1 Hepatitis A**

#### **Epidemiology of disease and impact of vaccination**

Hepatitis A is a viral infection of the liver caused by the hepatitis A virus.

#### **Transmission**

Hepatitis A virus is primarily spread by the faeco-oral route facilitated by close person-to-person contact or through contaminated food or water. Transmission through sexual contact has also been reported. The number of cases notified in Ireland 1988-2006 are outlined in Figure 4.13.