

## Tetanus prone wound protocol for overnight off-campus activities

### General information about tetanus

Tetanus, sometimes called lock-jaw, is an acute disease caused by a neurotoxic exotoxin of the bacteria, *Clostridium tetani*. The disease is now fairly uncommon in most industrialised countries but may be a more significant cause of death in some countries, including parts of Asia, Africa and South America. World-wide, mortality rates vary considerably (10-90 per cent), largely being influenced by the length of incubation and availability of treatment. Highest fatality occurs in infants and elderly people. In Australia death occurs in about 10 per cent of cases.

Early symptoms of infection with *C. tetani* include localised peripheral nerve and muscle spasms. As the organism multiplies at the wound site, toxin spreads via the bloodstream causing generalised spasms and convulsions. Painful muscular contractions of the masseter, neck and trunk muscles, and facial spasms known as "risus sardonicus" are experienced in the advanced disease. The muscle rigidity with superimposed painful spasms occurs after an incubation period of 3-21 days, most often after 7-10 days. Death usually results from respiratory failure, hypertension, hypotension or cardiac arrhythmia.

### Spread of the infection

*C. tetani* (a bacillus) is a normal and harmless inhabitant of many animals (eg. horses) and humans and is a common environmental organism found in soil. Infection with the bacillus may occur after minor incidents (sometimes unnoticed punctures to the skin) or after major injury: compound fractures; wounds containing foreign bodies, especially wood splinters; wounds complicated by pyogenic infections; wounds with extensive tissue damage, e.g. contusions or burns; any superficial wound obviously contaminated with soil, dust or horse manure, especially if topical disinfection is delayed more than 4 hours. Tetanus is not directly transmitted from person to person.

### The important points:

- Tetanus bacteria are common to the Australian environment.
- The bacteria multiply rapidly creating a toxin. Symptoms start when the nervous system is affected by the toxin. Time from infection to symptoms is usually 3-21 days although there have been cases in which this phase is as short as 1 day.
- A very minor (even unnoticed) injury can be life threatening for non-vaccinated individuals.
- It is not the bacteria itself that causes the problem it is the toxin it creates.
- Therefore waiting to see if any symptoms develop before treating tetanus will not avert the development of the disease. Antibiotics may kill the bacteria but the injured person will still go through the symptomatic part of the disease until the toxins are cleared from the body.
- The most vulnerable people are those who have not yet been vaccinated or those whose immunity has lapsed over time.
- In Australia 10% of people with this disease will die.

## Definition of terms

### **Tetanus Immunoglobulin**

Tetanus immunoglobulin is an injection that provides passive protection where an unimmunised person has sustained a tetanus-prone wound. This product is prepared from human plasma containing high antibody levels to the tetanus toxin.

### **Adult Diphtheria Tetanus (ADT)**

Diphtheria and tetanus can be prevented with the ADT Booster<sup>®</sup> vaccine. Although it is called 'Adult' diphtheria and tetanus vaccine, it is also used to protect children eight years of age or older against these diseases.

### **Tetanus-prone injury**

Defining a tetanus prone wound is not straight forward, as tetanus may occur after apparently trivial injury, such as from a rose thorn, or with no history of injury. However, there are certain types of wounds likely to favour the growth of tetanus organisms. These include:

- Compound fractures,
- Bite wounds,
- Deep penetrating wounds,
- Wounds containing foreign bodies (especially wood splinters),
- Wounds complicated by pyogenic infections,
- Wounds with extensive tissue damage (eg. contusions or burns) and
- Any superficial wound obviously contaminated with soil, dust or horse manure (especially if topical disinfection is delayed more than 4 hours).
- Reimplantation of an avulsed tooth is also a tetanus-prone event, as minimal washing and cleansing of the tooth is conducted to increase the likelihood of successful reimplantation.

(Royal Children's Hospital)

- Staff can only be expected to recognise tetanus prone injuries that fall in the categories listed with dot points above. The school/staff can take no responsibility for a tetanus infection that develops in an apparently trivial injury. Parents who have not vaccinated their child must accept that not all wounds infected with tetanus can be recognised as such, which is the rationale for tetanus vaccination.

### **Disinfection of wound**

Clean any wounds, cuts or animal bites *immediately and thoroughly*. Wash with clean water and soap until the wound and surrounding area is visibly clean, ensuring that all dirt is removed. Then clean with a disinfectant, which should remain in contact with the damaged area for 90 seconds, apply povidine-iodine, keep the area dry and covered and seek medical attention as soon as possible. (Department of Health and Aging)

### **Evacuation**

Where possible the student will be evacuated by road, however in the case of remote locations when distances and time are factored in, the student may require an air evacuation.

### **Vaccinated**

Vaccinated refers to complete and up-to-date vaccination as per the National Immunisation Program Schedule.

### **Nearest Road**

The point of evacuation shall be determined by the teacher in charge or by the air ambulance officers.

### **Protocol for management of tetanus prone injury off campus**

- **Students who have been vaccinated for tetanus** within the last 5 years will be given:
  - Disinfection, first aid treatment and parents shall be notified.
  
- **Students who have not been vaccinated for tetanus or are not up to date with their tetanus vaccination (this includes students who have had homeopathic preparations)** shall be managed in the following way:
  - Receive first aid treatment including prompt disinfection of the wound followed by evacuation to the nearest medical practitioner.
  - Standard medical treatment for tetanus prone wounds shall be sought and may involve administration of Tetanus Immunoglobulin, Antibiotics and/or Adult Diphtheria and Tetanus Vaccine (ADT) as determined by medical practitioner.
  - Where the wound is such that the student may continue with the school group the student shall return with the teacher. If the wound is likely to be too painful/difficult to manage or will impede the group, parents shall be notified and asked to collect their child from the place to which the child was evacuated.
  
- In the event that a parent does not agree that their child have the standard management as described above they must write a letter to the school **clearly stating that they “object to the administration of standard medical treatments for a tetanus-prone injury”**. Letters should be mailed or delivered personally by the parent (to ensure it’s arrival) **Mail should be addressed to: Camp Medical Information, Little Yarra Steiner School, PO Box 19, Yarra Junction, VIC, 3797.**
  
- **Students who have not been vaccinated and for whom the school has received such a letter** shall be managed as follows in the event of injury:
  - The wound shall be promptly and carefully disinfected and first aid treatment applied.
  - The student and a teacher shall be evacuated to the nearest road.
  - The parent/guardian will be required to collect the student from this evacuation point as soon as possible and no later than 10 hours after the injury.
  - The parents shall take full responsibility for the student’s health and welfare from the time they are collected.
  - If parents cannot or will not collect the student within the time allocated, the student shall be taken to the nearest medical

practitioner and he/she will be charged with the responsibility for making any medical decisions required on behalf of the child.

This protocol has been developed by the school to ensure the wellbeing of students while on camp in remote areas. It is also intended to respect parental choices about vaccination. However, it is necessary in this case to consider the impact of individual preferences on the group. Evacuating a non-vaccinated student in the event of a tetanus prone injury could have quite substantial impact upon the student group and the camp. A staff member leaving the group to go with the evacuee may necessitate route plan alterations or abandonment. It is possible that the group would not be able to continue.

We ask you to take this into consideration when deciding whether to vaccinate your child or not.

## References

<http://www.health.gov.au/internet/main/publishing.nsf/Content/health-publth-strateg-communic-factsheets-tetanus.htm>

[http://www.health.vic.gov.au/immunisation/factsheets/tetanus\\_and\\_diphtheria](http://www.health.vic.gov.au/immunisation/factsheets/tetanus_and_diphtheria)

<http://www.gpdownsouth.com.au/images/tetanus.pdf>

[http://www.rch.org.au/clinicalguide/cpg.cfm?doc\\_id=5221](http://www.rch.org.au/clinicalguide/cpg.cfm?doc_id=5221)

<http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-cdna-protocol-amat-asia-pacific-going.htm>