

Tetanus prone wounds – Are we boosting?

Authors: Bryanna Lawrie^{1,2} Michele Cree^{1,2} 1. Pharmacy Department 2. Paediatric Emergency Department Queensland Children's Hospital and Children's Health Queensland Contact: Bryanna.lawrie@health.qld.gov.au

Background

Tetanus is a bacterial infection that can result in severe, painful muscle spasms and can potentially lead to death¹. Whilst tetanus is not contagious, the bacteria that causes tetanus, *Clostridium Tetani* can be found in soil, dust and animal waste^{1,2}.

Tetanus prone wounds include²:

-  Compound fractures
-  Bite wounds
-  Deep penetrating wounds
-  Wounds containing foreign bodies (e.g. splinter)
-  Wounds complicated by pyogenic infections
-  Wounds with extensive tissue damage (e.g. contusion or burn)
-  Any wound contaminated with soil, dust or horse manure

Due to vaccination rates in Australia, tetanus is rare and has a low fatality rate of approximately 2%³. Between 2008 and 2018, there were 42 identified cases of tetanus in Australia³.

Tetanus immunisations in Australia occur at 2, 4, 6, 18 months and 4 years with a booster at 12+ years of age⁴. Children aged 9-12 years presenting with a tetanus prone wound, require a tetanus booster. A Children's Health Queensland tetanus wound management guideline was developed in July 2015 to highlight the need for tetanus immunisation and to improve rates of appropriate tetanus vaccination.

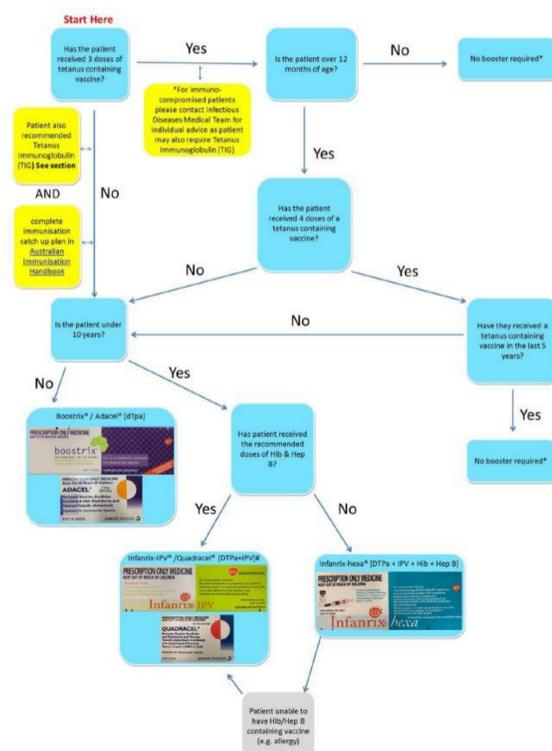
Objective

To investigate adherence to the tetanus prone wound guideline at Queensland Children's Hospital emergency department for children aged 9-12 years old.

Method

A retrospective audit of emergency presentations of children aged 9-12 years with tetanus prone wounds was conducted from January to April 2019. Data collected included patient demographics, type of wound, immunisation status and if tetanus prophylaxis was administered.

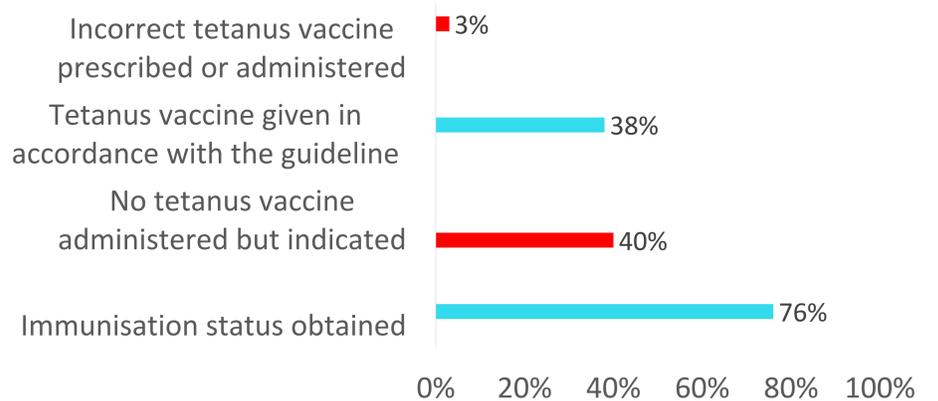
Figure 1: Flow chart for tetanus prone wound management²



Results

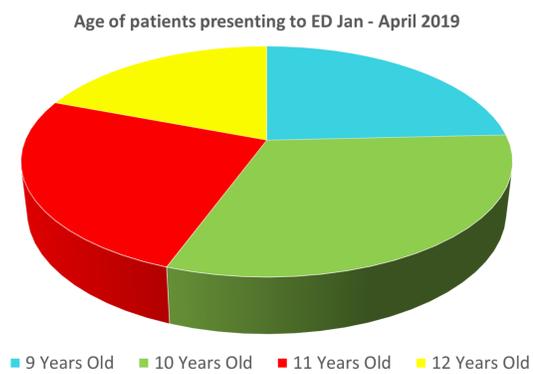
In the 4 month audit period, there were 156 patients who presented to emergency with wounds; 135 of these patients met the criteria of having a tetanus prone wound.

Figure 2: Patient vaccination status and tetanus prone wound management data



Patient demographics

Figure 3: Patient's presenting to ED in Jan – April 2019 between 9-12 years old



Current strategies employed to improve compliance of tetanus prone wound management include resident medical officer(RMO) education and publication of the guideline.

Audit limitations:

- Single site audit.
- Quarterly RMO education focuses on overall medication safety.
- Frequent medical officer rotations.

Conclusion

Adherence to the tetanus prone wound guideline for children aged 9 to 12 years requires improvement. Total adherence to the tetanus prone wound management guideline overall was 48%.

Further strategies to improve compliance include:

-  Tetanus wound champions in the emergency department to improve identification of patients requiring tetanus prophylaxis.
-  Digital support functions in the integrated electronic medical records to help improve recognition of patients requiring tetanus vaccination.

A re-audit will be required in the next 12 months to determine improvement.



References

1. Australian Government Department of Health 2019, Tetanus, Australian Government Department of Health, viewed 4 October 2019, <https://www.health.gov.au/health-topics/tetanus>
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3. Queensland Government Queensland Health 2019, Tetanus, Queensland Government Queensland Health, viewed 3 October 2019, <https://www.health.qld.gov.au/cdca/index/tetanus>
4. Australian Government Department of Health Australian Immunisation Handbook 2019, Tetanus, Australian Government Department of Health, viewed 4 October 2019, <http://immunisationhandbook.health.gov.au/vaccine-preventable-diseases/tetanus>

