

Tetanus

Please note that tetanus immunoglobulin (TIG) is **not** available from the Health Protection Agency

Dosage

Only tetanus immunoglobulin for intramuscular (IM) use is now available from BPL (020 8258 2200 - 24 hours).

An IV tetanus immunoglobulin product is no longer available.

For prophylaxis

IM for tetanus prone wounds:

250 units for most uses

500 units if more than 24 hours have elapsed or there is risk of heavy contamination or following burns.

Available in 1ml ampoules containing 250 international units

If TIG cannot be sourced, human normal immunoglobulin for subcutaneous use (Subgam or human normal immunoglobulin solution 160g/L) may be given IM as an alternative. The volume of Subgam required to achieve the equivalent of the recommended dose of 250iu of tetanus antitoxin will be approximately 5mls. This can be achieved by using one vial of 750mg.

Indications

Tetanus Immunisation Following Injuries

Immunisation Status	Clean Wound	Tetanus Prone Wound (see definition below)	
	Vaccine	Vaccine	Human tetanus immunoglobulin
Fully immunised i.e. has received a total of 5 doses of tetanus vaccine at appropriate intervals	None required	None required	Only if high risk [#]
Primary immunisation complete, boosters incomplete but up to date	None required (unless next dose due soon and convenient to give now)	None required (unless next dose due soon and convenient to give now)	Only if high risk [#]
Primary immunisation incomplete or boosters not up to date	A reinforcing dose of vaccine and further doses as required to complete the recommended schedule (to ensure future immunity)	A reinforcing dose of vaccine and further doses as required to complete the recommended schedule (to ensure future immunity)	Yes: one dose of human tetanus immunoglobulin (TIG) in a different site
Not immunised or immunisation status not known or uncertain	An immediate dose of vaccine followed, if records confirm this is needed, by completion of a full 5 dose course to ensure future immunity	An immediate dose of vaccine followed, if records confirm this is needed, by completion of a full 5 dose course to ensure future immunity	Yes: one dose of human tetanus immunoglobulin (TIG) in a different site

[#]High risk is regarded as heavy contamination with material likely to contain tetanus spores and/or extensive devitalised tissue.

For treatment of clinical tetanus

IM: 150units/kg of IM preparation may be given in multiple sites (Note: the IM preparation should NOT be given intravenously (IV)). TIG should be used for the treatment of tetanus if hospitals can source suitable stocks. However, where TIG stock cannot be sourced or the volume of IM TIG that would be required is unacceptable to the patient, the HPA recommends that human normal

immunoglobulin for IV use (Vigam 5 g% normal immunoglobulin) may be used as an alternative for treatment of clinical tetanus. A minimum volume of 8mls/kg of Vigam should be given (see note 5). This can be infused over a period of 3-6 hours.

Notes

1. Tetanus-prone wounds include:

- wounds or burns that require surgical intervention that is delayed for more than six hours
- wounds or burns that show a significant degree of devitalised tissue or a puncture-type injury, particularly where there has been contact with soil or manure
- wounds containing foreign bodies
- compound fractures
- wounds or burns in patients who have systemic sepsis.

2. Thorough cleaning of wounds is essential. If the wound, burn or injury fulfils the above criteria and is considered to be high risk, TIG should be given for immediate protection, irrespective of the tetanus immunisation history of the patient. This is a precautionary recommendation since there is insufficient current evidence to support other alternatives. High risk is regarded as heavy contamination with material likely to contain tetanus spores and/or extensive devitalised tissue.

Tetanus vaccine is not considered adequate for treating a tetanus-prone wound since tetanus vaccine given at the time of a tetanus-prone injury may not boost immunity early enough to give additional protection within the incubation period of tetanus. However, giving a dose of vaccine at the time of injury provides the opportunity to ensure that the individual is protected against future exposure.

3. A full course of tetanus and diphtheria vaccines consists of 5 doses as follows:

SCHEDULE	CHILDREN	ADULTS
Primary Course	3 doses of vaccine (usually as DTaP/IPV/Hib) at 2, 3 and 4 months of age	3 doses of vaccine (as Td/IPV) each one month apart
4th dose	At least 3 years after the primary course, usually pre-school entry (as DTaP/IPV)	10 years after primary course (as Td/IPV)
5th dose	Aged 13-18 years before leaving school (as Td/IPV)	10 years after 4th dose (as Td/IPV)

4. Patients who are immunosuppressed may not be adequately protected against tetanus, despite having been fully immunised. They should be managed as if they were incompletely immunised.

For further details for usage see the tetanus chapter in "Immunisation against Infectious Disease" (Green book) available at

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_079917

5. Testing of human normal immunoglobulin products Subgam (Human normal immunoglobulin solution 160g/L) and Vigam (5 g% normal immunoglobulin) for levels of tetanus antibodies was performed at the National Institute for Biological Standards and Control in 2008. Additional testing was undertaken in 2011. The lowest antibody levels found have been used to calculate the

equivalent doses of normal immunoglobulin to achieve the recommended dose of tetanus anti-toxin:

Table: Results from Tetanus Antitoxin assays for Human Normal Immunoglobulin

Year of testing	Batch number	Product	ELISA iu/ml	TNT assay iu/ml
2008	SCBN7647	Subgam	63	57 (48-69)
2008	SCBN7651	Subgam	64	57 (48-69)
2011	SCBN8611	Subgam (750mg)	66.4	
2011	SCBN8949	Subgam (750mg)	56.9	
2011	SCAN9129	Subgam (1500mg)	60.8	
Year of testing	Batch number	Product	ELISA iu/ml	TNT assay iu/ml
2008	VLAN7724	Vigam	23	26 (18-46)
2008	VLAN7759	Vigam	20	18 (15-22)
2008	VLAN7730	Vigam	23	21 (18-26)
2011	VLCN9116	Vigam (5g)	17.5	
2011	VLCN9117	Vigam (5g)	17.9	
2011	VLAN9219	Vigam (10g)	15.9	
2011	VLAN9220	Vigam (10g)	15.9	
Year of testing	Batch number	Product	ELISA iu/ml	TNT assay iu/ml
2011	VSCN8627	Gammaplex (5g)	17.8	
2011	VSCN9016	Gammaplex (5g)	17.2	
2011	VSCN9156	Gammaplex (5g)	19.6	
2011	VSAN8599	Gammaplex (10g)	21.6	
2011	VSAN9070	Gammaplex (10g)	16.7	
2011	VSAN9083	Gammaplex (10g)	17.6	