



Clinical Practice Procedures: Trauma/Field extremity amputation

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Date	February, 2022
Purpose	To ensure a consistent procedural approach for field extremity amputation.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
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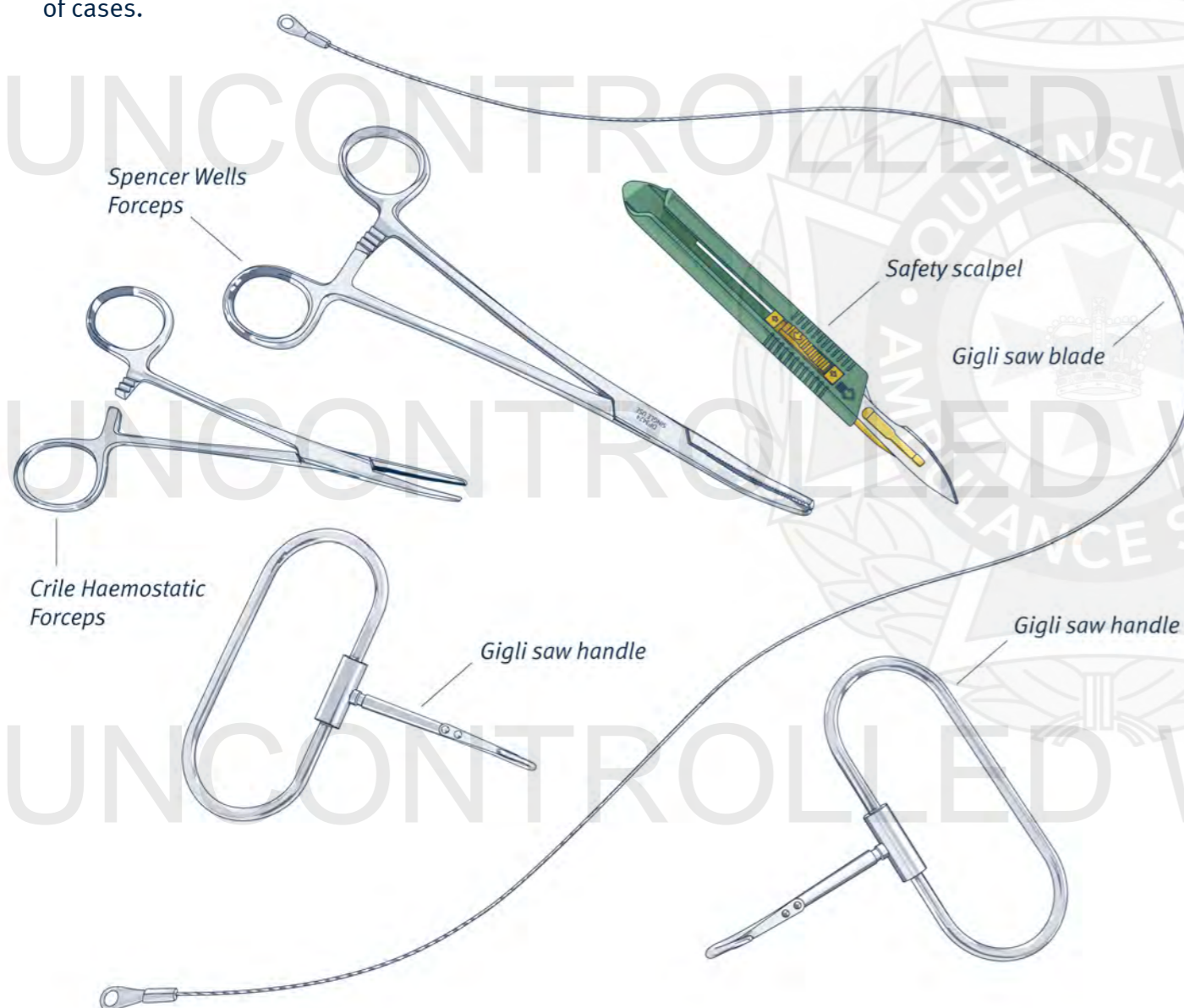
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Field extremity amputation

February, 2022

Field extremity amputations are very rarely performed, however considered potentially life-saving when urgent patient extrication is warranted. Pre-hospital limb amputations are usually associated with time critical trauma patients who would otherwise not be expected to survive and must only to be performed as a last resort when all other attempts to disentangle or otherwise free the patient have failed.

A coordinated approach to the patient and scene management, possibly involving multiple agencies including ambulance personnel, fire and rescue service and police, together with a clear pre-prepared policy and equipment, will facilitate successful outcomes in these types of cases.



Indications

Complex limb entrapment of patients when:

- The patient's clinical condition is life-threatening and requires immediate disentanglement and extrication to facilitate resuscitation; or
- Hazards present an impending threat to life for the victim or emergency services personnel; or
- Under circumstances when the degree of patient entrapment and entanglement is such that, even after an exhaustive multi-disciplinary review of alternative options, amputation provides the only viable means to extricate the patient.

Contraindications

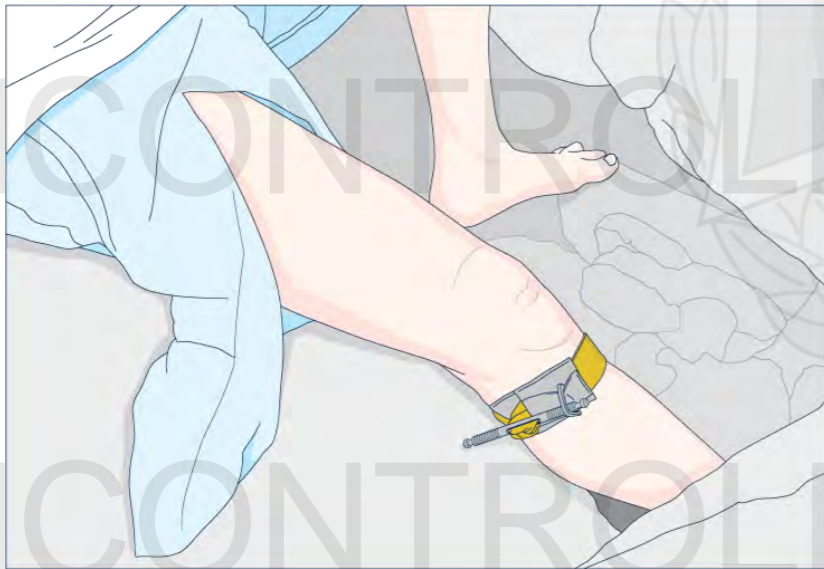
- Obvious non-survivable injury
- Loss of signs of life for longer than 10 minutes
- A patient who is physiologically robust and can safely withstand a prolonged extrication

Complications

- Death of the patient
- Uncontrolled haemorrhage
- Infection
- Long term complications (e.g. pain, psychological disturbance)

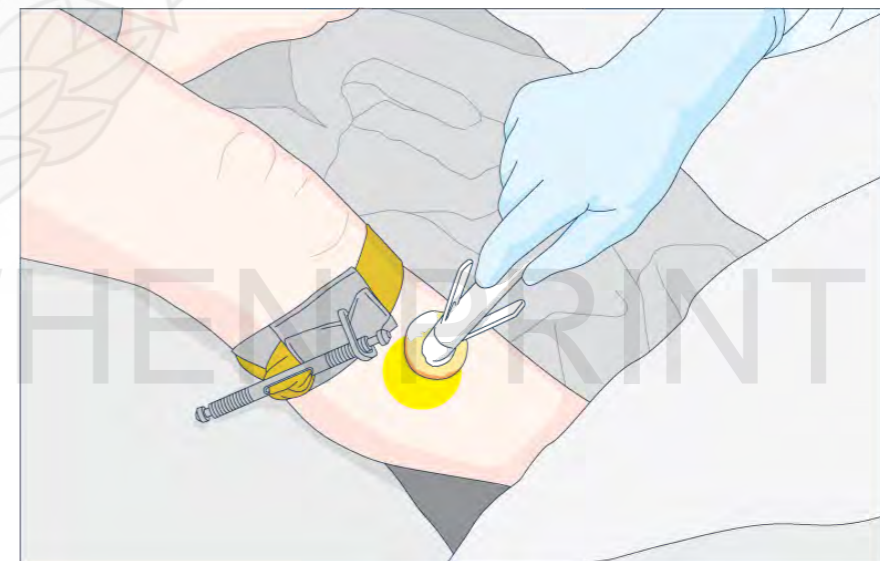
PROCEDURE

1. Confirm that the on-site senior QAS HARU clinician and the on-site rescue (Queensland Fire and Emergency Services) team leader both agree that pre-hospital limb amputation is the most appropriate course of action in the presenting situation.
2. The final approval can only be made by the *QAS Clinical Consultation and Advice Line Specialist Emergency Physician*.
3. Apply required infection control measures (refer to *QAS Infection Control Framework*).
4. Place an arterial tourniquet as distal as possible, but proximal to the amputation site (refer to *CPP: Trauma/Arterial tourniquet*).

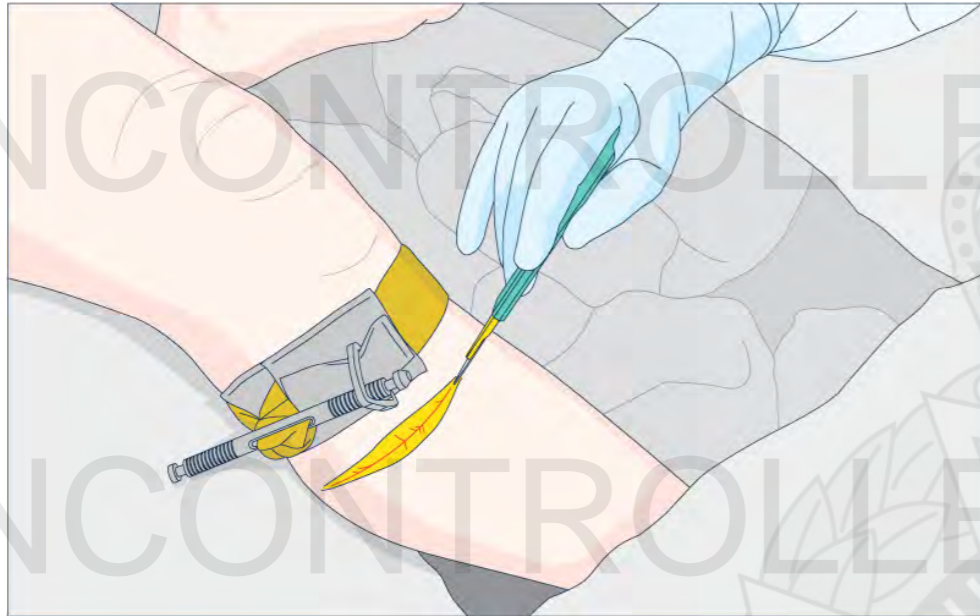


5. Ensure adequate analgesia and/or sedation is administered to the patient. For more complex scenarios, the patient may require anaesthesia.
6. Prepare a sterile field for the placement of required equipment.

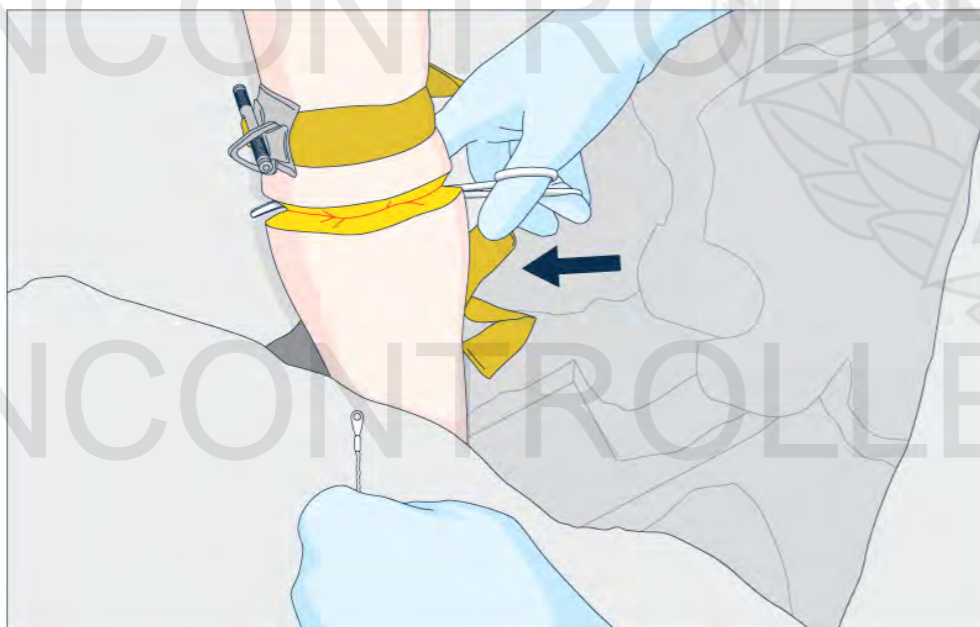
7. Open and place the following equipment on the sterile field:
 - a. 1 x 18 cm universal shears (plastic handle)
 - b. 2 x safety scalpels
 - c. 1 x 10.5 mL ChloroPrep™ (with tint) applicator (2% w/v chlorhexidine gluconate / 70% w/v isopropyl alcohol)
 - d. 2 x Gigli saw handles (with snap lock)
 - e. 1 x appropriately sized Gigli blade
 - i. 20" for upper limbs
 - ii. 30" for lower limbs
 - g. 2 x 2 x 20 cm Spencer Wells Forceps – curved
 - f. 2 x 14 cm Crile Haemostatic Forceps – curved
 - g. 1 x QuikClot® *Combat Gauze*
 - h. 1 x Emergency Bandage (FCP10+)
8. Perform appropriate hand hygiene and don sterile gloves (refer to *CPP: Other/ Donning and doffing of medical gloves*).
9. Prepare the incision site(s) with a ChloroPrep™ cutaneous solution applicator:
 - a. *Squeeze* – hold it with the sponge facing downward, then gently squeeze the wings.
 - b. *Prime* – saturate the sponge by repeatedly pressing gently against the treatment area.
 - c. *Apply* – apply the solution in a thorough and systematic circular motion cleaning outwards to a 10 cm diameter, around the entire limb circumference.
 - d. *Dry* – allow the area covered with solution to dry naturally.



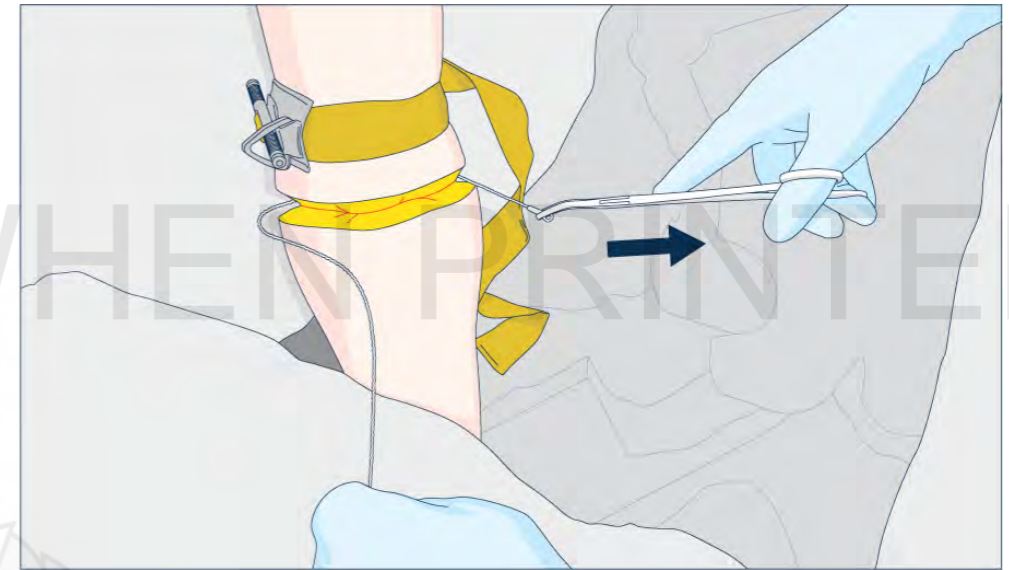
10. Identify the proposed incision site – amputation should be as distal as possible.
11. Using a disposable safety scalpel, make a semicircular (2/3 limb circumference) incision through the exposed uppermost skin and tissue. Attempt to cut down to the bone using a medial to lateral incision technique.



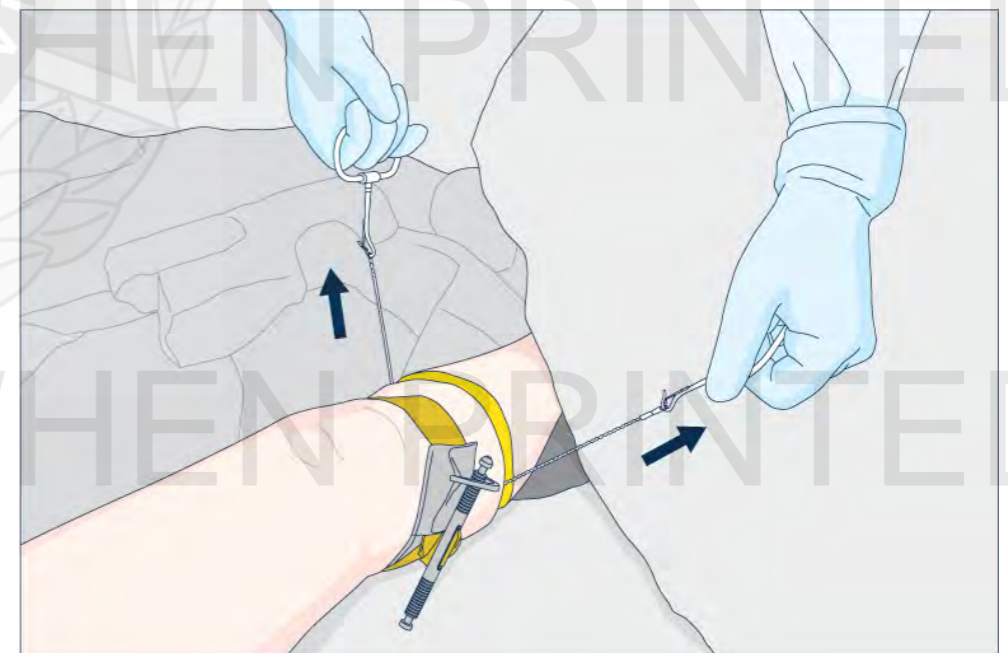
12. If large vessels are easily identified and actively bleeding, consider clamping them with the 14 cm Crile Haemostatic Forceps.
13. Gently insert the 20 cm Spencer Wells Forceps under the bone.



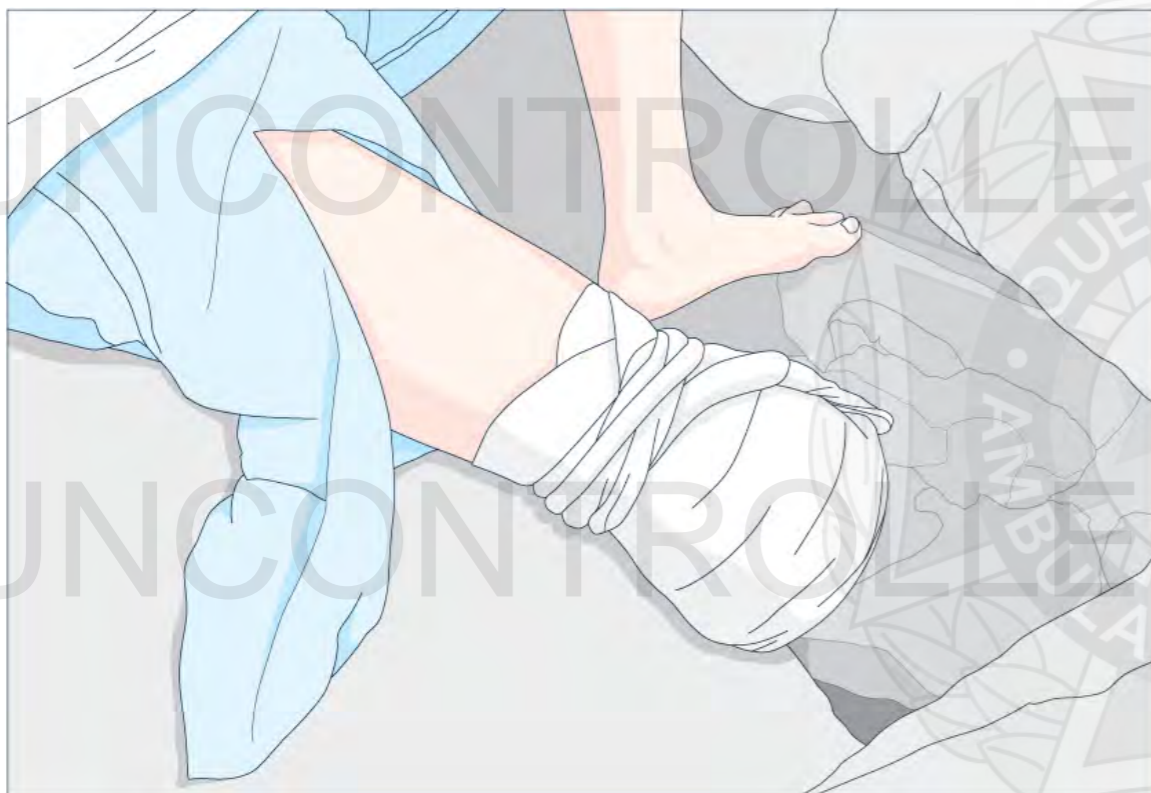
14. With the forceps in position grasp one end of the Gigli blade and pull it gently through the tract leaving both ends exposed.



15. Release the forceps.
16. Connect the Gigli saw handles to each end of the Gigli blade.
17. Commence cutting through the bone – cutting is best achieved when the Gigli blade is under tension and positioned at a 90° or 'V' shaped angle. A new Gigli blade should be considered for each separate bone. Ensure required infection control measures are applied (blood/tissue splatter may occur as the Gigli saw works through the bone).



18. To stem haemorrhage, consider:
 - a. clamping actively bleeding vessels with the 14 cm Crile Haemostatic Forceps;
 - b. dressing the exposed wound with QuikClot® *Combat Gauze*; and/or
 - c. placing a second arterial tourniquet immediately above and adjacent to the first.
19. Cut through the remaining connected tissue with sterile shears. If possible, leave a skin and tissue flap to assist with surgical wound closure.
20. If present, fold the flap over the wound.
21. Dress the wound (with flap in place) with a (FCP10) Emergency Bandage ensuring the plastic barrier remains in position.



Additional information

- The potential for exposure to blood and body fluids during this procedure is **HIGH**. All precautions that serve to minimise risk to the clinician and patient must be applied.
- Eye protection, P2/N95 mask and gown must be worn. The potential of blood and body fluid exposure during this procedure is **HIGH**.
- Gigli blades may blunt quickly, ambulance clinicians should consider using a new blade for each separate bone.
- This CPP describes the procedure under near ideal circumstances. Modifications may be necessary at the discretion of the clinician, according to the scene conditions and limitations that may be encountered.
- In a situation where an arterial tourniquet cannot be placed proximal to the site of amputation, consideration should be given to the appropriateness of proceeding.
- Consideration must be given to the possible psychological effects on the patient, clinicians, emergency services staff and bystanders who are involved in or exposed to witnessing this procedure.
- If freed, wrap and transport the amputated body part to hospital (refer to *CPP: Trauma/Care and management of an amputated body part*).
- The Gigli saw handles are a re-usable medical instrument that requires reprocessing and sterilisation in accordance with the *QAS Infection Control framework*.