Clinical Practice Procedures:
Trauma/Skin closure – Simple interrupted suturing

Policy code	CPP_TR_SCSI_1224
Date	December, 2024
Purpose	To ensure a consistent procedural approach to skin closure – simple interrupted suturing.
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.
Source of funding	Internal – 100%
Author	Clinical Quality & Patient Safety Unit, QAS
Review date	December, 2027
Information security	UNCLASSIFIED – Queensland Government Information Security Classification Framework.
URL	https://ambulance.qld.gov.au/clinical.html

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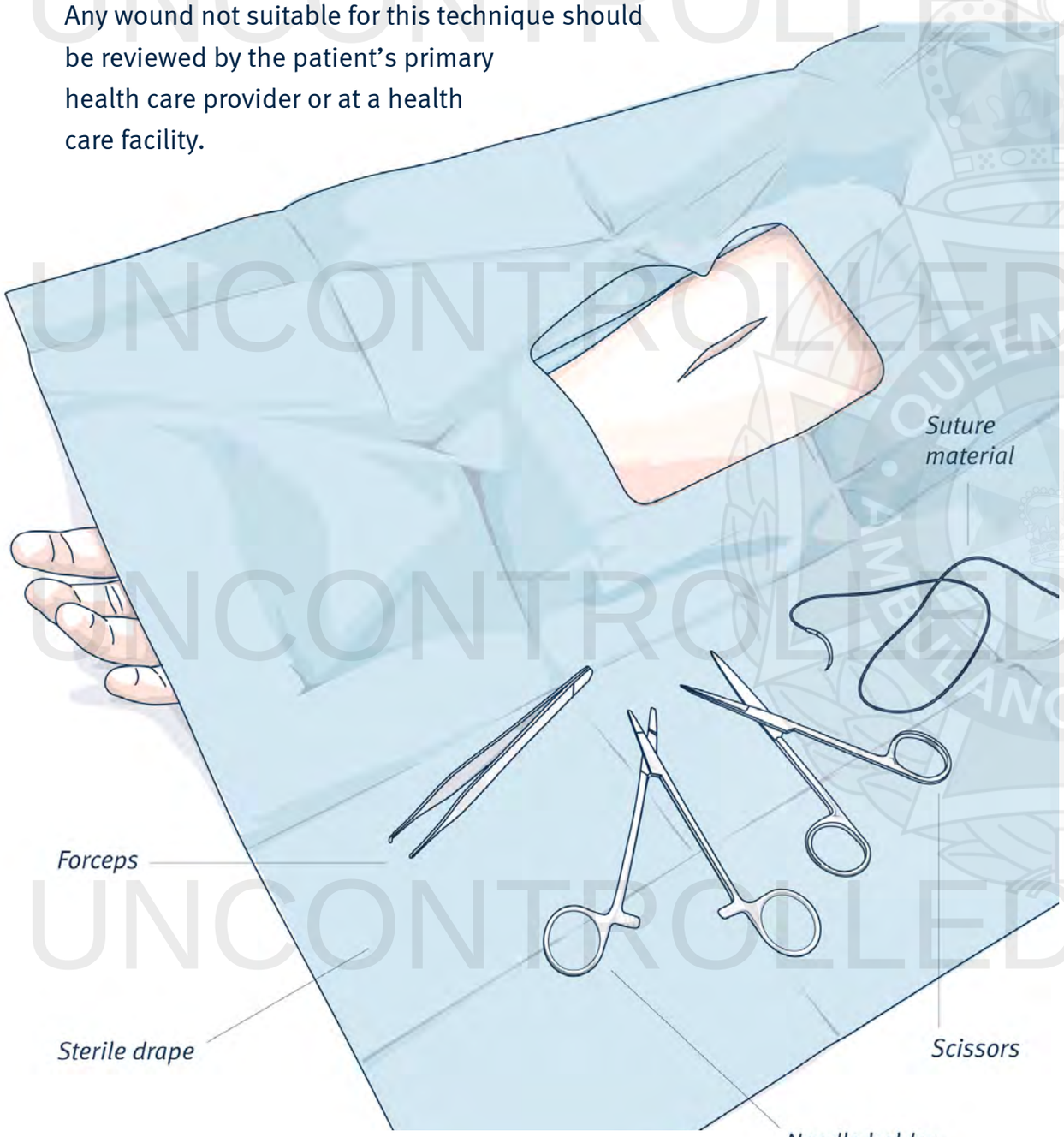
Skin closure – Simple interrupted suturing

December, 2024

Simple interrupted suturing using non-absorbable material is a common method of closing skin defects following injury. The aim of suturing is to promote rapid healing without complications.

Any wound not suitable for this technique should be reviewed by the patient's primary health care provider or at a health care facility.



Indications

- Uncontaminated simple lacerations with the following criteria:
  - Adult patient (16 years or older);
  - 4 hours or less from injury; AND
  - easily apposed wound edges with non ragged edges.

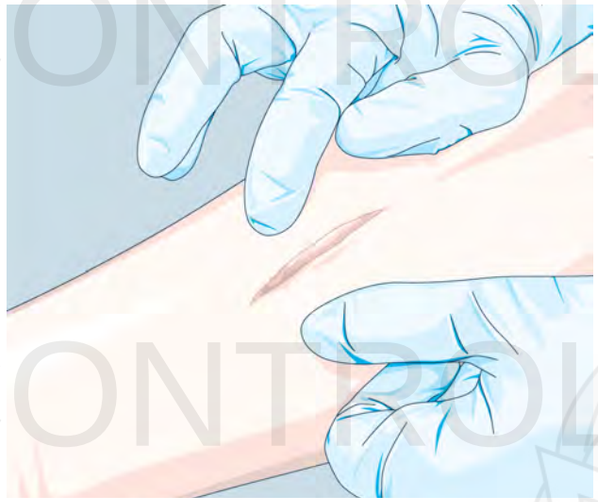
Contraindications

- Wounds unable to be easily approximated
- Wounds caused by animal/human bites or marine injury (e.g. coral cuts)
- Wounds with evidence of infection
- Wounds over joints, the face (including chin), scalp, hands, ears, armpit, genitals or feet
- Obvious tissue defect or cavity (dead space) under the wound
- History of keloid scarring
- Potential damage to underlying structures (i.e. tendons or bone on view)
- Skin flaps or tear

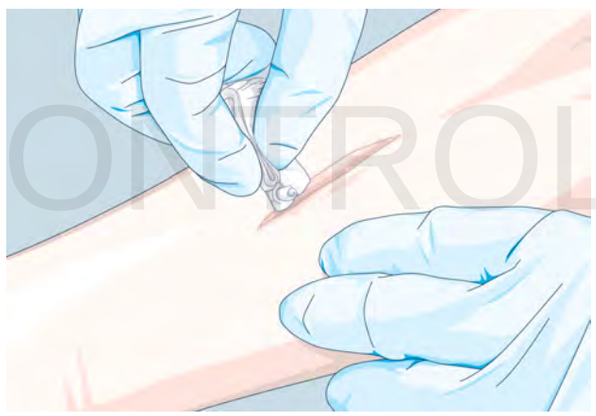
Complications

- Wound dehiscence
- Infection
- Cosmetic (e.g scarring)

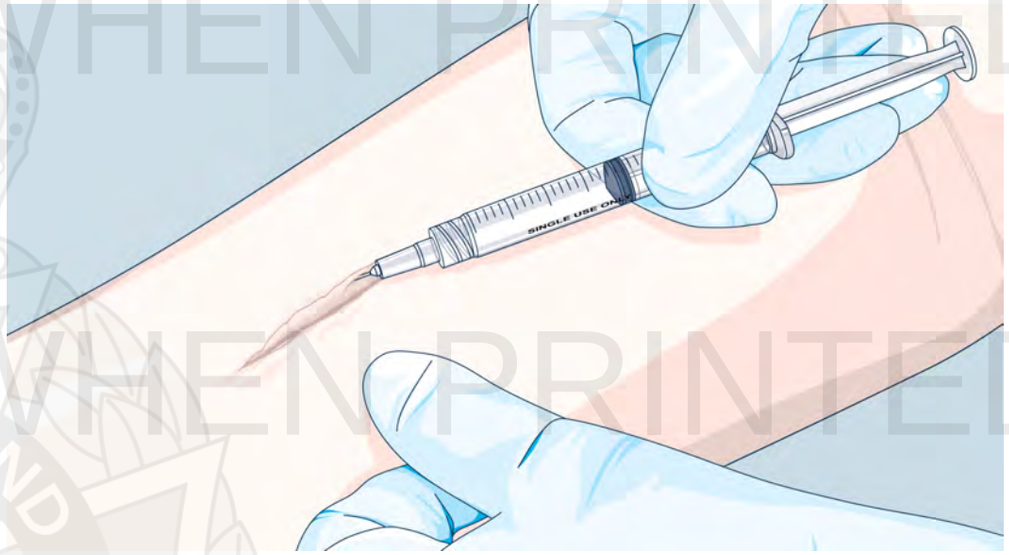
1. Apply required infection control measures (refer to *QAS Infection Control Framework*).
2. Inspect the wound and confirm suitability for simple interrupted suturing.



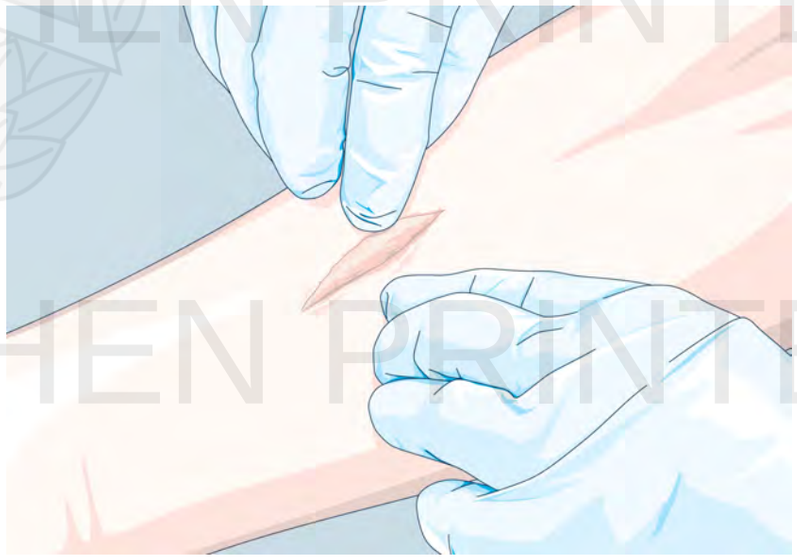
   - If no complications exist, obtain informed consent and send a photograph of the wound (with the case number annotated in the subject line) via email to QASLARU.Review@ambulance.qld.gov.au
   - Contact the *QAS Clinical Consultation and Advice Line* and request that the wound photograph be reviewed to confirm the suitability of simple interrupted suturing.
3. Thoroughly clean the wound using sodium chloride 0.9%.



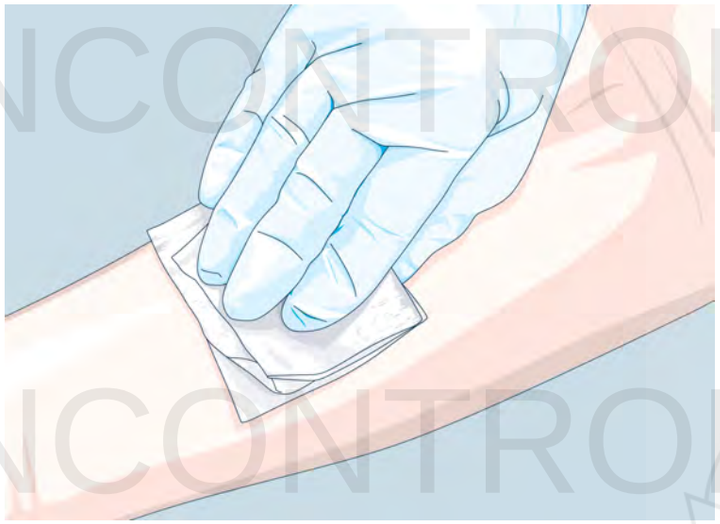
4. Prepare a suitable volume of lidocaine 1% (refer to *DTP: Lidocaine 1%)*.
5. Infiltrate the skin surrounding the wound (refer to *CPP: Drug & fluid administration/Direct infiltration of local anaesthetic)*.



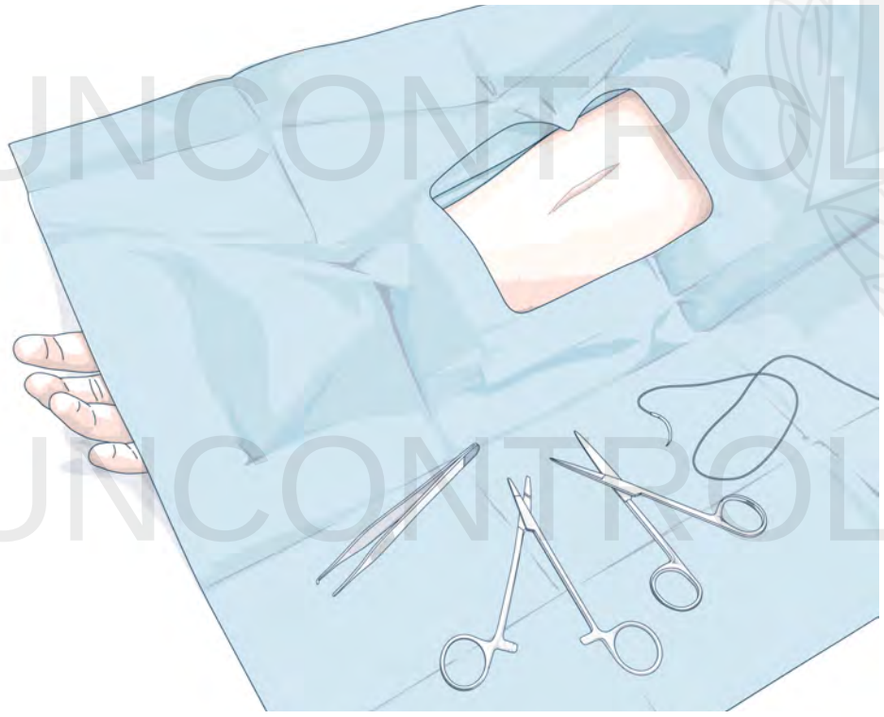
6. Explore the wound to ensure that the bottom can be clearly visualised and no underlying structures are potentially damaged.



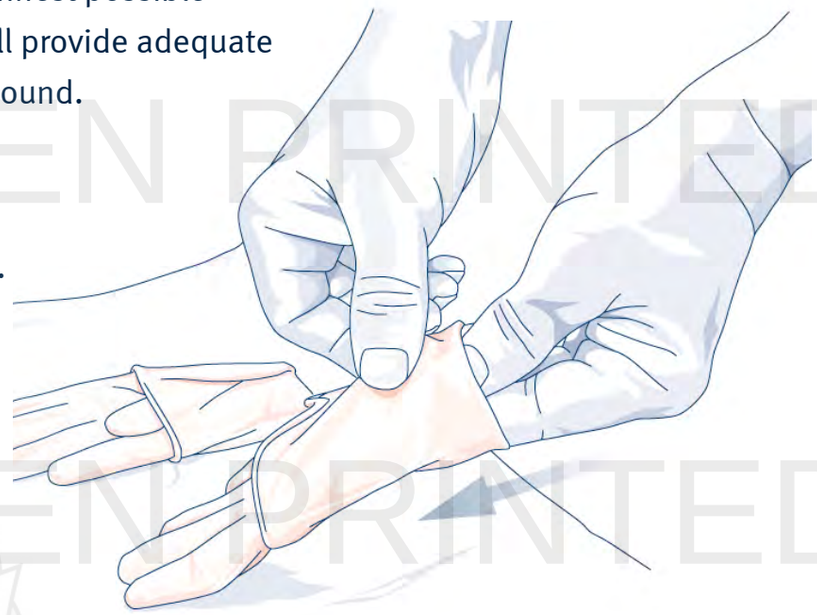
7. Thoroughly re-clean the wound using sodium chloride 0.9%.
8. Remove excess moisture with a sterile gauze/combine.

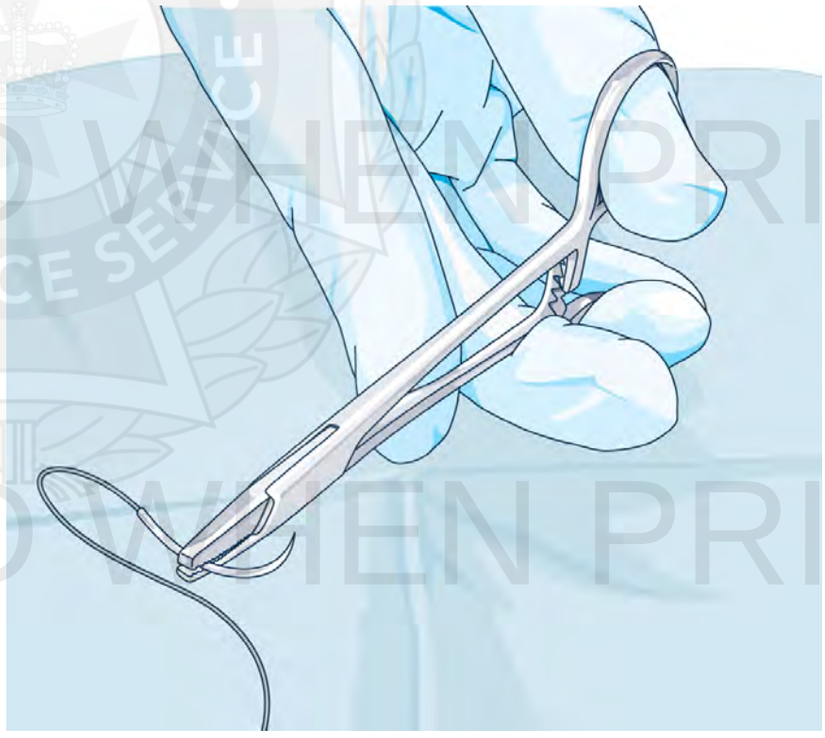


9. Prepare a sterile field by draping the wound with a sterile fenestrated drape.



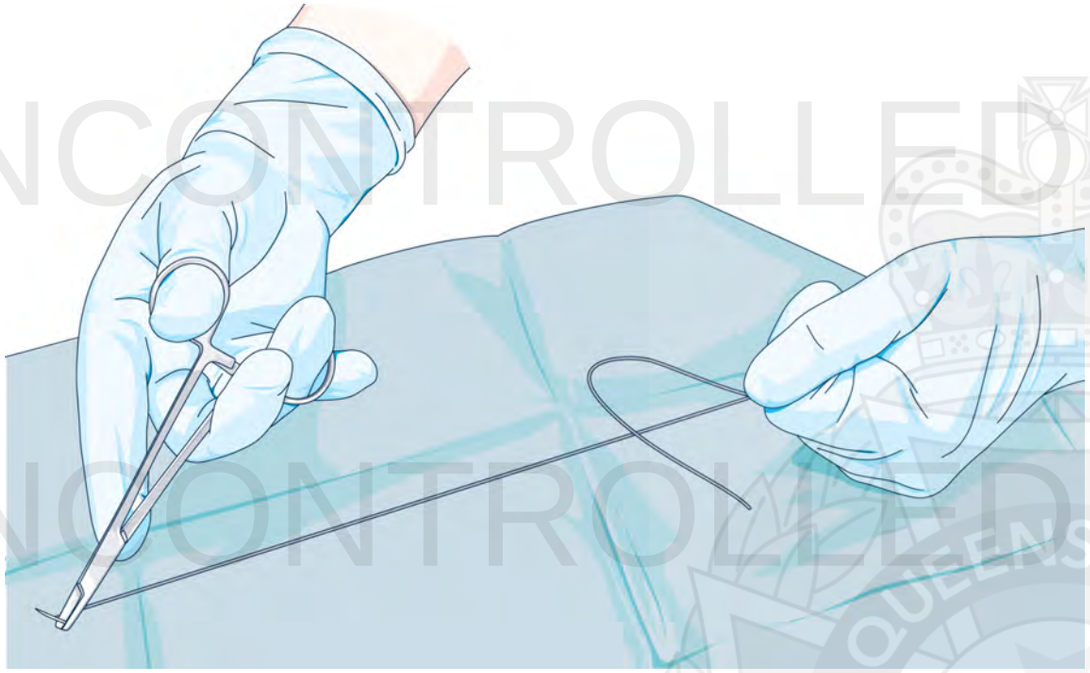
10. Select an appropriate suture diameter for the location and type of wound – use the thinnest possible suture material that will provide adequate strength to close the wound.
11. Open the suture pack and place contents on a prepared sterile field.
12. Perform appropriate hand hygiene and don sterile gloves (refer to *CPP: Other /Donning and doffing of medical gloves).*





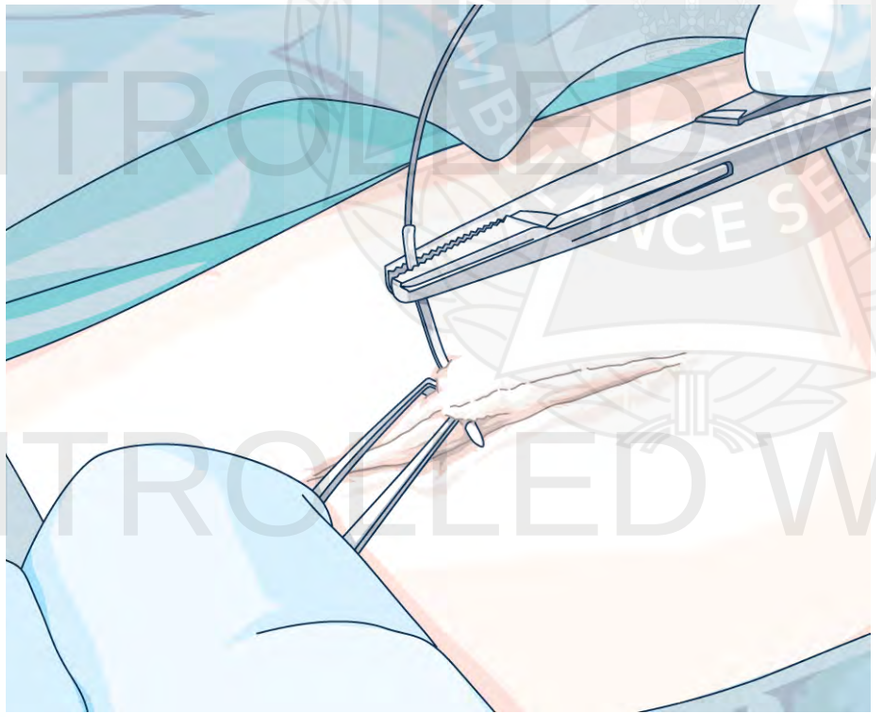
13. Grip the needle with the needle holder ready for suturing.

14. Consider gently stretching the suture material to remove it's 'memory'.

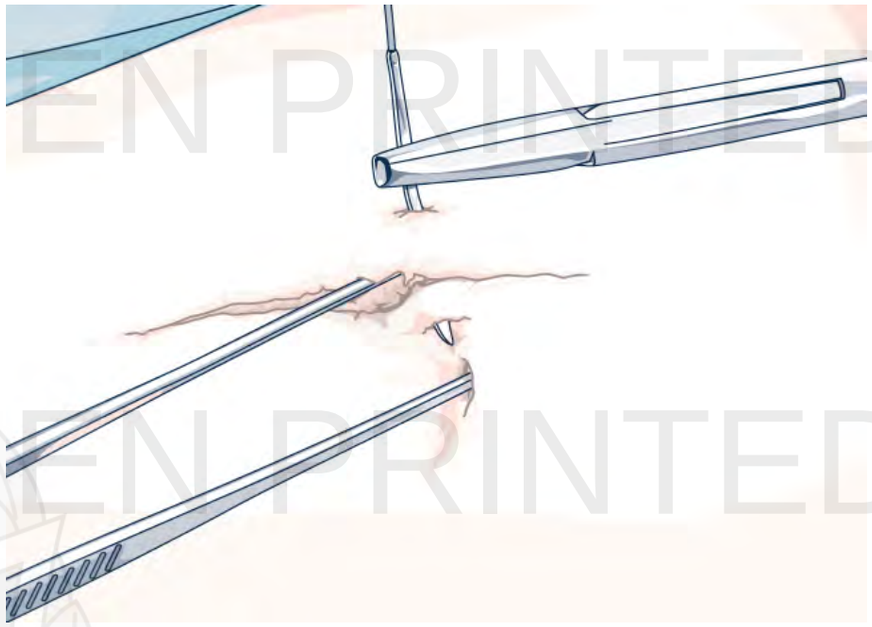


15. Lift the tissue edge and insert the first suture in the middle of the wound – ensure the wound edges are slightly everted.

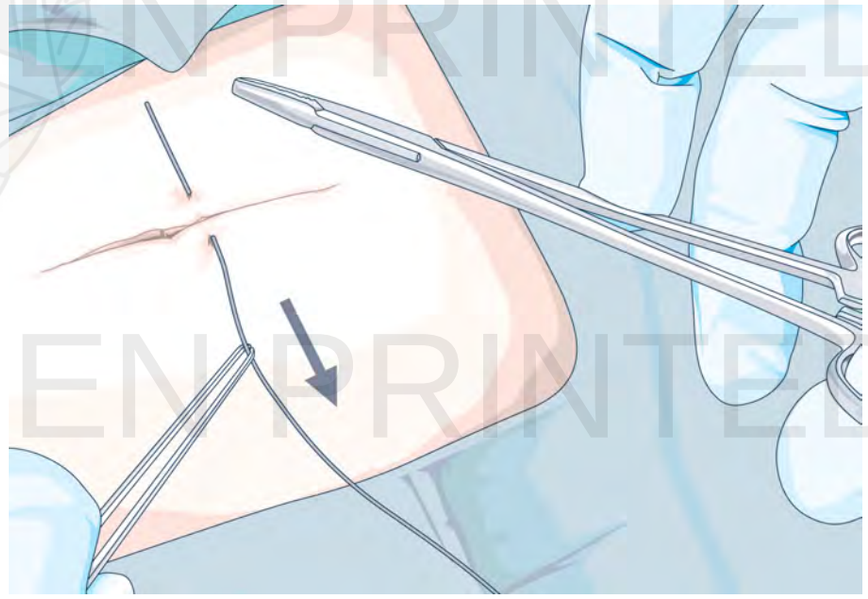
    a) With the needle tip perpendicular to the skin penetrate the epidermis on one side and gently rotate the wrist to advance the needle through the subcutaneous tissue.



    b) Penetrate the subcutaneous tissue on the wound's other side and exit via the epidermis above.



    c) Gently pull the suture material through the skin leaving approximately 10–20 mm exposed from the entry site.



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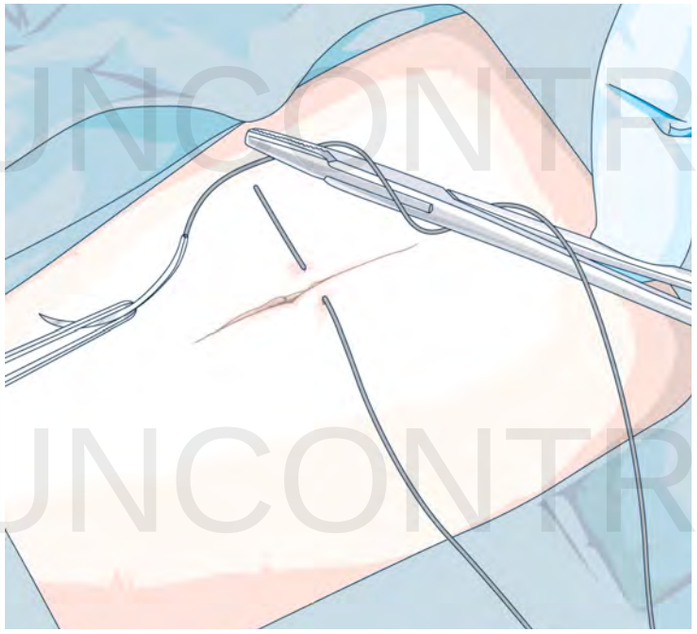
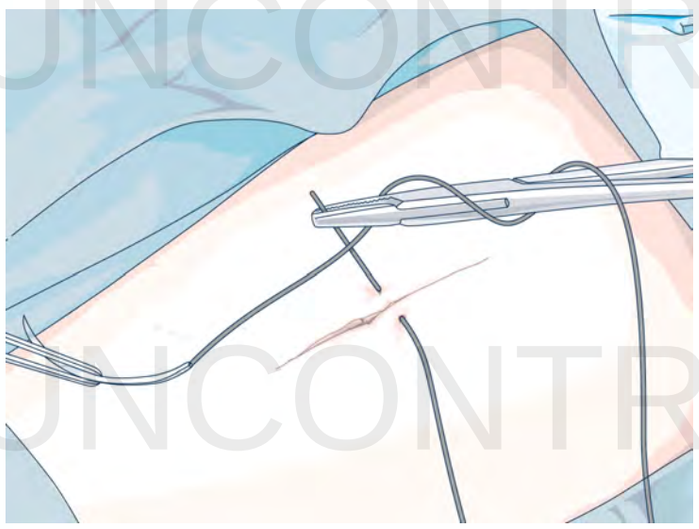
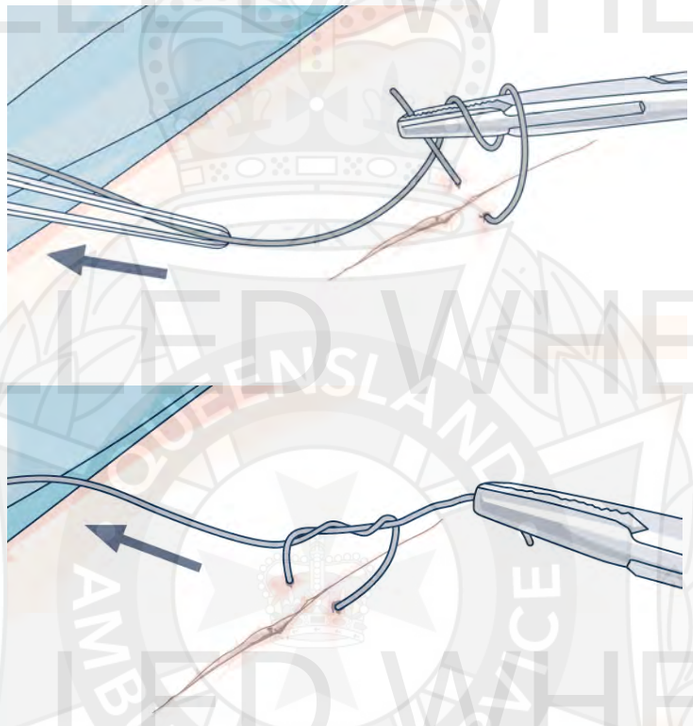
d) Wrap the suture material twice around the needle holder in a clockwise direction.

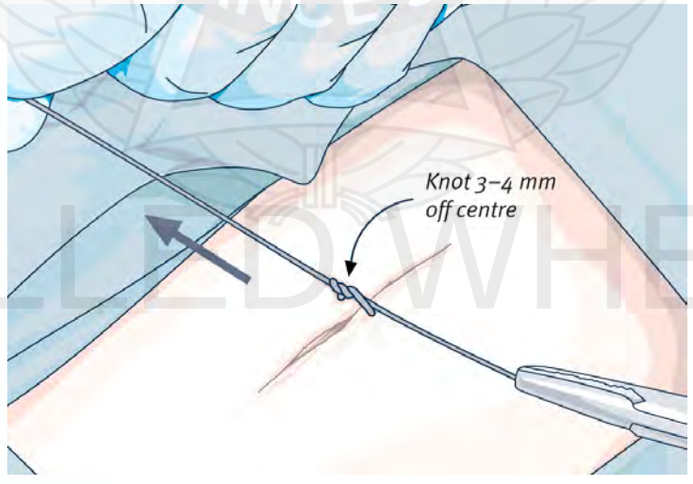


e) Grab the short end of the suture material with the needle holder.

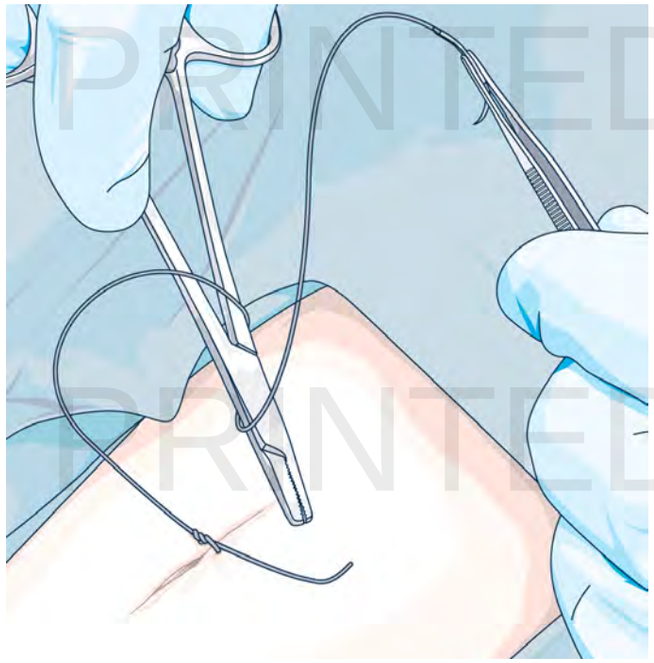


f) Gently pull through the suture material loops ensuring the knot lies flat and slightly off centre (3–4 mm from the wound edge). The short end of the suture material should now be on the opposite side.

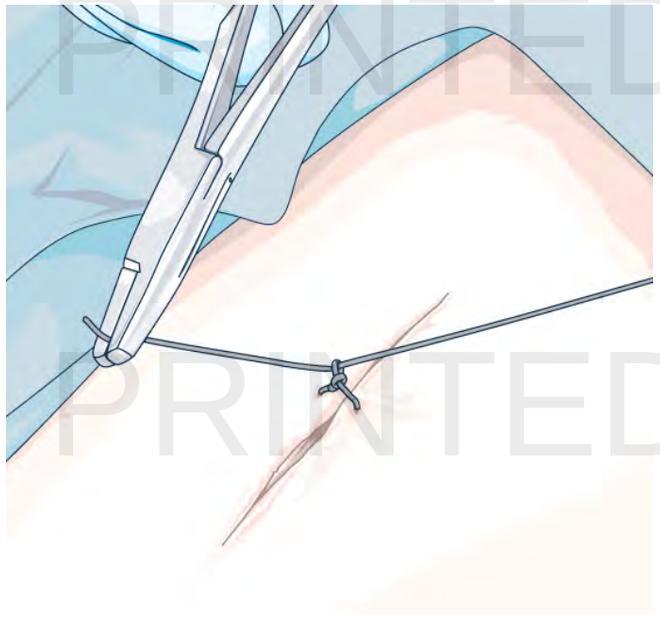




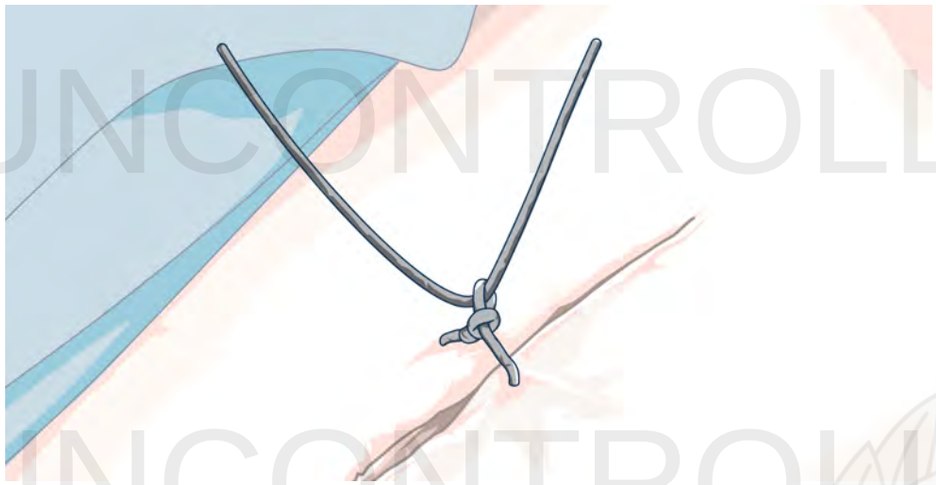
g) Finalise the securing suture by repeating the preceding steps (d–f) twice with a single throw for each knot to end with (h).



h) Finalised knot.



i) Cut the tail ends of the suture material to leave 1–2 cm of suture material.



16. Commencing at the wound edge furthest from the paramedic, repeat steps 14 (a–i) until the wound is fully apposed.

17. Ensure the skin between sutures is not puckered or pulled too tight as this may cause tissue ischaemia and/or a poor cosmetic result.

18. Re-clean the closed wound with sodium chloride 0.9%.

19. Remove excess moisture with a sterile gauze/combine.

20. Once dry, apply an appropriate non-adherent dressing to the wound.

21. Provide the patient with a copy of the *QAS Wound Care Information* sheet. Explain all information and answer any questions asked by the patient.

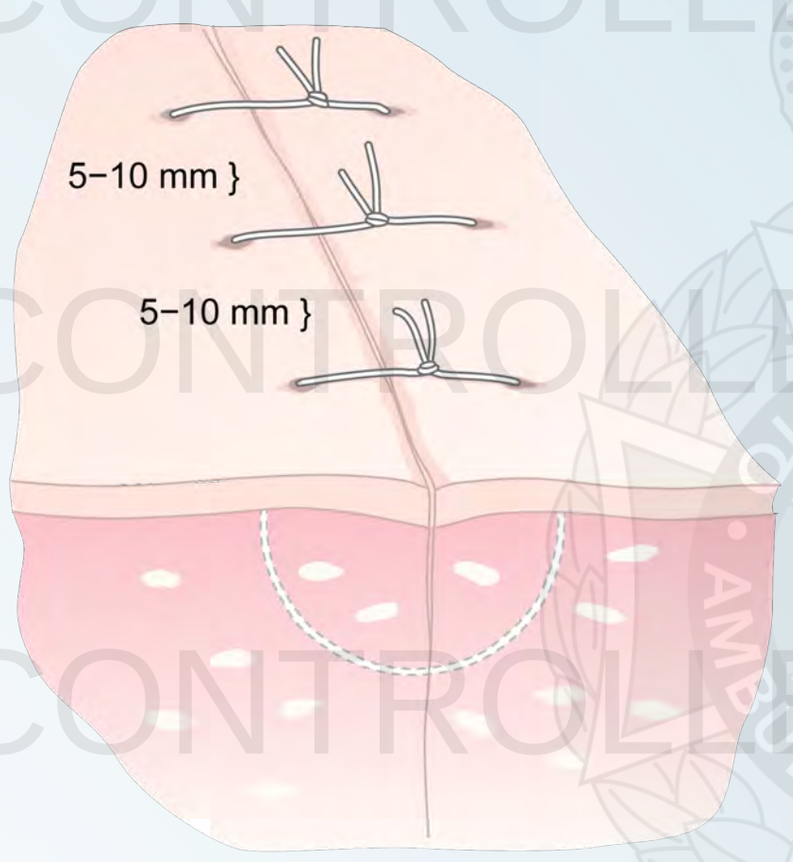
Additional information

- The use of medical gloves is not a substitute for hand hygiene. Hand hygiene should be performed before donning and doffing medical gloves and immediately before and after any procedure.
- Eye protection must be worn by all clinicians. The potential of blood and body fluids exposure (especially in the face and eyes) during this procedure is **HIGH**.
- All patients with unknown Tetanus immunisation status OR ≥ 5 years since their last Tetanus immunisation must be reviewed within 24 hours by a doctor.
- Guide for appropriate suture diameter and suggested time to removal of sutures.

Site	Suture Diameter	Days to Suture Removal
Chest/Abdomen	3/0–4/0	7 days
Back	3/0–4/0	7–10 days
Arm	3/0–4/0	7 days
Leg	3/0–4/0	7 days

Additional information *(cont.)*

- Antibiotics are not routinely indicated for simple lacerations.
- Wounds have only 7% of their final strength on day five.[2]
- Sutures (non-facial) knots should be positioned approximately 3–4 mm from the skin edges and 5–10 mm apart.



- The collection of clinical image for the purpose of clinical consultation AND/OR quality assurance forms part of the patient's health care record and their existence must be documented on the patient's eARF. This can be done by selecting the image tick box in the eARF app at the following location: *Care/Procedure/Consult/Clinical Consultation and Advice Line*.

Procedure for removal of simple interrupted sutures

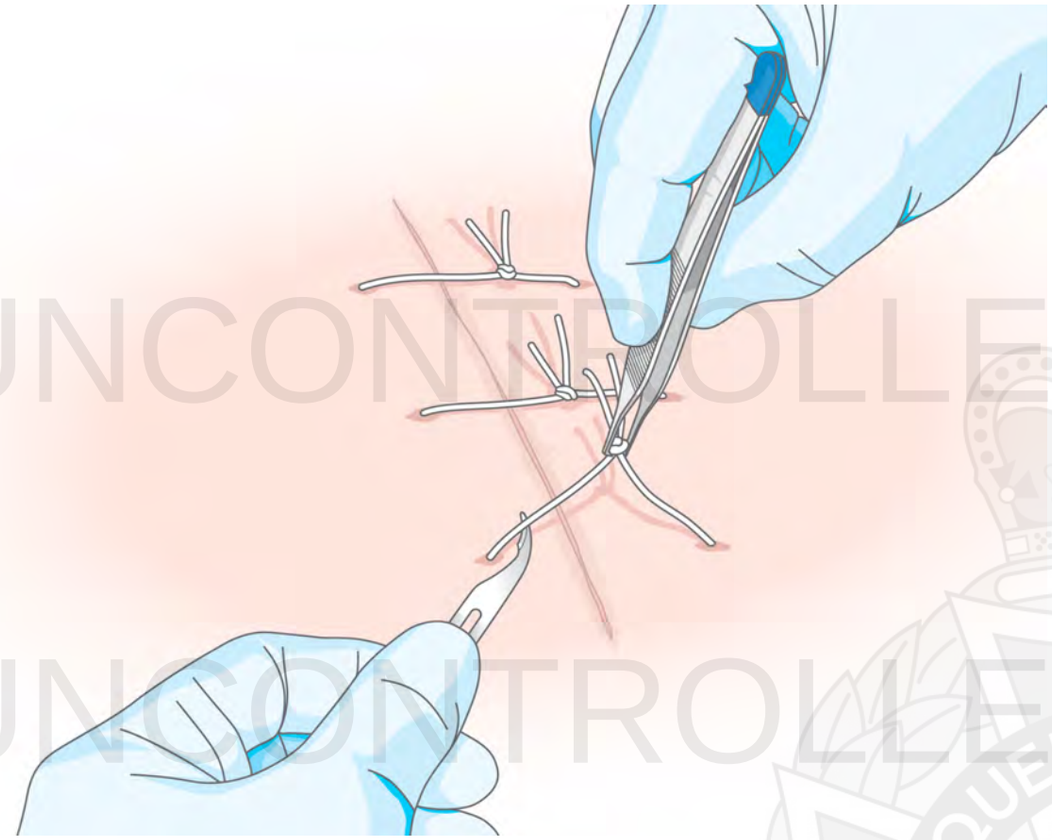
Note: sutures are not to be routinely removed by the clinician without prior consult with *QAS Clinical Consultation & Advice Line*.

Equipment required:

- PPE – gloves
- Sterile dressing forceps
- Sterile stitch cutter
- Disposal receptacle
- Sharps container

Procedure (refer to illustration on following page):

1. Starting at one end, gently grasp the knot of the suture with forceps and raise it slightly.
2. Place the curved tip of the suture scissors or scalpel directly under the knot or on the side, close to the skin.
3. Gently cut the suture and pull it out with the forceps.
4. Make sure all of the suture material has been removed and place the suture on clean gauze.
5. Dispose of waste into the disposal receptacle, and the stitch cutter into a sharps container.
6. Once dry, apply an appropriate non-adherent dressing to the wound.



Forceps and cutter positioning for stitch removal

Audit

- All wounds involving paramedic initiated suturing and Histoacryl® skin adhesive application are subject to clinical audit and review. Officers are required to obtain informed consent from the patient and send the following information to QASLARU.Review@ambulance.qld.gov.au:
  - Case Number
  - Paramedic name and medal number; AND
  - Photographs (before and after closure).

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