



# Clinical Practice Procedures: Access/Intraosseous – Sternal (FAST1™)

<b>Policy code</b>	CPP_AC_INF1_0221
<b>Date</b>	February, 2021
<b>Purpose</b>	To ensure a consistent procedural approach to intraosseous – Sternal (FAST1™).
<b>Scope</b>	Applies to Queensland Ambulance Service (QAS) clinical staff.
<b>Health care setting</b>	Pre-hospital assessment and treatment.
<b>Population</b>	Applies to all ages unless stated otherwise.
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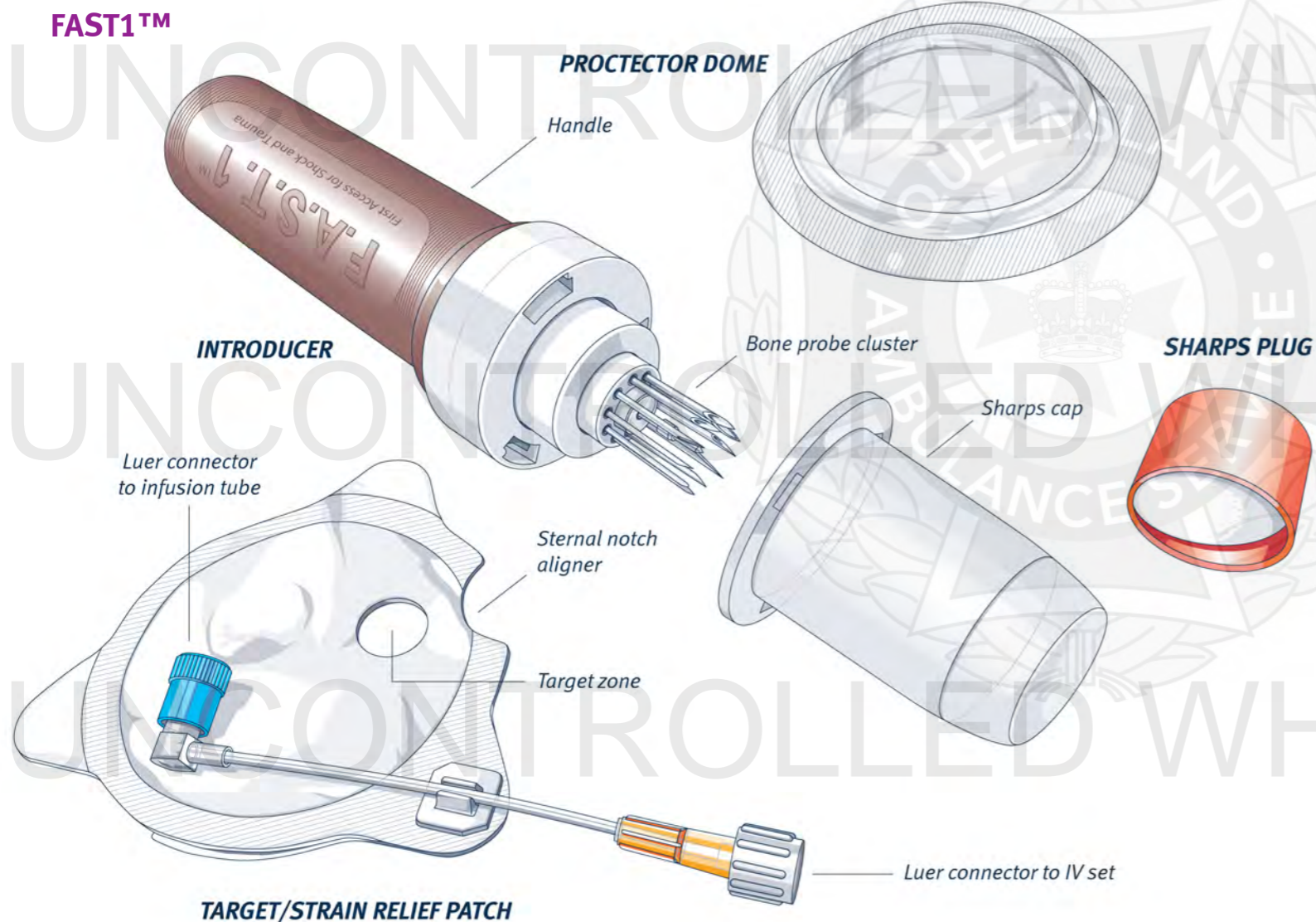
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# Intraosseous – Sternal (FAST1™)

February, 2021

**Intraosseous (IO) access** involves the insertion of a needle into the intramedullary space to enable the administration of medications and/or fluids. The intramedullary cavity is comprised of rich vascular sinusoids that promote the rapid delivery of medications and/or fluids into the general circulation via the intramedullary venous system.

The FAST1™<sup>[1]</sup> is a manually inserted sternal IO device suitable for use in patients 12 years or older for the administration of drugs and/or fluids when IV access or peripheral IO access is unobtainable. Appropriate consideration must be given to its requirements in the pre-hospital setting.



## Indications



- Emergent access for the administration of drugs and/or fluids when IV access OR peripheral IO access is unachievable.

## Contraindications



- Known bone pathology including fracture/s of the sternum.
- Less than 12 years of age

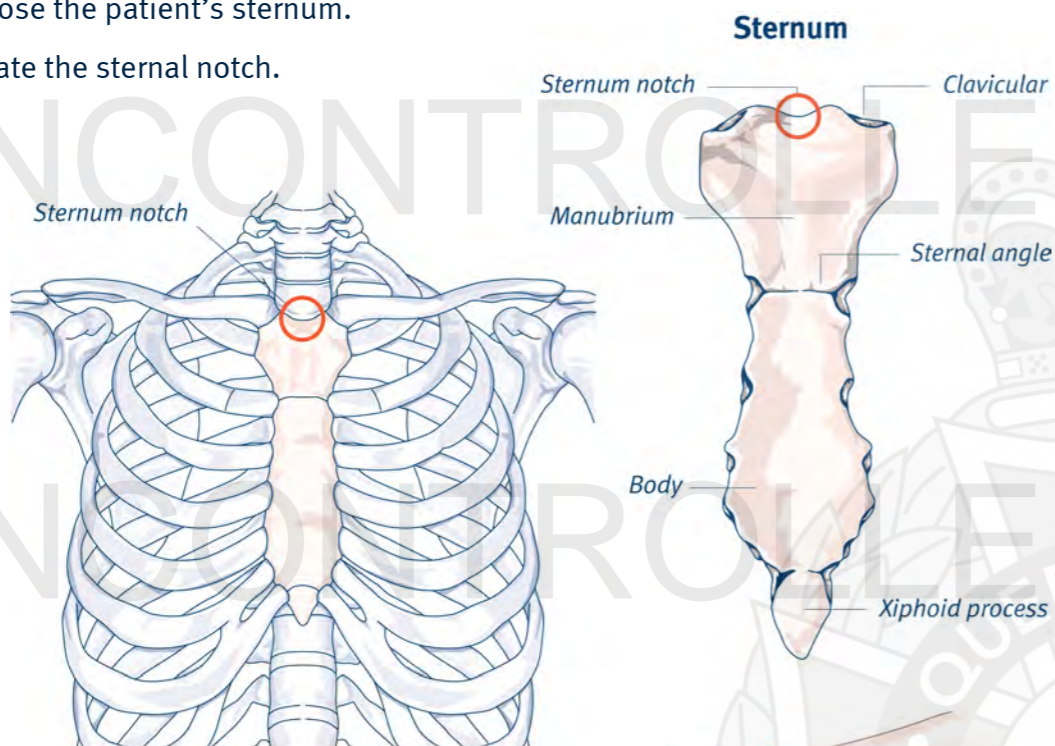
## Complications



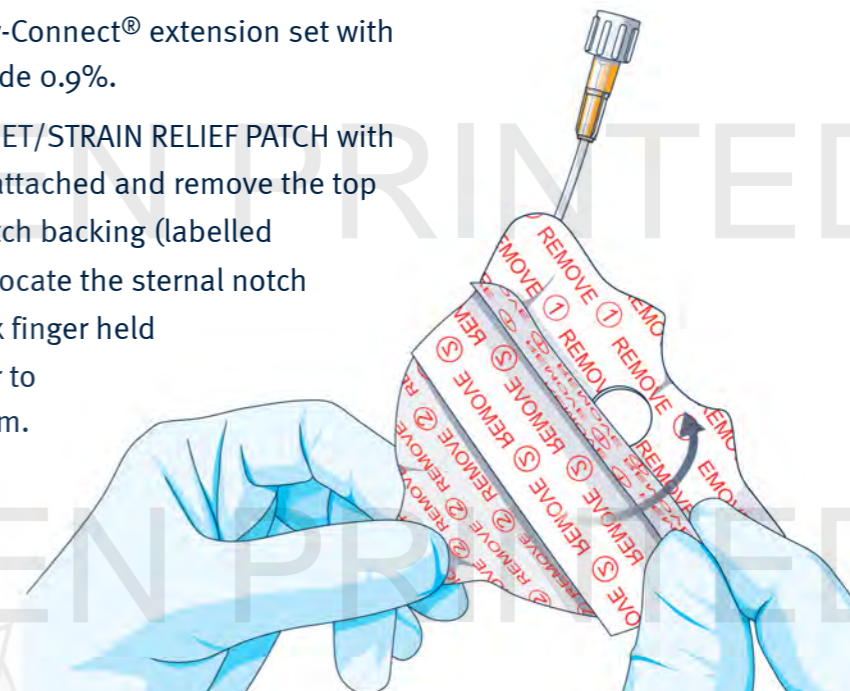
- Local or systematic infection
- Haemorrhage
- Drug/fluid extravasation into superficial tissues
- Fracture
- Air embolus

## Procedure – Intraosseous – Sternal (FAST1™)

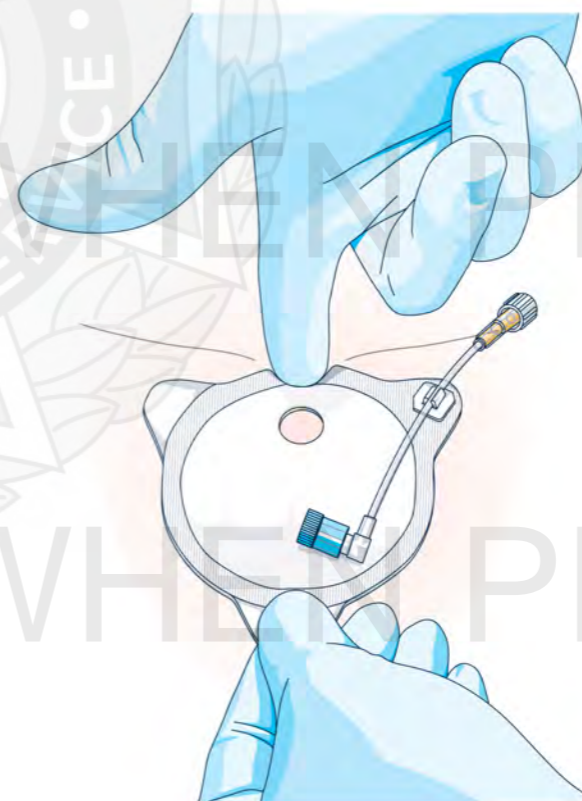
1. Apply required infection control measures (refer to *QAS Infection Control Framework*).
2. Expose the patient's sternum.
3. Locate the sternal notch.



5. Allow the site to completely dry (if clinically appropriate).
6. Prime an Easy-Connect® extension set with sodium chloride 0.9%.
7. Take the TARGET/STRAIN RELIEF PATCH with the Luer line attached and remove the top half of the patch backing (labelled 'Remove 1'). Locate the sternal notch with the index finger held perpendicular to the manubrium.



4. Clean an area of approximately 20 x 20 cm immediately below the sternal notch with an appropriate antimicrobial swab using a 'back and forth' motion in two opposite directions (cross hatch method) for 15 seconds in each direction (total 30 seconds). A risk benefit analysis in view of the patient's condition is appropriate.



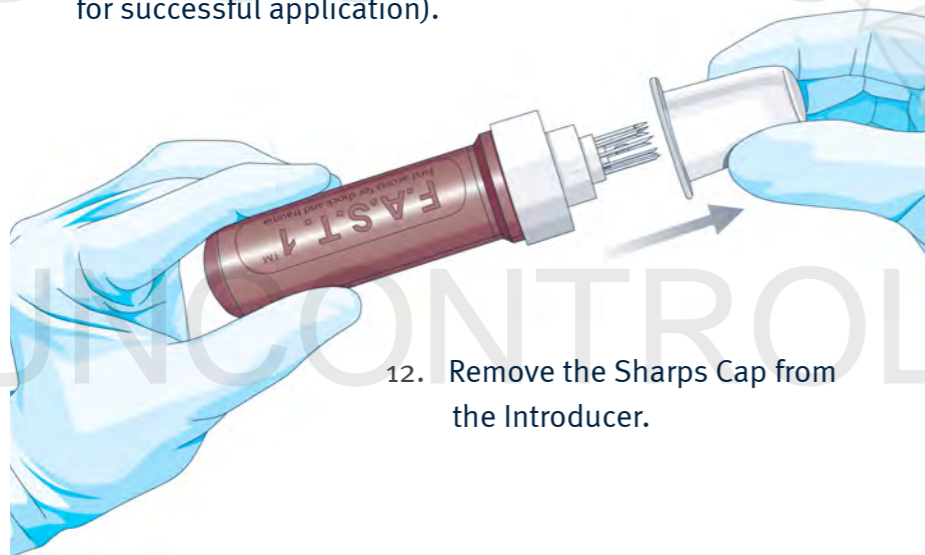
8. Using an index finger, align the notch in the Patch with the patient's sternal notch ensuring that the Target Zone (circular hole in the patch) is over the patient's midline, then press down on the top half of the Patch to adhere it to the skin.

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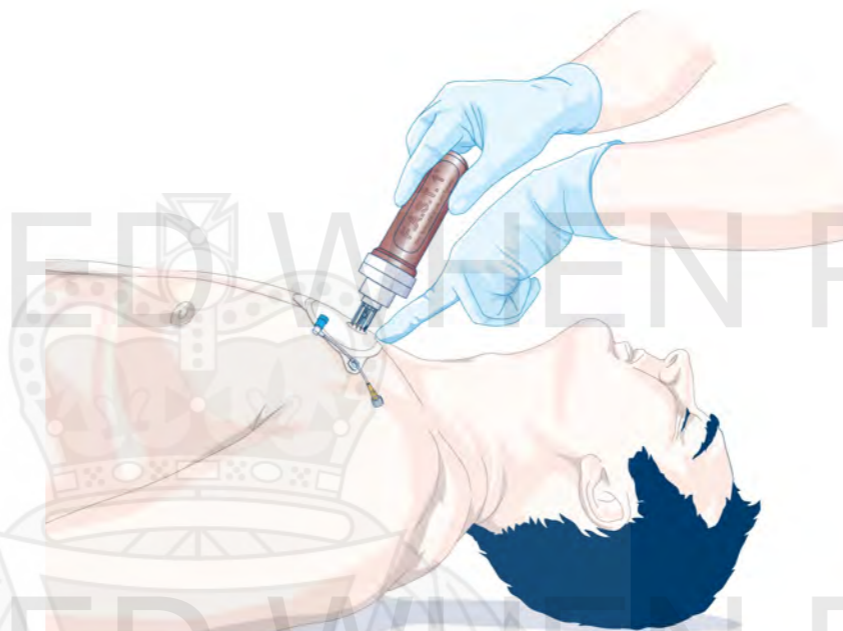
9. Lift the bottom of the Patch and remove the bottom half of the Patch backing (labelled 'Remove 2') and press the Patch firmly to secure it to the patient.



10. Verify that the target zone (circular hole in the patch) is over the patient's midline. Adjust the position of the Patch if it is off midline by more than 1 cm.
11. Kneel at the head of the patients (optimum position for successful application).



12. Remove the Sharps Cap from the Introducer.



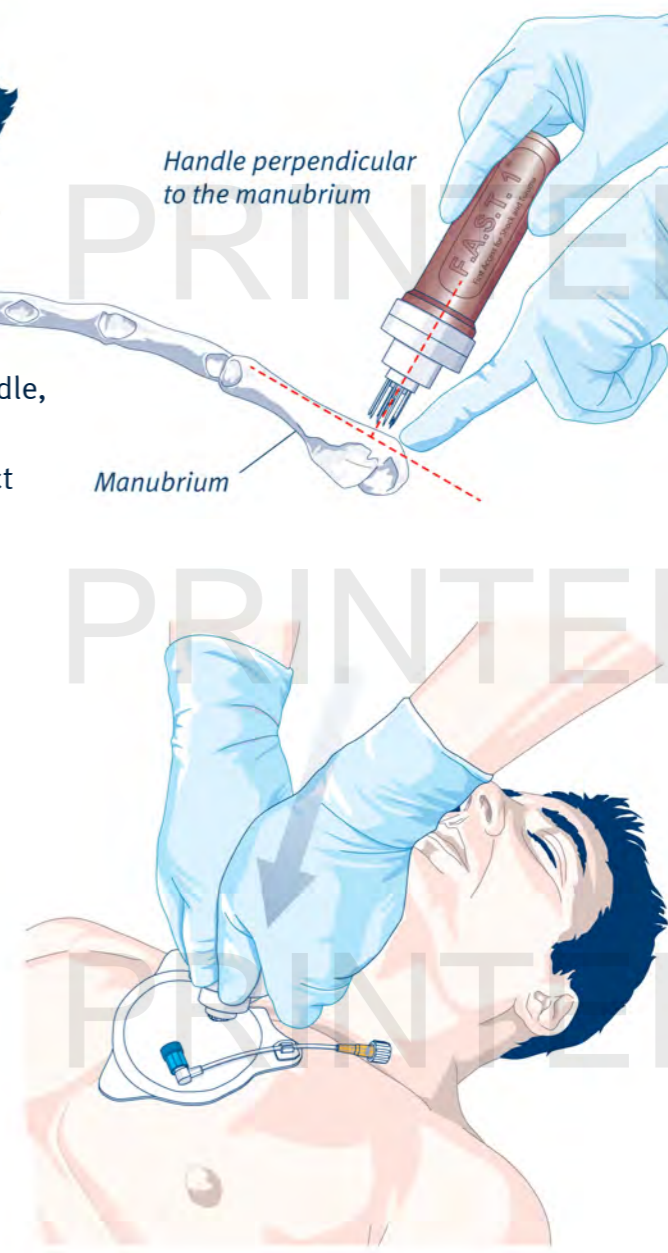
14. With two (2) hands grasping the Introducer handle, press firmly along its axis, keeping hands and elbows in line. Maintain pressure until a distinct release is heard and felt.



13. Place the Bone Probe cluster in the Target Zone. Ensure that the Introducer axis is perpendicular (90°) to the manubrium.

*Handle perpendicular to the manubrium*

*Manubrium*

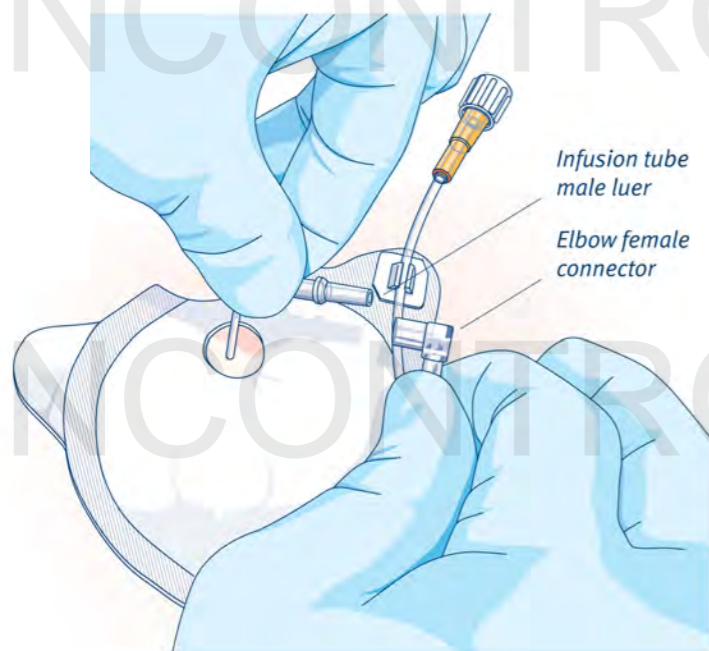


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15. After release, pull straight back on the Introducer, exposing the infusion tube.



16. With the red Sharps Cap sitting on a firm flat surface with the sponge uppermost, push the used Bone Probe Cluster into the sponge, then immediately dispose of the Introducer into a large sharps container.

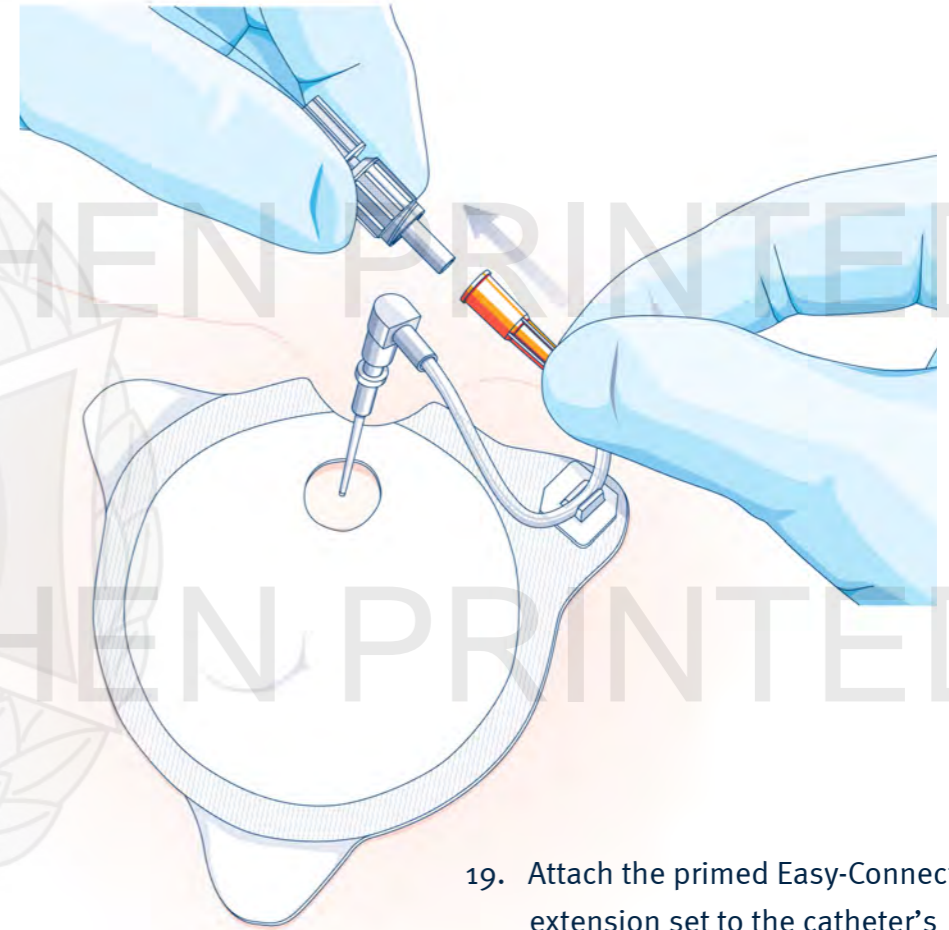


Infusion tube  
male luer  
Elbow female  
connector

17. Attach the elbow female connector (*blue cap*) on the Patch to the infusion tube male luer.

18. Confirm intramedullary needle top position by:

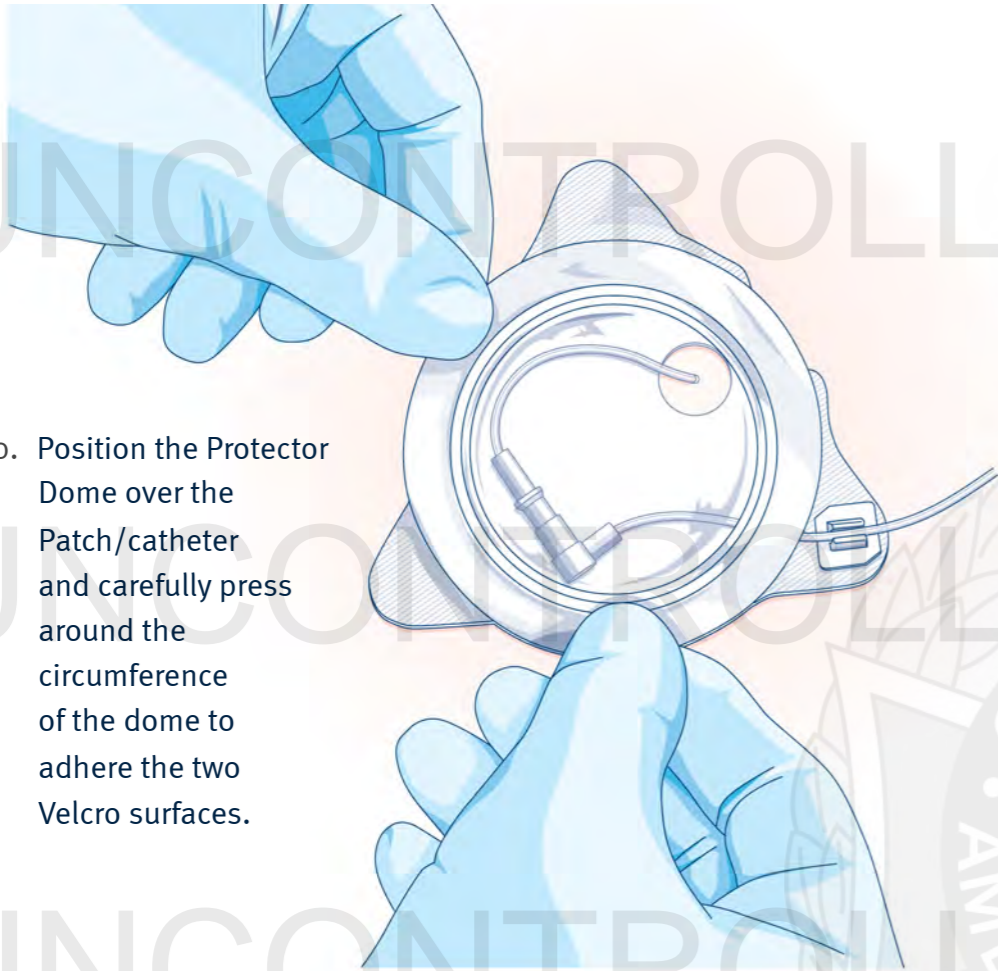
- Aspiration of bone marrow (marrow or blood may not always be present)
- Ability to flush (adult 10 mL) sodium chloride 0.9% with no evidence of extravasation (failure to appropriately flush the IO catheter indicates limited or no flow).



19. Attach the primed Easy-Connect extension set to the catheter's free straight female luer (*white cap*).

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20. Position the Protector Dome over the Patch/catheter and carefully press around the circumference of the dome to adhere the two Velcro surfaces.



21. Consider administration of lidocaine 1% (lignocaine 1%) prior to drugs or fluid administration (refer to DTP: Lidocaine 1% (lignocaine 1%)).
22. Administer medications and/or fluids as required.
23. Frequently monitor the insertion site for extravasation.

### + Additional information

- The use of medical gloves is not a substitute for hand hygiene. Hand hygiene should be performed before donning and after 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 during this procedure is **HIGH**.
- It is recommended that cardiac compressions be paused while the FAST1™ is being deployed.
- The force required to insert the Infusion Tube into the manubrium can be considerable. The use of a two-handed grip on the Introducer allows for better control.
- Clinicians must remain vigilant when administering drugs via this route. Drug effect may be delayed and it is important to avoid a cumulative toxic dose.
- Use in patients with recent sternotomy may prove less effective.

### NUMBER OF ATTEMPTS

- This procedure is limited to **one** attempt per patient.

### Removal instructions

All FAST1™ needles must be removed within 24 hours, this will generally be done by the medical/nursing staff at the receiving health facility. In the unlikely event that QAS clinicians are required to remove the catheter, the following procedure must be followed: <sup>[1]</sup>

- Carefully remove the Protector Dome from the Patch.
- Disconnect the Infusion Tube from the Male Connector.
- Hold the Infusion Tube straight out from the patient close to the skin and pull straight out in one continuous motion until removed (do not start/stop). Use the tube to pull, not the luer connector; it is normal for the tube to stretch.
- Remove the Patch, applying gentle pressure to stabilise the skin if required and apply a sterile dressing to the site.