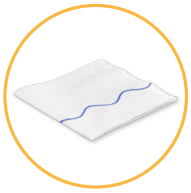
Teleflex

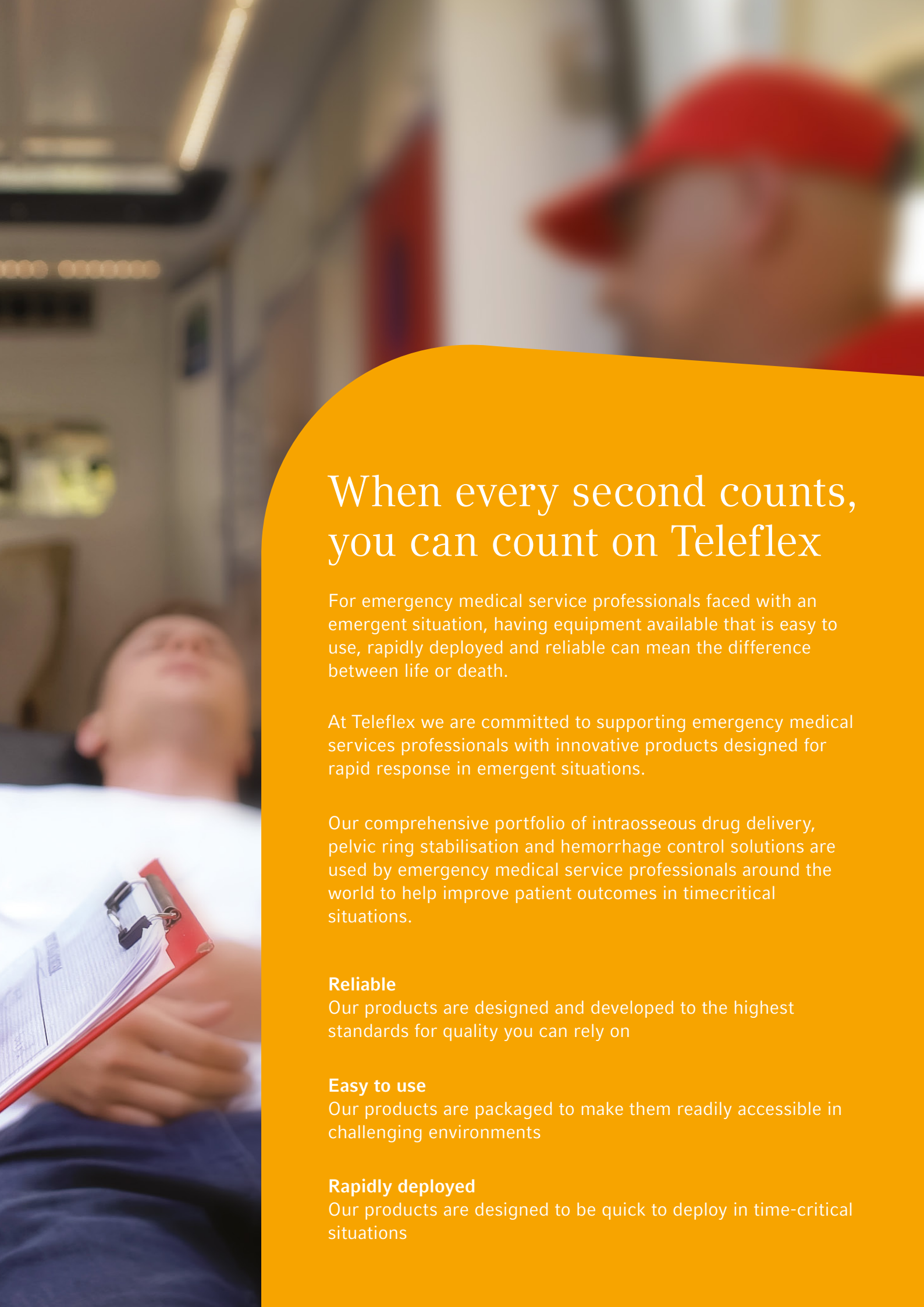
Trauma and Emergency Medicine Portfolio

Emergency care solutions designed for rapid response



Teleflex

Contents



When every second counts, you can count on Teleflex

For emergency medical service professionals faced with an emergent situation, having equipment available that is easy to use, rapidly deployed and reliable can mean the difference between life or death.

At Teleflex we are committed to supporting emergency medical services professionals with innovative products designed for rapid response in emergent situations.

Our comprehensive portfolio of intraosseous drug delivery, pelvic ring stabilisation and hemorrhage control solutions are used by emergency medical service professionals around the world to help improve patient outcomes in timecritical situations.

Reliable
Our products are designed and developed to the highest standards for quality you can rely on

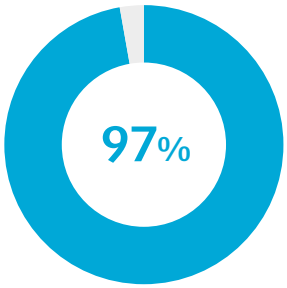
Easy to use
Our products are packaged to make them readily accessible in challenging environments

Rapidly deployed
Our products are designed to be quick to deploy in time-critical situations

EZ-IO
Vascular Access System

Safe[1], Fast[2*], Effective[3]

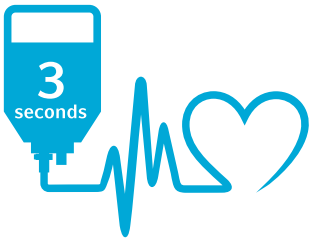
In any situation where intravenous access is difficult or impossible to obtain in emergent, urgent, or medically necessary cases the Arrow EZ-IO Intraosseous Vascular Access System from Teleflex is a safe[1], fast[2*] and effective[3] solution. The EZ-IO System provides peripheral venous access with central venous catheter performance.[4,5,6†]



97% first-attempt success rate[3]

Achieve vascular access within 10 seconds[2]

Supported by more than 90 clinical trials and case studies[7]



3 seconds to heart with medication/fluids[8*]

Clinical Conditions for IO Consideration

Shock

- Septic
- Trauma
- Burns
- Dehydration
- Anaphylactic
- Post-partum haemorrhage

Cardiac

- Cardiac arrest
- Dysrhythmia
- Myocardial infarction
- CHF
- Chest pain

Respiratory

- Respiratory failure
- Intubation (RSI)
- Status asthmaticus
- COPD
- Pneumonia

Neurologic

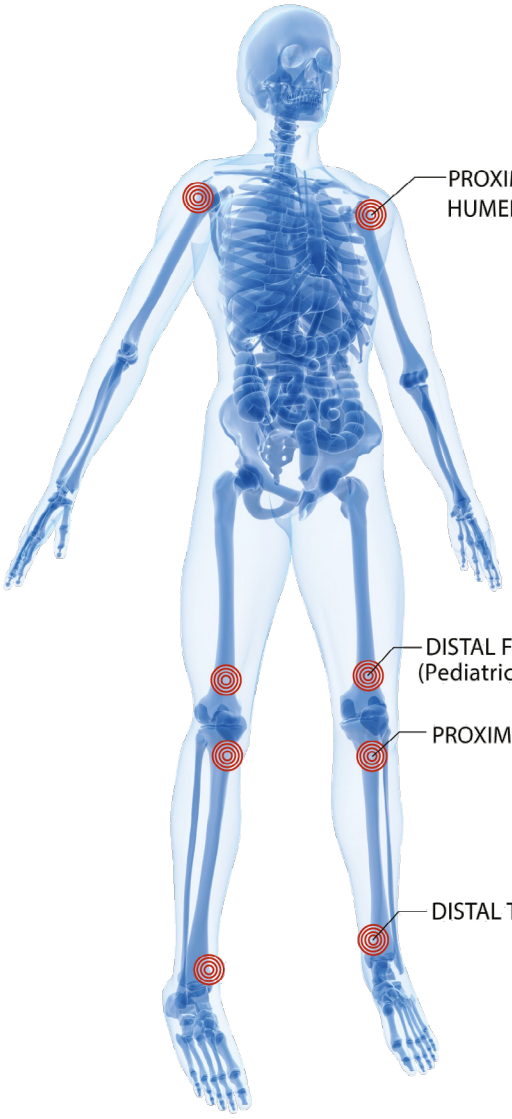
- Status epilepticus
- Stroke
- Head injury
- Altered mental status
- Encephalopathy

Other

- Therapeutic hypothermia
- Sickle cell crisis
- Diabetic ketoacidosis
- Paediatric illness

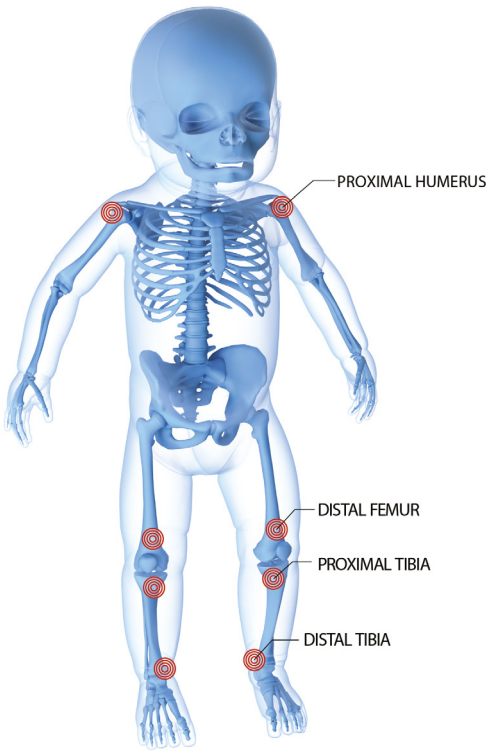
Arrow EZ-IO System Education

EZ-IO Systems Insertion Sites



- 3 seconds to heart with medication/fluids[8*]
- Mean flow rate of 6.3 L/hour under pressure[9*§]
- Lower insertion & infusion pain[10*‡]
- Less medication required for pain management[10*‡]

- Insertion success rate of 98-100%[11]
- Average flow rate of 1 l/h via proximal tibia under pressure[10,12]



Do NOT use the powered EZ-IO Vascular Access System in the sternum

Infusions and Medications

- For optimal flow infuse with pressure
- Many fluids and medications that can be given via a peripheral IV can be given via the IO route using the same dose, rate, and concentration.[13-16]

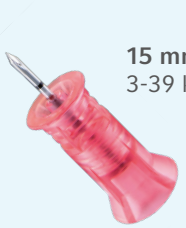
Success Rates: IO>IV

- Success rates for intraosseous vascular access have been shown to be superior to that of IV access during cardiac arrest in comparative clinical studies.[17,18]

Needle selection

The needle sets do not have “adult” or “paediatric” sizes. Each needle set is US FDA-cleared with weight range guidelines. The single use sterile needle sets are 15 gauge, 304 stainless steel available in 3 lengths.
Clinical judgment should be used to determine appropriate needle set selection based on patient weight, anatomy and tissue depth overlying the insertion site.

With the needle set inserted through the soft tissue and touching bone, the 5 mm mark (at least one black line) must be visible outside the skin for confirmation of adequate needle set length prior to drilling.



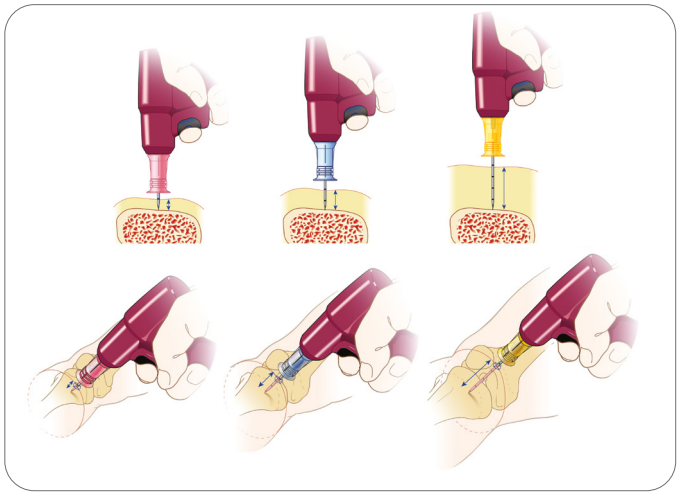
15 mm, 15 Gauge
3-39 kg

25 mm, 15 Gauge
3 kg or over

45 mm, 15 Gauge
40 kg or over and/ or excessive tissue depth

Insertion tips

- Apply the minimal amount of pressure required to keep the driver advancing into the bone
- Immediately release the trigger when you feel the loss of resistance as the needle set enters the medullary space. Avoid recoil – do NOT pull back on the driver when releasing the trigger
- With any manipulation, stabilise the catheter hub.
- Properly secure using an EZ-Stabilizer Dressing and stabilise the extremity



EZ-IO Device Proximal Humerus Identification and Insertion Technique

Identify the Proximal Humerus:

Figure 1

Place the patient's hand over the abdomen (if unable to place as pictured ensure the elbow is adducted and humerus internally rotated).

Figure 2

Place your palm on the patient's shoulder anteriorly.
- The area that feels like a "ball" under your palm is the general target area.
- You should be able to feel this ball, even on obese patients, by pushing deeply.

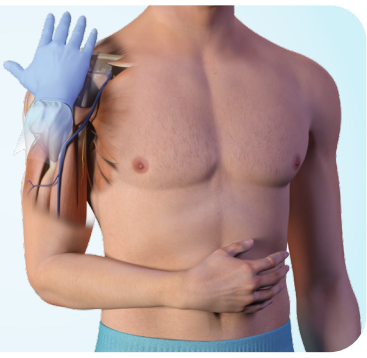


Figure 3

Place the ulnar aspect of one hand vertically over the axilla.

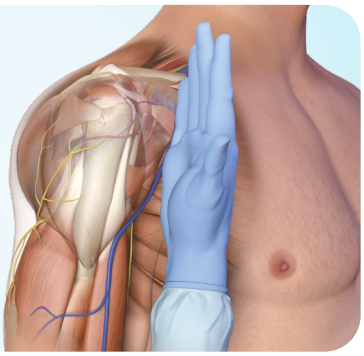


Figure 4

Place the ulnar aspect of the opposite hand along the midline of the upper arm laterally.

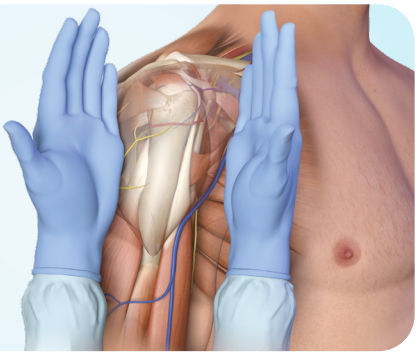


Figure 5

Place your thumbs together over the arm.
- This identifies the vertical line of insertion on the
- proximal humerus.

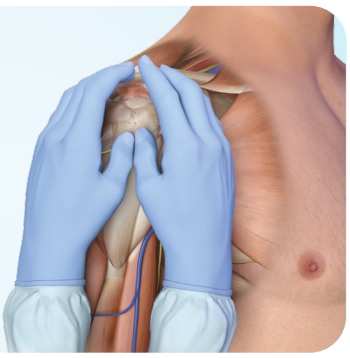


Figure 6

Palpate deeply as you climb up the humerus to the surgical neck.
- It will feel like a golf ball on a tee – the spot where the "ball" meets the "tee" is the surgical neck.
- The insertion site is on the most prominent aspect of the greater tubercle, 1 to 2 cm above the surgical neck.

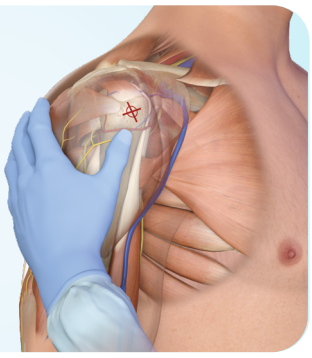
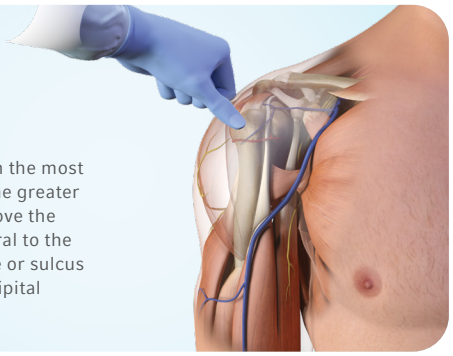


Figure 7

The insertion site is on the most prominent aspect of the greater tubercle, 1 to 2 cm above the surgical neck and lateral to the intertubercular groove or sulcus (also known as the bicipital groove).



Insertion:

- Prepare the site by using antiseptic solution per institutional protocol using a clean, aseptic technique.
- Attach Needle Set to EZ-IO Power Driver and remove Safety Cap from Catheter.
- Once the insertion site is determined as described above, insert the needle set tip through the skin approximately 45 degrees anterior to the horizontal plane and aim the needle set downward approximately 45 degrees. Some find it helpful to think of aiming toward the inferolateral border of the scapula. See Figure 14.
- Push the needle set tip through the skin until the tip touches the bone.

IMPORTANT: At least one black line from the hub must be visible above the skin for confirmation of adequate needle length (always check this before pressing the trigger).

- Gently drill into the humerus 2 cm or until the hub reaches the skin in an adult. **Stop when you feel the "pop" or "give" in infants and children.** Avoid recoil by actively releasing the trigger when you feel the needle set enter the medullary space – do **NOT** pull back on the driver when releasing the trigger.

Figure 8

Insert the needle set tip over the anterolateral part of the arm, 1-2 cm above the surgical neck, then aim the needle set downward at approximately a 45-degree angle, aiming toward the inferolateral border of the scapula.

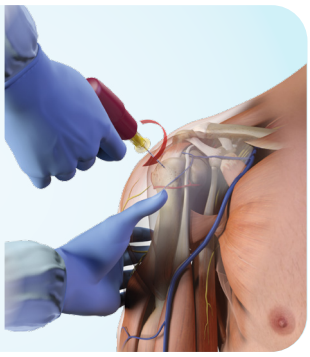


Figure 9

Hold the hub in place and pull the driver straight off.

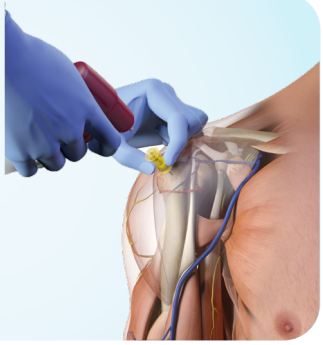


Figure 10

- Continue to hold the hub while twisting the stylet off the hub with anticlockwise rotations. The needle should feel firmly seated in the bone (first confirmation of placement).
- Place the stylet in a sharps container.

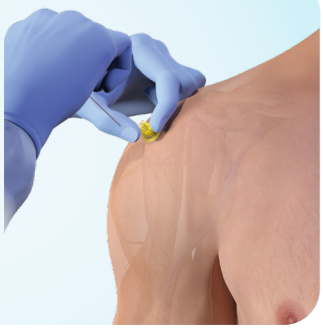


Figure 11

Place the EZ-Stabilizer Dressing over the hub.

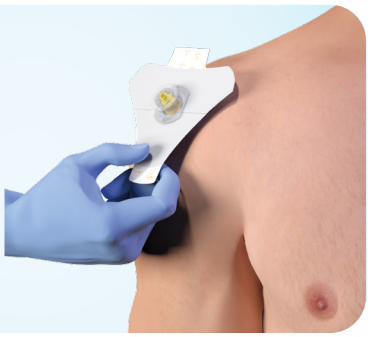


Figure 12

- Attach a primed EZ-Connect
- Extension Set to the hub, firmly secure by twisting clockwise.
- Pull the tabs off the EZ-Stabilizer Dressing to expose the adhesive, apply to the skin.

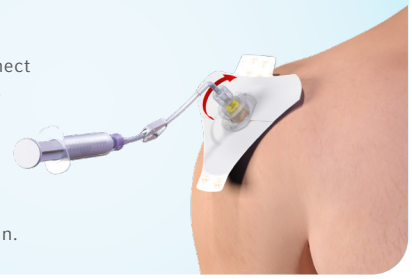
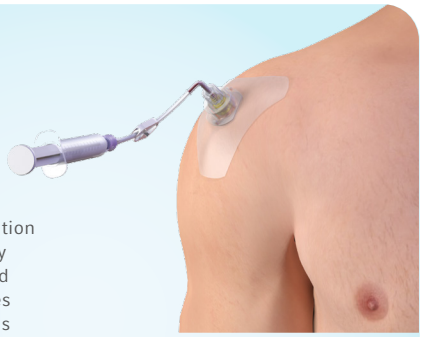


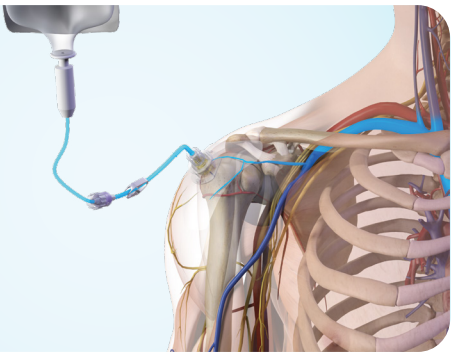
Figure 13

Aspirate for blood/bone marrow (Second confirmation of placement. The inability to withdraw/aspirate blood from the catheter hub does not mean the insertion was unsuccessful. Consider attempting to aspirate after the flush.).

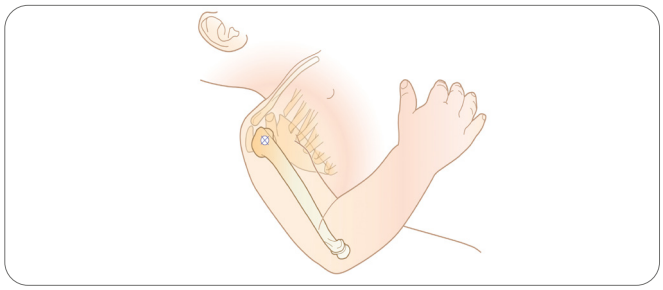


- Flush the IO catheter with normal saline (5–10 ml adults; 2–5 ml for infants and small children).
- Connect fluids if ordered; infusion may need to be pressurised to achieve desired rate. See Figure 20.
- Secure the arm in place across the abdomen, or in adducted position (with the patient's arm at his/her side). Monitor infusion, site and limb frequently.

Figure 14

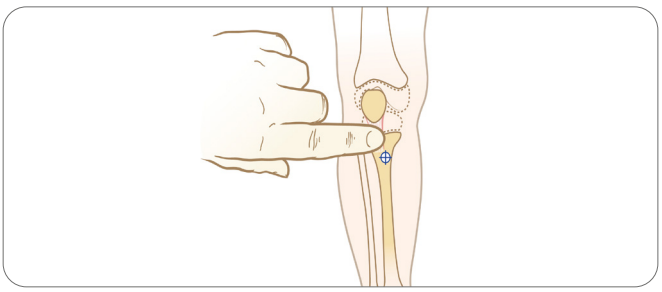


Site Identification Infant/Child



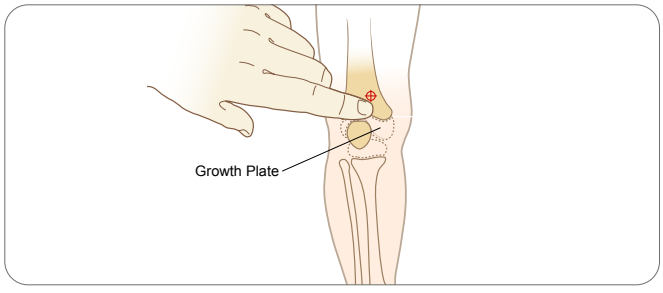
Proximal Humerus

1. Place the patient's hand over the abdomen (elbow adducted and humerus internally rotated).
2. Place your palm on the patient's shoulder anteriorly.
3. The area that feels like a "ball" under your palm is the general target area.
4. You should be able to feel this ball, even on obese patients, by pushing deeply.
5. Place the ulnar aspect of your hand vertically over the axilla and the ulnar aspect of your other hand along the midline of the upper arm laterally.
6. Place your thumbs together over the arm; this identifies the vertical line of insertion on the proximal humerus.
7. Palpate deeply up the humerus to the surgical neck.
8. This may feel like a golf ball on a tee – the spot where the "ball" meets the "tee" is the surgical neck.
9. The insertion site is above the surgical neck, on the most prominent aspect of the greater tubercle.



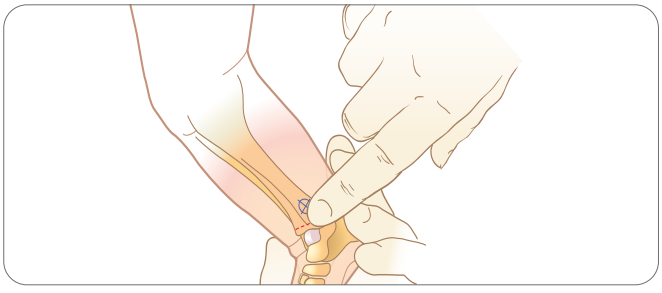
Proximal Tibia

1. Extend the leg.
2. Insertion site is approximately 1 cm medial to the tibial tuberosity, or just below the patella (approximately 1 cm) and slightly medial (approximately 1 cm), along the flat aspect of the tibia.
3. Pinch the tibia between your fingers to identify the medial and lateral borders of the tibia.



Distal Femur

1. Secure the leg out-stretched to ensure the knee does not bend. Identify the patella by palpation.
2. The insertion site is approximately 1 cm proximal to the superior border of the patella and approximately 1-2 cm medial to midline.



Distal Tibia

1. Insertion site is located approximately 1-2 cm proximal to the most prominent aspect of the medial malleolus.
2. Palpate the anterior and posterior borders of the tibia to assure that your insertion site is on the flat center aspect of the bone.

Consider Using Anaesthetic for Patients Responsive to Pain

The following recommendations are based on published intraosseous clinical literature:

With the stabilizer in place, carefully attach syringe **directly to IO catheter luer-lock hub,** without extension set in place

1. **Slowly infuse** initial dose of lidocaine over 120 seconds and allow to dwell for 60 seconds
   ADULT: initial dose 40 mg • INFANT/CHILD: initial dose 0.5mg/kg (NOT to exceed 40 mg)
2. **Flush** IO catheter with normal saline
   ADULT: flush: 5-10 mL • INFANT/CHILD: flush: 2-5 mL
3. **Slowly infuse** lidocaine (half of initial dose) over 60 seconds
4. **Attach extension set** primed with normal saline and flush

Repeat PRN. Consider systemic pain control for patients not responding to IO lidocaine
≥ 4 min total time

Disclaimer: Selection and use of any medication, including lidocaine, given IV or IO is the responsibilityof the treating physician, medical director, or qualified prescriber and is not an official recommendation of Teleflex. This information is not intended to be a substitute for sound clinical judgment or your institution's treatment protocols. Teleflex is not the manufacturer of lidocaine. Users should review the manufacturer's instructions or directions for use and be familiar with all indications, side effects, contraindications, precautions and warnings prior to administration of lidocaine or any other medication. Teleflex disclaims all liability for the application or interpretation of this information in the medical treatment of any patient.

Consider using anaesthetic for infant/child responsive to pain:
For small doses of lidocaine, consider administering by carefully attaching syringe directly to catheter hub (prime extension set with normal saline).

Arrow EZ-IO Intraosseous Vascular Access System Ordering Information

EZ-IO Training Kit

Arrow EZ-IO System Ordering Information

ITEM NUMBER	DESCRIPTION	PATIENT WEIGHT	QTY/CASE
9058	EZ-IO Vascular Access Driver	NA	1
9079P-EU-005	EZ-IO 45 mm Needle Set* + EZ-Stabilizer	≥40 kg	5
9001P-EU-005	EZ-IO 25 mm Needle Set* + EZ-Stabilizer	≥3 kg	5
9018P-EU-005	EZ-IO 15 mm Needle Set* + EZ-Stabilizer	3-39 kg	5
9066-VC-005	EZ-Stabilizer Dressing	NA	5
9034TK	**Training kit including:** carrying case, training driver, training needles and a set of training bones (humerus + tibia adult and tibia infant)	NA	1

*Each Needle Set includes a 15 gauge sterile EZ-IO Needle, EZ-Connect Extension Set, patient wrist band and Needle Vise Sharps Block

QuikClot
Bleeding Control System

QuikClot portfolio of products can handle a variety of bleeding scenarios

Kaolin is the *unique differentiator* for all QuikClot haemostatic products

QuikClot is a proprietary technology, which consists of a nonwoven material impregnated with kaolin. Kaolin activates Factor XII on the intrinsic pathway, which in turn accelerates the clotting cascade leading to faster bleeding control.[22,23*]

Activates
Kaolin Activates Factor XII (Intrinsic Pathway)

Accelerates
Accelerates the Clotting Cascade

Formation
Robust Clot Formation[20,21]

Control
Faster Bleeding Control[22,23*]

Safe and intuitive as the standard of care

- Safe and intuitive as standard gauze[24]
- Same placement technique as standard gauze with these added benefits:

1 *Faster time to haemostasis*[23] **2** *Robust clot formation*[20,21] **3** *Fewer rebleeds*[20]

A vital addition to procedural carts, QuikClot haemostatic products can routinely be used for a variety of "nuisance" bleeding, such as abrasions to traumatic injuries.

ED/ICU bleeding scenarios such as:

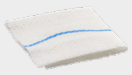
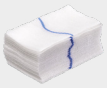
- Anterior nose bleeds (Epistaxis)
- Wide range of lacerations
- Bleeding AV fistula
- Finger tip avulsions
- Stabbing or puncture wounds
- Varicose vein bleeding
- Road rash
- Wounds/ulcers
- Postoperative wound dehiscence
- Mutilated amputations
- Skin tears
- Oozing lines (CVC, PICC, Arterials, Sheaths...)
- Fresh tracheostomy
- Thoracic catheters

**Based on testing when compared to standard gauze.*

Bleeding Control

The Military's CoTCCC[25] recommended haemostatic of choice for over 12 years[24]

QuikClot ED/ICU

REF.	PRODUCT		DESCRIPTION	UNITS PER BOX
301		QuikClot 4x4	10 cm x 10 cm, in 4-ply	10/box
302		QuikClot 2x2	5.1 cm x 5.1 cm, in 6-ply	10/box
303		QuikClot Trauma Pad 12x12	30 cm x 30 cm, in 3-ply	10/box
632		QuikClot Z-Fold	7.6 cm x 3.7 m	10/box
633		QuikClot Roll Gauze	7.6 cm x 3.7 m	10/box
636		QuikClot EMS 4x4	10.16 cm x 10.16 cm	10/box
475		QuikClot EMS Rolled Gauze	7.62 cm x 122 cm	10/box

QuikClot:
QuikClot Haemostatic Device is intended for use as a topical dressing for local management of bleeding wounds such as cuts, lacerations and abrasions. It may also be used for temporary treatment of severely bleeding wounds such as surgical wounds (operative, postoperative, dermatological, etc.) and traumatic injuries.

QuikClot Interventional Device:
Applied topically as an adjunct to manual compression and is indicated for the local management and control of surface bleeding from vascular access sites, percutaneous catheters or tubes utilising introducer sheaths up to 12 Fr. or up to 7 Fr. for patients on drug/induced anticoagulation treatment.

QuikClot haemostatic products can handle all types of bleeds including interventional patients who are anticoagulated.[1]
Please refer to our QuikClot Interventional brochure for more information on QuikClot Interventional Haemostatic Devices

MAD Nasal
Intranasal Mucosal Atomization Device

The safe, painless way to deliver medication without an intravenous line

Medication Delivery
The MAD Nasal Device from Teleflex was invented by an emergency physician and offers a useful, additional option in the choice of alternate access for medication delivery.*

Rapidly Effective
Nasal drug administration with the MAD Nasal Device is quick and easy, eliminating IV set-up time and conserving resources. Additionally, no sterile technique is required, so more time is spent caring for the patient and less time starting a painful IV.

Needle Free
The MAD Nasal Device provides a painless and rapidly effective medication delivery option for non-invasive intranasal medication delivery. It increases safety for both caregivers and patients through the avoidance of needlestick injury.

Controlled Administration
The malleable tip atomises in any position, making proper medication delivery in non-compliant patients easier. The atomised particles are the optimal size for rapid absorption across mucosal membranes* into blood stream, avoiding first-pass metabolism.

Accurate Dosing
The syringe enables the accurate measurement of drugs to be delivered

Malleable Stylet
Atomises in any position

Soft Conical Plug
The plug forms a seal with the nostril, preventing expulsion of fluid

Atomisation Spray
The spray atomises drugs into a fine mist of particles 30–100 microns in size

Benefits

The Clinician
No cumbersome and time-consuming IV setup

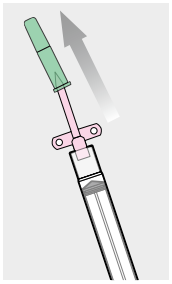
Your Institution
No time-consuming IV setup, no danger of needle sticks and no need to sterilise delivery site

The Patient
Safe, painless and rapidly effective treatment delivery for pediatrics and adults

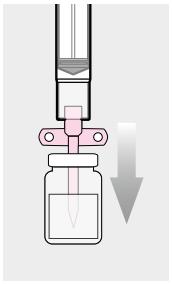
*For use with drugs approved for intranasal delivery.

Using the MAD Nasal Intranasal Mucosal Atomization Device*

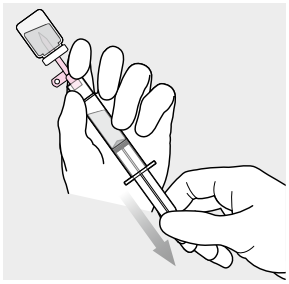
Procedure



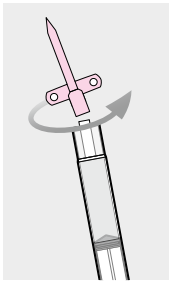
1 Remove and discard the green vial adapter cap



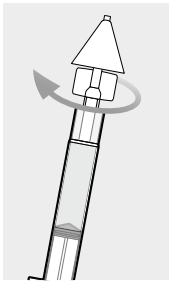
2 Pierce the medication vial with the syringe vial adapter



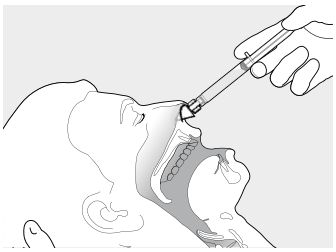
3 Aspirate the proper volume of medication required to treat the patient (including medication to account for the dead space in the device)



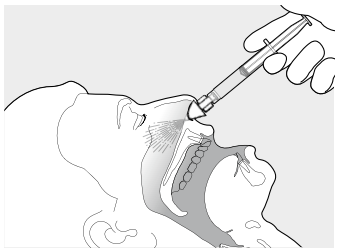
4 Remove (twist off) the syringe from the vial adapter



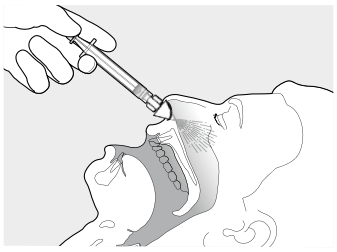
5 Attach the MAD Nasal Device to the syringe via the luer lock connector



6 Using the free hand to hold the occiput of the head stable, place the tip of the MAD Nasal Device snugly against the nostril aiming slightly up and outward (toward the top of the ear)



7 Briskly compress the syringe plunger to deliver half of the medication into the nostril



8 Move the device over to the opposite nostril and, repeating steps 6 and 7, administer the remaining medication into the nostril if indicated

Tips to Improve Success

1. Minimise volume, maximise concentration

- *Use the appropriately concentrated drug*

2. Maximise total mucosal absorptive surface area

- *Atomise the drug (rather than drip it in) to cover broad surface area*
- *Use BOTH nostrils to double the absorptive surface area*
- *Aim slightly up and outwards to cover the turbinates and olfactory mucosa*

3. Beware of abnormal mucosal characteristics

- *Mucous, blood and vasoconstrictors reduce absorption*
- *Suction nostrils or consider alternate drug delivery method in these situations*

MAD Nasal Intranasal Mucosal Atomization Device Specifications

Typical Particle Size	30–100 microns
System Dead Space	MAD100/MAD110/MAD130/ MAD140 = 0.15ml MAD300 = 0.06 ml
Tip Diameter	0.17" (4.3 mm)

MAD Nasal Intranasal Mucosal Atomization Device

ITEM NUMBER	PRODUCT DESCRIPTION	QTY/BOX
MAD100	MAD Nasal Device with 3 ml Syringe	25
MAD110	MAD Nasal Device with 1 ml Syringe	25
MAD130	MAD Nasal Device with 1 ml Syringe and Vial Adapter	25
MAD140	MAD Nasal Device with 3 ml Syringe and Vial Adapter	25
MAD300	MAD Nasal Device without Syringe	25

Arrow
T-POD Responder
Pelvic Stabilisation Device

When seconds count, you need effective and reliable pelvic fracture treatment

The answer is not a bed sheet. It's a Pelvic Stabilisation Device specifically designed to provide symmetrical, circumferential compression and stabilisation of the pelvic ring.

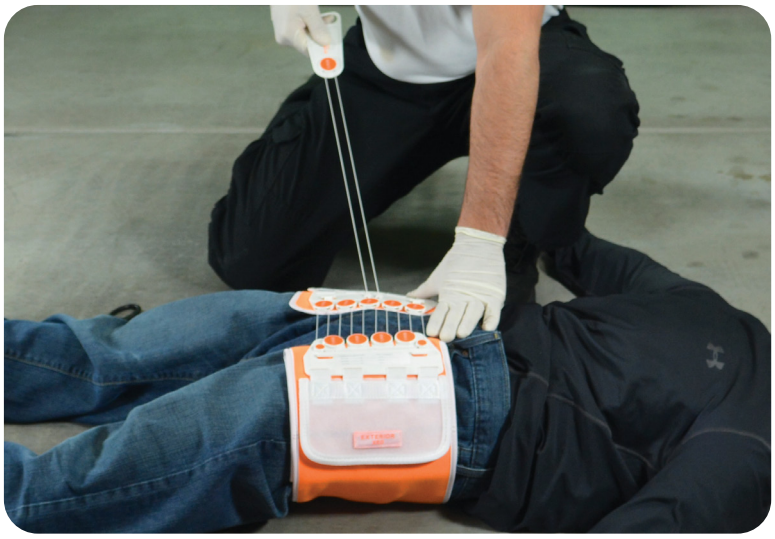
One Size Fits All
The Arrow T-POD Pelvic Stabilisation Device has a one-size-fits-all design, making it a practical option for first responders out in the field. Compression can be immediately adjusted to the patient, and the device can be easily trimmed for custom fit. For morbidly obese patients, you can also combine multiple T-POD Responder devices together.

Symmetrical, Circumferential Compression
Designed using an innovative pulley system spanning nearly the width of the belt, T-POD Responder offers compression that is evenly distributed on both sides of the pulley system and accross the width of the belt.

Moreover, the T-POD Responder pulley system allows infinite adjustments to be made, unlike a buckle system where compression can only be adjusted at certain settings.

One Person Application
T-POD Responder can be applied easily and quickly by a single EMS professional in the field. T-POD Responder features an easy-to-tighten pulley system.[27,30]

Small & Lightweight Design
Featuring a 2.5 mm thickness, T-POD Responder is lightweight, small and compact to fit into your emergency bag.



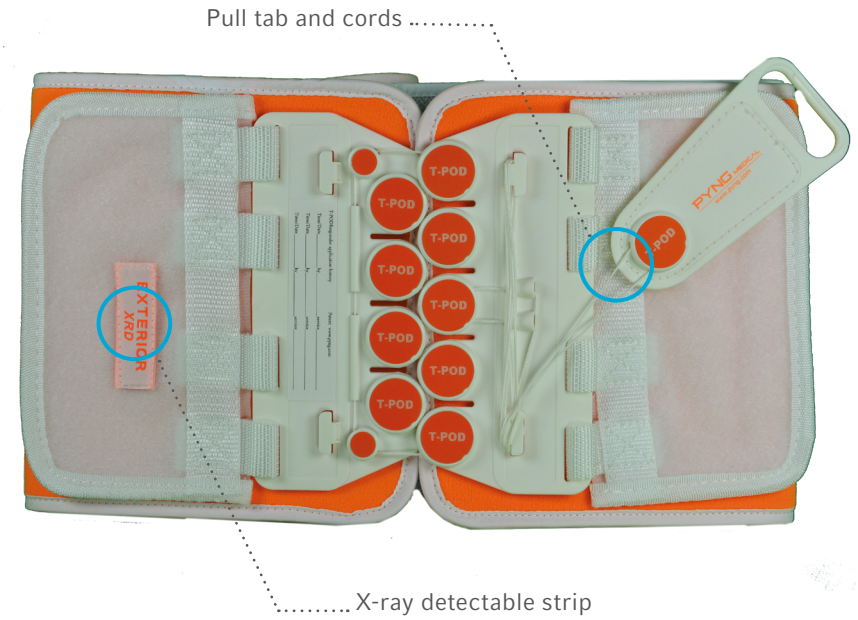
Benefits

The Clinician
Unique design to facilitate one-person application by EMS personnel in the field.[27,30]

Your Institution
May reduce transfusion requirements and length of hospital stay as compared to embolisation or external pelvic fixation.[28***]

The Patient
Designed to help reduce the risk of internal bleeding associated with pelvic ring injury.[31†]

Reliable Pelvic Stabilisation - Compact, Portable Package



PRODUCT CODE	QTY/BOX
T-PODR	1

The T-POD Responder Clinical Advantage

Provides circumferential compression for pelvic ring stabilisation in patients with pelvic fractures[27,28]

Application of the Arrow T-POD Pelvic Stabilisation Device in patients with pelvic fractures has been shown to significantly reduce pubic bone separation by 60 % (range, 24–92 %; p=0.01).[27]

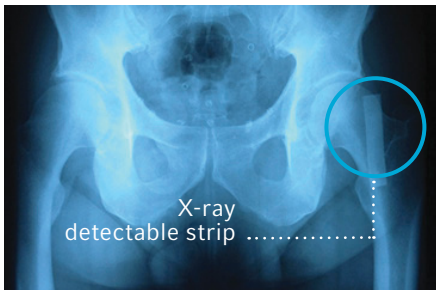
Stabilisation of the pelvic ring with a binder may lower the incidence of lethal pelvic bleeding compared with sheet wrapping.[32]

The T-POD Responder uses 100 % polyurethane material that is thinner, breathable, durable and contains moisture wicking capabilities. Better yet, the material will not fray even when cut to size.

- **Not made with natural rubber latex**
- **Single use**

100 % Radiolucent

You do not have to remove and then reapply T-POD Responder for radiological procedures. Designed using no metallic parts, T-POD Responder can stay on and keep your patient's pelvic region stable during MRI, X-ray and CT scans.



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*Based on Adult Proximal Humerus EZ-IO System Insertion data
** Verify with the laboratory the acceptability of IO blood samples for testing
†Compared to single lumen central venous catheters (CVCs).
‡Compared to EZ-IO® System tibial insertions
§Based on a pressure of 300 mm Hg
Bench-top testing may not be representative of clinical performance.
***In patients with potentially life-threatening pelvic fractures.

Resources

The Arrow EZ-IO System App

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Information in this material is not a substitute for the product Instructions for Use. Not all products may be available in all countries. Please contact your local representative. Revised: 07/2023.

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