



Intraosseous Infusion System

by vidacare®

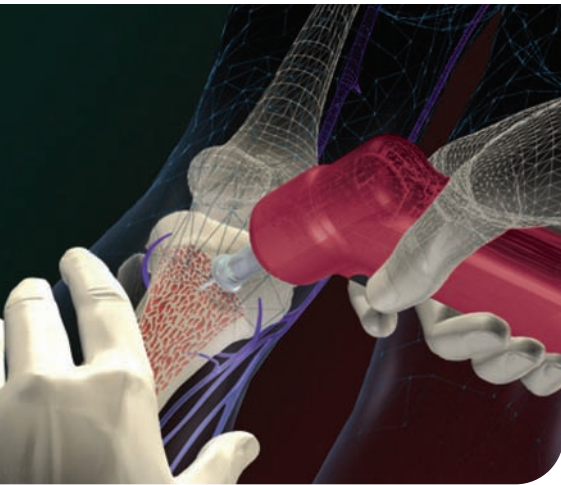


EZ-IO Product System

Why Use Intraosseous Access?

- Immediate Vascular Access
- Equivalent to IV for Effectively Delivering Fluids and Medications
- Supported by the AHA, ERC and ILCOR Guidelines

Immediate Vascular Access...
When You Need It MostSM



Challenging vascular access is a critical problem in 5-10 percent of all patients in the pre-hospital and hospital settings. From onset of illness or initial injury, through patient transport and treatment in the Emergency Department, vascular access is critical to survival.

In patients suffering from conditions such as shock, cardiac arrest, drug overdose, dehydration, diabetic coma, renal failure and altered states of consciousness, it may be impossible to find an accessible vein.

In the hospital, central line access has long been the primary alternative to failed IV access, however it takes longer, costs more, has a higher risk of complications and most often requires a physician.

The intraosseous space functions as a non-collapsible vein with fluid or medication reaching the central circulation within seconds.

Increasingly, in the critical care setting, physicians and nurses are turning to the intraosseous (IO) route as the first alternative to IVs, rather than central lines. In the pre-hospital environment, emergency medical providers are finding that IO is immediate, safe and effective venous access.

The EZ-IO Product System

- Small battery-powered device and a beveled, hollow drill tipped needle set
- Specifically designed for safe and controlled intraosseous vascular access
- Developed for patients of all ages and weights with two needle sizes available, one for patients 3-39 kg and one for patients 40 kg and greater
- Creates a secure stable port allowing access into the intraosseous space
- Fluids and drugs administered reach the central vascular system within seconds
- Superior speed, control, safety and effectiveness result from unparalleled technological advancement making the system the best product on the market today

The EZ-IO product system is a valuable addition to life-saving emergency medical technology that is now available to emergency transport services, hospitals, emergency departments and other locations where immediate vascular access is required.

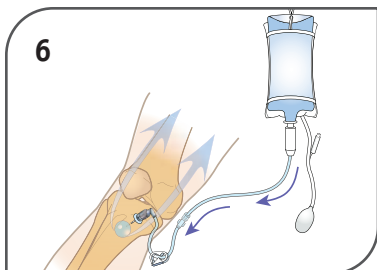
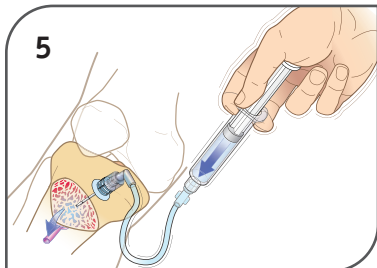
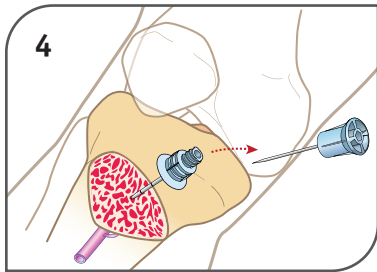
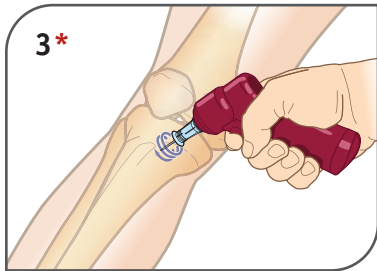
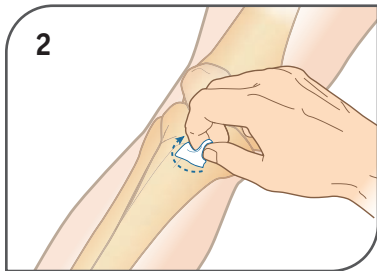
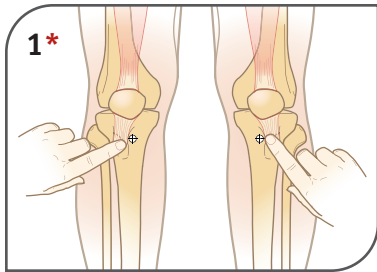
Worldwide Resuscitation Guidelines

- Now recommend IO as the first alternative to IV in cardiac arrest patients
- Declare IO access a safe and effective route for accessing the central vascular system
- State that IO is now the standard of care for cardiac arrest patients
- Support the theory that IO access is similar to central line access and carries less risk of complications for emergency physicians

Summary of Guidelines for Establishing Vascular Access in Cardiac Arrest Patients:

1. Establish IV or IO access for administration of cardiac drugs in cardiac arrest.
2. Central lines are not needed in most CPR attempts.
3. Adult IO cannulation provides venous access similar to that achieved by central venous access.

4. Adult IO access is safe and effective, according to several trials cited in the guidelines.
5. IO vascular access should be established if IV access is unavailable.
6. IO drug administration is preferred over endotracheal (ET) tube administration, providing more predictable drug delivery and pharmacological effect.
7. Throughout the ACLS protocols and algorithms, IO is paired with IV access and is recommended over central lines and ET tube drug administration for cases of cardiac arrest.



*Multiple sites available

Indications for Use

- Altered level of consciousness
- Arrhythmias
- Burns
- Cardiac arrest
- Dehydration
- Head injury
- Hypotension
- Respiratory arrest
- Seizures
- Shock
- Traumatic injuries

*Other medical conditions when immediate vascular access is required, but standard IV access is challenging.

Contraindications for Use

- Fracture (fluids may extravasate into subcutaneous tissue)
- Previous orthopedic procedures near insertion site
- Infection at the insertion site
- Inability to locate landmarks or excessive tissue

Distinguishing Features

Speed of insertion – Stable and secure – Drugs reach the central vascular system within seconds

- 15 gauge, 25 mm long needles for patients weighing 40 kg and greater
- 15 gauge, 15mm long needles for patients weighing between 3 kg and 39 kg
- Needles made of 304-stainless steel
- Battery power makes insertion effortless and controlled
- Standard luer-lock catheter
- Easy removal – no special tool needed
- Compact size and weight makes it an ideal addition to emergency crash carts

Benefits

- Insertion time in 10 seconds or less
- Delivers fluid, medications and blood products directly into the vascular system with blood levels equivalent to IV administration
- Effective, safe multi-site placement



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EZ-IO PRODUCT SOLUTION

Use	Single use needle set Inserted by battery-powered driver No removal tool
Power source for insertion	Battery operated
Cleared insertion sites	Adult & pediatric multiple locations
Depth control	Needle set depth controlled by operator
IO site securing	Low profile, wide hub in contact with skin. 90 degree extension set
Average/minimum time from decision to access – to IO fluid flowing with site secured	< 30 seconds
Estimated drug delivery time	Equivalent to central venous access
Effectiveness	97%
Compatibility with other systems	Standard luer lock

WORLDWIDE RESUSCITATION GUIDELINE ENDORSEMENT

The American Heart Association, European Resuscitation Council and the International Liaison Committee on Resuscitation all endorse the early use of intraosseous access. These global scientific groups have each stated that “if intravenous access is difficult or impossible the provider should consider the intraosseous route.” In certain critical situations, such as resuscitation, intraosseous access has been recognized as the most efficacious pathway to immediate drug and fluid delivery. Experts now universally agree that “intraosseous injection of drugs achieves peak plasma concentrations in a time comparable with injection through a central venous catheter.” The level of evidence and the supportive experiences that surround intraosseous access clearly demonstrates the validity of this important procedure.

Frequently Asked Questions

Q: What are the historic risks or complications associated with IO?

A: The documented overall complication rate associated with intraosseous insertion and infusion is less than 1 percent. Potential complications include extravasation (leakage), dislodgement of the catheter, compartment syndrome, fracture, pain related to infusion of medications/fluids and infection.

Q: What is the infection rate associated with the use of IO?

A: Overall IO experience in thousands of children and adults show the infection rate to be less than 0.6 percent. Complications are most often not serious and can be treated in an outpatient capacity.

Q: What is the pain associated with IO vs. IV?

A: EZ-IO AD (40 kg and greater) insertion has been well documented in conscious patients. Studies have shown that EZ-IO insertion is well tolerated and is no more painful than a large bore peripheral IV stick.

Conscious patients have reported pain after EZ-IO insertion. The pain is associated with the initial administration of fluid or medication and originates from the extensive network of pressure sensitive nerves located within the medullary cavity. An initial IO bolus of preservative-free Lidocaine has proven effective in alleviating this discomfort.

Q: How long may the EZ-IO catheter be left in place?

A: The catheter should be removed within 24 hours.

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