



FAST1[®] Intraosseous Infusion System

Training Session

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May 2011 PM-101b

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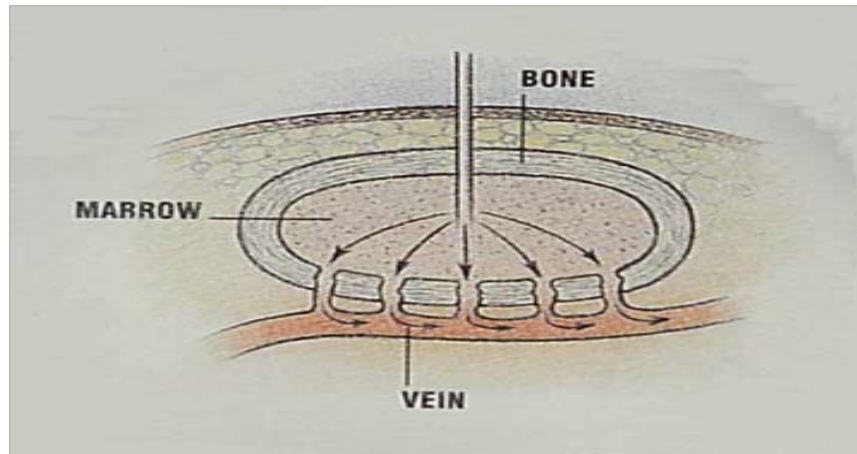
Why IO?

- Peripheral IV is often difficult to obtain
- Requires an average of 3-12 minutes
- Failure rate ranges between 10-40%
- AHA & ILCOR guidelines now recommend IO when IV cannot be obtained

Please review all training with your Medical Director

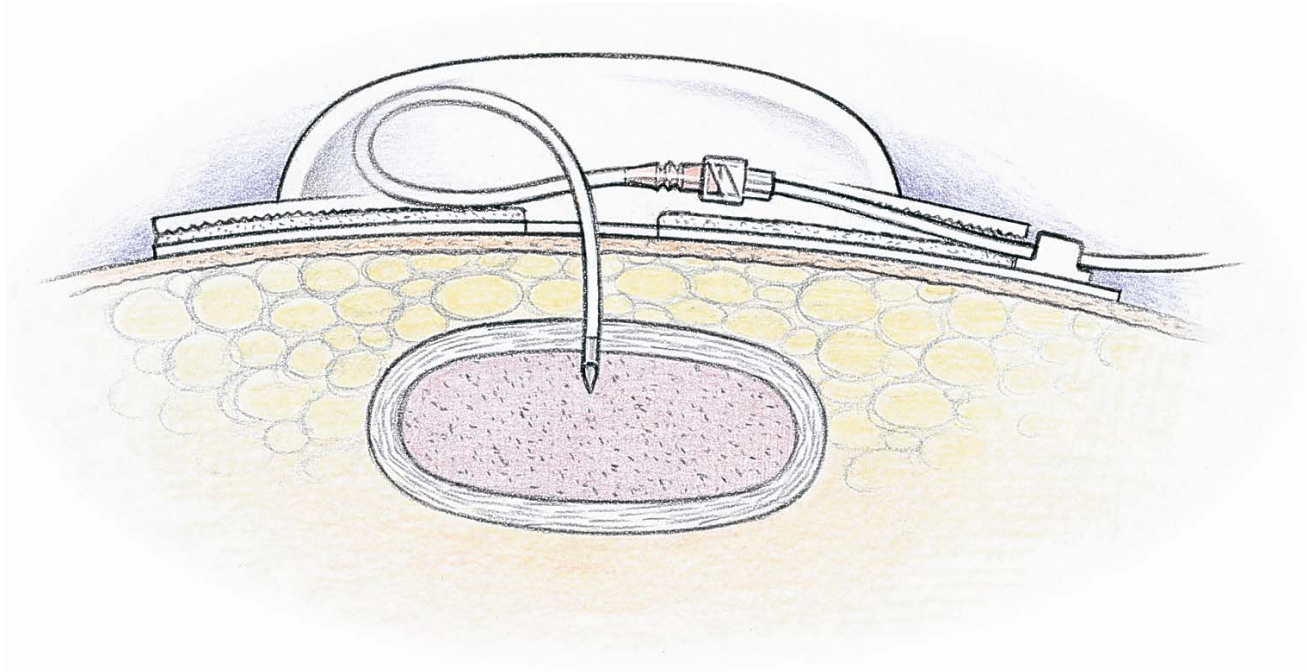
Vascular Access Via IO

- Infuses fluids into bone marrow
- Bone marrow drains into vascular system
- Manubrium especially effective due to close proximity to central circulation



Please review all training with your Medical Director

*“The **FAST1**[®] Intraosseous Infusion System is intended for intraosseous infusion as an alternative to IV access, to facilitate emergency resuscitation through the use of drugs and fluids.”*



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Advantages of *FAST1*®

- **FAST:** vascular access within 10 seconds, medications to the heart in 30 seconds
- **SAFE:** automatic depth control prevents over-penetration
- **EFFECTIVE:** delivers medications to heart as quickly as a central venous line, with shorter access time
- **EFFICIENT:** can be inserted during other resuscitation procedures

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MORE Advantages of **FAST1**®

- **MULTI-PURPOSE:** anything that can be given via IV (emergency resuscitation fluids/medications) can be given via **FAST1**®
- **VERSATILE:** cleared for use in adolescents from 12 years of age and older
- **STERILE:** designed for single, sterile use, no cross-contamination
- **SECURE:** patented, strain-relief Target Patch ensures line does not become dislodged

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MORE Advantages of *FAST1*®

- **ADAPTABLE:** can be inserted in moving ambulances, helicopters and on stretchers
- **QUICK TO LEARN:** skill mastery within minutes
- **EXCELLENT SKILL RETENTION:** ability to use *FAST1*® not dependent upon frequent practice or use

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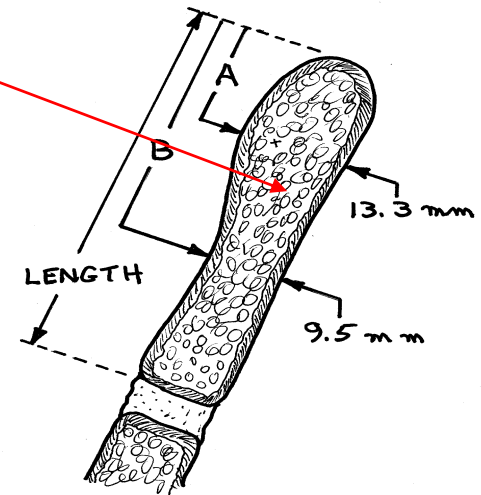
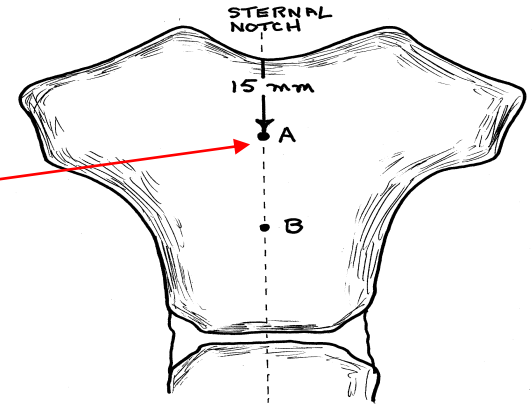
Indications

- For patients 12 years of age and older (adolescent to adult)
- Use whenever vascular access is desired
- Can be left in place for up to 24 hours
- **FAST1**[®] field trials included patients ranging from 14 to 94 years old, weighing up to 400 lbs

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Insertion Site

- Manubrium of sternum, 15 mm below sternal notch.
- Bone thickness at insertion site: $13.30 \text{ mm} \pm 2.18$
- Minimum thickness about 35 mm below sternal notch = $9.17 \text{ mm} \pm 1.78$
- Risk of over penetration: less than 1 in 1,000,000



Please review all training with your Medical Director

FAST1[®] System Components



Please review all training with your Medical Director

FAST1[®] System Explained

- Introducer inserts Infusion Tube into manubrium
- Infusion Tube is mounted on a Stylet inside Introducer
- Stabilizer Needles ensure depth control only, they do not penetrate the bone



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FAST1[®] System Explained

- Relies on operator force only – it is not a gun, not spring-loaded, not battery dependent, nor pneumatic
- Downward force on Introducer pushes steel Infusion Tube tip through soft tissue, into bone
- When steel tip is just inside marrow space, Infusion Tube automatically separates from Introducer
- Ring of Stabilizer Needles ensure proper deployment only – they do not enter the bone

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FAST1[®] System Explained

- Depth control mechanism prevents over-penetration
- Infusion Tube flexes with movement of patient's skin preventing dislodgements, unlike other IO products which use rigid infusion needles
- Patented strain-relief mechanism and plastic Dome provide additional protection

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Insertion Procedure

1. Expose sternum
2. Clean insertion site
3. Remove backing labeled #1
4. Put index finger in sternal notch



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Insertion Procedure

5. Place Target Patch notch under index finger
6. Press down firmly over top of Patch
7. Remove backing labeled #2, press Patch down firmly



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Insertion Procedure

- **CRITICAL:** For safe and effective use of the **FAST1**[®] verify Target Patch placement at sternal notch with Target Zone over manubrium



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Insertion Procedure

8. Place red Sharps Foam Plug on flat surface with foam facing up
9. Stand/kneel at head of patient, if possible
10. Twist and remove cap from Introducer
11. Place Stabilizer Needles in Target Zone
PERPENDICULAR TO
MANUBRIUM



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Insertion Procedure

12. Push down firmly with increasing force until Introducer releases and is flush with the skin
13. Pull straight back to remove Introducer
14. Push Stabilizer Needles into Sharps Foam Plug and place in sharps container



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Insertion Procedure

15. The completed assembly with Dome, Target Patch, Infusion Tube (blue Luer) attached to the proximal end of the Connector Tube (blue cap) and IV line attached to its distal end



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Flow Rates

FAST1[®] provides exceptional delivery of drugs and fluids via:

- Gravity= 30-80 ml/min
- Pressure infuser= 120 ml/min
- Syringe= 250 ml/min

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Removal

1. Remove Protector Dome.
2. Disconnect Infusion Tube.
3. Grip Infusion Tube at point of insertion.
4. Pull Infusion Tube perpendicular to manubrium in one continuous motion (do not start/stop) until removed. Use the tube to pull, not the Luer connection. It is normal for the tube to stretch.
5. Remove Target Patch.
6. Apply pressure and dress site.
7. Dispose of appropriately.



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Precautions

- Safe for use in patients 12 years and older (adolescent to adult)
- Trauma, infection, burns, or fracture of manubrium may preclude use
- Safety with very severe osteoporosis has not been proven
- Use in patients with recent sternotomy may prove less effective
- Not for use in patients with abnormal sternal anatomy

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Precautions

- Insertion in sites other than the manubrium may result in ineffective infusion and/or serious injury to the patient and are not approved.
- Reuse of the **FAST1**[®] is not recommended due to the potential of cross-contamination, which may lead to serious injury or death. The **FAST1**[®] is unlikely to function after use.

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Troubleshooting

Introducer does not release:

Pull Introducer back; if Infusion Tube remains, verify placement by aspirating marrow and proceed with use.

If marrow cannot be withdrawn, remove tube and insert second ***FAST1***[®].

Introducer releases but Infusion Tube is not secured in patient:

Use new ***FAST1***[®].

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Troubleshooting

Force is applied but Introducer does not release:

Without pulling back, ensure Introducer is perpendicular to manubrium and force is being applied directly along this line.

Leakage At Insertion Site:

If excessive, use alternative method of vascular access.

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Troubleshooting

Fluid or medication does not flow through IV line to site:

Flush to clear. If fluid or medication does not flow even after flushing, infusion should be discontinued and an alternative method of vascular access should be used.

Removing entire Infusion Tube (including metal tip):

Pull in one continuous motion (do not start/stop) until removed. Use the tube to pull, not the Luer connection. It is normal for the tubing to stretch.

Please review all training with your Medical Director

References

Macnab, Andrew, Christenson, Jim, Findlay, Judy, Horwood, Bruce, Johnson, David, Jones, Lanny, Phillips, Kelly, Pollack, Charles, Robinson, David J., Rumball, Chris, Stair, Tom, Tiffany, Brian and Whelan, Max : A new system for sternal intraosseous infusion in adults. *Prehospital Emergency Care*, 4:2, 173-177.

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