



Trainer's Manual

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TRAINER'S MANUAL

This Trainer's Manual is an essential component of the **FAST1**[™] education program. It contains the guidelines and information needed to effectively and efficiently teach emergency personnel how to perform adult intraosseous (IO) infusion using the **FAST1**[™].

Although the **FAST1**[™] can be quickly and easily mastered, this is a **SPECIALIZED MEDICAL PROCEDURE WHICH SHOULD NOT BE ATTEMPTED BY UNTRAINED PERSONNEL.**

Quality education is paramount to ensure users achieve the highest levels of competence and confidence with this lifesaving device.

Upon completion of training students will be able to:

- Discuss the principles of intraosseous infusion
- List indications and precautions for use of the **FAST1**[™]
- Demonstrate safe & effective use of the **FAST1**[™] on a manikin
- Explain and demonstrate the removal procedure for the **FAST1**[™]

Pyng Medical Corp. is committed to "saving lives by saving time through innovation in resuscitation". Comments and suggestions for improvement of training and use of the **FAST1**[™] are greatly appreciated.

FAST1™ LESSON PLAN

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INTRODUCTION

(5 minutes)

DID YOU KNOW?

FAST1™ can be used concurrently with all other emergency medical procedures, including chest compressions. The location of the manubrium insertion site high on the torso allows for first responders to manage emergency care from a single area near the patient's head.

1. Introduce yourself and welcome students

2. Display course objectives:

By the end of this session you will be able to:

- Discuss the principles of intraosseous infusion
 - List indications and precautions for use of the **FAST1™**
 - Demonstrate safe & effective use of the **FAST1™** on a manikin
 - Explain and demonstrate the procedure for removal of the **FAST1™**
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3. Provide overview of training:

- Brief discussion of intraosseous infusion and **FAST1™** device
- Demonstration of **FAST1™** (done in real-time)
- Step-by-step instruction
- Skill practice to mastery
- Troubleshooting
- Evaluation



The **FAST1™** does not interfere with other medical procedures, including chest compressions.

INTRASOSEOUS INFUSION AND **FAST1™** (10-15 minutes)

DID YOU KNOW?

FAST1™ has received clearance for use in adolescents (12+ years) from the US FDA, Health Canada, and the EU, making it the only IO device for use in both adolescents and adults.

1. Have students recall their most recent cardiac arrest patients (codes) and then ask these questions:

- Were you able to establish a patent IV?
- How many attempts were required?
- How long did this process take?
- Were chest compressions interrupted to start the IV?
- Would your patients benefit from a faster, more reliable procedure?

Studies show it takes an average of 3-12 minutes to establish an IV with failure rates of 10-40% in the pre-hospital setting. Transport is often delayed due to the difficulty of inserting an IV in a moving vehicle.

2. Ask:

- Who is familiar with IO?
- How does IO work?
- Drugs/fluids infused into the bone marrow are drained into the vascular/circulatory system
- Who has performed this procedure on a patient?

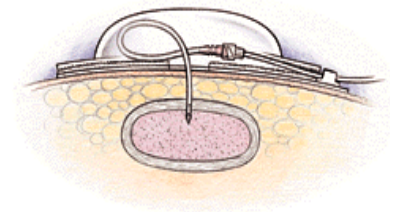


Ask the student to share briefly about the experience.

3. **FAST1™**:

- Provides vascular access comparable to a central line

The manubrium is the most effective IO site (research shows drugs/fluids reach the heart in 20-30 seconds) due to its close proximity to the heart and immediate absorption via internal mammary and azygos veins which empty directly into vena cava.



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- Takes about 10 seconds to insert, less than 60 seconds for entire procedure
- Success rate over 95%
- Does not interfere with other procedures (compressions, cric, etc.)
- Can be inserted while moving
- Safe for patient (cannot over-penetrate) and staff (doesn't "fire")
- Is quick to learn and easy to retain

4. Pass around sample Infusion Tubes

- Note its flexibility – this allows it to move with patient's skin which prevents it from dislodging
- Look at steel bone portal – it will be inserted just inside marrow space



5. Hold up Introducer

- "Muscle-powered"
(not battery-dependent, spring-loaded or pneumatic)
- Can't over-penetrate
(at a depth of 6 mm from the surface of manubrium, Infusion Tube automatically separates)



DEMONSTRATION

(Should be less than 1 minute)

DID YOU KNOW?

Any substance that can be injected through an IV can be introduced into the circulatory system through **FASTI**[™] Intraosseous Infusion System.

1. **Be sure the trainer, manikin, and other equipment are ready for a speedy, flawless procedure. Practice, practice, practice!**

2. **Invite someone to time it. Ask students to hold their questions until afterward.**

3. **Describe a real-life scenario with the manikin as your patient**

(ex: "Here's a 68 year-old male in cardiac arrest – we need to give drugs– I'm going to use the **FASTI**[™].")

4. **Perform procedure.**

5. **Ask if this appears to be superior to numerous IV attempts, interrupting CPR, and/or delaying transport.**

STEP-BY-STEP INSTRUCTIONS

(5-10 minutes)

DID YOU KNOW?

Stabilizer Points never actually penetrate the bone. Their job is to ensure stability and depth control.

1. Tell students to place index finger in the sternal notch.

Have them pair up and do the same with their partner.

"This is the landmark – it's easy to find in any patient. That's where you put the Target Patch."



2. Clean insertion site.

Put Target Patch on manikin; pull off tabs #1 then #2 to adhere.

(To preserve the manikin's skin and avoid wasting Patches, permanently affix a Patch to the manikin and just demo this.)

Point out that it is midline, just below sternal notch with Target Zone over manubrium.



Swab the insertion site



Pull tabs off Target Patch



Place Target Patch

3. Stand at patient's head, hold Introducer in dominant hand.

Twist to remove Sharps Cap.

Place Stabilizer Points in Target Zone.

Hold Introducer perpendicular to manubrium and PAUSE.

"This position ensures the Infusion Tube tip will be inserted correctly."

Give everyone an opportunity to see what "perpendicular to the manubrium" looks like and also model "NOT" perpendicular.



DID YOU KNOW?

FASTI™ can be inserted while transporting the patient in moving vehicles such as ambulances and helicopters.

There's no need to waste precious time fighting with an IV.

4. Press down smoothly with increasing force until you hear and feel Infusion Tube separate from Introducer.

Hold this position while you ask a couple of students to describe the pressure you just used.

Reinforce that it was smooth and steady.

"Don't stab, jab, or twist – just push until it releases."



5. Pull Introducer up, off Infusion Tube.

IMMEDIATELY push Stabilizer Points into the bright orange Sharps Protector (one-hand procedure: Sharps Protector must remain on the table-top, NOT be picked up and pushed on) and state,

"Now this goes into the sharps container."



6. Remove BLUE cap and connect Infusion Tube to friction fitting on tubing attached to Target Patch.

Remove WHITE cap from Luer fitting and connect IV tubing.

"Or you could immediately inject drugs/fluid directly into this site."

Option: Flush to clear if required.



7. Secure Protector Dome directly over Patch and press down firmly.

Pass out the Instructions for Use sheet to each student.



SKILL PRACTICE TO MASTERY

(Time variable)

Most medics/docs will only need one or two trials to be totally competent and confident but, since everyone achieves mastery of psychomotor skills at a different rate, be sure to plan for and allow plenty of time with this section. Remember, once a medic/doc feels comfortable with the **FASTI**[™], she is more likely to utilize it.

HANDY TEACHING HINT:

Put the students who finish first to work: they can quickly be taught to reset the trainer, turn the manikin's disk, etc., which frees you up to work more closely with anyone who requires a bit more instruction. Reassure those who are struggling that, "I needed to practice that a few times too."

REMOVAL

Students are taught how to remove the **FAST1™** because there's a strong possibility the hospital staff may request assistance (or just reassurance) with the procedure. There are two **FAST1™** devices currently in use. You can easily differentiate them because the tip (Luer end) of the Infusion Tube on the **NEW** system is **BLUE**.

ORIGINAL **FAST1™**

1. Remove Protector Dome; disconnect IV tubing and friction fitting from Infusion Tube.
2. Place patient in same position as when **FAST1™** was inserted.
Take Removal Tool out of its protective sheath.
Hold top of Infusion Tube between thumb and index finger of non-dominant hand. Pull slight traction on Infusion Tube perpendicular to manubrium.
3. Carefully slide Removal Tool into Infusion Tube – it should go down easily - if there is resistance **DON'T FORCE IT** – recheck perpendicular position of Infusion Tube.
4. When you feel (or hear) metal-on-metal **SLOWLY & GENTLY** turn the Tool clock-wise (screwing the Tool and steel portal tip together).
5. When the Tool “tightens up” place index and middle fingers under the flange and pull the unit perpendicular to the manubrium until entire Infusion Tube (including metal tip) emerges from patient's chest.
6. Dress insertion site.



NEW **FAST1™**

"Blue is New" No Remover Needed (Effective March 2008)

There are two **FAST1™** devices currently in use. The new **FAST1™** is easily identifiable by its blue friction fitting.



Blue is New as shown by the blue friction fitting on the Target Patch and the Insertion Tube

1. Remove Protector Dome; disconnect IV tubing and friction fitting from Infusion Tube.
2. Place patient in same position as when **FAST1™** was inserted.
3. Grasp Infusion Tube with fingers or clamp and pull perpendicular to the manubrium until entire Infusion Tube (including metal tip) emerges from patient's chest.
4. Dress insertion site.



TROUBLESHOOTING

1. **Patient/paramedic not able to assume usual positions**

Ask students to share some of the “less traditional” positions their code patients (or the medics themselves) have been in. Select a couple of these (which have the best possibility of being successful) and replicate them with the manikin. Ask the medic who suggested the position to insert the **FASTI**[™]. If it’s a truly bizarre situation, with low likelihood of success, use one of the other examples – sometimes the patient just has to be repositioned (like on a hard, flat surface to perform chest compressions).

2. **First attempt to place *FASTI*[™] fails.**

Double check insertion site, patient position, medic position, and try again with a new device. Be sure to remind students to save a device that fails (after protecting the sharps) for shipment back to Pyng for replacement and examination.

3. **Failure to remove entire Infusion Tube (including metal tip).**

Immediately call Pyng at 1 800 349-7964 for clinical assistance.

FAST1™ SKILLS EVALUATION

1. Clean insertion site.
2. Apply Target Patch (midline, just below sternal notch)
3. Stand at patient's head, hold Introducer in dominant hand
4. Twist to remove Sharps Cap
5. Place Stabilizer Points in Target Zone (perpendicular to manubrium)
6. Press down smoothly with increasing force until Infusion Tube separates from Introducer
7. Pull Introducer up, off Insertion Tube
8. Immediately push Stabilizer Points into bright orange Sharps Protector (MUST remain on table-top) and state, "This goes into the sharps container".
9. Remove BLUE cap and connect Infusion Tube to friction fitting on tubing attached to Target Patch
10. Remove WHITE cap from Luer fitting and connect IV
11. Secure Protector Dome directly over Patch and press down firmly.

FAST1™ WRITTEN EVALUATION

1. Which of these patients is the best candidate for the FAST1™?

- a) 63 year-old female with difficulty breathing
- b) 10 year-old male unconscious from head trauma
- c) 48 year-old male in cardiac arrest
- d) 32 year-old female in labor

2. Precautions for the FAST1™ include:

- a) previous sternotomy
- b) morbidly obese patient
- c) severe osteoporosis
- d) all of the above

3. The landmark for the Target Patch is the:

- a) xiphoid process
- b) sternal notch
- c) subclavian ridge
- d) Angle of Louis

4. Preparation of the site should include:

- a) sterile draping
- b) wash with soap and water
- c) swab with alcohol prep or Betadine pad
- d) no preparation is recommended

5. Approved sites for the FAST1™ include:

- a) manubrium of sternum
- b) medial tibia
- c) proximal humerus
- d) none of the above

6. Proper placement of the Infusion Tube can be ensured by holding the Introducer:

- a) at a 45-degree angle to the floor
- b) perpendicular to the manubrium
- c) vertical to the body of the sternum
- d) aimed toward the heart

7. The Introducer is powered by:

- a) pneumatic force
- b) batteries
- c) springs
- d) muscles

8. How should force be applied to the Introducer?

- a) with a quick thrust
- b) smooth, increasing until release
- c) steady, decreasing for 5 seconds
- d) any of the above is acceptable

9. The FAST1™ can be left in place for:

- a) 24 hours
- b) 1 hour
- c) only until the patient is stabilized
- d) 48 hours

10. Which of these can be delivered through the FAST1™?

- a) epinephrine
- b) blood and blood products
- c) normal saline or Ringer's Lactate
- d) all of the above

Answer Key

1. Which of these patients is the best candidate for the FASTI™?

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