EZ-IO Humerus Site Teaching Tips

Land-marking:

- **Humerus -** Place the patient's hand over the abdomen (elbow adducted and humerus internally rotated) -OR- keep arm adducted and pronate hand
  - Place your palm on the patient's shoulder anteriorly ("Find the Neighborhood")
    - 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

  Next
  - Place the ulnar aspect of one hand vertically over the axilla
  - Place the ulnar aspect of the opposite hand along the midline of the upper arm laterally.
  - Place your thumbs together over the arm.
    - This identifies the vertical line of insertion on the proximal humerus
  - Palpate deeply as you climb down the humerus to the surgical neck (notch/step off)
    - The insertion site is on the most prominent aspect of the greater tubercle, 1 to 2 cm above the surgical neck

Needle Selection:

- **Humerus** - >40kg always a Yellow Needle,
  - Drill needle to the hub
  - Remember to always immobilize the arm when using the humerus

Insertion:

Humerus:

- Aim the needle tip downward at a 45-degree angle to the horizontal plane (aim for the contra-lateral nipple)
  - The correct angle will result in the needle hub lying perpendicular to the skin

- Push the needle tip through the skin until the tip rests against the bone and check for your Black Line (when the needle tip is touch the bone you must see at least one black line outside the skin before you drill).
  - Insert Yellow 45mm needle to the hub for all patients >40kg.

  - Gentle pressure on the driver

Flush:

- No Flush=No Flow, remember to flush the IO hard and fast with saline
- Adult flush: 5-10ml of saline
- Pediatric flush: 3-5ml of saline
- Always put fluids up to a pressure bag or IV pump

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Lidocaine: (Follow your local protocol)

Vidacare Recommendations Below:

- **Adults:**
- Prime tubing with 2% Cardiac Lidocaine
- Give 40mg of Lidocaine over 2 minutes (don't forget to clear tubing with saline to ensure all 40mg gets into the bone)
- Let dwell for 1 minute
- Flush with 5-10ml of saline
- Give 20mg of Lidocaine over 1 minute
- Let dwell for 1 minute
- Start Infusion
    - Max dose 3mg/kg/24hrs
- **Pediatrics:**
- Still refer to Hixon Chart for patients weighing < 80kg
- Flush with 2-5ml of saline
    - Max dose 3mg/kg/24hrs

Care/Maintenance:

- Assess site for signs of infiltration as you would a PIV.
- If the IO is not infusing or flow rates have decreased and there is sign of infiltration, flush the site with 10ml of normal saline (No Flush=No Flow).
- Assess for pain during infusion. If no signs of infiltration are present then administer 2% cardiac lidocaine as described above per MD order.
- Once desired dose is given wait 60 seconds before flushing or restarting infusion.

Removal:

- Remove IO within 24 hours of insertion
- To remove apply syringe to hub of IO needle and turn clockwise while withdrawing needle. Be careful not to rock the needle back and forth to prevent bending or breaking needle during removal.
- Document time and date of removal (Can't access that same bone for 48 hours after removing IO)
- Maintain Pink IO wristband to alert staff that an IO was present.