

LOS ANGELES GENERAL MEDICAL CENTER

NURSING EDUCATION DEPARTMENT

**ULTRASOUND-GUIDED PERIPHERAL INTRAVENOUS (USGPIV)  
CATHETER INSERTION PROCEDURE**

**PURPOSE:**

To outline the policy for the standardized use of ultrasound-guided peripheral intravenous (USGPIV) insertion.

**SUPPORTIVE DATA:**

Registered Nurses who have been trained and whose competency is validated annually may insert peripheral intravenous (PIV) catheters using the ultrasound (US) guided technique.

**EQUIPMENT/SUPPLIES LIST:**

- Portable US machine
- High Frequency Linear Transducer
- Clean gloves
- Sterile lubricant
- Sterile 4x4 Gauze - 2
- Intravenous (IV) start kit
- Normal Saline flush
- 1.16 to 1.88 inch (PIV) catheter, minimum 20g
- Transparent Sterile dressing (Tegaderm™) - 2 (tegaderm is not intended for a probe cover not on IFU) should read probe cover
- Chlorhexidine antiseptic skin prep (Chloraprep™)
- Alcohol Prep (If patient has known allergy to Chloraprep™)

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<u>STEPS</u>	<u>KEY POINTS</u>
<ol style="list-style-type: none"> <li>1. Ensure provider order for insertion of peripheral intravenous catheter.</li> <li>2. Gather equipment and supplies.</li> <li>3. Perform hand hygiene upon entering patient's room.</li> <li>4. Inform and educate patient of procedure.</li> <li>5. Don clean gloves.</li> <li>6. Identify and select optimal anatomical insertion sites for USGPIV.</li> <li>7. Position US machine in-line with the IV site (or on the opposite side of the bed from the insertion site) ensuring proper body mechanics.</li> <li>8. Turn on the US machine and select the high frequency linear transducer. Press "Exam" and choose "Venous".</li> <li>9. On the US machine, utilize depth function to change the depth to 2.2 cm.</li> <li>10. Remove gloves, perform hand hygiene and don new pair of gloves.</li> <li>11. Scrub patient's skin using back and forth motion with chlorhexidine antiseptic for 30 seconds and allow to air dry for an additional 30 seconds.</li> <li>12. Apply approved US probe cover onto the probe.</li> <li>13. Apply single use sterile lubricant onto the transducer aspect of the high frequency linear transducer.</li> <li>14. Apply tourniquet at least 3-6 inches proximal to intended insertion site.</li> </ol>	<ol style="list-style-type: none"> <li>2. This entails; IV start supplies, priming of pigtail tubing with NS, and any needed blood tubes for labs.</li> <li>5. Determining site. Look proximal to prior attempts and avoid prior attempt sites, areas with swelling, bruising, redness, infection and points of flexion i.e. antecubital fossa, wrist.</li> <li>8. At times it may be necessary to increase depth to 2.7 cm to trace the vein and check for bifurcations, depth issues, and other physical changes to vein, however should not access vessel with a depth greater than 2.2cm related to not having 50% of catheter in vessel will increase risk of infiltration, extravasation</li> <li>10. If allergy to chlorhexidine, use alcohol prep pads to clean site and allow dry for 30 seconds.</li> <li>13. Lightly hold probe vertically in non-dominant hand, move probe along selected vessel. On the US machine, use the GAIN knob to adjust brightness/focus on the US screen as needed.</li> <li>14. Use of the M-Mode button on the US Machine can assist with centering of the vein on the screen.</li> </ol>

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<p>15. Move probe along arm to view potential vein and select vein.</p> <p>16. Align the selected vein to the center of the screen.</p> <p>17. Hold PIV catheter needle in dominant hand and insert PIV catheter.</p> <p>18. Once the needle-tip is visualized in the center of the vein, lessen the needle angle.</p> <p>19. Continue to use probe as you assist with guiding the angiocath deeper into the vein.</p> <p>20. Retract and remove needle, collect labs, and once done attach primed extension tubing, remove tourniquet, and flush line with 10 mL Normal Saline.</p> <p>21. Wipe off sterile lubricant while stabilizing catheter.</p> <p>22. Secure catheter while applying sterile dressing.</p> <p>23. Doff gloves and perform hand hygiene.</p> <p>24. Remove approved probe cover from probe and disinfect US probe and US machine per manufacturer's guidelines.</p> <p>25. Document procedure including that the ultrasound guided method was used to insert the IV.</p> <p>26. Label site "USGPIV" with:</p> <ul style="list-style-type: none"><li>○ Date, time of insertion and initials</li><li>○ Catheter gauge and length</li></ul>	<p>15. Recommended insertion angle is 45-60 degrees. Angle may be adjusted depending on the depth of the vein for a goal of 50% or more of catheter into vein.</p> <p>17. Slide the probe along the arm, do not use "fan-like" movements to guide angiocath into vein. <b>Optional:</b> You can further verify placement of angiocath into vein by turning probe to a sagittal view over accessed vein, can also verify once cannulated by flushing with NS will visualize fluid going through vein</p> <p>25. Answer all questions related to insertion on iView</p> <p>26. Use labels specific for USGPIV</p>
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