Emergency Nurse Ultrasound Guided Peripheral IV Insertion (USGPIV)

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■ Discuss the clinical significance of difficult IV access
■ Review evidence-based research in support of USGPIV access in the ED
■ Demonstrate knowledge of upper arm anatomy
■ Demonstrate critical safety steps when performing USGPIV access
■ Demonstrate proper technique when using the Bard ® guidewire catheter for USGPIV cannulation
■ Demonstrate proper documentation of USGPIV placement
Clinical Significance

Why do we need to learn to use Ultrasound Guided Peripheral Intravenous in the ED?

- Conditions such as obesity, chronic illness, hypovolemia, IV drug abuse and vasculopathy can challenge the emergency nurse in obtaining IV access.
- Difficulty obtaining peripheral intravenous (PIV) access can delay treatment for patients in the emergency department (ED).
- Patients who experience multiple PIV attempts in the ED may receive a central venous catheter (CVC) due to lack of suitable PIV sites.
Evidence to Support the Use of USGPIV

- ENA gives the use of Ultrasound-guided access a **level A** (highest recommendation) as a viable option for nurses for those patients with known difficult access.
- Empirical support is evident in current literature, including systematic reviews and meta-analysis on the use of USGPIV cannulation by RN’s to increase the success rate of establishing PIV access in ED patients with difficult access.
- Some studies have presented that there may be a correlation in decreasing central venous catheter insertion rates in the ED with a successful USGPIV program.
Clinical Indications for USGPIV Use

The use of USGPIV should be considered if the patient has an order for a peripheral IV and meets any of the following criteria:

■ The patient has had two failed attempts utilizing a standard IV insertion method.
■ The patient has a known history of poor vascular access.
■ The patient has no visible or palpable veins.
■ The patient requires venous access for imaging studies with no visible or palpable veins in the appropriate location.
Criteria

- The RN is limited to using ultrasound guidance to establish peripheral IV with catheters that are at a minimum of 1.75 inches and a maximum of 2.5 inches long (midline catheters are defined as catheters that are > 3cm, midline placement is restricted to physicians)
- 18 and 20 gauge catheters are appropriate for US placement
- Veins cannulated with ultrasound guidance should not exceed a vessel depth of 2.0 cm
- USGPIVs are not considered **central catheters**
- USGPIV should be limited to two attempts. If more than two attempts are unsuccessful, contact the provider for further guidance.
Ultrasound Technology

- Ultrasound machines are expensive—take care of our resources
- Ensure you clean the ultrasound machine immediately before and after patient use
- Return to the appropriate location after use
- Plug it in when you're done
Considerations

- The preferred area for establishing USGPIV is between the distal forearm and mid arm.
- The Brachial Vein should be used **ONLY** as a last resort due to the close proximity to the Brachial Artery and Median Nerve.
- Utilize the appropriate size gauge for the appropriate clinical indication.
Preparation and Infection Prevention

Prevent patient-to-patient microbial cross-contamination:

- Immediately prior to patient use the ultrasound probe must be cleaned with a germicidal disposable wipe and allowed to dry completely prior to contact with patient skin and following completion of the procedure.

- A sterile probe cover will be used for all USGPIV starts (large transparent dressing placed over the thin line of ultrasound gel).
Site & Catheter Selection

- Consider range of motion/restricted movement in selecting sites. Avoid points of direct flexion when possible.
- If upper arm presents the only suitable vessels, often the Cephalic Vein is best, followed by Basilic.
- Avoid the Brachial Vein due to risk of arterial or nerve compromise.
- If no appropriate target vessel is identified during the US survey, contact the patients attending physician to determine appropriate access for the patient.
Review of Vein Anatomy-Middle Upper Arm

Site Selection-Ultrasound View

Basilic Vein

Brachial Nerve Bundle

Brachial Artery
Artery vs. Vein

Ivy League Nurse.com
Meer, Medscape, 2011, pg 5
Can you recognize a thrombus within a vessel?

- Clot in upper arm vessel
- Hallmark feature is the lack of compression in the vessel
Tips for Success

- Hold the probe perpendicular to the skin to obtain the best image. Don’t tilt the probe.
- Track the needle on the Ultrasound Screen, not on the patient's arm.
- 15-30 degree angle for insertion.
- Avoid extreme steep angles as this may kink the catheter.
- Use a “C” grip to hold the probe, using your wrist/fingers to stabilize the probe hand.
- Don’t overdo it with the gel!
- Practice, Practice, Practice.
- Simulators will be available.
Sustainment of a Successful USGPIV Program

- Policy
- Education
- Training
- Competency
Competency Plan

- Nurses will participate in an initial class consisting of didactic and hands on learning.
- Nurses will successfully cannulate 5 simulated USGPIVs.
- Staff will successfully perform 3-5 peer validated USGPIV insertions.
- Educators will keep record of documented education and competency.
- Nurses who have attended the initial training will demonstrate 2 peer validated competencies on an annual basis.
## Ultrasound Guided Peripheral IV Placement

**This Procedure is Applicable to the following sites:**
Big Rapids, Gerber, Reed City, SH GR Hospitals, United/Kelsey

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Documentation

**Documentation:** I-View ("Lines" documentation band)

- IV site/location
- Gauge
- Site condition
- Site Dressing
- IV patency
- Use of Liquid Adhesive
- Use of Ultrasound for guidance
- Number of attempts
References


Attendance

USGPIV
1/15/2015 - 1/16/2015

Please sign in below.

Name

Signature

Jill Smith

Charli Maughan

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