Femoral Sheaths

***Radial and brachial sheath to be pulled only by interventional cardiologist in cooperation with catheterization lab staff. Femoral sheath to be pulled only by trained personnel, two personnel (at least one licensed) to be present. Femoral sheath to be pulled in accordance with Elsevier procedure.*

Management of patient with sheath:

- Monitor site closely for swelling, bleeding, pain, and Pseudoaneurysm/hematoma
- Check for and follow provider orders
- Patients may drink sips and take medication but <u>they should not eat until sheath is removed</u>
- Place patient on bedside monitor and check BP Q15 minutes until sheath is pulled, then Q5 during pull
- Monitor for urinary retention
- Assess patency of IV
- Monitor telemetry
- Ensure post-procedure fluids are ordered and running to prevent contrast-induced kidney injury

- Complete bed rest while sheath in place
- Elevate HOB no more than 15 degrees while sheath in place
- iStat ACT every 2 hours after heparin is discontinued – okay to pull if ACT is less than or equal to 170 (or provider preference – check your orders!)

Removal Procedure

<u>Supplies:</u>

- ☐ Sterile gloves
- ☐ 4x4 gauze
- ☐ Hemostasis patch
- ☐ Tegaderm
- ☐ CHG swab
- ☐ 10mL syringe
- ☐ Atropine Sulfate Abboject 1mg
- ☐ MAY NEED: suture removal kit or hemostats to help get tubing off stopcock

<u>Double checks before pulling:</u>

1. Cycle BP Q5 minutes, okay to pull if SBP is less than 180
2. Max-inflate ICU bed
3. ACT is less than or equal to 170 (or provider preference)
4. Verify patient voids
5. Find and mark Dorsalis Pedis, Posterior Tibial, and Femoral pulses

<u>Removal</u>

1. Wash hands
2. Verify patient with two identifiers
3. Verify provider order for sheath removal
4. Two personnel must be present for entire pulling of sheath
5. Patient must be supine with head of bed flat – move patient's ankle 10-12 inches away from midline with toes pointed out to expose femoral head for better site access

6. Wearing clean gloves, remove current dressing and assess for hematoma
7. Clean site with antiseptic solution
8. Open all necessary supplies and have them easily accessible
9. Disconnect heparin from sheath and aspirate 3-4 mL of blood
10. Open hemostasis pad using sterile technique
11. Apply sterile gloves and other PPE
12. Place gloved fingers 1-2 cm above insertion site on the femoral pulse
13. Have patient breath normally – DO NOT BARE DOWN – and gently remove sheath during exhalation while holding pressure on the femoral pulse 1-2 cm above insertion site
14. Gradually release pressure to moderate pressure after 5 minutes, then gradually release pressure over the next 10 minutes. Pressure should be held for a minimum of 20 minutes
    a. While holding pressure with one hand, use the other hand to palpate surrounding tissue for hematoma
15. If bleeding occurs, continue to hold pressure. Once hemostasis is achieved, apply hemostasis patch and dressing
16. Venous sheaths should be pulled 5 minutes after arterial sheaths to decrease the risk of AV fistula. Pressure should be held directly on top of the venous puncture or slightly below

After Removal

- Keep affected leg straight for 4-6 hours and HOB less than 30-40 degrees (or as ordered by provider)
- Allow patient to feel dressing – Remind them if the laugh, cough, or sneeze to hold pressure on the area
- Educate patient to notify someone immediately if they feel like they're bleeding
- Observe site for bleeding, check pulses, and check vitals
    - Every 15 min x4, then
    - Every 30 min x2, then
    - Every hour x4

Managing Complications

<u>Vasovagal response:</u> Pressure on a large artery can stimulate this, causing slowing of the heart rate and a drop in blood pressure. Patient may also appear pale and complain of nausea, with or without vomiting. Treat with 250mL NS bolus and 0.5 mg IV Atropine and notify provider

<u>Bleeding:</u>

- *Superficial bleeding ("oozing"):* To check, occlude the femoral artery. If it's superficial, the ooze will not stop. Patient may have some bruising and swelling at the site
- *Mild bleeding:* May occur following removal of sheath. Increase pressure and notify provider
- *Major bleeding:* Result in drop of hemoglobin by 3-5 g/dL – occurs only in 0.7 to 5% of patients

<u>Pseudoaneurysm/Hematoma:</u> Apply manual pressure and notify provider. Outline swelling with a marker so you can more easily tell if it's getting bigger. A femstop may only be applied with a Provider order.

<u>Retroperitoneal Bleed/Hematoma:</u> Pt complaining of acute back, flank, or abdominal pain and may have hypotension. Notify the provider and monitor patient closely – they'll need a CT scan or US to diagnose.