

Tourniquet: Use in Operating Room (OR)

Site Applicability:

PHC Operating Rooms, Surgical Procedure Room (SPH)

Skill Level:

Basic: Registered Nurses, Licensed Practical Nurses working in the Operating Room

Need to Know

- The standard tourniquet machine is the ATS 4000TS. The ATS 2000 is for backup only.
- The tourniquet machine must be plugged in at all times, including during use.
- There are a variety of sizes and styles of cuffs, including sterile single-use cuffs and a dual-bladder cuff.
- Pressure settings are determined by the surgeon and/or anesthesiologist, and are based on the patient's age, limb size, cuff width, systolic blood pressure, and comorbidities. The lowest effective pressure should be used.
- Limb occlusion pressure (LOP) testing is available on the newer machines. This is done at the request of the surgeon or anesthesiologist, in order to determine the appropriate pressure setting once the cuff has been applied. Apply the LOP probe to a digit distal to the cuff and choose the LOP option on the touch screen.
- The inflation time on the machine is preset at 60 minutes. The alarm will sound after 60 minutes, and you must silence it by pushing the red "alarm silence" button. You must then increase the time on the machine in 30-minute increments.
- In practice, the usual maximum tourniquet time is 2 hours. After 2 hours, it is recommended that the tourniquet be deflated for a period of at least 15 minutes to allow reperfusion of the limb.
- The cuff is cleaned after every use, except the sterile single-use cuff which is discarded.

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Procedure

Steps

1. Turn the tourniquet machine power on. The machine will go through a self-test. This must be done before each case.
2. Set the required pressure after confirming with the surgeon or anesthesiologist. (The pressure is pre-set at 250 mmHg). (For an IV block, confirm the pressure with the anesthesiologist.)
3. Assess the skin where the cuff will be applied. If there is any abnormality, document this on the **Skin Assessment** segment in Cerner.
4. Apply a single layer of stockinette around the limb, as high up as possible, ensuring there are no large wrinkles in the stockinette under the cuff.
5. Select an appropriate cuff; there should be 3" to 6" of cuff overlap.
6. Apply the cuff under the supervision of the surgeon, anesthesiologist, or physician delegate.
Fold the stockinette over the distal edge of the cuff. Apply a single layer of incise drape over the distal edge and the skin to prevent prep solution from running under the cuff.
7. Connect the hoses from the tourniquet machine to the cuff. If using bilateral cuffs, choose the red hose for the right limb ("red – right") and the blue hose for the left limb.
8. If using bilateral cuffs or a dual-bladder cuff, label the tourniquet machine to indicate which tubing/controls are for which cuff or bladder.
9. The limb may be stripped with an Esmark or tensor prior to inflating the cuff. This may be done before the prep or after draping. If the limb is not stripped, it must be elevated (to drain venous blood) before the cuff is inflated.
10. Inflate the cuff at the request of the surgeon. Note and document the time.
11. Notify the surgeon and document that they are aware of the time at 60 minutes and every 30 minutes thereafter.
12. Document deflation time. If a cuff is deflated intraoperatively and is no longer needed, remove the cuff and the stockinette at the discretion of the surgeon.
13. At the end of the procedure, assess and document the condition of the skin under the cuff in the **Skin Assessment** segment.
14. At the end of the case, turn the tourniquet power off.

Documentation:

In the **Tourniquet** segment in Cerner, document the following:

- number of tourniquet machine
- limb
- cuff size
- inflation pressure
- who applied cuff
- time(s) of inflation/deflation
- surgeon notification at 60 minutes, and every 30 minutes thereafter

In the **Skin Assessment** segment, document any preoperative abnormality of the skin where the cuff will be applied, as well as the condition of the skin under the cuff postoperatively.

Related Standards & Resources

ORNAC. (2021). *The ORNAC standards, guidelines, and position statements for perioperative registered nurses* (15th ed.), 3-89 to 3-93.

Spruce, L. (2017). Back to basics: Pneumatic tourniquet use. *AORN Journal*, 106 (3), 291-226.

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