GUIDELINES FOR PNEUMATIC TOURNIQUET

Before Use
< Inspect and test for cleanliness, integrity, and function.
< The cuff, tubing, connectors, gauges and pressure source should be in working order.
< Select gas to be used to compress the tourniquet bladder according to manufacturer’s written instructions. Never inflate with nitrous oxide or oxygen due to risk of fire.

During Use
< Protect the tourniquet cuff from contamination during surgery.
< If tourniquet components come in contact with blood or body fluids clean with an enzymatic detergent.

After Use
< Reusable cuff and bladder should be cleaned, rinsed, and dried according to the level of contamination and manufacturer’s written instructions.
< Discard disposable cuff unless the manufacturer recommends that it can be cleaned and reused.
< If the bladder is removable, care must be taken to prevent introducing water into the bladder through ports.
< Wipe all connecting tubing with a chemical germicide that is not deleterious to the rubber or polyethylene material.
< Thoroughly rinse the cuff and bladder to reduce the potential for allergic reactions.
< Follow manufacturers’ written instructions for drying.

Testing and Maintenance
< Establish the frequency, method and criteria according to manufacturers’ written instructions.
< Document and maintain the dates of inspection, preventive maintenance, and the status of all equipment.
< Report malfunctions of the tourniquet equipment causing serious injury or contributing to the death of a patient or other individual to the FDA as required by the Safe Medical Devices Act of 1990.

Pneumatic Tourniquet Use
< Use as designed and in a manner that reduces the risk for patient injury.
< Selected cuff length and width should be individualized to the size and shape of the extremity.
< A wider cuff occludes blood flow at a lower pressure.
< Curved tourniquets designed to fit conical limbs occlude arterial flow at lower pressure than straight cuffs of equal width.
< The cuff should overlap at least 3 inches but not more than 6 inches. Too much overlap causes rolling or wrinkling of underlying soft tissue; this increases pressure to the areas of overlap.

Skin Integrity
< Apply cuff according to manufacturer’s written instructions.
< Place tourniquet on the limb at the point of maximum circumference.
< Once inflated, the cuff should not be readjusted.
< Take measures to prevent fluids from collecting under the cuff.

Inflation of Tourniquet
< Perform rapidly.
< A rubber or elastic bandage should be available for exsanguination.
< Use of a rubber bandage may not appropriate following traumatic injury or if the patient is a cast post-fracture.

Inflation Pressure
< Keep to a minimum.
< Upper extremities, add 70 mm to the patient’s systolic pressure.
Lower extremities, multiply the systolic pressure by two.

Tourniquet Time
- Keep to a minimum.
- Inform the surgeon of the duration of tourniquet time at frequent, established intervals.
- Recommended limit:
  - Upper- or lower-extremity tourniquet inflation is 2 hours.
  - After a period of reperfusion (5 minutes or more), the tourniquet can be re-inflated for another 1-2 hrs.

Documentation
- Cuff location.
- Skin protection, padding, or stockinette.
- Cuff pressure.
- Time of inflation and deflation.
- Skin and tissue integrity under the cuff before and after the use of the pneumatic tourniquet.
- Assessment and evaluation of the entire extremity.
- Identification, serial number, and model of the specific tourniquet.
- Identification of the person who applied the cuff.

Personnel Competency
- Personnel should be able to identify potential patient injuries, complications and safe practices and instruct and be able to perform a return demonstration in the proper operation of the tourniquet before use.