

**STANDARD OPERATING PROCEDURES**  
DIVISION OF COMPARATIVE MEDICINE  
UNIVERSITY OF SOUTH FLORIDA

SOP#: 033

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TITLE: General Anesthetic Techniques  
SCOPE: All Authorized Personnel  
RESPONSIBILITY: Facility Manager and Technical Staff  
PURPOSE:

- a. Visually inspect hoses and connections,
  - b. Connect the waste gas scavenging system,
  - c. Test breathing circuit for leaks, and verify that it can maintain positive pressure,
  - d. Ensure adequate oxygen and anesthetic agent supplies are available
3. Prior to anesthetizing an animal patient, all monitoring and supplemental support equipment should be operational and in good working order per appropriate equipment specific SOP(s). Prior to using monitoring equipment,
- a. Visually inspect sensor and electrical connections
  - b. Clean all sensors prior to and after use
  - c. Allow ample time to run internal calibrations and tests per appropriate SOP
4. Pre-procedural Considerations
- a. Examination
    1. Overall condition
    2. Weight taken within the past 24hrs
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1. Assess appropriate length (measure from corner of mouth to last rib palpated), trim if needed, ensuring no sharp edges.
  2. Test inflation cuff, if one is available, then deflate completely; ensure all connections are secured and will not dislodge during surgery.
    - a. Rodents = non-cuffed, typically made of flexible tubing, or trimmed percutaneous vascular catheters.
    - b. Rabbits = size 2.5-4.0 is normal range; generally 3.0 are non-cuffed; 3.5 are cuffed.
    - c. Large Animals = size 4.0 and greater; generally come cuffed.
  - c. The larynx can be easily damaged during intubation; therefore, if one encounters difficulty, causes obvious trauma and or has not successfully placed the tube within 3 attempts, a more experienced technician will take over.
  - d. Endotracheal tube must be secured; typically with roll gauze in larger species, while adhesive or umbilical tape will suffice in rodent species. Inflation cuff, if available, is blown up until firm but not overly tight (e.g.: "grape-like" consistency).
7. Peripheral Vascular Catheterization
- a. Choose appropriately sized catheters for species and intended use (e.g.: fluid administration, invasive blood pressure monitoring).
  - b. Vessels can vasospasm or form hematomas if damaged while attempting to place catheters. If one encounters difficulty, causes obvious trauma and or has not successfully placed the catheter within 3 attempts, a more experienced technician will take over.
8. Urinary Catheterization
- a. Choose appropriately sized catheters for species and research requirements.
  - b. Apply viscous Lidocaine 2% or Cetacaine gel as topical anesthetic prior to catheterization attempts to both the urethral opening and catheter tip.
  - c. Swelling may occur if urethra is damaged during catheterization attempts, resulting in bleeding and obscuring the opening. If successful placement of the catheter is not achieved within 3 attempts, a more experienced technician will take over.
9. Monitoring Methods
- a. Ventilation
    1. Small animals are assessed by visual monitoring of mucous membrane color and tissue perfusion
    2. Large animals are also monitored using specialized equipment
      - a. Pulseoximetry (SpO<sub>2</sub>)
      - b. Capnography (end-tidal CO<sub>2</sub> or ETCO<sub>2</sub>)
      - c. Arterial or venous blood gas analysis
  - b. Thermoregulation
    1. Table probe
    2. Nasal, auricular or rectal probe
  - c. Heart rate, pulse and ECG – in rodents rate and pulse characteristics can be assessed by visualization of vasculature; larger animals will have probes, clips or cuffs affixed.
  - d. Respiratory rate - in rodents rate, depth and pattern characteristics are assessed via direct observation; large animals will be monitored via probes, clips or cuffs affixed.
  - e. Blood pressure
    1. Invasive – via arterial catheter attached to transducer
    2. Non-invasive
      - a. Rodent = CODA Non-Invasive Blood Pressure (NIBP) System
      - b. Large animal = variety of cuff systems

- f. Physical monitoring
- g. Perfusion - capillary refill time
- h. Depth of anesthesia
  - 1. Jaw tone
  - 2. Palpebral or blink response
  - 3. Deep pinch/noxious stimuli

10. Monitoring Specifics

- a. Data collection of parameters appropriate to the protocol will be taken a minimum of every 15 minutes.