



Anesthetic Equipment Output Verification and Maintenance

Purpose: This standard describes the expectations for verifying output and maintaining anesthetic equipment (including precision vaporizers) used in the animal care and use program.

Background: As noted in the *Guide for the Care and Use of Laboratory Animals*, appropriate anesthesia plays a key role in the animal care use program. Animal health and well-being and personnel safety rely on properly functioning anesthesia systems. All anesthetic machine components must work together properly to safely deliver gas anesthetics.

Standards: Anesthetic equipment (anesthetic machines and vaporizers) will be maintained and evaluated for proper operation according to manufacturers' recommendations. Equipment will be monitored regularly for leaks or defects that can adversely affect animal and human health and safety. Faulty equipment will be repaired and calibrated. If manufacturers' recommendations vary from annually, those recommendations will be available for review upon request. Anesthetic equipment maintenance and evaluation will be documented. Records will also be available for review upon request and should substantiate that anesthetic machines are functioning properly.

Methodology: Principal Investigators (PIs) are responsible for maintaining their own anesthetic equipment. If manufacturer's recommendations are not available, anesthetic equipment maintenance and output verification will be performed at least annually. The IACUC may, at its discretion, require maintenance and output verification more frequently than the manufacturer recommends.

1. Precision vaporizer maintenance may involve on-site output verification or more extensive off-site work.
2. Anesthetic machines vary in complexity and maintenance requirements, but at a minimum, hoses, gaskets/seals and scavenging devices should be evaluated for proper functioning.
3. Waste anesthetic gas monitoring. Anesthetic machine waste anesthetic gases will be monitored regularly at a frequency established by Environmental Safety, Sustainability and Risk (ESSR).
4. Recordkeeping methods may include equipment tags/labels, bar codes, spreadsheets, databases, etc., but documentation must indicate whether units are working properly or not.
5. If anesthetic equipment is not functioning properly, it will be marked "DO NOT USE" and will not be used until repairs have been made and the unit is certified as functioning properly.

References:

1. Institute for Laboratory Animal Research, National Research Council. (2011). *Guide for the Care and Use of Laboratory Animals*. Washington, DC: National Academy Press. Retrieved 5/17/22 from <https://grants.nih.gov/grants/olaw/guide-for-the-care-and-use-of-laboratory-animals.pdf>
2. Anesthetic Equipment Calibration and Maintenance. AAALAC, International FAQs. <https://www.aaalac.org/accreditation-program/faqs/#D1> Accessed 5/17/22.