Anesthesia and Vaporizer Inspection Guidelines

The *Guide for the Care and use of Laboratory Animals* (NRC 2011) notes that appropriate anesthesia is a critical component of the animal care and use program. Properly functioning gas anesthesia machines are key to the delivery of the anesthetic agent to the animal and to the safety of personnel. There are many factors to consider (e.g., frequency of use, age of machine, environmental conditions, etc.) when developing a program for anesthesia machine maintenance and upkeep, and all components need to work properly as an integrated unit.

**Purpose:** The purpose of this document is to provide guidelines regarding recommended scheduling for anesthesia machine/vaporizer inspections.

**Scope:** All personnel engaged in the use of anesthetic vaporizers in studies involving research animals. The UC Institutional Animal Care and Use Committee expects that anyone involved in animal work at the University will comply with this guideline. Requests for exceptions to this guideline must be reviewed and approved by the UC IACUC.

**Background:** Anesthesia machines and vaporizers must be in good working condition to reduce anesthetic gas leaks, to ensure the best performance of scavenging equipment, and provide the appropriate percentage of anesthetic delivery. Each piece of equipment involved in the delivery of inhalant anesthetics must be evaluated regularly to assure its proper function and integrity. This includes monitoring for leakage, improper design, or defects.

**Guidelines:**

1. Anesthesia systems must be inspected **annually** by a qualified professional or certification company. This inspection includes:
   a. Full evaluation of the anesthesia machine
   b. Efficacy test of the vaporizer
   c. Inspection of O2 delivery system, patient circuits, evacuation technique

2. An exception can be granted to inspect anesthesia systems every other year (except for systems using halothane, which will require annual inspections). To be granted, a husbandry exception (other) must be submitted as an amendment to the protocol under which anesthesia is used. Acceptable reasons for this exception include:
   a. If the system is not mobile (*i.e.* is a tabletop system)
   b. If the system is used infrequently – a log of hours used must be kept and be made available; infrequent use must be justified in the exception request.
   c. No modifications have been made to the system outside manufacturer recommendations.

3. If the verified delivery of the vaporizer is ± 15% out of calibration of the target value, the unit must be serviced off-site by qualified personnel or company.

4. The date of servicing must be clearly posted on the vaporizer.