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| <b>University Animal Care Committee Standard Operating Procedure</b> |  |                      |
| <b>Document No:</b><br>14.5  | <b>Subject: Anesthetic Machine Setup, Surgical Suite</b> |                      |
| <b>Date Issued:</b><br>March 2022                                    | <b>Revision:</b><br>Original                             | <b>Page No:</b><br>1 |

**Location:** Queen's University

**Responsibility:** Principal Investigators, Research Staff, Veterinary Staff

**Purpose:** The purpose of this Standard Operating Procedure (SOP) is to describe how to setup an anesthetic machine

- 1. Introduction and Definitions:** Anesthetic setup is an important factor before any surgical procedure. The safety of the patient and personnel must be considered. Proper maintenance of the machine and the equipment should be done on a regular basis.

**Abbreviations:** Animal Care Services **ACS**, Principal Investigator **PI**, subcutaneous **SC**, intravenous **IV**, intraperitoneal **IP**, intramuscular **IM**, per os **PO**, per rectum **PR**

## 2. Materials:

- Oxygen (either a stand-alone H-tank or an oxygen system in the facility)
- Anesthetic machine (serviced within the last year)
- Rebreathing tubing system (F or Y circuit)
- Scavenging system (either a system within the facility or f/air canister)

## 3. Procedures:

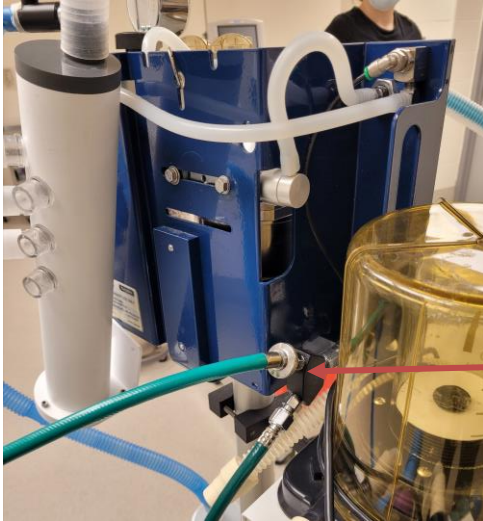
### Set up Oxygen source and Oxygen flow rate for the patient:

- To calculate what the oxygen flow meter should be set to, take the weight of the patient (kg) x 200 mL/kg/min. Change the mL/min to L/min to match the oxygen flow meter unit
  - Decide how long the patient will be under anesthetic and determine approximately how much oxygen will be needed for the procedure. (Calculate how many litres are needed per hour and multiply how many hours the surgery is expected to take).
  - Turn on the Oxygen tank if there is one in the room or connect directly to the facility Oxygen line. Check the psi on the H-tank, a full tank will contain 2200 psi. To calculate the approximate amount of oxygen in litres contained in the tank you multiply the psi x 3. (eg. If the H-tank reads 1500psi there is approximately 4500L remaining). Ensure there is enough oxygen remaining for the procedure.
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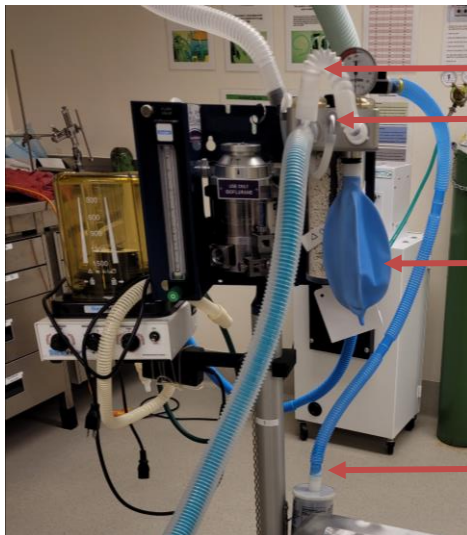
**Set up the Anesthetic Machine:**

- The oxygen tank will have tubing that can connect to the back of the anesthetic machine.



Oxygen Connection

- Attach the appropriately sized rebreathing bag to the anesthetic machine. Using the weight of the animal and multiplying it by 60 will give you the size of bag (in mLs) that you need. Ensure to always round up when determining the bag size.
- Connect the metal connection providing fresh Oxygen is attached securely in the machine.
- Connect the F circuit to the anesthetic machine.
- Ensure the scavenge system is hooked up and exhausting either into the facility scavenge system or the f/air canister (ensure to weigh after each use and discard after 50g weight increase).



F Circuit

Fresh Oxygen Connection

Rebreathing Bag

Scavenge system attached to the f/air canister



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- Ensure CO<sub>2</sub> absorbent is not expired. CO<sub>2</sub> absorbent should be replaced at a minimum every 3 months, alternatively, it should be changed sooner following manufacturers guidelines or when the granules turn purple, whichever occurs first. Soda lime needs to be changed every 14 hours and (<https://www.dispomed.com/detect-soda-lime-exhaustion/>) Sodasorb needs to be changed every 8 hours (<https://www.midmark.com/animal-health/resource-training-library/blog/sodasorb-If---the-co2-absorbant-with-safety-you-can-see>). Monitoring a patients capnograph during any anesthetic procedure is an important step to ensure the CO<sub>2</sub> is being properly absorbed.
- Check Isoflurane levels to ensure that the machine is full.
- Pressure check the machine to ensure that there is no leaking anesthetic gases.
  - Plug the end of the F circuit tubing securely
  - Close the pop-off valve on the machine
  - By turning on the flow meter fill the anesthetic machine with oxygen until the system pressure reads between 15-20 cm/H<sub>2</sub>O
  - If the system can hold the pressure without dropping, we can be confident there is no leak in the system

***Before personnel uses an anesthetic machine they should be properly trained by a senior staff member to ensure all steps provided are understood.***

***References:***

***Revised:***

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