



TITLE: NHP Intubation

PURPOSE: To maintain an airway for the intake, distribution and elimination of oxygen, inhalant agents and CO₂ from the body for surgical or non-surgical procedures

REVIEW/REVISION: Permanent amendment/revisions to this SSP must be presented to the IACUC for review before implementation and should be developed by UAC, the Surgical Attending Veterinarian and PI together.

EFFECTIVE DATE: 1/27/05; **Revised/Re-Approved:** 2/24/05, 8/25/06, 11/2/06, November 1, 2007

POLICY:

During the Pre-Surgery Conference (NHP-SSP #700-01-05), an individual will be identified as responsible for NHP Intubation. This individual must be one of the following: BSS Technician, Surgical Attending Veterinarian, PI or Research Personnel.

The Surgical Attending Veterinarian must be present before the intubation process can be initiated.

Frequency of Procedure:

As needed

Documentation of Procedure:

Surgery Record form
NHP Pre-Surgery Conference Check List

Materials Required:

- | | |
|-------------------------------------|---|
| Anesthesia Face mask | Anesthesia machine |
| Laryngoscope handle | breathing hoses |
| Laryngoscope blade curved | Cetacaine or lidocaine (for laryngospasm) |
| Endotracheal tubes of various sizes | Syringe |
| Tie/roll gauze | Stethoscope |
| 4x4 gauze | PPE per NHP-SSP #703-02-05 |

Procedures:

1. Before the intubation process can be initiated, the Surgical Attending Veterinarian must be present.
2. Before the intubation process is initiated, several endotracheal tubes of various sizes will be selected and checked by using a syringe to inflate the cuff with air. The cuff is placed under water to check for leaks.
3. Record the proper amount of air needed to inflate each cuff on the surgical record to avoid over inflation of the cuff when the NHP is intubated.
4. Pre-Anesthetize per SOP#
5. When the NHP reaches the appropriate plane of anesthesia (muscle relaxation, gagging and



swallowing reflexes are repressed, slower respiration and eyes rotate ventrally) the animal may be intubated.

6. Measure the distance between the incisor teeth to the thoracic inlet with the endotracheal tube to determine the length of the endotracheal tube to be placed. The proper place for the tip of the tube is in the trachea just past the larynx, unless the neck will be sharply kinked. If the tube is placed too far, there is a possibility of the tip being placed against the trachea or entering only one bronchus.
7. Palpate the trachea to determine the size of the tube to be placed.
8. The NHP is then placed on the table in dorsal or ventral recumbency, per the preference and expertise of the intubator.
9. The head and neck are positioned as appropriate to the body position to fully extend the neck.
10. The upper jaw is held stationary and the lower jaw is pushed down by pulling the NHP's tongue forward and down with a 4x4 gauze.
11. The mouth is opened wide enough to view the epiglottis which lies over the trachea
12. A light spray of aqueous lidocaine is applied to the epiglottis. Wait for the anesthetic to take effect before proceeding with the next step. (NOTE: The face mask must also be re-applied or the animal will wake up before intubation)
13. A Laryngoscope blade is placed towards the back of the mouth and is used to pull down the epiglottis, exposing the glottis.
14. The endotracheal tube is gently passed over the epiglottis, through the glottis and into the trachea so that cuff is just below the larynx. Once the endotracheal tube is in place, the laryngoscope is removed. Press on chest to see if air comes out of tube to be sure that the tube is in the trachea and not the esophagus.
15. The endotracheal tube is secured using a tie or a piece of gauze tied around the tube and behind the head.
16. A syringe with the premeasured amount of air (as indicated in #2) is used to inflate the cuff. Check for leaks around the cuff. This is done by gently squeezing the reservoir bag and listening for a rush of air exiting the oral cavity. If the endotracheal tube size is appropriate and the cuff is inflated adequately, a small hiss will be heard. If a large hiss is heard, inflate the cuff further or replace the endotracheal tube with a larger tube and retest. If no hiss is heard the cuff may be over inflated. Deflate the cuff slightly and retest until a small hiss is heard.
17. The endotracheal tube is connected to the breathing hoses on the anesthesia machine. The isoflurane vaporizer is set at 2%-3%. Adjust delivery of anesthetic concentrations according to the NHP anesthetic depth and vital signs. The oxygen flow meter is set to deliver 1 liter of oxygen.
18. The chest of the NHP is auscultated on both sides using a stethoscope to verify that the tube has been placed in the trachea properly above the bifurcation, and not just in one bronchus of the lung. If not properly placed, deflate the cuff on the tube and pull tube slowly in small increments. Re-inflate cuff and recheck. Repeat until properly placed.

JUSTIFICATION:

The Institutional Animal Care and Use Committee (IACUC) determined that comprehensive individual Non-Human Primate Standard Surgical Practices (NHP-SSP) should be written for: Surgical Prep - This includes not only the actual pre-operative preparation of the animal, but also required prep for participants; Anesthesia Induction - Standard



induction procedures should be described; Post-Operative Recovery - this should specify criteria for extubation as well as post-operative monitoring, placement of the animal, and provision for emergency care.

Authority line - During pre-op procedures and immediate post-operatively, until animal is able to sit upright, the Surgical Attending Veterinarian will be present and have decision making authority. The Surgical Attending Veterinarian may not be physically present in the room during surgery, but is on call. During surgery, the Surgeon is responsible for procedures going on in the surgical theater. Specific allocation of duties for each NHP-SSP will be determined at the pre-surgery conference and will be designated to the Surgical Attending Veterinarian, PI, BSS Clinical Staff, or Research staff.