Safehold
SPECIAL RISK

Veterinary Loss Prevention Program

Respiratory Concerns in the Veterinary Setting

Respiratory Concerns in the Veterinary Setting

Trainer's Overview

To have your employees get the most out of their training sessions, it is suggested that:

- **The training sessions should be conducted in a relatively quiet uninterrupted environment.**
- **The sessions should be held the same time and day of the month (i.e., first Tuesday at 12:30).**
- **Employee handouts should be given out along with pencils/pens.**
- **Review the trainers guide, employee handout and any references.**
- **Keep the sessions to a maximum of 20 minutes.**
- **Give personal examples of incidents or prevention techniques that worked for you.**
- **Ensure that all employees present sign the Safety Training Sign-in Sheet for documentation purposes.**
- **If some employees were not present, a second training session should be given.**

2022 Safehold

Respiratory Concerns in the Veterinary Setting

Trainer's Overview

What do you need to know about Respiratory protection in the veterinary setting?

Anesthetic gases and vapors that leak into the surrounding operating room during medical procedures are considered waste anesthetic gases. The waste anesthetic gases and vapors of concern are nitrous oxide and halogenated agents (vapors) such as halothane, enflurane, isoflurane, and desflurane.

Most procedures in a veterinary practice carry little tangible risk to the patient or the staff; however, there are times when safety precautions are necessary. In the veterinary practice, sometimes the protection must be "built into" the facility or the procedure and sometimes it is appropriate to rely on personal protective equipment for protection. When faced with a situation requiring a safety solution, OSHA expects the practice to solve the problem in the following sequence:

Engineering controls when possible. In general, the term "engineering control" means the installation and use of mechanical devices to eliminate or reduce the severity of the hazard. In the veterinary practice, this normally means the use of general or local exhaust systems, waste gas scavenging devices, and maybe even some of the restraint equipment used on equine and food animals.

Administrative Controls. If engineering controls are not physically possible, the next step is to institute "administrative or procedural controls." This means modification of "the way we do it" so that the hazard is eliminated or reduced. For instance, if mechanical ventilation of a particular room is not feasible, but the levels of chemical vapors are excessive, the next option would be to move the process or chemicals to another room that can be ventilated. Similarly, switching to a less hazardous chemical or modifying the actual procedure to reduce the amount of time a person is exposed to the risk would also be examples of procedural controls.

Personal Protective Equipment. Respirators should only be used when engineering control systems and administrative controls are not feasible. Respirators protect the user from anesthetic gases by either removal of contaminants from the air (by respirators with activated charcoal cartridges) or by supplying clean Grade D breathing air from another source (normally these would be airline respirators which take air from a remote source free of contaminates and transport it to an airline respirator by way of compressors specifically designed for that purpose).

Respirators may seem like a cheaper course of action but there are some hidden costs including:

- Written respirator protection program.
- Medical Evaluation Procedures.
- Annual fit testing requirements for tight fitting respirators.
- Documented training in the following:

(A) Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
(B) The limitations and capabilities of the respirator;

(C) How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;

(D) How to inspect, put on and remove, use, and check the seals of the respirator;

(E) The procedures are for maintenance and storage of the respirator;

(F) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and

(G) The general requirements of Cal/OSHA General Industry Safety Order 5144.

Respirator: cleaning-inspection-storage-maintenance

Inspection – Your respirator should be inspected before each use, after each use, and during cleaning and sanitizing. During your inspection, check the condition of the face piece, straps, valves, filter and/or cartridge elements, air hose and protective lens (full face or units with hoods). If parts are worn or defective, make certain that the unit is repaired or replaced. Be alert that not all respirators have replaceable parts. If in doubt, contact with management or the respirator manufacture. A record documenting the inspection date, name of inspector and findings must be kept.

Cleaning - Cleaning and sanitizing is essential to ensure proper protection, prolonged life of the respirator and prevention of dermatitis. Use a mild soap or combination cleaning/sanitizing solution.

Rinse in clean water and allow respirator to air dry.

Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, demand, and pressure- demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.

Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water and drain.

If the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:

Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or, Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F); or, Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis.

In addition, some disinfectants may cause

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deterioration of rubber or corrosion of metal parts if not completely removed. Components should be hand-dried with a clean lint-free cloth or air-dried; not use compressed air.

Reassemble facepiece, replacing filters, cartridges, and canisters where necessary. Test the respirator to ensure that all components work properly.

Storage – All respirators shall be kept in a storage bag to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the facepiece and exhalation valve.

Maintenance - All respirators are to be maintained according to manufacturer's recommendations. Beware that respirator parts for different brands, e.g., Survival or 3M, are not interchangeable.

Resources

- http://www.dir.ca.gov/Title8/5144.html
- http://www.cdc.gov/niosh/topics/respirators/
- https://www.osha.gov/waste-anesthetic-gases

Q&A for Discussion

- Question: How do respirators protect the user?
- Question: What does the term procedural control mean?
- Question: At what point does the use of Personal Protective Equipment (PPE) become suitable?
- Question: What is the best way to clean a respirator?
- Answer: First is by the removal of contaminants from the air.
- Answer: The modification of "the way we do it" so that the hazard is eliminated or reduced.
- Answer: Only when engineering or mechanical controls are not possible and procedural controls cannot reduce the hazard to the appropriate levels.
- Answer: Use a mild soap or combination cleaning/sanitizing solution. Rinse in clean water and allow respirator to air dry.

Please complete the Sign-In sheet.

Respiratory Concerns in the Veterinary Setting

Attendance Record

Date:_____ **Trainer:**_____

Print Name	Signature

Respiratory Concerns in the Veterinary Setting

Employee Handout

Overview

Anesthetic gases and vapors that leak into the surrounding operating room during medical procedures are considered waste anesthetic gases. The waste anesthetic gases and vapors of concern are nitrous oxide and halogenated agents such as halothane, enflurane, isoflurane, and desflurane.

Eliminating this hazard can be accomplished by implementing engineering or administrative (procedural) controls, or personal protective equipment, or a combination of the three.

Respirator: cleaning-inspection-storage-maintenance

Inspection – Your personal respirator should be inspected before each use, after each use, and during cleaning and sanitizing. During your inspection, check the condition of the face piece, straps, valves, filter and/or cartridge elements, air hose and protective lens (full face or units with hoods). If parts are worn or defective, make certain that the unit is repaired or replaced.

Cleaning - Cleaning and sanitizing is essential to ensure proper protection, prolonged life of the respirator and prevention of dermatitis. Use a mild soap or combination cleaning/sanitizing solution.

Rinse in clean water and allow respirator to air dry.

Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand, and pressure- demand valve assemblies, hoses, or any components recommended by the manufacturer.

Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

Rinse components thoroughly in clean, warm running water and drain.

In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed. Components should be hand-dried with a clean lint-free cloth or air-dried.

Reassemble facepiece, replacing filters, cartridges, and canisters where necessary. Test the respirator to ensure that all components work properly.

Storage - All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the facepiece and exhalation valve.

Maintenance - All respirators are to be maintained according to manufacturer's recommendations.

Conclusion

Most procedures in a veterinary practice carry little tangible risk to the patient or the staff; however, there are times when safety precautions are necessary. In the veterinary practice, sometimes it is appropriate to rely on a mask or a pair of gloves for protection, but sometimes the protection must be “built into” the facility or the procedure.