Animal & Medical Safety Issues

Presenter

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Solutions for the
Veterinary Professions! ™

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Today's Plan

- Animal Handling
- Anesthesia
- Radiology
- Dentistries
- Dangerous Drugs

Animal Handling

Animal Handling

No specific regulation that says you must have x, y or z equipment or that mandates you perform certain procedures.

However, it is the source of most injuries in the profession.

OSHA will use the General Duty Clause (Section 5) of The Act to hold employers accountable for safety

Animal Handling – Noise Hazards

- Identify hazard areas (>85dB) - Test! There's an App for that!
- Engineering controls when possible
- Post warning signs to noise areas
- Require hearing protection for workers with exposure above the threshold.

Animal Handling – Noise Hazards

Hearing Protection

- Let the staff member choose the style!
- Noise Reduction Rating (NRR) must reduce enough to get below the 85db threshold.
- Earphones to listen to music are NOT an acceptable substitute.
- “Noise Cancelling” headphones MAY be acceptable, but the business would have to prove they provide the protection.
- Non-disposable PPE must have a “sanitation plan.”

Animal Handling – Physical Hazards

Teach to use restraint properly

- Minimum necessary
- Protective & Capture Equipment
- Sedation?
- AVMA suggestion to restrict clients from restraint implies that staff is better trained for the task

Animal Hazards - Diseases

Infection Control Plan

- Procedures to protect patient AND staff
- Consensus of doctors – standards of care
- "What if" procedures in writing
- More than just "isolation protocols"
- Includes "universal precautions" for handling samples and such

Animal Hazards – Diseases

Good personal hygiene is the single most effective tool in preventing the spread of diseases in the veterinary setting

- Hand washing
- Hand Sanitizers
- Changing clothing?
- PPE?

Inhalation Anesthesia

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Anesthesia

No specific regulation mandating specific equipment procedures.

However, it is one of the most closely monitored aspects of a hospital and one of the topics most often associated with complaints by staff and former staff.

OSHA's page for gas inhalation agents:

- www.osha.gov/waste-anesthetic-gases
- www.osha.gov/waste-anesthetic-gases/workplace-exposures-guidelines

Anesthesia – The Expectations

There are 3 MAJOR sources impacting your waste gas exposure control plan:

1. NIOSH Exposure Limits
2. Hazardous chemical rules still apply
3. OSHA Field Resource Inspection Manual

Anesthesia – The Expectations

1. Do not exceed permissible exposure levels

Every chemical in the world has a Recommended Exposure Limit (REL) and Permissible Exposure Level (PEL) that is set by several agencies, most notably, the National Institute of Occupational Safety & Health (NIOSH). They are a division of the Centers for Disease Control.

OSHA accepts NIOSH RELs as Gospel.

Anesthesia – The Expectations

2. The Hazard Communication Standard still applies

The Hazard Communication Standard (HCS) that we discussed in the last session requires every employer to do whatever is necessary to ensure the employees do not get exposed above that REL or PEL.

Anesthesia – The Expectations

3. OSHA trains inspectors to look for certain items

OSHA's Field Inspection Reference Manual (FIRM). This is the document that OSHA uses to train all the inspectors and it tells the inspectors what to look for.

Therefore, this document defines how they expect businesses to accomplish certain things based on "industry standards," recommendations from safety organizations like NIOSH, and just plain experience from inspections of similar establishments in the past.

Anesthesia – The Expectations

It does not matter what inhalation agent you use

…the rules are the same!

- Written Plan to control risky procedures
- Scavenger
- Machine maintenance
- Employee exposure testing
- Managing recovering patients
- **Limit/minimize tank and mask inductions**

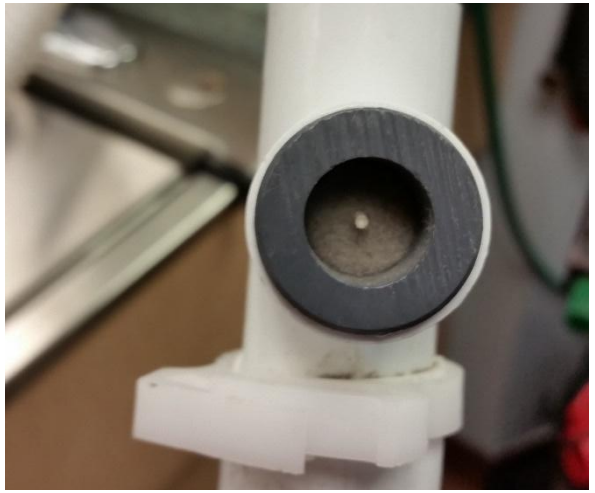
Anesthesia – Scavengers

- Active
- Passive
- Adsorption

Anesthesia – Scavengers

Active Scavengers

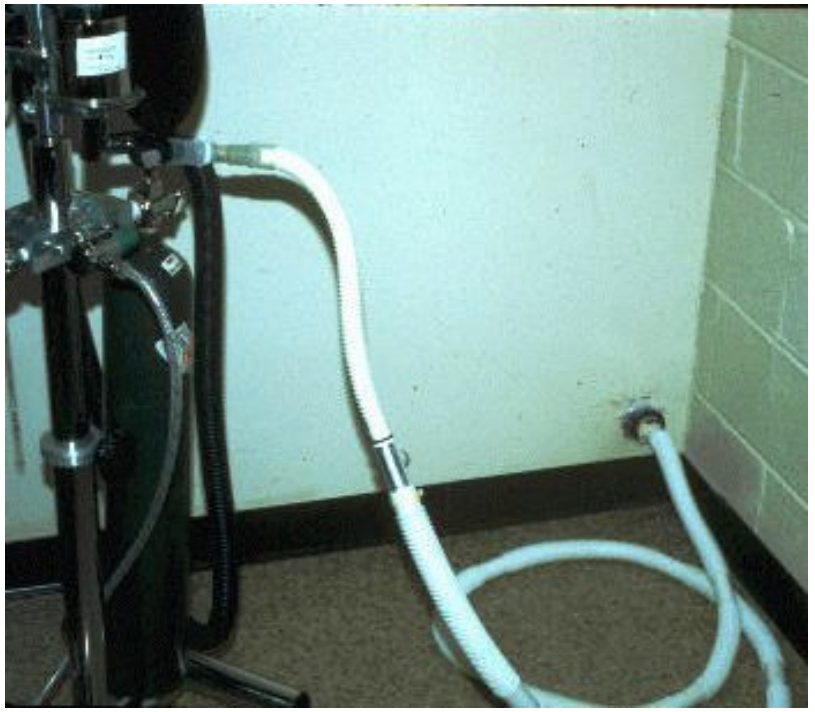
- Multiple machine connections
- Can be installed anywhere in the facility
- Must be “activated”
- Requires maintenance
- Clean the equalizer frequently



Anesthesia – Scavengers

Passive Exhaust

- No moving parts
- Limited distances
- Very low cost



Anesthesia – Scavengers

Adsorber Canisters

- Great for portable machines
- Must be changed regularly
- Not effective in removing nitrous oxide
- Expensive in long term

Anesthesia – Checks & Maintenance

- User checks DAILY!
- Preventive Maintenance every 4-12 months by qualified service technician
- If leaks over 100 ml/min must take machine out of service
- Keep records of PM and repairs

Anesthesia – Exposure Testing

- Various methods but individual exposure badge is most practical – test people not areas.
- Choose one person with “typical” exposure to represent everyone
- At least annually or when there is a question about levels
- Pregnant staff members

Anesthesia – Recovering Patients

- Keep on machine until time to pull the tube
- Maintain “arms length” distance when checking
- Good general ventilation in the room
- Specific exhaust ventilation
- Smell is NOT a good indicator of levels

Anesthesia – Pregnant Staff

OSHA expects the practice leadership to use "engineering controls" and "procedural controls before PPE

The real chance for exposure is during the induction and recovery portion of the procedure.

When a respirator is used in the workplace to control a hazard, even voluntarily, the practice must comply with the very strict rules set forth in the Respiratory Protection Standard (1910.134)

Anesthesia – Pregnant Staff

- The concern by the employee must be taken seriously by the practice leadership.
- Alleviating the concerns of the staff member is as important as alleviating the actual hazards!
- Avoid any hazard when possible, but if it's not practical, DON'T KNEE JERK:
  - assess the physical conditions,
  - perform a laboratory test to determine the exact level of the problem and then
  - adopt a course of action to solve the problem.

Radiology

Pages 92-98

Radiology

Five elements of radiation safety

- regulatory oversight,
- the machine,
- proper procedures,
- protective equipment, and
- monitoring.

Radiology – Regulatory Oversight

Both Federal & State Rules apply

Must follow most strict of ALL rules

Do internet search for your state Radiation Protection Rules.

Radiology – Regulatory Oversight

Rules generally have "Apply to all" section then a "veterinary specific" section. –Must comply with BOTH!

Digital vs. traditional – Radiation is still there!!

Fixed facility vs. portable

Generally, no one under 18 involved in the EXPOSURE process. Minors can assist in things like set-up and even developing, but not in the exposure.

Radiology – Machine Issues

The rules for DENTAL and DIGITAL radiology are EXACTLY THE SAME as for traditional film radiographs.

- Installation location – Barriers, open rooms, etc.
- Shielding
- Registration

Radiology – Procedural Issues

- ALARA Principle
- Only people necessary for the procedure can be allowed in the room when the exposure is made
- "6 foot rule"
- Out of the room exposures?
- Employee Training

Radiology - PPE

MUST wear gown and GLOVES when restraining for radiographs

- NO one-sided hand shields
- Must WEAR gloves not just place over the hands.
- Must enforce the use of PPE

Radiology - PPE

Must check PPE regularly

- Yearly is good for most fixed installation practices
- More frequent for mobile or “rough” operations
- Keep records of checks
- Assign each item a name or number and track them in computer just like patients!

Radiology - Monitoring

- Any person who may receive more than 10% of allowable dose
  - Practically speaking, all staff needs to have a monitor
- Whole Body badge is most common
  - Wear on the collar level OUTSIDE of the PPE apron
  - DO NOT SHARE between individuals
- Exchange monthly or quarterly
- Protect from sunlight
- Should "live with" the control badge outside of the radiation room

Radiology - Monitoring

Inform staff if “abnormal exposure incident” and annually **IN WRITING!**

Manager’s Report is PRIVATE! - **DO NOT** ---repeat ---- **DO NOT** post the exposure report with everyone's name.

Using badges outside?

Wearing all day or just in radiology suite?

Radiology – Dark Room Issues

Make sure you have GOOD ventilation in the dark room if you have processing chemicals in use.

- Normally means an exhaust fan THAT WORKS.

The fixer can't be discharged into the drain unless it has been filtered.

Dental Procedures

Dental Procedures

- Mask
- Goggles
- Gloves
- Long sleeves
- Ergonomics

Compliance with Anesthesia & Radiology rules!

Dangerous Drugs

Background

Rules encompass obligations to:

- Patient
- Client
- Staff member
- Environment & general public

Background

Terminology: Cytotoxic Drug vs. Hazardous Drug

"High profile" issue in world today

Compounding/Manufacturing vs. Administration

Most concern with injectables but precautions for all forms

USP 800

Applicable to MANUFACTURING or COMPOUNDING
From USP FAQ:

"USP plays no role in enforcement, and thus, state and other regulators may make their own determinations regarding the applicability and enforceability."

"Since administration and preparation of conventionally manufactured sterile products per approved labeling is out of scope of Standard <797>, General Chapter <800> is not applicable or compendially required in these contexts."

What drugs are dangerous?

From the NIOSH list:

- Group 1: Antineoplastic drugs
- Group 2: Non-antineoplastic drugs that meet one or more of the NIOSH criteria for a hazardous drug
- Group 3: Drugs that primarily pose a reproductive risk

https://www.cdc.gov/niosh/docs/2025-103/default.html

What drugs are dangerous?

From the NIOSH list: Group 1: Antineoplastic drugs include:

- Carboplatin
- Carmustine
- Chlorambucil
- Cisplatin
- Dacarbazine
- Doxorubicin
- Lomustine
- Vincristine
- Vinblastine

What drugs are dangerous?

From the NIOSH list: Group 2: Non-antineoplastic drugs that meet one or more of the NIOSH criteria for a hazardous drug:

- Apomorphine
- Chloramphenicol
- Cyclosporine
- Diethylstilbestrol
- Estradiol
- Methimazole
- Progesterone
- Tacrolimus

What drugs are dangerous?

From the NIOSH list: Group 3: Drugs that primarily pose a reproductive risk:

- Choriogonadotropin
- Fluconazole
- Methyltestosterone
- Misoprostol
- Oxytocin
- Testosterone
- Zonisamide

Expectations

Every hospital must have a WRITTEN dangerous drug safety plan that addresses:

- Personal Protection Equipment (PPE)
- Procedures for receiving and storing
- Procedures for handling (preparing and administering)
- Engineering controls (hood & location)
- Patient Care
- Clean-up

Summary

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