Safety Issues for the Veterinary Hospital Staff

5th Edition

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About The Author

Phil is a Certified Veterinary Technician with over 20 years of experience in the profession and now concentrates his efforts as a full-time author and consultant.

Because of his clinical experience and management skills, he became the first veterinary technician to evaluate and accredit veterinary hospitals for the American Animal Hospital Association (AAHA). The experience of "inspecting" over 1200 veterinary hospitals has given him a unique perspective of our profession.

Phil's many articles dealing with veterinary hospital operations have appeared in national publications such as Journal of the AVMA, AAHA Trends, Veterinary Forum, DVM News Magazine, the Veterinary Technician, Veterinary Practice STAFF and Veterinary Practice News. His books on hospital safety and regulatory compliance are considered the most practical and authoritative in the profession. Phil is also the founder and Managing Editor of the profession's only safety-specific newsletter, The Veterinary Safety & Health Digest. Recently, Phil teamed up with long-time friend and fellow consultant Dr. Tom Catanzaro, to write the best-selling book Veterinary Practice Management Secrets which was released by Hanley Belfus publishers in 2000.

Because he has taken the lead in "deciphering" the regulatory agency rules affecting the veterinary profession and has been able to provide practical, veterinary-specific advice, Phil has earned the reputation of the veterinary profession's OSHA expert.

Recognizing the power of interactive learning, Phil is the founder and Director of The OSHA Center on the Veterinary Information Network (VIN) and Veterinary Support Personnel Network (VSPN). He regularly teaches interactive OSHA and staff training courses on VIN and VSPN.

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Safety Issues for the Veterinary Hospital Staff

Introduction

Most people who work with animals do so because of an intense love for animals and desire to help them. We'll bet you're like that also. We're sure you'll find that there are many rewards for working in the veterinary community. Sometimes the rewards are very personal and sometimes they're shared with others, but they're the reason we're all here.

With every reward comes responsibility. One of your responsibilities is safety: the safety of yourself, your patients, and your co-workers. If you are hurt on the job, the injury goes well beyond the physical pain and disability you suffer. The hospital is affected financially and organizationally because the health care delivery team is incomplete and others have to work harder to cover the shortage. Finally, your patients and clients are affected by less than a full team providing their care.

Regardless of your position in the practice, as a staff member in a veterinary hospital, you are exposed to hazards in your day-to-day routine and often during the non-routine functions that always seem to occur. These hazards can be diseases, exposure to harmful chemicals or radiation, or simply the obvious physical dangers from the animals we serve. That's the bad news. The good news is that these hazards, when properly identified, can be controlled and your risk of injury minimized or even eliminated.

By participating in this training, you have taken the first step in controlling your risk of an accident or illness: you are becoming aware of potential problems. Some of the issues we'll discuss will seem very obvious to you, while others will seem more obscure. Remember that all the issues discussed in this manual are real possibilities for a veterinary health care worker. You may have very limited exposure to some of these challenges, but awareness of the hazards faced by other members of the team will only strengthen your understanding and the overall morale within your team.

The Objectives of a Safety Program

Obviously the purpose of any training is to provide information or develop skills. That's also the primary purpose of a comprehensive safety program. By educating you about the hazards in your job and providing you the proper guidance and resources, you can take the steps to protect yourself. With knowledge, you become empowered!

You're probably already aware of the really obvious hazards of your job, but undoubtedly, there are some things that will surprise you. By simply increasing your awareness of the issue, we can significantly decrease your chances of injury!

Certainly, we can't discount the regulatory requirements for safety. If you are receiving this training from your employer, they are fulfilling a vital requirement in the safety net of the American work-
place. If you are learning this material as a self-study program, you can take pride in the knowledge that you are becoming an "self-taught expert" in the filed and your knowledge and initiative are certain to be rewarded in your professional career.

Your Safety Rights

Both you and your leaders enjoy the basic rights afforded every American: the right to choose one's own course of action and the right to self-protection. This basically means that every American has the right to expect their workplace is reasonably free from UNNECESSARY hazards. Remember, one can never totally avoid every hazard, but we can minimize our exposure to them in most cases.

The ability to participate in the safety program at work is paramount to your rights. It's assumed that the leaders of a business are the expert on that business, but it is you, the worker, that is usually the first one to become aware of potential problems. You have the fundamental right to bring those concerns to the attention of the leadership without fear of reprisal. In most instances, the complaint should go to your first-line supervisor or the person designated by your hospital policies. Not all complaints will result in changes to the operation. Some complaints stem from just a lack of knowledge and just providing accurate information is enough. However, if you feel your complaint was not taken seriously or you believe the danger is still present, you have the right to bring the issue to the attention of your regional OSHA office.

When medical evaluations or exposure records are collected by the hospital, they must be made available to you for review. This does not mean that you are entitled to see private or sensitive information about other staff members, but it does mean that you are entitled to the relevant data that may be compiled as the result of monitoring programs. You are also entitled to know about the nature and types of accidents that have occurred in your hospital. If your practice employs more than 10 employees, you have the right to view the Summary of Work Related Injuries & Illnesses (OSHA Form 300A) which should be posted on the employee bulletin board at certain times of the year.

Your Safety Responsibilities

It's your responsibility to learn and follow the safety rules and working practices for the jobs in the hospital. Even though OSHA will not cite or fine you directly for violations of these responsibilities, you are required under the Occupational Safety & Health Act to "comply with all occupational safety and health standards and all rules, regulations, and orders issued under the Act.” This not only includes specific OSHA standards, but also applies to the workplace-specific rules established by the leadership of your hospital.

Although you cannot be disciplined for exercising your rights under the Occupational Safety & Health Act, you can be disciplined for willful violations of any safety rule or standard. In some cases, this discipline can be a simple as a verbal reprimand, but in severe or chronic situations, it can include termination. In most states, if you are terminated for willful violation of safety rules you will likely be denied unemployment benefits.

In addition to the responsibility to follow the rules, the Act requires you to:

- Read the OSHA poster.
- Comply with all applicable standards.
- Wear or use prescribed personal protective equipment while working.
- Report hazardous conditions to your supervisor.
- Report any job-related injury or illness to the proper person and seek treatment promptly.

The Leadership's Rights

The owner of the business does have rights under the Occupational...
Safety & Health Act. Although the Act and OSHA's Standards place requirements on the leadership of a business for maintaining safety, this is not meant to restrict their right to set rules of conduct or operation for its staff. The leadership has the right to set and enforce the rules for their practice, as long as those rules comply with the laws.

The leadership must have an opportunity to take care of any safety-related problems. Basically, this means that you should bring your complaints or suggestions to your leader and allow them a reasonable amount of time to investigate and take action before you exercise your rights under OSHA's complaint inspection procedures.

Every American has the right to be present during any inspection of their personal property without a lawful court order. Unless your practice owner specifically gives you the authority to act on his or her behalf in such an instance, you are not authorized to admit an inspector to the practice in their absence.

The Leadership's Responsibilities

It's the practice leadership's responsibility to provide a safe and healthful work environment for the staff. This does not mean a facility without any hazards - that's impossible. It does mean that the leadership is expected to take a reasonable degree of effort to identify the hazards present, correct the ones that can be eliminated or control the ones that can not be eliminated. And of course, the business must comply with the laws and regulations, including those pertaining to safety and health.

Even though it is has been pointed out that establishing the safety procedures for the hospital and the emergency procedures for reacting to accidents is a right of the leadership, it's also a responsibility that cannot be avoided. And the leadership must enforce these rules as diligently as they would be expected to enforce any other rule in the practice.

Finally, providing adequate safety training to you is another fundamental responsibility of the practice leaders. Even if you have years of experience, the practice must make sure that you are capable of doing your job safely. Sometimes this training is in a formal setting - like staff meetings or continuing education settings. But just because you are not in a formal setting, does not mean you are not getting training either. A great deal of learning and training takes place at the everyday level; on-the-job training and feedback is definitely an appropriate way to get the knowledge. In the end, you are the best person to know if you are competent to do your job safely. If you think you need extra safety training in any area, don't hesitate – tell your supervisor immediately so that arrangements can be made for the proper instruction.
Safety Issues for the Veterinary Hospital Staff

Hazards That Affect Everyone In The Practice

You should know where the Hospital Safety Manual is located and take time to become familiar with it. Memorize the "do's and don'ts" of the hospital and always follow the safety rules. No one can protect you from an injury or illness better than you can protect yourself!

Dressing Appropriately for the Job

One of the first rules of safety is to dress appropriately for the job at hand. In the veterinary profession, that also includes footwear and jewelry. You can reduce the chances of getting injured from slips and falls by wearing shoes that cover your whole foot and have non-slip soles. Be especially cautious walking on uneven or wet floors. Never run inside the hospital or on uneven footing. Excessive jewelry and very loose-fitting clothing can present hazards if an animal struggles during restraint, so it's best to keep it to a minimum. This is definitely one of those times when less is more!

Save Your Back!

According to insurance statistics, back injuries account for one in every five workplace injuries to American workers. To minimize your chances of suffering one of these very painful injuries, remember the rules for lifting: keep your back straight and lift with your legs. Never bend over to lift an object. That rule applies to patients as well as inanimate objects such as boxes or supplies. If your practice doesn't have a motorized lift table, get help when lifting patients over 40 pounds. Remember to follow sound ergonomic principles when positioning or restraining patients, especially when working with horses or food animals.

Because veterinary workers perform such a variety of jobs in any given hour, it's pretty rare for us to acquire the types of ergonomic injuries common in other industries. However, it's important to note that the best defense against almost all ergonomic injuries is to change your posture and routine frequently.

Clean-up After Yourself!

Some injuries are caused by cluttered or dirty work areas. We also know that "clutter" contributes to the severity of accidents that otherwise would be minor. Cleanliness and organization are good business standards, especially in a health-care facility. Always clean up spills as soon as they happen. You should always clean and return equipment to the proper storage place immediately after use. At least daily, remove all trash from your work area. Organize drawers, cabinets and counters so that items can be found easily and "clutter" is reduced.

Everything In Its Place

Always store supplies and equipment properly. Store heavy supplies or equipment on the lower shelves to prevent unnecessary strains. Never use stairways or exit hallways as storage areas. Don't overload shelves or cabinets. Store liquids in containers with tight-fitting lids and always replace the lids when finished using the product. When possible, store chemicals on shelves that are at or below eye level. This will minimize the possibility of accidentally spilling the chemical on you when getting or replacing a container. Never climb into or on cabinets, shelves, chairs, buckets or similar items. Use an appropriate ladder or step to reach high locations.

Beware Break Time!

The ingestion of pathogenic organisms or harmful chemicals is definitely present in most veterinary situations. That's why it's important that you only eat...
or drink in areas free of toxic and biologically harmful substances. This also applies to the preparation of foods and beverages: make sure your coffee pot and utensil area is well away from sources of possible contamination such as the lab or treatment/bathing tub. Check the cabinets above your drink or food to make sure it doesn't contain hazardous chemicals or supplies that could spill onto the area. Always store your food, drinks, condiments and snacks in a refrigerator free from biological or chemical hazards; vaccines, drugs and laboratory samples are all potential contamination sources and should not be in the same area as your food or drinks.

**Machinery & Equipment**

Never operate machinery or equipment without all the proper guards in place. Equipment like fans and cage dryers have moving parts that can severely hurt or even sever a finger. Long hair should be tied back or up to prevent it from getting caught in fans, or other moving parts. Avoid wearing excessively loose clothing or jewelry when working around machinery with moving parts.

If you must perform minor maintenance or user service of any electrical device, be sure to unplug it or disconnect the electrical power so that it can not be accidently energized until it is safe.

When using equipment like autoclaves, microwave ovens, cautery irons or other heating devices, be sure to understand the proper rules for safe operation. Burns, especially from steam, are painful and serious, and almost always can be prevented. Autoclaves also present a danger from the pressure that is used for proper sterilization. When opening the autoclave, first release the pressure with the "vent" device and keep your hands and face away from the steam. Let the steam rise completely before opening the door fully. Be careful when removing the packs because they are still hot. Always assume cautery devices and branding irons are hot and use the insulated handle whenever you handle them. Never place heated irons on any surface where they could overheat and start a fire, or where someone may accidentally touch them.

**Electrical**

Many procedures performed on a daily basis require the use of electricity. Although new equipment and buildings have many safety features built-in, you must be conscious of avoiding a situation which could cause a fire or physical harm to yourself, another person or a patient.

Do not remove light switch or electrical outlet covers. Always keep circuit breaker boxes closed and never block access by stacking supplies or equipment in front of them. Only persons trained to perform maintenance duties should repair electrical outlets, switches, fixtures or breakers.

If you must use a portable dryer or other electrical equipment in a wet area, make sure it is properly grounded and only plugged into a ground-fault circuit interruption (GFCI) type outlet.

Extension cords should only be used for temporary applications and should always be of the 3-conductor, grounded type. Never run extension cords through windows or doors which may close and damage the wires nor across aisles or floors where a tripping hazard may be created.

Surge suppressors should only be used to protect sensitive electronic equipment and should never be overloaded. Surge suppressors are not designed for things like heaters, autoclaves, coffee pots and may overheat to cause a fire.

Equipment with grounded plugs must never be used with adapters or non-grounded extension cords. Never alter or remove the ground
terminals on plugs. Appliances or equipment with defective ground terminals or plugs should not be used until repaired.

When changing light bulbs (especially flourescent bulbs), be careful to remove and replace the bulb without breaking it. Inoperable bulbs should be disposed of directly into the outside dumpster or inside of a container to keep the bulb from breaking.

Fire & Evacuation

The potential for dramatic loss of life (both human and animal) and the destruction of property make a hospital fire one of the most feared accidents imaginable. Fortunately, this danger can be significantly reduced by a few simple precautions.

Never use power adapters or surge suppressors as a substitute for permanent wiring. Overloaded or faulty electrical cords can overheat or short and start a fire, even when the equipment is turned off!

Always store flammable liquids properly; materials like gasoline, paint thinner and ether should never be stored inside the hospital except in an approved flammable storage cabinet. Some components of specialty dental and large animal acrylic repair kits are also very flammable. Very small amounts of these components are usually not a problem, but always ensure they are stored and used in an area with good ventilation and the containers have tight-fitting lids that are replaced immediately after use.

Flammable items, particularly newspapers, boxes, and cleaning chemicals must always be stored at least three feet away from an ignition source such as a water heater, furnace or stove. Always use extra care when using portable heaters. Never leave them unattended, and always make sure they are placed no closer than 3 feet from any wall, furniture or other flammable material.

Become familiar with the location of the emergency exits in your facility. Make sure the emergency exits are always unlocked and free from obstructions when you are in the building. If you must work in a building when security warrants the doors be locked, make sure you have at least two clear exits form the building.

Learn the emergency warning system in your hospital. If the facility is equipped with an electronic alarm system, be sure you know how to activate it manually. In the absence of an electronic alarm system, a verbal alarm is very effective. You can use the telephone intercom feature to alert everyone that there is a fire in the building or in small buildings, simply yelling in a loud clear voice will get the message out!

Know your duties in the event of a fire. Remember, your first responsibility is to notify others about the

Using A Fire Extinguisher

If you must use a portable fire extinguisher, remember the word PASS:

P — Pull the pin...Some extinguishers require releasing a lock latch, pressing a puncture lever, or other motion. (Check your extinguishers to be sure.)

A — Aim low...pointing the extinguisher (or its horn or hose) at the base of the fire.

S — Squeeze the handle...this releases the extinguishing agent.

S — Sweep from side to side...at the base of the fire until it appears to be out. Watch the fire area. If a fire breaks out again, repeat use of the extinguisher.

Most portable extinguishers work according to these directions, but read and follow the directions on your specific extinguisher.
If you work in a critical care or 24-hour practice, you should utilize the "barriers" that are usually available. Things like buzzers to control access from the front door, and one-way locks on the remaining doors (to let you out in case of an emergency, but keep the door locked from the outside) are essential in these environments, so don't defeat them.

Know where the fire extinguishers are located and how to use them. Most veterinary hospitals are equipped with dry chemical type fire extinguishers. But, before you decide to use a fire extinguisher make sure the alarm has been sounded, everyone has left the building (or is in the process of leaving) and the fire department has been called.

The National Fire Protection Association recommends you NEVER attempt to fight a fire if any of these conditions are true:

- if the fire is spreading beyond the immediate area where it started, or involves any part of the building or structure;
- if the fire could block your escape route;
- if you are unsure of the proper operation of the extinguisher; or
- if you are in doubt that the extinguisher you are holding is designed for the type of fire at hand, or if it is large enough to suppress the fire.

Don't Become A Victim of Violence

Just as in any occupation, you are at risk of injury from accidents not directly related to your job. Vehicle accidents, personal assault, robbery, and even natural disasters have resulted in veterinary staff members being injured while on duty. Although no one can prevent every possible scenario, preparation can certainly help and sometimes will minimize the injury. When outside of the hospital building, be aware of your environment and do your best to avoid placing yourself in a situation that could go bad. Always keep the "non-client" doors locked from the outside to prevent anyone from gaining unauthorized or undetected entry into the building.

In any business that keeps money or stores valuable items, there is a potential for robbery. If you ever find yourself in a situation where someone demands money, drugs or other material items while threatening your personal safety - DO NOT WITHHOLD THE THINGS THEY DEMAND. As soon as safely possible, let everyone else know of the situation. You should attempt to contact the police if it can be safely done without the person's knowledge, otherwise do it immediately after the person has left.

Cooperate with their demands and give them what they want, but do not go with the person. Resist physical assault or battery to the best of your abilities and preferably outside the building so that passers-by can see what's happening and render assistance or call the police.

Hazardous Chemicals

You may not think about it, but many products that you use every day can be hazardous. Every chemical, even common ones like cleaning supplies have the potential to cause you harm. Some chemicals contribute to health problems while others may be flammable and pose a fire threat. The most common chemicals in use in the veterinary profession are:

- cleaning and disinfecting agents;
- insecticides and pesticides;
- drugs and medications;
- sterilization agents; and
- radiology processing fluids.

Planning and training are the keys to safely handling any chemical. Every business, including your practice must follow the requirements of OSHA's Right To Know Law. This law requires you to be informed
of all chemicals you may be exposed to while doing your job. The Right to Know Law also requires you to wear all safety equipment that is prescribed by the manufacturer when using any product containing a hazardous chemical. The safety equipment must be provided to you at no cost to you, but it is not optional - you must wear what is prescribed!

A key component of the Right to Know Law is the hazardous materials plan. This plan will describe the details of the practice's MSDS filing system, the secondary container labeling system, and the person responsible for ensuring all employees have received the necessary safety training. You have a right to review any of these materials, so ask your supervisor where your plan is located.

Part of the planning process includes knowing exactly what chemicals are present. There must be an up-to-date list of products containing hazardous chemicals known to be in the hospital. It surprises some people to learn that the average veterinary hospital has over 200 hazardous chemicals present at any one time!

When you receive a product from the distributor, every bottle will be identified with a label containing directions and the appropriate warnings. You should always read, understand and follow all the directions and warnings printed on the label. Whenever possible, you should keep this label intact and readable. Because it is sometimes necessary to dilute a product or just transfer it to smaller bottles for ease of use; these smaller bottles are known as secondary containers. Always make sure to label secondary containers with the contents and include any appropriate safety warnings on the label. Your hospital should have a specified format so that all secondary container labels are easily recognized; be sure you understand that system.

There is a lot of information on a product's label but that information is generally written for the average consumer who will have limited exposure using the product. When a product is used in a place like your veterinary practice, you may be exposed to that product more than the "average consumer" so your risk may be greater. The manufacturer of a product that contains a hazardous chemical will prepare a Material Safety Data Sheet (MSDS) for that product. The MSDS will give you additional precautions, instructions and advice for handling that product in the workplace. Your practice is required to keep an MSDS library for the chemicals that you use. Ask your supervisor where your hospital's MSDS library is located. Take the time to review the MSDSs for the products you use frequently. Although MSDSs may look complicated at first glance, the information that is important to you is easy to find: review the health, protective equipment and disposal sections to gain a better understanding of the risks and precautions you should know.

Always remember to replace the cap back on the bottle when using any chemical product. Working bottles of hazardous products should always have tight fitting, screw-on lids. You should endeavor to store chemical bottles in a closed cabinet; this will help prevent animals from injury if they escape. Ideally, the cabinet or shelf should be at or below eye level. This will minimize the chances of spilling the product in your face if the cap is not secure. Never store or use hazardous products near food, beverages or food preparation areas.

Be very cautious when mixing or diluting any chemical product. Try to keep the material from splashing on your hands, clothes or face. If it is likely that the product will splash on you, wear a pair of protec-
tive latex or nitrile gloves and some protective goggles or glasses. When making solutions from a concentrate, you should always start with the correct quantity of water then add the concentrate. Never add the water to the concentrate because the chemical may splash or react differently.

When two chemicals are mixed together the result is seldom a simple mixture. It is often a new, sometimes very different and very dangerous chemical. Never mix any chemicals unless directed to do so on the label or MSDS.

Minor spills of most chemicals can be cleaned up with paper towels or absorbent (like kitty litter) and disposed of in the trash; however, some very dangerous chemicals, like formaldehyde or ethylene oxide require special procedures. BEFORE you use a new chemical, review the MSDS and learn the procedures you must follow for cleaning up a spill. When cleaning up any spill, remember to wear protective gloves and any other special equipment required on the MSDS. Keep other people and animals away from the spill until it is safe. Unless prohibited by the instructions on the MSDS, wash the spill site and any contaminated equipment with a detergent soap and water - NOT a disinfecting soap.

Familiarize yourself with the locations of the eye wash stations in your practice. Test them regularly and know how to use them before you're in the position to need them!

Special Chemicals

**Ethylene Oxide** - Many hospitals use gas sterilization for items that would be damaged by other procedures. Electrical drills, rubber products, and sharps are commonly exposed to ethylene Oxide (EtO) as a sterilization agent in human and veterinary medicine. This method has distinct advantages, but since EtO is suspected to be a human carcinogen, special precautions must be maintained:

- Read the MSDS carefully and follow all instructions;
- Store the ampules in a closed cabinet away from sources of heat;
- Only use approved devices for the procedure;
- Read, understand and follow all the written procedures and safety precautions relevant to your practice; and
- Know the emergency procedures to be performed in case of an accidental release of EtO.

**Formalin** - Historically, formalin has been used in the veterinary profession for tissue preservation, diagnostic tests (knotts), and even sterilization. Since formaldehyde is also a suspected human carcinogen, OSHA takes it's use very seriously. The standards for use of formaldehyde are very similar to the standards for use of ethylene oxide:

- Read the MSDS carefully and follow all instructions;
- Store supplies safely, include museum jars;
- Use only with good ventilation in the room and avoid breathing vapors;
- Wear gloves and goggles to avoid skin & eye contact;

Whenever possible, you should obtain formalin in small, pre-measured containers (also called biopsy jars) so that the serious risk is minimized. Often the diagnostic laboratory will supply pre-filled biopsy jars at no charge so be sure to ask!

**Glutaraldehyde** is a potent chemical used in the veterinary practice to sterilize hard instruments without the use of an autoclave. Because it's so effective at killing germs, it can also be harmful to other living organisms – like you! Be sure to follow all the manufacturer's safe handling rules when using this "cold sterilization" solution, including washing your hands after handling instruments exposed to the solution and keeping the trays covered to minimize evaporation.
We can't forget that the overriding purpose of a veterinary practice is the care and treatment of animals. But sometimes handling our patients can be a hazard in itself! Anyone who has worked with animals under stress or pain will relate personal accounts of injuries from patients. In fact, insurance statistics reveal that animal connected accidents are the most common injury of workers in veterinary related fields. Unfortunately, this hazard can't be eliminated so we have to do the next best thing– control it. Your best controls for this hazard are your training, knowledge and use of "restraint."

The very first safety rule when working around animals is to stay alert! Animals sometimes react to situations unexpectedly. Sudden noises, movements or even light can be the stimulus that would cause an animal to react, so if you are the person responsible for restraining the animal, keep your attention focused on the animal's reactions and not on the procedure. You must learn the proper restraint positions for each of the species of animals with which you work.

Remember that capture/restraint equipment is available if the animal is fractious or not cooperating; sometimes, just a piece of rope to hobble a leg or a piece of gauze for a hasty muzzle will make all the difference. And don't forget that chemical restraint is often better for both you and the animal instead of physical confrontation, but be sure to ask the veterinarian for approval before administering any medication to a patient.

Large animals like horses and cattle can severely injure or even kill you just by trying to escape the restraint. Never put your hand, leg or any other part of your body between the animal and the side of the enclosure or chute; use a hook or pole to pass ropes or belts through the chute. If you have to enter a stall, paddock or trailer with a large animal, stay on the side of the animal nearest the door, so that you can escape if the situation becomes hazardous. If you must capture a fractious animal from a cage or pen, make sure there is another person present that could assist you if you get in trouble.

If your job entails handling exotic or non-domestic animals, remember that they all have their own unique methods of defense. You should know and understand their possible reactions before you attempt to restrain or treat them.

**Noise is Noise**

Dogs in a cage will inevitably bark, and barking dogs can be a health concern, especially in indoor kennels. Noise levels in dog wards can reach 110 decibels! Although relatively short duration exposure to these noise levels, like going into the kennel just to retrieve a patient, poses no serious damage to your hearing, chronic, or long-term exposure can contribute to hearing loss. When working in noisy areas for extended periods of time (e.g., cleaning of cages), you must wear personal hearing protectors. It doesn't matter what style or type of hearing protectors you use (ear plugs or muffs), as long as they are rated to filter the noise by at least 20 dB (the package will indicate the rating).

**Bathing, Dipping or Spraying Areas**

There is probably no area of an animal hospital with a greater risk for injury than in the bathing or insecticide application areas. Although newer parasite control products significantly reduce our exposure to pesticides and insecticides, shampoos and medical dips are still a big concern.
The products used for bathing and dipping animals can be harmful to your health as well as the environment. Even the "all natural" shampoos can cause eye irritation and you can develop sensitivities to even the mildest products if you're exposed often enough. Because it's impossible to prevent splashing and shaking, it's important to ALWAYS wear protective glasses or goggles when bathing or dipping animals. In most cases, it's also important to wear gloves and a protective apron to prevent the product from getting on your skin or clothing; that minimizes the amount you will probably absorb through your skin!

Bottles of dips, shampoos, and insecticides should be stored in a cabinet at or below eye level. The bottle should be properly labeled with the contents and any hazard warning that is appropriate (see details in the Chemicals section). Always replace the cap or lid on the container when you're finished using it to prevent accidental spillage. Plastic containers recycled from other areas can be used for diluted shampoos and dips, however, only use the ones that have a "screw-on" type cap or lid.

Always use a ventilation fan to keep the fumes from shampoos and dips at a safe level. When exhaust fans are too large, they waste heating or air conditioning, so you may be hesitant to use them in some situations. If that's the case, ask your hospital administrator to have a smaller fan installed directly over the tub or area so that fumes can be exhausted without sacrificing the comfort in the room.

Make sure you know where the eye wash station for this area is located. Learn how to properly use the eye wash device before it is needed. If you ever splash a chemical in your eyes - do not rub your eyes with your hands! Immediately call out for help; there's usually someone nearby. With a coworker's assistance, go to the eye wash station and flush BOTH eyes (even if only one eye is affected). Avoid using the spray attachments for tubs and sinks since the water pressure is unregulated and the streams of water from these devices can be fine enough to lacerate your cornea.

**Zoonotic Diseases**

Diseases that are common to both humans and animals are known as zoonotic diseases. Some diseases are difficult if not impossible to transmit from animals to humans while others are very easily spread. You can be exposed to the organisms that cause disease by several means: inhalation, contact with broken skin, oral, contact with your eyes and even through accidental inoculation by a needle. The potential zoonotic diseases which you may be exposed to include:

- **Rabies** is a very serious, viral disease that can affect any warm-blooded animal (including humans). The virus is spread by contact with an infected animal's saliva. Usually, the disease is transmitted through a bite, but the disease has been transmitted by saliva coming in contact with an open wound or the mucous membranes; even the residue left on a dog's bowl after eating can harbor the virus.

Although the disease is always present in the wild animal population, in recent years, many states (primarily in the eastern part of the country) have confirmed record high numbers of animal rabies in domestic species like cats, dogs, horses and cattle. There are recorded cases of animals adopted from pet shops and even horses presented to university hospitals for treatment who were later diagnosed with rabies. Remember, one of those pets could show up at your hospital for an exam and vaccinations or exams! Although rare, there are confirmed cases of humans contracting rabies from animals in the United States and in all cases, once symptoms appeared, the patient died.
The best protection you can have as a veterinary health care worker is an understanding of the reality that rabies is still a threat in the United States. The primary barrier between the wild animal population and humans is the vaccination of pets and domestic animals. When you must handle an unvaccinated, wild, or stray animal, always wear protective (rubber or latex) gloves, and maybe even protective gowns and goggles in cases where the procedure may be "messy." There are two very safe and effective human rabies vaccines that can be administered to people who work with animals. Ask your hospital administrator about the availability of this vaccine at your practice.

**Bacterial infections** are probably the most likely zoonotic disease threat in a veterinary environment. Aside from the common bacteria that all animals harbor naturally, you may be exposed to some serious pathogens like *Pasteurella* spp., *E. coli*, or *Pseudomonas* spp. Bacteria is most commonly transferred by direct contact with the animal or its exudates, especially if you have any cuts or open sores. Some bacteria are easily "aerosolized" or released in the air where they can be inhaled and absorbed through your mucous membranes. The best protection from exposure to bacteria is simply good personal hygiene. Always follow the personal hygiene rules discussed later in this chapter.

- Contrary to its name, **ringworm** is not a parasite or worm; it is an infection with a fungus know as *Microsporum canis*. Ringworm is very easily passed between animals and humans. Cats and horses are particularly susceptible to ringworm infestations. Again, the most effective protection from ringworm infestations is to wear gloves when handling or treating animals diagnosed with the condition and to practice good personal hygiene. Be especially careful about preventing contamination of your clothing when treating patients with *M. canis* because it is believed that the fungal spores can be carried to other locations (like your home) and infect other animals or other people.

- When the eggs of common internal parasites like **roundworms** infect humans, they usually do not mature into adult parasites, but they do cause other problems. Roundworm larvae can migrate to virtually any organ in the body and develop into a cyst-like growth known as visceral larval migrans. These "cysts" are usually not noticeable in everyday life unless they develop in a vital organ like the eye, then they do usually cause severe medical problems.

- Another common internal parasite, **hookworms**, can cause similar problems in humans by a condition known as cutaneous larval migrans. This condition particularly affects children who play in areas where pets defecate frequently. Unlike the visceral "cysts" from roundworms, the cutaneous migrans are relatively easy to spot. Usually occurring on the lower extremities (legs), small red lines appear near the foot and "migrate" up towards the body.

- Recently, **Lyme disease** has become a more serious concern for animals and people. When an infected deer tick bites a host (an animal or person) during feeding, the bacteria *Borrelia burgdorferi* is transferred to the host. Lyme disease in humans is characterized by aches in the joints, fever, and a host of other "flu-like" symptoms. The best defense against this disease is to check yourself daily for ticks, and remove them promptly. If you work in a food- or mixed-animal practice, it's also a good idea to use an insect repellent on you and your clothes when you go out into fields or woods to work.
• Although the common dog mange, \textit{Demodex canis}, is rarely contagious to humans, animals with sarcoptic mange can easily infect people and only microscopic identification of the mite can positively determine which form of mange is present. When treating patients with mange, always wear gloves and a protective gown and wash your hands thoroughly with disinfecting soap immediately after the procedure.

• Infestation with a parasite known as \textit{Toxoplasma catti}, is called \textit{toxoplasmosis}. Although it is usually not harmful to healthy humans, it can cause health problems in pregnant women by causing abnormalities in the developing child. Ideally, if you are a pregnant woman, try to avoid cleaning cat litter pans and practice good personal hygiene at all times. If that's not possible, wear protective gloves and clean the pans every day since the eggs of this parasite need a few days to become "infectious".

Because you will probably contact some of these diseases in your job, particular attention to personal hygiene and sanitary work practices is essential. Good personal hygiene includes making sure your clothes don't become soiled by chemicals or biological material, and of course, regular hand washing. In general, you should wash your hands:
• after handling medications or lab samples,
• treating patients or cleaning cages,
• before as well as after you use the restroom, and
• before lunch or meal breaks and before you leave work at the end of your shift.

When treating patients with potentially infectious diseases (infectious to people or other animals) wear a protective apron, surgical mask, exam gloves, and if appropriate, eye protection. Thoroughly wash your hands with a disinfecting agent like chlorhexidine or povidone-iodine scrub at the completion of the treatment. Change your clothes if they have become contaminated.

In human medicine, the transfer of HIV (or the AIDS virus) and hepatitis-B between the patients and the workers is a real threat. Since all the current research indicates that our patients do not contract these two serious diseases, the risk of exposure to animal blood or other body fluids is less of a concern. Although the term "bloodborne pathogen" is usually reserved for human infectious agents, the principles of good clinical hygiene must still be followed. The best way to minimize this hazard is to take simple precautions like wearing protective equipment when indicated and practicing good personal hygiene.

\textbf{A Dirty Mouth? - Precautions for dentistry operations}

Procedures like high speed or ultrasonic dental scaling will often aerosolize the pathogens, so personal protection is necessary. One of the most common pathogens in the mouths of animals is \textit{Pasteurella multocida} and that organism has been linked to cardiac and pulmonary problems in humans and animals alike. Whenever you perform dental procedures, be sure to wear goggles, gloves and a surgical mask.

\textbf{Radiology}

The ability to "see inside the body" is a great tool in medicine. In most cases, the method of choice is diagnostic radiography (x-rays.) Short duration, infrequent exposure to radiation, such as having radiographs taken of yourself, is accepted as an insignificant variable in your overall health. However, long term exposure to low doses of radiation has been linked to genetic, cutaneous, glandular, and other disorders. High dose exposure can cause skin changes, cell damage, and gastrointestinal and bone marrow disorders that can be fatal. Fortunately, much is known about the properties of x-rays, and ways to protect ourselves. By following some very simple
Safety Issues for the Veterinary Hospital Staff

safety precautions, you can utilize radiography in your practice with complete confidence.

Although modern radiographic machines have many safeguards integrated in the design, there is still the possibility of injury if these tools are used incorrectly. When you are involved in the use of radiographic equipment, always wear the appropriate protective equipment - lead aprons and gloves are essential and required. Thyroid collars and lead glasses are recommended if they are available in your practice. And of course, NEVER place any part of your body in the primary beam (even gloved hands).

Before you use an x-ray machine, make sure you know the function of every individual knob or button. Always use the collimator to restrict the primary beam to a size smaller than the size of the cassette - in other words, "cone down" to the area to be radiographed so that scatter radiation is minimized. A properly collimated radiograph will have a small clear border around the entire film once developed.

Always follow the written operational or safety procedures from the hospital or the manufacturer. If you haven't already done so, make an exposure chart so that you can replicate the best techniques for various studies. By following a proven technique chart and positioning the patient correctly the first time, you'll have fewer "retakes" and therefore eliminate unnecessary exposure.

Portable machines, like those used in large animal and mobile practices, can be particularly dangerous because of their multi-purpose abilities. These machines can be "aimed" in any direction, and because of their limited power they must utilize longer exposure times to produce diagnostic images. When using a portable machine, always make sure no one is in the path of the primary beam (even at a distance). Always utilize a cassette holding pole and NEVER hold a cassette with your hands while the exposure is made – even with gloves. And of course, remember to wear a lead apron and gloves when near the machine during exposure.

If you are involved in the exposure portion of radiography, you must have and utilize an individual dosimetry badge. This badge is worn on your collar outside your protective apron during radiographic procedures, not as protection, but as a measurement of any "incidental" radiation you may receive during the procedure. It's important to return the badge to the designated storage location (outside the x-ray area) when not in use. Unless you are taking radiographs, don't wear your badge outside because exposure to sunlight will result in false readings. Due to the relatively low numbers of radiographs taken in most practices, safer machines, and the use of good protective equipment, most workers receive very little, if any, occupational exposure to radiation.

Radiographic processing chemicals (the developer and fixer) can be very corrosive to materials and organic tissues, so use protective gloves and goggles when mixing or pouring the chemicals. For manual processing tanks, before use, stir the chemicals with care but avoid splashing them. After handling radiographic developing chemicals, always wash your hands. It's also important to avoid breathing the fumes of the processing chemicals, so make sure there is adequate ventilation in the dark room; generally an exhaust fan is necessary, so make sure it is used.

These chemicals can also react dangerously with other chemicals, so NEVER pour other chemicals into a sink or drain where developing chemicals are used. Some liquid drain openers, when mixed with developer and fixer, can produce toxic gases and others will produce an ectothermic (extremely high temperature) reaction that could damage pipes.
Anesthesia

Anesthesia is as common to veterinary medicine as antiseptic wound care. The National Institute of Occupational Safety & Health (NIOSH) estimates that over 250,000 U.S. workers are at risk from exposure to waste gases which are not metabolized by the patient. Long term exposure to waste anesthetic gases (WAGs) has been linked to congenital abnormalities in children, spontaneous abortions, and even liver and kidney damage.

Although recent discoveries in the types of gases used in veterinary medicine have produced safer agents for the patients and the workers, there is no chemical that is without risk, so we must still take precautions to protect ourselves even when using agents like isoflurane and sevoflurane. Therefore, OSHA has adopted a safe exposure limit for ALL halogenated anesthetic agents at 2 parts per million (ppm).

Using a proper scavenging system is the single most effective means of reducing your exposure to WAGs. There are three general methods of WAG removal for the veterinary practice: active scavenging, passive exhaust and absorption. Each has a place, but rarely does one method fit all circumstances. Regardless of the system your practice uses, make sure it is connected to the machine before use. If you use the absorption canisters, be sure to check them regularly (by weighing with a gram scale) because once they become saturated with gas, they are ineffective!

According to some research, as much as 90% of the anesthetic gas levels found in the room during a procedure can be attributed to leaks in the anesthesia machine, so always perform a leak check of the machine prior to use. Also make sure you use the correct size hoses and rebreathing bags for the patient. When intubated, inflate the tubes cuff before connecting the patient to the machine. Only should start the flow of anesthetic after connecting the patient to the machine. When the procedure is complete, stop the flow of anesthetic agent and use pure oxygen to "flush" the circuit through the scavenging

### Leak Check Your Anesthesia Machine

1. Assemble all hoses, canisters, valves or tubes according to the manufacturer’s instructions.
2. Turn on the oxygen supply to the machine.
3. Close the pressure relief valve (pop-off).
4. Use your thumb or palm to form a tight seal on the y-piece (the part of the hose that attaches to the patient’s endotracheal tube.)
5. Turn on the oxygen until the bag is slightly over inflated, (or when the pressure on the manometer reaches the 20 mark) then close the valve.
6. Observe the pressure in the system on the manometer and watch closely for any decrease. (If your machine is not equipped with a manometer, observe the size of the bag closely). If the pressure remains constant, the machine is leak-free. If the pressure drops, there is a leak (or leaks) in the system. The faster the pressure drops, the larger the leak(s).
7. If there is a leak, check the bag, hoses and other rubber (plastic) parts for evidence of cracks or deterioration. Replace any parts that are damaged. Check all connections, especially the seals at the top and bottom of the soda lime canister and on the one-way valves (clear plastic domes). Tighten any loose connections you find.
8. After checking all connections and hoses, if there is still a leak, have the machine serviced by a qualified technician before use.
9. When the machine is leak-free, re-set the pressure relief valve (pop-off) to the proper position to use the machine normally.
system before disconnecting the patient.

When refilling the anesthetic machine vaporizer, move the machine to a well ventilated area. Use a pouring funnel and be careful to avoid overfilling the vaporizer or spilling the anesthetic. If you accidentally break a bottle of anesthetic, immediately evacuate all non-essential people from the area. Any windows in the building should be opened and all exhaust fans turned on. Quickly control the liquid with a generous amount of kitty litter and place a plastic bag over the spill to reduce evaporation. Pick up the absorbed liquid and kitty litter with a dust pan and place it inside a plastic garbage bag. Seal the bag tightly and dispose of it in an outside trash can. Leave the exhaust fans on and the windows open until you are sure the gas level has been reduced to a safe level.

Some procedures, like masking or tank induction, make collection of waste gasses more difficult, but not impossible. Be sure to use an appropriate flow rate and proper reservoir bag for the size of patient - DO NOT turn up the oxygen flow meter to maximum when masking a patient. Induction chambers should always be connected to the scavenging system or absorption canisters to reduce the levels of escaping gasses. Make sure the ventilation in the room is good and use local exhaust fans when available.

Since patients don't metabolize all the anesthetic gas they inhale during the procedure, some of the gas is released into the room air during respiration even after recovery. When monitoring patients during recovery, you should avoid close contact with their face and keep the number of recovering patients to an acceptable number for the size of the area and ventilation system. When practical, allow the patient to partially recover while still connected to the anesthetic machine (oxygen only) and scavenging system.

When changing the soda lime (carbon dioxide absorbent) in anesthetic machines, wear rubber or latex gloves. When the soda lime is wet, as is often the case from humidity in the system, it can be very caustic to tissues and some metals. Dispose of the used soda lime granules in a plastic trash bag as regular trash.

Even small compressed gas cylinders must to be secured properly

If you are a woman and become pregnant, discuss the risk with your physician as soon as possible and notify your supervisor immediately so that an appropriate work schedule can be negotiated.

**Compressed Gasses**

Every year thousands of workers are injured while working with compressed gas cylinders, usually because of improper storage or handling of these cylinders. Regardless of the size of the cylinder, or whether the cylinder is empty, full, or in use, store them in a dry, cool place, away from potential heat sources such as furnaces, water heaters, and direct sunlight. Always secure the tanks in an upright position by means of a chain, or strap (including the small tanks). Cylinders that are stored inside a closet should also be secured since they can fall against the door and cause injury when you open the door. If the cylinder is equipped with a protective cap, they must be firmly screwed in place when the cylinder is not in use. If you have to move a large cylinder, don't roll or drag it; always use a hand truck or cart and remember to strap the tank in.

**Sharps and Medical Waste**

The most serious hazard from needles or sharp objects in a veterinary medical environment is from the physical trauma (and possible bacterial infection)
# Medical Waste Defined

<table>
<thead>
<tr>
<th>Material</th>
<th>Medical Waste</th>
<th>Normal Trash</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sharps</strong> (any device with characteristics that make it possible to puncture, lacerate or penetrate the skin)</td>
<td>Any used needles and scalpel blades. Glass or hard plastic that is contaminated with a HUMAN disease-causing agent.</td>
<td>Glass or hard plastic that is not contaminated with HUMAN disease-causing agents can be disposed of as normal waste.</td>
</tr>
<tr>
<td><strong>Medical Devices</strong> such as blood tubes, vials, catheters, IV tubes, etc.</td>
<td>Considered biomedical waste only when they contain HUMAN pathogens or they have been used for chemotherapy. Devices which simply contain or are contaminated with animal blood (except from primates) are normally not considered biomedical waste.</td>
<td></td>
</tr>
<tr>
<td><strong>Animal Blood or Tissues</strong></td>
<td>Only dead animals or animal parts which are infected with diseases that are communicable to humans; this includes but is not limited to rabies, brucellosis, systemic fungal diseases, tuberculosis, atypical mycobacteriosis, etc.</td>
<td>Tissues from routine surgical procedures (castration, ovariohysterectomy, etc) should be considered regular waste.</td>
</tr>
<tr>
<td><strong>Laboratory Cultures</strong></td>
<td>Microbiological cultures (bacterial, fungal or viral) of HUMAN pathogens are considered biomedical waste.</td>
<td>In some cases, culture media from negative tests may be considered regular trash, but it is probably wise to just classify all lab cultures as biomedical waste for simplicity.</td>
</tr>
<tr>
<td><strong>Bandages/Sponges</strong></td>
<td>Used absorbent materials such as bandages, gauze, or sponges, which are saturated with blood or body fluids that contain HUMAN pathogens that may splash or drip.</td>
<td>Sponges or bandages used on animals not infected with a disease transmissible to humans.</td>
</tr>
<tr>
<td><strong>Primate Materials</strong></td>
<td></td>
<td>Normally, waste generated from work on primates is considered regular waste unless it fits in another category.</td>
</tr>
<tr>
<td><strong>Animal Waste</strong></td>
<td>Waste from animals infected with a disease contagious to humans which can be transmitted by means of the waste.</td>
<td>Normally, waste from animals not infected with human disease-causing agents should be disposed of as regular trash.</td>
</tr>
</tbody>
</table>
that is caused by a puncture or laceration. To prevent these types of accidents, always keep sharps, needles, scalpel blades and other sharp instruments capped or sheathed until ready for use. Do not attempt to recap the needle after use unless the physical danger from sticks or lacerations cannot be avoided by any other means. When it is necessary to recap a needle, you should use the "one-handed" method. Although it takes a little practice to become "second nature," the one-handed method of recapping needles is the safest and most practical one for most veterinary situations.

Do not remove the needle from the syringe for disposal because this "unnecessary handling" often results in injuries. Whenever possible, the entire needle/syringe unit should be disposed of in the designated sharps containers immediately after use. Don't try to over-fill a sharps container...when it's full, it's full! When the sharps container is full, seal and handle it according to your hospital's prescribed policy and replace it with a fresh one. Never open a sharps container that has already been sealed nor stick your fingers into one for any reason.

Destroying the needle prior to disposal is not recommended because it may aerosolize the contents of the needle and increase your exposure. Likewise, you should not collect sharps in a smaller container and transfer them to a larger container for disposal. Of course, never throw needles or sharps directly into regular trash containers, regardless of whether or not they are capped.

The chart on page 20 explains which materials are usually considered hazardous and which are not. Although this chart is "essentially accurate" some states have special rules for discarding medical waste, so be sure to follow the rules prescribed by your state.

**Pushing Drugs - The Pharmacy Operation**

Medicines are designed to cure diseases and make patients better, but it's important to remember that all medicines are chemicals and chemicals can be dangerous. In the veterinary pharmacy, you can be exposed to all kinds of drugs just by handling them. Liquids can splash in your eyes when you pour them or they can release vapors that you can inhale. Handling, crushing or breaking tablets can leave powder residue on your hands that will be ingested next time you put your hands near your mouth or mucous membranes.

Some chemicals like the cytotoxic drugs (CD's) used to treat patients with cancer are so "potent" even minute exposures can cause harm. When preparing CD's, always wear powder-free chemotherapy gloves and a disposable gown that is not used for any other purpose. If the drugs are not mixed inside of a biological safety cabinet, then you may need to wear a respirator too; just be sure to follow the instructions...
Safety Issues for the Veterinary Hospital Staff

on the MSDS, package insert and your practice’s Chemotherapy Safety Plan.

During administration of CDs, it's not unreasonable to expect the unexpected, so it's very important to keep unnecessary people from the area and to wear protective equipment such as gloves, disposable aprons, surgical masks and eye glasses. You should avoid wearing contact lenses when preparing or administering CDs.

When handling or cleaning up after patients that have received chemotherapeutic treatments, remember that some drugs are excreted in bodily fluids so proper precautions are necessary. Always wear powder-free chemotherapy gloves and avoid contaminating your clothes when cleaning cages or picking up waste from chemotherapy patients. Make sure you dispose of all soiled materials from these patients as medical waste and launder non-disposable items separately from general laundry.

No matter what the drug, The biggest rule to remember when handling ANY medication is to practice good personal hygiene, especially a thorough hand washing!

Summary

We all face dangers in life every day but that doesn't mean we have to intentionally place ourselves in danger to get our job done. The successful person makes sure the reward for the action far outweighs the risk.

In this workbook, we've discussed your rights and responsibilities in a safety program, the hazards associated with your job from both a general and medical perspective and the actions you should take to protect yourself. But let's keep things in perspective: safety is not a special program or the cause of additional work. It's doing the job properly the first time and following the rules. Safety is not a reason to keep you from doing your job....it should be the reason you can continue to practice your career for a long time!

Have fun, but be safe.
Internet Safety Resources

Veterinary Practice Consultants: http://www.v-p-c.com/phil
OSHA: http://www.osha.gov
Canadian OSHA: http://www.canoshweb.org
National Institute of Occupational Safety & Health (NIOSH): http://www.cdc.gov/niosh
Centers for Disease Prevention & Control: http://www.cdc.gov
Canadian Centre for Occupational Health & Safety: http://www.ccohs.ca
The Veterinary Information Network (VIN): http://www.vin.com
The Veterinary Support Personnel Network (VSPN): http://www.vspn.org
Infection Control Today: http://www.infectioncontroltoday.com
The Virtual Anesthesia Machine: http://www.anest.ufl.edu/~eduweb/vam
Lab Safety Supply: http://www.labsafety.com
Environmental Protection Agency: http://www.epa.gov
Department of Labor http://www.dol.gov