The Occupational Safety and Health Administration (OSHA) was created under the Department of Labor to enact and enforce those measures necessary to ensure that every American has a safe and healthy work environment. These "rules" are known as standards and are published in Chapter 29 of the Code of Federal Regulations.

The Federal OSHA does allow a state to operate its own OSHA program; however, the state must set standards that are at least as effective as the federal standards and obtain approval from the federal OSHA. New York’s state plan covers only public employees; private sector employees still fall under the Federal rules.

Regardless of whether the OSHA rules are enforced by the federal or state government, there are stiff penalties for non-compliance with the regulations. For example, the recommended fine for failure to display the Workplace Safety & Health Protection poster (OSHA 3165) is $1,000; penalties for willful violations (meaning you were aware of the requirement and the potential dangers, but failed to act on the information) can be up to $70,000 for each infraction!1

According to OSHA statistics, almost all inspection are a result of employee complaints or workers’ compensation claims. OSHA generally utilizes two criteria for evaluation of a workplace program: documentation and training. Most veterinary hospitals have a safety plan for the staff to one extent or another, but few have the program down in writing for all to see, and fewer still have taken the time to properly train the staff on safety and emergency issues.

Administrative Requirements

- Every employer must maintain or post at a prominent location, certain materials in the workplace. These include:

- Job Safety & Health Protection Poster (OSHA 3165) or state equivalent.

- Summaries of petitions for variances from standards or record keeping procedures. You may ask OSHA for a variance from a standard or regulation if you can prove your facility or method of operation provides employee protection "at least as effective" as that required by OSHA.

- Copies of all OSHA citations for violations of standards.

- Summary of Occupational Injuries and Illnesses (OSHA 300 & 300A) and Supplementary Record of Occupational Injuries and Illnesses (OSHA 301). These are only required if the business has 11 or more employees or if the business is selected to
participate in a DOL survey. Worker's Compensation forms may be used in lieu of OSHA 301 if the information is essentially the same.

- Appropriate warning or identification signs. This usually refers to exits, hazardous areas (radiation), or situations (hearing protection required) and will be explained in those sections.

- Emergency Action & Fire Prevention Plans. This is required to be in writing when you have 10 or more employees.

**Hazards in the Hospital**

Since most OSHA inspections are the result of an employee (or former employee) complaint or a reported injury or illness, very often the inspection will focus on a specific area of concern within the workplace. Just as medical professionals specialize, the inspector's expertise in occupational health or general safety rules will also play a role in what portions of a hospital safety program are evaluated. With that in mind, we'll discuss the elements of an entire hospital safety program. Remember, this is not an overnight project. There are few definitively right or wrong answers. The important objective is to document the policies and practices that are in effect now. Changes and revisions will come with time. When you have completed a section's policy statements and training materials, add it to the Hospital Safety Manual binder. This will demonstrate a comprehensive program.

**Hazards for the Entire Staff**

**Food and Beverages**

The potential for illness from ingestion of pathogens or harmful chemicals is definitely present in most veterinary hospitals. Although some veterinarians jokingly imply that immunity only comes from exposure, OSHA takes eating and drinking in hazardous areas seriously. Several years ago, a veterinarian was fined for allowing employees to eat lunch on the treatment table. Although not specifically mentioned in OSHA standards, the treatment table is a potential contamination source. Consumption of food and beverages must be limited to areas free of toxic and biologically harmful substances.

This rule also applies to preparation of foods and beverages. Many hospitals have a staff coffee pot and utensil area co-located with the lab. Sometimes the cabinets above a coffee or food area will contain hazardous chemicals or supplies; this is generally an unacceptable situation.

Hospital refrigerators are another area of concern. Staff lunches, drinks, condiments and snacks must be stored in an area free from biological or chemical hazards. Vaccines, drugs and laboratory samples are all potential contamination sources. It is acceptable to store patient food in a refrigerator with human food.

**General Housekeeping and Maintenance**

OSHA requires all workplaces to be maintained in a manner free from physical and health hazards. Hospitals should continuously look for unsafe or hazardous conditions by implementing daily "walk-through" inspections.
**Fire and Emergencies**

Prior planning for emergencies is essential to workplace safety. Pre-designated duties, routes of egress, notification procedures and personnel accountability are essential elements of an emergency action plan. Fire prevention plans must include a list of the major workplace fire hazards and control methods, the names or job titles of persons responsible for the maintenance of emergency equipment or fuel sources, housekeeping procedures to prevent fire emergencies, training of the staff in fire prevention and the scheduled maintenance of emergency equipment.

Emergency telephone numbers, including fire, police, ambulance (or Emergency Medical Service), and emergency maintenance personnel should be assembled and prominently displayed near each telephone. Don't assume that everyone knows to dial 9-1-1 for an emergency. Since a few seconds could make the difference in an emergency, write down clear instructions and a "script" for the person to read.

All workplaces must have appropriate fire extinguishers available. In general, most veterinary hospitals would be safe to have dry chemical type extinguishers, but check with your local fire marshal to be sure. Normally, the fire extinguishers must be placed strategically throughout the hospital, and less than 75 feet apart.

There must be a program to ensure that fire extinguishers are inspected annually by a qualified technician. A record of the inspection must be maintained. This is usually done by placing a tag directly on the extinguisher. Monthly, a designated individual from the hospital must visually check each extinguisher to ensure it still properly "charged," and that it hasn't been removed or damaged. This monthly check should be annotated on the reverse side of the inspection tag.

Emergency exits and egress (escape) routes must be identified, properly marked and maintained free from obstructions. If an exit is not clearly visible, the route to the nearest exit must be properly marked. Exit doors must not be locked or fastened in such a way as to prevent free escape from the inside of the building. Normally, this means that exit doors should open outward and be equipped with a push-type latching device ("panic bar"). In no circumstances should a deadbolt or lock requiring a key to exit from the inside be installed on an exit door.

For work areas that are located in basements or other "isolated" places, it is usually required to have two means of egress so arranged as to minimize the possibility that both may be blocked by a fire or other emergency. Exit doors must be marked with a sign bearing the word "EXIT" in plainly legible letters not less than six inches high and 3/4 inches wide. Where the direction of travel to reach the nearest exit is not immediately apparent, a sign reading "EXIT" with an arrow indicating the direction must be posted. Exits, signs and egress routes must not be decorated or "hidden" so as to detract from their visibility.

**First Aid**

Hospitals should make advance arrangements with the community hospital or physician for the treatment of emergencies. First-aid kits for humans are not mandated unless there is no hospital, infirmary or clinic in proximity to the workplace. Procedures to summon Emergency Medical Service (EMS) personnel in the event of a serious accident should be established, and emergency phone numbers should be posted near all telephones.
Electricity

One of the most common (and most often overlooked) hazards in today’s veterinary practice is electricity. In recent years, workplaces have been inundated with new laborsaving and service-enhancing technologies - most of which require electricity to operate.

Hazards from the equipment include electric shocks and maybe even physical trauma from moving parts, but the real danger comes when the building's electrical service is not adequate to handle the demand. Most practices simply do not have enough outlets in areas where equipment is located. In older buildings, sometimes the wiring is simply not up to the task. In some cases, outlets are not grounded to meet the safety codes of today.

Since the veterinary profession has a history of "making do with what we have," these shortfalls don’t stop us. We improvise with extension cords, power taps, outlet multipliers and surge protectors! Oh, these things are usually OK for temporary applications such as a work light, saw or drill for a specific job, but they were not designed for constant use. Nobody sets out to intentionally overload electrical cords or outlets, but it happens. Over time we add "just one more" thing to the circuit until something becomes the proverbial straw that broke the camel's back. Fortunately, these types of problems are easy to fix.

Electrical services and equipment have many safeguards built into the designs, but those safeguards can't work if they are worn out or damaged. Wiring insulation, outlet and switch cover plates and strain relief devices all play a vital role in protecting the user and the facility from hazards. Damage to the insulation on an appliance or extension cord can cause an electrical shock without warning. Damage to the wiring, plugs or outlets themselves can weaken the current-carrying elements of the system and result in overheating and possibly a fire. Appliances and equipment with flexible electrical cords will usually have a clamp or rubber grommet where the cord attaches to the case or housing. This clamp is designed to prevent any strain on the electrical connections from use or accidents - thus the name strain relief clamp. Short circuits, fires and even electrocution can occur when the strain relief clamp is loose, damaged or missing.

With the proliferation of technological equipment in today’s workplace, many facilities, including veterinary hospitals are faced with a common dilemma: not enough outlets to support the equipment. At least not enough outlets in the right places! Computers, hair clippers, cage dryers, lab equipment, autoclaves, automatic processors and even telephones all require electricity to operate. Because a practice must keep up with technology to stay competitive and modern, we find our fixed resources stretched to the maximum.

When we add a new piece of equipment to the practice we first have to find a place for it. Most of the equipment is a now “desktop” or “countertop” model. Although these devices tout their space saving features, they also lend themselves to "overcrowding" counters and shelves. In a lab where there were 4 outlets, we now have six devices needing electricity. At the front desk, we have two outlets and now need at least eight to support the new computer. In the grooming area, we have six outlets, but they are not in the right places.

All of these challenges happen every day in the average practice. At first the solution may seem as simple as using an extension cord, surge suppressor or outlet multiplier, but that may just be the beginning of new problems. These devices typically have one thing in common: a significantly lower capacity to carry a load than the permanent wiring of the building. When we use these devices to make multiple outlets out of a single receptacle, we not only add load to that
outlet, but we also place an additional demand on the entire circuit. For example, imagine an electrical circuit with 10 receptacles. What would happen if we added a six-strip power tap to just two of those outlets? We would increase the load from 10 to 20 receptacles. That’s double the designed load!

**Stairs**

Stairs in the practice must be safe and sturdy. The lighting level must be adequate to clearly see the treads when ascending or descending the stairs. Headroom must be adequate. Any set of stairs with four or more risers must have a hand railing.

**Vehicles**

OSHA’s concern for employee safety does not stop at the doors to the practice. According to a recent survey by OSHA, motor vehicle crashes are the leading cause of death for American workers. Because of this, there are many standards in effect that deal with the safety of practice vehicles and machinery.

- First and foremost, make sure every employee who operates a vehicle while on duty has a valid driver’s license in your state. Even if the employee uses his or her own vehicle, if the are on an “official” errand for the practice, then the practice is probably liable for any accidents they have - even before their own insurance carrier!

- Ensure that all lights, signals, wipers and the horn works properly.

- Make sure the tires are inflated to the proper pressure and have adequate tread remaining.

- Check to be sure that both the regular and parking brakes operate normally.

- If the operator’s view to the rear is obstructed by the load or the vehicle design, then an audible (sound) back-up alarm must be installed.

- Finally, make sure the vehicle’s seat belts work properly and are in good repair. Make sure there is a hospital policy that requires the use of seat belts and compliance with posted speed limits!

Is there a tractor in use at your practice right now? If so, then you should be aware that OSHA has specific standards for these types of vehicles also. These rules are not unlike the ones for industrial forklifts or heavy construction equipment.

- Make sure every person who operates the equipment has been properly trained to do it safely. They must know the functions of all the buttons, dials, lights, gauges and levers. As always, you should have a record of all employee training, and this is no exception.

- The tractor must be equipped with a rollover protective structure (ROPS), even if it’s used exclusively on level ground. More commonly known as a “roll bar” the ROPS is to protect the operator from being crushed by the tractor if it should roll over.
• There must be an operable auto-type seat belt for the operator as well as a written hospital policy requiring its use.

• As you could imagine, there is a requirement for operable brakes and brake lights.

• If the operator’s view to the rear is obstructed, then there must be an audible back-up alarm.

Ergonomics

OSHA is currently studying the whole issue of repetitive motion disorders in the workplace. In general, the most common ergonomic injury suffered in the veterinary profession is slips, falls and lifting incidents. At the present time, the best advice is to make sure staff members wear appropriate footwear and have repeated reminders of the necessity for proper lifting techniques.

There is some concern that groomers may suffer from repetitive motion disorders more than any other staff member. Until more data is known, the best advice is to take an appropriate number of breaks, vary the routine and practice hand/forearm dexterity exercises frequently throughout the day.

Indoor Air Quality

OSHA is in the process of drafting new standards to regulate indoor air quality (IAQ) and indoor work environments for most workplaces in the country. Although this standard is still a long way from final, the highlights are already showing through. They have been under pressure from many sources, including organized labor to finalize this standard. So far, the evidence supports the conclusion that air contaminants and indoor air pollutants can present a significant risk to the employee. The adverse health affects associated with poor IAQ range from simple sensory irritations to allergies and even Legionnaires’ disease. Exposure to chemical or biological substances such as carbon monoxide, formaldehyde, pesticides, endotoxins, or mycotoxins because of faulty or inadequate ventilation is also a concern.

As currently proposed, the standard would require employers to develop and implement a written indoor air quality compliance program which includes things like inspections & maintenance of HVAC systems, implementing controls for specific contaminants and designating smoking areas.

Indoor air problems can occur in all types of buildings; in newly constructed buildings, in renovated or remodeled buildings, and in old buildings. Problems in new buildings often relate to fumes from building materials and older buildings can often harbor microbes that produce bioaerosols. Also, if adequate outside air is not provided, regardless of the age of the building, chemical and biological contaminants will build up to levels that can cause health problems in people.

In an industrial workplace, hazards are minimized by the use of administrative controls (limiting exposure with the schedule), engineering controls (exhaust fans, workplace design) and the use of personal protective equipment (respirators and masks); however, non-industrial environments, including veterinary practices do not usually have these controls so alternative measures must be used.
For some people, the most obvious component of any IAQ standard has to be control of tobacco smoke. According to a National Health Interview Survey, 73% of employees are non-smokers. This presents a particular challenge for the hospital administrator: balancing the rights of the smoker with the rights of the non-smoker! Although OSHA does not intend to completely ban smoking within the workplace as some municipalities have already done, it is intent on providing a smoke-free environment for workers who do not smoke.

Environmental tobacco smoke (ETS) is composed of exhaled mainstream and side stream smoke. The epidemiological and clinical studies, taken in aggregate, indicate that exposure to ETS may produce mucous membrane irritation, pulmonary, cardiovascular, reproductive, and carcinogenic effects in nonsmokers. Exposure to ETS may aggravate existing pulmonary or cardiovascular disease in nonsmokers. In addition, animal studies show that both mainstream and side stream tobacco smoke produce similar adverse effects.

In today’s American workplace, breaks and meals at work are the times when non-smokers are more likely to be exposed to ETS on the job.

Many veterinary hospitals have adopted a no smoking in the building policy. On the surface this may seem to solve the problem, but there are situations where the leadership must take additional actions. For instance, if staff members congregate outside of the back door to smoke during breaks, nearby HVAC air supply ducts or other mechanical equipment may reintroduce the smoke into the building. It is also likely that if there are enough smokers in the area at the same time, that exit is in essence “blocked;” non-smokers cannot be made to use any area where smoking is allowed.

Since most veterinary hospital staff members do not get regularly scheduled breaks (they take a break when they need one), perhaps the most frustrating part for the hospital leader is the lost work time associated with smokers having to go outside for their break. Many large companies that totally banned smoking in their buildings years ago have reversed their decisions and installed near-by smoking areas in an attempt to recapture some of that lost work time.

When smoking is allowed in the building this standard proposes to require the establishment of designated smoking areas. Designated smoking areas must be areas where employees do not have to enter in the performance of normal work activities. For instance, the employee lounge would not be an acceptable smoking area if non-smoking employees were expected to use the lounge also.

Designated smoking areas must the following criteria:

- Smoking areas must be enclosed and exhausted directly to the outside. Contaminated exhaust air from a designated smoking room must be transported to the outside through exhaust ducts under negative pressure to avoid duct leakage into nonsmoking areas that the duct passes through.

- Designated smoking areas must be maintained under negative pressure sufficient to contain tobacco smoke within the designated area. Negative pressure is achieved by exhausting more air from the space than is supplied to the space.

- Signs must also be posted at designated smoking areas. Signs must be posted to inform anyone entering the building that smoking is restricted to designated areas.
Finally, smoking within designated areas is not permitted during any time that the exhaust ventilation system servicing that area is not operating properly.

Obviously, this provision will have a great impact on many workplaces, including establishments such as nightclubs and restaurants. Currently, OSHA is inviting comments on the feasibility of this requirement and suggestions for alternative ways to assure that non-smoking workers will not be exposed to tobacco smoke there.

Violence

We have all heard the spectacular news stories of disgruntled former employees going on a shooting rampage in retaliation for whatever perceived injustice they have suffered. This is the image that we most associate with workplace violence. The truth is that most incidents of violence against workers don’t make the news because it is more common than we like to believe. On the average, two American workers are assaulted, murdered or raped while on duty every minute of every day!

In any business, including that of a veterinary hospital, violence typically happens due to one of these four reasons:

- Robbery or intentional assault (stalking).
- Customers or clients under extreme duress who “lash out.”
- Workers who have a dispute with supervisors, coworkers, or just “the establishment.”
- Unhealthy personal relationships (jealous or estranged domestic partners).

As the veterinary profession adapts to meet the needs of a changing society, we are gradually increasing our risk of a violent act happening in the practice. Perhaps the greatest example of this is today’s veterinary emergency clinic. The emergency clinic is open throughout the night and often in dangerous neighborhoods. They are typically staffed with a skeleton crew that is preoccupied with internal cases to be very aware of external threats.

But it’s not just emergency clinics that are at risk. The traditional veterinary practice shares many of these same concerns. Although violence in the veterinary profession is not as common as in other industries or fields, it does happen. The accurate prediction and preventing of workplace violence is not exact, but already we see emerging trends. Perhaps the most promising news is that increased awareness and preparation seem to be the best prevention strategies.

Although the leadership is faced with the challenge of balancing the need for security with the rights of privacy for employees and the demand for service from the public, it is reasonable to have an appropriate mix of all three. Here are some situations that could and have happened in veterinary hospitals. Discuss these scenarios at your next staff meeting and have each person think about what they would do in the same situation.

- **The angry client that turns belligerent.** Given the strength of the human-companion animal bond, it is no surprise that some people take misfortune to their pet very hard. An unexpected loss or even the stress of an unexpectedly high bill can send some people who are prone to violence into an uncontrolled rage. The best defense is to keep the lines of
communication open and keep the client truthfully informed all during the case. The article on page 7 has more help on delivering bad news.

- **A stranger approaches an employee leaving the building before she can get in her car.** It’s after 7p.m. and the last of the staff is leaving for the day. She is anxious to get home and rushes out. She didn’t notice the two people standing by a car at the far end of the parking lot until she was halfway to the car. They approach her saying, “Hey, what’s your hurry?” If only she would have taken a few seconds before she left the safety of the building to look outside and make sure the area was clear.

- **An intoxicated or impaired person who has no business in the hospital “just wants to talk.”** People who are drunk or on drugs are often unpredictable. Instruct staff members to summon assistance from a coworker at once. Politely ask the person to leave explaining that the staff is busy and must get back to work. If they do not comply, call the police at once. Don’t wait until the situation escalates.

- **A person with a weapon demands drugs or money.** Crime happens in every neighborhood sooner or later. Staff members must be instructed to always cooperate and give them what they want. Never have the employee resist unless they are in physical danger of injury or abduction.

- **The estranged husband of a staff member enters the clinic and is obviously intoxicated.** He stands in the waiting room and generally makes a scene.

- **A staff member is making the bank deposit and is involved in a traffic accident that turns violent.** Remember that a staff member is considered “on duty” whenever they are enroute to or engaged in company business. Remind everyone that while on company business, they must obey all traffic and laws and courtesies, even if they are in their own vehicle. Never use obscene gestures or phrases directed at another motorist. If you are involved in an accident, be polite and cooperative - never confrontational - with the other drive. Wait until the police arrive to discuss the incident and notify the hospital about the incident as soon as possible.

- **Another staff member is making a “supply run” to the store and is assaulted while loading the materials in the car.** The best defense is to cause a scene and attract attention. Criminals rely on the predictable cooperation of their victims. If the parking lot is not very visible (e.g., underground garages) or very well lighted in the evening hours, ask the store for assistance in loading the supplies.

- **While working alone on a holiday, the kennel attendant is confronted with an angry client demanding to take their pet home from the hospital.** We have all had a situation where a boarding or hospitalized pet was scheduled to go home on the day before a long holiday weekend, but for some reason or the other, the client never made it before everyone left. The client, not wanting to pay for extra days and missing their companion, sees a car in the parking lot while passing the next day and decides they will get their pet. Make sure every staff member follows the safety rules for working alone (see article on next page) and understands the practice’s steps for releasing a pet to the owner. Be sure to instruct weekend or part-time workers on how to reach the doctor or supervisor when necessary.
Remember the best way to deal with incidents like these is to anticipate them, stay alert, be observant of your surroundings and institute safeguards when necessary.

**Chemical Hazards**

The Hazard Communication Standard (HCS) or "Right-to-Know Law" mandates that every business, which handles, stores, or uses potentially dangerous chemicals develop a written plan for these procedures. These rules apply to all chemicals on the premises, regardless of whether they are currently used in the process or not. There are some exceptions:

- “Any consumer product...as defined in the Consumer Product Safety Act (15 USC 2051 et seq.)...where the employer can demonstrate it is used in the workplace in the same manner as normal consumer use...”
- “Any drug...when it is in solid final form for direct administration to the patient (i.e. tablets or pills),”
- “Food, drugs, or cosmetics intended for personal consumption by employees while in the workplace.”
- “Any food or food product...”
- “Articles...which do not release or otherwise result in exposure to, a hazardous chemical, under normal conditions of use.”

Here are the basic rules:

- Develop a Hazard Communication Plan including a list of all hazardous products;
- Obtain a Material Safety Data Sheet from your distributor for those items on your list;
- Ensure that all containers of hazardous materials, including secondary containers such as table wash bottles, are labeled with the chemical name and the appropriate warning; and
- Train workers on the safety aspects of handling the chemicals.

**Ethylene Oxide**

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 a potent human carcinogen, special precautions must be maintained. OSHA standards require hospitals that use EtO to develop a comprehensive written plan for the safe handling; storage and use of the agent if there is a chance that workers may be exposed to concentrations at or above the Permissible Exposure Level (PEL). At a minimum, the hospital's plan must include the following elements:

- Designation of an appropriate location for storage and use of the agent.
- An acceptable receptacle or device for performing the procedure. Rubber trashcans and thermal coolers are NOT acceptable.
- Initial monitoring of exposure levels. This is accomplished with badges, similar to the ones used for radiation monitoring. Short term exposure limits (STEL) of 5 parts per million (ppm) and an 8 hour time weighted average (TWA) of 1 ppm are the maximum PELs in the workplace.
- Detailed emergency procedures for accidents involving release of EtO gas into the workplace (e.g., accidental breakage of an ampule, etc.) This includes emergency
warning procedures, evacuation protocols and the availability of appropriate respirators for clean-up operations.

- EtO in large compressed gas containers (instead of the ampules) usually have a concentration of 12% EtO and 88% Fluorocarbons. When the 88/12 mixture is used, biweekly (every two weeks) inspections for leaks around doors, gaskets, hoses, piping, filters, valves and cylinders with a Fluorocarbon leak detector is required. A written log of these checks and the values obtained must be maintained.

- Appropriate employee training covering the provisions of the OSHA standard, the methods used for monitoring, the physical and health hazards of EtO, measures for protection, and the details of the hospital's written hazard communication plan.

**Formaldehyde**

Since formaldehyde is a known 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. At a minimum, the hospital's plan must include the following elements:

- Designation of an appropriate location for storage and use of the agent.
- Initial monitoring of exposure levels. This is accomplished with badges, similar to the ones used for ethylene oxide monitoring. Short term exposure limits (STEL) of 2 parts per million (ppm) and an 8 hour time weighted average (TWA) of 1 ppm are the maximum PELs in the workplace.
- Detailed emergency procedures for accidents involving release of formaldehyde gas into the workplace (e.g., accidental breakage of a container, etc.) This includes emergency warning procedures, evacuation protocols and the availability of appropriate respirators for clean-up operations.
- Appropriate employee training covering the provisions of the OSHA standard, the methods used for monitoring, the physical and health hazards of formaldehyde, measures for protection, and the details of the hospital's written hazard communication plan.

Whenever possible, order formalin in small, pre-diluted containers so that the potential for exposure above the PEL is minimized. Very often the laboratory will supply pre-labeled vials at no charge. There is an exemption from all the above requirements when very small levels are used, and the employer can show that the possibility of exposure at or above the PEL is unlikely. Be careful, "small quantities" is a relative term. As a general rule, a quart or gallon container is not small quantities, especially when in the 37% form.

**Hazards for the Medical Staff**

**Anesthesia**

The NIOSH established limits for occupational exposure to waste anesthetic gasses is less than 2.0 parts per million (ppm) for all halogenated agents (methoxyflourane, halothane, isoflurane). Exposure to the nitrous oxide must also be maintained below 25 ppm. Most hospitals are unaware of the actual concentration levels of waste anesthetic gasses in the workplace, but with a comprehensive WAG management program, the risk of unnecessary exposure can be minimized.
A comprehensive WAG management program should consist of the following elements:

- Application of a well designed WAG scavenging system. This is the single most effective means of reducing exposures of WAGs in the workplace. A proper scavenging system will capture the excess gasses directly at the source and transport them to a safe exhaust port, usually outside the building. There are three general methods of WAG removal currently in use: active scavenging, passive exhaust and absorption. Each has a place, but rarely does one method fit all circumstances.

- Routine maintenance and evaluation of anesthesia equipment. Anesthetic machines must be checked for leaks and serviced periodically. Although there is no "set" interval, the machine manufacturer's recommendations should be followed. At a minimum, daily "pre-use checks" for leaks in the hoses or connections should be performed, and examination or calibration by a qualified medical equipment repair technician should be completed every four months.

- Developing or revising work practices that minimize leaks and non-scavenged operations. Detailed training for staff members who operate or clean anesthesia equipment is a must. Training should include all areas of anesthesia agent use, including storage of the liquid agents, refilling of the vaporizers, emergency procedures if a bottle is dropped and broken, as well as general operating instructions for the machine.

- Training of the staff in proper principles of anesthesiology so that only the minimum amounts of anesthetic agents are used. Many hospitals use the "about that much" method of gas anesthesia and can significantly reduce the quantity of anesthetic agents used if flow rates were calculated prior to induction.

- Adequate general ventilation in the work areas. Some procedures, like masking, defy collection of waste gasses. In those instances, make sure the ventilation in the room is good. Exhaust fans for evacuating room air to the outside are recommended. Be conscious of air handling systems that recirculate the air; exposure of others may be the result. Induction chambers can be connected to the scavenging system or absorption canisters to reduce the levels of escaping gasses.

**Compressed Gas Cylinders**

Compressed gas cylinders should be stored in a dry, cool place, away from potential heat sources such as furnaces, water heaters, and direct sunlight. They must be secured in an upright position by means of a chain, or strap. Cylinders stored inside closets should also be secured since they can still fall against the door and injure someone who opens the door. Transportation carts and floor mounting collars are also acceptable methods of securing compressed gas cylinders. If equipped with protective caps, they must be in place when the cylinder is not in use. Large cylinders should be moved with the aid of a cart.

Special care should be taken when connecting or disconnecting tanks, as gasses compressed to several thousand pounds can cause serious injury to eyes and extremities. Impact resistant protective goggles should always be worn when handling compressed gas tanks.
Radiology

This area is sometimes confusing to veterinarians since there is often a state registration and inspection requirement for radiation machines. Veterinarians in states with Atomic Energy Commission approved radiation protection plans would be in compliance with OSHA's requirements if they followed the guidelines of their state regulations. Currently, such approved plans are in effect in Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Idaho, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Nebraska, New Hampshire, New York, North Carolina, North Dakota, Oregon, South Carolina, Tennessee, Texas, and Washington.

In all other states, the regulations enforced by OSHA are independent of those required by the state, and the veterinary hospital must follow the most stringent requirements.

A complete hospital radiation safety program must include the following elements:

- Regular evaluations of equipment and procedures.

- Approved monitoring devices for all personnel exposed to ionizing radiation. At a minimum, notification to workers of their exposure measurements must be made annually. Many consultants suggest this become part of the employee's annual performance review.

- Identification and posting of radiation areas. Signs containing the conventional, three blade, radiation caution symbol (magenta or purple on a yellow background) and the words "CAUTION RADIATION AREA" must be conspicuously posted in all radiation areas.

- Availability of appropriate protective equipment. At a minimum, usable lead gloves and aprons must be available. Thyroid and retinal protection is recommended, but not required.

- Written safety policies, operating instructions, and training programs. Staff members performing radiographic duties must be made aware of the hazards associated with radiation, the hospital's policies for minimizing exposure, the proper operation of equipment, and the provisions of OSHA's Ionizing Radiation Standard. A copy of OSHA's standard, as well as the documented rules and operating procedures must be readily available.

Some very simple practices will greatly enhance the effectiveness of a radiation safety program. Things like collimating to isolate the area of concern (leave a clear border around the film), proper measuring and settings to avoid retakes, and rotating radiographic duties among all qualified staff members will significantly reduce the dangers.

Animal Handling

Although handling animals in itself is not a dangerous job, the unpredictability of some animals or situations can turn a routine episode into a very dangerous event. There are many situations that OSHA doesn't address directly, but getting caught in a run with a vicious dog is definitely dangerous. The hospital director should make sure all people (including volunteers) who handle
animals are properly trained in restraint procedures. There should be a mechanism for workers to summon assistance when they get into trouble. Could someone yelling for help from the kennels be heard in the front of the hospital above the chorus of barking dogs? What about weekends or off-hours when there may be only one person in the building?

**Rabies Vaccinations for Employees**

There is no direct OSHA standard that requires veterinary healthcare workers to be vaccinated against rabies. That's the simple answer. However, there are many more factors that must be considered before making this decision.

Although there is no direct requirement, OSHA's General Duty Clause does require employers to provide a workplace free from unnecessary dangers. In past situations involving other industries (professions), when protection (such as vaccinations for hepatitis-B) was available and the risk was found to be greater than the average population (such as human healthcare workers), OSHA has required the employer to provide the protection at no charge to the employee or obtain the employee's written waiver of the vaccine. In any case, it is necessary to inform the worker of the exact nature and degree of risk, as well as the everyday safety methods to use.

Although requiring the vaccinations will not alleviate the necessity for adequate training and procedures, it will go a long way in solidifying the employer/employee relationship as a synergistic one. Of course the decision on exactly who should be vaccinated and the associated costs must still be addressed.

Not all employees should be vaccinated. That is the first decision that must be explored. Unless the worker has significant contact with animals that pose a risk, protection is not usually necessary. Receptionists, bookkeepers, and other administrative staff members, if restricted from contact with high-risk animals would need the protection. Groomers would normally not be at an increased risk because the animals they handle are always healthy and properly vaccinated. Animal caretakers, technicians and veterinarians should be considered at risk if they examine, treat or care for high-risk animals. Not all veterinarians, technicians or animal caretakers need to handle these cases; designate a high risk team to handle and treat all wild, feral or suspicious animals. Only the members of the high-risk team will then need to be vaccinated.

Of course this approach would not be for every hospital, especially smaller ones where one staff member performs many functions or must routinely work alone. In those instances, it is advisable to make the safe decision and provide the protection. For the positions with high turnover rates, the decision to provide vaccinations could be deferred for several weeks to find out if the new employee will perform and remain in the position. If this method is chosen, then the leadership should make every effort to limit the new employee's exposure to high-risk animals during the probationary period. Although the decision to provide the pre-exposure vaccinations is one that must be made by every individual practice owner, most people feel the benefits outweigh the drawbacks in most instances.

**Noise**

OSHA standards require a hearing conservation program when workers are exposed to noise levels above 85 decibels (db) based on an eight hour time-weight average (TWA). As a general rule, the louder the noise, the shorter exposure is permitted.
The hearing conservation program can take many forms, including medical evaluations and periodic audiograms for employees, safety equipment, reduction in noise levels by absorption or dissipation, training of employees, and posting of warning signs identifying noise hazard areas.

The design and configuration of kennels and wards vary from one hospital to another, but regardless of their layout, kennels can be very noisy places. Outdoor runs generally do not have the echo or "bounce" of sound waves common to an indoor area, but they still can be noise hazard areas. Noise from dryers and clippers in a grooming room can also present a hazard. Depending on the size of the room, the number of dryers and clippers in use, and the texture of the walls, noise levels can get up to 100 decibels.

Although it will vary from one breed to another, as well as one animal to another, noise level from a barking dog can reach 80 or 90 decibels. It doesn't take much of a chorus of barking dogs to exceed the threshold limit for a noise hazard area. In hospitals the author has consulted with, noise levels in the kennels typically ranged from 95 to 115 decibels measured at the center of the room. At the upper end of this range a person could work approximately 15 minutes in the area without hearing protection during an average 8 hour work day.

If the noise levels cannot be reduced below the threshold limit by architectural or engineering means, then personal hearing protection is required for workers. There are literally hundreds of varieties of earplugs and phones available. Choose one that is rated to reduce noise levels by at least 20 decibels. Disposable, foam rubber earplugs are the most common, and are relatively inexpensive. Keep these earplugs away from animals since they are easily swallowed and will cause digestive problems.

Noise hazard areas must be identified by means of a poster, placard or sign. The wording should reflect the degree of danger. Typically, a sign stating "Warning: Noise Hazard Area. Hearing protection required for prolonged exposure" is sufficient for most areas. Place the sign at all entrances to the areas, including exterior doors.

**Sharps and Medical Waste**

This is an area of double concern. The OSHA recognizes that the handling of sharps (needles, scalpel blades, etc.) is a serious safety hazard in veterinary hospitals, but the Environmental Protection Administration (EPA) is the agency responsible for most of the attention and regulations for disposable of medical wastes. Although sharps could definitely be a regulated medical waste, not all waste from a veterinary hospital is considered harmful to humans or the environment.

The federal guidelines for handling and disposal of medical specific wastes provide some good "common-sense" principles of workplace safety. New York has enacted a medical waste tracking acts which details medical waste disposal.

The practice of reusing syringes requires that someone remove the needle, clean the syringe, package and sterilize, then re-stock the syringes. This places someone at an increased risk of injury and is usually not allowed after an OSHA inspection.

Current recommendations suggest the immediate disposal of the entire needle/syringe unit into a puncture-proof, leak resistant container is the best method of containing sharps. This is sound
advice, and already practiced in many facilities. The term 'puncture-proof, leak resistant" is very misunderstood. Ordinary plastic milk containers are not sufficient. Try pushing a 22-gauge needle through one. The containers made for this specific purpose are the most effective and are usually very economical.

The practice of cutting needles prior to disposal increases the potential for aerosolization of the contents and should be discontinued. Likewise, the practice of collecting sharps in a smaller container and transferring them to a larger container for disposal places someone at an increased risk of exposure and is not recommended.

Chemotherapy

The occupational risks associated with cytotoxic drugs (CDs) are a combination of the drugs' inherent toxicity and the extent to which the worker is exposed to the drug on the job. The chance of exposure can occur at many points in the handling process, and in the veterinary practice, the most probable routes of exposure are through inhalation of drug dusts or droplets, dermal absorption, and ingestion through contact with contaminated food or cigarettes. The first step in controlling or eliminating these probable exposures is to design a workstation that supports the safe completion of the procedure. In this section, we’ll discuss the physical or facility concerns that must be addressed to safely use these drugs.

Perhaps the most basic purpose of physical safeguards is to prevent or control environmental exposure. Typically, this exposure comes in the form of splattering, spraying, and aerosol generation of the material. Aerosols can be generated by many activities, exposing not only the employee immediately involved, but also other staff members in the area. Therefore, it is strongly suggested that all CDs be prepared in one centralized area; this will minimize the risk of “extraneous” contamination. A Biological Safety Cabinet (BSC), where only CDs are prepared, should be used. If the BSC does not vent to the outside, then an appropriate HEPA filter must be installed. If the hood is exhausted outside, the discharge opening should be at an appropriate level and away from air intake units.

Warning signs designating the area as a cytotoxic drug preparation area that should not be entered by unauthorized staff should be clearly posted. Spill clean-up procedures should also be posted nearby for easy referral in an emergency. Additionally, smoking, drinking, applying cosmetics, and eating should never take place in the preparation area, as they greatly increase the chance of exposure.

Labeled sealable plastic or wire tie bags should also be available so that contaminated boxes, gloves, gowns and paper liners can be contained properly. There should be a closable, puncture-resistant, shatterproof container for disposal of contaminated sharp/breakable materials within the work area. Mixing and preparation of the solutions should be done on a disposable absorbent pad; the pad should be discarded in an appropriate waste container (not general trash) upon completion of the procedure or if it becomes soiled. This will prevent any spilled liquids from evaporating too quickly.

The area should be cleaned thoroughly with 70% alcohol at least daily, when the procedure is completed or whenever a spill occurs. Normal disinfection procedures with a germicidal agent are inappropriate for CD areas. Germicidal disinfectants are largely ineffective against these substances because they are not biological agents and in some cases may cause a chemical reaction.
Preparing the Drug For Administration

Getting ready for the procedure is as important to safety as the actual administration of the drug. In fact, most accidental exposures come from mishaps during the mixing and “loading” process. Certainly, everyone involved in the process should start by reviewing the instructions on the package insert or material safety data sheet (MSDS). Since proper aseptic techniques are essential for patient safety as well as for worker protection, it is assumed they will already be standard practice in the hospital and therefore will not be detailed here.

Proper Attire: Some research indicates that surgical latex gloves are less permeable to many CDs than the polyvinylchloride (PVC) gloves recommended in older guidelines. Therefore, surgical latex gloves should be used for the preparation of CDs unless the manufacturer specifically stipulates that some other glove provides better protection (Powdered gloves should never be used.) A double layer of gloves is substantially less permeable and should be used if double gloving does not interfere with technique. Because all gloves are to some extent permeable and their permeability increases with time, they should be changed regularly (hourly is preferable) and immediately if they become torn or punctured.

A protective disposable gown made of lint-free low permeability fabric with a closed front, long sleeves, and elastic or knit-closed cuffs must be worn. The cuffs should be tucked under the gloves. Gowns and gloves in use should not be worn outside the preparation or administration area.

A biological safety cabinet (BSC) is essential for the preparation of CDs, but where one is not available, a respirator with a high efficiency filter will provide the best protection until a BSC is installed. This may seem like overkill, but many of these drugs are known carcinogens and OSHA expects appropriate preventive measures to be followed. Surgical masks do not protect against the breathing of aerosols. A plastic face shield or splash goggles should also be worn if a BSC is not used. Finally, an appropriate eye wash fountain must be readily available.

Syringes and Needles: Syringes and IV sets with Luer-lock fittings should always be used, and syringes should be large enough so that they need never be more than three-fourths full. A nonsplash disposal collection vessel such as a plastic or metal tray lined with sterile gauze pads should be at hand to collect excess solution. All necessary items should be assembled before work is begun, and all extraneous items should be kept out of the work area in order to avoid contamination.

All syringes, IV bags and bottles containing CDs should be labeled with a distinctive warning label such as "Chemotherapy -- handle with gloves -- dispose of properly." IV and drug administration sets should be attached and primed before the drug is added to the fluid to ensure that any fluid, which escapes during priming, contains no drug.

For reconstituting powders, using a large-bore needle, (18 to 20 gauge) will reduce the need for high-pressure syringing of the solutions. Since some experienced personnel believe that large-bore needles are more likely to drip, the needle should be chosen with these advantages or disadvantages in mind.

All syringes and needles used in preparing CDs should be placed in a puncture-proof container for disposal without being crushed, clipped or recapped. (Some professionals believe that
capping the needle before disposal reduces the generation of aerosols; others warn that it increases the chances of needle-sticks.)

Generally, medication vials should not be vented unless a BSC is used. All the diluent should not be injected at once: a large volume of displaced air will cause the syringe's plunger to back up and possibly spray the drug or cause leakage around the needle. Diluent should be added slowly to the vial by alternately injecting small amounts, allowing displaced air to escape into the syringe. When all diluent has been added, a small amount of additional air may be withdrawn to create a negative pressure in the vial. The air in the syringe should not be expelled into the room air because it may contain drug residue. It should either be injected into a vacuum vial or remain in the syringe to be discarded.

A sterile gauze should be wrapped around the needles and vial top when withdrawing solution (extra care should be taken to avoid needle-sticks during this procedure). The drug should be withdrawn from the vial while negative pressure is maintained. If this use of negative pressure is not practical, a syringe should be filled with air equal to the volume of drug required, and the solution withdrawn by alternately injecting small amounts of air into the vial and withdrawing equal amounts of liquid until the required volume is withdrawn.

If the needle is to be changed prior to administration, the drug should be cleared from the needle and hub (neck) of the syringe before separating to avoid spraying on separation.

When the drug is supplied in ampules instead of vials, material remaining in the top of an ampule should be tapped down before it is opened. A sterile gauze pad should be wrapped around the ampule neck before breaking the top to protect against cuts and to catch aerosolized material. The ampule top should not be removed close to the worker's face. If diluent is to be added, it should be injected slowly down the inside wall of the ampule. The ampule should be tilted gently to ensure that all the powder is wet before agitating it to dissolve the contents. The needle should be held vertically with the needle upwards; the syringe should be tapped lightly to remove air bubbles and the air bubbles expelled into sterile gauze in a pan or bag, not into the air.

**Administering the Drugs Correctly**

When the time comes to actually administer the medication to the patient, it is imperative to recognize the precautions for both patient and staff safety.

**Personal Protective Equipment:** Although the specifics of each situation will differ, it is generally recommended that the following personal protective equipment (PPE) be utilized by the person administering the drug as well as the one restraining the patient:

- A disposable gown made of lint-free, low permeability fabric with a closed front, long sleeves, and elastic or knit-closed cuffs. The cuffs should be tucked under the gloves. Gowns and gloves in use should not be worn outside the prep or administration area.
- Disposable surgical latex gloves. Double gloving is appropriate if it will not interfere with the procedure.
- A surgical mask. This is for protection from splashing on the mucous membranes and not from respiratory contact since the mask provides only minimal protection against CD aerosols.
- If the client is allowed to witness the procedure, they should be kept a reasonable distance from the area and informed that the protective equipment in use is necessary for workers.
to be protected against the directly irritating effects of the drugs their eyes and skin. Presumably, the acute and chronic effects of the drug have already been discussed with them.

**Administration Equipment:** Having the proper equipment ready and assembled will not only increase the efficiency of the operation, but also add to the safety margin as well. At a minimum, this equipment is essential:

- Gauze 4x4s;
- Alcohol or alcohol wipes;
- Disposable plastic-backed absorbent liner;
- Empty vials to be used as receptacles for excess drug solution;
- Puncture-proof container for needles and syringes;
- A 4-mil sealable plastic or wire tie bag (with warning label) large enough to contain waste materials, and accessory warning labels;
- Splash-proof goggles and convenient access to an eye or face wash for emergencies

**Procedures:** Workers should be competent to perform the procedure and use safe work practices, which include:

- Hands should be washed before putting on gloves. Gowns or gloves that become contaminated should be changed immediately.
- Syringes, infusion sets and other delivery devices should have Luer-lock fittings and should be watched for signs of leakage during use. A plastic-backed absorbent pad should be placed under the connection during administration to catch any leakage.
- When priming IV sets or expelling air from syringes, gauze inside a plastic bag should be used as the receptacle.
- Needles and syringes should not be crushed or clipped, but should be placed in a puncture-resistant container for disposal. Contaminated non-sharps items should be contained in a plastic bag for disposal. The bag should be disposed of in accordance with the hospital's toxic waste disposal procedures.
- Protective goggles and other non-disposable items should be wiped several times with an alcohol wipe and properly rinsed. Hands should be washed after removal of gloves. All gauze and alcohol wipes must be put in an appropriate container for disposal.

**Handling Treated Patients**

Aftercare of the patient receiving CD treatments requires a little discussion. Workers who will change soiled bedding or cage materials should be instructed on the hazards of the patient excreting the drugs in body secretions for up to 48 hours after administration. Any staff member who must clean up blood, vomitus, or excreta from patients who have received CDs in the last 48 hours should follow these procedures:

- Always wear surgical latex gloves and disposable gowns when cleaning up spills involving excreta or blood. The gowns and gloves should be discarded after each use.
- Always use surgical latex gloves and a disposable gown when cleaning cages or runs. Contaminated bedding should be placed in a specially marked laundry bag and the laundry bag placed in a labeled impervious bag. This laundry bag and its contents should
be washed twice with normal detergents. Laundry personnel should wear surgical latex gloves and gowns while handling this material. No additional gain is made by autoclaving items contaminated with CDs since chemicals are not inactivated like biological organisms simply by sterilization.

- Disposable materials like cage paper should be placed in a separate plastic bag and immediately sealed. The sealed bag should be disposed of according to the hospital hazardous waste plan.

- When possible, patients receiving CD therapy should be exercised in a separate area from other patients. Feces from patients deposited in exercise areas should be removed promptly following the same precautions.

- Of course, proper personal hygiene practices should be followed after handling any patient. A thorough hand washing using a detergent soap should be performed after completion of these tasks.

Most practices will hospitalize the patient for this treatment, but if it is to be performed on an outpatient basis, or if the patient will go home less than 48 hours after the treatment, then it is important to inform the client of the safety precautions also. Although OSHA has no interest in the clients because they are not employees, and their long-term risk is very low because they are not chronically exposed to these drugs, it is vital that the clients understand the patient may expel these drugs in urine, feces and sometimes-even saliva. Again, protective gloves and proper personal hygiene are the cornerstones of protection.

**Disposal and Spill Clean-up**

Disposing of waste materials from CD procedures is not difficult if you follow two basic concepts: containment and segregation. All non-sharps waste should be collected in a thick plastic bag. The bag should be labeled with a cytotoxic hazard label and preferably colored differently from other hospital trash bags. At least one such receptacle should be located in every area where the drugs are prepared or administered so that the waste need not be moved from one area to another. The bag should be sealed when it is filled or at the end of the procedure or shift. The bag should be kept inside a covered waste container clearly labeled "cytotoxic waste only." Needles, syringes, and breakable items should be placed in a sharps container. Needles should not be clipped or capped nor syringes crushed. These wastes should be handled separately from other hospital trash, and regarded as toxic (hazardous) wastes. Disposal must be in accordance with applicable regulations, which normally means incineration or a licensed sanitary landfill for toxic wastes. If the waste is to be picked up by a commercial disposal firm, the company must be licensed, and the waste must be held in a secure area in covered, labeled containers lined thick plastic bags.

Housekeeping personnel should wear gowns and surgical latex gloves when handling the waste containers, and should be instructed on the necessity of handling this waste with care and on procedures governing spills and leaks.

Chemical inactivation of CDs is often ineffective and may produce by-products that are more mutagenic than the parent drug. Therefore, with the exception of nitrogen mustard, which can be safely inactivated by sodium thiosulfate, chemical inactivation should be avoided.
A properly protected person trained in the appropriate procedures should clean up spills and breakages immediately. Broken glass should be carefully removed. A spill should be identified with a warning sign so that other persons in the area will not be contaminated.

Direct skin or eye contact should be treated as follows:

- Immediate removal of the gloves or gown if applicable.
- Wash the affected skin area immediately with soap (not germicidal cleaner) and water. For eye exposure, immediately flood the affected eye with water or isotonic eyewash designated for that purpose for at least 15 minutes.
- Obtain immediate medical attention.
- Spills of less than 5 ml or 5 gm outside a BSC should be cleaned immediately by personnel wearing gowns and double surgical latex gloves and eye protection.

Liquids should be wiped with absorbent gauze pads; solids should be wiped with wet absorbent gauze. The spill areas then should be cleaned three times using a detergent solution followed by clean water. For spills of amounts larger than 5 ml or 5 gm, spread should be limited by gently covering with absorbent sheets, spill-control pads or towels. For a powder use damp cloths or towels. Be sure not to generate aerosols. Access to the spill areas should be restricted.

Any broken glass fragments should be placed in a small cardboard or plastic container and then into a CD disposal bag, along with the used absorbent pads and any non-cleanable contaminated items. Other contaminated reusable items should be placed in a plastic bag and washed in a sink with detergent by a trained employee wearing double surgical latex gloves.

Protective apparel should be used with the addition of a respirator when there is any danger of airborne powder or an aerosol being generated. The dispersal of CD particles into surrounding air and the possibility of inhalation is a serious matter and should be treated as such.

All contaminated surfaces should be thoroughly cleaned with detergent solution and then wiped with clean water. All contaminated absorbents and other materials should be disposed of in the CD disposal bag.

If the spill occurs inside a BSC, decontamination of all interior hood surfaces may be required after the above procedures have been followed. If the HEPA filter of a hood is contaminated, the unit must be labeled "Do not use--contaminated," and the filter must be changed and disposed of properly as soon as possible by trained personnel wearing protective equipment.

Spill kits, clearly labeled, should be kept in or near preparation and administrative areas. It is suggested that kits include a respirator, chemical splash goggles, two pairs of gloves, two sheets (12 x 12) of absorbent material, absorbent materials and a small scoop to collect glass fragments. Absorbents should be incinerable. Finally, the kit should contain two large waste-disposal bags.

**Personal Protective Equipment**

The basic premise of this standard remains unchanged for over 20 years: the employer must provide protective devices (including personal protective equipment) whenever the hazards of the job cannot be decreased to acceptable levels. Employees are expected to follow all the safety rules mandated by the leadership of the business.
Although OSHA holds the employer responsible for enforcement of the safety rules with as much emphasis as attendance or performance rules, it is relatively easy to get worker's to comply with the requirements when they realize the leadership is serious about the issue.

If employees are expected to wear a device, it must be in safe condition and maintained in a sanitary way. Common use items must be inspected, cleaned and disinfected after each use. Always follow the instructions that come with non-disposable PPE for the proper storage and maintenance techniques. Items that are intended for single or limited use applications (e.g., disposable) should always be replaced when necessary and never used by more than one person.

The new regulation now requires a formal assessment of every workplace to determine the nature of the hazards that are present. This is the first step in determining the appropriate protection measures to be taken. Based on the assessment of the possible hazards in the workplace, the leadership of the practice must determine exactly what tasks require additional protection and select the appropriate PPE for the situation.

Remember, PPE will not eliminate the hazard, simply protect the wearer from exposure; if the PPE device fails (e.g., holes in gloves) then in essence the worker is unprotected. It is crucial to use good design and engineering controls FIRST, then select the proper PPE for additional protection.

The integrity of safety equipment is as important as the availability; equipment must be properly maintained to ensure it protects the user. Equipment that has been damaged or excessively worn must not be used. The practice must be able to prove the equipment provides adequate protection.

The hospital must have a set of procedures in place to ensure safety equipment is properly maintained and periodically evaluated for effectiveness. These procedures should ideally be written and included in the Hospital Safety Manual. Be sure to explain how employees report defective PPE and how replacements are obtained in a timely manner.

The periodic evaluations should not be limited to visual inspections for equipment that provides protection from invisible dangers; although exam gloves and water-resistant aprons can be visually inspected without problems, things like lead x-ray aprons and gloves should be radiographed to ensure their protection. This means the practice must make periodic scientific evaluations to ensure PPE devices are not damaged or defective.

Every worker who is required to use PPE, as determined by the hazard assessment, must receive detailed training to know at least the following information:

- When PPE is necessary.
- Exactly what PPE is necessary.
- How to properly don, doff (remove), adjust, and wear PPE.
- The limitations of the PPE.
- The proper care, maintenance, useful life and disposal of the PPE.

The new standard has also adopted what is known as a "performance-oriented" attitude toward training. It is no longer adequate to simply provide information regardless of the worker's comprehension of the information. Now, the employer must certify in writing that each employee has been trained in the requisite areas and has demonstrated the ability to complete the
task properly. Remember, this training and certification must be accomplished before the employee is allowed to perform the work! It is highly recommended that every practice adopt a written "new employee checklist" as an aid in ensuring all of those "first few days" tasks are accomplished.

Occasionally, one staff member just refuses to follow the rules. When this happens, it undermines the effectiveness of the entire program. The hospital leadership must treat this situation just as any other discipline problem. The following steps may help in these situations. Make sure to keep a written record of every action taken.

First, be sure the hospital's emphasis displays the proper perspective. Here are some examples of the wrong perspective:

"You really should wear that stuff for your own good."

"I'll get in trouble if OSHA comes in here and sees you not wearing your goggles and apron."

Here are some examples of the correct perspective:

"Janie, you have been trained in the safety principles rules of this practice, and I expect you to follow them."

"Joe, I must assume that you still have questions about the safety rules of the practice since you're still not wearing the required protective devices."

In the first examples, the leadership has tried to enforce a rule without accepting responsibility; in the second examples, the leadership has made it clear that employees are expected to follow the rules.

Second, make sure the employee understands the requirement. Provide additional training if necessary.

Third, give feedback to the employee on exactly what parts of the program they are not in compliance with. Most consultants advocate a verbal approach at this point, but be sure to keep a record of the conversation.

Fourth, if the staff member continues to violate the safety rules, give them a written letter of admonishment. Many hospital leaders "shy-away" from this step because it takes a little time to do, but the use of a standard form or stock letter can make it easier. As a general rule, after this step, the majority of employees will adjust their behavior and no further steps will be necessary.

Fifth, follow the disciplinary procedures outlined in the hospital policy manual, but at this point many people advocate an administrative suspension without pay. Simply send them home for the rest of the day (or even two days) without pay.

Finally, in the extremely rare circumstances where an employee refuses to follow the hospital rules, despite proper training and verbal or written reprimands, the leadership should begin proceedings for dismissal as a final reprimand. Most human resource managers and employment attorneys will affirm that dismissal for failure to follow established safety procedures is legal and in most cases, the employee is not eligible for unemployment compensation. As always, this can
vary by state or locality; if you have questions, be sure to contact a counselor familiar with your local situation.

**Staff Safety Training**

Have you been putting off your safety training because you just don't know what to cover? Are you confused about what information to pass on and how in-depth it should be? You’re not alone. Most managers feel the same way. Although there are over 100 current OSHA Standards that require some sort of training for the employee, there are only a few topics that apply to the veterinary practice. Many of those topics, like radiation and anesthesia safety are already discussed on an informal level at every hospital so you’re probably already on the road to success!

Sometimes there is not a specific OSHA standard covering a topic, but since the task has known hazards, OSHA will use the General Duty Clause in requiring the business to inform the staff of the hazard.

For instance, there is no special standard that regulates exposure to waste anesthetic gasses, but the Hazard Communication Standard requires that the practice educate the staff members of the risks and procedures to follow when working with that hazardous chemical and to take the necessary steps to ensure the workers are not exposed to the chemical above the permissible level.

To get started on your training program, keep a running list of all the topics you want to cover. (See the sidebar in this section) Don’t try to cover all the topics at once but spread them out over several months. Assign different staff members to become the “in-house expert” on each topic; they will be the person who delivers the training to the rest of the team.

Although some standards require specific points to be covered (e.g., the personal protective equipment standard), you would generally be safe to structure the information so that it covers the following aspects in all training materials:

- information or identification of the hazard or procedure.
- how the hazard affects the worker.
- what the individual worker should do to protect themselves.
- how to report problems or request additional information, including the location of the written plan that was developed to deal with that hazard.

Make a training schedule for the next six months or even a year and show when each topic will be addressed. Even if the practice is inspected before the complete schedule is covered, the mere presence of a training outline will often impress the inspector enough that he or she will not issue a citation!
Here is a list of OSHA standards that specifically require employee training. Use this list to start your training schedule and remember - your practice should add topics that are appropriate to the given situation. The goal of many practices is to complete the list once every year.

- General duty clause-Worker’s rights and responsibilities under the Act
- 1910.38-Emergency & fire prevention plans
- 1910.95-Occupational noise exposure
- 1910.96-Ionizing radiation
- 1910.132-PPE
- 1910.145-Signs and tags
- 1910.15-Medical services and first aid
- 1910.157-Portable fire extinguishers
- 1910.1047-Ethylene oxide
- 1910.1048-Formaldehyde
- 1910.1200-Hazard communication (chemicals)

In addition to the standards-mandated subjects, these topics also require some training for veterinary practice workers:

- Waste anesthetic gas exposure
- Animal handling
- Zoonotic disease prevention
- Medical waste and sharps
- Personal safety/violence prevention
- General workplace guidelines (lifting, proper dress, etc)
- Handling chemotherapeutic drugs
- Electrical safety

Keep a record of all employee training. It’s not enough that you provide the information and evaluate an employee’s competence; you have to be able to prove it. Have an attendance sheet to pass around for group meetings and make sure everyone signs it. It’s also a great idea to maintain an individual training record for each staff member. Many human resource professionals suggest keeping the individual sheets in a folder or three ring binder that is accessible to the employees. The employee and their supervisor are jointly responsible for keeping the training record current.

Just remember, the bottom line when it comes to safety training is: “the employee must be competent to perform the task or job in a safe manner.”
Summary

Just like any other program or procedure, a good hospital safety program doesn’t have to be complicated. It should be practical and understandable. If the staff doesn’t remember the rules, then training is lacking or the program is too complicated. Only by understanding the requirements and applying the safeguards that are necessary to protect the worker, patient and practice owner can the practice continue with the primary mission of healthy pets. It is the leadership’s responsibility to set and enforce the safety rules of the practice and the employee’s responsibility to learn and follow those rules.
Appendix & Personal Notes