

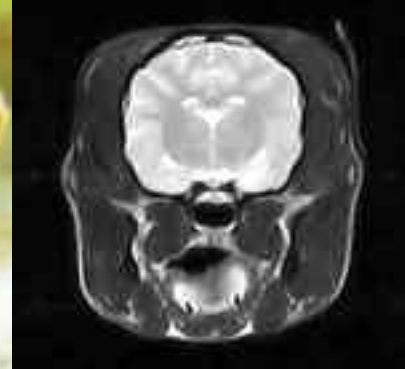
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Fall/Winter 2011



## Winter Dangers for Our Patients

### Greetings from VSEC

**WELCOME TO THE FALL/WINTER ISSUE** of our Technician Companion newsletter. We hope you are excited for a wonderful and relaxing holiday season. In this issue, you will find articles about radiation safety, urinary catheters and helpful tips on winter dangers for our patients. We have also included a few interesting tidbits of information for your education. Finally, we are pleased to announce our upcoming continuing education lectures for technicians. I hope you are able to join us for one or more next year.

Best wishes for a wonderful holiday Season and  
Happy New Year!

*Rebecca Orsher, Marketing Manager*

**WINTER IS HERE**...and with winter comes family gatherings, holiday parties, and perhaps even snow and ice. Wintertime can be beautiful and festive, but keeping our patients safe involves a little homework and preparation.

For many, the winter holidays are a time to celebrate and to relish in long standing traditions. Family, friends, fun, and of course...food! With all of the delicious smells and exciting new people, our pets may take advantage of a stranger's generosity or an unattended plate in order to help themselves to the appetizers. However natural it is to share with our pets, there are a few foods that should be avoided. It is important to share this information with your clients to prepare them for the holiday season.

These foods include:

Excessively salty foods	Excessively fatty foods
Sweets and chocolate	Grapes and raisins
Foods with onion or onion powder	Macadamia nuts
Foods with garlic or garlic powder	Bones
Rising bread dough	Alcohol or eggnog

Chocolate and sweets deserve special mention due to their abundance during this time of year. Some candies and foods are artificially sweetened with the ingredient, Xylitol. Xylitol can cause a rapid decrease in blood sugar of dogs and has even been implicated in some liver failure cases.

Chocolate is a well-known toxin for dogs. The darker the chocolate, the more potent and toxic it can be. Semi-sweet and baking chocolate varieties are considered much more dangerous than other varieties, such as milk chocolate. Signs of illness can range from stomach upset (vomiting and diarrhea) to more serious problems such as heart problems, seizures, and even death. And, it should go without saying that pets should never be given any alcoholic beverages.

In the quest to decorate and create a cheerful atmosphere, our clients often will use various plants. Unfortunately, there are certain seasonal and festive plants that can cause illness and even death in our pets. Almost any member of the lily family can be deadly to cats, causing kidney failure. Other holiday foliage, such as mistletoe, holly, and poinsettias can cause stomach upset if ingested.



*Poinsettias are just one example of holiday plants that are toxic to pets.*

Artificial decorations can be just as harmful. To a cat, a ribbon or tinsel can be a big temptation. These long string-like objects, if swallowed, can cause major problems in the intestines and stomach including surgical emergencies. Electric cords can cause electrocution or severe burns if chewed upon and many glass ornaments or lights can be easily broken and cut the animal's feet or mouth.

Beyond the dangers indoors, the outdoor world may be just as bad. Car anti-freeze consumption is one of the most common causes of pet poisoning during the winter months. Anti-freeze has a sweet, enticing taste and licking even a small amount can lead to acute renal failure and death. Other outdoor chemicals such as rat and mouse poisons or ice melting products should be used with care around pets.

Pets can suffer the effects of frostbite and hypothermia just as easily as their owners. Household pets should stay indoors in very cold temperatures. If your clients' pet must stay outdoors, be sure to communicate to them to provide shelter from the wind and moisture. In this case, bigger is not better! Communicate to your clients that smaller homes will help to trap body heat more efficiently. Educate them about the use of heated water bowls and ensuring there is a fresh water supply available at all times.

Overall, we want our clients and their pets to have a safe, festive holiday that does not include a trip to the veterinarian or emergency room.

#### Chocolate Toxicity:

Based on ASPCA Animal Poison Control Center (APCC) experience, mild signs occur in animals ingesting 20 mg/kg of theobromine and caffeine, severe signs are seen at 40-50 mg/kg, and seizures occur at 60 mg/kg (ASPCA/APCC Database: Unpublished data). Accordingly, less than 1 oz of milk chocolate/lb (2 oz/kg) is potentially lethal to dogs; for baking (unsweetened) chocolate, less than 0.1 oz/lb (0.2 ounces/kg) is potentially lethal. In addition, methylxanthines can cross the placenta and pass into the milk, so unborn or nursing offspring can be affected by chocolate toxicosis in the dam.

Compound	Theobromine (mg/oz)	Caffeine (mg/oz)
White chocolate	0.25	0.85
Milk chocolate	58	6
Dark, sweet chocolate	130	20
Semi-sweet chocolate chips	138	22
Baker's (unsweetened) chocolate	393	47
Dry cocoa powder	737	70
Instant cocoa powder	136	15
Cocoa beans	600	NA
Coffee beans	0	600
Cocoa bean hulls	255	NA

# Spotlight on VSEC Nurses

## Jeanine Mateka, Internal Medicine Nurse

Jeanine Mateka got her start as a veterinary technician working in general practice after she graduated from high school. She then attended Manor College to study veterinary technology. After graduation in 2001, Jeanine worked for an emergency and general care veterinary practice in New Jersey. She joined the VSEC team in 2003, working in our emergency & critical care department. This year, she moved into our internal medicine department, primarily working with Dr. Alan Klag, VSEC co-owner and Chief of Internal Medicine.



**IN HER OWN WORDS:** "Being a veterinary technician is absolutely rewarding. I am so fortunate to be able to help our patients get better and back home to the people who love them. Since I was a kid, I knew that when I grew up, I would do something to help animals. I am extremely lucky to be able to do what I love every day."

## Now You Know:

### Q: Can cats see colors?

**A:** In lab tests, cats responded to the colors blue, green, gray, purple and yellow. Cats were unable to differentiate the colors red, orange and brown from gray or purple. Cats did not respond to different intensities of color however they were able to differentiate more shades of gray than humans.



### Q: What can cats and dogs hear?

**A:** Dogs and cats are known for their keen sense of hearing. As hunters, dogs and cats developed the ability to hear the higher-pitched and quieter noises small mammals and other prey use to communicate.

Dogs and cats also developed the ability to move and re-position their ear flaps and pinna to localize the source of a sound. More than 20 special peri-auricular muscles are used to aim the ears in a multitude of directions. From a yard away, a cat can distinguish between sound sources only 3 inches apart.

The pitch of a sound is measured in sound wave cycles per second or hertz (Hz). A higher number corresponds with a higher-pitched sound.

Hearing ability varies with species and possibly breeds. So how do they compare?

Humans	20 Hz to 20,000 Hz
Dogs	30 Hz to 50,000 Hz
Cats	45 Hz to 64,000 Hz
Birds	200 Hz to 8000 Hz



### Q: Why do cats have such good night vision?

**A:** The night vision in cats is far superior to that present in most mammals. Cats need just 16% of the light required by humans to see as well in the dark. In bright light, the muscles of the feline iris are able to contract the pupil down to a very narrow slit allowing only optimum light to reach the retina. By contrast, at night, the pupils will dilate allowing as much light into the eye as possible to stimulate the photographic cells in the retina.

Cats also have a well-developed reflective layer of tissue located behind the retina called the tapetum. Light which has already passed through the retina is reflected by the tapetum back into the retina layer of the eye. The photographic cells responsible for picking up the image in the retina are therefore stimulated twice. Light reflected by the tapetum is responsible for the yellow-green glow you notice when looking into cat's eyes at night.



The reflective surface behind the retina of a cat's eye is called the tapetum.

# Radiation Safe

**YOUR X-RAY EQUIPMENT PRODUCES** electromagnetic rays which readily travel through your body, potentially interacting with electrons. Electrons are a part of atoms which make up molecules to form a cell. In the body, our organs and tissues contain cells, which can be damaged by these rays. Radiology safety protocols are the key to avoiding the harmful effects and protecting yourself and the staff.

## Protect yourself. The three rules of radiation safety are:

- Reduce the time you may be exposed to radiation. You can reduce the number of exposures needed for a patient by positioning correctly and by using the appropriate mAs and kVp.
- Increase the distance between you and the primary x-ray beam. By doubling your distance from the beam you will reduce your exposure by one-quarter. If you triple your distance you will reduce your exposure by one-ninth. Optimally, leave the room and you will not be exposed at all.
- Put a barrier between you and the radiation. Lead is the most effective barrier for the type of radiation produced by x-ray machines. Utilize personal protection equipment (PPE) such as lead aprons, lead gloves, thyroid shields and goggles. Note that the lead you are wearing is not thick enough to block all the radiation, so be sure to utilize the other principles of radiation safety... take fewer x-rays and maximize your distance from the primary x-ray beam.



This is the hand of a physician who was exposed to repeated small doses of x-ray radiation for 15 years. The skin cancer appeared several years after his work with x-rays had ceased.

# Urinary Catheters

**URINARY CATHETERS HAVE NUMEROUS** diagnostic and therapeutic purposes in veterinary medicine. Urinary catheters may be placed in cats and dogs for the following reasons:

- to unobstruct the urethra (in the instance of a urethral stone or mucus plug)
- to maintain patency of the urethra in a pet who initially presented for obstruction until more definitive treatment can be performed
- to prevent the bladder from expanding with urine thereby allowing the bladder wall to heal after a surgery or injury
- to maintain cleanliness in a non-ambulatory patient
- to collect urine for evaluation
- to assess the volume of urine being produced
- to protect staff members from chemicals (chemotherapy drugs) or infectious agents (leptospirosis) that may be present in the urine
- to protect a neurologically compromised bladder from being damaged by overexpansion

## Types of urinary catheters:

In feline patients the catheter diameter must be very small to allow passage through the urethra. Softer catheters such as the red rubber catheters, as compared to the polypropylene catheters, are less likely to cause irritation to the urethra. The catheter must be sutured to the peri-urethral skin to prevent it from becoming dislodged.



A number of options exist for urinary catheterization in cats

## Services

**Cardiology**  
Maribeth J. Bossbaly, VMD, DACVIM  
(Cardiology)  
Chief of Cardiology

**Critical Care**  
Laura W. Tseng, DVM, DACVECC  
Chief of Emergency and Critical Care  
Melissa A. Java, VMD, DACVECC  
Garret E. Pachtinger, VMD, DACVECC  
Rebecca S. Syring, DVM, DACVECC

**Diagnostic Imaging**  
Alexander G. MacLeod, DVM, DACVR  
Ana V. Cáceres, DVM, DACVR

**Emergency Medicine**  
Laura E. Babcock, DVM  
Karen L. Palazzini, DVM  
Doug P. Nieh, DVM  
Tracy K. Schlicksup, DVM  
Laura K. Schmitt, VMD  
Julia L. Shih, VMD

**Holistic Medicine & Acupuncture**  
Karen C. Collins, VMD, CVA, CVCH

**Internal Medicine**  
Alan R. Klag, DVM, DACVIM  
Chief of Internal Medicine

# Safety: Are you protected?



Lead materials should always be worn if you are working near an x-ray beam.



For most veterinary clinical situations, a badge dosimeter is adequate for assessing an employee's exposure to radiation. Those individuals utilizing their hands to work with radioactive chemicals such as Iodine 131 for hyperthyroid cats may also benefit from wearing the ring device.

## How do you know if the lead aprons, gloves and thyroid guards are still effective?

Radiograph them at a low technique – 50 kVp and 5 mAs. Cracks and damage to the lead from folding of the gowns and general wear and tear will show up as black cracks and spots in the exposed film. Shielded areas will show up light. PPE should be checked at least yearly for defects and damage and replaced as needed.

## How do dosimeters work?

Dosimeters are used to measure an individual's exposure to ionizing radiation, i.e. x-ray, beta and gamma radiation. Badge and ring dosimeters are most commonly used in veterinary practice. To quantify an individual's radiation exposure, dosimeters may contain photographic film or thermoluminescent material.

Thermoluminescent dosimeters (TLDs) contain a thin layer of aluminum oxide or lithium fluoride metal enclosed behind filters in a water resistant blister pack. When the thermoluminescent material is exposed to ionizing radiation, it undergoes a physical change absorbing and storing the energy. The quantity of energy absorbed is cumulative over the period during which the dosimeter is worn. When the thermoluminescent material is later heated, the deposited energy is released as light. This process is called thermoluminescence. The quantity of light released is proportional to the quantity of radiation deposited.

Some dosimeters contain photographic film instead of thermoluminescent materials. Similar to camera film, exposure to radiation is recorded on the film. The extent of film darkening after its development correlates to the amount of radiation it was exposed to.

Dosimeters are typically turned in for evaluation of radiation exposures on a monthly to quarterly schedule. The practice's radiation safety office or equivalent individual receives a report that notes the cumulative amount of radiation individual staff members were exposed to. The federal government and many states have regulations limiting the amount of radiation that a staff member is allowed to receive.

## Rules for Dosimeter use:

- The dosimeter should only be worn by its intended user.
- The dosimeter should be worn at all times of potential exposure to radiation.
- The badge dosimeter should be worn outside the lead apron at the collar / neck region, with the front window of the holder facing outward.
- The ring dosimeter should be worn on the hand that will be most exposed to radiation.
- When not in use, the dosimeter should be stored where it will not be exposed to radiation.
- Dosimeters should never be exposed to excessive heat.

In canine patients, red rubber catheters and foley catheters are the most commonly used in the urinary system. The red rubber catheter needs to be sutured to the outside peri-urethral tissues to prevent it from slipping out. The foley catheter has a small balloon at its tip located within the bladder that can be inflated with fluid thereby preventing its dislodging from the patient.



Red rubber or foley catheters (with inflated tip) are most commonly used to catheterize dogs.

## Keeping it clean:

Studies have demonstrated that the presence of a urinary catheter can predispose the patient to urinary tract infections which can develop within days of placement. Bacteria can travel up the inside or outside of the catheter to reach the bladder. Keeping the external catheter clean (antiseptic cleaning) and dry while in place minimizes bacterial colonization of the outside of the catheter.

## Steps to minimize the development of infection:

1. Use sterile technique during catheter placement
2. Minimize trauma during catheter placement
3. Use a closed urinary catheter system
4. Keep the outside surface of the catheter dry and clean
5. Clean the penis and prepuce or vulvar areas as needed
6. Leave the catheter in place only for as long as needed
7. Use an E-collar to prevent the patient from licking at or pulling out the catheter



Urinary catheters should be attached to a collection bag to minimize infection and help keep the patient dry.

## What is a closed urinary catheter system?:

The external opening of the catheter should be attached to a tube leading to a sterile collection bag in which the urine collects. This keeps the patient dry and minimizes bacteria from developing inside the urinary catheter. It is important not to raise the urine collection bag above the patient which would allow the urine to flow back into the patient.

## What about antibiotics?

Some studies have demonstrated that the concurrent use of antibiotics will delay but not prevent the onset of infection. Subsequent infections were then resistant to the antibiotic. Most experts recommend that the patient not be placed on prophylactic antibiotics because of the fear of causing an antibiotic resistant infection. The urinary catheter tip can be cultured and antibiotics initiated when the catheter is removed.

# Upcoming 2012 Technician Continuing Education Lectures

7:00pm – 9:00pm Dinner will be provided

Lectures are held at VSEC: 301 Veterans Hwy, Levittown, PA 19056

Please RSVP to: [rkorsher@vsecvet.com](mailto:rkorsher@vsecvet.com) or 215.809.2656

## TUESDAY, JANUARY 17, 2012

*Pediatric Emergencies: There's More to it Than Dextrose...*

Laura Babcock, DVM, Emergency

## WEDNESDAY, APRIL 18, 2012

*Wound Management: A Wound Neglected is a Wound Infected*

Micha Simons, VMD, Surgical Resident

Geoff Harriman, DVM, Surgical Resident

## MONDAY, JULY 16, 2012

*Hyperthyroidism: How to Treat that Lump in Their Throat*

Jamie Lewis, VMD, Internal Medicine Resident

## THURSDAY, OCTOBER 18, 2012

*Analgesia and Anesthesia: Derailing the Pain Train*

Garret Pachtinger, VMD, DACVECC

These programs have been submitted (but not yet approved) for **2.0 hours of continuing education credit** in jurisdictions which recognize AAVSB RACE approval; however participants should be aware that some boards have limitations on the number of hours accepted in certain categories and/or restrictions on certain methods of delivery of continuing education.

Call Rebecca Orsher at 215-750-7884 for further information. All lectures are given in a classroom setting and no registration fee is required. VSEC RACE Provider #513.



As we begin the holiday season, the veterinarians and staff of VSEC would like to *give thanks* to you and your team for your continued trust in us.

We pledge to work diligently to uphold our mission and core values as we care for your clients and their pets.

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