Shelters and rescues work hard to keep their cats happy and healthy, providing them with food, space, enrichment, and plenty of TLC. Yet dangers can lurk in unexpected places: There are a surprising number of toxic substances that cats could encounter in a shelter or foster home setting. Cats may be exposed because they chew or ingest toxic materials; they may come in contact with chemicals and lick them off of their paws or fur; and sometimes, well-meaning caregivers may unknowingly administer treatments that are toxic to cats.

Indeed, cats are uniquely sensitive to toxicity, more so than humans and even more than dogs, who—while vulnerable to many toxins—can metabolize certain substances that can do great harm to cats. This metabolic deficiency, combined with cats’ small body weight, makes them prone to severe or fatal toxic reactions when exposed to even small amounts of particular substances.

The good news is that a little education can prevent accidental toxicity. Shelter staff and rescuers must be aware of the common substances and products that pose significant danger to cats; these include common insecticides (such as those used for flea control in dogs or for the lawn and garden), rodenticides (e.g. rat poisons), disinfectants (including some of the most commonly used shelter and home products), certain painkillers including nonsteroidal anti-inflammatories (e.g. aspirin, ibuprofen, meloxicam) and acetaminophen (the active ingredient in Tylenol), baby foods that contain onion powder, and flowers of the lily family. Some antibiotics may also pose a threat, and improper administration of certain vaccines can also be a serious problem.

Flea and Tick Control Products
Permethrins are common ingredients in many flea and tick control products that are widely available for dogs at pet, grocery, and discount stores—and they can cause tremors, seizures, and even death if applied to cats. They may be found in sprays, powders, spot-on treatments, shampoos, and collars. Even a few drops can trigger severe toxic reactions within minutes of application in some cats.

Flea and tick control products that contain organophosphates and carbamates are also marketed for use in dogs, but are highly toxic to cats. These compounds typically cause immediate signs including salivation, vomiting, urination, defecation, weakness, and muscle tremors, which may rapidly progress to seizures and death.

It is common for shelters to receive a variety of donated goods, including flea and tick control products. Shelter staff and rescuers should educate themselves and their caregivers on the risks associated with these products. They should also work closely with local poison control centers to ensure that they are aware of the potential risks and can provide assistance if necessary.
control products, making it easy for staff or volunteers to accidentally apply a potentially dangerous product to cats. Shelters should establish a protocol for handling donated flea and tick control products, and shelter staff should be trained to always read the label carefully before applying any such product. As a general rule of thumb, flea control products that are not specifically labeled for use on cats should never be used for them. When in doubt, consult a veterinarian.

If the wrong product is accidentally applied, the product should be removed immediately. Bathe the cat in a mild dishwashing detergent, taking care to prevent chill by drying the cat afterward and keeping her warm. Veterinary care should be sought as soon as possible. Although specific antidotes are not available, supportive care including IV fluids and other medications can be lifesaving for some cats.

Fortunately, certain nonprescription flea control products are very safe for use in cats. These include products that contain fipronil (e.g. Frontline) or imidacloprid (e.g. Advantage II). In fact, it is safe to use the cat and dog versions of these products interchangeably. Although it is considered an extra-label use to use the dog version on cats, many shelters do this because the dog products can be measured out in appropriate smaller portions to treat many cats and are therefore more cost-effective. (Note that the canine version of Advantage Multi is not safe for use in cats.)

Cats are also extremely sensitive to the insecticides found in area sprays and bombs, including organophosphates, as well as other compounds used to control insects. Products used to treat the environment must be selected carefully. In most instances, it will be necessary to remove cats during their application and only return them to the environment once it is thoroughly dried and ventilated.

One peculiarity of cats that deserves particular note is their reaction to bad tastes, which is often mistaken for a toxic reaction. If a cat licks a topically applied product (such as a cat-safe flea control product), a "taste reaction" may occur in which the cat salivates profusely and may become agitated. Such signs may be quite dramatic, but are simply a reaction to the unpleasant taste. Removing the product from the tongue by rinsing the cat’s mouth with water will usually help to resolve the signs; if in doubt, consult a vet.

Rodenticides
Many shelters experience a need for rodent control. Rodenticides are poisons that kill rodents. Depending on the active ingredient, rodenticides work by inhibiting blood clotting or inducing seizures or kidney failure, all of which lead to death.

In addition to causing an inhumane death for the rodents, rodenticides also pose a risk to animals housed in the shelter. When they are used, cats (and dogs) can be exposed even if the bait is not immediately within their reach. After ingesting poisonous bait, rodents do not die immediately and may enter an animal enclosure. If a cat or dog ingests the rodent, the poison will affect them. Cats are commonly exposed to toxins when they catch mice who have been recently poisoned. For these reasons—and to avoid the ethical quandaries presented by killing wild rats when you may be adopting out their domestic brethren in the next room—the use of rodenticides should be avoided in shelters. Humane live traps can be used to capture rodents for removal from the facility—please, never use glue traps! Rodent control efforts should focus primarily on sanitation, secure food storage, and rodent-proofing the environment. Prevention is key.

If animals ingest rodenticide or a rodent who has potentially been exposed to rodenticide, treatment should be sought immediately. Antidotes may be available if the exposure is recognized early before clinical signs of toxicity become apparent.

Disinfectants
Many common disinfectants may also pose a risk for toxicity to cats. Even those agents that are very safe when mixed at appropriate concentrations can become hazardous when used at higher concentrations. A common example is bleach, which possesses very low toxicity when used as recommended. A 1:32 dilution of bleach (e.g. half a cup of regular household bleach per gallon of water) is a safe and effective disinfectant when applied and dried properly. However, when higher concentrations of bleach are used, it can create severe respiratory irritation for animals and staff.

Some disinfectants, including quaternary ammonium compounds, phenols, and pine oils, are known to cause severe toxicity if cats are directly exposed to them. The toxicity that can be induced by phenols (e.g. Lysol) and pine oils (e.g. Pine-Sol) is so severe that their use must be avoided in areas where cats are housed. These compounds should be kept out of the shelter as they can cause serious neurologic effects and liver damage.

Although quaternary ammonium compounds (commonly called ‘quats’) may be safely used in cat housing areas, care should be taken to dry surfaces thoroughly before returning cats to them. Cats who lick quats may develop ulcers of the tongue that can be severe. The use of quats is very common in shelters and homes—these compounds are the active ingredients found in disinfectant products including Roccoal, Quatricide, A-33, Parvosol, KennelSol, Mr. Clean, and many others. Problems arise when cats are returned to enclosures that have not been thoroughly dried after application, or when colony rooms are mopped with them while resident cats are present. Some cats are more sensitive than others, and some will have more of a propensity to ingest the compounds, especially those who are actively moving about contact wet surfaces and grooming their wet paws. (When cats are present in enclosures for spot cleaning, the use of mild soapy detergents is a safe option for routine cleaning.)

Depending on the cat and the degree of exposure, the signs associated with quaternary ammonium toxicity may be mild or severe, ranging from mild irritation of the mu-
Assessing Feline Pain
Shelters and rescues should train staff to recognize signs that an animal is experiencing pain, and should have formal protocols in place to ensure appropriate pain management is delivered. You need to be particularly mindful of cats because their pain is not as readily recognizable as that of dogs.

As a rule of thumb, always assume that if a condition or procedure is painful to human beings, it must also be painful for animals. Individual cats will have varying reactions to pain and will display a variety of signs. One of the cardinal signs of pain in cats is a change in normal behavior. Cats in pain often show little interest in interacting with caregivers or their surroundings; they may be reclusive; may not use the litter box because it is painful to do so; may have a decreased appetite; and may not groom normally. Cats in pain often assume a tucked-up body posture or crouch with their head bowed and eyes half open. Pain associated with wounds or surgery can be evaluated by gentle palpation; cats may flinch or exhibit defensive aggression, sometimes before they are even touched. Stress and fear may also manifest with similar signs, and can be difficult to distinguish from pain.

When pain is thought to be present, staff may be able to carry out treatments, but veterinary supervision is always required. Controlled drugs (opioids) are often the safest option for feline patients. Nonsteroidal anti-inflammatory drugs (NSAIDs) are not controlled, but must be used with caution due to the potential for toxicity in cats.

cous membranes around the mouth, to severe ulcers, most likely on the tongue. Severely affected cats may drool, develop fevers, dehydration, and/or lethargy, accompanied by a poor appetite.

It is important to note that the signs of quaternary ammonium toxicity mimic many of the signs associated with caliciviral infection. In some cases, shelters may believe cats are experiencing an outbreak of calicivirus when in fact, the culprit is the disinfectant. If quaternary ammonium toxicity is suspected, affected cats should be bathed to remove lingering residue, taking care to prevent chilling. Most importantly, the environment should be rinsed with water and thoroughly dried. When ulceration is severe, cats benefit from supportive care, such as the administration of subcutaneous fluids and antibiotics. Fortunately, ulcers usually resolve rapidly once ongoing exposure is limited, and cats will often bounce back quickly.

Painkillers
Shelters and rescues often care for animals with acute or chronically painful medical conditions. Animals may arrive injured, or with previously existing painful conditions, or they may undergo spay/neuter surgery or other pain-inducing procedures during their stay. Recognizing and alleviating pain is an important element of animal care, and shelters and rescues should have formal protocols in place to ensure that appropriate pain management is delivered. This is especially important for cats, because pain is often more difficult to recognize in cats than in dogs, and because cats are very prone to toxicity from certain types of pain medications.

Nonsteroidal anti-inflammatory drugs (NSAIDs) include a variety of veterinary and human products such as carprofen, ibuprofen, deracoxib, naproxen, meloxicam, and aspirin. Pepto Bismol also contains an aspirin-like substance that is toxic to cats. These, along with acetaminophen (Tylenol), may unknowingly be administered to cats by well-meaning staff in an attempt to provide relief from painful conditions or fevers associated with illness or an upset tummy.

Unfortunately, cats are very sensitive to these compounds. NSAIDs can cause vomiting, diarrhea, gastrointestinal ulceration, and, with higher or repeated doses, acute kidney failure. Acetaminophen damages feline red blood cells and destroys their oxygen-carrying capacity, resulting in acute respiratory distress and death within hours of ingestion. A single capsule of acetaminophen (325 mg) is usually rapidly lethal and will require immediate emergency treatment. Immediate emergency treatment is required for any cat receiving an overdose of any NSAID or any amount of Tylenol.

Because of these sensitivities, use of drugs for pain management in cats should always be overseen by a veterinarian (see sidebar at left for information on assessing pain in felines). Shelter staff assigned to distribute pain meds should be given specific training on these toxicity issues. Although some NSAIDs may be safely administered to cats in appropriate dosages for limited periods of time, they should be used only as specifically prescribed by a veterinarian and should never be administered to cats who are dehydrated, because this substantially increases the risk of toxicity.
Baby Food, Flowers, Antibiotics, and Vaccines

Many shelters feed meat-based baby food to cats to stimulate their appetites, but only those foods without onion powder should be used. Onion powder, a common ingredient in many baby foods, is toxic to cats and can cause serious anemia. Read labels carefully.

While shelters aren’t usually a highly floral environment, rescuers may have flowers around their homes. Be aware of the highly toxic nature of most lilies. Many cats will chew on the leaves, stems, or petals of these plants. After ingesting even small amounts, cats typically develop acute vomiting and depression, then may appear to recover, only to develop acute kidney failure 24-72 hours later. Lily ingestion is an emergency, and any cat suspected of exposure should receive emergency veterinary care.

Certain antibiotics can be toxic to cats or cause potentially fatal side effects if used inappropriately. Most notably, the commonly used antibiotics doxycycline and clindamycin have been associated with severe ulcers of the esophagus. Severely affected cats lose the ability to swallow food or may die as the result of esophageal rupture. Although both antibiotics are safe for cats—and doxycycline is commonly used, due to its effectiveness against bacterial infections associated with URI—problems arise when these drugs are given as tablets or capsules because it is common for pills to “stick” in a cat’s throat. This problem can be alleviated by giving the cat a few milliliters of water or a small portion of canned food following pilling. Coating pills with butter prior to administration will also help to ensure passage through the esophagus. As an alternative to pills, liquid forms of these antibiotics may be given orally.

Chloramphenicol, another antibiotic that has activity against *Bordetella* and *Mycoplasma*, is difficult for cats to metabolize and has an increased risk of toxic reactions, particularly in kittens. Many veterinarians recommend not using it in cats.

Vaccines are one of the greatest life-saving tools available for shelters and are generally very safe when administered properly. But intranasal *Bordetella* vaccines can cause serious harm if they are not administered correctly. If the product is accidentally administered via injection rather than

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**Resources**

For information on humane rodent control, see nmhealth.org/ERD/HealthData/pdf/NPS_RP_Manual_v2.pdf.

For an article on URI control, go to animalsheltering.org/uri.

For more information on animal toxicities, visit the ASPCA’s poison control center at aspca.org/pet-care/poison-control.
intranasally, it may cause life-threatening reactions. Some animals will develop local reactions including pain and abscess formation at the injection site, while others may also develop acute liver failure, which can be fatal. If a *Bordetella* vaccine meant for intranasal administration is accidentally injected, the animal should immediately be placed on an antibiotic with known activity against *Bordetella*, and a veterinarian should be consulted.

**Other Toxicities—and Myths About Them**

Some shelters use aromatherapy as a form of sensory enrichment for animals and staff. Liquid potpourri, which contains high concentrations of toxic detergents and essential oils, can cause oral and gastrointestinal ulceration as well as neurologic signs if ingested. Care must be taken to avoid direct contact by cats so that accidental ingestion can be prevented.

Besides the painkillers mentioned above, many other human drugs are toxic if administered to cats. In most cases, cats would never have access to these in a shelter setting, but a notable exception might occur if a caregiver attempted to treat a constipated cat with an over-the-counter enema. Constipation is a common problem in cats, but human enema products are fatal for cats, even in very small amounts. If you’re concerned about constipated felines, consult a veterinarian who can evaluate the cat and prescribe safe treatment.

Shelter cats are unlikely to be exposed to automotive products such as antifreeze or brake fluid that commonly pose serious risks to dogs who have access to garages or similar areas. If foster cats are allowed access to these areas, care should be taken to prevent exposure to these automotive products.

And now, some good news: Not everything that we hear is toxic to cats truly poses a risk to them. For instance, pet owners have long been admonished to keep poinsettias out of kitty’s reach at Christmastime. In reality, the toxicity of these holiday flowers has been overrated. At worst, if kitty chews this plant, it may result in an upset stomach.

In 1999, an Internet rumor circulated that Febreze, a household deodorizer, is highly toxic to pets. The rumor unduly alarmed many pet owners and caregivers, but the claim was completely unfounded.

Glow jewelry (plastic necklaces or bracelets that contain a liquid that glows in the dark) has been used by some shelters to dress cats up for adoption promotions, especially around the Fourth of July or Halloween. Although not toxic if ingested, the active ingredient, dibutyl phthalate, will cause a severe taste reaction if a cat bites into the jewelry—the resultant dramatic drooling causes many people to assume the cat is having a toxic reaction. This is remedied by rinsing the cat’s mouth and taking him or her to a dark room where you can “see” the rest of the product to remove it from the hair coat.

Still, always remember that, when in doubt, it is best to err on the side of caution. Cats remain extremely sensitive to potential toxins—so read labels carefully and always consult a veterinarian.