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## Flea Spot on Safety

Pet owners often ask about safety of flea and tick spot on products. In 2008, 44,000 incidents of pets developing adverse effects attributed to flea/tick spot on products were reported. That equaled one incident for every 6,136 doses sold (a total of 270 million doses were sold that year). The majority of incidents were classified as minor, most commonly skin irritations that resolved quickly, but all products were rarely associated with deaths and other major incidents, as well. The EPA states that approximately 1% of the adverse events associated with these products resulted in death in 2008. The evaluation did not identify particular ingredients nor specific product lines as the problem. The EPA found that young dogs (less than 3 years old) and small-breed dogs (weighing 10-20 pounds) tended to be the most commonly reported for all products. Small breeds were over-represented especially with cyphenothrin- and permethrin-containing products. There are three possible explanations for these findings:

1. the weight ranges listed on the products might be too wide, resulting in too-high doses for dogs toward the bottom of the weight range;
2. misuse of the products, such as buying a product labeled for a higher weight range and dividing the product between two or more smaller dogs, could result in too-high doses for smaller dogs;
3. small dogs might be more likely to have adverse reactions, even when treated with the appropriate product in the appropriate amount.

In cats, the weight seemed to be less of a factor because most cats fall into a range of 5-15 pounds. There was a high number of severe incidents associated with misuse of permethrin-containing dog products in cats, despite labels that warned against their use in cats.

There is no way to determine relative safety of spot-on products by counting incident reports, because of several factors: 1) the total number of doses of each product sold in a given year is not publicly known; 2) some of the incident reports were discarded because they didn't contain enough information, and were considered invalid; 3) there were possible confounding factors, such as differences in pet owners' interest in reporting adverse events (which may be influenced by where they purchased the product); and 4) it could not be confirmed in all cases that the adverse event was caused by the spot-on product and not something else.

For more information see the following links:

<https://www.avma.org/public/PetCare/Pages/Flea-and-Tick-Products-EPA-FAQs.aspx>

<http://www2.epa.gov/pets/epa-evaluation-pet-spot-products-analysis-and-plans-reducing-harmful-effects>

<http://www.fda.gov/downloads/ForConsumers/ConsumerUpdates/UCM172781.pdf>

## **“Are herbal product safer?”**

It is important to advise owners concerned about flea spot on reactions and reaching for more “natural” options, that herbal flea treatments can also potentially cause toxicity:

J Vet Emerg Crit Care (San Antonio). 2012 Aug;22(4):470-5.

### **Adverse reactions from essential oil-containing natural flea products exempted from Environmental Protection Agency regulations in dogs and cats.**

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#### **OBJECTIVE:**

To describe adverse effects in dogs and cats exposed to Environmental Protection Agency exempted plant-derived flea preventatives containing mixtures of essential oils.

#### **DESIGN:**

Retrospective study from 2006 to 2008.

#### **SETTING:**

Records of dog and cat cases were reviewed from the American Society for the Prevention of Cruelty to Animals, Animal Poison Control Center database.

#### **ANIMALS:**

Thirty-nine cats and 9 dogs with history of exposure to natural flea preventatives.

#### **MEASUREMENTS AND MAIN RESULTS:**

The following information was retrieved from each incident: number of animals, species involved, frequency, types, onset time, duration of clinical signs, exposure appropriateness, final outcome, and treatment information. Ninety-two percent of animals (n = 44) showed presence of one or more adverse effects. The frequency of adverse effects in dogs (n = 8; 89%) and cats (n = 36; 92%) was similar. Onset time of adverse effects in 39 of 44 animals occurred within 24 hours. The duration of signs in 24 animals ranged from 30 minutes to 149 hours. The products were used as per label in 77% animals (n = 37). Of 28 animals with known outcome, 50% (n = 14) recovered with bathing alone while others received intravenous fluids, muscle relaxants, and anticonvulsive medications. Death (1 cat; n = 1/28; 4%) or euthanasia (1 cat and 1 dog; n = 2/28; 7%) was reported in 3 animals.

#### **CONCLUSION:**

Dogs and cats can experience significant adverse effects when exposed to plant-derived flea preventatives even when used according to label directions. The number of reports of exposure in cats was higher than dogs, but the frequency of reported adverse effects was similar between the 2 species. Agitation and hypersalivation were common in cats, whereas lethargy and vomiting were common in dogs.

Though there is no one 100% safe parasite control product available, the remote risk of an adverse reaction to a product must be weighed against the risks of flea and tick borne diseases in pets, including lyme disease, ehrlichia, Rocky Mountain Spotted fever and bartonella, some of which can be transmitted to in contact humans by contact with infected fleas and ticks on unprotected pets. Additionally, the constant misery of pets with flea allergy dermatitis can now be alleviated and prevented with effective medications. With appropriate veterinary supervision/prescribing and owner education, the risks of adverse reactions to parasite control products can be minimized.