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Sarah Taylor, PharmD
Academy Director

In a US Food and Drug Administration (FDA) guidance released in 2019, they estimated that over 11 million prescriptions are written for compounded animal drugs annually.1 Despite the number of prescriptions compounded each year, one recent study of pharmacy schools in the US found that only 27% of pharmacy schools offered didactic courses in veterinary pharmacy, and only 60% offered experiential education opportunities in this area.2 The gap between the need for compounded veterinary medications and the amount of training available to pharmacists can leave a significant hole where the necessary knowledge to compound safely and effectively for animals is not available. Knowledge of differences in animal and human prescriptions including potentially dangerous excipients, altered processing of active pharmaceutical ingredients, flavor and consistency preferences, and available dosage forms is essential for the appropriate compounding of veterinary medications. In this blog post, we'll focus on concerns regarding palatability, specifically, flavoring for veterinary compounds.

Species is a key factor to take into consideration when discussing flavor preferences and dosage form preferences. For example, cats lack the necessary receptor to detect sweetness, therefore sweetening dosage forms for cats is unnecessary unless the sweetener has a dual bitter blocking purpose.3 Bitterness masking can be very important for oral medications for cats as many have a strong aversion to bitter tastes. Aroma can be an important consideration as well. One preference study in dogs demonstrated a greater full and partial acceptance rate of tablets combined with aromas as compared to sugar placebos.4 Another study in cats demonstrated similar significance of aroma and flavor.5 When designing oral suspensions, solutions, or pastes flavoring both for taste and aroma is essential for dosage form acceptance. Flavoring preferences can be highly individual, but generally dogs seem to prefer meaty flavors such as bacon, beef, or chicken as well as sweet flavors such as peanut butter or marshmallow. Cats tend to prefer meaty flavors such as fish (tuna,

sardine, triple fish etc.), chicken, liver, or cheese and horses seem partial to apple, caramel, molasses, and alfalfa flavors.6 Another study looking at palatability of dosage forms in dogs found that dogs preferred flavored products over ones simply sweetened with sugar and that when it came to chewable treats the likelihood of full consumption decreased if the dosage form was too chewy.4 One study evaluating 90 owners and their cats found that owners rated delivery of medium chain triglyceride oil as easier than using gelatin capsules.7 In regards to horses, pastes and suspensions are two of the preferred dosage forms, though powders sprinkled over food are sometimes used as well.8

Though companion animals, such as dogs and cats, make up a large percentage of compounded veterinary preparations, other species such as small mammals, birds, and lizards may also be in need of compounded treatment. Small mammals that are herbivores, such as rabbits, chinchillas, and guinea pigs often do well with oral suspensions or gels/pastes that can be smeared on food. These animals often do well with vegetable flavors such as lettuce, celery, or carrot, or fruity flavors such as banana crème.8 Omnivorous small animals, such as rats, hamsters, gerbils, and mice often do well with either fruity or savory flavors. Fruity flavors such as orange, tangerine, or banana cream or more savory flavors such as cheese or peanut butter may be considered. Obligate carnivores, such as ferrets often prefer savory flavors such as liver, beef, or bacon.8 For reptiles, specific species play a large role in which flavors work best. To give a few examples of a more common species, lizards, such as iguanas, often do well with fruity flavors such as lemon or banana crème. Making a small, concentrated dosage form is often key to acceptance in iguanas. For reptiles such as snakes, flavoring may not be added, and tricks such as injecting medicine into a food item such as an egg may be appropriate depending on species or snake and diet. For most birds, sweet or fruity flavors are preferred. Birds may receive oral suspensions or gels smeared on a favorite piece of fruit or mixed with yogurt. Tropical birds often do well with flavors such as banana, tutti-fruity, orange, or pina colada. For parrots, fruity flavors may be considered, but spicey flavors such as cayenne are also sometimes used.8,10

Our animal companions come in a variety of shapes and sizes and so should their medicine! Commercially available approved medicine for veterinary use can be difficult to come by for some necessary medications, making compounding an essential service for many of these animals. Compounding for our animal friends must take into account their specific needs and preferences, especially when it comes to flavors. For further formulation support, click here to check out veterinary formulas on our formula database or reach out to the FACTS team with any questions!

Sources:

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