

# Clinical Applications of Advocate

## Indications for Use

The combination of Imidacloprid and Moxidectin in Advocate for dogs and cats is indicated for the following external and internal parasites. (See Table 1 and 2).

### Dogs

For the treatment and prevention of flea infestation (*Ctenocephalides felis*),

treatment of ear mite infestation (*Otodectes cynotis*), sarcoptic mange (caused by *Sarcoptes scabiei* var. *canis*), demodicosis (caused by *Demodex canis*), prevention of heartworm disease (L3 and L4 larvae of *Dirofilaria immitis*), and treatment of infections with gastrointestinal nematodes (L4 larvae, immature adults and adults of *Toxocara canis*, *Ancylostoma caninum* and *Uncinaria stenocephala*, adults of *Toxascaris leonina* and *Trichuris vulpis*).

### Cats

For the treatment and prevention of flea infestation (*Ctenocephalides felis*), treatment of ear mite infestation (*Otodectes cynotis*), pre-



Table 1: Dog

Flea		Heart worm	Hook worm			Round worm			Whip mite	Sarcoptic mite	Ear mite	Demodex	Lice <sup>1</sup>
adult	larval <sup>1</sup>		adult	imm. <sup>2</sup>	L4	adult	imm.	L4					
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

<sup>1</sup>Registration in Australia and New Zealand only    <sup>2</sup> imm. = immature

Table 2: Cat

Flea		Heart worm	Hook worm			Round worm			Ear mite
adult	larval <sup>1</sup>		adult	imm. <sup>2</sup>	L4	adult	imm.	L4	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

<sup>1</sup>Registration in Australia and New Zealand only    <sup>2</sup> imm. = immature

vention of heartworm disease (L3 and L4 larvae of *Dirofilaria immitis*), and treatment of infections with gastrointestinal nematodes (L4 larvae, immature adults and adults of *Toxocara cati* and *Ancylostoma tubaeforme*).

Advocate may also be used as part of a treatment strategy for flea allergy dermatitis (FAD) in both cats and dogs.

### Formulation

Advocate is formulated as a liquid spot on solution for topical application to dogs and cats. The Advocate formulation for dogs uniquely combines 10% w/v imidacloprid (100 mg/ml) with 2.5% w/v moxidectin (25 mg/ml). Advocate for cats contains 10% w/v imidacloprid and 1.0% w/v moxidectin (10 mg/ml).

For convenience, the Advocate solution is packaged in three fixed-volume plastic single applicator tubes each containing either 0.4, 1.0, 2.5 or 4 ml for dogs, and 0.4 or 0.8 ml for cats.

### Dosage

The recommended minimum doses for dogs are 10 mg/kg body weight imidacloprid and 2.5 mg/kg body weight moxidectin, which is equivalent to 0.1 ml/kg body weight of Advocate for dogs.

For cats, the recommended minimum doses are 10 mg/kg body weight of imidacloprid and 1 mg/kg body weight moxidectin, which is also equivalent to 0.1 ml/kg of Advocate for cats.

### Dogs

The Advocate pipette provides a dose range of 10 to 25 mg/kg imidacloprid and 2.5 to 6.25 mg/kg moxidectin in dogs, depending on body weight. (See Table 3). For very large dogs over 40 kg body weight, application of appropriate combinations of pipettes is recommended.

### Cats

For cats the dose range is 10 to 25 mg/kg imidacloprid and 1.0 to 2.5 mg/kg moxidectin depending on body weight. (See Table 4).

**Table 3: Dogs**

Body Weight Range (kg)	Advocate Volume (ml)	Imidacloprid (mg/kg bw)	Moxidectin (mg/kg bw)
< 4.0	0.4	minimum of 10	minimum of 2.5
4.0 - 10.0	1.0	10 - 25	2.5 - 6.25
10.0 - 25.0	2.5	10 - 25	2.5 - 6.25
25.0 - 40.0*	4.0	10 - 16	2.5 - 4

\* For very large dogs over 40 kg body weight, application of appropriate combinations of pipettes is recommended.

**Table 4: Cats**

Body Weight Range (kg)	Advocate Volume (ml)	Imidacloprid (mg/kg bw)	Moxidectin (mg/kg bw)
For Small Cats ≤ 4.0	0.4	minimum of 10	minimum of 1
For Large Cats > 4.0 - 8	0.8	10 - 20	1 - 2
> 8 kg	the appropriate combination of pipettes		

### Treatment Recommendations

#### Dogs

For dogs up to 25 kg body weight: It is recommended to apply the product while the dog is standing, part the coat between the shoulder blades until the skin is visible. Place the tip of the pipette over the skin and squeeze firmly several times to empty the contents directly onto the skin. It is recommended to apply the product to undamaged skin, if possible.

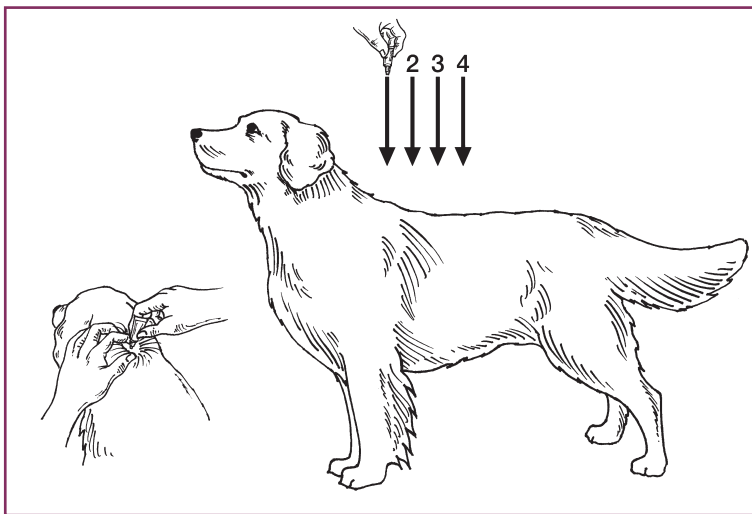


Figure 2: Application to dogs

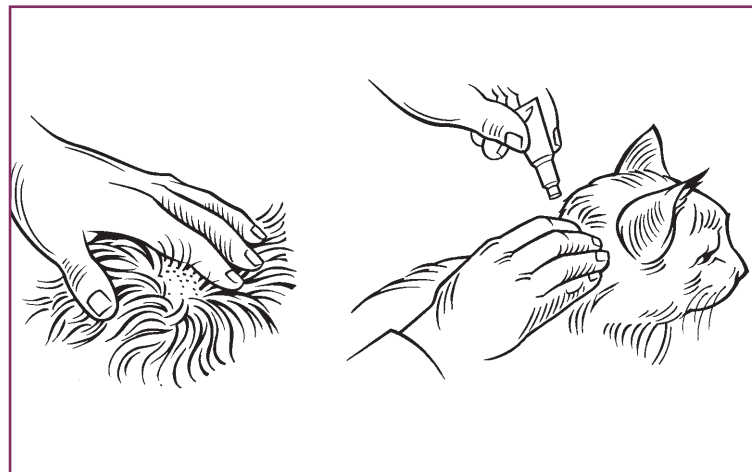


Figure 3: Application to cats

For dogs over 25 kg body weight: The entire content of the pipette should be applied evenly at 3 or 4 spots along the top of the back from between the shoulder blades to the lumbosacral region



Figure 4: *Toxocara cati* and *Ancylostoma tubaeforme*

(hips). Do not apply an excessive amount of solution to only one spot, as product may run off from the dogs skin.

#### Cats

Part the fur on the back of the cat's neck at the base of the skull until the skin is visible. Place the tip of the pipette on the skin and squeeze the pipette firmly several times to empty its contents directly onto the skin. Application at the base of the skull will minimise the opportunity for the cat to lick the product. Apply only to undamaged skin, if possible.

No interactions between Advocate and routinely used veterinary medicinal products or medical or surgical procedures have been observed.

#### Water Exposure

Water exposure studies have been conducted with Advocate to ascertain the effect that water immersion would have on the moxidectin component of the formulation. The residual properties and effectiveness of imidacloprid, due to its localising in the water resistant lipid layer of the skin, are well documented.

**Table 5: Advocate and Water Exposure**

Treatment Group	Time of Water Exposure [after treatment]	Type of Water Exposure	Efficacy (% Heartworm prevention)
1	1 hour	Simulated Swimming or Rain	100
2	24 hours & at 7, 14, 21, 28 days	Simulated Swimming or Rain	100
3	4 hours	Bathed/Shampooed	100
4	24 hours	Bathed/Shampooed	100

In order to evaluate protection against heartworm disease, 40 dogs were each experimentally infected with 50 *Dirofilaria immitis* larvae<sup>1</sup>. The dogs were allocated into 4 different treatment groups and one untreated control group. Treatment using Advocate was carried out at 34 days post infection. Following treatment, all dogs underwent bathing or shampooing at varying intervals, as detailed in Table 5. All dogs, including those from the control group, were examined for adult heartworms on day 153 after infection. All animals in the placebo treated group had large numbers of worms, whereas those dogs treated with Advocate had none. Therefore, Advocate completely prevented the development of heartworm in treated dogs and this effect was not diminished with water exposure or bathing and shampooing at various times after spot-on treatment.

In an additional study, 24 dogs were infected with 50 L3 larvae of *D. immitis* removed from mosquitos on Day -33<sup>2</sup>. On Day 0, half of the dogs were treated with Advocate and the other dogs received treatment with a placebo. After approximately 90 minutes, 6 dogs from both the control group and the placebo group were bathed and shampooed with a hypoallergenic shampoo, which was thoroughly washed off after. Examinations for adult heartworms were performed on all dogs on Days 146 or 147 post infec-



tion. All animals in the placebo group had large numbers of heartworms, whereas those treated with Advocate had none.

Advocate is highly effective in preventing heartworm disease and these results confirm that the efficacy is not diminished when treated animals are exposed to water or bathing. Because moxidectin has harmful effects on aquatic organisms, Advocate should not be allowed to enter surface waters. Therefore, pet owners should be advised that dogs should not be allowed to swim in surface waters for 4 days after treatment.

#### References

1. Bayer internal research study, data on file.
2. Bayer internal research study, data on file.