Off-label use of Ivermectin is fairly common as a canine heartwork preventative. According to one recent study (March 2011) of animal shelters[1], more agencies used preventives labeled for monthly use in dogs (60%) than Ivermectin products labeled for livestock (38%). That means that 4 shelters out of 10 (treating shelters) ARE using cattle Ivermectin instead of heartguard. As you can dose about 20 dogs for a dollar, no wonder.


You absolutely should consult with your vet regarding this issue; they are well aware of it and can make sure that you can handle the math.

Because there is a lot of BAD information out there, I am posting these formulations for your use under your veterinarians guidance. You vet would likely suggest the rate of 2.72 mcg/pound (rounded to 3) which is suggested by the CDC, which is the same rate as Heartgard.

IMPORTANT: DO NOT DOSE YOUR DOGS DIRECTLY WITH CATTLE OR PIG/SHEEP IVERMECTIN IF YOU LOVE THEIR LIVERS. It is too concentrated to measure accurately.

For example, a dose of 136 mcg for a 40# dog (Heartgard 25-50# chunk) using Cattle Ivermectin would be about 1/100th of a CC. Just a FIFTH of a drop - you cannot measure that with a syringe (or a drop). Cattle Ivermectin is too strong to dose a pig with, so they sell a diluted version, .27% for pigs, and that is still too concentrated to measure for a dog. Propylene Glycol is the thinner used in the 1% product and can be used to cut the solution further.

Ivermectin and Propelyne Glycol are available at feed stores, Tractor Supply, and dog supply houses such as Revival Animal Health. If you look you can find very small bottles for sale; even a small bottle is more than you can use within the expiration date, Store out of the sunlight, preferably in a fridge.
The Basic Dosage - Ivermectin for Heartworm

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Heartworm Dosage

1.5 to 3 mcg/pound (mcg= micrograms) (aka ug)

<<cdc fact sheet suggests 6ug/kg which is 2.72 mcg/pound>>

*1 kg = 2.2 lb.*

A 40# dog would therefore be 120 mcg

Heartgard chewable is 136 mcg and listed for 26-50# dog.

That's a rate of 5 mcg for a 25# dog and 2.5 mcg for a 50# dog.

You can see the rate is not that critical, but is in the ballpark suggested by the CDC.

Let's use 3 mcg/pound.

-more-
CATTLE IVERMECTIN 300mcg/cc Dilution

Cattle Ivermectin 1% is 10000mcg/cc
Diluted to 1/33rd (.03%) (1cc 1% to 32 cc propylene glycol) is
303mcg/cc

Therefore, for the 3 mcg/pound dosage, you would use .4 cc for a 40# dog. This dilution has the advantage of being able to read the dogs weight on the syringe, a 36# dog would be .36 cc.
Because Heartgard is sold in weight ranges, this method of administration is more accurate.
Squirt the dose down the throat with a 1 cc syringe, no needle. MONTHLY.

PIG IVERMECTIN 300mcg/cc Dilution

Pig Ivomectin .27% is 2700 mcg/cc
Diluted to 1/9th (.03%) (1cc .27% to 8 cc propylene glycol) is
300mcg/cc

Therefore, for the 3 mcg/pound dosage, you would use .4 cc for a 40# dog. This dilution has the advantage of being able to read the dogs weight on the syringe, a 36# dog would be .36 cc.
Squirt the dose down the throat with a 1 cc syringe, no needle. MONTHLY.
HIGER DOSES for other parasites

If you are concerned about the amount of drugs you administer your dog, you may wish to stick with the low "Heartgard" rate as listed above. Higher rates should not harm the dog, a rate of 150 mcg/pound is used for skin parasites (not routine) and 100 mcg/pound for internal parasites. These doses are not used routinely, as they may stress the liver and also will kill a collie.

At higher rates, you would not cut the Ivermectin, but be careful with the math. Consult your vet.

A better protocol may be to use Heartgard rates along with monthly or occasional doses of pyrantel pamoate. Pyrantel pamoate (labeled for human pinworm treatment) is available at a very good price from Revival Animal Health.

Rates

Heartworm 1.5 mcg - 3.0 mcg / pound

Internal Parasites 100 mcg / pound vet consult recommended

Skin Parasites 150 mcg / pound vet consult recommended

Example - 50# dog at the 100 mcg/lb rate requires 5000 mcg, which is 1/2 cc of 1% cattle ivermectin.

These computations are given as a comparison of various recommendations. Ivermectin is not listed for canine use; use at your own risk.
QUESTIONS ON IVERMETIN/HEARTGARD EFFICACY

A study published MAY 2011 in the Journal VETERINARY PARASITOLOGY suggested a 12% failure rate on heartworms for the IVERMECTIN or HEARTGARD protocol at the 3 mcg/pound rate. Would this suggest a higher rate would be more effective?

Obviously, the long term effects on the liver must be factored in. This will likely be a topic of much study in the coming years. A few word of caution- this study did not study naturally infected dogs, but rather these dogs were purposely infected - perhaps at a higher/faster rate than naturally. Also, some anecdotal reports of failure of the 3 mcg/pound protocol may be attributable to skipped dosages. The Study, funded by Bayer, showed 100% efficacy using Advantage Multi [imidacloprid+moxidectin] Topical Solution.

Reference:

Comparative efficacy of four commercially available heartworm preventive products against the MP3 laboratory strain of Dirofilaria immitis. Detail Only Available By: Blagburn, B.L.; Dillon, A.R.; Arther, R.G.; Butler, J.M.; Newton, J.C..


-more-
NOTES ON HEARTWORM TESTING

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The rationale behind the tests is that Ivermectin given to an infected dog will kill mature heartworms, but if not managed properly, a kill may harm the dog as dead heartworms may clog the bloodstream. Treatment of heartworm must be managed by a veterinarian, depending on the severity, other protocols may be used; a bacterial infection is also a concern. Always test any dog over 7 months old before starting on ivermectin. More info here:

http://www.drsfostersmith.com/pic/article.cfm?d=613&articleid=584
Strategic use of ivermectin during pregnancy to control toxocara canis in greyhound puppies.

Payne PA, Ridley RK.

Kansas State University, College of Veterinary Medicine, Department of Diagnostic Medicine/Pathobiology, Manhattan 66506-5603, USA.

Twenty-one greyhound bitches were bred (Day 0) and housed throughout their pregnancies on three greyhound breeding farms in Kansas. These dogs were assigned randomly to one of four treatment groups. Group A dogs (6) were given ivermectin subcutaneously (300 microg/kg) on Day 0 (the first day the dogs were bred), and Days 30 and 60 of gestation. Group B dogs (6) were given ivermectin (300 microg/kg SQ) on Day 42. Group C dogs (3) were given ivermectin (300 microg/kg SQ) on Days 0, 30, and 60 plus 10 days after whelping. Group D dogs (6) served as controls and received no anthelmintic. Bitches and puppies were moved to the university on the day after birth and were maintained inside for 28 days. Weekly quantitative fecal exams were done on the bitches during this time. The puppies were euthanized humanely at 28 days of age. Intestinal parasites were recovered, identified, counted, sexed, and preserved in either 10% formalin or frozen at -70 degrees C. The geometric mean numbers of adult Toxocara canis in the small intestines for Group A puppies (n = 40) were 2.8, 8.5 for Group B puppies (n = 39), and 29.7 for Group D puppies (n = 28). No adults were found in the Group C puppies (n = 15). The geometric mean eggs per gram of feces from the pups in group A, B, and D were 1.3, 704, and 27, 134, respectively. No eggs were recovered from the Group C pups. The strategic use of ivermectin at 300 microg/kg in greyhound bitches on Days 0, 30, and 60 of gestation reduced the worm burden carried by the puppies by 90% and the actual number of eggs passed into the environment by 99.8%. The same dose on day 42 reduced the worm burden by 71.4% and the number of eggs passed into the environment by 97.4%. This dose given on days 0, 30, and 60 plus 10 days postwhelping, reduced the worm burden by 100%, and no eggs were passed into the environment.
300 mcg/kg is 136 mcg/lb. Was given sub-q.

Note- 40# bitch would get 2cc of pig ivomec (2700mcg/cc)

http://www.sciencedirect.com/science/?ob=ArticleURL&_udi=B6TD7-3X4W5VT-

P&_coverDate=09%2F01%2F1999&_alid=445131867&_rdoc=1&_fmt=&_orig=search&_qd=1&_cdi=5191&_sort=d&view=c&_acct=C000035098&_version=1&_urlVersion=0&_userid=650596&md5=398df94ead4ec2a020553f712eca0a1c