

LIVESTOCK GUARDIAN DOG HEALTHCARE



by Emily Clement

The best way to ensure longevity of a livestock guardian dog (LGD) is through providing for its health and wellness. Just as equipment needs maintenance to keep it working well, so does your LGD. This is accomplished by consulting a veterinarian to establish a wellness plan for your particular animal and its needs. This wellness plan should include a vaccination schedule, nutritional consultation, and parasite exams, treatments, and prevention recommendations. It is important that your LGD has proper nutrition for its life stage and purpose and is kept on the recommended vaccination schedule from puppyhood throughout its life. The dog should be examined frequently: you should check the dog daily and a veterinarian should examine each LGD at least annually to maintain health, intervene in any problems before they become serious, and provide preventative treatments and required vaccinations.

Immunity and Vaccinations

Immunity is the body's ability to defend itself against outside organisms. The immune system is composed of cells and structures that work together to protect the animal

by shielding it from invaders entering the body. If a threat is detected, the body starts a cellular response to prevent disease. Without a healthy immune system, disease can occur and the animal could die. There are several ways immunity is established. One way is through passive immunity, which is the transfer of antibodies in the colostrum (the first form of milk the mother produces after giving birth). Another way is through vaccination with repeated booster shots to allow the animal to generate an adequate response to a disease.

According to the American Animal Hospital Association (AAHA), puppies gain their initial immunity by consuming their mother's colostrum within the first 24 hours of life, especially during the first 4-6 hours (American Animal Hospital Association, 2017). If a puppy did not nurse the antibody-rich first milk from its mother, it needs to have its immunity built up with vaccinations and this needs to be done sooner than a pup that nursed colostrum from its mother.

All puppies need a series of vaccinations starting at 6-8 weeks of age. These are often referred to as their "first" or "puppy" shots. These shots are usually combination vaccines that contain distemper, hepatitis/adenovirus, and parvovirus (DHPP or DAPP). Immune

response, from any vaccination, takes two weeks from the date it was given. Maternally transferred immunity decreases by 8-10 weeks of age. Therefore, this vaccine series can both cover when the dam's immunity is wearing off and/or give a challenge to the immune system to stimulate it. It is important to complete the second round of shots 3-4 weeks after the first shots (follow your veterinarian's recommendation). This round challenges the immune response in order to strengthen it. The third round of vaccinations, which occurs 3-4 weeks later and usually concludes the "puppy" shot series, includes the legally required rabies vaccination. DHPP/DAPP and rabies are considered the "core" vaccinations by the AAHA (American Animal Hospital Association, 2017).

A vaccine, not considered "core" but frequently recommended because LGDs spend their lives among livestock, is leptospirosis. Leptospirosis is a bacterial infection, also transmissible to humans. The reservoir is wildlife and domestic livestock. It is passed in the urine. Dogs can be contaminated if they swim or drink from stagnant water. The leptospirosis vaccination can be given in combination with the distemper, hepatitis, parvovirus vaccine (DHLPP).

Canine Core vaccines:
Distemper
Adenovirus/Hepatitis
Parvovirus
Parainfluenza
Rabies

Non-core vaccines:
Bordetella (kennel cough)
Canine Influenza
Leptospira
Lyme disease

(American Animal Hospital Association, 2017)

Depending on working conditions and your location, your dog may be at risk for other diseases for which vaccines are available. These are considered “non-core” vaccines. All vaccinations and conditions should be discussed with your veterinarian to ensure your dog receives the appropriate combination of vaccinations for its situation.

The age and previous vaccine history of the dog will dictate what vaccines are needed. For example; if you acquire a dog at 8 months of age and it does not come with a record of the completed puppy series of vaccinations, its immunity may be incomplete. Therefore, an initial vaccination and a booster, two to three weeks later, is advised to ensure the best possible immunity to the challenges it will face.

After completing the initial vaccinations series, the dog will need annual vaccinations to challenge and strengthen the immune system. Several vaccines can result in effective immune response for over one year and may not require annual boosters. Your veterinarian will advise you on which vaccines that need to be administered depending on your animal’s specific lifestyle and situation to ensure coverage without “over” or “under” vaccinating your animal. Vaccination is the one of the safest and most cost effective means of preventing infectious diseases in dogs (American Animal Hospital Association, 2017).

Parasites

Internal parasites

Roundworm eggs are found in the environment (in the soil) and come from feces left by dogs and other animals. The eggs transform into an infective stage in the soil and are consumed by small mammals that

Intestinal Parasite Prevention Recommendations (CAPC, 2019)

- Veterinary physical exam every 6-12 months
- Test annually for heartworms and tick transmitted diseases
- Conduct fecal exam at least 4 times in first year and at least 2 times a year there after.
- In areas where Lyme disease is present, vaccinate for it.

forage close to the ground. Dogs frequently prey upon these small mammals and become infected through ingestion.

Hookworm eggs are found in the soil as well. The transmission of this parasite can be from direct contact through the skin of the dog, ingestion from grooming themselves (e.g., by licking the paws since they touch soil) and through the womb or milk of an infected dam. Hookworms feed on blood from the capillaries in the lining of the intestine. Not managing these blood-sucking parasites can cause anemia as well as poor nutrient absorption due to weakened intestinal health.

Whipworms also infect dogs through ingestion. They pass from infected animals to the soil where they develop into an infective stage. Similar to hookworm infestation, whipworm eggs are ingested by dogs from cleaning themselves or eating/licking anything that has touched infected soil. According to the Companion Animal Parasite Council (CAPC) the eggs, when passed in feces, are “highly resistant to desiccation, extremes in temperature, and ultraviolet radiation” (CAPC, 2019a).

Tapeworms commonly come from two sources: eating rodents and rabbits and ingesting flea feces. The disease tapeworms cause in dogs is usually not as serious as other parasites, but it is a good indicator of other health problems. A frequent sign of tapeworm infection is seeing rice-like segments on feces and around the anus of the dog, which can be found in your daily checks of your

dog. Using flea control measures will prevent spread of tapeworms by fleas although we cannot eliminate the consumption of infected rodents and rabbits by the dogs when they are guarding livestock. Your vet may recommend periodic treatment for tapeworms knowing the lifestyle of the LGD makes them susceptible to this parasite.

Two other internal parasites that cause concern in dogs are coccidia and giardia. While these both have the potential to cause medical problems, they are especially problematic in younger animals who live in dense populations and environments that are frequently contaminated with feces. Coccidia is not a worm; it is a sporulated, microscopic parasite that feeds on the cells in the intestinal lining of the dog. It is spread through ingestion of infected fecal material or an infected rodent. Giardia is a microscopic organism that develops



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by feeding off intestinal wall of its host. Giardia develop and divide inside the host (dog) and are shed in feces, which infect the ground with the infective stage of giardia. Dogs acquire or reinfect themselves with giardia by sniffing infected waste and soil and then licking their nose, cleaning their feet, or ingesting infected fecal material.

External parasites

Fleas and ticks

Fleas and ticks feed on blood meals, which they get from biting animals. Beyond the nuisance and distress of the initial bite and itch reaction, both fleas and ticks can cause additional diseases to the dog. Dogs acquire fleas from other animals living in their environment. Wild animals, such as raccoons, that have fleas shed flea eggs, which are deposited in the environment. When the eggs hatch, the new fleas can infect the dog.

Flea bites are irritating to the skin and set off a vicious cycle of inflammation and possible infection. The skin is a body's first line of defense against bacterial and viral invaders therefore when an animal's skin is damaged, it is more susceptible to disease. In addition, as mentioned, fleas are also a source of a type of tapeworm that can become an internal parasite of dogs. When a flea-infested dog grooms itself, it ingests the flea feces, which carry the egg of the tapeworm. The tapeworm develops and reproduces inside the dog.

In our area, ticks can also carry several blood parasites and bacteria, that can affect both humans and dogs, cause disease, and in some cases, lead to paralysis and even death. Ticks live and thrive in humid, grassy or wooded areas and attach to their host only to feed. Some species of ticks require multiple hosts to complete their lifecycle. They prefer warm moist areas such as the ears, armpits, and the groin area. After feeding they drop off to the ground to either mature into another life stage, or lay eggs. Disease is spread from the tick to the host by way of the bite. Not only does the bite cause a wound and irritation, but through the saliva of an infected tick, disease is spread to the dog.

Prevention and treatment: there are many options available for flea and ticks. Choices include a once-a-month topical application, an oral product given every one to three months, and an eight-month waterproof collar; all of these options are proven safe and effective. These products work in one or several ways. They kill any flea or tick on the animal as they walk through the fur or after it ingests a blood meal. Not all flea products are created equal and some, even

Risks associated with flea and tick infestations:

Both: Anemia, skin problems

Fleas: tapeworms, allergic skin infection

Ticks: Lyme disease, Erlichia, Babesia, Rocky Mountain spotted fever, and tick

though they are sold over-the-counter and at pet supply stores, contain chemicals that can be dangerous for your dog (these can be even worse if your cat is exposed to the chemicals). It is important to read and understand all labels and safety warnings before using these products. You can expect to pay \$10-15 a month for safe, and effective flea and tick control. Aside from the obvious discomfort and agitation the dog experiences having fleas and ticks; trying to cut corners on prevention will cost more money in the long run, by needing to treat the resulting skin problems and potential diseases. It is recommended to give year-round, broad-spectrum parasite control that is effective against heartworms, gastrointestinal parasites, fleas, and ticks (CAPC, 2019b). Prevention is less expensive than treatment.

Mites

The most common mites affecting dogs are ear mites and mange mites. *Ear mites* feed on the oil and wax in the ear canal of animals. Ear mites are highly contagious, extremely irritating to the animal, and usually result in an ear infection from scratching as well as possible hematoma from head shaking.

Mange mites live buried in the skin and hair follicle. There are two types of mange mites. *Sarcoptic* mange is highly contagious and very itchy. *Demodectic* mange is from a mite that animals and people naturally have on their bodies in small numbers, but are usually kept in check by a healthy immune system; therefore, demodectic mange is an indicator of a weakened immune system, especially in puppies. For appropriate treatment, the type of mite must be diagnosed properly, including a diagnostic skin scraping.

Mosquitos

Dogs acquire heartworms from the bite of an infected mosquito. Heartworms are a parasite that are so small you cannot see them. We are unable to detect the signs of heartworm disease until it is very serious; it can even be fatal. Heartworms are detected through a blood test from your veterinarian. The test detects if heartworms are present and can detect this prior to the animal showing

signs. If you live where there are mosquitos, then your dog is at risk of heartworm infection. Heartworm disease is 100% preventable by having your dog on a preventative medication, which can be given orally, topically, and is even offered in injectable option that is given every six months. If the dog is older than 4-6 months of age, the dog will need to have a blood test to ensure it is negative for the parasite before beginning the preventative. Dogs in our area need to stay on heartworm preventative year-round due to our local climate and lack of long, hard freezes (killing all mosquitos). The fantastic news about the seemingly overwhelming threat of these parasites is that heartworm preventatives have the added benefit of controlling some of the gastrointestinal parasites as well.

Flies

The flies that irritate your livestock will also bite your dog. Flies tend to bit LGDs on the nose and on the tops of the ears, as well as the ear tips. This can cause headshaking and scratching, which damages the skin and potentially lead to other problems. The use of fly ointment, particularly on those areas prone to biting, can provide protection for your dog against fly bites.

Spay/Neuter

Recommendations vary with each situation, but the basic guidelines to follow are:

Spay/neuter your LGD if you do not intend to breed it. If you choose to breed, do so responsibly by knowing the genetics of both male and female and ensure they have no genetic abnormalities that would be passed to the offspring. Behavior, temperament, and working ability should be evaluated for both potential parents before you even consider creating more dogs. You should also have the dogs checked by x-ray to ensure they do not have hip dysplasia before you consider breeding them. Breeding should always be a planned event; accidental breeding is not acceptable because you are responsible for your animal and its behavior at all times.

If you choose to breed your LGD, you must have a solid plan in place for the

Spaying and Neutering

Pro:

- No pet overpopulation
- Dogs can live longer
- Less health risks
- Not spreading undesirable genetics
- No unwanted males drawn to property
- No time away from stock due to pregnancy and rearing
- Less likely to roam
- More even and predictable temperament

Cons:

- Early (prepubescent) spay/neuter may affect bone growth and hormonally related development.

Timing should be a personal decision between you and your veterinarian

offspring and their care. This plan needs to include medical care (shots, deworming treatments, and flea and tick prevention) as well as placement of all puppies. LGDs can have large litters (5-10 pups) and you must be prepared to provide for their needs as well as the needs of the pregnant/nursing dam. Good nutrition, adequate and safe housing, care for the initial medical needs, and adequate time needs to be invested for appropriate training and handling of the young pups are all essential.

Grooming

Grooming needs to start at an early age; this includes brushing, handling feet and paws for inspection and nail trimming, handling and looking in the ear, as well as lifting the lips to observe teeth and gum health. Introducing regular brushing (not just when you see mats) ensures the health and well-being of your LGD throughout the animal's life.

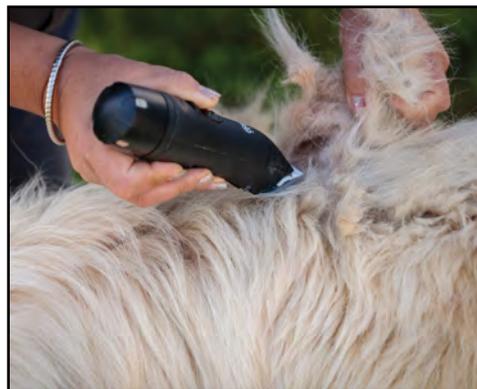
Some owners of LGDs choose to shave their dogs in warmer weather. This is not necessary if you are able to regularly brush your dog, ensuring it is shed out and free from mats. The hair coat protects the dog from the sun, insects, and the environment. It also has multiple layers that insulates the dog, keeping the animal warm in the winter and cool in the summer (by air circulating between the layers), if the undercoat is fully shed. If you are unable to regularly groom (brush and detangle) your dog, you may consider a moderate (not close to the skin) shave to avoid matting and subsequent skin problems.

Mats are not only uncomfortable, they disrupt airflow, attract parasites, trap moisture, and cause skin problems. Mats are twisted and tangled hair; some contain random objects (sticks, cockleburrs, leaves,

even wire) wrapped tightly inside (see pictures of mats along the spine, rump, and flanks of LGDs).



Hotspots are a chain reaction caused by an irritation to the skin (which naturally has bacteria on it). Hotspots can start with an allergy such as to an insect bite (flea, tick, fly, or mosquito) that irritates the skin, causing the animal to lick and chew the area. The moisture from licking along with the additional irritation caused by biting, chewing, and scratching causes bacteria already on the skin to penetrate the skin. This sets off an inflammatory, infectious, and very uncomfortable situation for the dog. Hotspots require treatment. The surrounding area must be shaved, the skin cleaned and medicated, and the area must be kept dry (see picture of shaving mats).



If you observe your dog is shaking its head more than normal, you will need to take a look inside its ears. Look for any swelling, odor, discharge, or debris. Ears should be routinely checked and cleaned or treated (if necessary) because hearing is imperative for a LGD to be alerted to impending threats as early as possible (see picture of holding ear to examine).



Nails can become broken, split, traumatically injured, or even pulled out all of which can lead to pain as well as allowing infection into the body. It is important to check feet often, ensuring there are no objects (cockleburrs, sticks, glass, metal, etc.) in or around the toes or between the pads. Also note if you feel any heat or notice any pain, swelling, odor, or discharge. Check all toenails for condition and length. Some LGDs have multiple dewclaws (extra toes) that do not touch the ground and do not get worn down naturally. Dewclaws can easily become overgrown, causing the nail to grow into the foot, which can cause a painful infection. Since we depend on LGDs to cover land with agility, maintaining their foot health is crucial for them to protect their stock (see picture of dewclaw trimming).



Annual Veterinary Costs

Generally speaking, annual veterinary costs for LGDs average from \$500-1000. Minimally, this covers an annual physical (at least one although two is recommended), fecal exam, a heartworm test, vaccinations, dental cleaning, and much-needed preventative medications (flea, tick, heartworm,

gastrointestinal parasites, and some mites). We entrust LGDs with our valuable stock so ensuring their health and well-being is an investment in our stock's survival and profitability.

The average cost of an LGD is around \$1000 for the first year, which includes the purchase price of the dog, vaccinations, spay/neuter, and preventative (flea, tick, heartworm), and approximately \$500/ year thereafter (life expectancy of LGDs is about 12 years). Assuming the dog is of little protection the first year and increases in functionality in its second and third year the LGD will earn its keep by increasing the number of livestock animals weaned. If weaned stock bring in \$100-\$140 each, the dog would earn its keep and you will break even financially with the first 4-5 head weaned per year (Redden et al, 2013).

Livestock guardian dogs are certainly an asset to raising vulnerable livestock species. To operate at their peak, LGDs need proper care. Make LGD care part of your budget, just as you count on the animals they protect to provide income. Parasite preventatives, good nutrition, annual health exams, and grooming are essential to providing your LGD with the basic needs to do their best job.

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