**Toxocara canis**

- **Disease**
  - Causes abdominal distension, intermittent diarrhea, dull haircoat, occasional vomiting
  - Intestinal blockage, intestinal perforation, anemia are relatively rare

- **Geographic distribution**
  - Widespread

- **Prevalence**
  - One of the most common canine parasites (14.54% of shelter dogs; Blagburn et al., 1996)

- **Transmission**
  - Dogs infected by ingesting embryonated eggs or paratenic hosts, or by transplacental migration of larvae into fetal puppies

- **Diagnosis**
  - Eggs in feces

- **Treatment**
  - Panacur, Drontal Plus, HeartGard Plus, Iverhart Plus, Sentinel, Interceptor, Filaribits Plus, Pyrantel pamoate

- **Control**
  - Routine deworming with added-value heartworm preventives
  - Cleaning the environment of feces – source of environmental contamination
**Baylisascaris procyonis**

- **Disease**
  - Occasionally dogs are infected with adults of this raccoon parasite – typically no signs
- **Geographic distribution**
  - Raccoons throughout their range except along Gulf Coast and Florida
- **Prevalence**
  - Very common in raccoons; about 30 canine cases have been reported
- **Transmission**
  - Eggs in soil must be ingested; dogs may be infected by eating mammalian intermediate hosts
- **Diagnosis**
  - Finding eggs (left, above) or adults in feces
- **Treatment**
  - Most products labeled for *Toxocara* are probably effective against *B. procyonis*
- **Control**
  - Dogs should avoid raccoon defecation sites (“latrines”)
Physaloptera spp.

- **Disease**
  - Gastritis, vomiting
- **Geographic distribution**
  - Sporadic
- **Prevalence**
  - Sporadic
- **Transmission**
  - Ingestion of arthropod intermediate or mammalian paratenic host
- **Diagnosis**
  - Endoscopy or eggs in feces
- **Treatment**
  - Fenbendazole at 50 mg/kg for three days, Pyrantel pamoate 5-15 mg/kg (dog) or 20 mg/kg (cat), ivermectin 0.2 mg/kg orally or subcutaneously
- **Control**
  - Difficult in dogs that are allowed outdoors
 Spirocerca lupi

- **Disease**
  - Esophageal and stomach nodules, osteosarcoma, aortitis and aortic aneurysm

- **Geographic distribution**
  - Southeastern US

- **Prevalence**
  - Rare; common in wild canids

- **Transmission**
  - Ingestion of arthropod intermediate or mammalian paratenic host

- **Diagnosis**
  - Endoscopy and eggs in feces

- **Treatment**
  - Disophenol (10 mg/kg given twice in one week)
  - Moxidectin, doramectin

- **Control**
  - Difficult in dogs that are allowed outdoors
**Dirofilaria immitis**

- **Disease**
  - Cardiopulmonary disease can lead to heart failure and multisystemic sequelae
- **Geographic distribution**
  - Reported from most US states and parts of southern Canada
- **Prevalence**
  - Most common along eastern Atlantic and Caribbean coasts, along major rivers of the eastern US, and in CA (especially San Diego area and foot hills of San Juaquin Valley)
- **Transmission**
  - Bite of infective mosquito (>22 species in North America)
- **Diagnosis**
  - Microfilariae or adult antigen detected in whole blood, serum or plasma
- **Treatment**
  - Adult worms – melarsomine hydrochloride (Immiticide)
- **Control**
  - Regular heartworm preventive medication, mosquito control
Ancylostoma caninum

- **Disease**
  - Hemorrhagic enteritis, anemia

- **Geographic distribution**
  - Found throughout range of dogs in US and Canada

- **Prevalence**
  - Most common in dogs in warmer climates; 19.19% of shelter dogs (Blagburn et al., 1996)

- **Transmission**
  - Larvae develop in soil and infect dogs by skin penetration; can use mammalian intermediate hosts
  - Transmammary transmission

- **Diagnosis**
  - Anemia associated with eggs in feces

- **Treatment**
  - Panacur, Drontal Plus,Interceptor, Sentinel, Heartgard plus, Iverhart Plus, Proheart 6, Pyrantel pamoate

- **Control**
  - Discretionary deworming, routine preventives given monthly, preventing fecal contamination of environment
**Ancylostoma braziliense**

- **Disease**
  - Hookworm disease; anemia
  - This species is the common cause of cutaneous larva migrans in humans

- **Geographic distribution**
  - Coastal southeastern US, Caribbean

- **Prevalence**
  - Common in its Geographic range

- **Transmission**
  - Larvae develop in soil and penetrate the skin – can use mammalian intermediate hosts; transmammary transmission

- **Diagnosis**
  - Anemia and eggs in feces

- **Treatment**
  - HeartGard Plus, IverHart Plus

- **Control**
  - Routine preventives given monthly; prevent fecal contamination
**Uncinaria stenocephala**

- **Disease**
  - Hookworm disease anemia
- **Geographic distribution**
  - Focal: usually cooler regions of US
- **Prevalence**
  - Common in its Geographic range
- **Transmission**
  - Larvae develop in soil; oral infection is the most common route of entry into the host; percutaneous infection – can use mammalian intermediate hosts; transmammary
- **Diagnosis**
  - Anemia (less common than with *A. caninum*) and eggs in feces
- **Treatment**
  - Drontal Plus, HeartGard Plus, IverHart Plus, Panacur, Pyrantel pamoate, ProHeart 6
- **Control**
  - Routine parasite control
**Strongyloides stercoralis**

- **Disease**
  - Diarrhea and potential for systemic strongyloidiasis when severely immunocompromised

- **Geographic distribution**
  - Sporadic

- **Prevalence**
  - Relatively common in kennels, otherwise often undiagnosed

- **Transmission**
  - Larvae develop in soil and penetrate skin; transmammary also

- **Diagnosis**
  - Recover larvae in feces

- **Treatment**
  - Ivermectin 200 mcg/kg once or 200 mcg/kg weekly for 4 weeks; thiabendazole 25 mg/kg for 3 days

- **Control**
  - Treat all animals in household or on premises
Oslerus osleri

- Disease
  - Verminous nodular tracheitis and bronchitis
- Geographic distribution
  - Sporadic
- Prevalence
  - Rare
- Transmission
  - Direct ingestion of larvae passed in feces or saliva
- Diagnosis
  - Radiographs; larvae in feces
- Treatment
  - Difficult; no reported anthelmintic medication
- Control
  - Pups removed from infected mother by cesarean section and raised in isolation from other infected dogs (in kennel situation)
Filaroides hirthi

- Disease
  - Verminous interstitial pneumonitis

- Geographic distribution
  - US and Canada

- Prevalence
  - Seemingly rare in general canine population; a problem in kennels and colonies, perhaps more common in toy breeds

- Transmission
  - Direct ingestion of larvae passed in feces or saliva

- Diagnosis
  - Radiographs; larvae in feces

- Treatment
  - Albendazole

- Control
  - Can be very difficult to control in large colonies
Angiostrongylus vasorum

- **Disease**
  - Verminous pulmonary endarteritis
- **Geographic distribution**
  - Maritime Canada
- **Prevalence**
  - Recently introduced from Europe, may become more common
- **Transmission**
  - Ingestion of snail intermediate host
- **Diagnosis**
  - Radiographs; larvae in feces
- **Treatment**
  - Ivermectin at 0.2 mg/kg, fenbendazole at 20 mg/kg twice daily for 2-3 weeks
- **Control**
  - Unknown at this time
Trichuris vulpis

- **Disease**
  - Colitis, diarrhea, anemia

- **Geographic distribution**
  - Widespread

- **Prevalence**
  - Relatively common – may be the most common of the intestinal parasites in some localities; 14.29% of shelter dogs (Blagburn et al., 1996)

- **Transmission**
  - Dogs are infected by ingesting eggs from contaminated environments

- **Diagnosis**
  - Eggs in feces

- **Treatment**
  - Drontal Plus, Interceptor, Sentinel, Panacur, Filaribits Plus

- **Control**
  - Eggs very resistant to environmental extremes – hard to clean up a contaminated backyard
Alaria spp.

- **Disease**
  - Non-pathogenic

- **Geographic distribution**
  - Sporadic throughout US and Canada

- **Prevalence**
  - Uncommon

- **Transmission**
  - Ingestion of vertebrate parentenic host, transmammary if mother ingests paratenic host while nursing

- **Diagnosis**
  - Eggs in feces

- **Treatment**
  - Drontal plus, Panacur

- **Control**
  - Difficult in dogs that are allowed outdoors
**Paragonimus kellicotti**

- **Disease**
  - Pulmonary disease, bronchiectasis and hemoptysis
- **Geographic distribution**
  - Eastern US and Canada – drainage areas of the Mississippi and St. Lawrence waterways
- **Prevalence**
  - Uncommon, but not rare
- **Transmission**
  - Ingestion of crayfish or vertebrate paratenic host (?)
- **Diagnosis**
  - Radiographs and/or eggs in feces
- **Treatment**
  - Extended doses of Panacur or Drontal Plus
- **Control**
  - Difficult in dogs that are allowed outdoors
Nanophyetus salmincola

- **Disease**
  - Vector of salmon poisoning disease caused by *Neorickettsia helminthoeca*

- **Geographic distribution**
  - Oregon, Washington and British Columbia

- **Prevalence**
  - Common cause of disease in dogs that eat raw fish

- **Transmission**
  - Eating raw fish containing metacercariae

- **Diagnosis**
  - Eggs in feces in dogs

- **Treatment**
  - Drontal Plus, antibiotics required for salmon poisoning disease

- **Control**
  - Important not to feed raw fish to dogs, especially when visiting areas where it is prevalent
**Eurytrema pancreaticum**

- **Disease**
  - Pancreatitis
- **Geographic distribution**
  - Sporadic within the range of the raccoon
- **Prevalence**
  - Rare
- **Transmission**
  - Ingestion of amphibian intermediate host (?)
- **Diagnosis**
  - Eggs in feces
- **Treatment**
  - Drontal Plus
- **Control**
  - Keep dogs from preying on amphibians
**Taenia pisiformis**

- **Disease**
  - Asymptomatic rabbit tapeworm
- **Geographic distribution**
  - Throughout US and Canada
- **Prevalence**
  - Fairly common
- **Transmission**
  - Ingestion of cottontails containing cystercerci
- **Diagnosis**
  - Eggs or segment in feces
- **Treatment**
  - Drontal Plus, Droncit, Cestex and Panacur
- **Control**
  - Prevent dogs from preying on rabbits
Dipylidium caninum

- **Disease**
  - Asymptomatic flea tapeworm
- **Geographic distribution**
  - Throughout US and Canada
- **Prevalence**
  - Common where fleas are common
- **Transmission**
  - Ingestion of flea containing cysticercoid
- **Diagnosis**
  - Segments or egg packets in feces
- **Treatment**
  - Drontal Plus, Droncit, Cestex
- **Control**
  - Control fleas with Frontline, Frontline Plus, Program, Sentinel, Advantage, K9 Advantix, Revolution, etc.
Mesocestoides spp.

- **Disease**
  - Asymptomatic intestinal infection
  - Visceral tetrathyridiasis
- **Geographic distribution**
  - Throughout US and Canada
  - Visceral disease most common in Rocky Mountains
- **Prevalence**
  - Uncommon; visceral disease rare
- **Transmission**
  - Infection with adults obtained by ingestion of vertebrate paratenic hosts
  - Unknown how visceral infection is acquired
- **Diagnosis**
  - Segments or eggs in feces
  - Visceral tetrathyridiasis diagnosed by laparotomy
- **Treatment**
  - None approved
- **Control**
  - Difficult to control in dogs that are allowed outdoors
Echinococcus multilocularis

- Disease
  - Asymptomatic rodent tapeworm

- Geographic distribution
  - Southern Canada through Alaska; extreme north central US

- Prevalence
  - Common in wildlife, especially foxes; can move into canine populations and become quite common

- Transmission
  - Ingestion of rodent intermediate host containing multilocular hydatid

- Diagnosis
  - Eggs in feces

- Treatment
  - Drontal Plus, Droncit

- Control
  - Effective cestocide administered every three weeks
Echinococcus granulosus

- Disease
  - Asymptomatic sheep or moose tapeworm
- Geographic distribution
  - Sylvatic cycle in canids and moose in Canada and Alaska
  - Domestic cycle in dogs and sheep on some Native American reservations in western US
- Prevalence
  - Unknown in dogs
- Transmission
  - Ingestion of sheep or moose liver or lung containing unilocular hydatid
- Diagnosis
  - Eggs in feces
- Treatment
  - Drontal Plus
- Control
  - Drontal Plus monthly
**Spirometra mansonioides**

- **Disease**
  - Asymptomatic tapeworm from amphibian or paratenic hosts
- **Geographic distribution**
  - Spotty in US and southeastern Canada
- **Prevalence**
  - Common in various reservoir hosts; occasionally makes its way into the dog population
- **Transmission**
  - Dog ingests amphibian or mammalian intermediate/paratenic hosts
- **Diagnosis**
  - Eggs in the feces
- **Treatment**
  - Praziquantel (Droncit, Drontal Plus) 25 mg/kg X 2 days
- **Control**
  - Hard to control in dogs that ingest prey
**Diphyllobothrium latum**

- **Disease**
  - Asymptomatic infection with the broad-fish tapeworm
- **Geographic distribution**
  - Canada and northeastern US
- **Prevalence**
  - Uncommon, was more prevalent in the past and appears to be on the rise again
- **Transmission**
  - Ingestion of fish containing plerocercoid larvae
- **Diagnosis**
  - Eggs in feces
- **Treatment**
  - Drontal Plus or Droncit at elevated dosages
- **Control**
  - Prevent ingestion of freshwater fish
Giardia spp.

- **Disease**
  - Can be asymptomatic, intermittent or chronic
  - Diarrhea is most common presenting sign

- **Geographic distribution**
  - Widespread

- **Prevalence**
  - 20% to 40% of shelter dogs (can be 100% of dogs in kennel and breeding colonies)

- **Transmission**
  - Ingestion of cysts passed in feces

- **Diagnosis**
  - Cyst in feces or detection of coproantigen

- **Treatment**
  - Metronidazole, fenbendazole, nitazoxanide or combination

- **Control**
  - Provide clean water, bathe to remove adherent fecal debris
**Cryptosporidium spp.**

- **Disease**
  - Asymptomatic typically unless dogs are immunocompromised
- **Geographic distribution**
  - Widespread
- **Prevalence**
  - Not commonly detected, prevalence unknown
- **Transmission**
  - Ingestion of oocysts passed in feces
- **Diagnosis**
  - Oocysts in feces or fecal antigen detection
- **Treatment**
  - Nitazoxanide, paromomycin, azithromycin
- **Control**
  - Prevent exposure to oocysts in feces or in the environment
**Balantidium coli**

- **Disease**
  - Typhlitis and dysentery
- **Geographic distribution**
  - Unknown in dogs
- **Prevalence**
  - Rarely diagnosed
- **Transmission**
  - Ingestion of cysts passed in feces
- **Diagnosis**
  - Cysts or trophozoites in feces
- **Treatment**
  - Metronidazole, tetracyclines (?)
- **Control**
  - Routine veterinary care and fecal examination
**Pentatrichomonas hominis**

- **Disease**
  - Usually asymptomatic, possibly causes typhlitis and diarrhea

- **Geographic distribution**
  - Widespread

- **Prevalence**
  - Rarely detected; prevalence probably much greater than reported
  - Has been reported to be very common in certain greyhound kennels

- **Transmission**
  - Ingestion of trophozoite in feces

- **Diagnosis**
  - Flagellates in direct fecal smears; usually seen only in fluid or unformed stools

- **Treatment**
  - Metronidazole; often considered a commensal and treatment usually not needed

- **Control**
  - Probably none necessary
Neospora caninum

- **Disease**
  - Asymptomatic intestinal infection
  - Neonates can develop neurological disease with paralysis

- **Geographic distribution**
  - Unknown

- **Prevalence**
  - Rare

- **Transmission**
  - Ingestion of intermediate host containing bradyzoites
  - Prenatal

- **Diagnosis**
  - Oocysts in feces
  - Typical signs of *N. caninum*-induced paralysis
  - Serological tests

- **Treatment**
  - Drugs effective against *Toxoplasma gondii* may be effective

- **Control**
  - Difficult until complete life cycle is elucidated
Trypanosoma cruzi

- **Disease**
  - Chagas disease; myocarditis
- **Geographic distribution**
  - Southern and eastern US
- **Prevalence**
  - Unknown prevalence in dogs; common in opossums, raccoons, etc.
- **Transmission**
  - Dogs probably infected when triatomid bug releases trypanosomes onto the mucous membranes
  - Contact with feces of infected triatomid bug
- **Diagnosis**
  - Blood culture, xenodiagnosis and serology for antibodies
- **Treatment**
  - No consistently effective therapy
- **Control**
  - Difficult to control due to wildlife reservoirs and insect habits
Babesia canis

- **Disease**
  - Anemia due to babesiosis

- **Geographic distribution**
  - Southeast US

- **Prevalence**
  - Unknown

- **Transmission**
  - Bite from tick, *Rhipicephalus sanguineus*

- **Diagnosis**
  - Blood smear and antibody detection methods

- **Treatment**
  - Diminazene, Imidacarb dipropionate

- **Control**
  - Routine tick control
Babesia gibsoni

- **Disease**
  - Anemia due to babesiosis
- **Geographic distribution**
  - Southeast US
- **Prevalence**
  - Unknown
- **Transmission**
  - Bite from tick, *Rhipicephalus sanguineus*
- **Diagnosis**
  - Blood smear and antibody detection methods
- **Treatment**
  - No consistently effective treatment available; might try diminazene or imidacarb
- **Control**
  - Routine tick control
**Hepatozoon americanum**

- **Disease**
  - Severe musculoskeletal disease

- **Geographic distribution**
  - Southeastern US

- **Prevalence**
  - Uncommon, but not rare

- **Transmission**
  - Ingestion of infected tick, *Amblyomma maculatum*

- **Diagnosis**
  - Organisms identified on muscle biopsies; profound neutrophilia, muscle wasting, musculoskeletal pain

- **Treatment**
  - Combination of sulfadiazine, clindamycin and pyrimethamine for acute disease; decoquinate for management of long-term disease

- **Control**
  - Tick control
Isospora (Cystoisospora) spp.

- **Disease**
  - Coccidiosis; small and large bowel dysentery
- **Geographic distribution**
  - Widespread
- **Prevalence**
  - Common, especially in puppies
- **Transmission**
  - Ingestion of sporulated oocysts from soil; some species utilize mammalian paratenic hosts
- **Diagnosis**
  - Oocysts in feces
- **Treatment**
  - Sulfadimethoxine, amprolium, ponazuril
- **Control**
  - Remove feces promptly (oocysts require time to sporulate); prevent predation
Leishmania donovani

- **Disease**
  - Visceral leishmaniasis with hepatomegaly, splenomegaly, and anemia
- **Geographic distribution**
  - Northeastern and southeastern US, Quebec and Ontario
- **Prevalence**
  - Recently found to be common in some hunting hounds throughout its geographic range
- **Transmission**
  - Typically transmitted by phlebotomine sandflies, but epidemiology in US is poorly understood
- **Diagnosis**
  - Biopsy specimens, blood culture and antibody detection
- **Treatment**
  - No consistently effective therapy
- **Control**
  - Unknown because epidemiology poorly understood
Ctenocephalides felis

- **Disease**
  - Dermal allergy, anemia
- **Geographic distribution**
  - Throughout US and Canada, but more common where high humidity and elevated temperatures prevail
- **Prevalence**
  - Common; can reach very high numbers in individual households
- **Transmission**
  - Direct acquisition from other dogs or cats, acquisition from other animals (refugia), exposure to infested environments
- **Diagnosis**
  - Observation, detection of flea feces, signs of flea allergy
- **Treatment**
  - Use of effective flea control products
- **Control**
  - Regular application of effective flea control products
Trichodectes canis

- Disease
  - Lousy appearance with nits
- Geographic distribution
  - Widespread – mainly seen on dogs from large breeders
- Prevalence
  - Uncommon, but focal
- Transmission
  - Direct contact between dogs
- Diagnosis
  - Finding lice and nits on dogs
- Treatment
  - Most available flea control product should aid in control
- Control
  - Typically a problem with poor pet care in crowded facilities
Heterodoxus spiniger

- **Disease**
  - Lousy appearance, nits on hair

- **Geographic distribution**
  - Tends to be in warmer climates

- **Prevalence**
  - Relatively rare, even in its range

- **Transmission**
  - Direct transmission between dogs

- **Diagnosis**
  - Lice and nits on dog

- **Treatment**
  - Most available flea control product should aid in control

- **Control**
  - Regular veterinary care
Linognathus setosus

- Disease
  - Lousy condition and appearance
- Geographic distribution
  - Cooler climates, seems to also be present on foxes
- Prevalence
  - Relatively rare
- Transmission
  - Direct dog-to-dog transmission
- Diagnosis
  - Lice and nits on dogs
- Treatment
  - Most available flea control products should aid in control
- Control
  - Routine veterinary care
Sarcoptes scabei

- **Disease**
  - Sarcoptic mange, alopecia with severe crusting
- **Geographic distribution**
  - Widespread
- **Prevalence**
  - Common, but often difficult to confirm
- **Transmission**
  - Direct contact between dogs
- **Diagnosis**
  - Mites found on skin scrapings; pinnal-pedal reflex; distribution of lesion; serologic test available in some countries
- **Treatment**
  - Revolution, high-dose ivermectin and other avermectins/milbemycins
- **Control**
  - Regular monitoring of dermal health
Demodex spp.

- Disease
  - Focal or generalized demodicosis with alopecia and sometimes secondary bacterial infections
- Geographic distribution
  - Throughout the range of the dog
- Prevalence
  - Dogs very commonly infected, but disease is rare
  - Generalized demodicosis probably occurs when dogs have an underlying immune system dysfunction
- Transmission
  - Direct contact between dogs, including mother and pups
- Diagnosis
  - Finding the mites on skin scrapings or in pilosebaceous glands
- Treatment
  - Amitraz; long-term, high-dose ivermectin or milbemycin therapy
- Control
  - The disease is one of a problem in host defense and an omnipresent parasite
**Cheyletiella spp.**

- **Disease**
  - Walking dandruff (note: this parasite can transiently infest humans)

- **Geographic distribution**
  - Widespread

- **Prevalence**
  - Unknown, uncommon but not rare

- **Transmission**
  - Direct contact between dogs

- **Diagnosis**
  - Finding mites with large palpal claws on dogs; eggs glued to hairs

- **Treatment**
  - Frontline, Revolution, Ivermectin, Milbemycin oxime

- **Control**
  - Often appears when puppies are reared in large groups
**Otodectes cynotis**

- **Disease**
  - Otic acariasis that can lead to secondary infections of the ear canal and inner ear

- **Geographic distribution**
  - Wherever dogs are found

- **Prevalence**
  - Can be quite common

- **Transmission**
  - Direct contact between dogs

- **Diagnosis**
  - Observing mites during otoscopic examination or in material removed from the ear canal

- **Treatment**
  - Revolution, Milbemite, Acarexx

- **Control**
  - Hard to prevent infection between animals having direct contact with other animals; should treat all in-contact animals