UF UNIVERSITY of FLORIDA

Maddie's® Shelter Medicine Program
College of Veterinary Medicine

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Important Information about Cats from 10th Life Sanctuary

This colony of cats has been documented to contain certain common infectious diseases. It is unknown which individual cats are infected with which infectious agents, although it is safe to assume that they have all been exposed and many of them likely harbor more than one of these infections. We encourage you to work with your veterinarian to thoroughly assess the individual cats in your care prior to exposing them to any other animals in your facility or home.

- *Common components of upper respiratory infections including feline calicivirus, feline herpesvirus-1, Bordetella bronchiseptica, Mycoplasma spp., and Chlamydophila felis have been identified in the population. In general, these diseases respond to supportive care and appropriate treatment.*

- *Common gastrointestinal parasites, such as Tritrichomonas foetus, Isospora spp. (Coccidia), Giardia spp., Cryptosporidium spp., Toxocara spp. (Roundworms), and Spirometra spp. (Tapeworms) were also identified. Some of these infections may be difficult to treat, but generally do not result in serious clinical disease.*

- *Feline enteric coronavirus was identified in this facility. Although this generally results in mild gastrointestinal disease that is self-limiting, it may uncommonly be related to the development of feline infectious peritonitis (FIP) in certain individuals.*

- *A number of cats were identified as being infested with external parasites such as Cheyletiella spp. (walking dandruff), Otodectes cynotis (ear mites), and Felicola subrostratus (lice). These infestations are all readily treatable although they are easily transmissible to other cats.*

- *Feline immunodeficiency virus (FIV) and Feline Leukemia Virus (FeLV) were identified throughout the population of cats. These contagious diseases may predispose infected cats to a number of secondary conditions and opportunistic infections. All cats were tested for these infections. Cats testing negative at this time should be maintained in isolation until infection is confirmed with a repeat test in 60 days. (See treatment recommendations for more information and resources).*

We have attached more detailed information and our current recommendations about these infectious diseases for your veterinarian. Please work closely with your veterinarian to develop appropriate protocols for the care of these cats as well as to prevent the transmission of these diseases to your current population of animals. All cats are individuals, and your veterinarian can develop a management plan tailored to your cats' specific needs.

Sincerely,

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Viral Agents	Common Clinical signs	Transmission	Asymptomatic State	Zoonotic	Cleaning & Disinfection	Other information
Feline Calicivirus (URI)	•Oral ulcers •Nasal discharge •Conjunctivitis •Limping	•Direct contact with infected animal or their oro-nasal secretions •Fomites •Aerosol < 5 feet	Most shed >30 days after recovery but can be lifelong	No	•Most strains resistant to quaternary ammonium compounds •Bleach 1:32 (1/2 cup/gallon) •Potassium peroxymonosulfate (Virkon, Trifectant) •Accelerated hydrogen peroxide (Virox)	•Difficult to inactivate, especially on wood, dirt, carpet, and porous surfaces •Persists in the environment for > 1 week •Cats may shed virus for weeks following clinical recovery
Feline Herpesvirus-1 (URI)	•Conjunctivitis •Nasal discharge •Oral ulcers •Corneal ulcers •Sneezing	•Direct contact with infected animal or their secretions •Fomites •Aerosol < 5 feet	May shed 2-3 weeks after recovery; >80% of cats are chronic carriers	No	•Some strains resistant to quaternary ammonium compounds •Bleach 1:32 (1/2 cup/gallon) •Potassium peroxymonosulfate (Virkon, Trifectant) •Accelerated hydrogen peroxide (Virox)	•Asymptomatic carrier state •Stress or illness can cause the cat to shed the virus again •Persists in the environment up to 1 day •Difficult to remove from wood, dirt, carpet, and porous surfaces
Feline Coronavirus	•Mild diarrhea •May lead to FIP (rare)	•Oral contact with infected feces	Up to 60% of cats are asymptomatic carriers of FCoV	No	•Most disinfectants expected to be effective	•May persist in the environment for weeks
Feline Immunodeficiency Virus (FIV	•Assoc. with secondary conditions: anemia, stomatitis, neoplasia, secondary infection	•Bite wounds (most common) •Fomites •Blood transfusion	•Yes •Leukopenia, fever, malaise may be seen during first few weeks of infection	No	•Easily inactivated by common disinfectants	•House infected cats in individual cages away from the general population
Feline Leukemia Virus (FeLV)	•Assoc. with secondary conditions: anemia, stomatitis, neoplasia, secondary infection	•Oronasal contact with saliva, nasal secretions, feces, milk, urine	•Yes •Leukopenia, fever, malaise may be seen during first few weeks of infection	No	•Easily inactivated by common disinfectants	•House infected cats in individual cages away from the general population

Bacterial Agents	**Common Clinical signs**	**Transmission**	**Asymptomatic State**	**Zoonotic**	**Cleaning & Disinfection**	**Other information**
Chlamydophila felis	•Conjunctivitis •Chemosis •Ocular discharge	•Direct contact with infected animal or their oro-nasal secretions •Fomites	Up to 2 months after recovery	•Rarely •Immunocompromised may be at risk	•Most disinfectants expected to be effective	•Cats may be infected for months
Bordetella bronchiseptica	•Conjunctivitis •Nasal discharge •Cough •Dyspnea	•Direct contact with infected animal or their secretions •Fomites •Aerosol < 5 feet	Up to 5 months after recovery	•Immunocompromised may be at risk •Can be spread between dogs, cats, rabbits and guinea pigs	•Most disinfectants expected to be effective	•Doxycycline is the antibiotic of choice •Persistent in moist environment for weeks •May be shed for > 3 months following clinical recovery
Mycoplasma felis	•Conjunctivitis •Nasal discharge •Pneumonia •Arthritis	•Direct contact with infected animal or their secretions •Fomites •Aerosol < 5 feet?	May be normal microflora	No	•Most disinfectants expected to be effective	•Unknown if primary pathogen, can cause severe disease in cats infected with other agents

Protozoal Agents	**Common Clinical signs**	**Transmission**	**Asymptomatic State**	**Zoonotic**	**Cleaning & Disinfection**	**Other information**
Tritrichomonas foetus	•Severe, chronic diarrhea •Colitis	•Direct contact with infected feces •Ingestion of fecal contaminated water or food	Yes, many infected cats are asymptomatic	Unknown	•Most disinfectants expected to be effective	•Chronic carrier state •Self-limiting in months to years
Cryptosporidium spp.	•Small bowel diarrhea	•Ingestion of contaminated material or water •Fomites •Aerosol (rare)	Yes, most infected cats are asymptomatic	Yes	•Resistant to most chemical disinfectants •Thorough environmental cleaning and good biosecurity protocols are important	•Difficult to remove from the environment •Severe infection is usually associated with an underlying immune-suppressive disease
Giardia spp.	•Diarrhea •Asymptomatic	•Ingestion of contaminated food or water •Fomites	Yes, most infected cats are asymptomatic	Unknown	•Most disinfectants expected to be effective	•Carrier state •Provide clean water • Remove standing water •Persists in moist environment for months
Isopora spp. (Coccidia)	•Large bowel diarrhea	•Ingestion of contaminated feces •Fomites	Yes, most infected cats are asymptomatic	No	•Prompt removal of feces •Resistant to most disinfectants	•Resistant to many disinfectants •May shed for 1 to 9 weeks

Endoparasites	**Common Clinical signs**	**Transmission**	**Asymptomatic State**	**Zoonotic**	**Cleaning & Disinfection**	**Other information**
Toxocara spp. (Roundworms)	•Vomiting •Diarrhea	•Ingestion of contaminated soil or feces •Transmammary •Transplacental	Yes, most animals are asymptomatic carriers	Yes	•Remove feces promptly	•Difficult to remove from the environment
Spirometra (Tapeworm)	•Diarrhea	•Ingestion of infected amphibians or reptiles	Yes	No	•Remove feces promptly	•Resistant to many disinfectants •Intermediate hosts are reptiles and amphibians

Ectoparasites	**Common Clinical signs**	**Transmission**	**Asymptomatic State**	**Zoonotic**	**Cleaning & Disinfection**	**Other information**
Cheyletiella spp. (Mites)	•Skin scaling •Alopecia •Pruritus •Miliary dermatitis	•Direct contact with animal or bedding	Yes, asymptomatic carriers common	Yes	•Washing bedding & clothing •Vacuum household •Environmental flea spray may be needed	•Can cause intense itching in people •Highly contagious and difficult to cure from cat populations
Otodectes cynotis (Ear mites)	•Aural discharge •Pruritis	•Direct contact with animal or bedding •Fomites	Yes, asymptomatic carriers common	No	•Washing bedding & clothing •Vacuum household	•Can lead to secondary infection, severe otitis, aural hematomas, chronic otitis
Felicola subrostratus (Lice)	•Pruritus •Scaling •Alopecia	•Direct contact	Yes, asymptomatic carriers common	No	•No specific measures needed	•Lice are species specific and do not survive off of the host •Clipping and bathing will enhance removal of eggs
Demodex spp. (Mange)	•Patchy alopecia •Scaling •Erythema	•Direct contact	Yes	No	•No specific measures needed	•*D. cati* usually associated with concurrent immunosuppressive disease •*D. gatoi* more contagious and pruritic

November 2009

Dear Placement Partner Management Team and Veterinarian:

Thank you for your collaboration in caring for the 10th Life Sanctuary cats. As you are aware, the cats in this population have significant health and welfare concerns that must be addressed and managed in their new environments. Testing for selected infectious respiratory and gastrointestinal pathogens was conducted on a sample of cats residing at the 10th Life Sanctuary in February and July 2009. The following is a summary of the pathogens that have been identified in this population and important characteristics of these agents. Please note that this testing was performed for unrelated purposes prior to the relinquishment of these animals. As such, there may be additional infectious diseases present in this population that will need to be diagnosed and treated accordingly.

We strongly encourage you to properly isolate these cats and practice good biosecurity to protect your current population of animals from infectious disease transmission. Given that these cats are known to have been exposed to a number of infectious diseases, we recommend that all cats, including those that appear healthy, be placed in quarantine until cleared by the veterinarian.

In order to achieve effective quarantine, cats need to be maintained in physically distinct areas of the shelter or home (i.e. a separate room with a door). In the best case scenario, animals should be separated based on the type of disease they are exhibiting, for example, cats with diarrhea should be maintained in one room and cats with upper respiratory infection should be maintained in a completely separate room. An isolation room should be maintained by an assigned staff member who either does not work with any other animals in the facility or works with cats in isolation after working with healthy animals. Staff members handling cats in the isolation ward should thoroughly wash their hands in between handling each animal and wear appropriate personal protective equipment (i.e. gloves, gowns, shoe covers, etc.) to prevent transmission of disease throughout the facility and to their personal pets. In addition, separate cleaning supplies, food and water bowls, litter pans, etc. should all be maintained in an isolation ward and used exclusively for those animals.
The duration of the isolation period is dependent on the duration of clinical signs and knowledge about the infectious pathogen (i.e. is there an asymptomatic carrier state? Can animals shed infectious agent after recovery?). The decision to remove an animal from isolation should be made by or under the direct guidance of a veterinarian with knowledge of the specific needs of your shelter's population.

Thank you again for your commitment to improving the health and welfare of these cats. Please contact us if we can be of additional assistance.

Resources for Veterinary Care & Diagnostics

The following resources may be useful sources for veterinary information and/or diagnostic testing:
Maddie's Shelter Medicine Program
University of Florida College of Veterinary Medicine
www.UFShelterMedicine.com

Koret Shelter Medicine Program
University of California –Davis School of Veterinary Medicine
www.sheltermedicine.com
Shelter Health Information Sheets available at: http://www.sheltermedicine.com/portal/infosheets.php#top3

IDEXX Laboratories
Real PCR respiratory and diarrhea panels and other diagnostic services
www.vetconnect.com

Florida Department of Agriculture and Consumer Services
The Division of Animal Industry, Diagnostic Laboratories
Diagnostic and necropsy services
http://www.doacs.state.fl.us/ai/

Dr. Jody Gookin: Information about *Tritrichomonas foetus*:
http://www.cvm.ncsu.edu/docs/personnel/gookin_jody.html

Miller L, Hurley K, eds.: Infectious Disease Management in Animal Shelters. Wiley-Blackwell: Ames, 2009.

Greene CE, ed. Infectious Diseases of the Dog and Cat, 3rd Ed. Saunders Elsevier: St. Louis, 2006.

Levy JK, Crawford C, Hartmann K, et al. 2008 American Association of Feline Practitioners' Feline Retrovirus Management Guidelines. *Journal of Feline Medicine and Surgery*. (2008) 10: 300-316.
(*Contact us at sheltermedicine@vetmed.ufl.edu if you need a copy of these guidelines.)*

Current Treatment Recommendations for Maddie's Shelter Medicine Program

Note: These are general treatment recommendations. All cats should have an individual management plan tailored by a treating veterinarian.

Viral Agents	Treatment Recommendations	Prognosis
Feline Calicivirus & Feline Herpesvirus-1	Isolate infected cats in an appropriately maintained isolation facility. All cats should be monitored daily for hydration status, appetite, and development of secondary infections. Measures should be taken to reduce environmental stressors and eliminate crowding. If signs are mild, no specific therapy is indicated. Cats that are inappetent should be offered a variety of strong smelling foods to encourage their appetite; warming the food may encourage intake. Cats that are dehydrated should be treated with an appropriate dose of subcutaneous crystalloid fluids based on their hydration status and body weight. Body weight should be monitored weekly or more often as needed based on clinical presentation and body condition. Specific disease sequelae (e.g. keratitis, oral ulceration, etc.) may benefit from specific therapy.	Excellent, although a chronic carrier state exists.
Feline Coronavirus	Although isolation of infected cats in an appropriately maintained isolation facility is ideal, enteric coronavirus infections are very common in shelters and moderately common in pet cats in homes. Most cats with feline enteric coronavirus do not show clinical signs or show only transient, mild signs. Treatment should be limited to symptomatic and supportive care. Cats that are diagnosed with feline infectious peritonitis may require euthanaisa. This disease process is 100% fatal and no treatment has proven effective.	FCoV – good. FIP – grave.
Feline Immunodeficiency Virus (FIV)	Maintain known infected cats segregated from uninfected cats to prevent transmission and exposure to infectious agents. Repeat testing 60 days after the initial test result to confirm infection status. Treat secondary conditions as indicated. See 2008 AAFP Feline Retrovirus Management Guidelines for more detailed information.	Good with proper care, prevention of secondary infections and management of secondary conditions.
Feline Leukemia Virus (FeLV)	Maintain known positive cats in isolation to prevent transmission and exposure to infectious agents. Repeat testing 60 days from positive test result to confirm infection. Treat secondary conditions as indicated. See 2008 AAFP Feline Retrovirus Management Guidelines for more detailed information.	Good with proper care, prevention of secondary infections and management of secondary conditions. Lifespan likely to be shorter than uninfected cats.

Bacterial Agents	**Treatment Recommendations**	**Prognosis**
Chlamydophila felis	Isolate infected cats in an appropriately maintained isolation facility. Doxycycline 10 mg/kg once daily for 28 days. Doxycycline can be inexpensively compounded into a liquid formulation for administration. Liquid formulation is recommended to eliminate the risk of esophagitis and esophageal stricture.	Excellent
Bordetella bronchiseptica & *Mycoplasma felis*	Isolate infected cats in an appropriately maintained isolation facility. Cases of URI with suspected secondary bacterial disease are often due to infection with one of these organisms. The antibiotic of choice for these infections is doxycycline 10 mg/kg once daily. Doxycycline tablets or capsules can be inexpensively compounded into a liquid formulation for administration (rather than purchasing expensive oral formulations). Liquid formulation is highly recommended to eliminate the risk of esophagitis and esophageal stricture. Antibiotic therapy should be continued for a minimum of 10 days and 7 days past resolution of clinical signs. Supportive care as outlined for viral upper respiratory infections should be performed as well.	Good for uncomplicated cases.

Protozoal Agents	**Treatment Recommendations**	**Prognosis**
Tritrichomonas foetus	Isolate infected cats in an appropriately maintained isolation facility. This infection is highly contagious within a colony. Infection is self-limiting in most cats after 6 months to 2 years. Administration of ronidazole 30 mg/kg q 12 hours for 14 days may lead to resolution of clinical disease. Use should be carefully supervised for nervous system toxicity.	Good – long term.
Cryptosporidium spp.	Isolate infected cats in an appropriately maintained isolation facility. Ensure adequate hydration. Azithromycin, tylosin, and nitazoxanide may all be effective anti-protozoal treatments. Paromomycin is not recommended in cats with gastrointestinal inflammation.	Treatment of *Cryptosporidium* can be problematic, however, the long-term prognosis is excellent if underlying disease process causing immunosuppression can be diagnosed and treated.
Giardia spp.	Isolate infected cats in an appropriately maintained isolation facility. Treatment is indicated when no other causative agent for clinical signs can be identified or to prevent transmission of disease as part of an outbreak management plan in a shelter setting. Fenbendazole 50 mg/kg once daily for 5 consecutive days or Metronidazole 25 mg/kg once daily for 7 consecutive days may be effective. Re-infection is common – ensure adequate environmental sanitization, consider grooming or bathing of tractable cats or move cat to new enclosure on last day of treatment.	Good.
Isopora spp. (Coccidia)	Isolate infected cats in an appropriately maintained isolation facility. Disease is often self-limiting. Consider treatment in the face of other diseases or when no other causative agent can be identified or to prevent transmission of disease as part of an outbreak management plan in a shelter setting. Ponazuril 50 mg/kg once. Repeat in one week if signs persist.	Good.

Endoparasites	**Treatment Recommendations**	**Prognosis**
Toxocara spp.	Prophylactic anthelmintic administration for all animals on entry to the facility should be included in intake protocol for all cats with pyrantel pamoate 10 mg/kg. This dose should be repeated in two weeks. Broad spectrum monthly anthelmintic chemoprophylaxis is recommended long-term.	Excellent
Spirometra	Praziquantel 30 mg/kg once.	Excellent. Reinfection possible with ingestion of infected amphibian, reptiles and small mammals.

Ectoparasites	**Treatment Recommendations**	**Prognosis**
Cheyletiella spp. & *Felicola subrostratus*	Ivermectin 300 mcg/kg. Repeat 2 to 3 times at 2 week intervals (if given SQ); repeat weekly for 3 doses (if given PO). Fipronil applied topically every 2 weeks for 6-8 weeks. Selamectin applied topically every 2 weeks for 3-4 treatments. Lime sulfur applied twice weekly for 6-8 weeks. Treat all exposed cats and ensure good environmental cleaning.	Excellent
Otodectes cynotis	Ivermectin 300 mcg/kg. Repeat 2 to 3 times at 2 week intervals (if given SQ); repeat weekly for 3 doses (if given PO). Topical treatment with selamectin, fipronil, imidacloprid with moxidectin (do not use more than once every 4 weeks), or milbemycin. Removal of aural debris speeds resolution and allows penetration of topical medications. Mineral oil can be used to soften hardened debris. Extremely pruritic cats may benefit from short-term glucocorticoid treatment. Treat all exposed cats and ensure good environmental cleaning.	Excellent
Demodex spp.	2% lime sulfur dip weekly for 4-6 weeks Ivermectin 300 mcg/kg once weekly for 4 weeks Treat all cats in contact (esp. *D. gatoi*) May spontaneously resolve.	