

This Chapter Covers:

- ◆ Sanitation and Hygiene
- ◆ Disease Transmission and Prevention
- ◆ Animal Disease Recognition
- ◆ Animal Injuries and First Aid
- ◆ Animal Reproduction

Sanitation and Hygiene

Good sanitation and hygiene procedures play an important role in animal control. A clean kennel, a clean truck, and personal cleanliness all play a part in your health and the health of the animals in your care. Dirt and animal wastes are removed by cleaning, but you must also remove disease-causing organisms (bacteria, viruses, fungi, and parasites). The organisms may be found on all contact surfaces (walls, floors, tables, etc.) of an animal housing facility, as well as equipment, utensils, and transport vehicles. These microbes (microorganisms) may be spread to animals or people and cause disease. The use of disinfectants will help to eliminate microbes.

Disease prevention begins with a clean environment. Prevent the animals in your facility from becoming sick by properly cleaning and disinfecting the facility.

Remember: Wash your hands often! Your hands come into contact with disease-causing organisms when you handle animals, use capture and restraint equipment, or work in areas where animals are housed.

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Disease Transmission and Prevention

Many animal diseases are contagious (they are passed from animal to animal). Some can be spread between different types of animals; for example, canine distemper can be spread from dogs to foxes and raccoons. There are animal diseases that can be spread to people, such as rabies; these diseases are called zoonotic diseases. Knowing about animal diseases and how they are spread will help you keep the animals in your agency's care as healthy as possible.

- ! Contagious diseases are caused by organisms that include bacteria, viruses, fungi, and parasites. Most are extremely small and can only be seen with a microscope.

- ! Microbes usually must enter the animal's body to cause a disease. Some enter the animal's body through normal openings, such as the mouth, nose, eyes, or reproductive organs. Other microbes can enter through a scratch, cut, or bite.

- ! Once the microbes are inside the animal, they start to reproduce (multiply). The animal's immune (defense) system normally kills the invading organism. Usually the immune system will win, but if the microbes are numerous or very strong or if the animal is weak, stressed, or injured, the animal may become sick.

- ! When animals are sick, they usually show clinical signs of disease. Common clinical signs seen in sick animals include:

panting	coughing	sneezing	vomiting
<u>diarrhea</u>	not eating	swelling	crying
runny nose	not drinking	depression	limping
runny eyes	<u>listless</u>		

(See Appendix A at the end of this chapter for a more detailed summary of clinical signs.)

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- ! Sometimes the clinical signs will not appear until after the animal has been infected for a period of time. This means that even animals that look healthy may be contagious and be able to spread the disease to other animals.
- ! Different microorganisms are spread in different ways. Disease-causing microbes may be spread through the infected animal's waste (feces and urine), vomit, saliva, respiratory droplets from coughing and sneezing, blood, and other body fluids.

Preventing the Spread of Disease in the Kennel

Prevent the spread of disease before it happens. It is very important to keep disease-causing organisms from spreading to other animals. Follow these steps on a regular basis to prevent the spread of diseases in the kennel because you will not always be aware that an animal is sick.

- Minimize the number of animals in the same cage or run. If one of them has a contagious disease, all of them will be exposed to the disease.
- Keep truck and kennel cages, food and water bowls, and other contact surfaces clean and disinfected. If they are properly disinfected before and after each use, the risk of disease transmission will be greatly reduced.
- Ventilation (good air flow) can help remove the microorganisms in the air from the building. Ventilation replaces old air (contaminated air) with fresh air from outside the building.

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When one animal gets sick, protect the other animals!

Act quickly to prevent the disease from spreading to the other animals when one animal becomes sick.

- Keep any sick animals away from other animals.
- Disinfect the cage where a sick animal was kept and any other objects the animal may have contacted.
- Ask a veterinarian to examine the sick animal. If the veterinarian finds that an animal is suffering from a very contagious disease or one that will be difficult to cure, it may be best to humanely destroy the animal. This will end the animal=s suffering and prevent the disease from spreading to other animals.
- Do not allow the air from the area where sick animals are kept to flow into the area where the healthy animals are kept.

Disease Transmission and Prevention Summary

Animals with diseases can spread disease-causing organisms to other animals or people. To prevent healthy animals and yourself from becoming sick through exposure to these organisms, you must:

- ! recognize and isolate the sick animals;
- ! know where the disease-causing organisms may be growing and how they are transmitted; and
- ! know how to remove microbes from the environment.

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Animal Disease Recognition

Become familiar with common animal diseases so that you can recognize sick animals, provide needed care, and prevent the disease from spreading to healthy animals.

Common Animal Parasites

Parasites are organisms that live in or on an animal and cause damage to that animal. A parasitic disease is one that is caused by a parasite.

Worms are parasites that live inside an animal. Most puppies and kittens are born with worms because the parasites can be passed to them by their mother. They need specific worm medicine to keep them healthy. Puppies and kittens that have been abandoned or have never been taken to a veterinarian may quickly begin to show clinical signs of worms.

- ! Roundworms are long (4 to 7 inches), thin, white worms that a young animal may vomit or pass in the feces. A common sign of roundworms in puppies and kittens is a potbelly.

- ! Hookworms are even more dangerous to puppies and kittens. These very small (microscopic) worms suck blood from the intestines. Puppies and kittens can die quickly of anemia if the signs of hookworms are not noticed. Lethargy, pale or white gums, and dark, tarry feces are signs of blood loss due to hookworms.

Remember: If your agency allows puppies and kittens to be adopted, have them treated for worms as recommended by your veterinarian. **Roundworms and hookworms can cause serious disease in people, especially young children.** Be sure that all puppies and kittens are checked and treated for worms before they are released to new owners.

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- ! Tapeworms are often seen in both dogs and cats. Small segments (pieces) of the tapeworms, about the size of a grain of rice, are often seen moving in the feces or near the animal's anus. They often cause the animal to drag its buttock on the ground. In severe cases, the entire tapeworm can be passed from the rectum in long, flat strands.

A special medication is required to eliminate tapeworms from the animal. Also, since some tapeworms are carried by fleas, keeping the animals free from fleas will help prevent reinfection. People, especially young children, may become ill from swallowing a flea that is carrying tapeworm larvae. Crushing fleas with your bare hands can also expose you to tapeworms if you place your hands in your mouth before washing them.

Ticks, fleas, and mites are parasites that live in the skin or on the body surface.

- ! Ticks and fleas make animals uncomfortable, cause blood loss, and can carry diseases.
- ! A parasite, such as a tick or a flea, that is carrying a disease-causing organism is called a vector.
- ! When the vector is feeding on an animal, it can pass the microorganism to that animal.
- ! Crushing a vector with bare hands may result in exposure to the organism it is carrying. Use tweezers or a tissue to remove ticks from an animal.
- ! Some of the diseases that are transmitted by a vector include:

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<u>Disease</u>	<u>Vector (Parasite)</u>
Encephalitis (Eastern Equine, Western Equine, St. Louis, and Venezuelan Equine Encephalitis and West Nile Virus)	mosquitoes
Rocky Mountain Spotted Fever (RMSF)	ticks
Tick-Borne Relapsing Fever (TBRF)	ticks
Ehrlichiosis	ticks
Lyme Disease	ticks
Plague	fleas
Heartworm	mosquitoes
Tapeworm	fleas

! **Mange** is caused by mites that live in the skin. The most common types of mange are listed below.

- * **Sarcoptic mange** is very contagious and can infect people. It causes an itchy, scaly skin disease that causes the animal to scratch vigorously.
- * **Demodectic mange** (sometimes called *Ared mange@*) is not contagious, but it is harder to treat. It causes hair loss and sometimes inflamed (red) skin.

! **Ear mites** infest dogs, cats, and rabbits and live in their ear canals. Animals with ear mites will scratch their ears and/or shake their heads. They also can have a thick, dark discharge in their ear canal.

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Parasite Control

Most parasites are controlled by using poisons. Worm medicine is a poison to the worm and, if not given properly, could be a poison to the animal. Consult a veterinarian before using poisons on or around animals to kill worms, ticks, fleas, and mites. If you use a chemical dip to remove external parasites from animals, be very careful and use the correct concentration. Using too much dip or dipping too often can cause the person applying the dip and the animal being dipped to become very sick. Do **not** use dips that were made just for dogs on cats because cats are much more sensitive to poisons. Dog dip used on a cat may cause death. **Always read and follow the directions on labels.** Dips can be absorbed through your skin, so always wear gloves when dipping animals.

Common Animal Parasites Summary

Many animal parasites are not covered in this manual. Several of the worms that are covered are very important because they are common in dogs and cats, and they can be transmitted to people. Some parasites are dangerous because they are also vectors of disease. The poisons used to control parasites can be dangerous to both animals and people.

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Common Infectious Animal Diseases

Strays or animals that run loose will most likely come in contact with things that can make them sick. It is natural for animals to sniff animal waste and to eat garbage. However, this puts them at risk of contracting infectious diseases.

Common infectious diseases in dogs include:

Disease	Micro-organism(s)	Transmission	Clinical Signs
Canine distemper	Virus	Highly contagious Aerosolized droplets; direct-contact spread most common <u>Fomite*</u> transmission over short time and distance	First signs include: <ul style="list-style-type: none"> • Fever • Runny eyes and nose • Loss of appetite and weight loss • Vomiting and diarrhea May develop into pneumonia Later stages affect the nervous system and may cause <u>paralysis</u> and/or <u>seizures</u>
Canine parvovirus	Virus	Readily spread due to extreme environmental resistance through direct contact; fomites; mechanical spread by rodents and insects; aerosol by high-pressure sprayers	Primarily affects the intestinal tract: <ul style="list-style-type: none"> • Bloody diarrhea • Fever • Loss of appetite • Vomiting
Canine cough or kennel cough (tracheobronchitis)	Viruses-bacterium complex	Highly contagious Transmitted by aerosolized droplets; fomites over moderate time and distance; direct contact	Primarily affects the respiratory tract: <ul style="list-style-type: none"> • Harsh dry cough • May be followed by gagging and coughing up mucus • Watery, nasal discharge Will often continue to eat and play normally

* Fomites are inanimate objects that can become contaminated with germs and serve to spread disease. Examples include cage surfaces, towels, blankets, food bowls, litter boxes, cleaning equipment, shoes, and, most importantly, the hands and clothes of animal handlers.

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Common infectious diseases in cats include:

Disease	Micro-organism(s)	Transmission	Clinical Signs
Feline panleukopenia	Virus	<p>Transmitted primarily by the fecal-oral route and fomites*</p> <p>Very durable unless inactivated by an effective disinfectant</p> <p>Can persist in the environment for months or even years</p>	<ul style="list-style-type: none"> • Sudden onset of illness • May start vomiting and become severely dehydrated • High fever • Loss of appetite
Feline upper respiratory disease	Viruses and Bacteria	<p>Highly contagious and moderately environmentally persistent</p> <p>Spread by direct contact; fomites over significant time and distance; aerosolized droplets from sneezing animals over distances of less than 5 feet</p>	<p>Primarily affects the respiratory tract:</p> <ul style="list-style-type: none"> • Sneezing • <u>Conjunctivitis</u> • Runny nose • Oral ulcers
Feline leukemia	Virus	<p>Most commonly spread via the saliva of infected cats either directly or by contaminated food or fomites</p> <p>Present in other secretions such as urine or feces, but this is less common</p> <p>Can be spread transplacentally from mother to offspring, but spread via nursing or grooming more common</p> <p>Airborne spread is not a concern</p> <p>Not very durable in the environment</p> <p>Inactivated by most commonly used disinfectants</p>	<ul style="list-style-type: none"> • During early stages may not exhibit any symptoms • Later see loss of appetite and weight loss • Lethargy • Gingivitis • Persistent fever • Persistent diarrhea • Anemia and immune suppression resulting in secondary bacterial infections

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Feline infectious peritonitis (FIP)	Virus	Shed extensively in the feces of infected cats Very readily spread by fomite transmission	<ul style="list-style-type: none"> • Sometimes no obvious clinical signs • May have upper respiratory symptoms • Fever • Distended (swollen) abdomen • Young and old cats most susceptible
Feline immunodeficiency virus (FIV)	Virus	Not highly contagious Transmitted primarily through biting	<ul style="list-style-type: none"> • May appear normal for years • Eventually immunosuppressed • Poor coat • Persistent fever • Recurrent infections • Gingivitis • Slow, progressive weight loss

* Fomites are inanimate objects that can become contaminated with germs and serve to spread disease. Examples include cage surfaces, towels, blankets, food bowls, litter boxes, cleaning equipment, shoes, and, most importantly, the hands and clothes of animal handlers.

Control of Infectious Disease

Any infectious disease needs to be diagnosed by a veterinarian. Read the sections on [Sanitation and Hygiene](#) and [Disease Transmission and Prevention](#) or refer to the chapter on sanitation to help you understand and follow the veterinarian's recommendations for controlling the spread of various diseases.

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Vaccinations

Vaccinations are available for most of the common infectious diseases in dogs and cats. These vaccinations are given to **healthy** dogs and cats to prevent them from developing infectious diseases. The vaccinations stimulate the animal's immune system to produce antibodies that fight disease. It takes the animal about **one month** to produce enough antibodies to protect itself from infection. Do **not** give vaccines to a sick animal.

Many of the animals that enter an animal shelter have been exposed to infectious diseases while running loose. Animals that are already exposed to an infectious disease may not be able to produce antibodies before they become sick even if they are vaccinated when they enter the shelter. Most of them will not stay in the shelter long enough (30 days) to get protection from a vaccination. Therefore, an animal shelter must depend more on the use of effective sanitation methods and good shelter management than on vaccines to keep the animals healthy. Your veterinarian can advise you as to whether a vaccination program is appropriate for the animals in your shelter.

When An Animal Is Sick

Have a veterinarian examine any animal that looks or acts sick. Your city or county should have an agreement with a local veterinarian to take care of emergencies and disease outbreaks in your facility. Your city ordinances, county rules, or office policies should also explain what actions are required when handling an injured or sick animal. Develop a good working relationship with the veterinarian and always follow his or her advice. If the animal's clinical signs change or worsen, let the veterinarian know. If your facility has a veterinarian on staff, problems in dealing with sick animals will be greatly reduced.

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When caring for a sick animal, place it in a quiet, separate cage or run and do not let it have contact with other animals. Feed, water, and clean its area **last** so that the rest of the kennel will not be contaminated (infected by contact). Wash and disinfect your hands before and after handling the animal or cleaning its bowls or cage. Disinfect your shoes by stepping into a shallow disinfectant bath as you leave the isolation area.

Common Infectious Animal Diseases Summary

Many of the animals in an animal shelter have been exposed to infectious diseases. For this reason, it is important to constantly watch for the clinical signs of disease and remove sick animals as soon as possible. Knowledge and use of good sanitation and hygiene will help to protect the animals in the shelter from many common infectious animal diseases.

Zoonotic Diseases

Zoonoses, or zoonotic diseases, are those that can be transmitted between animals and humans or are common to animals and humans. For example, **rabies** is a zoonotic disease that affects all warm-blooded animals and can result in a fatal neurologic infection in humans as well as in some animals (almost always mammals). This is why animal control officers (ACOs) should receive preexposure rabies vaccinations. Here are some other zoonotic diseases:

- **Anthrax** is a bacterial disease found in many different types of animals, especially livestock and deer. These animals get the disease by eating anthrax spores in a contaminated pasture. Clinical signs in animals may include staggering, difficulty breathing, and collapse, followed by death. A vaccine for livestock is available. Symptoms in people vary greatly; the skin, lungs, or intestinal tract may be involved.

! **Brucellosis** (Bang=s disease, undulant fever) is a bacterial disease found

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in dogs, cattle, goats, sheep, and pigs. Animals infected with this disease will have infected reproductive organs. In people, it can cause recurring high fevers and flu-like symptoms.

- ! **Encephalitis** is a viral disease spread by mosquitoes from infected birds. In humans, symptoms can range from mild (flu-like) to severe (high fever, seizures, coma). Acute clinical signs in horses include walking in circles, head pressing, paralysis, and coma, possibly followed by death. There is no direct spread from horses to humans.

- ! **Hantavirus infection** is spread through exposure of airborne particles from rodent droppings, urine, or saliva. Infection with this virus can cause acute fever, body aches, and respiratory failure.

- ! **Leptospirosis** is transmitted through the urine of an infected animal. It is found in dogs, rats, and livestock. Infection with this bacterium can cause extreme fever and severe kidney and liver infections.

- ! **Plague**, which is a bacterial disease, usually infects rodents (rats, squirrels, prairie dogs, etc.), but it can infect other animals and humans. Cats have been known to develop plague and pass it to humans through infectious material from an abscess or through respiratory droplets.

- ! **Psittacosis** is found in birds, and it can spread rapidly among them. Those infected with this **chlamydial** (specialized bacterium) disease may not appear to be sick. Remove sick or dead birds from cages immediately. In people, it can cause fever and pneumonia.

- ! **Ringworm** is a skin infection caused by a fungus. Although it is a

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zoonotic disease, it can frequently be spread to a person by direct contact with an infected person.

- ! **Salmonella** is a bacterium that can be carried by reptiles, amphibians (such as frogs), cattle, pigs, and poultry (chickens) and passed in their feces. It can cause diarrhea and severe illness in humans.

- ! **Toxoplasmosis** is a parasitic disease. The infective stages of this parasite are commonly found in cat feces and undercooked meat. This disease is of most concern to pregnant women because it can cause birth defects in babies. It can also cause severe illness in people with weak immune systems. If you are pregnant or immunocompromised, promptly inform your supervisor of your condition.

If you become sick and require medical attention, make sure that the doctor knows that you are an ACO. This information could be very helpful to the doctor in correctly diagnosing your illness.

Animal Injuries and First Aid

Emergencies

Animal control officers will encounter injured animals at the shelter and in the community. Some cities allow injured animals with an identification tag to be taken directly to their veterinarian for emergency treatment. Be sure to check with your supervisor to learn how your city or county handles these situations. The best way to handle emergencies is to be prepared. First aid training and the right equipment are essential. Training is very important, but remember that an ACO is not a veterinarian.

Remember: In an emergency, do not panic! Common sense is as

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important as training and equipment.

First Aid and Emergency Tips

- ! **Safety first.** An injured animal in the street is a hazard to drivers, onlookers, and people who are trying to help. Use the flashing caution lights on the truck, emergency road flares, or other methods to warn drivers to slow down and drive around the animal. You may have to call for police to help direct the traffic on a busy road.

- ! **Get close to the animal.** Move the truck as close to the injured animal as possible if it is to be loaded onto the truck.

- ! **Protect yourself.** An injured animal is usually in pain and may bite. You may have to use a **heavy blanket** or a **temporary muzzle** to handle the animal. **Remember to remove the muzzle after the animal is loaded onto the truck.** If the animal vomits while wearing a muzzle, it may choke and die.

Injury and Heatstroke First Aid

- ! **Injuries** are common in animals that run loose in the streets. Many animals are killed instantly, while others are so severely injured that an immediate, humane death may be the best option for them.

- ! Animals that survive may have fractured (broken) bones. They may be bleeding internally or externally, and this loss of blood and severe pain may cause them to go into shock. Pale gums and a rapid pulse are both clinical signs of shock.

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- ! First aid is an attempt to prevent or combat shock while the animal is awaiting veterinary treatment. Stop the flow of blood by using direct **pressure**. If the animal is bleeding externally, apply direct pressure to the wound with a towel or folded cloth. **Do not use a tourniquet.**

- ! Keep any injured animal calm and warm. The use of a blanket will help with both.

- ! Support broken bones to prevent further damage. Wrap the area with a thick towel to keep the bones together and to prevent contamination of exposed wounds.

- ! An animal stretcher or a blanket may be used to help move an injured animal from the ground to the truck.

- ! **Heatstroke** is often seen in animals that are left inside a car during warm weather. Dogs suffering from heatstroke will quickly become comatose and die if not treated immediately. **The best immediate treatment is to soak the dog in cool water (tap water, not ice water) and then take it to the nearest veterinarian.**

Animal Reproduction

Sexual Development in Dogs and Cats

Dogs and cats will usually reach puberty (sexual maturity; the time when they are able to reproduce) about 6 to 12 months after they are born. Smaller dogs will usually mature earlier than larger dogs.

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Bitches and queens will mature 1 to 2 months earlier than dogs and toms. Puberty in female dogs and cats is marked by the beginning of estrus. Estrus (in heat, in season) is the period of time when a female is ready to breed.

- ! A bitch (whether or not she has been bred) will be in estrus once every 6 to 8 months for about 1 to 3 weeks at a time.
- ! A queen will be in estrus once a month for about a week, more commonly during January to July. A queen can still have an estrous cycle and be bred again while she is nursing a litter of kittens.

When copulation (breeding) takes place, the male's sperm is combined with the female's ova (eggs). This combination is called fertilization. Each fertilized ovum (egg) will develop into a puppy or kitten within the female's uterus. It is possible for a litter of puppies or kittens to have more than one father. The gestation period (pregnancy) usually lasts between 58 to 66 days in domestic dogs and cats.

Sexual Behavior in Dogs and Cats

A bitch in estrus will attract dogs from large distances. During her estrus, a bitch is more likely to stray from home searching for a mate. Groups of dogs often follow the in heat bitch, resulting in roaming packs of dogs; this could increase the number of complaints received by animal control agencies.

A queen that is in estrus usually exhibits different behavior, such as calling, howling, unusual postures, urinating in unacceptable locations, and refusing to eat. After a queen breeds, she loses all interest in sexual activities.

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Control of Reproduction in Dogs and Cats

A major problem for animal control is the uncontrolled breeding of dogs and cats in our society. There are already too many unwanted and neglected animals.

- ! Owners who have their pets surgically neutered (females spayed, males castrated) help solve the problem by reducing the number of unwanted puppies and kittens.

- ! Pet owners who confine their pets to their property can reduce the chances of their pet breeding and producing an unwanted litter. It is preferable to keep a queen or bitch inside during estrus. A fence will not necessarily prevent a dog from entering a yard that contains a bitch in estrus.

The best solutions to this problem are community education and responsible pet ownership. It is the duty of an ACO to stress the importance of responsible pet ownership during their contacts with citizens in their community.

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Appendix A

How To Tell A Sick Animal From A Healthy One

Author Unknown

Normal

Abnormal

General Appearance

bright; alert; skin elastic (springs back into place when moved); normal temperature (101.0 - 102.5EF)	thin or obese; lumps or swelling; hair loss
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Activity

good appetite but not ravenous; active; interested in surroundings	listless; suddenly aggressive or shy; changes in behavior or appetite; lameness; vomiting; excessive coughing or sneezing; head shaking; pawing at face; excessive biting at skin; dragging anus along ground
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Ears

clean; no odor; ear color should be pink in cats; ears have waxy polished look in dogs	thick discharge; odor; shaking head/flapping ears
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Eyes

eyes and lids clean; eyes clear and bright	crusty; pale; watery; pus or other discharge; squinty in light; cats: middle (third) eyelid covering part of eye; dogs: bloodshot, filmy, or irritated-looking eye
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Nose

free from discharge; cats: bright pink in some breeds; dogs: may have clear moisture	hot; dry and crusty; pus-like discharge
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Breathing

respiratory rhythm smooth and regular (may accelerate when animal is hot or excited)	irregular, rapid, or labored breathing; sneezing or coughing; very slow or almost imperceptible breathing (may be shock)
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Mouth

clean; free of offensive odor	red or dry; irritated-looking; bad odor not due to food; drooling in cats
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Normal

Abnormal

Gums and Teeth

pink gums which turn pink again rapidly when pressed with finger; clean teeth; firm teeth in gums	pale, white, or inflamed gums; loose, brown, or pitted teeth (in dogs, brown pits may indicate earlier case of distemper); draining abscess on cheek
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Skin

smooth; clean; resilient	dull coat; thin spots of hair; matted hair; sores or scabs
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Feet

clean and smooth pads; nails of average length in dogs	hard pads; ridges in pads; matter between toes; excessively long nails in dogs
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Stools (Feces)/Urine

firm stool; regular urination	soft or runny stool; change in stool color not due to diet; unusual odor; straining to eliminate; <u>constipation</u> ; frequent urination; unable to urinate
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