ZOONOTIC DISEASES – HANDBOOK FOR EMPLOYEES, VOLUNTEERS, AND FOSTER CARERS

Being aware of some diseases that can be spread to humans from animals helps to keep both people and pets healthy.

Whether you own, foster or work with a dog or cat, a bird or a reptile, a rabbit or fish, you should be aware that a pet can have an effect on your health by infecting you with certain diseases. These are called zoonotic diseases – animal diseases that can be transmitted to humans.

All animals can acquire zoonotic diseases, but animals at increased risk include: outdoor pets, unvaccinated animals, pets that are immunocompromised (a suppressed immune system), poorly groomed animals, and animals that are housed in unsanitary conditions. People with immune disorders, on chemotherapy or immunosuppressive therapy may be at increased risk of infection. Elderly people with thin skin on their hands and arms may be more susceptible for abrasions and therefore infections. Pregnant women should also take precautions.

Potential zoonotic agents include bacteria, viruses, fungi, internal parasites and arthropods.

Animal Care Centres pose unique challenges for the control of infectious disease in general and zoonotic disease in particular. Animals frequently enter Animal Care Centres without a history of proper veterinary care or vaccination. In addition, animals entering Animal Care Centres are often frightened, disoriented, and of unknown temperament. This creates an increased risk of being bitten or scratched.

It is imperative, therefore, for staff, volunteers, and foster carers to realise the potential for any animal to be a potential source of infection, and maintain proper measures as a matter of routine, not just when disease is recognised.

Some of the more common zoonotic diseases include:

Cat-Scratch Disease:
Cat-scratch disease, also called Bartonellosis, is by far the most common zoonotic disease associated with cats. Cat-scratch disease can occur when a person is bitten

or scratched by an infected cat. Fleas may also play a role in the transmission of infection. People with cat-scratch disease usually have swollen lymph nodes, especially round the head, neck and upper limbs. They may also experience fever, headache, sore muscles and joints, fatigue and poor appetite. Healthy adults normally recover with no lasting effects, but it may take several months for the disease to go away completely. People with compromised immune systems may suffer more severe, even fatal, consequences.

Avoiding scratches and bites, controlling fleas, and keeping cats indoors, all reduce the risk of cat-scratch disease. Most cases of cat-scratch disease result from contact with kittens.

Always practice good hygiene with your cat – this will go a long way to keeping you free from cat-scratch disease.

If you suspect you may have developed cat-scratch fever, seek professional medical advice.

Dog and Cat Bites:
Most animal bites come from dogs, followed by cats, with a lesser amount from other species.

An estimated 3-5% of dog bites and 20-50% of cat bites become infected. Risk of infection is highest for crush and puncture wounds. Most bite wound infections are a mix of aerobic and anaerobic bacteria from the animal's mouth and the victim's skin.

Two infectious agents account for the majority of serious complications:

Pasteurella spp – more commonly found infecting cat bites than dog bites. The wound becomes very swollen, red and painful within 24 hours (or sooner) of the bite. Severe complications and systemic spread is possible if not treated. Septic shock is possible, especially in immunocompromised patients.

Capnocytophaga canimorsus – more commonly found infecting dog bites than cat bites. Signs of infection may not appear for 24 hours to several weeks post-bite.

All bites should be thoroughly washed with soap and water, and irrigated with saline or an appropriate disinfectant. Prompt cleaning can help prevent transmission of zoonotic disease as well as infection.

Medical attention should be sought - this may include having a tetanus injection and often, antibiotics. Special care should be taken if bitten over a joint, for example, fingers.

Worms – Roundworms:
Roundworms can be exceptionally good survivors, with viable eggs able to live outside the animal for several years. Roundworm symptoms in an animal include vomiting, diarrhoea, pot-belly, and colic. Puppies can develop roundworm at the foetal stage, prior to being born.

Toxocara, which infects dogs and cats, can be picked up by humans.

Young puppies and kittens that defecate outdoors contribute most to contamination of soil by eggs – these eggs incubate for some time. Sandpits and grassy areas are likely to be contaminated with a high number of eggs.

A few worms in your intestine may cause no symptoms or may give rise only to vague or intermittent abdominal pain. Heavy infection may cause partial or complete blockage of the intestines resulting in severe abdominal pain and vomiting.

Roundworm in humans may have serious effects – roundworms can lodge behind the eye and affect internal organs also.

If infection by roundworm is suspected, you should see your medical practitioner, who can treat this successfully.

Good hygiene is essential –encourage children to wash hands after handling an animal and not to kiss the cat or dog.

Tapeworms (Hydatid):
Hydatid tapeworms are found in areas where sheep, kangaroos or wild pigs are in contact with dogs. After eating hydatid eggs from pastures contaminated by infected dogs, intermediate hosts can develop hydatid cysts. Dogs become infected by hydatid tapeworms after eating hydatid cysts from infected intermediate hosts (eg eating offal from sheep).

Hydatid tapeworms pose a serious health risk to humans. The same cysts can occur in adults or children who accidentally swallow eggs from a dog's coat.

A regular worming programme is effective in killing worms that are present in the intestine at the time of treatment. Regular worming treatment, therefore, is essential to your animal's health.

Humans developing hydatid cysts should seek professional medical attention.

This form of worm is not typically found in Tasmania, however, the same precautions should be taken.

Campylobacter:
This is the most common cause of bacterial diarrhoea worldwide.

These bacteria can be passed from animals to humans, particularly from dogs and cats.

Symptoms to be aware of include watery or bloody diarrhoea, fever, abdominal cramps, and nausea and vomiting. Transmission from infected animals to humans occurs through the faecal-oral route.

Ensuring proper hygiene at all times will assist in the prevention of becoming infected.

Seek medical attention if you are affected by the above symptoms.

Salmonella:
Salmonella infections from animals can be passed on to humans. The faeces of virtually any animal may be a potential source of Salmonella.

Dogs and cats tend to shed Salmonella organisms for very prolonged periods of time after infection. Salmonella organisms are also shed from their faeces and saliva, meaning that transmission can occur via licking.

Dogs and cats may suffer Salmonella as a “reverse zoonosis” with infection transmitted from human to animal, and subsequently back to other humans.

Salmonella is also recognised as a zoonosis associated with many species of reptiles and birds.

Salmonella can be diagnosed through faecal culture.

Human symptoms include abdominal cramps, nausea, vomiting, and diarrhoea. If you suspect you may be infected with Salmonella, seek medical attention.

Good hygiene practices will limit the likelihood of developing salmonella symptoms.

Ringworm:
Many species of animals, including humans, are susceptible to fungal skin conditions. Cats, dogs, and domestic livestock, including horses, are the most commonly affected animals.

Ringworm is the collective name given to fungal infections of the hair and skin. Thus, ringworm is better described as a condition, not a specific disease with only one specific cause.

Ringworm is a highly contagious infection of keratinised tissue (skin, hair and claws).

In humans, ringworm forms a ring-shaped raised red rash.

Transmission to humans is possible from many species of animal, including horses, sheep and cattle, as well as cats and dogs, so the best prevention is to maintain effective hygiene to reduce transmission from, or between, infected animals to humans.

Fungal spores can persist in the environment, including the home carpet, for up to two years. Getting rid of any hair shed is of major importance in limited the spread of ringworm. This can be achieved by regular vacuuming of home surfaces, followed by disinfection.

If you suspect you may have developed ringworm, please seek professional medical advice.

Sheep – Scabby Mouth:

Scabby mouth is caused by a virus that normally attacks damaged skin on the lips of sheep and goats. The animal develops painful lesions around the mouth. This virus can infect humans, if handling of infected sheep occurs.

If infected, a human may develop lesions, most commonly on the hands or arms, at the site of cuts and wounds.

Professional medical attention should be sought if you develop symptoms as described above.

You should not handle sheep when you have open cuts or abrasions on your hands or arms unless thick gloves are worn.

Leptospirosis:

This is a flu-like illness which can be contracted by humans when skin and mucous membranes are exposed to the infected urine of cattle, rats, pigs and dogs. Symptoms range from mild to severe, with some affected persons developing abnormal liver and kidney function.

If you regularly handle cattle, sheep, goats or feral animals, see your doctor if you develop flu-like symptoms. Symptoms include: fever or chills, headache, profuse sweating, weakness or malaise, nausea, muscle and joint pain, rash, or severe coughing or breathing problems.

If diagnosed, you will normally be treated with antibiotics.

Q Fever:
Q fever infection is the most common zoonotic disease in Australia. The bacteria responsible can survive for long periods in animal environments. People are generally infected by inhaling air or particles contaminated with the excreta or birth fluids of infected animals. Cattle, sheep, goats, domestic pets, rodents and kangaroos are known carriers of the disease.

Symptoms are as for leptospirosis. If you develop these symptoms, please seek professional medical attention. A vaccine is available for Q fever.

Toxoplasmosis:
Toxoplasma gondii is a parasite which lives inside the cells of mammals. Cats are the definitive host of this parasite but other animals, including humans, can act as intermediate hosts. Toxoplasmosis is the disease caused by this parasite and it can be transmitted to humans, with potentially devastating effects in pregnant women.

Cats contract toxoplasmosis by ingesting raw meat, bones or viscera fed to them by their owners or from prey animals, drinking unpasteurised milk, or eating insects such as flies or cockroaches, all of which may carry toxoplasmosis. Cats can also contract this disease from dirty litter trays or contact with cat faeces.

Cats often show few signs of the disease and the infection may go unnoticed.

Humans may contract toxoplasmosis in a number of ways, including: eating raw or undercooked meat, eating unwashed salads, vegetables or fruit which has been contaminated with toxoplasmosis (usually from cat faeces), or by contact with cat faeces at home or in the garden.

Human symptoms generally only cause mild symptoms involving a rise in temperature, swollen glands, or general flu-like symptoms.

The most well-known at risk group are pregnant women, in whom the disease can be passed to their unborn child, with resulting blindness, brain damage or epilepsy.

Good hygiene practices will limit exposure to this disease which is easily spread in an Animal Care Centre environment. Wear gloves when handling dirty litter trays. Always wash hands after handling cats

Coccidia:
Coccidian parasites infect the intestinal tracts of animals. The disease spreads by contact with infected faeces. Diarrhoea is the primary symptom in animals and humans.

Good sanitation, personal hygiene and regular removal of animal faeces are the best methods of prevention.

If you develop abdominal pains, diarrhoea (in severe cases, bloody), seek professional medical attention.

Giardia:
Giardia is a one-celled protozoan parasite that lives in the intestinal tract of many animals, including dogs, cats, cows and humans.

Symptoms of Giardia include diarrhoea, both for pets and people. Nausea, bloating and cramping may also be noted in humans.

This parasite is most commonly spread through infected water sources. Giardia can be found in food, water, faeces and anything contaminated with these substances. Transmission is faecal to mouth via the faecal – oral route.

For kennel spaces and cleanable surfaces, a dilute bleach solution (1:10) will kill Giardia.

To limit your potential exposure to Giardia, practice good sanitation and personal hygiene. Wash hands with warm, soapy water, taking extra care after handling infected animals and faeces.

Cryptosporidium:
This parasite infects all classes of invertebrates and causes mainly gastrointestinal disease in mammals and reptiles, and enteric, renal and respiratory disease in birds.

Transmission is faecal to mouth via the faecal-oral route.

Hand washing in warm, soapy water, and drying with disposable towels is essential to limit your potential to become ill.

Professional medical attention should be sought if flu-like symptoms or abdominal pain develop.

Hookworm:
There are frequently no visible signs of hookworm in an affected animal. In more severe cases, skin lesions may occur, or spongy, soft footpads.

Transmission to humans occurs through ingestion of eggs and from skin penetration such as walking barefoot in areas with hookworm.

In humans, abdominal pain and cramping may occur if affected. Seek medical advice if you develop the above symptoms.

Cheyletiellosis (Walking Dandruff):
This most commonly affects Animal Care Centre cats, rabbits and dogs.

Clinical signs are variable, and range from mild scaling and crusting along the back of the animal, without itching, to intensely itchy dermatitis with rash and hair loss. Cats may present with excessive grooming without obvious rash.

Direct contact with infested animals is the most common way to spread this to humans. Eggs are the major cause or re-infestation of animals and humans e.g. bedding. The environment needs to be treated as well as the animal

Human symptoms may include itchy, red, raised rash, most often on arms, legs or trunk. Seek medical advice if you develop these symptoms.

Sarcoptic Mange (Scabies):
Animal Care Centre animals most commonly affected are dogs and cats.

Animals will show intense itching, rash, reddened, crusty skin, and hair loss typically affecting the ear flaps, elbows, ventral abdomen, and chest and legs.

This is highly infectious between animals

Transmission to humans comes from close contact with infected animals.

Human symptoms include itchy, raised rash (papules, pustules or crusts), in pet-contact areas of skin.

Seek medical advice if you develop these symptoms.

Kennel Cough (Bordetellosis):
Animal Care Centre species most affected are dogs and cats.

Symptoms in affected animals include harsh cough with or without retching. Animals may present with cough, nasal or ocular discharge, and systemic signs such as fever.

Kennel cough is not considered to be a zoonotic risk to immunocompetent people. However, it may cause infection in immunosuppressed people or those suffering from pre-existing respiratory disease.

In susceptible humans, symptoms may include respiratory infection, and should seek medical advice.

Ferret Flu:
Several strains of the human influenza virus can infect ferrets. The different strains of influenza virus have varying degrees of virulence, which accounts for the difference in severity of clinical signs. Transmission is readily accomplished by inhalation of aerosol droplets from ferret to ferret and from humans to ferret. Ferrets can even transmit this disease back to humans.

Influenza has a seven – fourteen day course. Signs include: sneezing, watery eyes, lethargy, inappetance, purulent nasal discharge, photophobia and conjunctivitis. Lower respiratory tracts signs can occur but are less common. Influenza can establish an infection in the intestinal mucosa and cause a limited enteritis.

GOOD HYGIENE PRACTICES:

- Always wash your hands thoroughly after handing any species of animal. Use warm water and soap. Scrub and dry on a disposable towel if possible, or wash towels regularly in warm water.
- Do not allow pets to sleep on your bed.
- Wash animals' bedding regularly and line dry if possible.
- Wash all fruit and vegetables thoroughly before use, in particular root vegetables showing heavy soiling.
- Do not allow animals to lick your face. If this occurs, rinse the area well.
- Do not kiss your animal! There are other ways to express your love and affection
- Clear up all animal faeces from your garden or litter tray regularly. Wear disposable gloves for this task.
- Do not eat uncooked or undercooked meat.
- Vacuum your carpets and floors regularly.
- Disinfect cleanable surfaces with a suitable product.
- Ensure your animals are vaccinated.
- Worm your animals appropriately according to species requirement.
- Practice good disinfection and sanitation procedures.
- Ensure you have an up to date tetanus vaccination.
- Fomites – toys, blankets, dishes, litter trays, leads, halters – appropriate sanitation/disinfectant is a must.

Other comments:

- Staff should report any bite or scratch to supervisor/first aid officer and complete appropriate accident form
- Foster carer should be in touch with foster care co-ordinator if they think their foster animal is suffering from any previous undiagnosed disease

We recommend that you discuss your intention to become a foster carer with your GP prior to taking in foster animals.

Above all, enjoy the company of your animals but practice good hygiene at all times.