

Zoonoses - diseases that can be transmitted from animals to humans

Introduction

Zoonoses are infectious diseases that can spread from animals to humans. Many agents can cause zoonotic infection, including bacteria, viruses, parasites, protozoa and fungi. Both healthy and sick animals can spread zoonotic disease, and some of the causative agents do not cause disease in the host animal. Zoonoses can range from mild illnesses that affect individual people such as ringworm, to those with the potential to cause global pandemics, such as COVID-19.

Methods of transmission

There are many ways to contract a zoonotic disease. People who have close contact with animals, such as farmers, veterinarians, wildlife carers and abattoir workers, are at a greater risk of contracting zoonoses. Household pets, wildlife and petting zoos can also be a source of infection for the public. Indirect exposure to zoonoses is possible through contact with soil or water contaminated with animal faeces, blood or urine, or by consuming under-cooked meat, eggs or unpasteurised dairy products. Table 1 lists some zoonotic diseases that have or could occur in the Northern Territory, the likely animals that transmit them to humans, and the method of transmission.

Disease prevention

Reduce the risk of zoonotic infection by taking simple hygienic precautions.

- Practise good personal hygiene, such as washing hands thoroughly after handling animals and before eating, drinking or smoking.
- Ensure all personal vaccinations are up to date.
- Regularly clean and disinfect workspaces and equipment used around animals.
- Minimise contact with animals by pregnant women and people with compromised immune systems.
- Wear personal protective equipment, such as overalls, gloves and boots when handling animals, cleaning up animal waste or cleaning pet cages. Include a mask or face shield if there is a risk of respiratory infection.
- Worm and vaccinate pets/livestock and seek veterinary advice when animals are unwell.
- Ensure all meat is cooked well, especially game meat, such as that of wild pigs.
- Provide prompt and effective first aid treatment. Cover cuts and scratches with topical antiseptic and waterproof dressings.
- Ensure that good control programs are in place for pest animals, such as rodents.
- Avoid handling sick or injured bats unless you are trained to do so, and have had a full course of rabies vaccinations. Call an NT Parks and Wildlife ranger or wildlife carer for assistance.

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- Wear gloves and shoes when gardening and avoid walking through wet, boggy areas with bare feet. Several specific vaccines are available for some zoonoses that people working closely with animals may wish to consider. Consult your doctor for more information.

Table 1: Some of the zoonotic illnesses that may occur in the Territory

Zoonosis	Animal vectors	How the disease spreads	Precautions
Australian bat lyssavirus	Fruit bats (flying foxes) and insectivorous bats	<p>Handling bats, especially if they are sick or injured. Bats may be unable to fly, and either aggressive or friendly. The virus can be transmitted through bites, scratches and contact with the saliva of an infected bat.</p> <p>The virus is similar to rabies and can be fatal in humans. Symptoms are flu-like initially, but progress to paralysis, convulsions and death.</p> <p>The disease has not yet occurred in the Territory. It is preventable in people with rabies vaccination.</p>	<p>Avoid handling bats and seek immediate advice from a doctor or the Centre for Disease Control if bitten or scratched by a bat.</p> <p>People at high risk (such as veterinarians, wildlife carers) should be vaccinated against rabies virus.</p>
Brucellosis (<i>Brucella suis</i>)	Pigs	<p>Contact with the infected body fluids of pigs during hunting or slaughtering.</p> <p>Causes a flu-like illness in people, with fever, headache, weakness, sweats, chills, joint and muscle pain, gastrointestinal and respiratory signs. Serious infection can include reproductive disease – inflammation of the testes in men and abortion or birth defects in the offspring of pregnant women.</p>	<p>Cover wounds and wear closed footwear while hunting.</p> <p>Practise good personal hygiene after contact with the blood, urine, vaginal discharge or aborted foetuses of feral pigs.</p> <p>Do not eat undercooked feral pig meat.</p>
Cat scratch disease (<i>Bartonella henselae</i>)	Cats	<p>Bacterial infection spread by scratches from cats' claws.</p> <p>Causes lymph node swelling and high fever in humans.</p>	<p>Play close attention to cat scratch wounds.</p> <p>Wash thoroughly with soap and water, and apply topical antiseptic.</p>
Cryptosporidiosis	Many animal species	<p>Parasite found in the faeces of infected animals and spread by direct contact or indirectly in contaminated water.</p> <p>May cause diarrhoea in humans.</p>	<p>Avoid drinking untreated water.</p> <p>Wash hands carefully after being in contact with animal faeces and before food preparation or eating.</p>
Giardia	Dogs, birds, native animals	<p>Parasite most commonly spread between people via the faecal-oral route (such as in childcare settings), but can also spread via water contaminated with animal or human faeces.</p> <p>Causes diarrhoea.</p>	<p>Avoid drinking untreated water.</p> <p>Wash hands carefully after being in contact with animal faeces and before food preparation or eating.</p>

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Helminth (worm) infections	Cats and dogs	<p>Intestinal parasites (roundworms, hookworms) of dogs and cats spread by oral contact/ingestion of saliva (particularly, pets licking children on the hands and face), faeces or contaminated soil.</p> <p>Can cause a variety of illness involving internal organs in humans.</p>	<p>Wash hands carefully after being in contact with animal faeces.</p> <p>Encourage good hand hygiene especially with small children who live with pets.</p> <p>Adhere to a regular worm control regime for all household pets.</p>
Hendra virus infection	Flying foxes and horses	<p>Virus carried by flying foxes can cause a severe, fatal disease in horses. Infected horses can pass the disease to people who are in close contact with them after exposure to infected body tissues or excretions, particularly if the horse is coughing or sneezing.</p> <p>The disease in humans presents with fever, cough, sore throat, headache and progresses to inflammation of the brain (meningitis, encephalitis). It can be fatal.</p>	<p>Avoid contact with sick horses that have sudden onset of fever and respiratory or neurological signs.</p> <p>Arrange urgent veterinary assessment. Use PPE when in contact with potentially infected horses.</p>
Leptospirosis	Cattle, rats, dogs, pigs	<p>Bacterial disease spread through contact with the urine of infected animals, which pollutes water sources.</p> <p>Disease in humans can include high fever, headache, chills and muscle aches, vomiting and abdominal pain, and jaundice (yellow skin and eyes). It can lead to kidney damage, meningitis, liver failure and may be fatal if untreated.</p>	<p>Pregnancy testing and bang-tailing cattle are high-risk activities. Wear closed in protective footwear while working in muddy yards or in wetlands.</p> <p>Pay close attention to personal hygiene – cover cuts and grazes, apply antiseptic, wash hands with soap and water before eating, drinking or smoking.</p>

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Melioidosis	Pigs, goats, sheep, camels, other animals	<p>Bacterial disease usually contracted through the soil in the wet season, rather than directly from animals. Commonly enters the body through cuts or scratches or aerosol transmission (breathing in the bacteria in moisture-laden particles).</p> <p>Symptoms in animals are highly variable, and include joint, mammary and intestinal infections that are difficult to diagnose and treat.</p> <p>Symptoms in people are usually either localised infection (penetrating skin injuries) or severe respiratory illness including fever, coughing, difficulty breathing and death.</p>	<p>People with compromised immune systems should avoid direct contact with soil in the wet season.</p> <p>Wear gloves and a face mask if handling tissues of potentially infected animals.</p> <p>Report suspect cases of melioidosis in animals to the chief veterinary officer.</p>
Psittacosis (<i>Chlamydophila psittaci</i>)	<p>Bird faeces, particularly of parrots</p> <p>Placenta of infected horses</p>	<p>Bacterial infection spread by close contact with the droppings of infected birds. Infected birds often have green, watery diarrhoea. Horse placentas can be infected, especially in aborted material.</p> <p>Causes flu-like and respiratory illness in humans.</p>	<p>Play close attention to cage cleaning, wear a mask and gloves and wash hands carefully with soap and water after handling bird faeces.</p>
Q fever (<i>Coxiella burnetii</i>)	Multiple species, including cattle, goats and wildlife	<p>Bacterial infection transmitted by inhalation of airborne particles or handling tissues and fluids of infected animals.</p> <p>Causes a serious flu-like illness.</p>	<p>Vaccine is available for people at high risk of exposure such as abattoir workers, dairy farmers, pregnancy testers, cattle speyers and veterinarians.</p>
Ringworm or dermatophilosis	Cats and occasionally dogs	<p>Fungal skin infection spread by close contact. Ringworm can also spread from person to person.</p> <p>Cats are often profoundly affected by ringworm while dogs may have more subtle disease. Commonly, cats groom and scratch excessively, have circular patches of hair loss, broken hair, changes in hair colour and dandruff.</p> <p>In people, ringworm may present with red, itchy plaques. These are often redder on the outside edge, which appears like a ring.</p>	<p>Seek immediate veterinary advice if you find round, hairless skin lesions on pets, especially kittens.</p> <p>Encourage family members to wash hands with soap and water after interacting with cats.</p> <p>Infected children can be excluded from school until the day after starting anti-fungal treatment.</p>

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Scrub typhus (<i>Orientia tsutsugamushi</i>)	Mites of native rats	Spread to native rats by mites. Humans can be infected if bitten by an infected rat mite. People have been infected in Litchfield National Park, Bachelor, Melville Island, Groote Eyelandt and Emu Point. Symptoms in humans occur within one to two weeks of infection, and include flu-like symptoms, swollen glands and a dull red rash. The bite site may ulcerate and becomes red with a central black scab.	Wear protective footwear in risk areas and apply insect repellent. Risk areas are well-watered escarpments with waterways, monsoon forest and grasslands close together. Seek medical help if symptoms occur, and mention recent movement through risk areas.
Sparganosis (<i>Spirometra erinacei</i>)	Snakes, lizards, fish, birds, feral pigs	Disease caused by a tapeworm that forms cysts in animal tissue. Transmission occurs via consumption of cyst-infested, undercooked meat. This very rare zoonosis presents in humans as lumps under the skin or abdomen, where the tapeworm has migrated through the body and forms a cyst in the body.	Cook meat well, do not consume raw or partly cooked bush foods.
Toxoplasmosis (<i>Toxoplasma gondii</i>)	Cats	Infection acquired through contact with infected cat faeces. Has the potential to cross the placenta and cause miscarriage or damage to the foetus in pregnant women.	Pregnant women should avoid cleaning cat litter trays and direct contact with soil where cats defecate. Practice good hand hygiene at all times while pregnant.

Livestock Biosecurity Branch contact details

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