

COVID-19 a reminder of zoonotic diseases at home

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Zoonotic diseases are not only a problem overseas, a UNSW Sydney virologist warns. Pictured, a white ibis, also known as the "bin chicken", raids a rubbish bin for food scraps. Credit: Shutterstock

With genetic analysis suggesting [COVID-19 originated in animals](#) before it spread to humans, a UNSW Sydney virologist says now is a good time to bear in mind zoonotic diseases are closer to home than people might think.

Whether it's bin chickens raiding rubbish bins, pigeons flocking to alfresco dining leftovers or cuddles with the family pet, animals are an intrinsic part of our lives—so, can "everyday" animals really make us sick?

Virologist Dr. Sacha Stelzer-Braid, of UNSW Medicine, said while most people had a low risk of catching a zoonotic disease, a recent outbreak of "parrot fever" in the Blue Mountains showed what could happen when an animal disease spilled over into humans.

NSW Health also urged people to avoid touching possums following the [first probable case of the rare bacterial disease tularaemia](#), after a ringtail

possum bit and scratched a suburban Sydney resident in March.

Globally, more than 60% of all human pathogens are [zoonotic organisms](#).

"So-called 'parrot fever' is a zoonotic infection and it's nothing new; such infections occur often, all around the world," Dr. Stelzer-Braid said.

"For example, [Ebola](#) and [Middle East respiratory syndrome \(MERS\)](#) are well-known viruses which spread from animals to humans, while a recent study on swine flu viruses highlights the need to remain vigilant in our surveillance of viruses with pandemic potential. But what is new with SARS-CoV-2—the strain of coronavirus that causes COVID-19—is its ability to transmit easily and quickly between humans, including from asymptomatic carriers who don't appear to be infectious. So, COVID-19 has heightened awareness around the dangers of people catching zoonotic diseases."

High-risk categories for infection

While many people have a low risk of catching a disease from an animal and becoming seriously ill, Dr. Stelzer-Braid said there were high-risk groups who were more vulnerable.

"Zoonotic diseases are more common than people would realize, but for most healthy people they should not be a major problem," she said.

"However, if you are pregnant, very old or very young, or immunocompromised—so, your immune system is weakened—then you are more susceptible to picking up infections generally and the infection will likely be more severe than in a patient from a low-risk category. So, people in high-risk groups need to be aware of this and take precautions to prevent transmission—particularly when it comes to zoonotic diseases."

Dr. Stelzer-Braid said some people with a higher risk might already know what to do to stay safe.

"Pregnant women are mindful about these kinds of things, such as not being able to eat particular foods like undercooked meat or unpasteurised cheese," she said.

Bird diseases

Dr. Stelzer-Braid, who began her research career in [avian influenza \(H5N1\)](#) 15 years ago, said H5N1 was an example of a virus which passed from [birds](#) to humans.

Human infections are primarily acquired through direct contact with [infected animals or contaminated environments](#).

"With avian influenza, also known as [bird flu](#), it's endemic in wild birds overseas—so, it's there all the time and wild birds don't get too sick from it," Dr. Stelzer-Braid said.

"But when wild birds mix with domesticated birds, for example, through an aviary or poultry farm, they can then pass the virus to a domesticated bird. The domesticated bird becomes sick from the virus and that's how a human can get H5N1."

In Australia, the [recent Blue Mountains outbreak](#) of psittacosis or ornithosis—popularly known as "parrot fever"—was caused by the [bacterium Chlamydia psittaci](#), carried by birds.

In 2018, the most recent year available, NSW reported [seven cases of psittacosis](#).

Dr. Stelzer-Braid said people caught the lung infection by inhaling dust containing feces, secretions or feathers from infected birds.

"Australia has many wild birds and the bacterium is present in bird populations across NSW—so, every now and then there are psittacosis outbreaks here," she said.

"And, infected wild birds can come into contact with domesticated birds—so, there's a chance to spread it through captive birds too. People just need to be

careful around wild birds—don't touch or share your food with them."

Dr. Stelzer-Braid said people with psittacosis had flu-like symptoms and were treated with antibiotics.

"More serious complications would depend on having comorbidities that make you more susceptible," she said.

"For example, older people would generally find it a lot more difficult to fight off an infection like that, but it's an uncommon disease."

Dr. Stelzer-Braid said if people had bird feeders in their gardens to attract [wild birds](#), they should keep the feeders clean and away from food preparation areas.

"It's nice having birds visit your garden but you need to change the seed and sanitize the feeder regularly; don't let it sit there and fester," she said. "Make sure the feeder is not anywhere near your kitchen or where you eat. But I would advise against having a bird feeder if there are people in a high-risk category in your household."

A parasite in cats

Dr. Stelzer-Braid said another zoonotic disease people should be aware of was [toxoplasmosis](#) from the *Toxoplasma gondii* parasite—one of the world's most common parasites.

"This is really important for [pregnant women](#) because toxoplasmosis can cause miscarriage, premature birth and other serious complications in babies," she said.

"People can catch it through contact with infected cat feces and eating or handling undercooked, contaminated meat. If a cat has toxoplasmosis, it excretes the parasite in its feces for between one to three weeks from the time of infection. Cleaning the kitty litter box or touching anything in your house or garden that's been contaminated by cat feces then is a potential source of infection."

Dr. Stelzer-Braid said it might not be obvious if a cat was carrying *T. gondii*, because most cats

infected with the parasite [showed no signs of disease](#).

"So, people in those high-risk categories need to be careful if they come into contact with cats," she said.

"Wear a mask and gloves if you are cleaning the kitty litter tray and wash your hands afterwards."

Pet turtles

Another zoonotic disease which might not be readily apparent in the infected animal host—in this case, turtles—but could cause illness in humans, was salmonellosis, Dr. Stelzer-Braid said.

[Turtles can carry salmonella bacteria in their droppings](#), even if they look healthy and clean, and people can become infected if they touch the turtle or anything in its enclosure.

"There was a [salmonella outbreak amongst people with pet turtles in the United States](#) and many children were affected," Dr. Stelzer-Braid said.

"Children don't always wash their hands and then they put their hands in their mouths—so, infection can spread that way. A salmonella infection causes things like abdominal pain, diarrhea, vomiting and fever, but again, it can be a lot more serious in high-risk populations—for example, the [death of a baby in the US](#) was linked to salmonella from a small turtle."

Farms and the outback

Dr. Stelzer-Braid said in regional areas, the [zoonotic diseases](#) of brucellosis and [Q Fever](#) were ones which people should be aware of.

NSW reported nine cases of brucellosis and 224 cases of Q Fever in 2018, [the most recent year available](#).

"Brucella bacteria, which causes brucellosis, is endemic in wild pigs in Queensland and northern NSW," Dr. Stelzer-Braid said.

"People can catch brucellosis if they come into

contact with those wild pigs or their droppings and it causes a flu-like illness.

"Brucella bacteria has also been found in dogs that have been pig-hunting or ate raw wild pig meat."

In NSW, cases of brucellosis have also been reported in returned travelers who consumed unpasteurised dairy products overseas.

Dr. Stelzer-Braid said Q fever, a bacterial infection, could also cause a severe, flu-like illness and was mainly spread from cattle, sheep or goats.

Hygiene as prevention

Dr. Stelzer-Braid reminded people to avoid becoming complacent with hygiene practices, even if they were at low risk of catching a zoonotic disease.

"Vigilance with [hygiene is still an important message](#) for the community—particularly at this time when older people are doing it tough with the [coronavirus](#) generally having a more serious impact on them," she said.

"Even if you're healthy, you still need to wash your hands after touching pets and their belongings, before you prepare food, eat and things like that, which hopefully people do anyway. Remember, domesticated animals are not constantly carrying diseases harmful to humans, but if they get an infection, they might not show any symptoms and could still pass a zoonotic [disease](#) onto you."

Provided by University of New South Wales

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