



(From left) Singapore Veterinary Association president Teo Boon Han, Assistant Professor Zoe Hildon of the Saw Swee Hock School of Public Health and Tan Tock Seng Hospital senior consultant Angela Chow are among a team of researchers who studied antibiotic usage patterns among pet owners. ST PHOTO: GIN TAY

Many pet owners lack proper knowledge of antibiotic use: Study

It found 3 in 4 unaware antibiotic-resistant bacteria can spread between them and pets

Angelica Ang

Three in four pet owners in Singapore do not know that antibiotic-resistant bacteria can spread between them and their pets, a recent paper found.

The study, a collaboration between Tan Tock Seng Hospital, the Saw Swee Hock School of Public Health at the National University of Singapore, and the Singapore Veterinary Association, involved 1,080 pet owners who were surveyed at 16 vet clinics across Singapore from March to December 2023.

WHAT IS ANTIMICROBIAL RESISTANCE?

Antimicrobial resistance (AMR) occurs when bacteria evolve to become resistant to standard antibiotics. Though this is a natural process, pathogens can grow resistant to antibiotics more quickly if the drugs are over- or improperly administered. Experts estimate that AMR, often labelled a "silent pandemic", could cause more than 10 million deaths annually by 2050 – overtaking even cancer.

When asked why the risk of AMR

is increasingly salient, Associate Professor Angela Chow, a senior consultant from Tan Tock Seng Hospital who helmed the research study, said: "The misuse of antibiotics pressures the bacteria to evolve, but the pipeline of antibiotic discovery – it's not that fast."

"It takes many years to discover antibiotics, so we haven't had new classes of them for some time."

As antibiotics are rendered ineffective by AMR, infections may become more difficult to treat. And according to the World Health Organisation, this increases the risk of severe disease, disability and death.

To tackle AMR, Singapore has adopted a One Health framework – which considers the links between human, animal and environmental health.

The same AMR bacteria can be found in sick pets as in humans, Prof Chow said.

These antibiotic-resistant pathogens can be transmitted between the two upon contact, such as when owners are licked on the face by their pets or handle their faeces, said Dr Teo Boon Han, president of the Singapore Veterinary Association.

Common antibiotic-resistant bacteria that can spread between

pets and humans include fluoroquinolone-resistant *Escherichia coli*, or E. coli, and methicillin-resistant *Staphylococcus aureus*, or MRSA, an earlier paper found.

ANTIBIOTIC MISUSE IN PETS

With rising wealth levels, pet ownership in Singapore is on the rise. According to a Euromonitor International report, there were about 114,000 pet dogs in the Republic in 2023 – a 3 per cent rise from the number in 2019.

There were also around 94,000 pet cats in 2023, an almost 10 per cent increase from 2019.

Assistant Professor Zoe Hildon from the Saw Swee Hock School of Public Health, who contributed to the research paper, said: "In Singapore, people are having fewer children, and fur babies are a thing."

"There is a cultural shift – people are becoming much closer to their companion animals than previous generations (were), and they may even share the same bed."

With rising pet ownership and greater physical contact between owners and pets, domestic animals may increasingly become sources for zoonotic transmission of resistant bacterial pathogens.

The study thus sought to examine antibiotic use patterns among local pet owners in hopes of stemming the development of antibiotic-resistant bacteria at its source.

It found that 24 per cent of respondents used antibiotics inappropriately in their own treatment, while 34 per cent did so for their pets.

This slight difference may be due to the difficulty in administering antibiotics in pets, said Dr Teo, who contributed to the study.

Dr Teo said: "Compliance is a very big issue in the veterinary space – giving pills to pets can be a very stressful experience, and you also worry about the safety of the animal and human."

Dog owner Chantelle Lee, 24, hides her dog's medication in his treats.

Ms Lee said: "I've tried to mix his oral antibiotics into his food, but he sometimes rejects it. I'll instead hide it inside his favourite treats, which mostly cover up the taste of the medication."

Aside from difficulties in administering medicine, pet owners face other challenges such as veterinary bills, transport costs and some inconveniences when caring for their sick pets.

This could tempt some to cut corners, such as not seeking medical care promptly for their animals or giving their pets expired medication.

If owners do not drive, they would have to arrange for a special cab for their pet, Dr Teo said, and as pet care leave remains a rare perk in companies, they may have to take a day off from work.

Antibiotic misuse in Singapore by people for themselves and pets

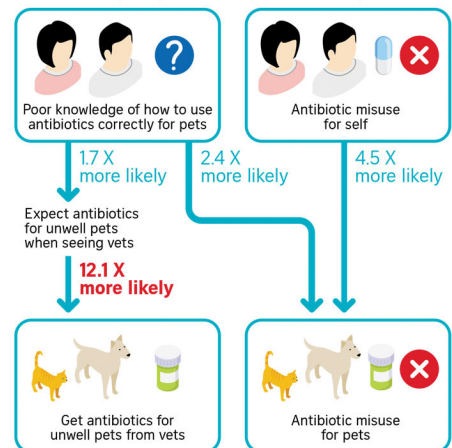
Three in four pet owners in Singapore do not know that antibiotic-resistant bacteria can spread between humans and pets.

Poor knowledge about antibiotic use

1 in 3 pet owners (33%) have poor knowledge of antibiotic use for themselves

1 in 2 pet owners (46%) have poor knowledge of antibiotic use for their pets

Factors behind getting and misusing antibiotics for pets



Source: TAN TOCK SENG HOSPITAL STRAITS TIMES GRAPHICS

Unlike a person's medical bills, veterinary costs are also not subsidised and may not be covered under insurance, Dr Teo added.

Ms Lee said a trip to the vet sets her back by anywhere between \$200 and \$3,000, including fees for consultation, medication and additional medical procedures such as CT scans.

Prof Hildon said: "I personally think high costs may be why people might use leftover antibiotics rather than go back to see the vet. They may think that it could cost them a lot just for the vet to say that they need to use the same antibiotic."

Those who misuse antibiotics in their own treatment, such as opting not to finish a prescription, are also 4.5 times more likely to do so when medicating their pets, the study found.

This may indicate knowledge gaps among pet owners on proper antibiotic usage – for themselves and their pets.

Many survey respondents had a poor understanding of proper antibiotic use – one in three did not know how to correctly administer antibiotics for themselves, and one in two lacked the know-how to do so for their pets.

For instance, 28 per cent of respondents thought it was acceptable to request antibiotics from doctors for their own treatment, while 37.5 per cent believed the same when it came to their pets.

Though medical professionals are advised to be prudent in doling out antibiotics, the study found that owners who expected antibiotics to be prescribed for their pets were 12.1 times more likely to receive them from vets.

Antibiotics may thus be used even in situations which do not require them, thus speeding up the process of AMR development.

MORE EDUCATION AND OUTREACH NEEDED

The survey results show more education is needed, Dr Teo said, not just for pet owners but also for health professionals like vets.

Dr Teo said: "Whether to prescribe antibiotics, it's a lot of clinical judgment, and vets definitely have an important role as the leading advocates for animal health and welfare."

Singapore's pet owners should also be forthcoming in learning how to use antibiotics correctly when they are prescribed by vets. When in doubt, they are encouraged to talk to their trusted vets, Prof Chow said.

A more holistic One Health approach can also be taken in communicating the risks of AMR, Prof Hildon said, adding that while the bulk of public health messaging focuses on human health, a whole ecosystem contributes to the perpetuation of AMR.

She said: "People have shied away from talking about the crossover of the AMR problem between sectors, because it seems so complex."

"But actually the message is quite simple: If you overuse or misuse antibiotics without asking your doctor or vet, they can stop working. And then when you really do need them, they may not work – that will be the same whether you're human, a cat or a dog."

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