

# Antibiotic resistance spreading to wildlife

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Captive Australian sea lions have been found to carry bacteria with antibiotic resistance genes, ultimately derived from bacteria of humans. Credit: Rob Harcourt

Researchers have found antibiotic resistance genes are spreading to bacteria of Australian wildlife, including captive sea lions and rock wallabies, and the little penguins of Sydney Harbour.

Dr Michelle Power, from Macquarie University, will this week present the findings at the International Conference of the Wildlife Disease Association, being held in Queensland on the Sunshine Coast from July 26 – 30.

"Antibiotic resistance is one of the world's most pressing health issues. The spread of [antibiotic resistance](#) is commonly attributed to overuse of antibiotics in both human health and animal production," said Dr Power.

"It is worrying that we are seeing antibiotic resistance in [bacteria](#) of wild animals that have never been treated with antibiotics. Resistance genes from bacteria in humans and [domestic animals](#) are being spread through the environment to the naturally occurring bacteria of those wild animals," she said.

Dr Power said one way the transfer of genetic [resistance genes](#) was happening was through naturally occurring mobile genetic elements called integrons, which were first discovered by Australian researchers in the late 1990s.

Integrons are able to pass genes between different species of bacteria, and can be spread through water, allowing antibiotic resistance to spread from land to marine environments. They are not deactivated by normal sewage treatment processes.

"We found the closer the contact between the wildlife with humans, the more animals within a population were carrying the [antibiotic resistant bacteria](#). Some animals even in wild populations were carrying antibiotic resistant bacteria, a case being the little penguins of Sydney Harbour," she said.

Dr Power said the research findings meant that if we continue to see antibiotic resistance spreading into wildlife, that [antibiotic treatment](#) of

sick [wild animals](#) may not work as well.

She said there were wider implications of the research that were of concern.

"We know that the normal bacterial flora of an animal can influence its growth, development, behaviour, and even mate selection. What we don't know is what impact we are having on wildlife through the introduction of [antibiotic resistance genes](#) to their bacteria. We also need to be asking what else wildlife is picking up from human and domestic animals in terms of bacteria or other disease agents, and if that is hurting our efforts to conserve biodiversity," she said.

Dr Power said her research was a great illustration of the One-Health concept – that the health of humans, domestic animals and wildlife is interconnected.

She said efforts to reduce the overuse of antibiotics in humans and domestic animals were important and must be continued.

Provided by Macquarie University

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