Antimicrobial-resistant E. coli found in dogs with diarrhea

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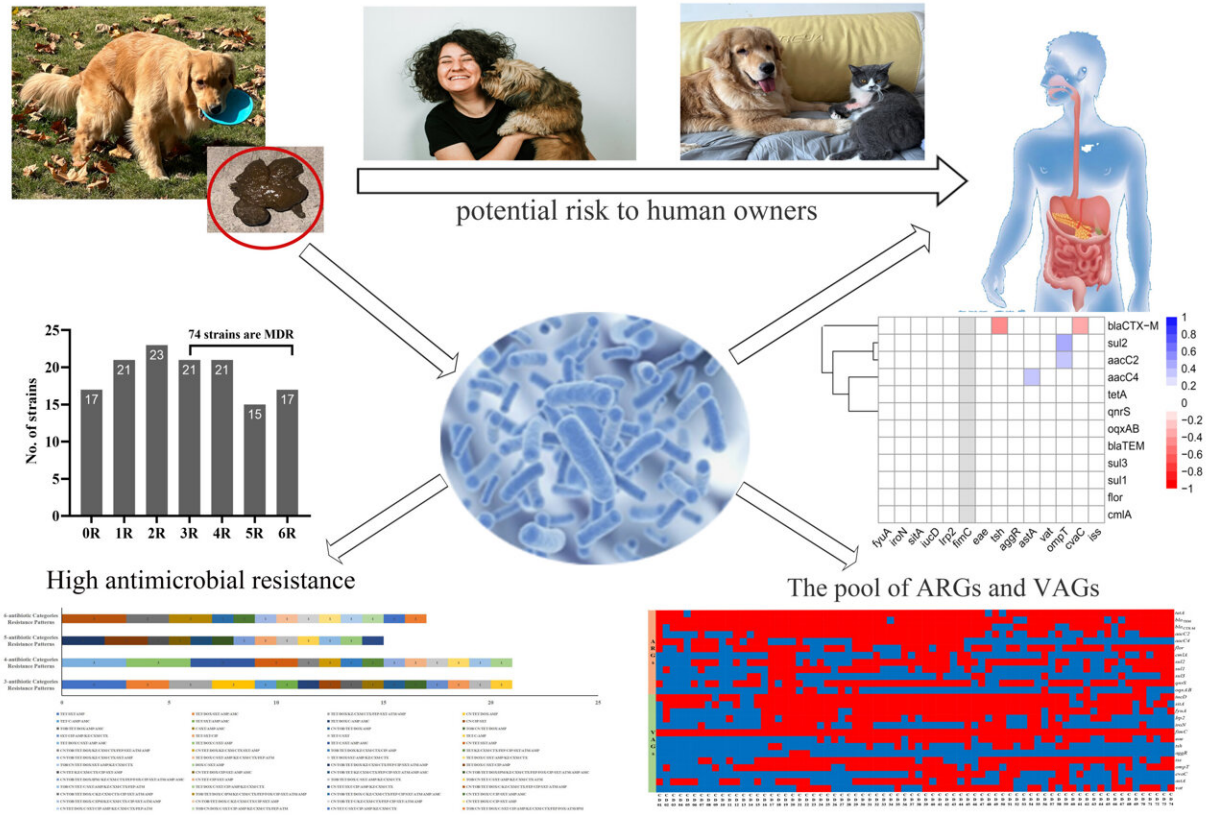

Pet dogs with diarrhea may be shedding multi-drug resistant E.coli in 5 in 10 cases, with potential risks to their human owners. Credit: Yuan et al., CC-BY 4.0 (creativecommons.org/licenses/by/4.0/). This figure was made using public domain images from Unsplash, CC0 (creativecommons.org/publicdomain/zero/1.0/)

A team of Chinese veterinary researchers has found high levels of antimicrobial-resistant Escherichia coli in dogs with diarrhea. In their study, published in the open access journal *PLOS ONE*, the group tested fecal samples from 185 dogs with diarrhea.

Over the past decade, drugs used to fight bacterial infections have become less effective as bacteria become resistant to them. As a result, scientists have begun to look for other drugs or therapies to replace those that no longer work. Scientists have also been looking into the factors that may be leading to resistance.

For this new study, the team in China looked at the possibility of cohabiting animals as part of the problem. To that end, they tested a host of fecal samples from dogs with diarrhea (because it is so often linked to E. coli infections), looking specifically for drug-resistant E. coli.

The team collected 185 fecal samples and found 135 strains of E. coli. Multiple groups of each strain were collected and grouped together, where they were then exposed to several types antibacterial drugs to see how they would respond. The researchers found that just over 87% of the strains they tested were resistant to at least one of the drugs. They also found that approximately 76% of resistance was against beta-lactam antibiotics, which include ampicillin and penicillin.

The genomes of the resistant bacteria revealed genes that have previously been associated with antibiotic resistance. They also note that E. coli is a commensal microbe, which means many of its strains reside safely in the human gut—they do not make humans sick or even cause diarrhea. But they also found that many of the resistant strains they found in their study were closely related to variants that have been known to infect other parts of the body, such as the urinary tract.

More information: Yu Yuan et al, Characteristics of MDR E. coli

strains isolated from Pet Dogs with clinic diarrhea: A pool of antibiotic resistance genes and virulence-associated genes, *PLOS ONE* (2024). DOI: 10.1371/journal.pone.0298053