

# WHY IS IT ILLEGAL TO USE ENROFLOXACIN IN POULTRY?

Enrofloxacin is a veterinary antibiotic that has been used historically to treat a number of bacterial infections in backyard poultry but became illegal to use in poultry in the US in 2005. It is a member of the antimicrobial family of drugs called Fluoroquinolones; it is a bactericidal antibiotic effective against Gram negative organisms (especially Enterobacteriaceae, including *Pseudomonas aeruginosa*) and some Gram positive organisms (especially *Staphylococcus* spp.), but no anaerobic organisms. It is metabolized in the liver and excreted primarily by the kidneys and secondarily by the liver in bile acids.

Because enrofloxacin is so effective against many common bacterial infections and is easy to obtain, it became very popular for treating infections in backyard chickens. Unfortunately, with the relatively uncontrolled use of enrofloxacin in poultry there has been a concurrent increase in resistance of the gastrointestinal bacteria *Campylobacter jejuni* to ciprofloxacin (a closely related antibiotic used in humans) from 17% in 1995 to 25% of in 2012-2014.

## Why Is This Important?

According to the Center for Disease Control, Campylobacteriosis (caused by *Campylobacter jejuni*) is responsible for approximately 1.3 million cases of food poisoning in people each year in the United States, primarily from consumption of undercooked poultry.<sup>1</sup> Most cases of *C. jejuni* food poisoning will resolve without the need for treatment, but not all. In cases where treatment is needed, ciprofloxacin has played a large role in controlling infections in people. The increased resistance of *C. jejuni* to ciprofloxacin has severely reduced its effectiveness in people. Increased resistance to antibiotic therapy typically results in delayed recovery times and can result in severe illness in some cases.

## But I Am Only Treating One Bird

One study found that, in chickens, 74% of orally administered enrofloxacin was excreted as the parent compound and 25% was excreted metabolized as ciprofloxacin.<sup>2</sup> This study also determined that excretion after oral administration continued for up to 13 days after the medication was discontinued. Therefore, a single bird treated with enrofloxacin and placed back into a flock could expose all other birds in the flock by passing enrofloxacin in its urine for up to 2 weeks.



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***“Enrofloxacin should never be used in poultry due to the associated human health risks.”***

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## But I Will Report the Enrofloxacin to the Food Animal Residue Avoidance Databank (FARAD)

Currently, there is NO legal extra-label use of enrofloxacin in poultry (including both waterfowl and chickens). Veterinarians that dispense enrofloxacin for use in poultry could be held responsible if there were an increase in antibiotic resistant Campylobacteriosis locally.

## References

1. <https://www.cdc.gov/campylobacter/index.html>
2. Slana M1, Pahor V, Cvitkovič Maričić L, Sollner-Dolenc M. Excretion pattern of enrofloxacin after oral treatment of chicken broilers. J Vet Pharmacol Ther. 2014 Dec;37(6):611-4.