



## Opinion

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# Antimicrobial Use for The Food Production Animals: Needs & Harms

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Since centuries, the human is depending on the farm animals as a source of food, commerce, transport, and others, a thing that develop the caring practice of the humans toward the animals to keep them safe and healthy. And with the progress of the time and existing of the alternate sources, the purpose of having the farm animals is changed to be either for fun or wealth. And for those who have the interest to use the farm animals as commercial source, they are facing several challenges to maintain the health and life quality of the animals. therefore, many of the animal owners are biased to use the antimicrobial drugs as a quick and affordable tool to promote the growth and protect the animals from microbial infections. And this evidenced by several documents reported that most of the antimicrobial drugs administrated for food-producing animals are used as growth promoter, prophylaxis and metaphylaxis [1].

As good as using the antimicrobial as protecting agents, it can harm the animal and human health when it abused. Overdosing of these drugs is enhancing the microorganisms to protect themselves through several mechanisms such as acquiring and expressing resistant genes against the administrated antimicrobial drugs, and possible other antimicrobial drugs as well, and sharing these genes with other bacteria [2]. The resistant microorganisms and especially resistant bacteria could be considered as "contagion" if it grows in a poor environment that rich by facilitating factors such as poor housing, weak infection control management, limited cleaning and disinfecting of the environment [3]. Moreover, most of the bacteria can be transmitted within and between animals, humans, and environment as well as the resistant genes, and most of the antimicrobial drugs classes are common between the human and animals, a thing that reflect the high risk of abusing these drugs on the human health. There are several evidences showed that the antimicrobial resistance of some pathogens such as *Salmonella*

*spp.* and *Escherichia coli* (*E. coli*) which isolated from humans are contributed to antimicrobial drugs used in animals.

As an example, Non-typhoidal *Salmonella* (NTS) is one of the common foodborne bacteria that primarily cause gastroenteritis, bacteremia, and focal infection in human [4]. This bacterium is hosted by several animals such as poultry, pigs, and cattle; and in pets, including cats, dogs, birds, and reptiles such as turtles [5]. It has been shown that the isolated antimicrobial resistant *Salmonella* from meat and poultry products are due to the contamination with the feces of the carrier animals [6]. In addition, some of the isolated NTS from human showed antimicrobial resistance against the third generation cephalosporins antibiotics, which can be contributed to the mass using of this antibiotic as a therapy or prophylaxis in animals and poultries [7].

Another example is using colistin antibiotic as a growth promoter. Colistin is an antimicrobial drug used since decades to treat both human and animal. And this drug has been approved by several countries to be used as growth promoter, a thing that led most of the animal breeders to use it to improve their animal fatten with ignorance of the side effect or negative impacts of this drug. And as consequence, antimicrobial resistance against colistin showed by *E. coli* which is isolated from livestock [8-9]. Moreover, mobile colistin-resistance gene (MCR-1) was identified in *E. coli* which isolated from food producing animals in several countries [10-11]. On the other hand, for the human colistin is considered as one of the last-resort antibiotics to treat infections caused by multidrug-resistant Gram-negative bacteria such as *Enterobacteriaceae* and *Pseudomonas aeruginosa* in human [12].

In conclusion, using antimicrobial drugs for food producing animals is a double-edged sword, as good as it is a health protector and growth promoter, as bad as it can develop several negative impacts on animals, humans, and environment.

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## Conflicts of Interest

No conflicts of Interest.

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