Alarm as antimicrobial resistance surges among chickens, pigs and cattle

Drug-resistant bacteria are gaining a stronghold in developing countries where meat production has soared.

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Farm animals in India and northeast China are becoming more resistant to common antimicrobial drugs — a worrying trend that is rising as meat production increases in the developing world, researchers report.

Hotspots of drug resistance are also emerging in Kenya, Uruguay and Brazil, according to a study[1] of antimicrobial resistance in livestock across Asia, Africa and South America. Meat production has risen sharply in these regions since 2000, fuelled by more intensive farming practices, including the use of antibiotics in animals to promote growth and prevent infections. The study was published on 19 September in *Science*.

“For the first time, we have some evidence that antibiotic resistance [in farm animals] is rising, and is rising fast in low- and middle-income countries,” says Thomas Van Boeckel, an epidemiologist at the Swiss Federal Institute of

Technology in Zurich who co-authored the analysis. He says that governments should take action against the growing threat and coordinate their efforts on a global scale.

To study how resistance has evolved over time, Van Boeckel and his colleagues analysed 901 epidemiological studies, conducted in developing nations, that focused on four common bacteria: *Salmonella, Campylobacter, Staphylococcus and E. coli*. The researchers used the information to map where multidrug resistance exists, and where it is starting to emerge.

Their results also indicate that the four types of antimicrobial drug most commonly used in farm animals to help them gain weight — tetracyclines, sulfonamides, quinolones and penicillins — are also the ones with highest resistance rates. Between 2000 and 2018, the proportion of drugs to which bacteria have become resistant almost tripled in chickens and pigs, and doubled in cattle.

The situation is serious because some of the countries where hotspots exist export thousands of tons of meat every year, says Carlos Amábile-Cuevas, a microbiologist at the Lusara Foundation in Mexico City, a research institute that focuses on antibiotic resistance. About one-fifth of chickens and pigs are raised in parts of the world where hotspots have been found.

Even if nations implement policies to control the use of antibiotics in animals, those efforts might be undermined if they import food that has not been produced using the same standards. “This problem doesn’t respect political borders,” Amábile-Cuevas says.

Van Boeckel says that high-income countries, where antibiotics have been used since the 1950s, should subsidize safer farming practices in parts of the world where resistance is rising. “We are largely responsible for this global problem we’ve created,” he says. “If we want to help ourselves, we should help others.”

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References

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