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Sales of 'Last-Resort' Antibiotic Driving Spread of Dangerous Superbugs

Global trade in colistin for use in livestock feed is driving the spread of dangerous superbugs in low- and middle-income countries, according to new research. Colistin is a last-resort antibiotic used to treat serious illnesses such as pneumonia when other drugs have not been effective.

By [The Bureau of Investigative Journalism](#)

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By Misbah Khan

The global trade in a vital antibiotic for use on livestock farms is still driving the spread of dangerous superbugs in low- and middle-income countries, according to [new research](#).

Colistin is a last-resort antibiotic used to treat serious illnesses such as pneumonia when other drugs have not been effective. However, it is also commonly sold to livestock farms as a feed additive.

In 2015, there was global alarm when a colistin-resistant [superbug](#) was discovered.

The [study](#), coordinated by the University of Oxford, found colistin is still being sold by richer nations to farmers in places such as Pakistan to boost growth and prevent the spread of disease, despite warnings from experts that its use in animal feed should be banned.

"The use of human antibiotics in animal feeds is one of the largest drivers of [antibiotic resistance](#) globally," said Tim Walsh, research director at the Ineos Oxford Institute for Antimicrobial Research and co-lead author of the study. "We need to stop."

The new multi-country research, which combined existing long-term studies with more than a thousand fresh samples from farm and wild animals, sewage and hospital patients in Pakistan, detected the widespread environmental presence of mobilized colistin resistance (mcr-1) — the gene that can make bacteria resistant to colistin.

The sampling showed growing resistance in Pakistan, where mcr-1 prevalence was 7%, well above the global average of 4.7%. Wild bird feces showed the highest prevalence at 25%, which the researchers say could come from birds scavenging waste and dead poultry in farms using colistin.

Birds then spread the superbug throughout the environment, often across borders. Samples taken from patients admitted to hospitals with abdominal pain and diarrhea also tested positive for colistin resistance.

The World Health Organization classifies colistin as the “highest priority critically important for human health” and has called for a ban on administering colistin for use in animals as a [growth promoter](#).

The Bureau of Investigative Journalism has previously reported on colistin’s use as a [growth promoter in India](#). At least 150 tons of colistin were shipped to the country by [pharmaceutical](#) companies which sold the drug to farmers without requiring a prescription.

The investigation prompted the Indian government to [ban the use of colistin on farms](#) in 2019.

Bacteria that are resistant to antibiotics emerge when the drugs are used excessively or haphazardly.

In China, where colistin use was commonplace, researchers discovered bacteria in pigs carrying the mcr-1 gene in 2015, leading to a ban two years later. Since then, the Oxford researchers noted, there has been a significant decrease in the prevalence of mcr-1 in bacteria.

However, China has since become a major colistin exporter. South Korea and European countries also export colistin to low- and middle-income countries, packaged for animal feed.

In Pakistan, as in many developing economies, the ongoing trade in colistin takes advantage of administrative blindspots — because they are marked as feed additives, imports of colistin do not fall within the remit of the country’s drug regulation authority.

Nor were Pakistani poultry farmers interviewed by the researchers aware of the importance of colistin for human health.

Mashkoor Mohsin, an associate professor at the Faisalabad University of Agriculture and a co-author of the research, said: “We need to change the way we manufacture, trade, licence and use antibiotics for veterinary purposes.”

However, he cautioned against doing so at the cost of animal welfare, or the welfare of farmers in countries like Pakistan and Bangladesh.

Mohsin said:

“Such a global shift will require considerable commitment from national governments, financial institutions, pharmaceutical companies and international trade regulators.”

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