



**Pan American
Health
Organization**



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Antimicrobial resistance and food safety

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The WHO has identified the rise of antimicrobial resistance as a global health crisis. It is being propagated by misuse of antimicrobial medicines, inadequate or inexistent programmes for infection prevention and control, poor-quality medicines, weak laboratory capacity, inadequate surveillance, insufficient regulation of the use of antimicrobial medicines. A strong, collaborative approach will be required to combat antimicrobial resistance, involving countries in all regions and actors in many sectors.

In the U.S., the FDA strategy to limit resistance in animal agriculture includes surveillance and policy initiatives designed to limit or reverse resistance arising from the use of antibiotics in food-producing animals, while continuing to ensure the availability of safe and effective antibiotics for use in animals and humans. An essential part of this is the National Antimicrobial Resistance Monitoring System, which began 20 years ago as a collaborative effort of three US agencies, the CDC, FDA and USDA.

Programs like NARMS offer many public health benefits beyond those related to antimicrobial resistance, which can improve food safety and public health. Gathering accurate information and bacterial isolates is laborious and requires some preliminary understanding of the causes of foodborne illnesses in a given country, and the patterns of food animal production and consumption. Once these are known, a sound sampling scheme along the food chain can be determined, which is critical for valid trend analysis.

Sustainable integrated resistance surveillance is expensive, laborious and has many challenges from design and prioritization, collaboration across agencies, gathering and integrating information, understanding the implications of the data, publishing findings to different audiences in a timely manner, and using the data to formulate sound public health policy. Ultimately, these program succeed through cooperation, collaboration, good communication and data sharing between all stakeholders, agriculture, industry, and among microbiologists & epidemiologists within and across sectors.

The advent of affordable DNA sequencing technologies is transforming infectious disease surveillance and offers advantages to resistance monitoring. The correlation between antimicrobial resistance and the presence of known resistance genes is very high making it possible that one laboratory method may someday suffice for surveillance. Because AMR is a global problem, there is a need for international harmonization of surveillance methods to ensure data comparability, and cooperation and data sharing to limit global spread of resistance in the food chain.