Chickens from live poultry markets in Nigeria could be bad for your health—scientists explain why

November 28 2022, by Oluwawemimo Adebowale
Poultry vendors want markets to be more organised and better structured to meet international standards. Credit: Oluwawemimo Adebowale

Many livestock farmers treat their animals with antimicrobial medications. These are drugs that target bacteria, viruses, fungi and parasites. But using them the wrong way can have unwanted results. Animals are known to develop resistance to the drugs. This resistance has knock-on effects on animal and human health.

We wanted to find out whether this was likely to be a problem in Nigeria's poultry markets, where live birds are sold.

Multidrug resistance in live chickens is a huge concern to public health globally. When resistance develops, drugs become less effective against the disease they are designed to kill. Resistance can spread to and develop in people too, if they eat food carrying multidrug resistant bacteria. The consequence could be that treatment for a disease fails, or an infection recurs. The result might be a longer stay in hospital and higher costs for treatment.

The World Health Organization (WHO) has warned that antimicrobial resistance has the potential to be the next pandemic. Each year, over 700,000 people die of antimicrobial resistance—slightly over the number of global deaths related to HIV deaths in 2021 or malaria in 2020. It's been estimated that antimicrobial resistance causes more than 27.3 deaths per 100,000 population in sub-sahara Africa.

Our research looked at the way poultry vendors used antimicrobials and what hygiene measures they took to prevent diseases in their chickens. The research took place in poultry markets in south-west Nigeria. We also set out to establish the presence of multidrug resistant Eschericia
coli (E. coli) in live chickens from the markets. E. coli is a common bacteria found in chickens and their environment.

Five of the markets we visited were registered and three were unregistered. They all operated much the same.

We found that antimicrobial use and hygiene practices were poor among chicken vendors in the markets we studied. Vendors gave antimicrobials to both sick and healthy chickens, without veterinarians' prescriptions. Vendors also treated chickens with drugs intended for humans—particularly antibiotics such as tetracycline and chloramphenicol—which they purchased from pharmacies. These practices may have a detrimental effect on the effectiveness of antibiotics for treating bacterial infections in humans.

Our analysis revealed that 56.3% of fecal samples collected from chickens contained E. coli that were multidrug resistant. We also found extremely high levels of the bacteria were resistant particularly to ceftazidime and imipenem. The WHO classifies these drugs as last resort medicines. They are critically important antimicrobials in human medicine because there are few other options to try if they no longer work. Without options, more lives may be lost to antimicrobial resistance.

**Antimicrobial resistance: a public health risk**

Antimicrobial resistance is a global problem. But low- and middle-income countries including Nigeria are particularly at risk. Their national health systems are often ill-prepared to address the complex causes and complications associated with infections resistant to antimicrobials. The treatment of livestock is poorly managed and may be contributing to the antimicrobial resistance crisis in animals and humans in the country.
To reduce the overuse of antimicrobials in poultry and other livestock, vendors and other stakeholders in the poultry value chain will need better training. Interventions like educational programs are necessary. The aim would be to encourage responsible use of antimicrobials, to protect the health of animals and humans.

In addition, animal health professionals must assist in developing good policies for antimicrobial use. Livestock owners should ideally consult veterinarians to develop an animal health plan, and should get prescriptions before treating their animals. More trained veterinarians will be required if this is to be achieved.

The government must establish systems and national centers for routine surveillance of antimicrobial use and resistance.

Finally, the national action plan on antimicrobials must consider improved integrated surveillance and diagnostic capacities. Previous surveys in Nigeria have already made recommendations on keeping drug use in check; their guidance can be considered.

Poultry vendors in our study want the government to close unregistered live bird markets. After the first outbreak of avian influenza in 2006 the government made it compulsory to register poultry farms and live chicken markets. This was to ensure efficient surveillance and early detection of poultry diseases, and accessibility to government interventions. If vendors can consult veterinarians more easily, they are likely to use drugs in a more discriminating way. And registered markets get prompt veterinary responses and services when there are disease outbreaks.

Vendors also want live chicken markets to be more organized and have access to standardized and documented guidelines for hygiene and operations. They want satisfactory processing facilities, and basic
amenities to assist them to produce quality chicken products. Amenities like electricity, potable water, good drainage and roads are all lacking in most live chicken markets in Nigeria.

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