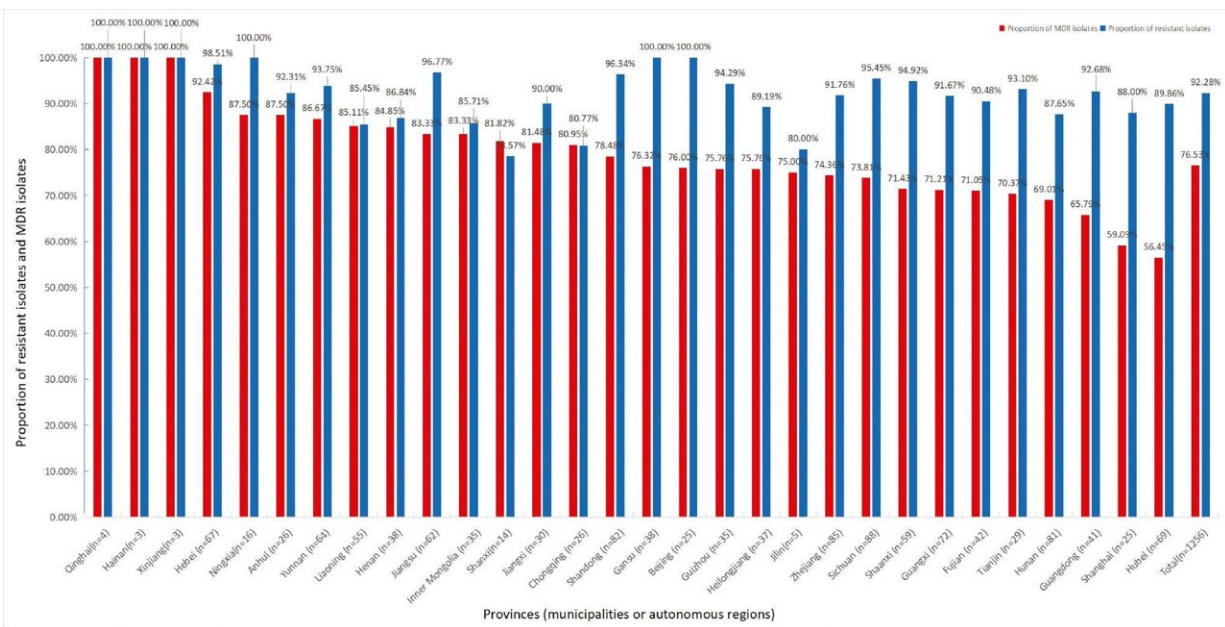


Testing antimicrobial resistance in non-typhoidal Salmonella from retail foods collected in 2020 in China

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Antimicrobial resistance rates and MDR rates of Salmonella recovered from different regions. Credit: *Zoonoses* (2023). DOI: 10.15212/ZOONOSES-2023-0001

Non-typhoidal Salmonella (NTS) is a major cause of human salmonellosis globally. Food animals are major NTS reservoirs. An increase in antimicrobial resistance (AMR) in foodborne NTS has led to clinical treatment failures. To examine the prevalence and perform

characterization of foodborne NTS with AMR in China, the authors of a newly published article in *Zoonoses* tested the antimicrobial susceptibility of 1,256 NTS isolates cultured from retail foods in 2020 in China.

The antimicrobial susceptibility of 26 antimicrobial agents representing 12 classes was evaluated with the broth-microdilution method; the presence of 10 *mcr* genes was screened with multi-PCR. The complete closed genomes of *mcr*-gene-carrying isolates were generated by hybrid assembly through whole genome sequencing on both the PacBio and Illumina platforms. Genomic features and genetic environments of the *mcr*-1 gene were analyzed.

The overall drug resistance rate was 92.28%, and the multi-drug resistance (MDR) rate was 76.53%. A total of 341 AMR profiles were determined, and resistance was highest to nalidixic acid (63.38%). Among 887 NTS isolates with MDR, 232 showed co-resistance to cefotaxime and ciprofloxacin, and 25 were resistant to ten classes of antimicrobial agents.

The resistance of NTS isolated from different regions varied. Isolates from raw chicken sources most frequently showed resistance. Four NTS carried the *mcr*-1 gene and represented four different serotypes. Four *mcr*-1 gene-bearing plasmids from the four *Salmonella* isolates were classified into two replicon types (IncI2 and IncHI2A). Two *mcr*-1 genes in IncI2 type plasmids were found to be located between a PAP2 family protein-encoding gene and a relaxase-encoding gene, whereas the other two [mcr-1 gene](#) structures in IncHI2A type plasmids showed variations in the presence of insertion sequences.

The [data](#) demonstrated severe AMR among foodborne NTS isolated from food in China, thus highlighting the importance of antimicrobial susceptibility surveillance to decrease the spread of AMR, particularly to

critical drugs in [human medicine](#).

More information: Yujie Hu et al, Antimicrobial Resistance in Non-typhoidal Salmonella from Retail Foods Collected in 2020 in China, *Zoonoses* (2023). [DOI: 10.15212/ZOONOSES-2023-0001](https://doi.org/10.15212/ZOONOSES-2023-0001)

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