



Contribution ID: 540

Type: Oral presentation

GUARDIAN –One Health Surveillance for Predicting Antimicrobial Resistance: An AI-Based Pilot Project in Central Hesse

Tuesday, October 6, 2026 1:28 PM (9 minutes)

Antimicrobial resistance (AMR) is a global health challenge that requires collaboration across human, animal, and environmental health. Yet surveillance data are often collected and analysed separately, limiting the early detection of emerging resistance patterns and transmission pathways.

GUARDIAN is developing an AI-enabled One Health platform for the Central Hesse region. It integrates genomic, microbiological, clinical, epidemiological, environmental, and geospatial data to support predictive AMR surveillance.

The project focuses on two contrasting scenarios: colistin resistance, closely associated with veterinary antimicrobial use, and carbapenem resistance, which is particularly relevant in human healthcare and hospital settings. Analysing both scenarios across sectors will help identify genetic links, transmission pathways, and regional patterns of spread. Data-driven models will be used to assess potential future developments.

An interactive dashboard will visualise AMR trends and support public-health decision-making. By combining expertise from human and veterinary medicine, bioinformatics, public health, and environmental sciences, GUARDIAN aims to demonstrate how integrated One Health data and artificial intelligence can strengthen regional AMR surveillance.

Keywords

Registration ID

OHS26

Professional Status of the Speaker

PhD Student

Junior Scientist Status

Yes, I am a Junior Scientist.

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Session Classification: Session 7: Research consortia on the topic of “Pandemic prevention and response within a One Health framework”

Track Classification: Research consortia on the topic of ”Pandemic prevention and response within a One Health framework” (only for the Pandemic networks currently funded by the BMFTR)