**Title**: AMR transmission to human through ESBL producing *E. coli* in a farm-to-fork framework for broiler chicken production.

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**Abstract**: AMR, or antimicrobial resistance, is a pressing global health concern, where microorganisms resist antimicrobial agents, posing significant threats. The ENVIRE consortium, part of the European Transnational Programme “One Health interventions to prevent or reduce the development and transmission of antimicrobial resistance” (JPIAMR-ACTION), addresses AMR in broiler chickens and its transmission to humans via the environment. Led by Germany, the consortium includes partners from Europe and the Mediterranean, such as France, Lithuania, Poland, and Tunisia.

A key aspect of ENVIRE is developing a quantitative microbial risk assessment (QMRA) model to assess intervention strategies' effectiveness in reducing human exposure via foodborne, occupational, and environmental pathways. This model relies on existing literature and experimental data from ENVIRE consortium countries.

The presentation will highlight the farm-to-fork QMRA model (see Figure 1), which integrates both farm and foodborne modules to comprehensively examine AMR transmission dynamics. This model consolidates exposure assessment from the farm level across various production phases, including slaughtering, processing, transport, cooking, and ultimately reaching the consumer's plate. The aim is to compute the risk of exposure for the consumer to ESBL-producing *E. coli* bacteria. The farm module, based upon recent studies in the literature (Becker et al., 2020; Dame-korevaar et al., 2019), incorporates the transmission of AMR via an SI model and simulates the prevalence and concentration of bacteria in the barn environment, at the end of the broiler harvesting step (36 days). These outputs are then utilized in the foodborne module, also referred to as the production module of the QMRA model, based on the existing model proposed by Collineau et al. (2020). This module simulates the evolution of bacteria through different production steps, namely, scalding, defeathering, evisceration, washing, chilling, portioning and up to consumption through cooking. The combined farm-to-fork continuum in the baseline scenario is tested against various intervention strategies using data from different partners of the ENVIRE project. This underscores ENVIRE's innovative approach to tackling this critical global health challenge.

Farm module

Interventions

Slaughter

Processing

Home preparation

Chicken meat consumption

Foodborne module

Farm module

Foodborne module

Slaughter

Meat consumption

Processing

Home Preparation

Risk of exposure

**Figure 1:** Farm to fork module

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