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

**Abstract**: AMR, or antimicrobial resistance, has recently emerged as a pressing global health concern, referring to the ability of microorganisms to resist the effects of antimicrobial agents, posing a significant threat to global health. In this context, the ENVIRE research project, part of the European Transnational Programme “One Health interventions to prevent or reduce the development and transmission of antimicrobial resistance” (JPIAMR-ACTION), aims to address the pressing issue of antimicrobial resistance (AMR) in broiler chickens and its transmission to humans via the environment. This research consortium, initiated under German leadership, aggregates many partners in Europe and Mediterranean countries, including France, Lithuania, Poland, and Tunisia.

A key aspect of ENVIRE is the development of a quantitative risk assessment (QMRA) model to evaluate intervention effectiveness and potential synergies in reducing human exposure through foodborne, occupational, and environmental pathways. Data already available for the participating countries will be included in the model, and new, essential data will be generated within the studies. The objective is to identify specific interventions with the greatest potential to combat AMR in chickens and farm environments across Europe and Tunisia.

The presentation will highlight the farm-to-fork model, integrating farm and foodborne modules, to comprehensively address AMR transmission dynamics. The model is based on the framework established by the Codex Alimentarius Commission, which aggregates the exposure assessment from the farm level through the production phase (slaughtering, processing, transport, cooking) and up to the consumer's plate. The aim is to compute the risk of contamination of the consumer by ESBL-producing E. coli bacteria. The farm module, based on recent studies in the literature (Becker et al., 2020; Dame-korevaar et al., 2019), takes into account the transmission of AMR via an SI model and depopulation by thinning step. The farm module simulates the prevalence and concentration in the barn environment at the end of the broiler harvesting step (36 days). These outputs are used in the foodborne module, also known as the production module of the QMRA model, based on the existing model proposed by Collineau et al. (2002). This module models the evolution of AMR bacteria through different production steps, namely, defeathering, evisceration, chilling, drying, and portioning. Combined, the farm-to-fork continuum in the baseline scenario is tested on 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.