

ERANET-JPI-EC-AMR - AWARE-WWTP Contract no. 26/1.06.2017

Antibiotic Resistance in Wastewater: Transmission Risks for Employees and Residents around Waste Water Treatment Plants

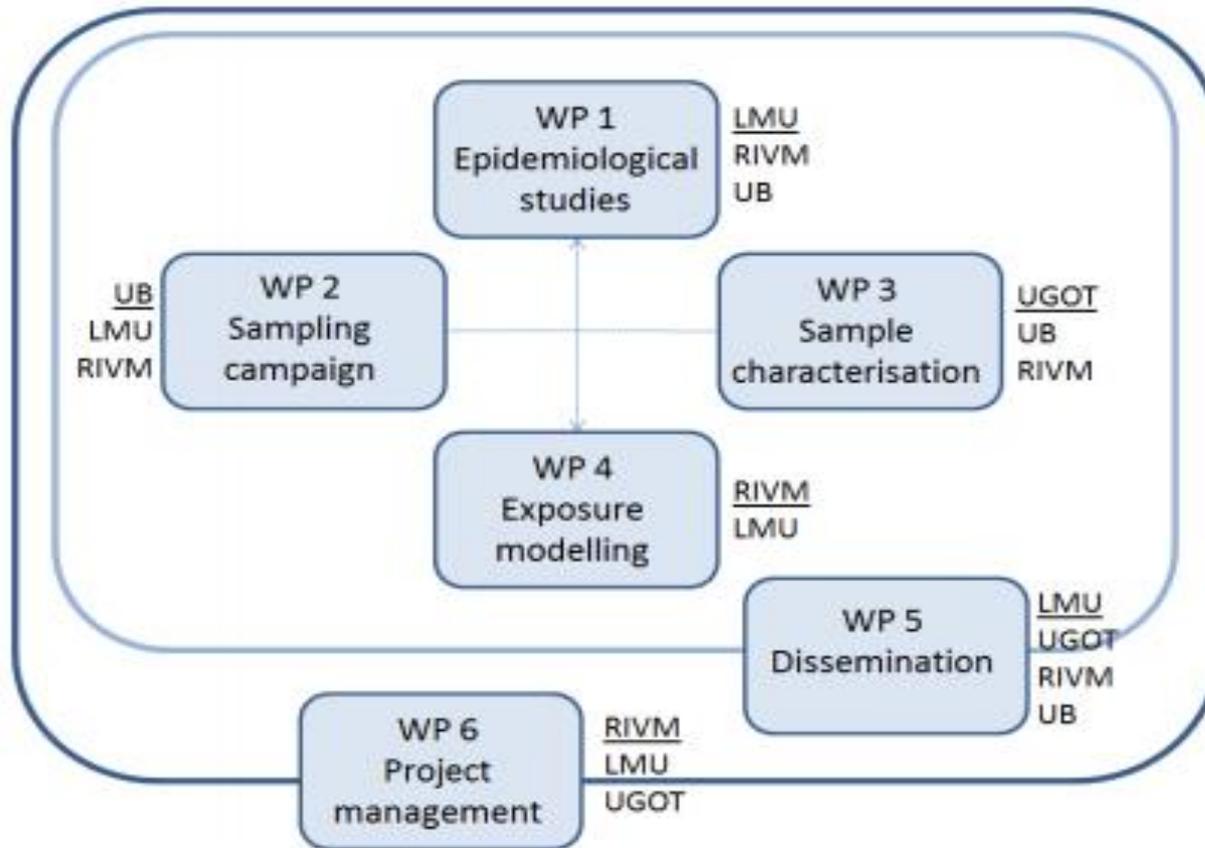


PARTICIPANTS

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Objective

- This proposal addresses transmission of resistant bacteria and resistance genes resulting from human exposure within and around urban wastewater treatment plants (WWTP).
- The **specific objectives** are:
 - to study the occupational and environmental health impact of exposure to resistant bacteria and resistance genes stemming from WWTP through epidemiological studies of their carriage in exposed versus unexposed controls;
 - to study human waterborne and airborne exposure through models for uptake through ingestion and inhalation;
 - to assess the efficiency of different WWTP treatment technologies;
 - to investigate selection and emergence of resistance in WWTP through studying relative changes in resistance genes and exploring putative novel resistance genes.



Expected results

- Based on microbial cultivation as well as on high-throughput sequencing data and quantitative real-time polymerase chain reaction (qPCR), exposure through ingestion and inhalation will be modelled, and airborne exposure will be derived from geospatial analyses. Further, we will analyze treatment efficiencies of different WWTP processes in terms of AMR reduction, and therewith identify science-based critical control points for interventions.
- The focus of this transnational collaboration combining complementary and synergistic European research strengths, is to tackle the increasingly relevant public health threats from antibiotic resistance in WWTP by identifying transmission routes, means of exposure, and proposing risk reduction measures.

