

Call: 9th Call – JPIAMR Joint Call on Diagnostics and Surveillance 2019

Title: A Smart Surveillance Strategy for Carbapenem-resistant *Pseudomonas aeruginosa*

Acronym: SAMPAN

Project composition

Type	Name	Institute	Country
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Abstract

Pseudomonas aeruginosa causes severe infections in hospitalized patients. The worldwide emergence of carbapenem-resistant *P. aeruginosa* (CR-PA) makes infections by these pathogens almost untreatable. The World Health Organization now ranks CR-PA highest in the list of ‘urgent threats’. Information for action to prevent further emergence has to come from insight into sources and transmission routes through smart surveillance. At present, a smart surveillance strategy is not available for CR-PA. The aim of this project is to develop a globally-applicable smart surveillance strategy to guide action against the spread of CR-PA. Since *P. aeruginosa* prefers moist niches, we will focus on the human-water interface. First, highly-sensitive methods to detect CR-PA in specific environmental and human niches will be developed. Subsequently, CR-PA will be collected in three study sites with increasing prevalences of CR-PA, increasingly warmer climates, and different water situations: Rotterdam (The Netherlands), Rome (Italy), Jakarta (Indonesia). CR-PA will be searched for in a variety of niches in the environment outside and inside the hospital, and in healthy humans and hospitalized patients. Whole genome sequencing will be performed to compare the CR-PA from different sources and identify transmission routes. Our project will provide insight into the relative contribution of the different potential reservoirs of CR-PA to its spread in different settings which will be used for the development of a globally-applicable surveillance strategy for CR-PA to guide preventive actions.