



Intelligent Decision Support Systems for personalized prevention and clinical management of infectious diseases

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Objectives: This project aims the development of novel analytical approaches to better understand the epidemiology of antimicrobial resistance as well as to support personalized antibiotherapy, contributing to a more efficient use of antibiotics and a better matching of therapeutics to each patient and clinical case. With the raise of “smart hospitals” increases the need of novel systems for the implementation of predictive, personalized, preventive, participatory (P4) medicine, namely in the field of the infections diseases. The integration of the information available on the HIS (hospital information systems) enable the production of new knowledge in near real-time to support patient and episode-oriented decision-making process for clinical and epidemiological control of infectious diseases in real time. This project frames on the scope of the multidisciplinary project RESISTIR (<https://ciencias.ulisboa.pt/pt/noticia/10-10-2016/resistir>), and intent to contribute for the development and strengthening the area of P4 systems epidemiology. The project RESISTIR aims to create an innovative modular information system, intelligent and adaptable to support clinical decision making in the field of antimicrobial resistance, infection control, epidemiological surveillance and hospital management.

Methodology: The student will combine cutting edge technology with innovative techniques on data mining, epidemiology, linked data, numerical modelling and machine learning to map and understand the knowledge underlying the development and expansion of epidemiological anomalies and antimicrobial resistance. The student in collaboration with the partners of the consortium will also use automatic modelling techniques for creation of adaptive models for detection of infection, treatment failure, forecasting antimicrobial resistance and epidemiological surveillance able to cope with the complex dynamics and epidemiological changes in near real-time.

Type of fellowship: National