Overview CHARE GD-II sub projects (SP 4)

Title: Multidrug-resistant bacteria (MDR) - analysis of differences in infection prevention and control measures, diagnostic workup and MDR prevalence in the Ems-Dollart region.

Scientific project leaders:

German side	Dutch side
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Student / researcher conducting the project: Cansu Cimen, M.D.

Starting date of the project: 01.03.2022

Project description:

The European Union (EU) directive from 2011 allows patients to seek medical treatment in any EU country. This is a challenge for cross-border regions such as the Ems-Dollart region, in terms of organizational aspects, but also for the prevention of infections. Microorganisms do not respect national borders, and since Germany and the Netherlands have different infection prevention and control (IPC) measures, use different definitions for MDR and the access and density of medical microbiology laboratories and specialists differs greatly, this can have a major impact on patient care.

This subproject aims at determining similarities and differences in IPC measures, diagnostic workup, and prevalence of two major prototype pathogens, namely multidrug-resistant Gram-Negatives (MDR-GNs) and Vancomycin resistant Enterococci (VRE) in the Ems-Dollart region.

An explorative observational study will be conducted to map major characteristics of both healthcare systems regarding structure and access to medical microbiology and IPC measures. Firstly, routine data will be collected from publicly available resources, municipalities, and hospitals in the region (e.g., number of inhabitants, hospitals, patient beds, numbers/locations of medical microbiologists, infection control staff and laboratories). Secondly, an in-depth analysis will be conducted in 6 selected hospitals (3 on each side of the border, among them two tertiary care hospitals and 4 secondary care hospitals). For these hospitals, VRE/MDR-GNS screening strategies and diagnostic procedures will be assessed by document analysis of local guidelines and by qualitative interviews with a member of the respective infection control team. Thirdly, to determine the prevalence of VRE/MDR-GNS in

intensive care units in these hospitals, resistance data from the laboratory information systems of the hospitals or partner laboratories will be retrospectively retrieved and analysed using RadaR.

Based on the collected data we expect to be able to show to what extent the prevalence of VRE/MDR- GNS correlates with the following factors: (1) the implementation of screening or diagnostic tools and access to microbiology laboratories, (2) infection prevention measures, (3) antibiotic consumption. As a result, we will gain a better understanding of the system and organizational factors contributing to the different prevalence of MDR in this cross-border region.