ACRONYM: AB-assistant

Title: A digital antimicrobial stewardship smartphone application to combat AMR: the AB-assistant

Keywords: Antimicrobial resistance, Antibiotics, Antimicrobial Stewardship application, Multicentre study, Computerized decision support, Medical Informatics

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Abstract:

Antimicrobials are an indispensable part of modern medicine. However, optimal prescription of these agents is becoming increasingly challenging because of the growing complexity of guidelines, and constantly changing epidemiology. Moreover, due to local variations in the prevalence of certain pathogens and antimicrobial resistance, antimicrobial choices need to be tailored to local epidemiology. Improvement of antimicrobial use , in particular prevention of overuse of (broadspectrum) antibiotics, through antimicrobial stewardship (AMS) programs is increasingly regarded as indispensable, both to optimize therapy for the individual patients as well as to reduce emergence of resistance . With the widespread use of electronic health records and handheld electronic devices in hospitals, informatics-based AMS interventions hold great promise as tools to improve antimicrobial prescribing. However, they are still underdeveloped, understudied and underutilized. We propose the development and evaluation of **AB-assistant**, a smartphone based digital stewardship app that is customizable to local guidelines and therefore has the potential to be used worldwide, including in low- and middle-income countries. **AB-assistant** will build on the significant experience in the development and implementation of electronic tools for AMS by the partners participating in this proposal. Furthermore, the app will be available for the two most common mobile operating systems: iOS and Android. In this project we propose to 1) develop an AB-assistant app based on the existing Spectrum app (Calgary; www.thespectrumapp.com) with improvements to enhance AMS in large parts of the world 2) test the usability of this app in different countries to determine barriers and facilitators 3) evaluate the **AB-assistant** in an international, multicentre, randomized clinical trial involving centres in 4 countries in different settings with appropriate antimicrobial use as a primary outcome and 4) use factors identified in this study to facilitate further customization and worldwide implementation of **AB-assistant**. This unique proposal aims to develop a digital steward for use in different countries worldwide which will increase adherence to prescription guidelines and reduce antimicrobial resistance.