CDA 16-204: Improving antimicrobial use at hospitals that lack infectious disease specialists

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Background / Rationale:
Antimicrobial resistance (AMR) is one of today's most urgent public health problems. Infections due to AMR-pathogens are more difficult to treat and result in worse outcomes than infections due to antimicrobial-susceptible pathogens. As the incidence of AMR has risen, the discovery of new antimicrobial agents has stalled.

Antimicrobial stewardship programs (ASPs) can optimize antimicrobial-prescribing, thereby reducing the emergence of AMR while improving patient safety. VHA Directive 1031 mandated that every VHA facility establish and maintain an ASP, and similar regulations have been implemented in non-VHA settings. However, widespread ASP implementation will be challenging. Many ASPs lack access to Infectious Disease (ID) specialists-including 23% of VHA-ASPs-and it is unclear how ASPs can be effective in such resource-limited settings. This application will begin to address this problem through an ambitious but achievable Research Plan.

Objective(s):
The objective of the proposal is to evaluate and improve antimicrobial stewardship processes at VHA hospitals lacking local ID support. The specific aims are to: 1) identify structural factors and processes associated with facility-level ASP performance; 2) determine provider attitudes and organizational factors that impede or foster antimicrobial stewardship at VHA hospitals lacking ID support, and 3) conduct a pilot intervention to bolster antimicrobial stewardship at VHA hospitals that have low-performing ASPs and lack local ID support. The design of this pilot intervention will be informed by the findings of Aims 1 and 2.

Methods:
This study will use multilevel regression techniques to evaluate antimicrobial-prescribing across a large cohort of VHA inpatients. Qualitative assessments will also be conducted to understand local barriers and facilitators to antimicrobial stewardship. Finally, a pilot intervention will be implemented at 2 sites to augment local stewardship efforts. The model of Physician Mentored Implementation will guide this intervention, and a pretest-posttest design will be used to assess the effect of the intervention at the 2 intervention hospitals compared to 2 control hospitals.

Status:
Aim 1: We are currently constructing a cohort of VHA inpatients hospitalized between 2014 and 2016. This cohort will be the basis for our analysis in Aim 1.

Aims 2 and 3 will be initiated in later years.

Impact:
Due to the crisis of AMR, there will be an ongoing need to improve antimicrobial use. For this reason, all VHA medical facilities are now mandated to have an active ASP. However, it's unclear how VHA-ASPs without ID support have implemented stewardship processes and whether these processes are effective. The proposed CDA-2 will address this critical gap in the literature. Improving the performance of ASPs across the VHA will ensure that all veterans with

infections, regardless of their location, will receive the right antimicrobial at the right dose and for the right duration.