

ASP-INFECTIOUS DISEASES SOCIETY OF AMERICA-YOUNG INVESTIGATOR AWARD IN GERIATRICS



Award Recipient:

MAUREEN K. BOLON, MD
NORTHWESTERN UNIVERSITY
FEINBERG SCHOOL OF MEDICINE

PROJECT:

IMPROVING ANTIMICROBIAL USE AND ASSOCIATED OUTCOMES AMONG THE ELDERLY HOSPITALIZED POPULATION

MENTORSHIP TEAM:

JOHN CLARKE, MD GARY NOSKIN, MD
JAMES WEBSTER, MD

Antimicrobial prescribing is coming under increasing scrutiny because of the concern that unrestrained antimicrobial use contributes to the selection of resistant bacteria. A number of medical centers have reported success in optimizing antimicrobial use through various means; fewer have reported success in reducing infections due to resistant bacteria as a result of such programs. Outside of long term care facilities, few studies have focused on the specific concerns surrounding antimicrobial use in the elderly. The objectives of this proposal are to: 1) better characterize antimicrobial prescriptions in elderly populations and their associated outcomes and 2) evaluate the effect a hospital-based antimicrobial stewardship program has on antimicrobial prescription and bacterial infections in the elderly.

The activities of a multidisciplinary antimicrobial stewardship program provide the foundation for this study. A team of infectious diseases physicians and clinical pharmacists identifies and intervenes on antimicrobial misuse as defined by institutional and national guidelines. The results of interventions are recorded in a comprehensive database, which will be used to identify subjects and provide data for various aspects of the planned studies.

To better understand the patterns of antimicrobial use in the elderly, two case-control studies are planned. The first study will evaluate unique features of antimicrobial use in elderly hospitalized patients (greater than 65 years of age) compared with the general hospitalized population. The second study

will be a more comprehensive risk factor analysis to determine patient characteristics associated with inappropriate use (i.e., the need for an intervention by the antimicrobial stewardship team). Risk factors to be examined will include patient demographics and comorbidities as well as medication burden and malnutrition—characteristics shown to be associated with adverse outcomes in geriatric literature. A retrospective cohort study will be performed to analyze the outcomes of hospitalization for elderly patients prescribed antimicrobials and the impact of a stewardship program upon these outcomes. Outcomes to be analyzed will include: cost of antimicrobials, cost of hospitalization, length of stay, discharge disposition, and medication errors. Finally, a time-series analysis will be performed to determine whether improvements in antimicrobial use due to an antimicrobial stewardship program reduce the occurrence of antimicrobial-resistant infections in the hospitalized elderly population.

The career development portion of my proposal includes mentorship by geriatricians and infectious diseases specialists. A curriculum to train infectious diseases and geriatric medicine fellows in the unique aspects of infectious diseases issues in the elderly population is under development. In the longer term, I will focus my efforts on improving outpatient antimicrobial use in the elderly since it likely contributes to the emergence of resistant organisms in this population. An eventual goal would be to work with outpatient practices to design guidelines for antimicrobial use with the aim of curtailing unnecessary use and addressing possible dosage errors, drug interactions, and adverse effects.

