

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



## *Award Recipient:*

STEPHEN WEBER, MD

UNIVERSITY OF CHICAGO PRITZKER SCHOOL OF MEDICINE

### PROJECT:

ANTIMICROBIAL RESISTANCE AND FUNCTIONAL STATUS IN HOSPITALIZED ELDERLY PATIENTS

### MENTORSHIP TEAM:

DAVID MELTZER, MD

DAVID PITRAK, MD

GREG SACHS, MD

While it is recognized that the elderly disproportionately suffer the consequences of healthcare-associated infections, considerably less is known about the specific incidence and consequences of infections caused by antimicrobial resistant pathogens in this vulnerable population. Specifically, insufficient attention has been given to the relationship between resistance and the unique social, clinical, and biological features of the elderly. Important among these is functional status, a valuable prognostic indicator and an important outcome measure in the elderly.

The aims of my study are to:

1. Determine if the proportion of bacteria that are resistant to antimicrobial agents recovered from hospitalized elderly patients is different than the proportion from hospitalized non-elderly patients.
2. Determine if functional status is independently associated with the incidence of colonization or infection with resistant gram-positive bacteria among hospitalized elderly patients.
3. Determine if colonization or infection with resistant gram-positive bacteria in hospitalized elderly patients is independently associated with poor outcomes.

The first component of the study, a retrospective review of clinical microbiology results, will for the first time provide an assessment of the scope of resistance specifically among the hospitalized elderly. The product of this analysis is a prototype antimicrobial susceptibility reference (antibiogram) specifically for elderly patients. Such dedicated decision-making aids will be an important component of improving the care of this population.

Next, the influence of functional status on the incidence of colonization and infection with methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant enterococci among a cohort of elderly inpatients will be examined. Quantification of this risk will facilitate the identification of high risk patients and provide insight into the unique epidemiology of resistance among the elderly, which should permit for the design of more rational prevention strategies.

Finally, the outcome of resistant gram-positive infections among a cohort of elderly patients will be assessed. Because elderly patients tend to value quality of life at least as much as simply prolonged survival, alteration in functional status will be considered as a key outcome measure.

This research represents only one element of my comprehensive introduction to geriatric medicine. To familiarize myself with the vocabulary, metrics, and clinical skills necessary to geriatricians, I will attend an intensive seminar series organized for geriatrics fellows and will be an active participant at the teaching conferences of the Section of Geriatrics. In addition, I will see elderly patients with infections regularly at one of several geriatrics clinics. I plan to develop a training curriculum for infectious diseases and geriatrics fellows, residents, and students focusing on issues of infection among elderly patients. Particular emphasis will be placed on the prevention and management of health care-associated infection. As a hospital epidemiologist, I intend to develop infection control initiatives and policies that are more sensitive to the needs of elderly patients.

In my future work, I plan to explore the clinical significance of colonization with resistant bacteria in the elderly and the role of endogenous flora in protecting these patients from infection. I look forward to applying the findings of my research at the bedside both as a clinician and epidemiologist, innovating in the manner in which elderly patients at risk for or infected with resistant pathogens are managed.