Infectious Disease-HAI

Assignment Description

This position will be located in the Bureau of Epidemiology's Division of Infectious Disease Epidemiology (IDE), Healthcare Associated Infections and Antimicrobial Resistance (HAIAR) section. This section is responsible for conducting analyses and reporting information on the patterns of HAI's in Pennsylvania, and investigations of outbreaks in the healthcare setting. Reporting requirements are based on legislation passed in Pennsylvania in 2007 mandating reporting of all healthcare-acquired infections occurring in acute and long term care facilities in the state, as well as required screening for Methicillin-resistant Staphylococcus aureus and other multidrug resistant organisms. The legislation also mandates annual reduction targets in the rates of HAIs within an institution.

No other state has as wide-ranging an HAI reporting requirement as Pennsylvania, and few other states have devoted the resources to implementing the requirements. In addition to working within the Bureau of Epidemiology, the Fellow will interact with other governmental and non-governmental stakeholders addressing HAIs in Pennsylvania. These include (1) DOH Quality Assurance program, (2) the Pennsylvania Patient Safety Authority (PSA) an independent agency (3) the Pennsylvania Healthcare Cost Containment Council (PHC4), which conducts cost analyses of HAIs (4) the Hospital Association of Pennsylvania, and others.

Day-to- Day Activities

The fellow will fully participate in the day-to-day activities conducted by IDE staff, including participating in disease investigations; conference calls with federal, local and regional partners; attend departmental meetings as well as local, regional and national conferences. The fellow will have a day-to-day role in the analysis and evaluation of the HAI data. Pennsylvania has the most extensive database of healthcare associated infections of any state in the country. This is because Pennsylvania's reporting law requires all HAIs occurring throughout the hospital to be reported; the same applies to nursing homes. This results in approximately 25,000 hospital-associated HAIs being reported annually and 40,000 HAIs in nursing homes being reported annually.

There is an abundance of data to be analyzed, including sub-analyses of particular types of HAIs or those caused by particular pathogens. This work can involve exploratory and descriptive analyses as well as the potential for statistical risk modeling. Reports will be issued from HAI data, and the fellow may also perform studies to assess the use and impact of the data in healthcare and public decision-making. Additionally, the fellow will have the opportunity to present at monthly Journal Clubs and all-day Department Quarterly Epidemiology meetings attended by 50-100 by field and state epidemiology staff.

Potential Projects include:

Examples of potential projects that demonstrate opportunities for data analysis, outbreak field investigations, and opportunities to work on interdisciplinary teams:

a)Pennsylvania Health Care Associated Infections, evaluation of the implementation of a reporting system for healthcare associated infections. The fellow will work with the HAIAR section, as well as with

staff from other bureaus and state agencies, to examine the quality of the data reported by Pennsylvania into the NHSN as required by state legislation. This will include evaluating reported data and determine annual benchmark criteria for various types of institutions based on reporting. The fellow will also assist on developing reporting systems and benchmarking criteria for the nursing home setting.

b)Pennsylvania Patient Safety Reporting System (PA-PSRS). The fellow will work with the Healthcare Infections and Antimicrobial Resistance section, as well as with staff from other bureaus and state agencies, to examine the quality of the data reported thru the Pennsylvania Patient Safety Reporting System (PA-PSRS) as required by Act 52. Some of the tasks will include:

i.Designing and implementing validation study of nursing home reporting
ii.Development of Error and Verification report for nursing homes to inform them of potential problems with their reported data. This could include development of a database to track these problems and facility feedback as well as development of analysis for this data.
iii.Analysis and report development for selected HAI for nursing homes.
iv.Model building and risk analysis of nursing home HAIs.

c)HAI Mortality Project

i.Merge Pennsylvania death records with SSI data reported in NHSN and proceed by chart review and data collection to assure that they are HAI related deaths within 365 days after the six benchmark surgeries.
ii.Manage the mortality data base.
iii.Calculate state-wide HAI mortality rate and case (infection) fatality rate, as well as county-wide and district-wide rates.
iv.Perform univariate data analysis and explore multivariate analysis for determination of risk factors using appropriate and feasible epidemiologic methodology.
v.Communicate with CDC and academic institutes for input and report the results in the team.
vi.Assist in generation of report and manuscripts.
vii.Assist in policy recommendation for intervention on the improvement of HAI reduction in Pennsylvania.

d)Other potential projects include:

i.Assist in examination of quality of data reported in NHSN by performing internal data validation. This includes development of or improvement of existing analytical program and output reports sent out to the hospitals. Design and develop system (database) to monitor and evaluate reduction in errors in NHSN data reported by hospitals overtime.
ii.Participate in external data validation activities conducted by the HAI section.
iii.Participate in HAI Prevention Collaborative activities of HAI section.
iv.Continue and expand the project on evaluation of electronic hospital surveillance systems for healthcare associated infections and its impact on data collection, conduct by current CSTE fellow
v.Evaluation of MRSA screening practices at Pennsylvania acute care facilities, a comparison of these practices to MRSA prevalence data, and a cost effectiveness analysis of different screening approaches.
vi.Examination of HAI patterns in small (<50 bed) community hospitals in Pennsylvania.
vii.Special analyses of healthcare acquired gastrointestinal infection reports and their relationship to C. difficile associated disease.

Preparedness Role

The fellow will work with the Planning & Preparedness section on wide range of topics related to Emergency Preparedness from Bioterrorism to Influenza. This fellow will also support on any public emergencies (i.e. pandemic H1N1 outbreak) that occur during the fellowship period. The fellow will also attend meetings and conferences that are attended by fellow bureaus and departments such as Office of Public Health Preparedness, Bureau of Laboratories Pennsylvania Emergency Management Agency (PEMA), and the Pennsylvania Department of Agriculture.

Assignment Location:	Harrisburg, PA
Primary Mentor:	Atmaram Nambiar, MD, MPH Acting Director, Division of Infectious Disease Epidemiology Pennsylvania Department of Health
Secondary Mentor:	Zeenat Rahman, MBBS,MPH Epidemiologist, Pennsylvania Department of Health