

Infectious Diseases- Healthcare Associated Infections (HAI)

Assignment Description

West Virginia has been developing capacity to address HAIs the last couple years. Past state HAI plans were posted to: <http://www.dhhr.wv.gov/oeps/disease/HAI/Pages/default.aspx>

Carrie Thomas, PhD was hired as the Healthcare Associated Infections Coordinator earlier this year and has been working with the HAI Multidisciplinary Advisory Group to formulate a plan for 2014.

The fellow will interact closely with the HAI Coordinator and with other strong experienced mentors in DIDE. Established meeting schedules and ongoing learning activities contribute to a continuous learning environment in the division. Several senior staff are strong mentors for field investigation.

In order of importance, the fellow will:

- 1) work on specific projects, such as an evaluation of DIDE's new CRE surveillance system;
- 2) rotate with other epidemiologists to cover outbreak (approximately 1-3 months per year) responsibilities and consultation responsibilities (< 4 days per month), with consultation responsibilities beginning during their 7th month here; and
- 3) participate in ongoing meetings and learning activities.

Day-to-Day Activities

Similar to the EISO and other DIDE epidemiologists, the CSTE Fellow will rotate responsibility to cover outbreak (approximately 1-3 months per year) and emergency on-call (usually <4 days per month, beginning during their 7th month with DIDE). This will give the Fellow experience in responding to public inquiries and managing infectious disease outbreaks in healthcare and community settings. Outbreak investigations are an especially good way to learn practical hands-on public health. In 2011 alone, DIDE has managed a carbapenem-resistant *Klebsiella pneumoniae* (CRKP) outbreak in a long term care facility (MMWR, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6041a2.htm>); multiple smaller CRKP outbreaks in long term and acute care facilities; and multiple outbreaks of influenza and norovirus in long term care facilities. In late 2011 through mid-2012, DIDE investigated an outbreak of *Tsukamurella* blood stream infections in an outpatient oncology clinic. WV has one pain clinic that received contaminated steroid medication from the New England Compounding Pharmacy and, as of October 2013, DIDE has investigated and reported 7 cases involved in the national fungal meningitis and other infections outbreak. In 2012 DIDE investigated two outbreaks in a single surveillance region, one of multi-drug resistant *Acinetobacter* and one of carbapenem-resistant *Enterobacteriaceae*, which had common facilities involved and lead to the formation of an MDRO prevention workgroup, which still meets to this day. So far in 2013, DIDE has investigated five MDRO outbreaks, three involving CRE, one involving multidrug-resistant *Acinetobacter*, and one involving ESBL *E. coli*; two of these outbreaks were in acute care, and 3 were in long term care facilities. A number of these outbreaks required site visits. Site visits are an excellent way to gain experience with outbreak investigation. Examples of field investigations conducted by DIDE staff in 2013 include: a hospital where a single case of Hepatitis B was

potentially healthcare associated, CRE in a long term care facility, a long term care facility with a lower respiratory tract infection outbreak, hospital where there was potential device-related blood borne pathogen exposure, a hospital with a CRE outbreak in the NICU, and a hospital with a *Citrobacter* outbreak in the NICU.

The primary responsibilities of the CSTE fellow will be driven by the projects he/she undertakes (see 'potential projects,' below). However, the assignment also offers exposure to other infectious disease activities going on in DIDE. At our weekly surveillance meeting, consultations, surveillance data, new issues in the literature, and new programmatic developments are discussed. A monthly laboratory-epidemiology meeting offers interaction with the state public health laboratory. A biweekly staff meeting enables participants to understand activities undertaken by the regional epidemiologists. A monthly journal club meeting offers exposure to epidemiology activities in all areas of public health, including chronic disease and maternal and child health. In addition, daily interaction with partners is often required during disease and outbreak investigations.

All epidemiologists and trainees are also encouraged to attend both local and national conferences and training opportunities as they become available. Our current CSTE HAI fellow has been able to attend the SHEA Spring 2013 conference, ArcGIS training at West Virginia University, state chapter meetings and annual conferences for APIC, the 2013 Convocation of Southern State Epidemiologists (CSSE), the annual ELC HAI Grantee's meetings, the annual WV Public Health Symposium, the annual WV Public Health Association conferences, as well as a variety of other trainings offered by the Office for Epidemiology and Prevention Services and the WV Center for Threat Preparedness.

The Division of Infectious Disease Epidemiology (DIDE) also holds regular trainings for local health departments and other stakeholders. Historically, this training has been held quarterly. However, in 2012, DIDE focused their training efforts to providing eight regional Long Term and Acute Care Infection Prevention and Control Training session, with emphasis on MDRO and *Clostridium difficile* prevention and control. This was also used as an opportunity to bring together infection preventionists from acute and long term care and have them meet the other infection preventionists in their region to encourage networking and support among them. Our current CSTE fellow also used this as an opportunity to distribute a *Clostridium difficile*/CRE facility survey she worked on with the former HAI Coordinator. In 2013, DIDE has been experimenting with providing training through webinars and developed a webinar series consisting of nine webinars on a variety of topics. Our current CSTE fellow is in charge of surveying our local health departments and other stakeholders to determine the preferred format/location for trainings in 2014, and has developed and/or participated in a variety of trainings offered by DIDE.

All epidemiology staff (including trainees) collaborate to deliver the training material. These trainings are well-received by local health staff, and the trainings serve to enhance the skills of the epidemiologists in DIDE because they must learn the material in order to teach it. In addition, all DIDE staff travel to these trainings when they occur off-site and learn from each other. In the past, EIS Officers and other trainees have participated in these trainings. Preparation for the training follows a strict timeline. Powerpoint presentations must be turned in one month before the presentation and all trainers must participate in a training rehearsal.

The State Epidemiologist regularly takes trainees to the legislature when she goes so that they can see the legislative process first-hand. This aids in understanding of public health laws and regulations.

This variety of organized activities contributes greatly to the learning environment in DIDE and in the agency as a whole.

Potential Projects

While outbreaks and other unanticipated projects are often the highlight of an assignee's experience in West Virginia, potential (planned) projects might include:

1) Evaluation of outbreak surveillance in healthcare facilities in West Virginia. West Virginia has made healthcare associated outbreaks reportable in the state, effective August 12, 2013. In practice, some healthcare facilities report outbreaks; however it is likely that many healthcare facility outbreaks go unreported. The CSTE Fellow will be asked to assess needs of acute and long-term care infection preventionists for outbreak detection, reporting and investigation, including laboratory support. The information will be used to design training for IPs and program epidemiologists and prioritize laboratory resources. The information may also be used for revision of the reporting protocol which lays out the objectives of the surveillance system, case definitions and other procedures for the surveillance system (found here <http://www.dhhr.wv.gov/oeps/disease/hai/documents/hai-protocol.pdf>).

2) Analysis of NHSN data West Virginia already receives reports of catheter associated bloodstream infections from intensive care units and began receiving reports of catheter associated urinary tract infections and surgical site infections during 2012. Analysis of these data will be critical in order to feed back data to stakeholders. DIDE is particularly interested in looking at antimicrobial sensitivity patterns at a regional level, as well as at regional variation in rates of MRSA and CDI.

3) Evaluation of carbapenem-resistant Enterobacteriaceae (CRE) surveillance in West Virginia. CRE became laboratory reportable on August 12, 2013. The HAI Coordinator has developed a surveillance system using CDC's NEDSS Base System (NBS) where local health departments can investigate CRE reports and provide education to long term care facilities with CRE cases. The DIDE protocol for CRE surveillance can be found here <http://www.dhhr.wv.gov/oeps/disease/atoz/documents/cre/cre-protocol.pdf>. DIDE would also like to see a comparison of CRE data collected through our CRE surveillance system to CRE infection data reported through the CAUTI/CLABSI modules of NHSN.

4) Development of outbreak investigation toolkits. West Virginia has developed a number of simple "outbreak toolkits." For example, see the variety of toolkits posted on the outbreak page: <http://www.wvdep.org/AZIndexofInfectiousDiseases/OutbreaksorClustersofAnyIllness/tabid/1535/Default.aspx> After gaining some experience, the fellow should be able to draft outbreak toolkits for facilities to use in investigation of healthcare-associated outbreaks. These toolkits are very well-received by local health departments, facilities and other stakeholders, because they offer simple, straightforward guidance in the face of a perceived emergency.

5) Hospital-based projects. DIDE is working with Terrie Lee, RN, MS, MPH, CIC at Charleston Area Medical Center to identify hospital-based surveillance projects that the fellow could participate in or lead. Experience working in a hospital environment could greatly enhance the skills of the fellow, and would benefit hospital and health department alike. A 3-4 week rotation with the CAMC infection prevention department is available for CSTE fellows and other DIDE staff.

Preparedness Role

The Division of Infectious Disease Epidemiology (DIDE) and the Center for Threat Preparedness are co-located in the same organizational unit. Senior staff in DIDE split responsibility for threat preparedness planning related to epidemiology response. DIDE staff, including the current CSTE fellow, worked closely with the Center for Threat Preparedness before, during and after the 2013 National Boy Scout Jamboree to provide public health preparedness and response to the largest mass gathering in the history of West Virginia.

All staff in DIDE rotate responsibility for outbreak response. Outbreaks are an excellent model for infectious disease emergencies and serve as outstanding training for emergency response. During the 2009 influenza pandemic, all staff and trainees were involved in pandemic response.

The fellow will also be encouraged to participate in any trainings or tabletops related to threat preparedness. In the past, trainees have participated in training and tabletops on pandemic influenza and avian influenza. DIDE epidemiologists participated in a Community Assessment for Public Health Emergency Response (CASPER) needs assessment in early 2012. The Career Epidemiology Field Officer and Epidemic Intelligence Office for West Virginia participated in the Kentucky CASPER in 2011. As similar opportunities arise, the CSTE Fellow would be able to participate.

Assignment Location: West Virginia Department of Health and Human Resources
Bureau for Public Health
Charleston, WV

Primary Mentor: Carrie Thomas, PhD
HAI Coordinator

Secondary Mentor: Sherif Ibrahim, MD, MPH
Outbreak Epidemiologist