

ID: 46774711

**Infectious Diseases, Infectious Diseases - Foodborne - Host Site Description
Minnesota Department of Health**

Assignment Location: St. Paul, US-MN
Minnesota Department of Health
Infectious Disease Epidemiology, Prevention and Control Division

Primary Mentor: Joni Scheftel, DVM, MPH, Diplomate ACVPM
State Public Health Veterinarian
Minnesota Department of Health

Secondary Mentor: Stacy Holzbauer, DVM, MPH, Diplomate ACVPM
CDC Career Epidemiology Field Officer
Minnesota Department of Health

Work Environment

Hybrid

Assignment Description

The Fellow will function as an epidemiologist in the Zoonotic Diseases Unit, except they will get cooler projects! They will also be expected to contribute to Section-wide or Division-wide efforts. At MDH if something big happens it's all hands on deck and that is one of the reasons we are so successful in our responses.

Our Fellow will participate in the day-to-day work of the Zoonotic Diseases Unit (ZDU). They will be involved with surveillance of zoonotic diseases, outbreak investigations of zoonotic and foodborne illness, service and outreach to the public, prevention of zoonoses, and zoonotic influenza planning. Animal bite and rabies risk evaluation is also a major responsibility of the ZDU. While the majority of the Fellow's time would be spent in the zoonotic disease area, there will be opportunities to work in the foodborne area on foodborne illness outbreaks and a variety of projects. The Fellow will be taught a step-by-step approach to cluster/outbreak investigation of zoonotic and foodborne diseases, including questionnaire development, interviewing skills, hypothesis development, database creation, data analysis, working with outside agencies, keeping involved parties informed, interaction with the public and media, and finally, writing outbreak investigation reports. There is potential for expansion of our zoonotic disease surveillance and prevention activities depending on the Fellow's background and interests. There would also be opportunities for collaboration with the University of Minnesota, the Minnesota Board of Animal Health, and the Minnesota Department of Agriculture. In addition, publication opportunities are frequent at MDH, and they will likewise be made available to our Fellow.

Describe Statistical and Data Analysis Support, Such as Databases, Software, and Surveillance Systems Available to the Fellow

The Fellow will be outfitted with an MDH laptop and all the equipment and software of a regular MDH employee. If there is software needed that is not standard, MDH will cover it. Access to all surveillance systems that the Fellow is involved with will be given.

ID: 46774711

**Infectious Diseases, Infectious Diseases - Foodborne - Host Site Description
Minnesota Department of Health**

Projects

Surveillance Activity Title: Rabies Surveillance Project

Surveillance Activity Description:

This project will involve analyzing MDH rabies data from 2003-2022, and writing a descriptive analysis for publication. The Fellow would develop skills in handling, cleaning and analyzing a large dataset, as there are over 35,000 records. This project would represent the first time a summary of animal rabies surveillance in Minnesota was published.

Surveillance Activity Objectives:

1. Describe the rabies-positive animals and trends observed over the past 20 years
2. Describe the human health burden of rabies in Minnesota
3. Describe the molecular genetics of bat and terrestrial rabies variants

Deliverable: Published paper

Surveillance Activity Impact:

A mandatory rabies vaccination law for dogs and cats. Minnesota is one of 8 states without one.

Surveillance System Evaluation Title: Evaluation of Minnesota Surveillance Systems for High Consequence Zoonotic Diseases and Bioterrorism Agents

Surveillance System Evaluation Description:

The Fellow will evaluate our surveillance systems for sporadic cases of infection with bioterrorism agents such as anthrax, tularemia, brucellosis, and Q fever.

Surveillance System Objectives:

To identify gaps in the current surveillance system and make suggestions for improvements

Deliverable: CSTE Annual Meeting Abstract

Surveillance System Impact:

Whenever a surveillance system is evaluated and the suggestions are implemented, it has a positive public health impact

Major Project Title: Blastomycosis Knowledge Among Physicians and Veterinarians

Major Project Description:

Blastomycosis is a rare but serious disease. Serious complications arise when patients are incorrectly diagnosed and treated, leading to delayed diagnosis and more severe complications from the disease. In Minnesota, there are a median of 34 human cases and 65 veterinary cases annually. Many of these cases are diagnosed in the Twin Cities metro area, despite this area not being endemic for blastomycosis. The Fellow would be responsible for designing a physician/veterinarian survey about blastomycosis knowledge, comparing the answers from physicians and veterinarians in endemic areas to those of these professionals in the Twin Cities.

Major Project Objectives:

Identify gaps in knowledge by region among physicians and veterinarians that can be targeted for continuing education.

Deliverable: Educational materials, targeted awareness campaign and published paper

ID: 46774711

**Infectious Diseases, Infectious Diseases - Foodborne - Host Site Description
Minnesota Department of Health**

Major Project Impact:

Blastomycosis has a high case fatality rate of 10%, often because of delayed diagnosis. Increasing awareness among physicians will save lives.

Additional Project #1 Title: These are some other ideas for projects that the fellow could engage in:

Project #1 Type: Major Project

Project #1 Description:

1. Drug overdose deaths have increased dramatically in light of the national opioid crisis. The Minnesota Department of Health's Unexplained Deaths Project (UNEX) works with medical examiners to investigate deaths possibly due to an infectious cause. Initial data analysis has shown an increased in infectious deaths, specifically pneumonia and sepsis, in decedents who have a history of substance abuse. The fellow would have an opportunity to describe the clinical diagnosis and etiologic agents detected and review the trends over time.
2. Blastomyces dermatitidis and B. gilchristii the causative agents of blastomycosis, are endemic in Northern Minnesota and along the St. Croix River on the state's eastern border. Approximately 70% of sporadic cases are male with a median age of 44 years. The gender and age distribution of outbreak-associated cases vary depending on the situation. Our fellow could choose to do an age, gender, and telephone prefix matched case-control study to identify gender-specific risk factors for sporadic infections.
3. A CSTE Fellow would have the opportunity to work on developing outreach and health promotion message for endemic mycoses in Minnesota. Specifically, this project would entail using results of spatial and temporal mapping of cases of blastomycosis and histoplasmosis to determine which areas of the state to target with messaging, as well as descriptive epidemiology results to target populations that may be at higher risk. The fellow would work fungal disease epidemiologist to develop messaging and methods of delivery.
4. Approximately 3-4% of the bats tested at MDH for rabies are positive; these bats generally have had encounters with humans or are behaving strangely. This project would involve a descriptive epidemiology and nested case-control study involving all people who submit bats for rabies testing, regardless of the final test result. The objective is to identify risk factors for submission of bats that test positive for rabies and to identify behaviors that increase the risk of being bitten by a bat. In addition, the Fellow could develop an educational campaign to prevent bat-transmitted rabies
5. Using prospectively collected MDH enteric disease data from the Upper Midwest Agricultural Safety and Health Center project, the fellow would characterize cases associated with food animal contact for Campylobacter, Cryptosporidium, Salmonella or Shiga toxin-producing E. coli infections. These data include detailed information about type of exposures, PPE used, farm management, and knowledge and attitudes of cases.
6. Salmonella in Pocket Pets Project: Although most human Salmonella infections are acquired through consumption of contaminated food, many cases are associated with contact with animals or their environments. Recently, contact with hedgehogs has been associated with outbreaks of salmonellosis in humans. The extent of the problem in the pet industry, or what might be described as the background rate of salmonellosis in retail pocket pets is currently unknown. The objective of this project would be to estimate the baseline prevalence of Salmonella enterica in rodents on display for retail sale in pet stores in the Minneapolis-St. Paul metropolitan area. Background research on the pocket pet supply industry would also be performed and incorporated into the study results.

ID: 46774711

Infectious Diseases, Infectious Diseases - Foodborne - Host Site Description

Minnesota Department of Health

7. Despite regulations prohibiting them, some Minnesota home daycares have been given variances by their licensors to keep reptile pets in the home. This project would involve educating licensors, and creating educational materials for daycare providers on what pets are allowed and on safe interactions with animals.
8. Every spring in Minnesota, there are salmonellosis cases associated with contact with chicks from mail order hatcheries. This project would include a survey of feed mills and agricultural stores that sell chicks to evaluate their level of awareness regarding the issue and to characterize any educational materials they provide to consumers. In addition, the Fellow could develop an educational campaign designed specifically for these venues.
9. The Fellow would characterize petting zoo outbreaks in Minnesota, including epidemiology of human cases, pathogens, source of the animals, species on display, illness history, and veterinary care.
10. The Veterinary Occupational Health and Infection Control Project (VOHICA) is a unique pilot project designed by ZDU to help veterinary clinics, hospitals, and shelters in Minnesota improve their infection control and occupational health practices. We have enrolled 10 facilities and are currently involved with the baseline, on-site assessments. A fellow could be involved in facility staff training and materials development, and extract, clean and analyze data from the first year of the project.
11. Trichinosis is a parasitic disease caused by eating raw or undercooked pork or wild game infected with *Trichinella spiralis*. Trichinosis is a rare disease, with an average of 11 cases seen nationally each year. The Fellow would interview chefs in Twin Cities restaurants about the source of their pork products on the menu (including wild boar) and cooking temperature practices to see if they are following the recommendations from the USDA.
12. A dog and cat breeder bill was passed into law in Minnesota in 2014 that requires regulation and inspection of these facilities by the Minnesota Board of Animal Health (BAH). Included in the law is a requirement that adult dogs be tested for *Brucella canis* prior to sale. Currently, although *B. canis* infection is reportable in dogs, there are no specific regulations covering handling of *B. canis* infected kennels in Minnesota. In collaboration with the BAH, the Fellow would conduct a survey of knowledge, attitudes and practices of licensed dog breeders in Minnesota regarding canine brucellosis.

Please Describe the Fellow's Anticipated Role in Preparedness and Response Efforts – Include Activities and Time Allocation (Required Competency of Fellowship)

Working with the bioterrorism epidemiologist and/or the Office of Emergency Preparedness, the Fellow will participate in bioterrorism and emergency preparedness and response activities, including case investigation of zoonotic diseases associated with bioterrorism, and ongoing swine and avian influenza planning activities. Working with the State Public Health Veterinarian, who serve as a liaison between MDH and Minnesota's animal health agencies, the Fellow will participate in zoonotic infectious disease planning.

For the current high path avian influenza outbreak in Minnesota poultry, the ZDU is monitoring the health of poultry workers in contact with infected flocks. In 2022, we monitored over 650 workers for respiratory symptoms and tested 23 symptomatic people. No cases of HPAI were identified. The fellow would be involved with this response.

ID: 46774711

**Infectious Diseases, Infectious Diseases - Foodborne - Host Site Description
Minnesota Department of Health**

Please Describe the Fellow's Anticipated Role in Cluster and Outbreak Investigations – Include Activities and Time Allocation (Required Competency of Fellowship)

The fellow will be taught the step-wise logical approach in outbreak investigation that Minnesota Department of Health is known for, and will lead several cluster and outbreak investigations themselves (with support).

Please Describe the Fellow's Anticipated Role in the COVID-19 Response – Include Activities and Time Allocation

None

Please Describe Opportunities for Fellows to Work in Health Equity as well as Incorporating Diversity, Equity, and Inclusion into their Work

We try to incorporate health equity in all our efforts.