Infectious Disease

The Office of Infectious Disease Services (OIDS) in the Arizona Department of Health Services is responsible for monitoring, preventing and controlling diseases caused by infectious agents. It contains five programs: Infectious Disease Surveillance and Preparedness, Infectious Disease Epidemiology and Investigations, Tuberculosis Control, Syndromic Surveillance, and Vector-Borne and Zoonotic Diseases. The approximately 45 staff members with diverse backgrounds provide epidemiologic, medical, entomological and veterinary public health consultation both within the Bureau of Epidemiology and Disease Control Services and to other state and local agencies, health care providers and the general public. Each program also collects, maintains, and analyzes human and animal reportable disease data, as well as vector surveillance data to monitor trends, detect outbreaks, and evaluate the impact of infectious diseases on Arizonans.

Activities:
• The Fellow will be assigned to the Infectious Disease Epidemiology and Investigations (IDEI) Program under the supervision of the Food and Water-borne Disease Epidemiologist and will help coordinate outbreak investigations (including study design, data collection and analysis, and recommendations for public health intervention) for the following conditions:
• Food and waterborne agents (e.g. enterohemorrhagic E. coli, Salmonellae, Vibrio spp.);
• Bacterial intoxications (e.g. botulism, Staphylococcus aureus, Bacillus cereus);
• Additional activities include:
• Communicate and coordinate with counties, tribes, other states, CDC, IHS, FDA and USDA, as well as with cross-border (Sonora, Mexico) health officials regarding disease investigations
• Facilitate release of botulism and diphtheria antitoxins from the CDC
• Provide public health information to the public and health care providers in Arizona
• Serve as a liaison between local public health entities and the Arizona State Laboratory
• Monitor food-borne disease reports from laboratories as well as from the counties for potential disease clusters.
• Participate in the incident command structure during public health emergencies including multi-county and multi-state infectious disease outbreaks.
• Cross-train in vaccine-preventable diseases (e.g. measles, rubella, pertussis and hepatitis B); fungal diseases (coccidiodomycosis); vector-borne diseases (e.g. rabies, hantavirus, plague and West Nile Virus); as well as other emerging infectious diseases.

Disease Outbreak Investigations:
• At any given time there are approximately 3 to 10 infectious food-borne outbreaks being investigated in the state of Arizona. Some recent food and water-borne investigations include:
• A national outbreak of E. coli O157:H7 in ground beef (22 cases nationally; 12 in AZ); Arizona's investigation of this outbreak led to the recall of over 5 million pounds of ground beef
• Salmonella Oranienburg outbreak in Cochise County; outbreak investigation of unknown source took place over a 4 month period and was eventually linked to a single

restaurant. Arizona has the highest rate of S. Oranienberg in the country, which is of special interest to the CDC
• Vibrio spp. in oysters; Arizona has had several cases of Vibrio spp. infection due to contaminated shellfish including the only case of toxigenic Vibrio cholera in the US this year.
• Fatal Naegleria fowleri (amebic encephalitis) infection linked to swimming in a local lake; Arizona identified one of only 6 US cases this year, which led to extensive media involvement.
• The Fellow will be involved in all phases of investigations including: initial complaint investigations; study design; questionnaire development; data collection and analysis; communication of results to local health departments and other state agencies; synthesizing public health recommendations; and report writing.
• Many outbreak investigations require the participation of multi-disciplinary teams. The Fellow will work closely with county community health nurses, county epidemiologists, and environmental health staff, as well as other state and federal agencies.

Specific Projects:
• Analyze Arizona trends of S. Oranienberg, focusing on geographic patterns and risk factors to generate hypotheses for increased prevalence in Arizona compared to the rest of the county.

• Work with the Department of Environmental Quality (DEQ) to evaluate the number of untreated private wells in Arizona to determine the population at risk for Naegleri fowleri infection and to develop an educational campaign to promote the treatment of well water.

• Evaluate Food-borne Performance Measures to help improve coordination and communication in multi-state and multi-county outbreak investigations.

• Work with local and tribal health departments and CDC to adopt CDC's outbreak management system.

• Develop health education programs for food and water-borne diseases for health care professionals as well as the public.

Assignment Location:	**Phoenix, AZ**
Primary Mentor:	Rebecca Sunenshine, MD CDC Career Epidemiology Field Officer stationed in Arizona
Advanced Degrees:	MD, Indiana University (1998) EIS alumnus, class of 2004
Secondary Mentor:	Joli R Weiss, PhD

	Food and Water-borne Disease Epidemiologist
Advanced Degrees:	PhD, University at Buffalo (2006) MS, University at Buffalo (1994)
Secondary Mentor:	Shoana Anderson, MPH Infectious Disease Epidemiology and Investigations Program Manager
Advanced Degrees:	MPH, Tulane University
Secondary Mentor:	Ken Komatsu, MPH Arizona State Epidemiologist
Advanced Degrees:	MPH, University of California, Los Angeles