

Program Element #23: Emerging Infections Program (EIP) (OHSU Only)

- 1. Purpose of Emerging Infections Program.** The Emerging Infections Program (EIP) is a population-based network of CDC and state health departments working with collaborators (local health departments, public health laboratories, clinical laboratories, infection-control practitioners, healthcare providers, academic institutions and other federal agencies) to assess the public-health impact of emerging infections and to evaluate methods for their prevention and control.
- 2. Staffing Requirements.** Grantee assures Department that Dr. John Townes, Assistant Professor of Medicine, Oregon Health and Sciences University (OHSU):
 - a. Is assigned to assist Department EIP planners in conducting the projects;
 - b. Is available for amounts of time that are sufficient to ensure continuation Emerging Infection Studies;
 - c. Monitors the administration of the Emerging Infection Studies;
 - d. Supervises Grantee staff persons, interns and physicians performing work associated with Emerging Infection Studies;
 - e. Designs the protocols for Emerging Infection Studies,
 - f. Coordinates the activities associated with Emerging Infection Studies, as set forth herein, and
 - g. Develops and delivers related education and training, as set forth herein.
- 3. Emerging Infection Studies.** Use and retention by Grantee of disbursements of financial assistance provided by Department under this Grant Agreement (the "Agreement") for Emerging Infection Studies are conditioned upon Grantee conducting the Emerging Infection Studies in accordance with the operational requirements and procedures and reporting requirements set forth herein.
 - a. Continuing EIP Study Project.**

Methicillin-Resistant Staphylococcus Aureus (MRSA) Study. Grantee must establish and maintain the operation of the MRSA Study for enhancing the capacity for early detection, reporting, and prevention of MRSA among physicians, medical care providers, and Local Public Health Authorities (LPHA) in Oregon.

 - (1) **MRSA Study Requirements.** Grantee affirms to Department that Grantee possesses the operational capacity to maintain the administrative and operational capacity to conduct MRSA Study activities in accordance with the provisions of this Agreement.
 - (2) **MRSA Study Procedures.** Grantee must observe the following procedures in conducting the MRSA Study:

- (a.) Grantee must conduct MRSA Study activities in accordance with the practices and protocols established by Department for Continuing EIP Study projects.
- (b.) Grantee must conduct surveillance of incidents of infection with invasive MRSA among residents of the Metropolitan Portland area in accordance with investigative and research protocols established by Grantee for this purpose.
- (c.) Grantee must ensure that a qualified public health nurse collects, compiles and submits data to Grantee concerning the incidence of infection with MRSA from hospital laboratories located in the Metropolitan Portland area.
- (d.) Grantee must establish and maintain the technical and laboratory capacity to collect MRSA bacterial isolates from Metropolitan Portland area hospitals for potential additional analysis and testing.
- (e.) Grantee must provide data obtained through the MRSA Study Project to Department in a form acceptable to Department, and in accordance with a schedule that is mutually agreeable to Department and Grantee. The MRSA Study Project data provided by Grantee to Department will be entered into Department EIP surveillance databases.
- (f.) Upon request by Department, Grantee must conduct analysis of parts, or all, of the MRSA data contained in Department surveillance database. Department will determine the purpose, procedures and content of analysis in consultation with Grantee. The quality of the analysis conducted by Grantee must satisfy CDC and Department standards for quality, accuracy and statistical significance.
- (g.) If the MRSA Study is deemed “research” by the Department, Grantee must ensure that requirements of relevant Institutional Review Boards for the protection of human subjects involved in the MRSA Study are met.
- (h.) Grantee must maintain confidentiality of patient records in accordance with Department standards.

b. Contingency EIP Study Projects. Grantee acknowledges and agrees that:

- (1) Department may require the conduct of Contingency EIP Study Projects of emerging infectious diseases from time to time over the term of this Agreement, subject to the mutual consent of Department and Grantee and in accordance with a duly executed amendment to this Agreement.
- (2) Department designations of a Contingency EIP Study Project may be made in instances in which the numbers of, or the geographic concentration of, Oregonians who have been diagnosed with, or who present symptoms of, an emerging infectious disease, or in instances in which there is a reasonable risk of Oregonians developing an emerging

infectious disease, cause the Department Acute and Communicable Disease Prevention Manager to designate a Contingency EIP Study Project on a rapid-response, contingency basis.

Note: The following subsections c.(1) thru c.(3) of Section 3. "Emerging Infection Studies" sets forth the process by which Department identifies a potential emerging infectious disease and by which Department designates Contingency EIP Study Projects.

c. Department Designation of Contingency EIP Study Project.

- (1) **Reporting to Department of Potential Emerging Infection Situation.** Department receives reporting of potential epidemic occurrences from physicians and medical service provider organizations such as the following:
 - (a.) Oregon Health and Sciences University (OHSU)
 - (b.) Local Public Health Authorities, in accordance with Department Communicable Disease Investigative Guidelines, available at <http://www.dhs.state.or.us/publichealth/lhd/index.cfm>.
 - (c.) Hospital staff, physicians or other certified health professionals.
 - (d.) Disease control reporting systems in Oregon, such as the Health Alert Network (HAN).
 - (e.) Other formal and informal means by which Department is informed of an emerging infection situation.
- (2) **Determination by Department of Contingency EIP Study Project.** Department retains the authority to designate a Contingency EIP Study Project that is required to protect the public health interests of Oregonians. This designation authority resides with Department to allow Department to respond quickly to emerging infectious diseases that have the potential to become epidemics.
- (3) **Initiation and Implementation of Contingency EIP Study Project.**
 - (a.) Following designation of Contingency EIP Study Project by Department Acute and Communicable Disease Prevention Manager, Grantee must provide Contingency EIP Study Project services to Department designed to prevent or control the potential communicable disease situation.
 - (b.) Dr. Townes must review existing and available data on the potential communicable disease situation.
 - (c.) Dr. Townes must confer with the public health officials and other experts whom Grantee, using professional judgment, determines are necessary to consult.

- (d.) Dr. Townes must participate, upon request by Department, in CDC consultations directed toward designing Contingency EIP Study Project protocols.
- (e.) Dr. Townes must design an epidemiological study to investigate the potential communicable disease situation, if, in the professional judgment of Grantee, an epidemiological study is required.
- (f.) Dr. Townes must conduct or monitor, as necessary, data collection pertaining to the potential communicable disease situation.
- (g.) Dr. Townes must conduct or monitor, as necessary, data compilation, analysis and interpretation pertaining to the potential communicable disease situation.
- (h.) Dr. Townes must develop a written report pertaining to the potential communicable disease situation and submit the report in a timely manner to Department.
- (i.) Department and Grantee may agree, pursuant to future Grant agreements, if such agreements are executed by Department and Grantee, to establish Contingency EIP Study Project as Continuing EIP Study Projects, in instances in which Department and Grantee agree that continuation of the Contingency EIP Study Project serves the public health interests of Oregonians.
- (j.) If the Contingency EIP Study is deemed “research” by the Department, Grantee must ensure that requirements of relevant Institutional Review Boards for the protection of human subjects involved in the Contingency EIP Study are met.
- (k.) Grantee must maintain confidentiality of patient records in accordance with Department standards.

4. Enhanced Surveillance for Neurocysticercosis (NCC) and *Taenia solium* Taeniasis (TST).

- a. Grantee must update guidelines for screening and investigation of neurocysticercosis and taeniasis in Oregon by engaging in activities that include, but may not be limited to:
 - (1) evaluating the current surveillance system by retrospectively searching for unreported NCC cases and estimating the capture rate,
 - (2) conducting interventions to enhance the existing surveillance system in order to more accurately calculate NCC incidence and risk factors, and
 - (3) evaluating a new serologic test for *T. solium* tapeworm carriers, and its potential use in NCC contact investigations.
- b. **Definitions for NCC and *T. solium* Surveillance (TST) Activities.**
 - (1) **Cysticercosis:** a parasitic infection by *Taenia solium* (*T. solium*). Humans acquire cysticercosis when they ingest *T. solium* tapeworm eggs in the feces of a human tapeworm carrier. These eggs develop into larvae within the small intestine, and subsequently disseminate to form encapsulated cysts throughout the body. Worldwide it is a common disease, with over 50 million people affected.

- (2) **Neurocysticercosis (NCC):** an infection of the human central nervous system by *T. solium* larvae. NCC occurs when *T. solium* larvae infect the central nervous system, and it accounts for the majority of related morbidity and mortality. In endemic countries NCC is the leading cause of acquired epilepsy, responsible for 30% of all seizure cases². Although rare, death occurs primarily when developing larval cysts cause hydrocephalus by obstructing the flow of cerebral spinal fluid.
 - (3) ***Taenia solium* (*T. solium*):** larval form of the pork tapeworm; a cestode parasite of humans responsible for neurocysticercosis and taeniasis, both reportable diseases in the state of Oregon.
 - (4) **Taeniasis:** the infection of humans with the adult tapeworm of *T. solium*.
- c. Neurocysticercosis (NCC) and *T. solium* Taeniasis Surveillance (TST).** Grantee must:
- (1) evaluate the neurocysticercosis capture rate of the current surveillance system,
 - (2) determine the prevalence of *T. solium* tapeworm carriers among household contacts of neurocysticercosis cases,
 - (3) evaluate the usefulness of serum *T. solium* antibody test for recombinant antigens as a public health intervention, and
 - (4) formulate specific guidelines for screening and investigation of neurocysticercosis and taeniasis in Oregon.
- d. Procedures** (see Attachment 1 below for supplemental information.) Grantee will use several methods to identify neurocysticercosis cases that are not captured by the surveillance system. These will be used retrospectively from 2002 through 2007 to evaluate the capture rate of the current surveillance system. We will conduct a contact investigation (as explained below) for all retrospective NCC cases from 2006 and 2007, and for all prospective NCC cases identified during the 2008 and 2009 calendar years. The main methods for active case finding include:
- (1) Monthly review of the Oregon hospital discharge database
 - (2) Monthly review of coroner reports and death certificate data
 - (3) Monthly queries of infection contract practitioners (ICP) through the ICP professional organization's email system
 - (4) Monthly review of requests for serologic tests sent to the CDC parasitology laboratory and ARUP reference laboratory
 - (5) Biannual keyword search of Radiology Information Systems (RIS's) radiographic databases at major hospitals. Search terms to include: "neurocysticercosis", "cysticercosis", "taenia", "taeniasis", "solium", "cyst" and "scolex."
- e. Increase Case Reporting.** Grantee will conduct an educational outreach to the following groups to increase awareness of these diseases and the reportable nature:

- (1) **Migrant Health Clinics:** There are 30 migrant and community health clinics which provide healthcare for the approximately 175,000 migrant and seasonal farmworkers (MSFW) that come to Oregon each year. Education outreach to these clinics will take multiple forms: including newsletter mailings, site visits with presentation pamphlets / posters; and presentations at conference attended by clinic personnel.
 - (2) **Targeted physician specialties:** Several physician specialties are more likely to encounter NCC and taeniasis, including emergency, infectious disease, neurology, neurosurgery, radiology, and pathology. Educational outreach will occur via a biannual letter addressing NCC and taeniasis diagnosis and management, and reminding physicians that these are reportable diseases in the state of Oregon.
 - (3) **General healthcare providers:** The CD Summary is a state newsletter distributed to all licensed physicians in Oregon, and is an established vehicle to provide public health updates and education. We will prepare a short article for the CD Summary annually on NCC and taeniasis, to include epidemiology, diagnosis and management
- f. **Contact Investigations:** Grantee will conduct contact investigations for all cases of taeniasis and cysticercosis identified either through passive or active surveillance. Contact investigations will be conducted by the relevant local health departments, although state investigators may take part in these investigations as requested. The state health department will provide published investigative guidelines and a questionnaire in both English and Spanish to be used by local health department personnel. Other languages will be accommodated through interpreted interviews when an interpreter is available. The questionnaire will include demographic information, country of birth, duration of residence in the United States, risk factors, travel history, occupation, symptoms, as well as brief knowledge, attitudes and practices survey relevant to neurocysticercosis prevention.
- g. **Index Case and Close Contacts:** The index case and close contacts will be asked to provide both a finger stick blood sample as well as a stool sample, which will be sent to the CDC parasitology diagnostic laboratory for further analysis. Stool samples will be analyzed both by light microscopy for the presence of ova or proglottids, and by coproantigen for taenia species adult tapeworms. All cases or contacts with positive stool or serology for taeniasis will be offered treatment with oral niclosamide. Blood samples will be analyzed with an enzyme-linked immunoelectrotransfer blot assay for adult (EITB-t) and larval (EITB-c) *T. solium* antibodies. Contacts seropositive for cysticercosis or taeniasis will be offered a non-contrast computerized-tomography scan (CT) of the head at Oregon Health and Sciences University. Those with CT scans showing evidence of neurocysticercosis will be referred to a medical physician for further evaluation.
- h. **Staff Assignments.**
- (1) Oregon DHS / ODPE:
 - Emilio DeBess DVM, MPH (emilio.e.debess@state.or.us Tel: 971/673-1027)
 - Bill Keene PhD, MPH (keene@cluemail.com Tel: 971/673-1008)

- (2) OHSU:
 - Department of Infectious Disease: John Townes MD (townesj@ohsu.edu Tel: 503/494-9348)
 - Department of Public Health and Preventive Medicine: Seth O'Neal MD resident (oneals@ohsu.edu Tel: 503/833-2821)
- (3) CDC parasitology diagnostics laboratory:
 - Patricia Wilkins, Ph.D (pwilkins@cdc.gov Tel: 770/488-4431)
 - Other laboratory staff as required.

5. Reporting Obligations and Periodic Reporting Requirements. In addition to the reporting obligations set forth in Exhibit D, section 8., of this Grant, Grantee shall provide written progress updates in accordance with a schedule that Department determines in consultation with Grantee. Grantee shall submit the written progress updates as follows:

- a. Quarterly progress reporting, using a form approved for this use by Department, on Continuing EIP Study Projects.
- b. Periodically, as determined by Department in consultation with Grantee, progress reports for Contingency EIP Special Projects.

Attachment 1
Contact Investigation, Diagnosis and Treatment Algorithm
with Designated Responsibilities

