

Competencies for Applied Epidemiologists in Governmental Public Health Agencies

Tier 3a: Senior-Level Epidemiologist, Supervisor, or Manager

Example of Functional Responsibility

- Supervisor, manager, and/or director of a major section, program, or bureau in a public health agency.

Examples of Educational and Experiential Criteria

- Master's degree with a focus in epidemiology with 4 or more years' work experience in epidemiology in a public health agency; or
- Doctoral-level epidemiologist with at least 2 years' work experience at a Tier 2 epidemiologist level; or
- Other nonepidemiology professional degree or certification (e.g., RN, MD/DO, DDS/DMD, DVM, PhD, RS) with specific epidemiology training (e.g., MPH degree, CDC Epidemic Intelligence Service program) and at least 4 years' work experience at a Tier 2 epidemiologist level.

Competencies and Subcompetencies for Skill Domain 1—Assessment and Analysis

- Ensure identification of public health problems pertinent to the population
 1. Ensure that critical thinking is used to determine whether a public health problem exists
 2. Decide whether to conduct further investigation or other public health action on the basis of results of literature review and assessment of current data
 3. Lead collaborations with others inside and outside the agency to identify the problem and form recommendations
- Oversee surveillance activities
 1. Approve surveillance for the particular public health issue under consideration
 2. Decide on surveillance data needs
 3. Supervise or manage implementation of new or revision of existing surveillance systems
 4. Synthesize key findings from the surveillance system and other pertinent information for use by decision-makers
 5. Ensure evaluation of surveillance systems
- Ensure investigation of acute and chronic conditions or other adverse outcomes in the population
 1. Oversee a community health status assessment
 2. Decide on priority of public health problems to be addressed
 3. Approve selection of investigative processes
 4. Verify hypotheses
 5. Oversee design of investigations (e.g., disease investigations, studies, or screening programs)
 6. Ensure use of investigation techniques consistent with the public health problem
- Ensure study design and data collection, dissemination, and use follow ethical/legal principles
 1. Examine ethics guidelines and principles when planning studies; conducting research; and collecting, disseminating, and using data
 2. Communicate to staff legal expectations, limitations, and implications of collection, management, dissemination, and use of data and information
 3. Obtain decision on whether investigation involves public health practice or public health research
 4. Ensure legal and ethical conduct of human subjects research
 5. Ensure application of necessary Institutional Review Board processes
 6. Ensure that conflicts of interest do not interfere with research or investigations
 7. Ensure application of privacy laws to protect confidentiality, including Health Insurance Portability and Accountability Act (HIPAA) and applicable state and local privacy laws
 8. Know agency procedures for handling Freedom of Information Act (FOIA) requests
 9. Ensure application of ethical principles in preparing and submitting publications
- Ensure management of data from surveillance, investigations, or other sources
 1. Approve database requirements
 2. Ensure database management
- Evaluate analysis of data from an epidemiologic investigation or study
 1. Approve analysis plan for data
 2. Approve data analysis
- Evaluate conclusions and interpretations from investigation
 1. Assess the validity of the epidemiologic data, taking into consideration bias and other study limitations
 2. Assess need for special analyses, including survival analyses, cost effectiveness/cost benefit/cost utility analyses

The Centers for Disease Control and Prevention (CDC) and the Council of State and Territorial Epidemiologists (CSTE) convened an expert panel to develop Applied Epidemiology Competencies (AEC) for Governmental Public Health Agencies. The AECs were intended to improve the practice of epidemiology within the public health system. The expert panel included representatives from local, state, and federal public health agencies and schools of public health.

The AECs present a comprehensive list of competencies that define the discipline. They describe functional, analytical, and managerial competencies in four tiers—entry-level or basic, mid-level, supervisory and senior scientist/researcher. The AECs were developed within the framework of the eight skill domains of the Core Competencies for Public Health Professionals—a product of the Council on Linkages between Academia and Public Health Practice—and are consistent with the larger field of public health practice.



3. Validate key findings from the study
- H. Determine evidence-based interventions and control measures in response to epidemiologic findings
 1. Approve interventions on the basis of understanding of cultural/social/political framework for consideration
 2. Ensure that scientific evidence is used in preparing recommendations for action or interventions
- I. Ensure evaluation of programs
 1. Approve measurable and program-relevant goals and objectives
 2. Decide on program logic models and theories of action
 3. Approve surveillance and other data for use in tracking program objectives and outcomes
 4. Monitor progress toward program objectives and outcomes
 5. Incorporate information about progress toward program objectives and outcomes in decisions on program planning and modification

Competencies for Skill Domain 2—Basic Public Health Sciences

- A. Use current knowledge of causes of disease to guide epidemiologic practice
- B. Ensure the use of laboratory resources to support epidemiologic activities
- C. Ensure application of principles of informatics, including data collection, processing, and analysis, in support of epidemiologic practice
- D. Develop and manage information systems to improve effectiveness of surveillance, investigation, and other epidemiologic practices

Competencies for Skill Domain 3—Communication

- A. Ensure preparation of written and oral reports and presentations that communicate necessary information to professional audiences, policy makers, and the general public
- B. Ensure that the basic principles of risk communication are followed in all communication of epidemiologic findings
- C. Model interpersonal skills in communication with agency personnel, colleagues, and the public
- D. Ensure utilization of effective communication technologies

Competencies for Skill Domain 4—Community Dimensions of Practice

- A. Lead epidemiologic studies, public health programs, and community public health planning processes at the state, local, or tribal level
- B. Develop community partnerships to support epidemiologic investigations

Competencies for Skill Domain 5—Cultural Competency

- A. Differentiate special populations by race; ethnicity; culture; societal, educational, and professional backgrounds; age; sex; religion; disability; and sexual orientation
- B. Establish relationships with groups of special concern (e.g., disadvantaged or minority groups, groups subject to health disparities, historically underrepresented groups)
- C. Ensure that surveillance systems are designed to include groups subject to health disparities or other potentially underrepresented groups (using standard categories where available)
- D. Ensure that investigations use languages and approaches tailored to population
- E. Ensure that standard population categories or subcategories are used for data analysis
- F. Use knowledge of specific sociocultural factors in the population to interpret findings
- G. Ensure that actions are relevant to the affected community

Competencies for Skill Domain 6—Financial and Operational Planning and Management

- A. Create operational and financial plans for future epidemiologic activities
- B. Formulate a fiscally sound budget that will support the activities defined in the operational plan and is consistent with the financial rules of the agency
- C. Oversee implementation of operational and financial plans
- D. Develop requests for proposals for extramural funding to support additional epidemiologic activities and special projects
- E. Use management skills
- F. Promote collaborations, strong partnerships, and team building to accomplish epidemiology program objectives

Competencies for Skill Domain 7—Leadership and Systems Thinking

- A. Promote the epidemiologic perspective in the agency strategic planning process
- B. Lead the creation of epidemiology program's vision in the context of the agency's plan
- C. Use performance measures to evaluate and improve epidemiology program effectiveness
- D. Promote ethical conduct in epidemiologic practice
- E. Ensure professional development of epidemiology workforce
- F. Lead epidemiology unit in preparing for emergency response

Competencies for Skill Domain 8—Policy Development

- A. Bring epidemiologic perspective in the development and analysis of public health policies

For more information and for the complete competency set, including all subcompetencies for all domains, see www.cste.org/competencies.asp or www.cdc.gov/od/owcd/cdd/aec/.