

Competencies for Applied Epidemiologists in Governmental Public Health Agencies

Tier 1: Entry-Level or Basic Epidemiologist

Example of Functional Responsibility

- Carries out simple data collection, analysis, and reporting in support of surveillance and epidemiologic investigations

Examples of Educational and Experiential Criteria

- Newly graduated Master's degree with minimal experience but from a Master's program with a focus on epidemiology and/or analysis and assessment; or
- Bachelor's or other nonepidemiology professional degree or certification (e.g., RN, MD/DO, DDS/DMD, DVM, PhD, RS) without formal academic epidemiology training and with at least 2 years' experience performing epidemiology work under the guidance of a Tier 2 or Tier 3 epidemiologist. (Guidance can be received from an epidemiologist in the same agency or in other organizations.)

Competencies and Subcompetencies for Skill Domain 1—Assessment and Analysis

- Recognize public health problems pertinent to the population
 - Recognize the existence of a public health problem
 - Collaborate with others inside and outside the agency to identify the problem
- Conduct surveillance activities
 - Identify surveillance data needs
 - Implement new or revise existing surveillance systems
 - Report key findings from the surveillance system
 - Support evaluation of surveillance systems
- Identify acute and chronic conditions or other adverse outcomes in the population
 - Assist in conducting a community health status assessment
 - Characterize investigative processes
 - Create hypotheses
 - Assist in design of investigation (e.g., disease investigations, studies, or screening programs)
 - Conduct investigation as directed
- Apply principles of good ethical/legal practice as they relate to study design and data collection, dissemination, and use
 - Follow ethics guidelines and principles when planning studies; conducting research; and collecting, disseminating, and using data
 - Apply relevant laws to data collection, management, dissemination, and use of data and information
 - Describe human subjects research
 - Apply Institutional Review Board processes as directed
 - Bring potential conflicts of interest to attention of senior epidemiologists
 - Apply knowledge of privacy laws to protect confidentiality, including Health Insurance Portability and Accountability Act and applicable state and local privacy laws
 - Know agency procedures for handling Freedom of Information Act requests
 - Bring potential violations of ethical principles in preparing and submitting publications to attention of senior epidemiologists
- Organize data from surveillance, investigations, or other sources
 - Assist in definition of database requirements, if indicated
 - Maintain databases
- Analyze data from an epidemiologic investigation or study
 - Use analysis plan for data
 - Conduct analysis of data
- Summarize results of the analysis, and draw conclusions
 - Identify key findings from the study
- Assist in developing recommended evidence-based interventions and control measures in response to epidemiologic findings
 - Define cultural/social/political framework for recommended interventions
- Assist in evaluation of programs
 - Collect surveillance and other data for use in tracking program objectives and outcomes
 - Assist in tracking progress toward program objectives and outcomes
 - Communicate information about progress toward program objectives and outcomes to program managers

The Centers for Disease Control and Prevention (CDC) and the Council of State and Territorial Epidemiologists (CSTE) convened an expert panel to develop Competencies for Applied Epidemiologists (AECs) in 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.



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Tier 1: Entry-Level or Basic Epidemiologist

Competencies for Skill Domain 2—Basic Public Health Sciences

- Know how causes of disease affect epidemiologic practice
- Identify the role of laboratory resources in epidemiologic activities
- Use identified informatics tools in support of epidemiologic practice

Competencies for Skill Domain 3—Communication

- Prepare written and oral reports and presentations that communicate necessary information to agency staff
- Recognize the basic principles of risk communication
- Incorporate interpersonal skills in communication with agency personnel, colleagues, and the public
- Use effective communication technologies

Competencies for Skill Domain 4—Community Dimensions of Practice

- Provide epidemiologic input into epidemiologic studies, public health programs, and community public health planning processes at the state, local, or tribal level
- Participate in development of community partnerships to support epidemiologic investigations

Competencies for Skill Domain 5—Cultural Competency

- Describe population by race; ethnicity; culture; societal, educational, and professional backgrounds; age; gender; religion; disability; and sexual orientation
- Establish relationships with groups of special concern (e.g., disadvantaged or minority groups, groups subject to health disparities, historically underrepresented groups)
- Describe surveillance systems that include groups subject to health disparities or other potentially underrepresented groups (using standard categories where available)
- Conduct investigations using languages and approaches tailored to population
- Use standard population categories or subcategories when performing data analysis
- Support public health actions that are relevant to the affected community

Competencies for Skill Domain 6—Financial and Operational Planning and Management (Operational Planning, Financial Planning, and Management Skills)

- Conduct epidemiologic activities within the financial and operational plan of the agency
- Describe the financial planning and budgetary process of the epidemiology program
- Implement operational and financial plans
- Use skills that foster collaborations, strong partnerships, and team building to accomplish epidemiology program objectives

Competencies for Skill Domain 7—Leadership and Systems Thinking

- Support the organization's vision in all programs and activities
- Use performance measures to improve epidemiology program effectiveness
- Promote ethical conduct in epidemiologic practice
- Practice professional development
- Prepare for emergency response

Competencies for Skill Domain 8—Policy Development

- Support the application of epidemiologic knowledge to the development and analysis of public health policies