



CSTE

APPLIED
EPIDEMIOLOGY
COMPETENCIES

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2023 Applied Epidemiology Competencies

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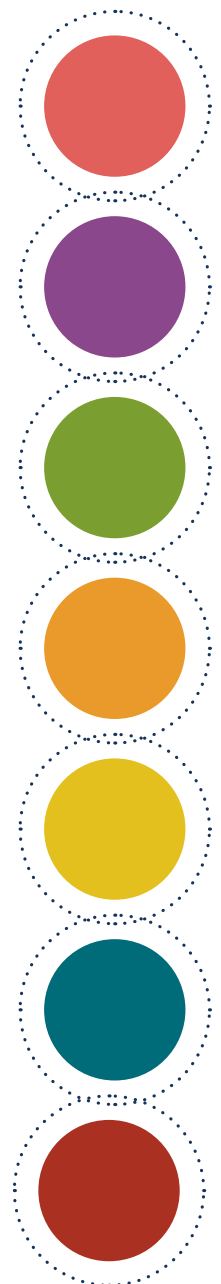
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- Centers for Disease Control and Prevention, National Center for STLT Public Health Infrastructure and Workforce, Epidemiology and Laboratory Workforce Branch
- Centers for Disease Control and Prevention, Office of Minority Health and Health Equity
- The Public Health Training Center Network (PHTC), Racial Justice Competency Workgroup

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Introduction

The 2008 Applied Epidemiology Competencies (AECs) have been revised through input from the Council of State and Territorial Epidemiologists (CSTE) membership, a multidisciplinary panel of academic, industry, non-profit, and governmental experts, the Centers for Disease Control and Prevention (CDC), CSTE workforce staff, and consultants. The changes made are substantial, however, they have been generated to support the use of AECs in the applied epidemiology community for years to come. Additional information about the updates, including an overview of the changes and detailed comparisons of the tiers (Table A1) and domains (Table A2) from the 2008 AECs versus the 2023 AECs, can be found in Appendix 1.

Updates include removal of the checklist style subcompetencies and removal of sub-subcompetencies in favor of creating broader skills-based subcompetencies. The skills-based subcompetencies build in complexity and decision-making authority as the tier level increases. The competencies are the same across all tiers. As tiers increase so do the level of skills expected of an epidemiologist. Included within the subcompetencies are specific skills that epidemiologists should be able to perform based on their tier. Together the multiple subcompetencies define the overall competency. As individuals progress in tier level, they are expected to have gained the skills noted in the previous tier(s) as well as their current tier. For example, an individual in Tier 3 should also have gained the skills listed in Tiers 1 and 2. The competencies and subcompetencies are skills that are measurable and can be evaluated. These competencies do not include specific software or technologies to ensure their longevity and continued relevance.



The 2023 AECs have a focus on skills with tiers referring to specific position levels of epidemiologists. The new levels of skill start with “Foundational” and progress to “Intermediate”, then “Practiced” and lastly “Advanced.” The competencies were formed with increasing skill level to help organizations and supervisors develop job descriptions and better evaluate performance. The skill levels replace the 2008 AECs job levels (i.e., Entry-Level or Basic Epidemiologist, Mid-Level Epidemiologist, Senior-Level Epidemiologist: Supervisor and/or Manager, and Senior Scientist/Subject Area Expert) (see Table A1 for a comparison of the 2008 and 2023 AECs tiers).

Health equity has been infused into all elements of the AECs. The diffusion model was adopted based on feedback that was received during the process of developing the AECs. The diffusion model replaces the separate cultural competency domain in the 2008 AECs. The 2023 competencies include skills that are relevant to the application of health equity for identifying populations, designing, analyzing, and interpreting epidemiologic surveillance data, and implementing public health actions to ensure health equity is at the forefront of epidemiology.

The AEC domain titles were aligned with the Core Competencies for Public Health Professions (October 2021). The alignment was made because the AECs and Core Competencies for Public Health Professionals are often used together. The one exception is that health equity has been incorporated throughout the competencies whereas it is a distinct domain in the Core Competencies for Public Health Professionals (see *Table A2 for a comparison of the 2008 and 2023 AECs domains*).

The format of competencies and subcompetencies in the AECs now includes a straightforward skill statement with examples, similar to the Core Competencies for Public Health Professionals. The AECs have each been given a number based on their tier, domain, competency, and subcompetency (e.g., T1: 1.5.1., T2: 7.5.1., etc.) for easier review (see *Figures 1 and 2 for examples*).

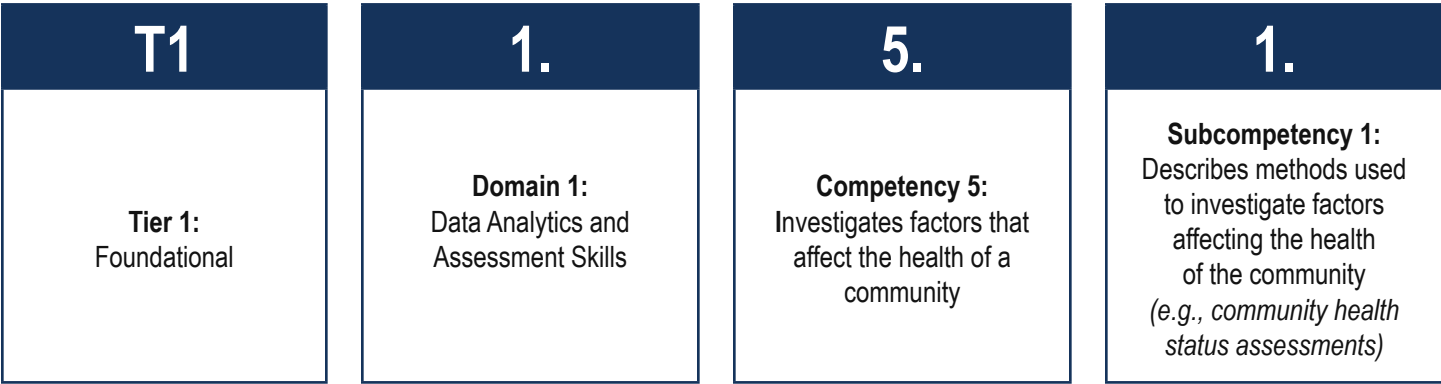


Figure 1: AECs Formatting for Tier 1 subcompetency 1.5.1.

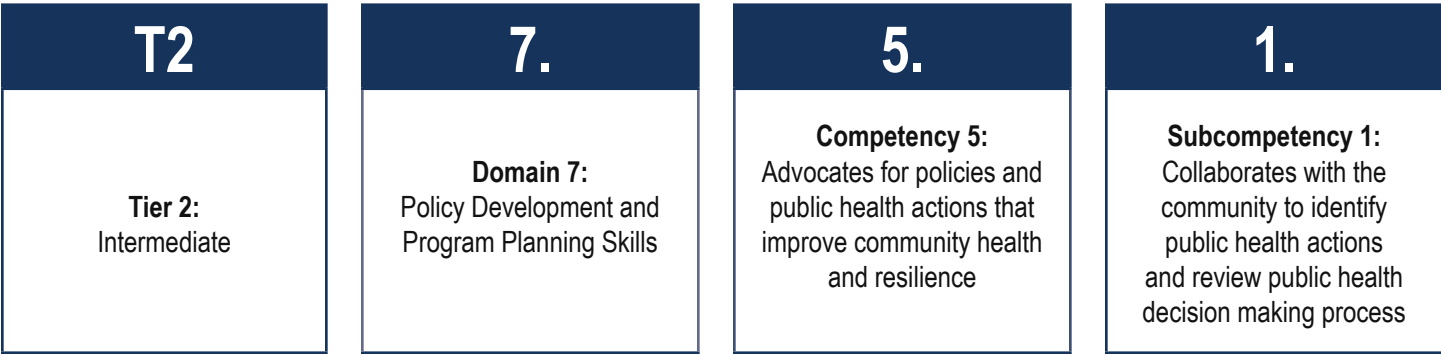


Figure 2: AECs Formatting for Tier 2 subcompetency 7.5.1.

Domains 1-4 have been designated as “Technical Core” domains and competencies essential for the practice of the science of epidemiology. There are 21 competencies in the “Technical Core” domains. Domains 5-7 have been designated as “Leadership and Management.” There are 14 competencies in the “Leadership and Management” domains. The “Leadership and Management” competencies are skills needed for all epidemiologists working in the public health profession but are not unique to the science or practice of epidemiology.

This version of the Applied Epidemiology Competencies includes evaluation tools both for individuals and for their supervisors to assess skill level by subcompetency. These tools can be used to identify areas for individual professional development and improvement. Development or opportunities for improvement can be assessed based on the individual’s identified tier compared to where that individual should be for their job description. Supervisors and individuals can each compare their respective evaluations of that individual’s skills in performance reviews, assignment of professional development activities, and consideration for promotion. Please note that additional content revisions were made to the AECs in Spring 2025.

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including the 35 Applied Epidemiology Competencies



Domain 1

Data Analytics and Assessment Skills

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- 1.1. Identifies the demographics and needs of individuals and populations (e.g., *language, culture, values, socioeconomic status, geography, education, race, age, ethnicity, profession, religious affiliation, mental and physical abilities, historical experiences*)
- 1.2. Describes factors that affect the health of a community (e.g., *income, education, laws, environment, extreme weather, resilience, homelessness, food security, access to healthcare, distribution of resources and power, social and community engagement, changing demographics*)
- 1.3. Designs surveillance systems using the principles of ethics, justice and accessibility
- 1.4. Conducts surveillance activities (e.g., *reviews surveillance data needs, assesses existing surveillance data and systems, collects, analyzes, evaluates, and communicates surveillance data*)
- 1.5. Investigates factors that affect the health of a community
- 1.6. Manages data (e.g., *surveillance, investigations, studies, programs, and other data*)
- 1.7. Analyzes data (e.g., *surveillance, investigations, studies, programs, and other data*)
- 1.8. Interprets results from data analysis
- 1.9. Applies evidence-based interventions and control measures (e.g., *considering specific community needs*)



Domain 2

Public Health Sciences Skills

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- 2.1. Describes the source of factors affecting community health (*including morbidity and mortality*) to guide epidemiologic activities
- 2.2. Collaborates with others (e.g., *infectious diseases, biostatistics, environmental health, genetics, informatics, behavioral and community health, health policy and management experts*) to support public health activities
- 2.3. Applies public health informatics in using epidemiologic data, information, and knowledge (e.g., *data collection, processing, analysis, and dissemination*)
- 2.4. Manages information systems to promote effectiveness and security of data collection, processing, and analysis



Domain 3

Communication Skills

21

- 3.1. Determines communication strategies (e.g., *considering literacy, needs, and preferences of audiences, selecting methods and format of information presented and data visualization*)
- 3.2. Applies principles of risk communication
- 3.3. Facilitates accessible communication among individuals, groups, and organizations
- 3.4. Disseminates messages to internal and external audiences
- 3.5. Conducts investigations and interviews accommodating the needs of the population



Domain 4

Community Partnership Skills

25

- 4.1. Describes epidemiologic conditions, systems, programs, and policies affecting community health and resilience
- 4.2. Maintains bidirectional relationships that improve community health and resilience
- 4.3. Participates in emergency management for public health emergencies



Domain 5

Management and Finance Skills

29

- 5.1. Describes factors that affect the financial and operational health of the organization (*e.g., fair treatment of staff, comprehensive policies and practices, support from the governing body and community, sustainability of funding, training of managers*)
- 5.2. Engages in epidemiologic activities within the organization's budget, operational plan, and financial rules
- 5.3. Manages operational and financial resources for epidemiologic activities
- 5.4. Secures extramural funding (*e.g., preparing proposals, grant applications, vendor contracts, and requests for proposals*)
- 5.5. Manages human capital (*including recruitment, retention, and professional development of staff*)



Domain 6

Leadership and Systems Thinking Skills

32

- 6.1. Applies the organization's vision and program goals in all epidemiologic activities
- 6.2. Engages in change management
- 6.3. Engages in performance management of self and other team members
- 6.4. Manages workforce development



Domain 7

Domain 7: Policy Development and Program Planning Skills

35

- 7.1. Applies epidemiology to the development of policies, programs, services, and laws
- 7.2. Evaluates programs, policies, services, laws, and organizational performance
- 7.3. Engages in organizational strategic planning (*e.g., strategic prioritization, development of research agendas, and action plans*)
- 7.4. Applies principles of ethical and legal practice to epidemiologic activities, data analysis, assessment, and dissemination
- 7.5. Advocates for policies and public health actions that improve community health and resilience

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Appendix 1

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Glossary of Terms

Balance sheet - a statement of the assets, liabilities, and capital of a business or other organization at a particular point in time, detailing the balance of income and expenditure over the preceding period.¹

Change management - the methods and ways in which an organization describes and implements change both for internal and external processes.²

Cultural and Linguistically Appropriate Services (CLAS) standards - a set of 15 action steps intended to advance health equity, improve quality, and help eliminate health care disparities by providing a blueprint for individuals and health and health care organizations to implement culturally and linguistically appropriate services.³

Collaborator - a person who works jointly on an activity or project.¹

Data science - an emerging field that blends techniques from computer science, statistics, and epidemiology, among other domains. Data science often focuses on large or novel data sources and the application of sophisticated mathematical methods such as machine learning or natural language processing.⁴

Epidemiologic activities - include the performance of tasks integral to the field of epidemiology such as conducting surveillance, performing data analyses, creating and evaluating health interventions, proposing evidence-based policy, ensuring programs and funding are equitably distributed, and supporting health equity initiatives.

Emergency management - the managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disasters.⁵

Freedom of Information Act (FOIA) requests - a request submitted to a federal agency asking for agency records on any topic.⁶

Health Equity - the attainment of the highest level of health for all people.⁷

Justice - the systematic treatment of all individuals in a fair, respectful, and reasonable manner.¹

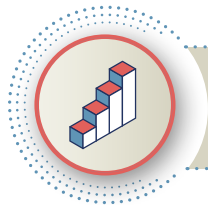
Informatics - the systematic application of information, computer science, and technology to public health practice, research, and learning.⁸

Profit and loss - an account in the books of an organization to which incomes and gains are credited and expenses and losses debited, so as to show the net profit or loss over a given period.¹

Strategic planning - the creation, implementation, and evaluation of the results of business strategies to meet an organization's long-term goals.⁹

Strategic prioritization - a defined set of ranked objectives that are used to implement a strategy over time.¹⁰

Systems thinking - a method that focuses on how parts of a system are interconnected and how they relate to other, more complex systems.¹¹



Domain 1

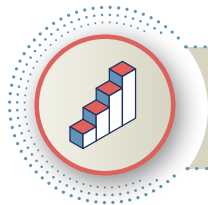
Data Analytics and Assessment Skills

Competency 1.1. Identifies the demographics and needs of individuals and populations (e.g., language, culture, values, socioeconomic status, geography, education, race, age, ethnicity, profession, religious affiliation, mental and physical abilities, historical experiences)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 1.1.1. Identifies demographics and needs that may be significant to addressing factors affecting the health of a community	T2: 1.1.1. Recognizes the demographics and needs of individuals and populations (e.g., varied populations, biases, systemic and structural factors affecting health equity)	T3: 1.1.1. Identifies systematic and structural barriers that perpetuate health inequities (e.g., racism, sexism, bigotry, poverty)	T4: 1.1.1. Advocates for organizational policies, programs, and services to achieve health equity and optimal health for all

Competency 1.2. Describes factors that affect the health of a community (e.g., income, education, laws, environment, extreme weather, resilience, homelessness, food security, access to healthcare, distribution of resources and power, social and community engagement, changing demographics)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 1.2.1. Describes factors that affect the health of a community	T2: 1.2.1. Assesses the impact of specific factors that affect the health of a community (e.g., determining expected number of cases, outcomes, disease burden, prevalence of risk behaviors)	T3: 1.2.1. Articulates factors that require public health intervention or need further investigation	T4: 1.2.1. Advocates in partnership with community members to prioritize factors affecting the health of the community
T1: 1.2.2. Identifies cultural, environmental, historical, social, and structural frameworks that affect the health of a community	T2: 1.2.2. Explains cultural, environmental, historical, social, and structural frameworks that affect the health of a community	T3: 1.2.2. Assesses cultural, environmental, historical, social, and structural frameworks that affect the health of a community	T4: 1.2.2. Applies the cultural, environmental, historical, social, and structural frameworks to describe factors affecting the health of a community
T1: 1.2.3. Identifies gaps in available data (e.g., limitations of data, errors in estimates, lack of primary literature or studies, historical underparticipation in voluntary surveillance)	T2: 1.2.3. Explains gaps in available data (e.g., limitations of data, errors in estimates, lack of primary literature or studies, and representativeness)	T3: 1.2.3. Evaluates gaps in available data (e.g., limitations of data, errors in estimates, lack of primary literature or studies, and representativeness)	T4: 1.2.3. Advocates for data quality standards and studies that fill the gaps (e.g., accuracy, completeness, validity, timeliness, consistency, integrity, data quality studies, and the impact of structural inequities on data availability)



Domain 1

Data Analytics and Assessment Skills

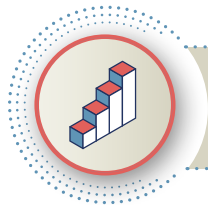
Competency 1.3. Designs surveillance systems using the principles of ethics, justice and accessibility

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 1.3.1. Consults with scientific literature, current public health programs, and the community to identify specific populations of interest and factors affecting community health for surveillance design needs	T2: 1.3.1. Uses standardized categories when defining populations of interest considering cultural, environmental, historical, social, and structural factors	T3: 1.3.1. Evaluates cultural, environmental, historical, social, and structural factors contributing to the health of populations of interest	T4: 1.3.1. Assesses limitations of identified population categories, data collection, sampling frame, and systems issues related to design
T1: 1.3.2. Collects data from populations of interest to assess factors affecting the health of a community and health disparities using the principles of ethics, justice, and accessibility and mitigating potential negative impacts of data collection on the population	T2: 1.3.2. Collects data from populations of interest to assess factors affecting the health of a community and health disparities using the principles of ethics, justice and accessibility, and mitigating potential negative impacts of data collection on the population	T3: 1.3.2. Designs data collection tools to capture information needed to assess factors affecting the health of a community and health disparities using the principles of ethics, justice, and accessibility, and mitigating potential negative impacts of data collection on the population	T4: 1.3.2. Advocates for surveillance data that identifies assets and strengths of the community that can help reduce systematic and structural barriers that perpetuate health inequities (e.g., racism, sexism, bigotry, poverty) and demonstrate resilience

Competency 1.4. Conducts surveillance activities (e.g., reviews surveillance data needs, assesses existing surveillance data and systems, collects, analyzes, evaluates, and communicates surveillance data)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 1.4.1. Identifies surveillance data needs for factors affecting the health of a community	T2: 1.4.1. Explains surveillance data needs (e.g., case definitions, data sources, quality, limitations, data collection elements, data transfer, data collection timeliness, frequency of reporting, uses of data, functional requirements of information systems to support)	T3: 1.4.1. Assesses surveillance data needs (e.g., data quality, availability, relevance, suitability, simplicity, sensitivity, predictability, timeliness, representativeness, flexibility)	T4: 1.4.1. Advocates for surveillance data strategies (e.g., case definitions, data sources, quality, limitations, data collection elements, data transfer, data collection timeliness, frequency of reporting, uses of data, functional requirements of information systems to support)

Competency 1.4. continued on following page.



Domain 1

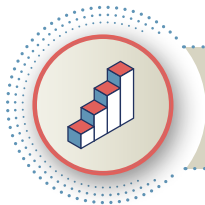
Data Analytics and Assessment Skills

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Competency 1.4. Conducts surveillance activities (*e.g., reviews surveillance data needs, assesses existing surveillance data and systems, collects, analyzes, evaluates, and communicates surveillance data*)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 1.4.2. Identifies limitations of data utility in surveillance activities (<i>e.g., sources of bias, unequal distribution, and misclassification</i>)	T2: 1.4.2. Uses identified population categories or subcategories when performing data analysis	T3: 1.4.2. Assesses identified population categories' suitability for data analysis and surveillance over time	T4: 1.4.2. Implements changes in population categories within data analysis and surveillance over time to enhance representation and health equity (<i>e.g., enhancing representation, refining population categories, assessing usability of existing population categories</i>)
T1: 1.4.3. Identifies elements of surveillance systems (<i>e.g., system features, data elements, connectivity, cost-benefit analysis, burden to public health system, agency, and reporting entity</i>)	T2: 1.4.3. Evaluates surveillance systems (<i>e.g., system features, data elements, connectivity, cost-benefit analysis, burden to public health system, agency, and reporting entity</i>)	T3: 1.4.3. Explains needed elements of new or existing surveillance systems (<i>e.g., system features, data elements, connectivity, cost-benefit analysis, burden to public health system, agency, and reporting entity</i>)	T4: 1.4.3. Implements elements of new or existing surveillance systems considering health equity (<i>e.g., defines objectives and uses, tests data collection and storage, verifies data collection meets needs, monitors data quality, reviews interoperability, collects data needed for decision making</i>)
T1: 1.4.4. Collaborates with informaticians to identify and implement data needs, automation processes, and surveillance systems	T2: 1.4.4. Collaborates with informaticians to identify and implement data needs, automation processes, and surveillance systems	T3: 1.4.4. Advocates with informaticians for programs and policies to advance surveillance	T4: 1.4.4. Advocates with informaticians for programs and policies to advance surveillance

Competency 1.4. continued on following page.



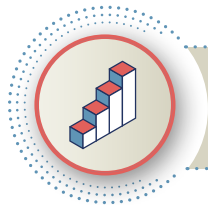
Domain 1

Data Analytics and Assessment Skills

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Competency 1.4. Conducts surveillance activities (*e.g., reviews surveillance data needs, assesses existing surveillance data and systems, collects, analyzes, evaluates, and communicates surveillance data*)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
<p>T1: 1.4.5. Collects surveillance data (<i>e.g., conducts epidemiologic investigation interviews, compiles quantitative data</i>)</p>	<p>T2: 1.4.5. Analyzes surveillance data (<i>e.g., identifies key findings, creates data visualizations, contextualizes results in existing scientific and community knowledge, considers impact on public health programs</i>)</p>	<p>T3: 1.4.5. Evaluates surveillance systems based on national guidance and methods, reporting entity needs, continuous quality improvement principles, and public health program (<i>e.g., communicates surveillance results to reporting entities, communities, agency management</i>)</p>	<p>T4: 1.4.5. Applies surveillance system data to inform public health policy</p>
<p>T1: 1.4.6. Describes individual and community privacy when analyzing surveillance systems</p>	<p>T2: 1.4.6. Evaluates surveillance systems for validity (<i>e.g., identification of population categories, social determinants of health, factors affecting the health of a community, and privacy considerations</i>)</p>	<p>T3: 1.4.6. Identifies areas for improvement of surveillance systems relating to social determinants of health</p>	<p>T4: 1.4.6. Implements improvements to surveillance systems relating to social determinants of health</p>

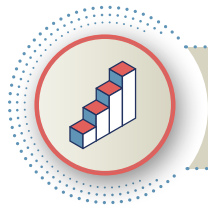


Domain 1

Data Analytics and Assessment Skills

Competency 1.5. Investigates factors that affect the health of a community

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 1.5.1. Describes methods used to investigate factors affecting the health of the community (e.g., <i>community health status assessments</i>)	T2: 1.5.1. Conducts community health status assessments involving the affected community to investigate factors affecting the health of the community	T3: 1.5.1. Prioritizes factors to investigate that are most impactful to the community (e.g., engages community members in determining priorities)	T4: 1.5.1. Advocates for the use of community health status assessments and other methods used to investigate factors affecting the health of the community
T1: 1.5.2. Describes epidemiologic study designs and their applicability to investigating factors that affect the health of a community	T2: 1.5.2. Selects epidemiologic study design most applicable to investigation of specific factor that affects the health of a community	T3: 1.5.2. Designs epidemiologic investigation that consider the social determinants of health (e.g., <i>identifies data sources, designs data collection tools, coordinates sampling and investigation</i>)	T4: 1.5.2. Leads epidemiologic investigation that consider the social determinants of health (e.g., <i>monitoring investigation progress, informing impacted communities, the public, and the media, determining necessary improvements to the investigation</i>)
T1: 1.5.3. Participates in epidemiologic investigation (e.g., <i>identifies population of interest, identifies investigation timeframe, considers and accounts for sources of bias and confounders</i>)	T2: 1.5.3. Conducts epidemiologic investigation (e.g., <i>identifies population of interest, creates case definition, identifies investigation timeframe, considers and accounts for sources of bias and confounders</i>)	T3: 1.5.3. Leads epidemiologic investigation (e.g., <i>identifies population of interest, creates case definition, identifies investigation timeframe, considers and accounts for sources of bias and confounders</i>)	T4: 1.5.3. Manages epidemiologic investigation (e.g., <i>identifies population of interest, creates case definition, identifies investigation timeframe, considers and accounts for sources of bias and confounders</i>)

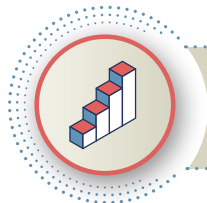


Domain 1

Data Analytics and Assessment Skills

Competency 1.6. Manages data (e.g., surveillance, investigations, studies, programs, and other data)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 1.6.1. Collaborates with informaticians to collect, parse, prepare, and provision data to design and maintain databases and tools	T2: 1.6.1. Collaborates with informaticians to collect, parse, prepare, and provision data to design and maintain databases and tools	T3: 1.6.1. Collaborates with informaticians to collect, parse, prepare, and provision data to design and maintain databases and tools	T4: 1.6.1. Collaborates with informaticians to collect, parse, prepare, and provision data to design and maintain databases and tools
T1: 1.6.2. Describes database design principles that allow for accurate and actionable data across all communities	T2: 1.6.2. Manages data and databases (e.g., including data transformation, creating datasets and variables, merging and splitting databases, formatting data, documenting data transformation)	T3: 1.6.2. Designs databases suitable for epidemiologic activities (e.g., including needed variables and data dictionary, ensuring compliance with national standards for coding and variables, supporting geographic analysis)	T4: 1.6.2. Evaluates data quality, accuracy, and reliability (e.g., designs and validates data entry techniques, cleans data, corrects errors)
T1: 1.6.3. Documents database design, data management, security, and assumptions	T2: 1.6.3. Defines database design, data management, security, and assumptions	T3: 1.6.3. Manages documentation for database design, data management, security, and assumptions	T4: 1.6.3. Evaluates documentation for database design, data management, security, and assumptions
T1: 1.6.4. Describes practices for secure (restricted access), stable (routine backups, database redundancy), and sustainable data storage and data sharing	T2: 1.6.4. Applies practices for secure (restricted access), stable (routine backups, database redundancy), and sustainable data storage and data sharing	T3: 1.6.4. Evaluates practices for secure (restricted access), stable (routine backups, database redundancy), and sustainable data storage and data sharing	T4: 1.6.4. Advocates for practices for secure (restricted access), stable (routine backups, database redundancy), and sustainable data storage and data sharing

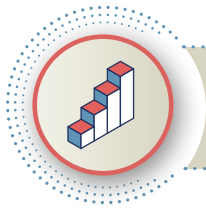


Domain 1

Data Analytics and Assessment Skills

Competency 1.7. Analyzes data (e.g., surveillance, investigations, studies, programs, and other data)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 1.7.1. Conducts descriptive data analysis to assess public health objectives	T2: 1.7.1. Conducts descriptive epidemiology data analysis to assess public health objectives	T3: 1.7.1. Conducts analysis of data using software for data analysis and management (e.g., frequencies and descriptive statistics, adjustments, epidemiologic measures, trend analysis, measures of association, confidence intervals, statistics, multivariate analyses, regression analyses, geospatial and other graphical representations, questionnaire results, interview responses, indexing, coding, labeling, triangulation, and member checking)	T4: 1.7.1. Conducts advanced data analytics methods (e.g., forecasting, mathematical modeling, Bayesian analysis, parsing qualitative data for natural language processing)
T1: 1.7.2. Describes data analysis plan	T2: 1.7.2. Compiles datasets to be used in analysis (e.g., qualitative and quantitative data)	T3: 1.7.2. Assesses data quality metrics match to ensure correct interpretation	T4: 1.7.2. Facilitates access to datasets to conduct analyses (e.g., data sharing agreements and partnership building)
T1: 1.7.3. Describes valid statistical techniques and variables based on relevant factors (e.g., data, study design, sample size, hypotheses)	T2: 1.7.3. Assesses valid statistical techniques and variables based on the data, study design, sample size, hypotheses, and other relevant factors	T3: 1.7.3. Evaluates results and interpretation of statistical analysis (e.g., assesses potential confounders, data biases, and data misclassification)	T4: 1.7.3. Advocates for the use of valid statistical techniques and statistical interpretation of results

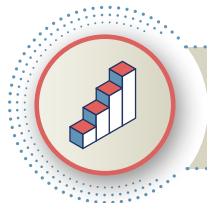


Domain 1

Data Analytics and Assessment Skills

Competency 1.8. Interprets results from data analysis

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
<p>T1: 1.8.1. Identifies epidemiologic principles and methods needed to make recommendations regarding the validity of epidemiologic data (e.g., <i>ensuring structural inequities and power dynamics are considered</i>)</p>	<p>T2: 1.8.1. Applies knowledge of epidemiologic principles and methods to make recommendations regarding the validity of epidemiologic data (e.g., <i>including likely sources of bias, validity and reliability of data collection instruments and methods, limitations in study design, sample selection, data collection, analysis, significance testing, and other features, influence of power and confidence limits</i>)</p>	<p>T3: 1.8.1. Justifies needs for the validity of epidemiologic data and conducting special analyses (e.g., <i>survival analyses, cost-effectiveness, cost-benefit, cost-utility analyses</i>)</p>	<p>T4: 1.8.1. Advocates for the validity of epidemiologic data and special analyses</p>
<p>T1: 1.8.2. Applies the principles of causation when making inferences about key findings (e.g., <i>strength, consistency, biological plausibility, dose-response, and temporal relationship</i>)</p>	<p>T2: 1.8.2. Creates data presentation or visualization of data analysis to convey key findings in the context of current knowledge, public health programs, accessibility, and community priorities and needs (e.g., <i>dashboards, tables, charts, graphs</i>)</p>	<p>T3: 1.8.2. Synthesizes key findings from the data analysis based on current knowledge and public health programs to influence behavior, improve health, and reduce health disparities</p>	<p>T4: 1.8.2. Advocates for programs and policies using key findings from the data analysis</p>



Domain 1

Data Analytics and Assessment Skills

Competency 1.9. Applies evidence-based interventions and control measures (*e.g., considering specific community needs*)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
<p>T1: 1.9.1. Identifies the key types of intervention for the factor affecting the health of the community and their prior success in the community of interest</p>	<p>T2: 1.9.1. Relates key findings to existing policies, regulations, and laws, as well as other factors (<i>e.g., cultural, environmental, historical, social, and structural factors that may affect the recommendations or interventions</i>)</p>	<p>T3: 1.9.1. Proposes new recommendations or modifications to existing interventions based on evidence (<i>e.g., key findings, community input, risk communication and risk reduction methods, and shared risk and protective factors</i>)</p>	<p>T4: 1.9.1. Evaluates new recommendations or modifications to existing interventions based on evidence (<i>e.g., key findings, community input, risk communication and risk reduction methods, and shared risk and protective factors</i>)</p>
<p>T1: 1.9.2. Prepares materials for consultation with collaborators to identify and prioritize public health action</p>	<p>T2: 1.9.2. Consults directly with collaborators to identify and prioritize public health action based on data analysis</p>	<p>T3: 1.9.2. Consults directly with collaborators to identify and prioritize public health action based on data analysis</p>	<p>T4: 1.9.2. Consults directly with collaborators to identify and prioritize public health action based on data analysis</p>



Domain 2

Public Health Sciences Skills

Competency 2.1. Describes the source of factors affecting community health (*including morbidity and mortality*) to guide epidemiologic activities

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
<p>T1: 2.1.1. Identifies basic etiologic processes for human diseases, illnesses, and injury for subject matter areas of interest (<i>e.g., infectious diseases, chronic diseases, adverse childhood experiences, drowning, accidents, air/water pollution, hazardous materials releases, toxicological outbreaks, natural disasters, mental/behavioral health</i>)</p>	<p>T2: 2.1.1. Describes human and environmental biology and behavioral sciences and principles that determine the potential biological mechanisms of disease, illness, and injury (<i>e.g., chain of infection, host-agent-environment model, genetics and genomics</i>)</p>	<p>T3: 2.1.1. Incorporates etiologic processes, scientific literature, community input, and public health databases into the development of prevention and control strategies</p>	<p>T4: 2.1.1. Advocates for prevention and control strategies that address etiologic processes for human disease, illness, and injury</p>
<p>T1: 2.1.2. Identifies the role and influence of sociobehavioral factors (<i>e.g., including community, political, social, family, and individual behavioral factors</i>), social determinants of health, and historic or structural discrimination in health risks and health status</p>	<p>T2: 2.1.2. Explains the role and influence of sociobehavioral factors (<i>e.g., including community, political, social, family, and individual behavioral factors</i>), social determinants of health, and historic or structural discrimination in health risks and health status</p>	<p>T3: 2.1.2. Evaluates the role and influence of sociobehavioral factors (<i>e.g., including community, political, social, family, and individual behavioral factors</i>), social determinants of health, and historic or structural discrimination in health risks and health status</p>	<p>T4: 2.1.2. Advocates for the recognition of sociobehavioral factors (<i>e.g., including community, political, social, family, and individual behavioral factors</i>), social determinants of health, and historic or structural discrimination in health risks and health status</p>
<p>T1: 2.1.3. Identifies factors impacting the delivery of the 10 essential public health services</p>	<p>T2: 2.1.3. Explains factors impacting the delivery of the 10 essential public health services</p>	<p>T3: 2.1.3. Evaluates factors impacting the delivery of the 10 essential public health services</p>	<p>T4: 2.1.3. Addresses factors impacting the delivery of the 10 essential public health services</p>



Domain 2

Public Health Sciences Skills

Competency 2.2. Collaborates with others (e.g., infectious diseases, biostatistics, environmental health, genetics, informatics, behavioral and community health, health policy and management experts) to support public health activities

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
<p>T1: 2.2.1. Identifies the roles and capabilities of other public health professionals and how they can provide assistance in epidemiologic investigations, studies, surveillance, and programs</p>	<p>T2: 2.2.1. Collaborates with other public health professionals to provide assistance in epidemiologic investigations, studies, surveillance, and programs</p>	<p>T3: 2.2.1. Collaborates with other public health disciplines and experts to assess provided data and draw conclusions applicable to epidemiologic activities</p>	<p>T4: 2.2.1. Supervises collaboration with other public health disciplines and experts to assess provided data and draw conclusions applicable to epidemiologic activities</p>
<p>T1: 2.2.2. Identifies the roles and capabilities of laboratories and how they are used in epidemiologic investigations</p>	<p>T2: 2.2.2. Coordinates laboratory and epidemiologic activities, including test or sample selection, data structures, communication, and reporting results in the field (e.g., results of health screenings and other surveys, identification of infectious diseases, biomarker assessment, susceptibility or predisposition based on genomic data)</p>	<p>T3: 2.2.2. Interprets laboratory data, accounting for factors that influence the results of sample collection, screening, and diagnostic tests</p>	<p>T4: 2.2.2. Evaluates laboratory and epidemiologic activity coordination and laboratory data, accounting for factors that influence the results of sample collection, screening and diagnostic tests</p>



Domain 2

Public Health Sciences Skills

Competency 2.3. Applies public health informatics in using epidemiologic data, information, and knowledge (e.g., *data collection, processing, analysis, and dissemination*)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 2.3.1. Identifies information technologies and communication tools necessary to support epidemiologic investigations and surveillance (e.g., <i>data linkage, programming, spatial analysis, machine learning, survey tools, dashboards</i>)	T2: 2.3.1. Uses information technologies and communication tools that support data acquisition, entry, abstraction, management, analysis, planning, mapping, visualization, and reporting	T3: 2.3.1. Develops data models from multiple sources to create new information or review existing information to support public health decision-making	T4: 2.3.1. Evaluates data models to support public health decision-making
T1: 2.3.2. Describes procedures and security policies to ensure the integrity and protection of confidential information in electronic files and computer systems	T2: 2.3.2. Applies procedures and security policies to ensure the integrity and protection of confidential information in electronic files and computer systems	T3: 2.3.2. Ensures application of interoperable data standards as needed for storage and transmission	T4: 2.3.2. Supports training on interoperable data standards as needed for storage and transmission
T1: 2.3.3. Identifies industry data standards specifications	T2: 2.3.3. Explains industry data standards specifications	T3: 2.3.3. Applies industry data standards specifications	T4: 2.3.3. Integrates data industry standards into policies and programs
T1: 2.3.4. Describes the need for new or enhancement of existing systems to support epidemiologic activities	T2: 2.3.4. Participates in the development of new or enhancement of existing systems to support epidemiologic activities	T3: 2.3.4. Leads the development of new or enhancement of existing systems to support epidemiologic activities	T4: 2.3.4. Advocates for the development of new or enhancement of existing systems to support epidemiologic activities
T1: 2.3.5. Assists with documentation of information systems, databases, and datasets (e.g., <i>guidelines, documented versions, dissemination methods, relevant standards specifications</i>)	T2: 2.3.5. Maintains documentation of information systems, databases, and datasets (e.g., <i>guidelines, documented versions, dissemination methods, relevant standards specifications</i>)	T3: 2.3.5. Assesses compliance of information systems, databases, and datasets (e.g., <i>guidelines, documented versions, dissemination methods, relevant standards specifications</i>)	T4: 2.3.5. Ensures compliance of information systems, databases, and datasets (e.g., <i>guidelines, documented versions, dissemination methods, relevant standards specifications</i>)

Competency 2.3. continued on following page.



Domain 2

Public Health Sciences Skills

Continued from previous page.

Competency 2.3. Applies public health informatics in using epidemiologic data, information, and knowledge (*e.g., data collection, processing, analysis, and dissemination*)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 2.3.6. Assists in coordination with informaticians and information systems resources to use, develop, and support the acquisition, maintenance, use, and dissemination of epidemiologic data	T2: 2.3.6. Coordinates with informaticians and information systems resources to use, develop, and support the acquisition, maintenance, use, and dissemination of epidemiologic data	T3: 2.3.6. Assesses program needs with informaticians and information systems resources to use, develop, and support the acquisition, maintenance, use, and dissemination of epidemiologic data	T4: 2.3.6. Advocates for collaboration with informaticians and information systems resources to use, develop, and support the acquisition, maintenance, use, and dissemination of epidemiologic data

Competency 2.4. Manages information systems to promote effectiveness and security of data collection, processing, and analysis

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 2.4.1. Describes public health information systems and epidemiologic needs	T2: 2.4.1. Implements the development of integrated, cost-effective public health information systems that are consistent with a larger (<i>enterprise-level</i>) information architecture	T3: 2.4.1. Evaluates information systems for epidemiology programs (<i>e.g., aligned objectives, business functions, and business processes</i>)	T4: 2.4.1. Advocates for continuous quality improvement of information systems
T1: 2.4.2. Describes confidentiality and privacy policies for the enterprise and security systems to support the implementation of those policies	T2: 2.4.2. Participates in development of confidentiality and privacy policies for the enterprise and security systems to support the implementation of those policies	T3: 2.4.2. Develops confidentiality and privacy policies for the enterprise and security systems to support the implementation of those policies	T4: 2.4.2. Evaluates enterprise and security systems and policies for confidentiality and privacy standards
T1: 2.4.3. Identifies needs for modernization of information systems and use of the most current technology	T2: 2.4.3. Explains needs for modernization of information systems and use of the most current technology	T3: 2.4.3. Assesses needs for modernization of information systems and use of the most current technology	T4: 2.4.3. Advocates for modernization of information systems and use of the most current technology



Domain 3

Communication Skills

Competency 3.1. Determines communication strategies (e.g., considering literacy, needs, and preferences of audiences, selecting methods and format of information presented and data visualization)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
<p>T1: 3.1.1. Identifies audience, content, and methods for dissemination of information (e.g., preparation of abstracts, manuscripts, written or oral reports, press releases, dynamic dashboards, maps, social media, blogs, podcasts, websites, television, radio)</p>	<p>T2: 3.1.1. Tailors information based on audience, content, and methods for dissemination (e.g., preparation of abstracts, manuscripts, written or oral reports, press releases, dynamic dashboards, maps, social media, blogs, podcasts, websites, television, radio)</p>	<p>T3: 3.1.1. Creates communication strategy for epidemiologic information (disease prevention, health promotion, key findings) for the general public, the community impacted, the news media, and/or to policy makers (e.g., considering inclusive communication, populations with low literacy or access issues)</p>	<p>T4: 3.1.1. Monitors implementation of communication strategy for technical information (e.g., accuracy of messaging, validity of conclusions, appropriateness of data visualization, suitability for audience)</p>
<p>T1: 3.1.2. Assists in responding to public queries</p>	<p>T2: 3.1.2. Assists in responding to public queries</p>	<p>T3: 3.1.2. Responds to public queries</p>	<p>T4: 3.1.2. Facilitates opportunities to respond to public queries (e.g., conducting townhalls, reaching out to the media and public)</p>

Competency 3.2. Applies principles of risk communication

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
<p>T1: 3.2.1. Participates in developing and reviewing risk communication messages about topics affecting the health of a community</p>	<p>T2: 3.2.1. Applies risk communication principles to communicate epidemiologic messages (e.g., tailoring risk communication to varied audiences, following agency risk communication strategy and policy for media inquiries) using principles of ethics, justice and accessibility</p>	<p>T3: 3.2.1. Consults across agencies, organizations, and communities to provide guidance on risk communication for intended audiences</p>	<p>T4: 3.2.1. Evaluates epidemiologic messaging for use of risk communication principles</p>



Domain 3

Communication Skills

Competency 3.3. Facilitates accessible communication among individuals, groups, and organizations

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 3.3.1. Identifies barriers and facilitators to communication with audiences (e.g., <i>cultural, environmental, historical, social, structural, educational, and accessibility factors</i>)	T2: 3.3.1. Selects audience, program, and intervention-specific communication methods (e.g., <i>written or oral reports, press releases, dynamic dashboards, maps, social media, blogs, podcasts, websites, television, radio</i>)	T3: 3.3.1. Develops and designs content needed for communication in line with best practices (e.g., <i>promoting varied opinions, evaluating community reach, audience literacy and language needs, access and functional needs, community priorities, data visualization</i>)	T4: 3.3.1. Evaluates messaging for accessibility principles (e.g., <i>promoting varied opinions, evaluating community reach, audience literacy and language needs, access and functional needs, community priorities, data visualization</i>)
T1: 3.3.2. Identifies professional interpersonal, interdisciplinary, transdisciplinary, and multidisciplinary communication skills (e.g., <i>communicating with linguistic and cultural proficiency, negotiating, resolving conflicts, and practicing active listening</i>)	T2: 3.3.2. Demonstrates professional interpersonal, interdisciplinary, transdisciplinary, and multidisciplinary communication skills (e.g., <i>communicating with linguistic and cultural proficiency, negotiating, resolving conflicts, and practicing active listening</i>)	T3: 3.3.2. Monitors application of professional interpersonal, interdisciplinary, transdisciplinary, and multidisciplinary communication skills (e.g., <i>communicating with linguistic and cultural proficiency, negotiating, resolving conflicts, and practicing active listening</i>)	T4: 3.3.2. Evaluates application of professional interpersonal, interdisciplinary, transdisciplinary, and multidisciplinary communication skills (e.g., <i>communicating with linguistic and cultural proficiency, negotiating, resolving conflicts, and practicing active listening</i>)
T1: 3.3.3. Identifies messaging needs of media or communications experts (e.g., <i>tailoring messaging to the public, providing proactive information, creating accessible quotes and information summaries</i>)	T2: 3.3.3. Collaborates with media or communications experts to facilitate messaging (e.g., <i>tailoring messaging to the public, providing proactive information, creating accessible quotes and information summaries</i>)	T3: 3.3.3. Collaborates with media or communications experts to facilitate messaging (e.g., <i>tailoring messaging to the public, providing proactive information, creating accessible quotes and information summaries</i>)	T4: 3.3.3. Collaborates with media or communications experts to facilitate messaging (e.g., <i>tailoring messaging to the public, providing proactive information, creating accessible quotes and information summaries</i>)



Domain 3

Communication Skills

Competency 3.4. Disseminates messages to internal and external audiences

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
<p>T1: 3.4.1. Identifies epidemiologic findings, methodology, and principles messaging for affected individuals, communities, organizations, the public or professional audiences (e.g., using mechanisms tailored to that audience, using age-appropriate materials, using plain language, implementing CLAS Standards, ensuring accessibility for people with disabilities, engaging interpreters and translators, and acknowledging the changing communication ecosystem)</p>	<p>T2: 3.4.1. Communicates epidemiologic findings, methodology, and principles to affected individuals, communities, organizations, the public or professional audiences (e.g., using mechanisms tailored to that audience, using age-appropriate materials, using plain language, implementing CLAS Standards, ensuring accessibility for people with disabilities, engaging interpreters and translators, and acknowledging the changing communication ecosystem)</p>	<p>T3: 3.4.1. Reviews epidemiologic findings, methodology, and principles of communication and messaging for accuracy and supportive evidence prior to dissemination</p>	<p>T4: 3.4.1. Advocates for the dissemination of accurate and evidence-based epidemiologic findings, methodology, and principles to affected individuals, communities, organizations, the public or professional audiences</p>
<p>T1: 3.4.2. Describes educational and behavioral techniques and technological tools to promote public health (e.g., through community education, behavior modification, collaborative policy development, issue advocacy, and community mobilization)</p>	<p>T2: 3.4.2. Implements educational and behavioral techniques and technological tools to promote public health (e.g., through community education, behavior modification, collaborative policy development, issue advocacy, and community mobilization)</p>	<p>T3: 3.4.2. Evaluates educational and behavioral techniques and technological tools to promote public health (e.g., through community education, behavior modification, collaborative policy development, issue advocacy, and community mobilization)</p>	<p>T4: 3.4.2. Advocates for educational and behavioral techniques and technological tools to promote public health (e.g., through community education, behavior modification, collaborative policy development, issue advocacy, and community mobilization)</p>
<p>T1: 3.4.3. Follows policies that address security, privacy, and legal considerations</p>	<p>T2: 3.4.3. Develops policies that address security, privacy, and legal considerations</p>	<p>T3: 3.4.3. Evaluates policies that address security, privacy, and legal considerations</p>	<p>T4: 3.4.3. Advocates for policies that address security, privacy, and legal considerations</p>
<p>T1: 3.4.4. Identifies misinformation and disinformation</p>	<p>T2: 3.4.4. Responds to misinformation and disinformation</p>	<p>T3: 3.4.4. Ensures response to misinformation and disinformation</p>	<p>T4: 3.4.4. Evaluates response to misinformation and disinformation</p>



Domain 3

Communication Skills

Competency 3.5. Conducts investigations and interviews accommodating the needs of the population

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 3.5.1. Identifies cultural, environmental, historical, social, structural, educational, and accessibility factors impacting the population	T2: 3.5.1. Develops investigational strategy incorporating knowledge of the population and communication needs (e.g., including application of principles of ethics, justice and accessibility)	T3: 3.5.1. Applies investigative methods that address the needs of the population (e.g., including application of principles of ethics, justice and accessibility)	T4: 3.5.1. Monitors investigative methods that address the needs of the population (e.g., including application of principles of ethics, justice and accessibility)
T1: 3.5.2. Identifies mechanisms for contact and communication with population (e.g., hard of hearing, nonverbal, other primary language of population, and lack of broadband access)	T2: 3.5.2. Defines staff support or mechanisms needed to communicate with population (e.g., interpreters, translators, sign language, other language services)	T3: 3.5.2. Manages staff support or mechanisms needed to communicate with population (e.g., interpreters, translators, sign language, other language services)	T4: 3.5.2. Ensures epidemiologic activity results or outcomes are communicated back to the community



Domain 4

Community Partnership Skills

Competency 4.1. Describes epidemiologic conditions, systems, programs, and policies affecting community health and resilience

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 4.1.1. Describes cultural, environmental, historical, social, structural, educational, and accessibility factors that affect the community's health and resilience	T2: 4.1.1. Engages communities in bidirectional dialogue on health issues impacting their community at all stages of epidemiologic activities (e.g., <i>engages with the community in a way that is accessible</i>)	T3: 4.1.1. Collaborates with communities to identify health priorities for study demonstrating cultural humility (e.g., <i>including populations, communities, and individuals who may not have had previous opportunity to participate in priority setting</i>)	T4: 4.1.1. Advocates for community health priorities demonstrating cultural humility
T1: 4.1.2. Identifies the different levels of governmental public health (<i>tribal, territorial, local, state, and federal</i>), their legal authority, and their roles and responsibilities in the community and public health programs	T2: 4.1.2. Explains the different levels of governmental public health (<i>tribal, territorial, local, state, and federal</i>), their legal authority, and their roles and responsibilities in the community and public health programs	T3: 4.1.2. Assesses components of the public health system and community (e.g., <i>specific populations within the community or region, epidemiologic data collection and analysis needs, community themes and strengths, relationships among public and private organizations, community medical-care delivery system</i>)	T4: 4.1.2. Evaluates changes that are occurring or are expected to occur that affect the community's health or the public health system (e.g., <i>a Mobilizing for Action through Planning and Partnerships forces of change assessment, identifying threats and opportunities</i>)
T1: 4.1.3. Identifies cultural, environmental, historical, social, and structural factors to provide context for an investigation	T2: 4.1.3. Summarizes findings within cultural, environmental, historical, social, and structural factors affecting population	T3: 4.1.3. Solicits feedback from members of the community to ensure findings are represented in lived experiences	T4: 4.1.3. Assesses impact of investigation findings on the population and relevance



Domain 4

Community Partnership Skills

Competency 4.2. Maintains bidirectional relationships that improve community health and resilience

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
<p>T1: 4.2.1. Provides assistance to communities, partners, and local public health systems relating to surveillance, epidemiologic data, evaluation, and planning (e.g., <i>combating misinformation and disinformation, practices active listening</i>)</p>	<p>T2: 4.2.1. Provides assistance to communities, partners, and local public health systems relating to surveillance, epidemiologic data, evaluation, and planning (e.g., <i>combating misinformation and disinformation, practices active listening</i>)</p>	<p>T3: 4.2.1. Evaluates information and input from the community and from community health assessments to aid in the design, interpretation, and conduct of epidemiologic activities considering the principles of data sovereignty and data sharing</p>	<p>T4: 4.2.1. Advocates for information and input from the community and from community health assessments to aid in the design, interpretation, and conduct of epidemiologic activities</p>
<p>T1: 4.2.2. Reviews the community's history and past interactions with the public health system to create communication strategies and support capacity building</p>	<p>T2: 4.2.2. Describes partners and collaborators necessary to support epidemiologic activities and community capacity building</p>	<p>T3: 4.2.2. Identifies partners and collaborators necessary for epidemiologic activities and community capacity building (e.g., <i>including people from racial and ethnic minority groups, historically underserved and underrepresented groups, and groups subject to health disparities</i>)</p>	<p>T4: 4.2.2. Communicates with partners and multidisciplinary collaborators in the community through proactive outreach efforts (e.g., <i>to regulated industry, government offices, faith-based organizations, emergency management, coroners/medical examiners, transportation, utilities, community coalitions, and community grantees</i>)</p>



Domain 4

Community Partnership Skills

Competency 4.3. Participates in emergency management for public health emergencies

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 4.3.1. Participates in continuing education and training to plan for, respond to, and recover from emergencies	T2: 4.3.1. Explains emergency planning activities (e.g., <i>developing written plans, communicating epidemiology roles and capabilities, providing data to inform activities</i>)	T3: 4.3.1. Participates in emergency planning activities (e.g., <i>developing written plans, communicating epidemiology roles and capabilities, providing data to inform activities</i>)	T4: 4.3.1. Represents epidemiologic activities in development of agency emergency management plans (e.g., <i>emergency operations response plan, continuity plan, pandemic influenza plan, mitigation plan, disaster recovery plan</i>)
T1: 4.3.2. Participates in scheduled emergency management exercises and/or drills	T2: 4.3.2. Participates in scheduled emergency management exercises and/or drills	T3: 4.3.2. Evaluates emergency management exercises and/or drills and actual emergency responses	T4: 4.3.2. Designs emergency management exercises and/or drills and actual emergency responses
T1: 4.3.3. Describes tools to support community partnerships in support of emergency management (e.g., <i>assessments for the mental and physical health of emergency responders and volunteers, training materials for laboratory networks and healthcare providers, resources for the community</i>)	T2: 4.3.3. Develops tools to support community partnerships in support of emergency management (e.g., <i>assessments for the mental and physical health of emergency responders and volunteers, training materials for laboratory networks and healthcare providers, resources for the community</i>)	T3: 4.3.3. Maintains community partnerships in support of emergency management (e.g., <i>local government offices, faith-based organizations, volunteer organizations, healthcare providers, hospitals, laboratory networks, utilities, coroners/medical examiners, transportation authorities</i>)	T4: 4.3.3. Advocates for partnerships with emergency management partner professionals

Competency 4.3. continued on following page.



Domain 4

Community Partnership Skills

Continued from previous page.

Competency 4.3. Participates in emergency management for public health emergencies

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
<p>T1: 4.3.4. Describes incident command system (ICS) and the national incident management system (NIMS) structures</p>	<p>T2: 4.3.4. Responds to public health emergencies within incident command system (ICS) and the national incident management system (NIMS) structures (e.g., conducting surveillance activities, developing and deploying assessment tools, conducting case investigations and chart reviews, monitoring morbidity and mortality, reporting findings to emergency managers)</p>	<p>T3: 4.3.4. Coordinates emergency recovery activities (e.g., conducting epidemiological assessments to inform recovery efforts, participating in after-action reporting and improvement plan activities, updating emergency management plans)</p>	<p>T4: 4.3.4. Evaluates emergency response and recovery activities</p>
<p>T1: 4.3.5. Describes data analysis during an emergency (e.g., available data sources, surveillance needs and tools, data availability and quality limitations, reporting needs, stakeholder involvement)</p>	<p>T2: 4.3.5. Conducts data analysis during an emergency (e.g., data availability, data sources, surveillance tools, data quality, data presentation, stakeholder needs)</p>	<p>T3: 4.3.5. Conducts data analysis during an emergency (e.g., data availability, data sources, surveillance tools, data quality, data presentation, stakeholder needs)</p>	<p>T4: 4.3.5. Facilitates communication of analytical findings during an emergency</p>



Domain 5

Management and Finance Skills

Competency 5.1. Describes factors that affect the financial and operational health of the organization (*e.g., fair treatment of staff, comprehensive policies and practices, support from the governing body and community, sustainability of funding, training of managers*)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 5.1.1. Identifies epidemiologic program goals, objectives, tasks, and resources	T2: 5.1.1. Formulates tasks to meet project or program goals and objectives	T3: 5.1.1. Implements a timeline for carrying out the tasks to meet project or program goals and objectives	T4: 5.1.1. Justifies costs, personnel, staffing, travel, or other resource needs associated with program goals, projects, and tasks
T1: 5.1.2. Maintains accurate records related to financial and operational health (<i>e.g., time records, invoices, travel expenses</i>)	T2: 5.1.2. Maintains accurate records related to financial and operational health (<i>e.g., time records, invoices, travel expenses</i>)	T3: 5.1.2. Creates records related to financial and operational health (<i>e.g., budgets, balance sheets, and progress reports</i>)	T4: 5.1.2. Assists with audits of records related to organizational financial and operational health

Competency 5.2. Engages in epidemiologic activities within the organization's budget, operational plan, and financial rules

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 5.2.1. Identifies resources necessary to carry out tasks in the operational plan (<i>e.g., personnel, equipment, supplies, and travel costs</i>)	T2: 5.2.1. Estimates resources and costs necessary to carry out tasks in the operational plan, including personnel, equipment, supplies, and travel costs	T3: 5.2.1. Estimates expenditures that may arise from epidemiologic activities (<i>e.g., rapid investigations and emergency response</i>)	T4: 5.2.1. Manages the budget for needed resources within the rules of the agency



Domain 5

Management and Finance Skills

Competency 5.3. Engages in epidemiologic activities within the organization's budget, operational plan, and financial rules

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 5.3.1. Describes progress of meeting project or program goals and deliverables expected	T2: 5.3.1. Compares progress to expectations established in financial and organizational program plans	T3: 5.3.1. Reviews project or program goals and deliverables expected within defined budget	T4: 5.3.1. Administers resources to support epidemiologic activities
T1: 5.3.2. Recognizes project or program financial documents (<i>e.g., budget, balance sheet, profit and loss</i>)	T2: 5.3.2. Reviews project or program financial documents (<i>e.g., budget, balance sheet, profit and loss</i>)	T3: 5.3.2. Tracks fiscal expenditures against financial plan for project or program	T4: 5.3.2. Adjusts staffing and activities to stay within defined budget
T1: 5.3.3. Follows organizational chain of command	T2: 5.3.3. Describes epidemiology program function on the public health agency management team	T3: 5.3.3. Assigns staff and resources to support epidemiology program function (<i>e.g., FTEs, interns, students, fellows, contractors</i>)	T4: 5.3.3. Justifies personnel and resources needed for epidemiology program function in the public health agency
T1: 5.3.4. Identifies opportunities to increase awareness of external staffing support funding (<i>e.g., where to network, search for consultants, post requests for proposals (RFPs)</i>)	T2: 5.3.4. Defines project scope of work for external staffing support (<i>contractors or consultants</i>) based on project or program needs and requirements	T3: 5.3.4. Develops requests for proposals (<i>RFPs</i>) to obtain external staffing support (<i>consultants or contractors</i>)	T4: 5.3.4. Manages contractual obligations of agency with external staffing support (<i>consultants or contractors</i>)



Domain 5

Management and Finance Skills

Competency 5.4. Secures extramural funding (e.g., preparing proposals, grant applications, vendor contracts, and requests for proposals)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 5.4.1. Describes funding needs for epidemiologic activities	T2: 5.4.1. Identifies funding sources and opportunities to support epidemiologic activities	T3: 5.4.1. Collaborates with budget and operational staff to obtain funding (e.g., preparing funding applications, allocating awarded funds, describing funds and resources available for project or program activities)	T4: 5.4.1. Arranges disbursement of funding for projects or programs (e.g., maintaining budget records, creating budget workplan, detailing grant allowable expenses)

Competency 5.5. Manages human capital (including recruitment, retention, and professional development of staff)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 5.5.1. Identifies issues affecting recruitment, retention, and professional development of epidemiology workforce	T2: 5.5.1. Describes workforce, workplace, and other issues that impact recruitment, retention, and professional development	T3: 5.5.1. Develops agency recruitment, retention, and professional development plans	T4: 5.5.1. Implements agency recruitment, retention, and professional development plans with agency management
T1: 5.5.2. Identifies the importance of a competent epidemiologic workforce	T2: 5.5.2. Describes strategies to recruit and retain a competent epidemiologic workforce	T3: 5.5.2. Evaluates strategies to improve epidemiologic workforce recruitment, retention, and professional development (e.g., including improving workforce satisfaction, developing professional development plans, fostering belonging and a healthy work environment)	T4: 5.5.2. Recommends fiscal support of and agency policy changes that support staff recruitment, retention, and professional development strategies



Domain 6

Leadership and Systems Thinking Skills

Competency 6.1. Applies the organization's vision and program goals in all epidemiologic activities

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 6.1.1. Describes the organization's vision and program goals	T2: 6.1.1. Engages individuals and teams to implement organization's vision and program goals	T3: 6.1.1. Constructs proposed projects and programs to support the organization's vision and program goals	T4: 6.1.1. Engages key collaborators to support the organization's vision and program goals (<i>e.g., ensuring collaborators are representative, ensuring various voices are involved</i>)

Competency 6.2. Engages in change management

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 6.2.1. Describes a shared vision of change	T2: 6.2.1. Uses change management techniques	T3: 6.2.1. Develops strategies to implement change management techniques to implement change (<i>e.g., ability to support change, identifying priorities, building new skills</i>)	T4: 6.2.1. Supervises methods for monitoring and sustaining organizational change

Competency 6.3. Engages in performance management of self and other team members

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 6.3.1. Identifies roles, responsibilities, and performance of all team members in epidemiologic activities	T2: 6.3.1. Identifies roles, responsibilities, and performance of all team members in epidemiologic activities	T3: 6.3.1. Manages peers' and supervisors' performance bidirectionally (<i>e.g., define expectations, clarify roles and responsibilities, anticipate problems and solutions, identify opportunities</i>)	T4: 6.3.1. Coaches team members as needed in the performance of their responsibilities (<i>e.g., mentoring supervisees, other staff, and interns, supporting team member professional and personal development</i>)
T1: 6.3.2. Evaluates own performance and areas for improvement	T1: 6.3.2. Evaluates own performance and areas for improvement	T1: 6.3.2. Evaluates own performance and areas for improvement	T1: 6.3.2. Evaluates own performance and areas for improvement

Competency 6.3. continued on following page.



Domain 6

Leadership and Systems Thinking Skills

Continued from previous page.

Competency 6.3. Engages in performance management of self and other team members

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 6.3.3. Applies project and time management skills needed for epidemiologic activities	T2: 6.3.3. Applies project and time management skills needed for epidemiologic activities to ensure projects are being managed appropriately by the team	T3: 6.3.3. Applies project and time management skills needed for epidemiologic activities to ensure projects are being managed appropriately by the team	T4: 6.3.3. Applies project and time management skills needed for epidemiologic activities to ensure projects are being managed appropriately by the team
T1: 6.3.4. Engages in continuous self-reflection to challenge one's biases (e.g., perceptions, assumptions, stereotypes, and implicit and explicit biases)	T2: 6.3.4. Engages in continuous self-reflection to challenge one's biases (e.g., perceptions, assumptions, stereotypes, and implicit and explicit biases)	T3: 6.3.4. Engages in continuous self-reflection to challenge one's biases (e.g., perceptions, assumptions, stereotypes, and implicit and explicit biases)	T4: 6.3.4. Engages in continuous self-reflection to challenge one's biases (e.g., perceptions, assumptions, stereotypes, and implicit and explicit biases)

Competency 6.4. Manages workforce development

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 6.4.1. Collaborates with project team members of varied backgrounds and education	T2: 6.4.1. Evaluates current agency staff to determine whether individuals with needed skills and abilities are present	T3: 6.4.1. Ensures that representative, skilled teams are incorporated into organizational programs, plans, and the workforce	T4: 6.4.1. Advocates for resources to ensure that representative, skilled individuals are recruited and retained by the organization
T1: 6.4.2. Demonstrates ongoing learning (e.g., identifying and advocating for participation in professional development, continuing education, and personal education or training)	T2: 6.4.2. Disseminates learning opportunities (e.g., webinars and events relating to epidemiologic analyses, communication skills, etc.)	T3: 6.4.2. Facilitates coaching and mentoring for staff performing epidemiologic activities (e.g., supervisor to staff, peer to peer, and staff to supervisor)	T4: 6.4.2. Ensures inclusive and equitable resources are available to support workforce development (e.g., ongoing learning, continuing education, professional development, mentoring and coaching opportunities)

Competency 6.4. continued on following page.



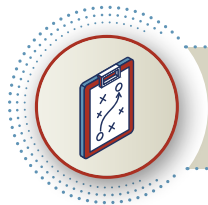
Domain 6

Leadership and Systems Thinking Skills

Continued from previous page.

Competency 6.4. Manages workforce development

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 6.4.3. Participates in collaborative relationship activities for workforce development (e.g., <i>coaching, mentoring, sharing experiences at workforce events, networking, professional society membership</i>)	T2: 6.4.3. Participates in collaborative relationship activities for workforce development (e.g., <i>coaching, mentoring, sharing experiences at workforce events, networking, professional society membership</i>)	T3: 6.4.3. Generates opportunities for collaborative relationships with key personnel of their agency, other agencies, and communities to support workforce development activities (e.g., <i>identifying opportunities for collaboration with academic partnerships, community-based organizations, private sector</i>)	T4: 6.4.3. Facilitates collaborative relationships with key personnel of their agency, other agencies, and communities to support workforce development activities (e.g., <i>communicating with and supporting academic partnerships, community-based organizations, private sector</i>)

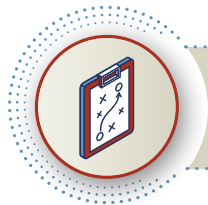


Domain 7

Policy Development and Program Planning Skills

Competency 7.1. Applies epidemiology to the development of policies, programs, services, and laws

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 7.1.1. Describes policies and policy development from an epidemiologic context (e.g., <i>what systems are in place to implement policy, their flexibility, considerations of ethics, justice, health in all policies</i>)	T2: 7.1.1. Describes the scope of regulations and laws affecting epidemiologic activities	T3: 7.1.1. Describes the value of epidemiology and other evidence-based information in developing policy	T4: 7.1.1. Applies policies or laws into epidemiology activities in programs or plans
T1: 7.1.2. Recognizes epidemiologic and surveillance data needed to inform the development and improvement of policies, programs, services, and laws (e.g., <i>needs of the community in the absence of data, acknowledging publication bias and not all findings make it to the published literature</i>)	T2: 7.1.2. Provides epidemiologic and surveillance data to inform the development and improvement of policies, programs, services, and laws (e.g., <i>providing input, evidence, or data, following organizational procedures, creating decision memos, identifying policy alternatives</i>)	T3: 7.1.2. Advocates for the incorporation of epidemiologic and surveillance data and the principles of data governance into policies, programs, services, and laws	T4: 7.1.2. Advocates for policies, programs, services, and laws based on evidence including research and epidemiologic and surveillance data
T1: 7.1.3. Follows rules and laws applying to government employees and funding sources regarding lobbying and advocacy	T2: 7.1.3. Follows rules and laws applying to government employees and funding sources regarding lobbying and advocacy	T3: 7.1.3. Enforces rules and laws applying to government employees and funding sources regarding lobbying and advocacy	T4: 7.1.3. Enforces rules and laws applying to government employees and funding sources regarding lobbying and advocacy

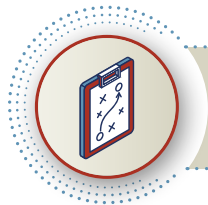


Domain 7

Policy Development and Program Planning Skills

Competency 7.2. Evaluates programs, policies, services, laws, and organizational performance

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 7.2.1. Identifies SMART (<i>Specific, Measurable, Attainable, Relevant, Time-bounded</i>) program-relevant goals, objectives, and performance measures	T2: 7.2.1. Creates SMART (<i>Specific, Measurable, Attainable, Relevant, Time-bounded</i>) program-relevant goals, objectives, and performance measures	T3: 7.2.1. Monitors SMART (<i>Specific, Measurable, Attainable, Relevant, Time-bounded</i>) program-relevant goals, objectives, and performance measures	T4: 7.2.1. Evaluates SMART (<i>Specific, Measurable, Attainable, Relevant, Time-bounded</i>) program-relevant goals, objectives, and performance measures
T1: 7.2.2. Identifies data (<i>e.g., surveillance, qualitative, quantitative</i>) needed to track program objectives, performance, and outcomes	T2: 7.2.2. Employs data from surveillance systems, databases, dashboards, and other data sources to track program objectives, performance, and outcomes	T3: 7.2.2. Designs systems to record progress toward program objectives, performance, and outcomes	T4: 7.2.2. Communicates progress toward program objectives, performance, and outcomes to organization for use in program planning and modification
T1: 7.2.3. Describes organizational policies, programs, and services considering ethics, justice and accessibility	T2: 7.2.3. Reviews organizational policies, programs, and services considering ethics, justice and accessibility	T3: 7.2.3. Evaluates the impact of policies, programs, and services on achieving epidemiology program goals and objectives considering ethics, justice and accessibility	T4: 7.2.3. Recommends improvements to policies, programs, services, and performance using continuous quality improvement methods and tools considering ethics, justice and accessibility
T1: 7.2.4. Describes proposed bills and regulations that affect epidemiologic activities and public health programs and plans	T2: 7.2.4. Creates analyses of proposed bills and regulations that affect epidemiologic activities and public health programs and plans	T3: 7.2.4. Interprets analyses of proposed bills and regulations that affect epidemiologic activities and public health programs and plans	T4: 7.2.4. Assesses programs, policies, services, proposed bills, and laws affecting the public health (<i>e.g., their relationship with existing policies and laws, their impact on current programs and services, and their economic impact</i>)



Domain 7

Policy Development and Program Planning Skills

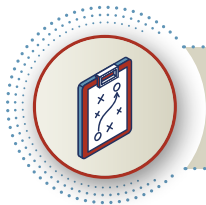
Competency 7.3. Engages in organizational strategic planning (e.g., *strategic prioritization, development of research agendas, and action plans*)

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 7.3.1. Describes the need for evidence-based and data driven decisions for strategic planning	T2: 7.3.1. Provides data analysis findings to improve organizational performance and impact strategic planning	T3: 7.3.1. Participates in organizational strategic planning (e.g., <i>contributing to strategic prioritization, research agenda, and action plans</i>)	T4: 7.3.1. Analyzes organizational performance data

Competency 7.4. Applies principles of ethical and legal practice to epidemiologic activities, data analysis, assessment, and dissemination

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 7.4.1. Demonstrates respect for community-level confidentiality, concerns of stigmatization, risks, and harm to community	T2: 7.4.1. Demonstrates respect for community-level confidentiality, concerns of stigmatization, risks, and harm to community	T3: 7.4.1. Demonstrates respect for community-level confidentiality, concerns of stigmatization, risks, and harm to community	T4: 7.4.1. Defends community-level confidentiality, addresses concerns of stigmatization, risks, and harm to community
T1: 7.4.2. Describes ethics guidelines, principles, and laws when planning studies; conducting research; and collecting, managing, disseminating, and using data (e.g., <i>considering data sovereignty, data governance, public health authority, confidentiality, Belmont principles, Institutional Review Board (IRB) processes, Health Insurance Portability and Accountability Act (HIPAA), other privacy laws</i>)	T2: 7.4.2. Applies ethics guidelines, principles, and laws when planning studies; conducting research; and collecting, managing, disseminating, and using data (e.g., <i>considering data sovereignty, data governance, public health authority, confidentiality, Belmont principles, IRB processes, HIPAA, other privacy laws</i>)	T3: 7.4.2. Assesses relevant ethics guidelines and laws for data collection, management, dissemination, and use of data and information (e.g., <i>de-identification of data, HIPAA compliance, health data sharing and privacy, addressing health inequities and community representation</i>)	T4: 7.4.2. Advocates for ethics guidelines and laws for data collection, management, dissemination, and use of data and information (e.g., <i>incorporating justice, addressing emerging health concerns, improving access to health information, promoting secure data sharing</i>)

Competency 7.4. continued on following page.



Domain 7

Policy Development and Program Planning Skills

Continued from previous page.

Competency 7.4. Applies principles of ethical and legal practice to epidemiologic activities, data analysis, assessment, and dissemination

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 7.4.3. Follows organization's policies and practices related to ethical conduct	T2: 7.4.3. Defines expectations of ethical conduct for team members	T3: 7.4.3. Advocates for ethical conduct of epidemiologic activities (e.g., addressing health disparities, health equity)	T4: 7.4.3. Demonstrates ethical conduct in organizational epidemiologic activities (e.g., managing conflicts of interest, preparing and submitting research for publication, balancing individual privacy with risk to the community, responding to FOIA requests)

Competency 7.5. Advocates for policies and public health actions that improve community health and resilience

TIER 1: Foundational Subcompetencies	TIER 2: Intermediate Subcompetencies	TIER 3: Practiced Subcompetencies	TIER 4: Advanced Subcompetencies
T1: 7.5.1. Describes evidence-based practices to inform public health actions	T2: 7.5.1. Collaborates with the community to identify public health actions and review public health decision making process	T3: 7.5.1. Applies public health actions that have been shown to be effective in similar populations if supported by the community of interest	T4: 7.5.1. Evaluates the choice of action strategy through consultation with the community of interest
T1: 7.5.2. Assists in designing public health actions that reduce systematic and structural barriers that perpetuate health inequities (e.g., racism, sexism, bigotry, poverty)	T2: 7.5.2. Designs public health actions that reduce systematic and structural barriers that perpetuate health inequities (e.g., racism, sexism, bigotry, poverty)	T3: 7.5.2. Implements public health actions that reduce systematic and structural barriers that perpetuate health inequities (e.g., racism, sexism, bigotry, poverty)	T4: 7.5.2. Consults with decision makers and the community on factors affecting community health, health inequities, and resilience (e.g., ethics, justice, racism, sexism, bigotry, poverty)

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Appendix 1

The following changes have been made to the 2008 Applied Epidemiology Competencies:

- Change from checklist subcompetencies and sub-subcompetencies to skills-based competencies
- Tiers build upon skills as they advance in complexity
- Measurable competencies
- Tier definition changes based on skill level instead of job level
- Inclusion of health equity principles throughout competencies instead of one separate domain
- Alignment with 2021 Core Competencies for Public Health Professionals
- Designation of Domains 1-4 as “Technical Core” and Domains 5-7 as “Leadership and Management”

Table A1. Comparison of AECs Tier Descriptions from 2008 versus 2023

2008 APPLIED EPIDEMIOLOGY COMPETENCIES	2023 APPLIED EPIDEMIOLOGY COMPETENCIES
Tier 1: Entry-Level of Basic Epidemiologist <ul style="list-style-type: none">• Carries out simple data collection, analysis, and reporting in support of surveillance and epidemiologic investigations• 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 (<i>e.g.</i>, 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.	Tier 1: Foundational <ul style="list-style-type: none">• Individuals with these skills are those who are completing academic programs or are early in their public health career still gaining training or applied experience on the job.• These individuals require supervision when performing most tasks.• Their responsibilities include describing factors affecting community health, including application of a health equity science perspective; identifying epidemiologic data and surveillance system needs; collecting surveillance data; identifying the roles and resources provided by epidemiologists and other public health professionals; and assisting in collaborations with internal and external program resources.

2008 APPLIED EPIDEMIOLOGY COMPETENCIES	2023 APPLIED EPIDEMIOLOGY COMPETENCIES
<p>Tier 2: Mid-Level Epidemiologist</p> <ul style="list-style-type: none"> • Carries out simple and more complex and nonroutine data collection, analysis, and interpretation tasks and can work independently; or may supervise a unit or serve as a project leader or surveillance coordinator. • Master's degree with a focus in epidemiology with 2 or more years' work experience in epidemiology in a public health agency; or • Doctoral-level epidemiologist; 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) or at least 4 years' experience performing epidemiologic work under the guidance of a Tier 3 epidemiologist. 	<p>Tier 2: Intermediate</p> <ul style="list-style-type: none"> • Individuals with these skills are those who administer epidemiology programs and projects often independently. • These individuals may require supervision while managing larger or more complex programs or projects and other tasks. • Their responsibilities include conducting epidemiologic investigations including application of a health equity science perspective; communicating epidemiologic findings to all audiences; defining public health actions and interventions; collaborating with others to perform epidemiologic activities; and applying data to support public health policies, services, and programs.
<p>Tier 3a: Senior-Level Epidemiologist: Supervisor and/or Manager</p> <ul style="list-style-type: none"> • Supervisor, manager, and/or director of a major section, program, or bureau in a public health agency. • 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. 	<p>Tier 3: Practiced</p> <ul style="list-style-type: none"> • Individuals with these skills are those with subject matter expertise or who manage epidemiology programs and resources which may include finances and personnel. • These individuals perform their job duties independently and may supervise others on a project-basis or all the time. • Their responsibilities include systems thinking; development of surveillance systems; interpreting the results of epidemiologic investigations and surveillance including application of a health equity science perspective; evaluating the suitability of data collection, databases, and program objectives; developing communication strategies to present data, key findings, and interventions to professional audiences and the public; assigning resources to epidemiology activities and programs; promoting evidence-based decision making using epidemiology data; and evaluating the impact of activity toward community health goals.

2008 APPLIED EPIDEMIOLOGY COMPETENCIES	2023 APPLIED EPIDEMIOLOGY COMPETENCIES
Tier 3b: Senior Scientist/Subject Area Expert	Tier 4: Advanced
<ul style="list-style-type: none"> • Senior scientist/subject area expert in an epidemiologic focus area. • 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. 	<ul style="list-style-type: none"> • Individuals with these skills are those who typically hold senior positions within organizations, demonstrate leadership, and are visionaries. • These individuals require no supervision for their job duties but may supervise and mentor others. • Their responsibilities include communicating epidemiologic program needs to internal and external collaborators; analyzing programs, staffing needs, and policies relating to epidemiology; administering financial and personnel resources; evaluating database generation and surveillance systems; advocating for health equity, a representative workforce, and program needs; facilitating relationships with collaborators; informing development of policies and laws; justifying program resources; and engaging in organizational strategic planning.

Table A2. Comparison of AECs Domains from 2008 versus 2023

2008 APPLIED EPIDEMIOLOGY COMPETENCIES	2023 APPLIED EPIDEMIOLOGY COMPETENCIES
Domain I: Assessment and Analysis	Domain 1: Data Analytics and Assessment Skills
Domain II: Basic Public Health Sciences	Domain 2: Public Health Sciences Skills
Domain III: Communication	Domain 3: Communication Skills
Domain IV: Community Dimensions of Practice	Domain 4: Community Partnership Skills
Domain V: Cultural Competency	Health equity concepts have been included throughout the existing domains
Domain VI: Financial and Operational Planning and Management	Domain 5: Management and Finance Skills
Domain VII: Leadership and Systems Thinking	Domain 6: Leadership and Systems Thinking Skills
Domain VIII: Policy Development	Domain 7: Policy Development and Program Planning Skills

Domains listed in blue are “Technical Core” domains.

Domains listed in gray are “Leadership and Management” domains.