Division: Epidemiology and Biostatistics

Students must demonstrate attainment of a minimum of <u>five</u> competencies (not to exceed 10), consisting of:
- At minimum, <u>three</u> foundational competencies.
- At minimum, <u>one</u> division and/or concentration(s) competency.

Please note: competencies should only be listed once and focused on your division/concentration. Do not use a competency for more than one activity. Do not indicate a global health competency if you do not have a concentration in that area.

MPH FOUNDATIONAL COMPETENCIES

Evidence-based Approaches to Public Health

F1. Apply epidemiological methods to the breadth of settings and situations in public health practice.

F2. Select quantitative and qualitative data collection methods appropriate for a given public health context.

F3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate.

F4. Interpret results of data analysis for public health research, policy or practice.

Public Health & Health Care Systems

F5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings.

F6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels.

Planning & Management to Promote Health

F7. Assess population needs, assets and capacities that affect communities' health.

F8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs.

F9. Design a population-based policy, program, project or intervention.

F10. Explain basic principles and tools of budget and resource management.

F11. Select methods to evaluate public health programs.

Policy in Public Health

F12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence.

F13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes.

F14. Advocate for political, social or economic policies and programs that will improve health in diverse populations.

F15. Evaluate policies for their impact on public health and health equity.

Leadership

F16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making.

F17. Apply negotiation and mediation skills to address organizational or community challenges.

Communication

F18. Select communication strategies for different audiences and sectors.

F19. Communicate audience-appropriate public health content, both in writing and through oral presentation.

F20. Describe the importance of cultural competence in communicating public health content.

Interprofessional Practice

F21. Perform effectively on interprofessional teams.

Systems Thinking

F22. Apply systems thinking tools to a public health issue.

GLOBAL HEALTH LEARNER OUTCOMES

G1. Demonstrate knowledge of the Social Determinants of Health (SDH) and their contribution to the health of populations globally, as well as the influence of SHD (including economic, political and environmental) on programmatic approaches in international settings.

G2. Demonstrate a critical understanding of the major causes of morbidity and mortality around the world, and explain how the risk for disease varies within and across regions.

G3. Describe the roles and relationships of the major entities influencing global health and development, and how they work to address communicable and non-communicable diseases, including injury, given context specific challenges within countries and regions.

G4. Demonstrate an ability to use systems thinking to analyze programs at the local, national and international levels.

G5. Apply ethical reasoning to the design, implementation, or evaluation of global health programs, policies, or practice.

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BIOSTATISTICS COMPETENCIES

B1. Select an appropriate statistical model for various types of public health data, including continuous, categorical, and time to event outcomes.

B2. Apply model selection techniques and diagnostic procedures to identify parsimonious multivariable regression models and assess their distributional assumptions.

B3. Interpret crude and adjusted measures of association and effectively communicate statistical results to diverse audiences.

B4. Critically evaluate protocols and results of randomized clinical trials to identify strengths and limitation, ethical issues, and assess randomization schemes.

B5. Fit appropriate statistical models for repeatedly measured or clustered data.

B6. Compute and understand the interrelations and interplays between statistical power and sample size, and their impact on hypothesis testing and the precision of parameter estimates.

EPIDEMIOLOGY COMPETENCIES

E1. Compare and contrast the determinants of non-infectious diseases.

E2. Investigate and identify the source of an infectious disease outbreak.

E3. Develop conceptual frameworks for hypotheses involving disease etiology or health disparities.

E4. Conduct data management, descriptive analyses and statistical modeling to investigate epidemiologic associations.

E5. Interpret and synthesize findings from epidemiologic studies, including recognition of the limitations of the data and potential sources of bias and/or confounding.

MATERNAL AND CHILD HEALTH EPIDEMIOLOGY COMPETENCIES

ME1. Identify key sources of population data needed to answer questions of interest in maternal and child health.

ME2. Identify key variables and designs that are routinely considered in reproductive, perinatal and pediatric epi analyses.

ME3. Synthesize population data to inform the design, implementation and/or enhancement of MCH public health programs.

ME4. Use a variety of epidemiologic and statistical methods appropriate to answer questions under investigation.

ME5. Use the appropriate reporting techniques to communicate key health status and health service issues to multiple stakeholders.