

**All 6 sets of discipline-specific Draft 1 Competencies.
Formatted using the standard “Public Health Competency Domains” and the
“10 Essential Public Health Services”**

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**ADMINISTRATOR Group (Draft 1)
GENETICS COMPETENCIES in PUBLIC HEALTH**

Notation: (#) = Essential Service

Analysis & Assessment

Identify new sources and modify existing data systems for capturing information about genetic factors as related to health in the population (1)

Translate genomics services and information so that information can be used to work with neighborhoods and communities and provide technical assistance resources to communities that promotes an understanding of genetics issues and serves, particularly minority, ethnic, and high risk populations (4)

Communication (Community Relations)

Ensure that various audiences have an appropriate understanding of genomics that is timely and accurate. Audiences include: policy makers, general population, sub-populations that are at risk of discrimination or that would benefit from intervention, employers, insurers, providers, purchasers, schools, community organizations, and community leaders (3)

Convene and support community wide dialog and discussions regarding genetic issues and services (3)

Inform the general community about the laws, policies, and regulations about genetic tests and informed consent and the rationale behind such rules (6)

Determine the available genetics services in the community (public, private, academic, commercial) and form partnerships for strategic planning (7)

Policy Development, Program Planning

Interpret qualitative and quantitative data collected by scientific methods to target interventions (2)

Determine gaps in research and develop plans to collect new information to improve health (2)

Provide information, technical assistance, and identify resources for neighborhoods and communities (4)

Develop public policies, statutes, and regulations that effectively address genetic issues (5)

Anticipate, identify, and address issues that may effect state and local genetics programs (5)

Identify the political, social, ethical issues in integrating genetics into public health (6)

Include evaluation measures in planning all genetics programs (9)

Interpret evaluation data and apply to policy options and decisions (9)

Articulate research methods and findings which impact legislative and policy decisions (10)

Cultural (Professional) Capabilities

Basic Public Health Science

Articulate the scientific underpinnings of using genetics information in improving health (10)

Explain types of research (biomedical, applied, behavioral, environmental) (10)

Leadership & Systems Thinking

Ensure organizational capacity to communicate and educate audiences on genetics issues through a genetics plan to achieve genetics program objectives (3)

Convene and maintain sustainable partnerships, which exemplify a shared responsibility for improving the health of the community in regards to genetics (4)

Develop state and local comprehensive, strategies, genetics plans with key partners based on good information and best practices (5)

Identify legal council knowledgeable in human subjects protections, confidentiality, privacy, discrimination and obtain or assure legal services (6)

Establish and promote a legislative agenda to ensure appropriate use of genetic tests, adequate services for all, and avenues of funding (6)

Initiate and implement strategic planning with key community partners in genetics and health care to ensure appropriate delivery of genetics and services for all (7)

Take the lead for and ensure a climate of continuing quality improvement for all public health genetic services (9)

Create a strategic plan for research needs which focus on “application” of genetics information in disease prevention (10)

Prioritize a research agenda that is appropriate for the population served (10)

Management & Information Systems (Finance)

Establish a community-based system to monitor the health status of populations and genetic determinants of health (1)

Consider emerging technologies and the potential for providing services to improve health in the community (7)

Identify competencies in genetics needed by multidisciplinary public health workers in the community for the next 5 years (8)

Develop and implement a workforce training plan (using community resources, eg. universities, commercial interests,) to educate public health workers in appropriate genetics information to perform their jobs (8)

Ensure adequate resources in medical genetics wither on staff or in the community (8)

Apply prevention effectiveness measures to interventions to determine usefulness in community (9)

CLINICIAN Group (Draft 1)

GENETICS COMPETENCIES in PUBLIC HEALTH

Notation: (#) = Essential Service

Analysis & Assessment

Demonstrates understanding of the indications for components of and resources for genomic testing and/or interventions (7)

Can explain basic concepts of probability and risk and benefits regarding genomics in health and disease in the context of the clinical practice (8)

Can discuss the risk-benefit, cost-effectiveness, cost-benefit and cost-utility analyses of current or desired services (9)

Identifies the limits of his/her genomics expertise (8)

Communication (Community Relations)

Delivers genomic information, recommendations and care without patient or family coercion (3, 7)

Delivers effectively accurate information and recommendations and quality care that are culturally appropriate and without personal bias (3)

Policy Development, Program Planning

Advocates for client-focused policies, including client rights and informed decision-making (5)

Collects, summarizes and interprets information relevant to clinical practice policies to appropriate policy makers (5)

Cultural (Professional) Capabilities

Understands own professional role in clinical practice, referral and quality review (8)

Basic Public Health Science

Demonstrates and applies understanding of current basic genomic concepts including patterns of inheritance, role in health and disease (8)

Can describe ethical legal and social issues related to genetic testing and recording of genetic information (6)

Demonstrates understanding of the role of behavioral, social and environmental factors in health and disease (8)

Participates regularly in activities to expand, share and apply current clinical knowledge, skills and policies (8)

Understand the health status of populations, determinants of health and illness, factors contributing to health promotion and disease prevention and factors influencing the use of health services (8)

Understands individual and organizational responsibilities within the context of core functions and essential public health services (8)

Contributes to the development, revision, implementation and monitoring of clinical performance standards based on current science (9)

Can describe the range of research methodologies and participates appropriately in clinical, public health or health services research (10)

Demonstrate basic knowledge that genomics has a role in human health (8)

Leadership & Systems Thinking

Knows limits of own expertise and appropriately refers to professionals with more expertise (8)

Works effectively within a diverse public health workforce (8)

Creates a culture of ethical standards within the clinical practice setting (5)

Promotes team learning and organizational learning within the clinical practice setting (8)

Appropriately makes referrals to professionals with more genomic expertise (8)

Management & Information Systems (Finance)

Maintains accurate, complete and confidential clinical records that comply with professional standards, organizational policies and applicable law and regulation (1, 6)

Provides clinical services within budget constraints (7)

ENVIRONMENTAL HEALTH Group (Draft 1)

GENETICS COMPETENCIES in PUBLIC HEALTH

Notation: (#) = Essential Service

Analysis & Assessment

Understand (know/aware) the basic human genetic terminology

Recognize availability of information sources

Demonstrate willingness to update genetic knowledge
(flipchart)

Know that there are methods to evaluate genetic susceptibilities in a population and that this information can be used to direct environmental sampling activities, biological testing programs and other public health activities

Understand that it may not always be ethically/medically appropriate to conduct testing even if it is technically available. To determine if it should be done requires more research

Communication (Community Relations)

Understand preventive efforts can be taken for individuals and communities to minimize risk

Appreciate limitation genetics and genomics technologies and potential for misuse

Share information sensitively in a culturally competent way involving good dialogue in communication

Understand may not be medically/ethically appropriate way to conduct genetic tests even when such is available

Understand perception of interpretation of test results may be subject to cultural and individual differences

Understand ref? perceptions & fears from receiving genetics and genomics information
(flipchart)

Appreciate the limitations of genetic/genomic technology and the potential for misuse

Share genetic/genomic information sensitively, in a culturally-competent manner, involving good dialogue with individuals and communities

Understand that the perception of test results may be subjective, affected by an individual cultural beliefs and values

Appreciate the negative perceptions and fears from receiving results of genomic testing

Policy Development, Program Planning

Know methods available to evaluate susceptibility in a population and that information can be used to direct environmental sampling.

Understand genetic information may affect public policy and zoning, environmental ref?, development, . planning

Maintain strict confidentiality - be cognitive about

Understand preventive efforts can be taken to minimize risk and influence individuals and communities
(flipchart)

Know that genetic/genomic information can be used to discriminate and can cause harm

Maintain strict confidentiality and be cognizant of legal issues that can arise if confidentiality is breached

Understand that public health preventive efforts can be taken for individuals and communities to minimize risk

Understand the implication of genetic/genomic information regarding policy affecting zoning and environmental regulatory activities

Cultural (Professional) Capabilities

Understand genetic testing has implication on family-cultural-ethical background
(flipchart)

Understand genomic testing has implications on family and cultural/ethnic background

Basic Public Health Science

Know genetic basis of individual variability and susceptibility

Understand relationship between disease and certain genes

Appreciate environmental factors can interact with gene in developing disease

Appreciate individual behaviors/personal lifestyles (factors) can interact with genes and influence disease development

Aware/know methods available to evaluate/assess susceptibilities
(flipchart)

Know the genetic basis of individual variability and susceptibility

Understand the terminology of genetics/genomics

Understand the relationship between a disease and certain genes

Appreciate that environmental factors can interact with genes to influence the development of disease

Appreciate that individual behavior/personal lifestyle factors can interact with genes to influence the development of disease

Leadership & Systems Thinking

Management & Information Systems (Finance)

Appreciate interdisciplinary nature of genetic/genomic issues and need to integrate public health and environmental programs
(flipchart)

Recognize the availability of sources of genetic/genomic information and a willingness to update knowledge regularly

Appreciate the interdisciplinary nature of genetic/genomic issues and the need to integrate public health and environmental programs.

EPIDEMIOLOGY Group (Draft 1)

GENETICS COMPETENCIES in PUBLIC HEALTH

Notation: (#) = Essential Service

Analysis & Assessment

Ability to apply clinical epidemiologic principles of diagnostic testing to interpreting genetic testing (individually and population-wide, sensitivity, specificity, predictive value, importance of prevalence, ROC curves, etc.) (1)

Ability to interpret and apply decision analysis type of methods/thinking to evaluate the economic and other costs and benefits of using genetic testing in populations as screening tests. (1)

Understand principles of population genetics and distribution of genetic disease (1)

Apply all the competencies delineated in essential services #1 (1)

Use basic epi skills to genetic situations (1)

Identify and understand uses and abuses of genetic testing (1)

Recognize the limitations of their own genetic competencies (2)

Can provide appropriate baseline data to develop and support policies and plans (5)

Can take appropriate measures to protect confidentiality through data systems (6)

Evaluate effectiveness, accessibility, and quality of personal and population-based genetic services (9)

Demonstrates competencies delineated in ES10 as related to genetic disorders (10)

Communication (Community Relations)

Effectively apply information systems and coordinating information from multiple sources (1)

Evaluate the utility of when to set up screening programs and use diagnostic testing - includes structure, function, transmission of genes and gene/environmental interactions (2)

Can inform public of issues related to informed consent and confidentiality (3)

Can provide and encourage use of culturally appropriate materials and genetic concepts (3)

Can inform public and professionals of risk-benefit of genetic tests (3)

Be able to work well with existing genetic partnerships (4)

Be able to utilize community support services appropriately (4)

Can help identify and partner with scientists, health care professionals and health educators (4)

Can present all available options fairly, based on data (5)

Can (under limitations of training and experience) provide expert opinion (6, 8)

Can perform and explain cost benefit and cost effectiveness of genetics in public health (9)

Understand and/or perform population-based genetic applied research (10)

Policy Development, Program Planning

Can read genetic epidemiology literature and help with policy development (2,9)

Can lead applied research in genetic epidemiology (10)

Can understand IRB need and how to get approval (10)

Cultural (Professional) Capabilities

Understand and promote the importance of baseline surveillance for genetic diseases (1)

Design and implement a surveillance systems for specified genetic diseases (1)

Know the sensitivity and specificity of genetic tests (1)
Be able to estimate and convey appropriate risk to individuals and populations (2)
Promote the education of the public health workforce in genetics (3)
Have competencies delineated in ES 9 as applied to genetics (9)

Basic Public Health Science

Interpret genetic tests (1)
Can demonstrate proficiency in services delineated in essential services #2 as applied to genetic components of diseases and disease risk (2)
Have competencies delineated in ES 3 as applied to genetics (3)
Understand the role of cultural, social, behavioral, environmental and genetic factors in determining disease, disease prevention, health promoting behaviors, and medical service organization and delivery (5)

Leadership & Systems Thinking

Appreciate and convey the importance of genetics to public health (1)
Helps determine when genetic tests are ready to be incorporated into the standard of care.
Foster collaborations with universities and others performing genetics research, genetic epidemiology, public health genetic research (10)

Management & Information Systems (Finance)

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HEALTH EDUCATION Group (Draft 1)

GENETICS COMPETENCIES in PUBLIC HEALTH

Notation: (#) = Essential Service

Analysis & Assessment

Obtain current health related data about social and cultural environments, genetic, growth and development factors, including community needs and interests. (1)

Describe the interaction among environment, genes, and behavior. (2)

Analyze social, cultural, economic, genetic, epidemiological, and political factors that influence health. (2)

Communication (Community Relations)

Organize in-service training programs (including topics in genetics), for agency staff, administrators, volunteers and other interested personnel. (3)

Interpret and respond to requests for health (including genetics) information. (7 or 3)

Policy Development, Program Planning

Differentiate between genetics education and genetic counseling. (5)

Recruit community organizations, resource people and potential participants with genetics expertise* for support and assistance in program planning. (4) *see NCHPEG definition of genetics expertise

Develop a plan for incorporating genetics into health education services. (3)

Formulate practical modes of collaboration among health agencies and organizations (including genetics-related agencies and organizations). (5)

Select effective education resource materials (including genetics) for dissemination. (3)

Conduct thorough reviews of the genetics literature using new information technology*. (3)

*Genetic information is evolving so rapidly that it may be necessary to use online materials in addition to textbooks and other dated information

Provide a critical analysis of current and future needs in terms of genetics education. (5)

Describe limitations of one's own genetics expertise. (3)

Cultural (Professional) Capabilities

Predict the impact of societal value systems on education programs as genetics is incorporated. (9)

Apply ethical and legal principles (including those unique to genetics) as they relate to the practice of public health. (6)

Demonstrate willingness to update genetics knowledge at frequent intervals. (8)

Basic Public Health Service

Leadership & Systems Thinking

Management & Information Systems (Finance)

LABORATORY Group (Draft 1)

GENETICS COMPETENCIES in PUBLIC HEALTH

Notation: (#) = Essential Service

Analysis & Assessment

Perform genetic assays of high quality

Identify and ascertain the strength of scientific evidence from the literature

Demonstrate current knowledge of molecular biology and related lab sciences as they apply to genetics

Utilize computer technology to manage laboratory data

Formulate relevant inferences from lab data

Develop and apply quality assurance criteria for genetic testing

Conduct validation studies of laboratory procedures

Understand basic research methods used in public health and health sciences research

Prepares risk assessment analyses using relevant data sources

Utilize evidence-based and science-based research to adapt emerging technology to public health lab practice

Utilize problem solving skills to identify and correct problems in testing process

Integrate multiple data sources/systems for information management

Apply technical and interpretive skills for confirming tests

Evaluate and compare new test methodologies to improve performance

Communication (Community Relations)

Communicate results of genetic tests to health care providers in appropriate and concise language

Explain test limitations and complexities to health care providers

Utilize common vocabulary of terms for genetics

Communicate issues related to genetic testing to public, policymakers, legislators, media, and health care providers

Build partnerships with public and personal health communities

Build partnerships with academic, research, private and commercial enterprises

Communicates risks based on risk assessment analysis to appropriate stakeholders

Policy Development, Program Planning

Communicates issues related to genetic testing to public, policy makers, legislators, media and health care providers with public and personal health communities (managed care, hospital)

Participate in strategic policy planning and development meetings related to genetic testing

Articulate objective scientific information related to genetic tests and testing

Participate in development of standards for genetic testing

Represent laboratory perspective in policy development

Collect and summarize data relevant to a genetic issue and test its reliability

State the feasibility and expected outcomes of each policy decision

Cultural (Professional) Capabilities

Interact professionally with persons of diverse back grounds

Values social, ethical and religious considerations for genetic testing

Basic Public Health Science

Demonstrate a thorough understanding of fundamentals and recent developments in human genetics

Recognize credible sources of data related to laboratory science

Recognize when demographic data is relevant to test performance

Acknowledge impact of regulations on genetic testing

Determine basic performance characteristics (sensitivity, specificity) of genetic tests

Apply the basic public health sciences, including behavioral and social sciences, biostatistics, epidemiology, informatics, environmental. public health and prevention of chronic diseases for studies of genetic ?

Leadership & Systems Thinking:

Develop and promote external validation studies for larger clinical laboratory community for genetic testing

Serve as focal point for the accumulation, blending and dissemination of scientific information in support of public health programs

Management & Information Systems (Finance)

Perform test cost/benefit analysis for genetic testing

Develop and justify laboratory budget for genetic testing

Perform cost accounting of genetic tests

Develop strategies for developing budget priorities

Prepare proposals for funding from external sources

Select new lab methodologies (to optimize test performance and efficiency in interpretation of program requirements

Monitor lab performance incorporate cost/benefit evaluation

Adapt genetic competencies to laboratory staffing plans

Develop successful recruitment strategies for lab personnel

Provide training opportunities for laboratory staff

Promote cross-training among lab staff

Develop strategies for establishing workplace teams

Implement reimbursement strategies for recovery of costs from third party insurers, Medicaid and Medicare