

Establishing Essential Physician Assistant Clinical Competencies Guidelines for Genetics and Genomics

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The translation of genetic and genomic science to clinical care has significant implications for the physician assistant (PA) profession. Similar to other health care professionals, PAs will need to develop strategies for applying new knowledge in genetics. In response to this need, the authors have undertaken to define the essential genetic and genomic competencies for all PAs, regardless of academic preparation, role, or clinical specialty. The authors' intention in developing these genetics/genomics competencies is to encourage PA educators to seek out academic curriculum content/learning activities based on the most current genetic and evidence-based information. They are proposed to complement the Competencies for the Physician Assistant Profession. Practicing PAs can also use these to chart a course for advancing their own practice.

The proposed essential competencies were developed by a panel of physicians and PA leaders from clinical, research, and academic settings, whose goal was to establish the minimum basis by which to prepare the PA workforce to deliver competent genetic/genomic clinical care. This is an ad hoc group of academicians interested in promoting competency and has no official affiliation or sponsorship by any professional association.

The Proposed Core Competencies

Knowledge

All physician assistants should:

- 1.1 Understand basic human genetics terminology
- 1.2 Recognize the four basic Mendelian patterns of inheritance
- 1.3 Define types of non-Mendelian inheritance (eg, multifactorial, mitochondrial, trinucleotide repeat expansion, imprinting)
- 1.3 Be able to list a "genetic" disease in the differential diagnosis of common medical disorders, (eg, including alpha-1-antitrypsin deficiency in the differential diagnosis of patients with emphysema)
- 1.4 Utilize family history (pedigree analysis of a minimum of three generations) in assessing potential genetic or familial predisposition to disease
- 1.5 Recognize the genetic and environmental contribution to multi-factorial conditions (eg, congenital heart disease, cancer, hypertension, diabetes, psychiatric illness)
- 1.6 Be able to distinguish between genetic screening, presymptomatic testing, and diagnostic testing, and apply each appropriately
- 1.7 Distinguish between clinical diagnosis of disease and identification of genetic pre-

Feature Editor's Note:

Genomic science has extraordinary implications for health workers, and the legal, social, and financial issues related to genetic testing and recording of genomic information are important policy issues. Explaining basic concepts of probability and genetic risk are formidable tasks to add to an increasing body of knowledge for the busy clinician — but they will have to be mastered as information about genetics races forth. These draft core competencies in genetics for PAs, developed by knowledgeable leaders in this area, may prove a helpful starting point for all PA education institutions.

— Roderick S. Hooker

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The Abstracts and Brief Reports section publishes short, focused communications on a research endeavor relevant to PA education or behavior. Submissions should be limited to approximately 1,500 words and one or two exhibits (tables or illustrations). The intent of this feature is to promulgate new information and provide a platform for additional research. Authors desiring to contribute to Abstracts and Brief Reports should forward submissions (with a copy to journal staff at jpae@PAEAonline.org) to:

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- disposition to disease and testing strategies employed
- 1.8 Discuss current genetic and biochemical laboratory studies and their validity and reliability
 - 1.9 Understand the principles of carrier screening, with attention to ethnic groups that may exhibit founder effects, and common disorders that may particularly benefit from screening
 - 1.10 Describe current population genetic screening programs and guidelines for the introduction of such programs
 - 1.11 Describe procedures available for prenatal genetic screening and diagnosis, kinds of diseases that can be detected prenatally and/or antenatally, and the risks and benefits of these procedures.
 - 1.12 Be aware of newborn screening programs, with attention to the disorders that are tested for in the state in which the PA practices
 - 1.13 Understand the principles of pharmacogenetics and their applications
 - 1.14 Delineate the role of genetics in pathogenesis of neoplasms and predispositions to malignancies
 - 1.15 Identify family history characteristics associated with increased cancer risk (eg, inherited breast, ovarian, or colorectal cancer syndromes).
 - 1.16 Discuss the range of genetic approaches to treatment of disease (prevention, pharmacogenomics/prescription of drugs to match individual genetic profiles, gene-based drugs, gene therapy)
 - 1.17 Discuss the role of genetic counseling in primary care and be able to develop a strategy for making appropriate referrals for genetic counseling, genetic diagnosis, and screening
 - 1.18 Describe the contribution of genetic professionals, geneticists, genetic counselors, and others within primary and specialty care settings

Skills

All physician assistants should be able to:

- 2.1 Gather genetic family history information, including an appropriate multigenerational pedigree
- 2.2 Identify and appropriately determine referral of patients who would benefit from genetic services, eg, recognition of dysmorphic features, genetic “red flags” in family histories
- 2.3 Use information technology to obtain credible current information about genetics
- 2.4 Communicate the concept of risk in a manner that can be understood by the patient or assure that patient receives appropriate information from reliable and valid sources
- 2.5 Assure that patient receives appropriate informed-consent process to facilitate decision making related to genetic testing
- 2.6 Assess the potential clinical and psychosocial benefits, limitations, and risks of genetic information for individuals, family members, and communities
- 2.7 Identify resources available to assist patients seeking genetic information or services, including the types of genetics professionals available and the range of responsibilities

Attitudes

All physician assistants should:

- 3.1 Seek coordination and collaboration with interdisciplinary team of health professionals
- 3.2 Recognize their own professional role in the referral to genetics services, or provision, follow-up, and quality review of genetic services
- 3.3 Promote informed decision making for patients, and when indicated, provide nondirective genetic counseling, appreciating the history of misuse of human genetic information
- 3.4 Examine their competence of practice on a regular basis, identifying areas of strength and areas where professional development related to genetics and genomics would be beneficial
- 3.5 Be aware of the sensitivity of genetic information and the need to maintain privacy and confidentiality
- 3.6 Consider the influence of ethnicity, culture, related health beliefs, economics, and health literacy in the patient’s ability to use genetic information and services
- 3.7 Appreciate the ethical, legal and social issues related to genetic testing and recording of genetic information (eg, privacy, duty to warn, awareness of state and federal regulations regarding protection from genetic discrimination)