



Accreditation Review Commission on Education  
for the Physician Assistant, Inc.



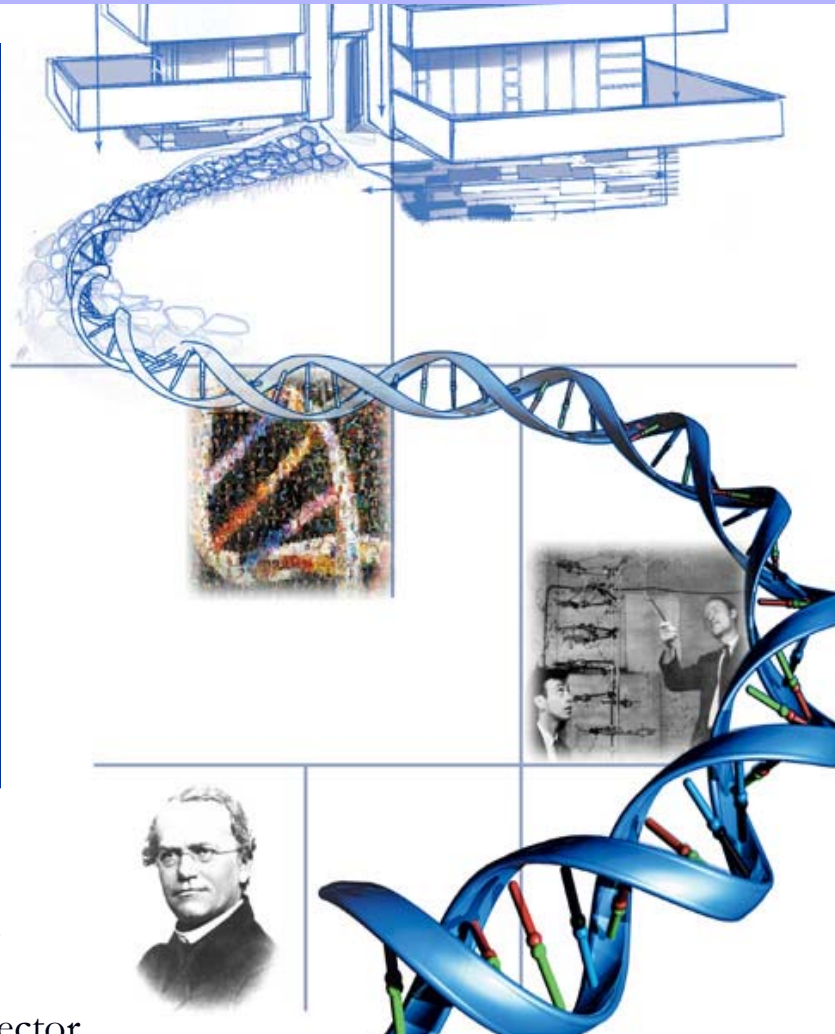
National Commission on Certification  
of Physician Assistants



Scholars. Leaders. Partners.

# House of Lords Inquiry on Genomic Medicine

Overview of  
the Physician  
Assistant  
Profession  
and Medical  
Genetics  
Education



Michael A. Rackover PA-C, M.S.  
Philadelphia University  
Physician Assistant Program Director

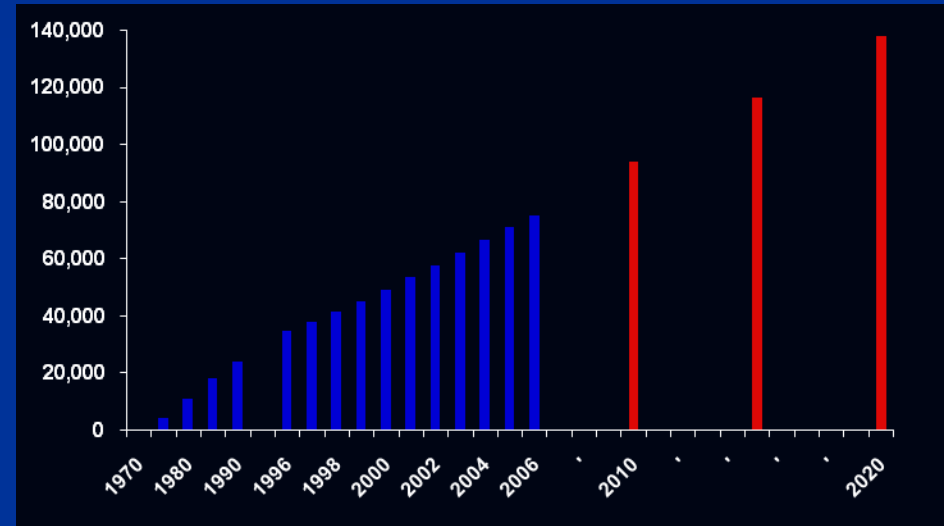
# American Academy of Physician Assistants

## Summary of 2007 PA Demographics

- 79,706 eligible to practice as of 3/24/2008
  - 68,124 in clinical practice

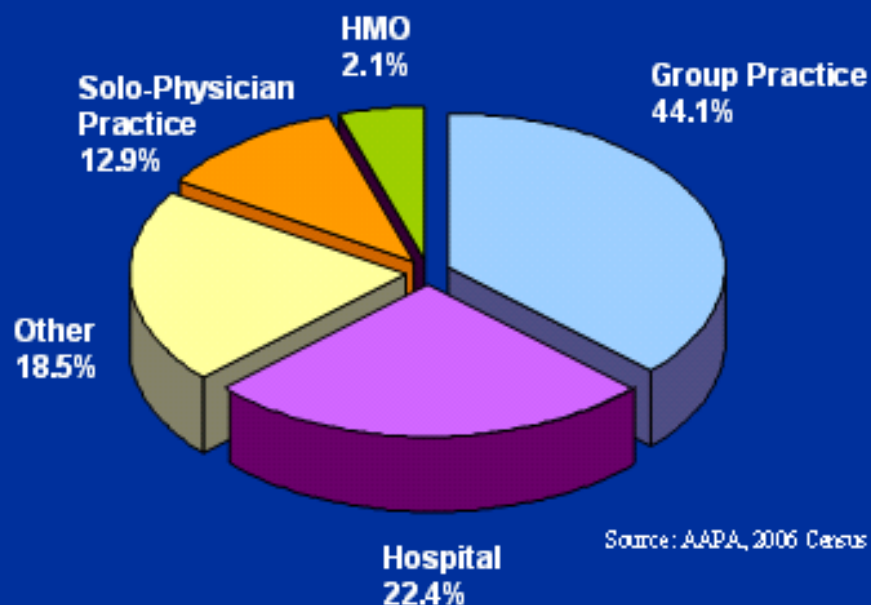


## Number of People Eligible to Practice as PAs



# Patient Care Integration Throughout the United States

## PA Employers

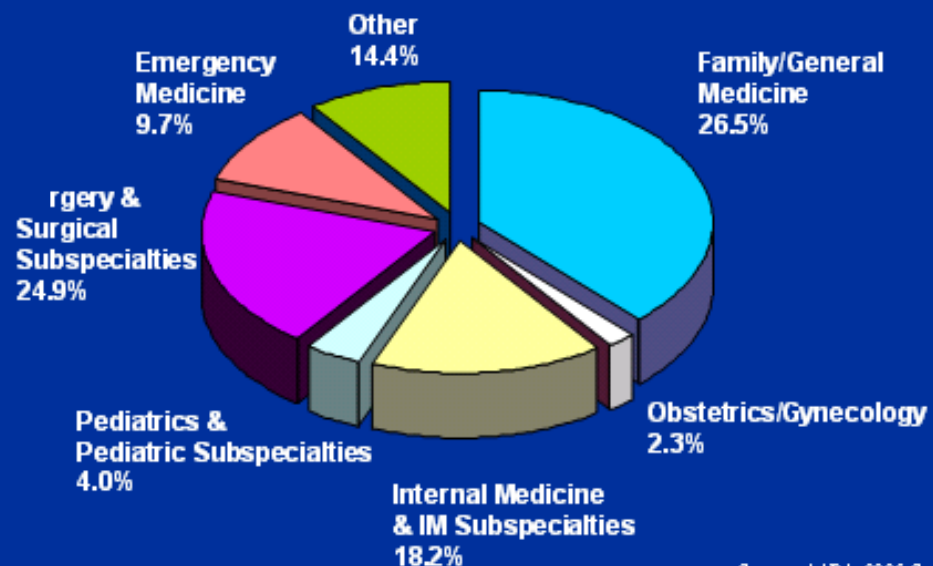


## Types of Patient Visits to PAs

- 84% of PAs see outpatients
  - 56% see outpatients exclusively
- 52% of PAs see inpatients
  - 32% see inpatients exclusively
- 1% of PAs see patients in nursing homes

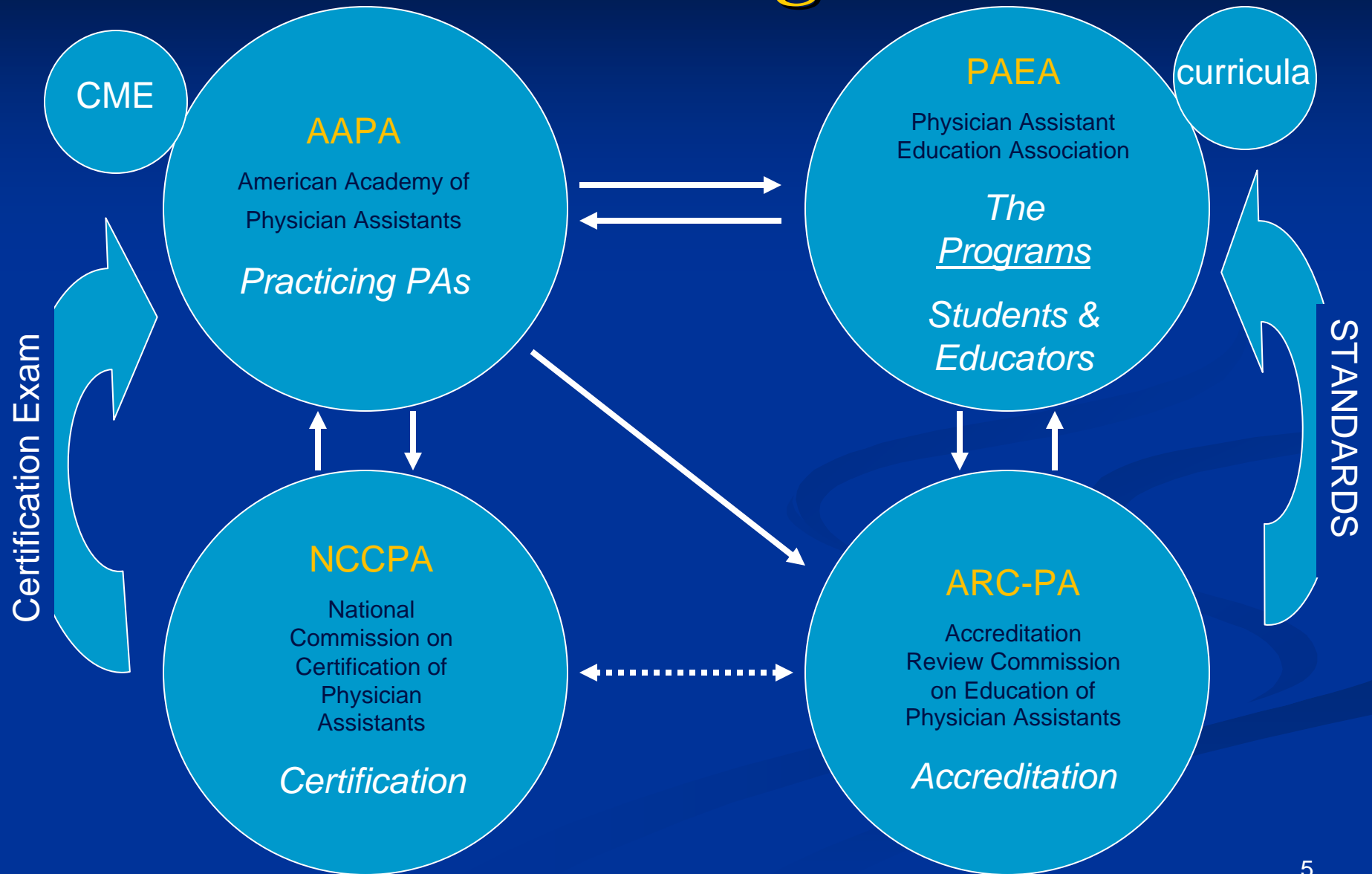
Source: AAPA, 2006 Census

## PAs by Specialty

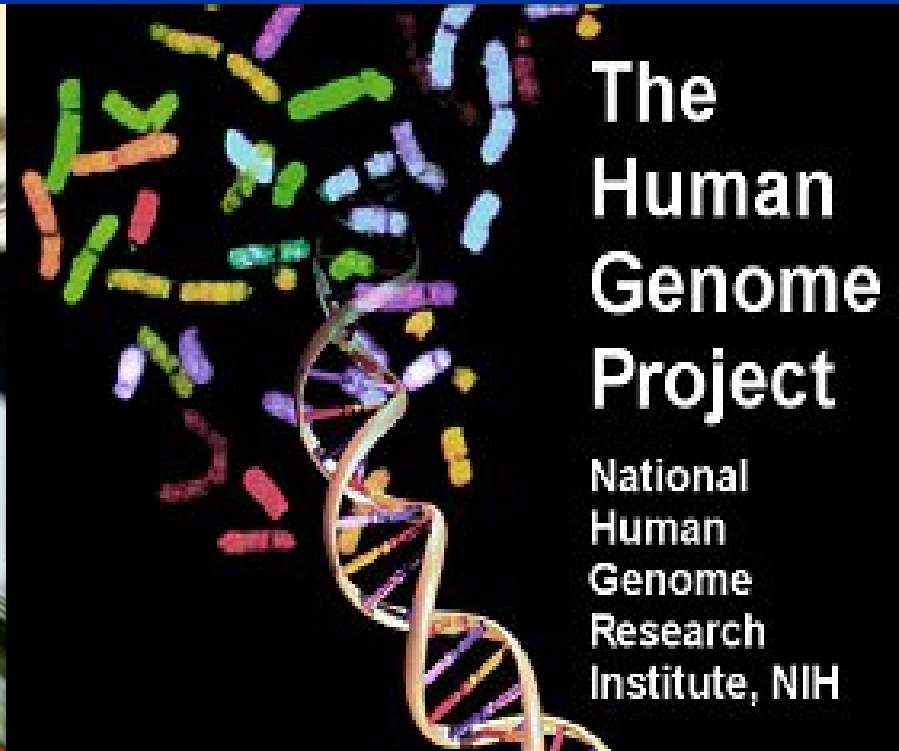




# The Four PA Organizations



# Integration of Genomics into PA Education & Clinical Practice





# Step 1

## Human Genetics Curricula for the Health Professions Conference November 3-5, 2000

- 12-member team from a variety of health professions
  - Evaluation of curriculum



- American Speech-Language Hearing Association
- American Dietetics Association
- American Physical Therapy Association
- American Dietetics Association-Alliance Program
- National Accrediting Agency for Clinical Laboratory Sciences
- American Occupational Therapy Association
- American Society of Radiologic Technologists
- Association of Physician Assistant Programs (now -Physician Assistant Education Association)
- National Society of Allied Health
- Commission on Accreditation of Allied Health Education Programs-Respiratory Therapy
- American Board of Genetic Counseling

## STEP 2

### Evaluation

### Physician Assistant Programs

### Human Genetics Curricula

## Initial Genetics Survey October 2000

- 123 Accredited Programs
  - 44% response rate from 54 programs
- Report
  - 18.5% have a free standing genetics course in curriculum
  - In programs without a course
    - Average of 5 hours of genetics lecture interspersed throughout curriculum



# Human Genetics Curricula for the Health Professions Final Product for Each Profession

1. What level of human genetics knowledge should be included in the curriculum?
2. What are the core competencies that should be included in the curriculum across all health professions?
3. What are the ELSI implications that should be included ?
4. What are the important future research topics & implications that should be included?
5. What should be the process for including human genetics in the certification & licensure exams?

# Dynamics of Genomic Organization

- 10/19/01 “The Human Genome Project and Its Impact on Physician Assistant Education”
- 11/25/02 Educational Forum Lecture, “Medical Genetics for PA Educators Made Easier.”
- NCHPEG liaison AAPA
- 5/26/03 Medical Genomics for Physician Assistants, AAPA Annual Meeting, New Orleans
- 10/17/03 The Impact of the Human Genome Project – “Its Impact on PA Practice”, Pennsylvania Society of Physician Assistants 28th Annual Conference
- 11/05/04 APAP Integration of Medical Genetics into the PA Curriculum
- 5/12/05 American Holistic Medical Association, Philadelphia, PA, The Impact of the Human Genome Project on Holism and Family Health
- 11/04/05 APAP Educational Forum Lecture, Las Croabas, Puerto Rico, Panel Presentation- The New ARC-PA Standard for Genetics; What’s a Program to Do?
- Sabbatical NHGRI Fall 2006 & initiation of PA organization change



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# ARC-PA Standards

- The new Accreditation Standards for PA Education, in effect as of September 2006, include the following standard:
- B2.02. Instruction in the professional phase of the program must include instruction in the following basic medical sciences:

- **e) the genetic and molecular mechanisms of health and disease**

**STEP 3**



**NCHPEG**  
National Coalition  
for Health Professional  
Education in Genetics



PREPARING HEALTH PROFESSIONALS FOR THE GENOMICS REVOLUTION

## ABOUT NCHPEG

MISSION AND BACKGROUND

MEMBERSHIP

NCHPEG IN THE LITERATURE

CONTRACTS AND GRANTS

ANNUAL MEETING

DIVERSITY INITIATIVES

TECHNICAL ASSISTANCE

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## Genetics in the Physician Assistant's Practice

[available now >>](#)

### Are existing online resources adequate for non-geneticist health care providers?

NCHPEG is facilitating recruitment for a survey to determine the accuracy and efficiency of some online resources for answering clinical questions about genetic conditions. If you are a health care provider of any kind (not just physicians), not a geneticist or genetic counselor, and interested in participating, please click [here](#).

### [Download PowerPoint presentations from NCHPEG's 10th Annual Meeting](#)



## All Health Professionals

Select an option below



## *Genetics in the Practice of Speech-Language Pathology & Audiology*

[available now >>](#)

### NCHPEG News

### In Practice Newsletter

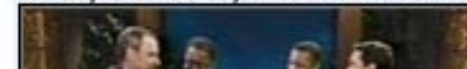


The In Practice Newsletter has been re-vamped! Take a look at the [newest issue](#).

[view all Newsletter](#)

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### Race, Genetics, and Healthcare





# AAPA NEWS

May 15, 2007

## NIH, Genomics Experts, PA Organizations Meet To Plan a Future for PAs in Genomics

*Physician Assistants Poised to Introduce Genomic Medicine in Their Practices*

By DOUG SCOTT

An historic conference in March between the leaders of four PA organizations, the National Institutes of Health (NIH), and leading experts in the field of genomics was the first step in planning a future where PAs can take a leadership role in introducing genomic medicine in their practices.

The goal of the two-day meeting, held at NIH headquarters in Bethesda, Maryland, was to develop an outline for how PAs could utilize current and anticipated knowledge of genetics and genomics as a basis for improving clinical care and making personalized medicine a regular part of patient care.

"What came out of this meeting was a remarkably detailed and ambitious agenda," said Francis Collins, M.D., director of the National Human Genome Research Institute (NHGRI).

education and everyday practice."

The conference provided a unique platform for the four PA organizations, NHGRI, the Office of the Surgeon General, NCHPEG, and other invited guests to be updated on the latest information in genetics and genomics, hold discussions in break-out groups, design a series of action items, build constructive partnerships, and design a framework for future meetings and cooperation between all the parties.

"What was remarkable about this conference, besides the way the organizations worked together, was that it produced real deliverables," said NHGRI Deputy Director Alan Guttmacher, M.D. "These centered around ways that PAs can use information when seeing patients in the office today or tomorrow — not some distant use of genomics. This



PHOTO COURTESY OF MAGGIE BARTLETT, NHGRI

Leaders of AAPA and other PA organizations joined representatives from the National Human Genome Research Institute, other genomics experts, and Acting U.S. Surgeon General Kenneth Moritsugu to define how PAs can best introduce genomics in patient care.

# **AAPA Annual Conference**

## **Continuing *Medical* Education**

### ■ **CME 2007 Annual Conference Philadelphia**

- **Headlines and Heredity**
- **Tailoring Anticoagulation Therapy**
- **Cancer Genetics and Genomics: Implications for PA Practice**
- **Race-based Therapeutics? What's the Big Deal?**
- **Personalized Medicine: Integration of Medical Genetics into Clinical Practice**

### ■ **CME 2008 Annual Conference San Antonio**

- **Ethical Challenges of Individual Genome Sequences and Personalized Medicine**
- **Daily Dose of DNA: The Importance of Family History**
- **Genetics and Major Psychiatric Disorders**
- **Race, Genetics, and Health Care**
- **Genetics of Common Disease**
- **Hereditary Breast & Ovarian Cancer**



# AAPA NEWS

August 30, 2007

## Personalized Medicine: the Right Prescription for Your Patient

*Second in an occasional series on genomics and genetic medicine.*

By Doug Scott

One of the most confusing things about the term "personalized medicine" is that most PAs will tell you that is what they are doing right now. PAs are listening to a patient's responses while they are writing prescriptions or treatment plans. To sug-

explained Mark Williams, M.D., director of the Intermountain Healthcare Clinical Genetics Institute in Salt Lake City, Utah, where he runs a clinic for evaluating adults with mental retardation, birth defects, and genetic disorders.

"Let's say you have a patient who has diabetes or hypertension or depression. There are a whole bunch of medicines that you could choose to treat them with, but you're going to start with this particular medication and there are many different reasons why it is chosen. It might be the one

the National Office of Public Health Genomics at the Centers for Disease Control and Prevention, said that finding the answer lies in professional health care providers ensuring the laboratory quality of genetic testing, the appropriateness of utility of genetic information in preventing disease and improving health, and the training of a workforce to meet those growing demands.

"Premature or inappropriate use of tests can lead to misdiagnosis, ineffective and confusing interventions, and a host of ethical, legal, and social



Muin J. Khoury, M.D.

# THE JOURNAL OF Physician Assistant Education

THE OFFICIAL JOURNAL OF THE PHYSICIAN ASSISTANT EDUCATION ASSOCIATION

## RESEARCH ARTICLES

2007 Volume 18 Number 2

- 7 **Evaluation of Student Confidence in Utilizing EBM Skills Following Completion of an EBM Curriculum**  
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## SPECIAL ARTICLES

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Harold L. Kleinert, EdD; Steve B. Fisher, MHA, PA-C; Carla L. Sanders, MS, RN; Sara Boyd, MS

## ABSTRACTS & BRIEF REPORTS

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- 47 **Establishing Essential Physician Assistant Clinical Competencies: Guidelines for Genetics and Genomics**  
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- 49 **Service Learning as a Component of Physician Assistant Education**  
Debra Knight, MS, PA-C; Sharon Moser, MS, PA-C, LLP; Carla Groh, PhD, RN



## Establishing Essential Physician Assistant Clinical Competencies Guidelines for Genetics and Genomics

Michael Rackover, PA-C, MS, Philadelphia University; Constance Goldgar, PA-C, MS, University of Utah; Chantelle Wolpert, PA-C, MBA, CGC, University of North Carolina; Kristine Healy, PA-C, MPH; Midwestern University; Jennie Feiger, MS, MA, CGC, Red Rocks Community College; Jean Jenkins, PhD, RN, FAAN, National Human Genome Research Institute

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 advance-

## BRIEF REPORT

### 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 policy issues that continue to draw social discourse. 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

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## Current Status of Genetics Education And Needs Assessment of Physician Assistant Programs: A Nationwide Survey

Constance Goldgar MS, PA-C; Michael Rackover, MS, PA-C

**Purpose:** The explosion of genetic information resulting from the Human Genome Project and related advances has major implications for health care providers, including PAs. In order to assess the current state of genetics education in PA programs and the needs of PA program faculty related to teaching genetics and developing curricula, the authors and the Association undertook a survey of PA programs. **Methods:** A Web-based survey containing 18 multiple-check, Likert scale, and open-ended questions was sent to the directors of the 134 accredited PA programs in February of 2007. **Results:** 100 programs responded, for a 75% response rate. Eighty-one percent of responding programs expressed the need to enhance the quality and extent of genetic and molecular medicine in their curricula, and 62% planned to make changes in the near future. Genetics is delivered with an assortment of curriculum models and taught with a rich variety of methods. It was surprising to find some salient concepts not being taught in 12-16% of programs: eg, molecular biology, Mendelian and non-Mendelian inheritance, pedigree structure, and genetic diagnostic testing. Pharmacogenomics is taught in only a quarter of programs. PA program core faculty play a major role in teaching genetics. PA program respondents indicated the following to be particularly helpful for genetics curriculum development: (1) centrally developed resources, (2) genetic case studies, and (3) up-to-date valid resources on the Web for educators and students. **Conclusions:** PA programs clearly see the importance of genetics in PA education, but have expressed the need for more resources to further develop their curricula. It is hoped that this survey will provide baseline data that will aid in the development of competencies and curricular components in the future.





# Status of Genetics Curricula in PA Programs Nationwide 1/2007

- PAEA Survey 75% response rate
  - (100 of 134 programs responded)
- To determine how genetics is taught in PA programs nationwide
- To determine what genetics content is covered and what gaps exist
- To assess faculty needs for supporting a genetics curriculum



# Potential Education Barriers

	Very significant	Quite significant	Not very significant	Not at all significant
a. Structure of existing curriculum	20	40	38	11
b. Curriculum already overloaded	40	40	13	7
c. Genetics not seen as a priority by colleagues	9	19	40	32
d. Lack of resources to champion changes & developments	6	27	47	20
e. Lack of faculty with sufficient genetics experience or knowledge	14	26	36	14
f. Lack of time to develop resources	20	41	29	10



## Looking to the future

- 81 % of programs perceived a need to enhance their genetics curricula.
- 62 % plan to change their approach to teaching genetics in the near future.





# Opportunities

- Position PA educators as leaders in teaching of genetics in medical education
  - Monitor and report innovations in genetics education
  - Develop curriculum resources and best practices
  - Create faculty development opportunities
  - Develop assessment tools for students and faculty
  - Develop a database to track genetics activities and outcomes in PA education



# National Commission on Certification of Physician Assistants (NCCCPA)

## ■ Activities regarding genetics/genomics

### 1. Exam Content

- beginning to code new items on the exam with a genetics code when applicable
- new item writer with experience in genomics will be added in 2008.

### 2. Promotion

- educate their Board about genetics

# Successful Integration of Genetics in Medicine

