Physician Assistants and Genomic Medicine: Update from AAPA

September 19, 2007

Bob McNellis

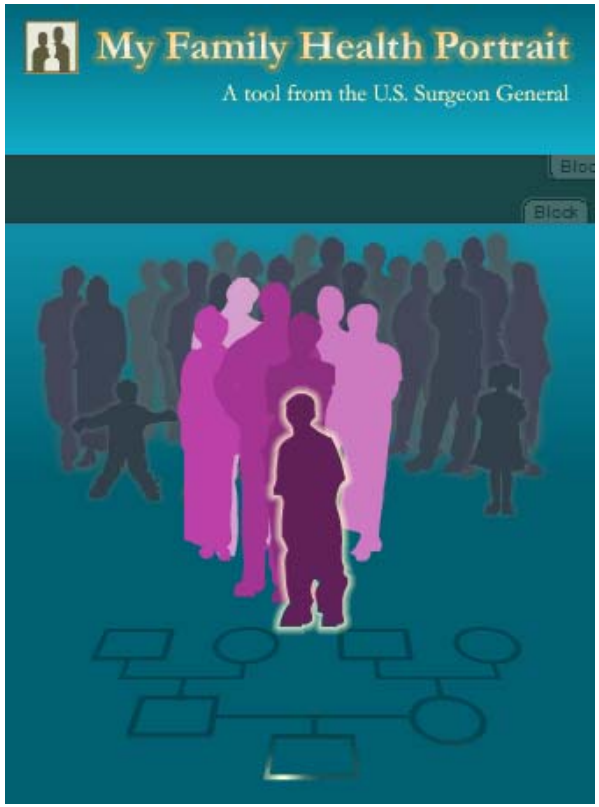
Director, Science and Education

Areas of activity

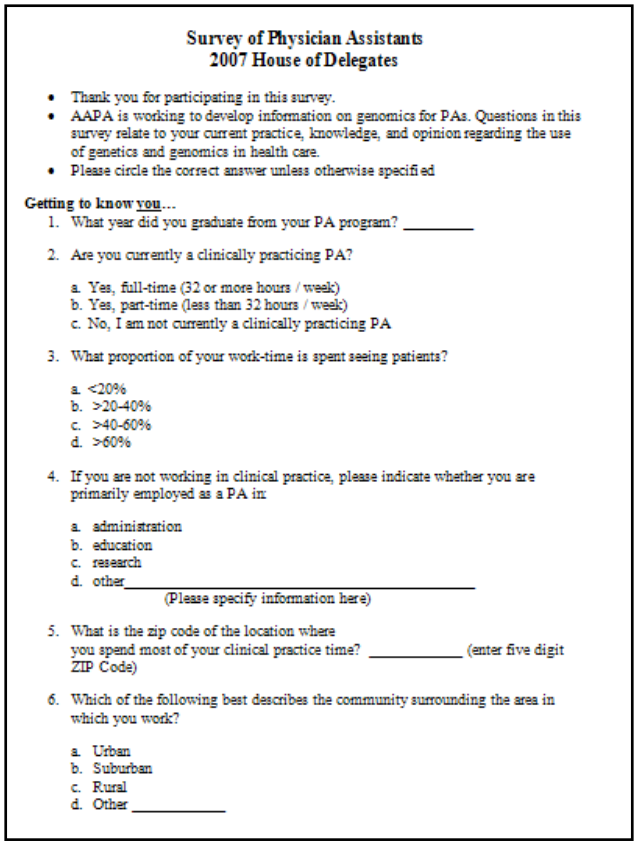
- 2007 Annual Conference
- AAPA News articles + JAAPA editorial
- Web page and post-tests
- Legislation, policy and partnership
- 2008 Annual Conference
- Other future activities
- Ponderings

2007 Annual Conference

Provided exhibit hall space for NCHPEG and the Office of the Surgeon General



A 19 question survey was distributed in AAPA's House of Delegates



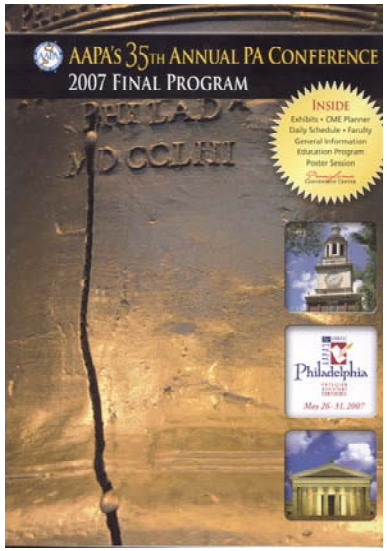
Survey of Physician Assistants
2007 House of Delegates

- Thank you for participating in this survey.
- AAPA is working to develop information on genomics for PAs. Questions in this survey relate to your current practice, knowledge, and opinion regarding the use of genetics and genomics in health care.
- Please circle the correct answer unless otherwise specified

Getting to know you…

1. What year did you graduate from your PA program? _____
2. Are you currently a clinically practicing PA?
   a. Yes, full-time (32 or more hours / week)
   b. Yes, part-time (less than 32 hours / week)
   c. No, I am not currently a clinically practicing PA
3. What proportion of your work-time is spent seeing patients?
   a. <20%
   b. >20-40%
   c. >40-60%
   d. >60%
4. If you are not working in clinical practice, please indicate whether you are primarily employed as a PA in:
   a. administration
   b. education
   c. research
   d. other_____
   (Please specify information here)
5. What is the zip code of the location where you spend most of your clinical practice time? _____ (enter five digit ZIP Code)
6. Which of the following best describes the community surrounding the area in which you work?
   a. Urban
   b. Suburban
   c. Rural
   d. Other _____

2007 Annual Conference Program



At least <u>eight</u> hours of continuing medical education included information on medical genetics

- Headlines and heredity
- Personalized medicine: Integration of medical genomics into clinical practice
- Gender differences in cardiovascular disease
- Sex and gender in the clinical encounter: The importance of considering both
- Ovarian cancer early detection, treatment and support: Issues for PAs
- Cancer genetics and genomics: Implications for PA practice
- Using new modalities to improve outcomes in macular degeneration
- Race-based therapeutics? What's the BiDil (Big Deal)?

Conference Daily

PAs Can Explore New World of Personalized Medicine

By Doug Scott

There is a growing misconception in the medical community that to integrate genomics and genetic medicine into a clinical practice, a clinician needs to be highly educated and trained in this field. Some providers also believe that genomics and genetic medicine are not applicable to their clinical practice.

But this is not true, according to PA Michael "Rocky" Rackover, who recently completed a four-month sabbatical at the National Human Genome Research Institute (NHGRI), where he worked alongside two world-renowned experts in the field of genetic medicine: Francis Collins, M.D., director of the NHGRI, and Alan Guttmacher, M.D., deputy director.

"We are entering a time when the dream of personalized medicine will become a reality," said Rackover, who is program director and associate professor at the Philadelphia University PA Program. "Instead of treating patients in a one-size-fits-all fashion, a PA will be able to use information technology and medical genetics to provide a focused, individualized approach to health care.

"I have heard many PAs say that they fear using genomics and genetic medicine in their clinical practice because they do not have the education. But a common sense utilization of basic genomic indicators, such as taking an informative, three-generation family history; recognizing patterns in family history; using available resources; and knowing when, where, and how to refer to a geneticist or genetic counselor, will allow PAs to treat their patients more individually and effectively."

Using this information, he said, will help patients become more informed, personal, preventive medicine stakeholders in their own health.

In a CME session called Personalized Medicine: Integration of Medical Genetics into Clinical Practice, Rackover and PA Connie Goldgar will explain through common case studies that by using what they term "personalized medicine," a PA can integrate genomic interventions that are targeted to individuals based on their risk to provide a more coherent and focused approach to the patient's care.

The presentation is scheduled for tomorrow at 8:00 a.m. in the Pennsylvania Convention Center Room 111.

Rackover and Goldgar describe personalized medicine as preventive care, diagnostic care, and therapeutic interventions. First, a

Michael Rackover

Connie Goldgar

Click to zoom out

ersal principles of understanding human risk factors are defined through family history or, eventually, their genetic make-up. Then strategies for prevention, detection, and treatment of disease can be tailored to that individual.

Goldgar, associate director of the University of Utah PA Program, explained that the two


Arcadia


National Medical
Challenge Bowl


ASSISTANT
CONFERENCE
20

AAPA News articles

January 30, 2007

PA Helps Take Profession into Next Age of Medicine

By DOUG SCOTT

When medical historians look back at the beginning of the 21st Century, they will surely conclude that it was the end of the age of antibiotics, imaging, and anesthesia, and the beginning of the age of genomic medicine.

Francis Collins, M.D., director of the National Human Genome Research Project (NHGRP), who is noted for his landmark discoveries of disease genes and visionary leadership in the development of the Human Genome Project, recently told *AAPA News* that genomics is going to change the way clinicians practice medicine.

Whether regarding a patient's risk of breast cancer or heart disease, Collins said, the most important thing a PA can do to incorporate genetic thinking into his or her daily practice is to recognize that all diseases have hereditary contributions. Today, he said, the best method is to take a good family history that will help predict the patient's risk of disease. In the future, however, the patient history will be augmented by specific genetic testing.

Michael "Rocky" Rackover recently spent four months as a visiting scholar at the National Human Genome Research Institute in Bethesda, Maryland.

Genetic Tools Will Help Providers, Educators — page 6

"I think it's great that PAs are really out in front in recognizing the relevance of genomic medicine," said Collins, speaking from his office at the National Institutes of Health (NIH) in Bethesda, Maryland.

"We are well aware that unless the new knowledge, tools, and approaches that have come from the Human Genome Project are integrated into clinical practice, the project's huge potential to improve health will have been merely a false promise. Rocky [Rackover] has been particularly helpful to us in thinking about

See NEXT AGE on page 6

January 30, 2007

New Web-based Tool Designed to Help Providers, Educators Teach Genetic Medicine

By DOUG SCOTT

A Web site launched last fall now provides PA and medical educators with concepts and skills, teaching cases, background information, implications, and links to other resources about genetics in a primary care setting.

The new resource, Genetic Tools, sponsored by the Maternal and Child Health Bureau of the Health Resources and Services Administration (HRSA) and developed by the University of Washington School of Medicine, offers principles of genetic medicine that will help health care providers and educators do a better job of teaching their students.

"If PAs want to do a better job of diagnosing, preventing, and treating most of the common medical conditions that fill our clinics and hospitals, it is essential to have a general grasp of genetic principles, and it will become even more essential in the coming years," said Francis Collins, director of the National Human Genome Research Institute.

As a measure of its importance to PA education, the Accreditation Review Commission on Education for the Physician Assistant last September included genetics and molecular mechanisms of health and diseases in the core curriculum of PA education.

"The target of our tool is to assist primary care practitioners and faculty and to put genetics into their curriculum," explained Wylie Burke, M.D., project director of Genetic Tools and professor and chair of the Department of Medical History and Ethics at the University of Washington School of Medicine.

Burke said that, in developing the Web site, she found that many medical and PA programs had limited genetics content. She said that faculty need to know or refresh their knowledge of genetics and they need to recognize teachable moments in genetics. Educators, she said, have the perception that genetics is only associated with rare, single-gene disorders.

"The amount of genetics training in medical and PA school curriculum is going up," Burke noted, "but most clinicians in primary care practice today have received very little formal genetics training and some almost [none]. We know genetics issues do come up when [clinicians] see patients, but too many health care providers are not comfortable taking a three-generation family history or [lack] the time to interpret the findings or [don't know] whom to call for help.

"What we hope to do with Genetic Tools is to change the way clinicians think about genetics in their primary care practice and, to do that, we need to start training the next generation of medical and PA students."

The Genetic Tools site contains four major categories. The first, Genetic Concepts and Skills, provides health care providers, educators, and students with general background information to "think genetically," she said. It includes understanding modes of inheritance, taking a family history, using genetic tests, the rationale for genetic test screening, and using evidence-based medicine in genetics.

The essence of the Web site can be found in the Teaching Cases category, which includes 41 cases, ranging from Alzheimer's disease to Thrombophilia, illustrating how genetic conditions and questions arise in a primary care setting. Burke said that each of the 41 cases provides learning objectives; identifies family history; and reviews clinical care issues, risk assessment, and testing, including relevant ethical, social, legal, and cultural issues. Links to other relevant Web sites are provided.

"When we came to developing the cases for this Web site, we came to the realization that every case should be structured in a predictable way and hit each of the main areas of content that our educators are looking for," said Burke, who was assisted by 36 team members and project officers who are recognized as experts in primary care and genetics.

A separate category dealing with implications of genetic diagnosis, entitled Ethical, Legal, Social, and Cultural Issues, provides helpful information on such topics as unwanted genetic information, potential for genetic discrimination, informed consent, prenatal testing and pregnancy termination, confidentiality and privacy issues, and race and ethnicity issues.

The fourth category, Other Resources, gives educators and students links to professionally reviewed on-line resources, such as *GeneReviews*, at-a-glance snapshots that provide single-page summaries of topics and conditions most commonly taught in primary care, approaches to clinical teaching, and faculty resources.

"What a lot of educators have not realized is that the genetics train has already left the station and if they don't jump on board now, when it really speeds up, it is going to be hard to catch up," said Collins.

Before releasing Genetic Tools in September, it was tested by the Brody School of Medicine at East Carolina University, New York Medical College, University of Washington Family Medicine Network, and Baylor College of Medicine. There is a feedback section on the Web site for faculty and students to use, and Burke said that all the responses have been positive.

Genetic Tools can be found on the Gene Test Web site at *www.genetests.org* by clicking on Visit Genetic Tools in the lower-right-hand corner or by going directly to *www.genetests.org/servlet/access?id=INSERTID&key=INSERTKEY&fcn=y&filename=/tools/index.html*.

"Every one of the 41 cases are dated, so ideally we would like to have an editor review each case on a rolling, two-year schedule," said Burke. "Obviously, in addition to new cases, there are plenty of opportunities to develop additional curriculum guides."

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. "It was created by this group in a fashion that showed remarkable collaborative capabilities to push the agenda of genomic medicine with physician assistants as change agents in a way that I did not think possible before this meeting."

The conference, entitled Physician As-

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.

May 30, 2007

Genetics Web Tool for PAs to Be Unveiled at Annual Conference

By Doug Scott

At the National Institutes of Health's National Human Genome Research Institute's (NHGRI) recent meeting on Physician Assistant Competencies for Genomic Medicine: Where We Are Today and How to Prepare for the Future, NHGRI Director Frances Collins, M.D., asked, "What is it that PAs need to know in terms of implementing genetics and genomics in their daily practice?"

One approach to answering that question is the development of the first-ever Web-based program written for and by PAs that is devoted to the role of genetics and genomics in primary care. The program, Genetics in a Physician Assistant's Practice, was developed through a $20,000 grant that AAPA received last year from the National Coalition for Health Professional Education in Genetics (NCHPEG).

Practicing PAs, PA students, and PA educators can all use the program. Through examples of common primary care cases, users can explore genetic and genomic skills and concepts, learn to perform risk assessments, gain an understanding of genetic counseling and testing, hear about new treatment options, and receive links to valuable genetic resources. Organized like a typical medical office, the site walks the user through a case from chief complaint to management plan, including data collection, physical examination, laboratory findings,

Organized like a typical medical office, the new Web-based site — Genetics in a Physician Assistant's Practice — walks PAs through a case from chief complaint to management plan, including data collection, physical examination, laboratory findings, and consultations.

opportunity to earn CME credit.

The site aims to provide PAs with the knowledge to collect basic but informative family history, identify patients and families who may benefit from genetic services, locate and refer patients to genetics professionals, and consult and collaborate with genetics professionals in patient management.

"What we tried to do," explained PA Connie Goldgar, principal investigator and lead author, "was aim this at a level of PA utility. We wanted to give just enough underpinnings of genetic information that makes it understandable to what a PA does in their practice."

site, PAs can enhance their family history-taking skills. Users can listen to or read a simulated conversation between a PA and a patient; a consultation between a PA, genetic counselor, and supervising physician; or a review of laboratory tests with the patient.

The group that produced this resource did "a good job of identifying [genomic] cases that PAs are going to relate to, and I am optimistic that this site is going to work well," said Joe McInerney, executive director of NCHPEG, who has helped design similar genomic sites for other health professions. "I really like the look and feel of it now, and I believe that it is a little more engaging and easily navigable than some of the other sites that we have done."

"We wanted this to be user-friendly and practical for the PA," Goldgar said. Users can collect a patient's history, with a focus on the family history. Red flags may indicate a potential genetic condition, then a differential diagnosis is formulated and narrowed with information from the physical exam and the laboratory — just as PAs do in everyday clinical problem solving. The PA needs to know what steps must occur next in the management of these common health conditions with a genetic element.

The site will be unveiled at AAPA's 35th Annual PA Conference in Philadelphia at the NCHPEG booth in the Exhibit Hall. PAs who visit the booth will be able to navigate the program with the assistance of the PA designers of the project. McInerney expects the site to be fully operational this summer, when it will be available at *www.nchpeg.org* or *http://pa.nchpeg.org*.

"This is a really important first step for PAs in learning genomics and genetics," said McInerney. "We now have this wonderful educational material, which should have extraordinary content validity. AAPA leadership and the PA community have really done a tremendous amount of work in bringing genetics to their constituents, and PAs should be very proud of that."

The primary authors of the project are Goldgar, associate director of the University of Utah PA Program; Chantelle Wolpert, PA and genetic counselor at Medical Genetics at Duke University; Kristine Healy, PA and assistant professor at Midwestern University PA Program; Karen Clark, PA and genetic counselor, Midwestern University PA Program; and Erin Harvey, NCHPEG project manager.

"This has been a lot of fun, a huge learning experience, and a lot of work," said Goldgar. "But the bottom line is that we hope that we have a product that gets PAs to say, 'This is information that I need to know now, and it is going to positively impact the care of my patients.' "

July 30, 2007

GINA Bill to Play Major Role in Advancing Genomics And Genetic Medicine to Patients

First in an occasional series on genomics and genetic medicine

BY DOUG SCOTT

In 1997 Sen. Olympia Snowe (R-Maine) received a letter from Bonnie Lee Tucker, a Maine resident, who feared that her daughter would have to take a BRAC Analysis genetic test for breast cancer. Having nine members of her immediate family diagnosed with breast cancer, and a survivor herself, Tucker feared for her daughter's future. She knew that genetic testing was available, but was afraid that the results would lead to discrimination affecting her daughter's insurance coverage and future employment.

In each of the past six Congresses, Snowe has introduced a version of the Genetic Information Nondiscrimination Act (GINA), which is aimed at assuring that patients and their families who participate in genetic research, testing, and therapies will not suffer from discrimination. The bill twice has passed unanimously in the Senate, but failed in the House of Representatives.

On April 25, GINA finally was passed by the House, 420-3. Key provisions call for federal standards that support the extension of medical privacy and confidentiality rules to genetic information, make it unlawful to discriminate against an employee or deprive an individual of employment opportunities because of genetic information, and prohibit the collection and distribution of genetic information.

"GINA will make discriminatory practices illegal by prohibiting health insurers from denying coverage or charging higher premiums to a healthy individual because of a genetic predisposition to develop a disease in the future," Rep. Louise Slaughter (D-N.Y.), who sponsored the legislation in the House, told *AAPA News*.

"It also bars employers from using genetic testing information for hiring, firing, job placement, or promotional decision. Simply put, GINA will stamp out a new form of discrimination."

Support from the PA Community

AAPA has supported the GINA bill and the advancement of genomics and genetic medicine. In March, AAPA joined the National Commission on Certification of Physician Assistants (NCCPA), the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA), and the Physician Assistant Education Association (PAEA) for an historic meeting organized and supported by the National Human Genome Research Institute (NHGRI) that was entitled Physician Assistant Competencies for Genomic Medicine: Where We Are Today and How to Prepare for the Future (*AAPA News*, May 15).With new developments making genetics increasingly important to the practice of health care, the meeting concluded that PAs are poised to be a vital part of the health care team in integrating existing genomic tools, such as family history, into practice.

"We all benefit through the advancement of medical science," said AAPA Immediate Past President Mary Ettari, "and the GINA bill provides the necessary protections for patients to embrace the science of genetics."

Patients are going to need access to genetic tests after the bill passes, and PAs are in a position to spend more time with patients to be able to deliver the kind of information that patients are going to need, said Sharon Terry, president and CEO of Genetic Alliance, a coalition of more than 600 advocacy organizations that has lobbied for passage of GINA for the past 12 years.

"If we look at how genomics and genetics are going to be integrated into medicine, one of the first lines of defense will be the collection of a good family history and the second is the genetic test, which will do everything from diagnosing somebody to helping to determine what testing," added Susannah Baruch, director, Reproductive Genetics, Genetics and Public Policy Center at the Johns Hopkins University.

"We have seen and heard reports of people's reluctance to undergo genetic tests because they fear that whatever privacy they are promised without a law in place [will come] back to bite them."

A 2007 study done by the Genetics and Policy Center found that 86 percent of participants expressed some or a lot of trust in their clinician's having access to their genetic test. Only 24 percent and 16 percent expressed such trust regarding their insurer and employer, respectively.

"I assume that a lot of PAs have seen or will start to see patients where this is a question in their mind," said Baruch, "and [passage of] this bill will help PAs to reassure their patients."

Chances of Becoming Law

The White House said in a statement to *AAPA News*: "The administration favors enactment of legislation to prohibit the improper use of genetic testing information in health insurance and employment and supports House passage of H.R. 493."
A White House spokesperson said that once GINA is passed by the Senate, the president will sign the bill that both houses adopt.

Easy passage is expected again in

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 suggest otherwise would imply that PAs do not understand their patient's health care needs.

Yet learning and embracing the concept of personalized medicine is the first step to incorporating or *translating* genomic and genetic medicine into a PA's practice.

"Personalized health care encompasses prevention, diagnosis, and therapy, with a patient's risk for disease defined through genetics as well as through a family history," said Michael Rackover, program director and associate professor at the Philadelphia University PA Program who recently completed a sabbatical at the National Human Genome Research Institute (NHGRI).

"Most providers still assume that genetics and genomic medicine are not applicable to their current practice. Yet, an understanding of what can be learned about personalized medicine now and throughout their clinical careers will help PAs use genetic information to diagnose common disease sooner when treatment is more successful and to identify how disease can be managed more effectively."

Instead of treating patients in a one-size-fits-all fashion, Rackover said that PAs using personalized medicine will be able to use information technology and genomics to provide a more focused, individualized approach to health care.

"What we as clinicians tend to be dependent on is sort of what you might call therapeutic trials," 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.

> *"... We have these new tools for new gene discoveries, and this year alone, there have been some major discoveries in genes for a lot of common diseases ... The real question for all medical practitioners is: What do you do with [genetic] information? The next step for us is what we call 'translation.' The translation phase involves research, education, and developing tools and guidance for health care professionals like PAs.*
>
> — Muin J. Khoury, M.D.

Muin J. Khoury, M.D.

"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 that is least expensive, it might be the one that is on the insurance formula, or it might be the one that the PA has the most experience with. But all these decisions are, for the most part, made without necessarily taking into account specific patient characteristics.

"Personalized medicine in the genomic sense is this: We know that a lot of the many variations or differences in response to medication and other interventions are related to changes at a genomic level. And if somehow we were able to understand those differences, then maybe we might have more information with which to choose the right medication that would be more effective and have a lower risk for development of side effects. That is the promise of personalized medicine."

Now What?

In February 2001, the Human Genome Project published the initial analysis of the human genome sequence. Already, more than 12,000 human genes have been discovered in relation to many diseases, and more than 1,000 genetic tests are available. Scientists at NHGRI will learn the sequence of 50,000 human genes over the next few years.

The question that the health community is asking is: The human genome is mapped, now what? What impact do these discoveries have in the everyday practice of PAs treating their patients?

Muin J. Khoury, M.D., director of 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 issues," Khoury said. "Knowing 'now what' is a very tough question to answer, but we have these new tools for new gene discoveries, and this year alone, there have been some major discoveries in genes for a lot of common diseases like diabetes, cancer, heart disease, obesity, etc. The real question for all medical practitioners is: What do you do with [genetic] information? The next step for us is what we call 'translation.' "

The translation phase involves research, education, and developing tools and guidance for health care professionals like PAs.

"There are two areas of translation that PAs can be involved in," said Khoury. "One is the general education and literacy around genomics and potential applications. PAs need to be comfortable with the competencies of genomics so that they can apply and interpret it to themselves and their patients. The second thing they need is to be astute in providing the information around the utility of these new general applications."

This is where personalized medicine comes into play.

Grounded in Science

Based on DNA, things like eating habits, exposure to environmental factors, and types and amount of stress vary from person to person. Many of these variations play a vital role in health and disease. Variants found in genes could influence the risk of developing a certain disease as well as one's physical response to a disease. A combination of these variants across several genes can affect a patient's risk of developing a disease and can be one of the reasons that one drug works for one person and not for another.

The Personalized Medicine Coalition is an independent nonprofit organization that works to advance the understanding and adoption of personalized medicine into clinical practice. Edward Abrahams, the coalition's executive director, said the goals of personalized medicine are "to better manage a patient's disease or predisposition toward a disease, and to achieve optimal medical outcomes by helping clinicians and patients choose the disease management approaches likely to work best in the context of a patient's genetic and environmental profile."

The methods used may include genetic screening programs that more precisely diagnose diseases and their sub-types to help PAs select the type and dosage of medication best suited to a certain group of patients.

Abrahams said the integration of personalized medicine is going to change how a PA practices medicine by creating a greater reliance on genetic science, information management, and electronic health records, and a greater access to data than they ever had before.

"That should help make the medical decisions clearer and more scientifically grounded without minimizing the important role of judgment," said Abrahams.

National Office of
Public Health Genomics

Genomics & Health Weekly Update

This weekly update provides information about the impact of human genetic research on disease prevention & public health.

Get email updates

SPOTLIGHT

Family History in Pediatric Primary Care and Public Health

A new supplement published in Pediatrics summarizes the findings of a CDC-sponsored workgroup meeting on the use of family medical history information in pediatric primary care and public health.

- Access the supplement
- **CDC links on genetics, family history, and pediatrics**
  - Family history resources
  - Pediatric genetics

GENOMICS ANNOUNCEMENTS

New article published in the American Journal of Epidemiology on Turning the Pump Handle: Evolving Methods for Integrating the Evidence on Gene-Disease Association on September 5, 2007 (70KB)

Recent article published by AAPA News focuses on personalized medicine and the role of family history, genetics, and genomic applications in patient care. See quotes by Dr. Muin Khoury of CDC's National Office of Public Health Genomics and other experts. (576KB)

September public health genomics seminar presented by CDC
"How do we monitor the impact of genomics on population health?"
Sep 20, 2007, Rockville, MD (ENVISION – Atlanta, GA)

SECTIONS

UPCOMING EVENTS

First Annual NCI Meeting on Clinical Proteomic Technologies Initiative for Cancer

Association of State and Territorial Health Officials Annual Meeting

Eyes on the prize: Truth telling about genetic testing

LET'S GO SURFING

Eye on DNA - How's it going to change your life?

October 15, 2007 (in progress)

Slug:·Genomics·III¶
Words:·1,179¶
Reviewed·by:·Rackover,·Goldgar,·Wolpert¶
Technical·Review·by:·McNellis¶
¶
Caption:·N/A¶
¶
How·to·Become·a·Good·Genetic·Detective¶
¶
Third·in·an·occasional·series·on·genomics·and·genetic·medicine¶
By·Doug·Scott¶
In·1998·Katie·Couric,·anchor·of·the·CBS·Evening·News,·tragically·lost·her·husband,·Jay·Monahan·to·hereditary·colorectal·cancer.¶
Upon·the·opening·of·the·Jay·Monahan·Center·for·Gastrointestinal·Health,·a·comprehensive·cancer·and·wellness·center·at·NewYork-Presbyterian·Hospital/Weill·Cornell·Medical·Center·in·2004,·Couric·told·*USA·Today*,·"Jay·was·just·41·when·he·was·diagnosed·and·it·would·have·taken·a·very·astute·clinician·to·pick·up·on·it·being·colorectal·cancer·early·on.·He·was·pretty·much·asymptomatic;·you·can·be·feeling·perfectly·fine·—·on·top·of·the·world·physically·—·and·still·have·colorectal·cancer.·One·of·the·many·difficult·things·about·this·disease·is·you·often·have·no·symptoms.·You·may·not·have·blood·in·your·stool·or·have·lost·weight·or·your·bowels·habits·may·not·have·changed.·But·you·could·still·have·the·disease."¶
→ The·question·PAs·need·to·ask·is:·could·this·have·been·prevented?¶
→ According·to·*Risk·Assessment·for·Hereditary·Cancer·Syndromes,·A·Physician's·Guide·to·Clinical·Genetic·Testing·and·Medical·Management*,·a·report·released·by·the·American·Medical·Association·(AMA)·in·2006,·identifying·and·managing·patients·at·risk·for·hereditary·cancer·syndromes,·like·the·one·that·took·to·life·of·Jay·Monahan,·has·become·an·integral·part·of·clinical·medicine·today.·Clinicians·—·including·PAs·—·can·significantly·impact·the·future·health·of·their·patients·and·their·families·who·have·an·increased·cancer·risk·by·identifying,·educating,·counseling,·referring·to·genetic·

Journal of the American Academy of Physician Assistants
May 2007

EDITORIAL

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Embracing the new world of personalized medicine

We are entering a time when the dream of personalized medicine will become a reality. Instead of treating patients in a one-size-fits-all fashion, clinicians will use information technology and medical genetics to provide a focused, individualized approach to health care.

Personalized health care encompasses prevention, diagnosis, and therapy, with a patient's risk for disease defined through genetics as well as through clinical and family histories. Scientists have begun to understand diseases at the molecular level, allowing clinicians to see how those diseases manifest in individual patients and to tailor treatment more effectively. Genetic predisposition testing and pharmacogenetic testing will allow asthma treatment to be optimized, for example, or warfarin dosing to be better managed. In a personal communication, Alan Guttmacher, MD, Deputy Director of the National Human Genome Research Institute, told me that "genomics will irrevocably change how we practice medicine, enabling us for the first time to treat each patient truly as the individual person he or she is and thus dramatically [improve] the quality of health care."

Genomic medicine at present can be compared to the computer industry in the 1980s. As time passes, we will witness the transformation of genomic and proteomic science. These scientific advances, combined with progress in information technology, are giving new life to researchers, health care providers, and patients, forever changing the methods used for preventive, diagnostic, and therapeutic activities.[1]

Yet we are right to be cautious about this seemingly expansive future. Personalized health care is largely prevention-based, in contrast to the current delivery model, which services the acutely ill. Reimbursement will be problematic under the new model—and disparities in access to care and the need for universal health insurance still must be addressed. Also of concern is the use of genetic profiles to predict disease.

Racial and ethnic disparities in health are based on access to quality care, health risk behaviors, psychosocial factors, acculturation, biological/genetic factors, environmental and occupational exposures, and socioeconomic status. According to the National Coalition for Health Professional Education in Genetics Race, Genetics and Healthcare DVD, race may be mistakenly used to indicate ancestral origin. For example, a clinician may assume that a patient is African-American when, in reality, that person is Dominican. The two may have very different health care needs based on ancestral inheritance. When a patient's group identity might raise health issues, *ancestry* should replace *race* in discussions.

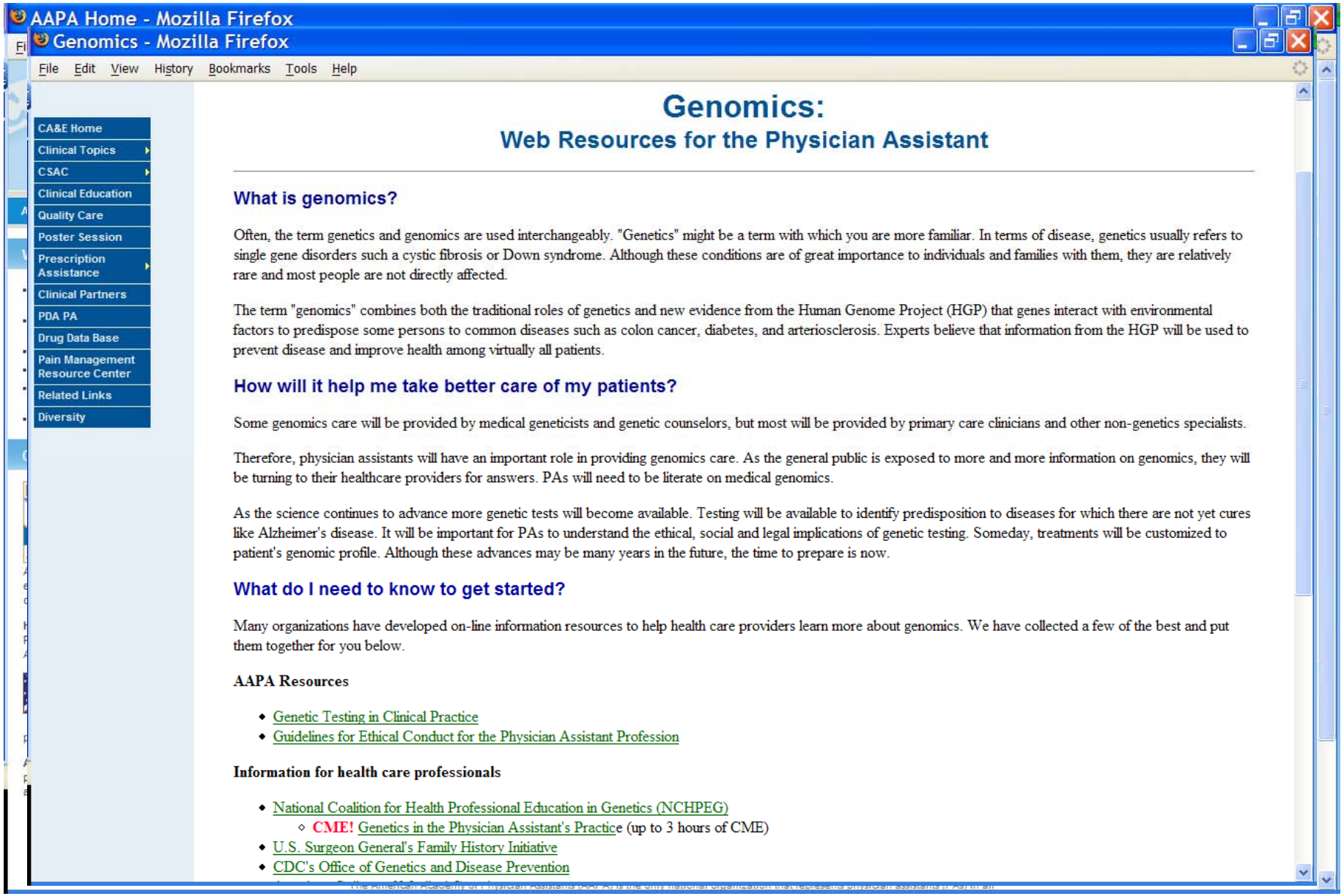
As predicted in the *Mayo Clinic Proceedings*, "the possibility of loss of confidentiality, issues of group stigmatization, and the difficult issue of genome predestination must all be addressed if humankind is to reap the full benefits of the potential of this exciting new science."[2] To protect an individual's personal information, Rep. Louise Slaughter (D-NY) introduced HR 493, the Genetic Information Nondiscrimination Act of 2007. This bill prohibits discrimination on the basis of genetic information with respect to health insurance and employment. Its passage would remove a potential barrier to the use of genetic testing and other genetic services.

The Personalized Medicine Coalition is an independent, nonprofit group that works to advance the understanding and adoption of personalized medicine for the ultimate benefit of patients. They have stated that "in considering whether personalized medicine has a viable future, a look into the past reveals that it has always been here in some form. But in its modern manifestation, which relies on molecular analysis and proactive care, personalized medicine will require an extensive system of support. This system will include new regulatory approaches, revamped medical education curricula, integrated health information systems, legislation to protect against genetic discrimination, insurance coverage for sophisticated molecular diagnostic tests, and a reimbursement system that encourages proactive care. Because of the many hurdles before it, some experts have questioned whether personalized medicine will become a dominant trend in healthcare, or just a passing phase."[3]

Most providers still assume that genetics and genomic medicine are not applicable to their current practice. Yet an understanding of what can be learned about personalized medicine now and throughout their clinical careers will help PAs to use genetic information to diagnose common diseases sooner, when treatment can be most successful, and to identify how diseases can be managed more effectively. For this process to be a success, however, we must commit ourselves to ongoing learning about how this new knowledge will help us take care of patients. JAAPA

REFERENCES

1. IBM Executive Brief. Personalized healthcare 2010: are you ready for information-based medicine? Available at: http://www-03.ibm.com/industries/healthcare/doc/content/resource/insight/992304105.html. Accessed April 10, 2007.
2. Weinshilboum RM. The genomic revolution and medicine. *Mayo Clin Proc.* 2002;77(8):745-746.
3. Personalized Medicine Coalition. The case for personalized medicine. November 2006. Available at: http://www.personalizedmedicinecoalition.org/communications/TheCaseforPersonalizedMedicine_11_03.pdf. Accessed April 10, 2007.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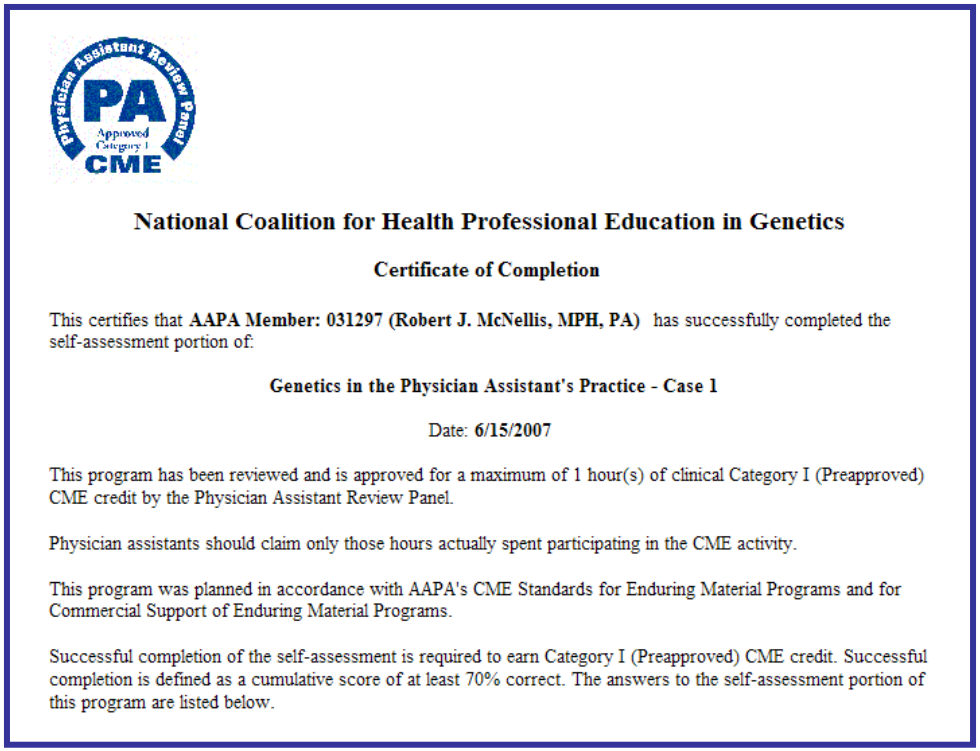
Related Links
Diversity
Genomics:
Web Resources for the Physician Assistant
What is genomics?
Often, the term genetics and genomics are used interchangeably. "Genetics" might be a term with which you are more familiar. In terms of disease, genetics usually refers to single gene disorders such a cystic fibrosis or Down syndrome. Although these conditions are of great importance to individuals and families with them, they are relatively rare and most people are not directly affected.
The term "genomics" combines both the traditional roles of genetics and new evidence from the Human Genome Project (HGP) that genes interact with environmental factors to predispose some persons to common diseases such as colon cancer, diabetes, and arteriosclerosis. Experts believe that information from the HGP will be used to prevent disease and improve health among virtually all patients.
How will it help me take better care of my patients?
Some genomics care will be provided by medical geneticists and genetic counselors, but most will be provided by primary care clinicians and other non-genetics specialists.
Therefore, physician assistants will have an important role in providing genomics care. As the general public is exposed to more and more information on genomics, they will be turning to their healthcare providers for answers. PAs will need to be literate on medical genomics.
As the science continues to advance more genetic tests will become available. Testing will be available to identify predisposition to diseases for which there are not yet cures like Alzheimer's disease. It will be important for PAs to understand the ethical, social and legal implications of genetic testing. Someday, treatments will be customized to patient's genomic profile. Although these advances may be many years in the future, the time to prepare is now.
What do I need to know to get started?
Many organizations have developed on-line information resources to help health care providers learn more about genomics. We have collected a few of the best and put them together for you below.
AAPA Resources
Genetic Testing in Clinical Practice
Guidelines for Ethical Conduct for the Physician Assistant Profession
Information for health care professionals
National Coalition for Health Professional Education in Genetics (NCHPEG)
CME! Genetics in the Physician Assistant's Practice (up to 3 hours of CME)
U.S. Surgeon General's Family History Initiative
CDC's Office of Genetics and Disease Prevention

NCHPEG's Web-based CME

- The post-tests for the CME program reside on AAPA's site
- As of September the number of post-test certificates awarded:
  - Case 1: 77
  - Case 2: 59
  - Case 3: 51



National Coalition for Health Professional Education in Genetics

Certificate of Completion

This certifies that **AAPA Member: 031297 (Robert J. McNellis, MPH, PA)** has successfully completed the self-assessment portion of:

Genetics in the Physician Assistant's Practice - Case 1

Date: **6/15/2007**

This program has been reviewed and is approved for a maximum of 1 hour(s) of clinical Category I (Preapproved) CME credit by the Physician Assistant Review Panel.

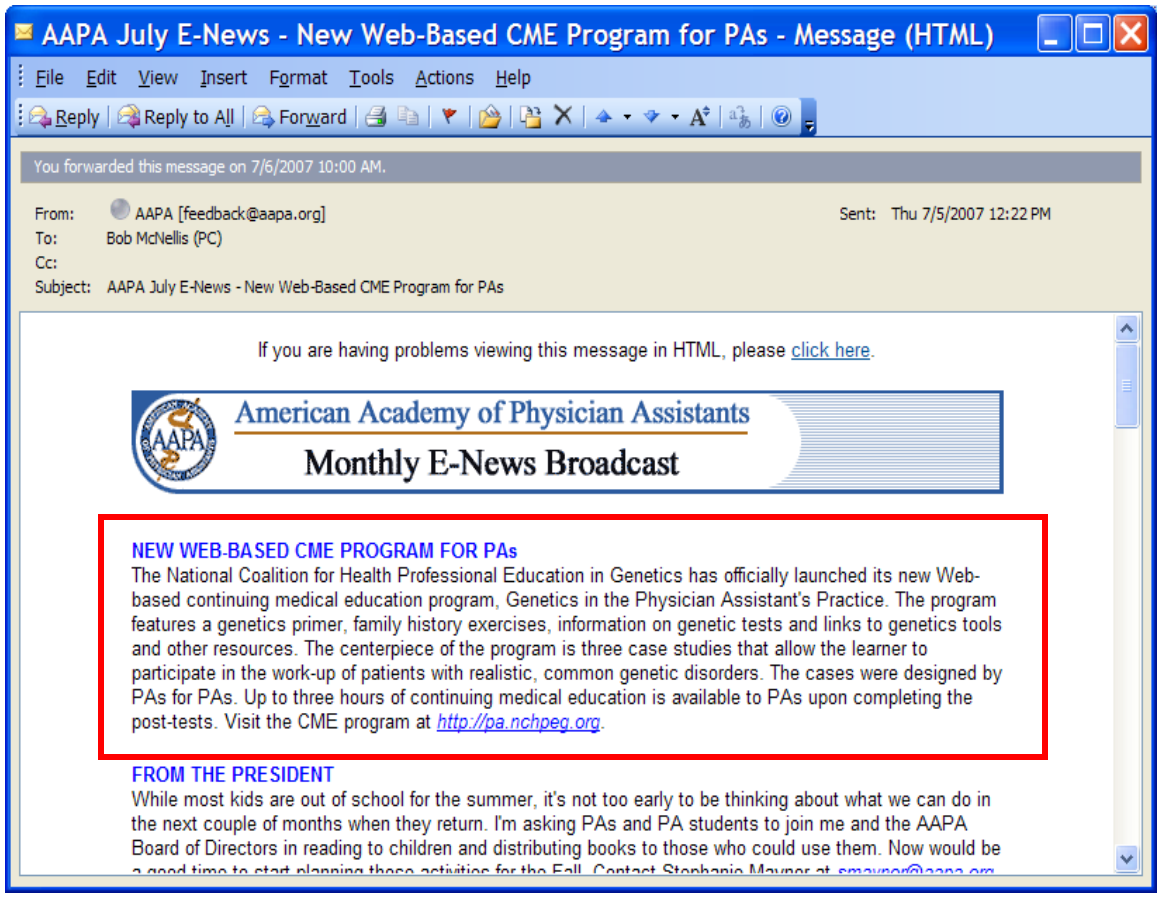
Physician assistants should claim only those hours actually spent participating in the CME activity.

This program was planned in accordance with AAPA's CME Standards for Enduring Material Programs and for Commercial Support of Enduring Material Programs.

Successful completion of the self-assessment is required to earn Category I (Preapproved) CME credit. Successful completion is defined as a cumulative score of at least 70% correct. The answers to the self-assessment portion of this program are listed below.

NCHPEG's Web-based CME

- Promoted in the e-News in July & August
- Delivered to over 20,000 addresses
- July:
  - 339 click thrus
  - (222 Annual Conference photos, 144 ACP diabetes care web page)
- August:
  - 68 click thrus
  - (346 NPI data, 93 PA legislation)



Legislation, policy, partnerships

- AAPA sent a letter to Congress urging support of the Genetic Information Nondiscrimination Act
- Our Clinical and Scientific Affairs Council will undertake a rewrite of AAPA's genetic testing policy paper
- AAPA nominated a PA for the EGAPP Stakeholders group
- Wrote a letter of support for an NCI grant application by Fox-Chase Cancer Center for an e-learning program in cancer genetics

Future Activity

2008 Annual Conference

- AAPA is working with NCHPEG to help coordinate a medical genetics track which would provide a daily session with key genetic content
- A session on race and genetics is being planned which would be co-sponsered by AAPA's African Heritage Caucus, Committee on Diversity and NCHPEG

Other activities

- Continuation of Doug Scott's "Genomics series" in AAPA News
- Addition of survey questions on the Annual Conference Survey (over 2000 respondents)
- Currently developing a needs assessment tool
- Review of AAPA policy statements
- Engage the JAAPA editorial board
- Expanded relationships with other genetics organizations, advisory committees, etc
- Support Rocky's junkets

What does it all mean?

- Are PAs reading Doug's articles?
- Are they heeding Rocky's advice?
- How many are going to genetics lectures?
- Why haven't more PAs completed the NCHPEG education program?
- What do we need to do to get their attention and completely engage them?
- How can we give them a way to respond, and get involved in the conversation?