

Advisory Committee on Interdisciplinary, Community-Based Linkages

June 25-26, 2007
Minutes from Meeting

ATTENDANCE

Presiding

Thomas Cavalieri, D.O. F.A.C.O.I., F.A.C.P., Chair
Louis Coccodrilli, M.P.H., Designated Federal Official, ACICBL and Deputy Director, Division of Medicine and Dentistry
Alan Adams, D.C.
Mary Amundson, M.A.
Hugh W. Bonner, Ph.D.
Brandy Bush, Doctoral Student
Amna B. Buttar, M.D.
Cheryl I. Cameron, Ph.D., J.D.
William G. Elder, Jr., Ph.D.
Rosebud Foster, Ed.D. M.S.N.
Gordon Green, M.D., M.P.H.
Karona Mason, D.P.M.
Andrea Sherman, Ph.D.
Stephen Wilson, Ph.D.
Rose M. Yuhos, R.N.

Health Resources and Services Administration (HRSA), Bureau of Health Professions (BHP) Staff, Division of Medicine and Dentistry, Area Health Education Centers Branch

Marilyn Biviano, Ph.D., Director, Division of Medicine and Dentistry
David Hanny, Ph.D., Program Officer
Norma Hatot, CAPT/USPHS, Program Officer
Adriana Guerra, MPH, ASPH Fellow
Vanessa Saldanha, MPH, ASPH Fellow

HRSA Administration and Other Staff

Elizabeth Duke, Ph.D., Administrator
Steven A. Pelovitz, Acting Associate Administrator/BHP
Annette Debisette, HRSA
Martha Evans, Senior Advisor/DMD
Jerry Katzoff, HRSA/BHP/DMD
Ayah Johnson, Branch Chief/DMD
Joan Weiss, HRSA/BHP/DMD

Private Citizen Representation

Dustin Colegrove, AOA
Mike Dyer, Brenda Eugenio, Intersystems
Angela Jeansome, AOA
Beth Marasciula, FedSources, Inc.
Tamara Thompson-Johnson, AACOM

FORMAT OF MINUTES

These minutes consist of two sections:

I. TESTIMONY AND FINDINGS

II. ADVISORY COMMITTEE FINDINGS

SECTION I. TESTIMONY AND FINDINGS

A. TESTIMONY

Testimony addressed the Federal efforts to encourage the adoption of HIT and EHR, the implementation experiences of HIT in different settings (e.g. urban, rural, academic), and best practices associated with training providers in the use of HIT.

NOTE: Presenters alternately referred to the Electronic Medical Record (EMR) and the Electronic Health Record (EHR) when discussing an electronic version of paper patient records. For the purposes of clarity, all mentions are referred to hereafter, as the Electronic Health Record (EHR).

HRSA/BHPR OVERVIEW

REMARKS – Health Resources and Services Administration

Steven A. Pelovitz, Acting Associate Administrator

Bureau of Health Professions, Health Resources and Services Administration

Mr. Pelovitz provided opening remarks on behalf of the Health Resources and Services Administration (HRSA). In that role, he welcomed and introduced the HRSA Administrator, Dr. Elizabeth “Betty” Duke and the leadership of the Division of Medicine and Dentistry. When welcoming Dr. Duke, Administrator of HRSA, Mr. Pelovitz provided some of her administrative history. Since taking on the leadership at HRSA, Dr. Duke has consistently provided exceptional leadership and direction to the HRSA programs, emphasizing consistency, transparency, and efficiency within the programs. Prior to joining HRSA, she held various leadership positions within the Department as the Deputy Assistant Secretary for Administration within the Administration for Children and Families and served as both acting Assistant Secretary and Principal Deputy in the HHS Office of the Assistant Secretary for Management and Budget (OASMB), now called the Office of Budget, Technology and Finance.

Among Dr. Duke’s many achievements within HRSA are: (1) the centralization of the management of all grants into a single organization within HRSA; (2) the creation of the Office of Health Information Technology and the Office of the Chief Financial Officer; (3) the transformation of the Agency to a stronger business model; and (4) the emphasis on a more consumer-focused culture. Dr. Duke has been successful in implementing a number of presidential initiatives. Most notable has been the tremendous growth in the number of community health centers, which now provide 16 million additional people with access to health care services.

Mr. Pelovitz welcomed the Advisory Committee membership and thanked them for their invaluable and continued commitment to all Committee activities and especially for the development of the substantive Annual Reports to the Secretary and to the Congress. He also thanked Mr. Louis Coccodrilli, who had been simultaneously serving as the Acting Director for the Divisions of Medicine and Dentistry and State, Community, and Public Health while continuing as the Designated Federal Official (DFO) for the Committee. Mr. Coccodrilli has tremendous skills, passion, energy, and dedication, which have significantly enhanced the management team. He will now serve as the Deputy Director for those Divisions, while remaining the DFO for the ACICBL. Dr. Marilyn Biviano has been confirmed as the new Director of the Division of Medicine and Dentistry and has an outstanding background. She has held a

number of high-level positions within HRSA, including roles in emergency preparedness, minority health, and primary health care. Several years back, she held the position of Director of the National Center for Health Workforce Analysis and in that role produced extensive research and reports on workforce issues. Mr. Pelovitz welcomed Dr. Biviano to her new position within the Bureau of Health Professions (BHP). In closing, Mr. Pelovitz conveyed his tremendous ongoing interest in the recommendations being developed by the Committee.

**Elizabeth Duke, Ph.D., Administrator
Health Resources and Services Administration**

New technology can help prevent medical errors, reduce costs, and improve care. The goals of this meeting are to 1) learn more about Health Information Technology (HIT) and the electronic health record (EHR), and 2) make recommendations about their use as this information relates to programs HRSA sponsors with a particular focus on the quality of the training provided to the health care professionals in these programs.

One of the main goals of HRSA is to improve health outcomes for vulnerable populations and to reduce health disparities. HRSA is now focusing heavily on improving the quality of health care through the use of HIT and EHR. Recently, HRSA has put forth several initiatives in striving towards this goal.

- HRSA created an online Health Information Technology community, which currently has over 1,500 identified members.
- HRSA has been working on a tool kit to help people make better decisions about how to acquire and use the new technology.
- HRSA held the first ever rural conference on Health Information Technology, focused on putting technology in the hands of those who can most benefit from it.
- HRSA sponsored a competition for grant awards specifically targeted to the poorest counties in America.
- HRSA has increased emphasis on the National Health Service Corps (NSHC) and other service contingent loan repayment programs that place health professionals in shortage areas. All scholarship and loan repayment programs have been folded into one Bureau to improve the quality and the efficiency of their administration. Within the NSHC, HRSA created the Ready Responder Corps. These professionals are specially trained providers available to be assigned in a regional or national emergency to the hardest to serve areas to help provide care and help communities build capacity.

There are opportunities here for committee members and for HRSA. There is the opportunity to answer the question 'what training do health care professionals need that includes HIT and accepts it as an integral part of doing business?' Further, this will be a major issue with Federal, private industry, state governments and associations all wanting a place at the table. Therefore, this is an opportunity to speak for those who serve the underserved, about this important issue. As practitioners, this offers the opportunity to mine a wealth of information to produce better and more cost-efficient medical care and to make better use of provider time.

**OVERVIEW - BHP ADVISORY COMMITTEE
Marilyn Biviano, Ph.D./Division Director, DMD/BHP**

There are three Advisory Committees within the Division of Medicine and Dentistry (DMD) in the Bureau of Health Professions (BHP). Aside from the ACICBL, there is the Advisory Committee on Primary Care Medicine and Dentistry and the Council of Graduate Medical Education. In an effort to share experiences and perhaps develop opportunities for collaboration, the chairpersons of those Committees, as well as of the HRSA' National Advisory Council on Nursing Education and Practice, will present and discuss the work of their committees.

1. Advisory Committee on Training in Primary Care Medicine and Dentistry (ACTPCMD).

Joseph A. Leming, M.D. – Chairperson

The ACTPCMD committee is working to promote the concept of a medical home, meaning a single place and a single person or physician coordinating all of a patient's interdisciplinary care, rather than the fragmented system of care where multiple specialists operate without information from other care providers. In advancing the concept of a medical home, there are considerations such as: 1) how to train students in medical home dynamics; and 2) how to train the faculty members to appropriately conceive a programmatic approach to implementing medical home care. Currently, the average Medicare patient sees no less than six physicians in four different practices within a year's time. Medicare patients with complex cases may see as many as 16 different health providers within a period of one year.

As part of the medical home, there would be a single continuous record of health care, a central repository of all patient information in one place. The use of health care informatics would greatly improve the utility of this single record. The ACTPCMD hopes to make recommendations to the Secretary of HHS and to the Congress regarding the promotion of the concept of a medical home.

2. National Advisory Council on Nurse Education and Practice (NACNEP)

Annette Debisette, Ph.D. – Chairperson

During the most recent NACNEP meeting, members worked to:

- explore the current use of technology in nursing education and practice;
- identify challenges associated with nursing practice and technology and informatics;
- identify evidence for effective technology and informatics; and
- embrace the opportunity and benefits of integration of technology and informatics in to nursing education and practice.

The integration of technology and informatics in nursing education is critical to preparing new nurses to meet upcoming challenges. HIT can extend the reach of education through distance learning to assisting nurses in obtaining Baccalaureate and advanced nursing degrees. HIT can facilitate evidence-based practice and improve nurse productivity and patient safety through the use of electronic health records and improved nurse scheduling. Additionally, better patient management improves productivity and safety. The use of EHR makes patient information more readily available to nurses, and increases the likelihood of preventing adverse drug interactions and enhances communication about patients among providers and across shifts. Tele-Help also can provide patients with better access to their providers. It can eliminate the need for patients to travel long distances to their provider of care when living in rural communities or when homebound.

NACNEP discussed a new HRSA grant initiative called "Faculty Development in Integrated Technology in Nursing Education and Practice." The purpose of this grant is to encourage collegiate schools of nursing to develop programs for clinical information and technology to enhance nursing education and practice. These applicants must demonstrate expertise in simulated learning, informatics, and Tele-Help, and have sufficient institutional resources to support this project. Applicants are required to train at least 30 to 50 nursing faculty during a period of five years. There are currently two active grantees.

3. Council on Graduate Medical Education (COGME)

Russell G. Robertson, M.D. – Chairperson

For the first time, COGME will meet biannually, as opposed to annually. COGME has now sent out two draft reports for comments to 15 different organizations. The Committee plans to review these comments extensively and finalize these two reports at the next meeting in September.

The first report addresses whether there should be mandatory service required for physicians in light of the number of areas in the United States that remain profoundly medically underserved. COGME decided that mandatory service was a non-starter, but the report included a proposal for the establishment of a national system of medical schools that would be located in federally-designated, medically underserved communities. The idea would be that students would be drawn from the communities where the medical schools would be located. Another recommendation was to increase the National Health Service Corps scholarship and loan repayment programs. COGME further proposed to create incentives for medical schools to recruit and prepare students for underserved practices across all medical specialties, not just primary care. Finally, COGME proposed an expansion of Title VII funding to address these proposals.

The second report addresses graduate medical education (GME) flexibility. This report asserts that there should be new models of GME training that should be more community sensitive by relating to the needs in a particular locale. GME slots should be increased by at least 15 percent, but the increase should be directed only towards innovative training models which address community needs and future models of health care delivery. COGME also discussed developing mechanisms by which local and regional groups can determine work force needs, assign accountability and funding, and develop innovative models of training that meet the needs of the community and the trainee.

Following the finalization of these two reports, COGME will discuss some of the current State Workforce GME planning initiatives and begin to work on those issues.

DISCUSSION/QUESTIONS

- There are growing health professional shortages across all of the health professions. There is a projected shortage of 30,000 physicians over the next four or five years and a shortage of over one million nurses in the next five to ten years. Currently the allied health professions have hit a crisis point with respect to practitioners and faculty. It is especially critical with respect to shortages in rural and in medically underserved urban areas. Health professional faculty shortages are also a looming issue, especially in rural areas.
- Several committee members raised issues regarding grantees that lost funding and the status of certain grant programs in their states.
- Committee members requested more information about the NACNEP faculty development grant.
- The location of the medical school may not automatically confer practice location; the literature suggests that it is the location of residency programs that determines where individuals remain to practice. There are instances that suggest the hometowns of the students dictate the locations of their practices. Students currently matriculating at U.S. medical and osteopathic schools are coming from primarily suburban, well-to-do, communities and they are not highly motivated to practice in communities that are dissimilar from those in which they trained. On the other hand, the numbers of rural applicants to U.S. medical schools have remained steady, but those admitted to medical school are dropping. Therefore, the notion that the students would be drawn from those communities if the schools were located in their areas is not unreasonable.

FEDERAL PERSPECTIVES AND POLICY IMPLICATIONS OF HIT/EHR

Cheryl Austein-Casnoff, MPH/Director
Office of Health Information Technology, HRSA (Rockville, MD)

HRSA's programs provide a safety net of health care services to 20 million people each year. These programs include vital aspects of the safety net, such as health center grantees, which delivered primary

health care to about 14.1 million mostly low-income and uninsured people in 2005, and Ryan White CARE Act grantees, which provide medication and care to more than 530,000 people with HIV/AIDS.

Safety net providers are facing major challenges with respect to implementing HIT. Health centers frequently lack the capital to invest in HIT. Only eight percent of health centers currently report using a full EHR. However, 60 percent of health centers report plans for installing a new EHR system or replacing the current system within the next three years (National Association of Community Health Centers [NACHC] 2006 survey). According to a Commonwealth Fund 2006 survey, doctors who treat large numbers of Medicaid patients are half as likely to have EHRs as other doctors. Additionally, doctors in cities, in larger practices, and in larger health care facilities are more likely to have EHRs than those in rural areas.

Bringing HIT to America's safety net providers will:

- Improve quality of care
- Reduce health disparities
- Increase efficiency in care delivery systems
- Increase patient safety
- Decrease medical errors
- Prevent a digital divide

Among the barriers to using HIT is the lack of a well-trained workforce to develop and implement the systems. There is also the burden of cost, since the start-up costs of a fully-operable HIT system are between \$16,000 and \$36,000, and there is no current system of reimbursement to recover these costs. Another barrier is the lack of standards needed to find, select, and implement such a system.

1. HRSA, Office of Health Information Technology (OHIT)

The Office of Health Information Technology (OHIT) promotes the adoption and effective use of health information technology (HIT) in the safety net community. The long-term shared vision of HRSA and OHIT is to transform systems of care for safety-net populations through the effective use of HIT. OHIT has the following goals:

- Develop a strategy that leverages the power of health information technology and telehealth to meet the needs of people who are uninsured, underserved and/or have special health care needs;
- Identify, disseminate and provide technical assistance and appropriate information technology advances to health centers and other grantees in adopting model practices and technologies;
- Promote grantee health information technology advances and innovations as models;
- Work collaboratively with foundations, national organizations, the private sector, and other Government agencies to help HRSA grantees adopt health information technology.; and
- Ensure that HRSA health information technology policy and programs are coordinated with those of other U.S. Department of Health and Human Services (HHS) programs.

HRSA OHIT activities include the following:

- HIT Policy Council - The Council meets on a monthly basis to enhance HIT collaboration throughout the bureaus and offices of HRSA.
- Controlled Networks (HCCN) – A grant program that supports the development and operation of networks of safety net providers through the enhancement of health center operations, including HIT. Using HCCNs to advance HIT allows for collaborations and expertise sharing among providers, economies of scale, and business and cost efficiencies.

- HRSA Telehealth Activities – Coordinates and promotes the use of telehealth through fostering partnerships within HRSA and with other Federal and private entities to promote telehealth projects and demonstrations, administers grants that advance the use of telehealth technologies, provides technical assistance, and disseminates best practices with regard to telehealth technologies.
- HIT Technical Assistance – In FY 2007, OHIT will initiate a center that will identify and organize the HIT technical assistance efforts across HRSA.
- Network Grant Opportunities will include:
 - Planning Grants – Less than \$100,000 per year to plan and start implementing HIT initiatives.
 - Electronic Health Record Implementation Grants – Three-year grants to purchase and implement EHRs.
 - HIT Innovation Grants – Three-year grants to purchase and implement new HIT initiatives.
 - High Impact EHRs Implementation Grants – One-year grant for high impact implementation of an EHR; implementation of new EHRs must be in at least 15 sites.
- HRSA HIT Community – AHRQ and HRSA established a HIT Community for HRSA grantees. This serves as a collaboration space for health centers and networks to foster the adoption of HIT to promote patient safety and higher quality of care.
- Health Center HIT Toolbox – This is an interactive toolbox that will assist HRSA grantees in HIT planning, implementation, and sustainability.
- HRSA HIT Grantee Meeting – 500 HRSA grantees will be invited to promote collaboration and knowledge sharing among HRSA grantees on the subject of promoting HIT adoption by safety net providers.

2. Other Federal HIT Initiatives

The 2008 Federal budget proposes spending over \$4.5 billion for HIT through funding agencies such as HRSA, CMS, NIH, and AHRQ. Federal agencies already implementing HIT include FDA, IHS, CDC, DoD, and the VHA.

One of the driving forces behind HIT at the Federal level is the ***Presidential Executive Order 13410*** (*Promoting the Quality and Efficiency of Health Care in Federal Government Administered or Sponsored Health Care Programs*). The purpose of this order is to ensure that health care programs administered or sponsored by the Federal Government promote quality and efficient delivery of health care through the use of HIT. The order also mandates transparency regarding health care quality and price, and incentives for quality care initiatives. The order promotes interagency interoperability - the ability to communicate and securely exchange data accurately, effectively, and consistently with different information technology systems, software applications, and networks in various agencies. These standards, established by multi-stakeholder entities including Federal and private agencies, apply to systems within a Federal agency, between Federal agencies, and between Federal and private agencies (i.e., independent contractors such as health care providers or health plans must also meet interoperability standards). Health care programs subject to this order are the Federal Employees Health Benefit Program, the Medicare program, programs operated directly by the Indian Health Service, the TRICARE program for the Department of Defense (DoD) and other uniformed services, and the health care program operated by the Department of Veterans Affairs. This does not include State operated or Federally funded subsidized programs such as Medicaid, the State Children's Health Insurance Program, or services provided to Department of Veterans Administration under 38 U.S.C 1703. Additionally, it does not include HRSA programs. This unfunded mandate was implemented on January 1, 2007.

3. Office of the National Coordinator for Health Information Technology (ONC)

The Office of the National Coordinator for Health Information Technology (ONC) advises the Secretary of HHS on the development and nationwide implementation of an interoperable HIT infrastructure in moving toward the President's goal of having an EHR for all Americans by 2014. The ONC coordinates the HHS HIT policies and programs internally and with other relevant agencies and is responsible for the

implementation of the HHS strategic plan to guide the nationwide implementation of interoperable HIT in both the public and private health care sectors. Initiatives include:

- American Health Information Community (AHIC) — An advisory committee that provides recommendations on how to make health records digital and interoperable, encourages adoption of technology, and ensures the privacy and security of the same
- Product Certification
- Standards
- Nationwide Health Information Network
- Activities with the National Governors Association Center for Best Practices

4. Agency for Healthcare Research and Quality (AHRQ)

AHRQ funds HIT research and development with \$166 million in grants and contracts awarded for initiatives across the country to encourage the development of HIT. In FY 2007, AHRQ emphasized research on two initiatives to improve healthcare quality for low-income people served in under-resourced settings and communities in its grants portfolio. These initiatives include:

- National Resource Center for Health Information Technology – This center helps the health care community adopt HIT through technical assistance and knowledge dissemination.
- New Ambulatory Safety & Quality Grants – These grants support the development of HIT that assists clinicians, practices and systems in improving the quality and safety of care delivery and medication management in ambulatory care settings (\$25.8 million to fund up to 104 grants). Priority is given to projects serving vulnerable populations.

5. Centers for Medicare & Medicaid Services (CMS)

MEDICARE -- Medicare supports HIT development through:

- Quality Improvement Organizations (QIO) – This is a national network of 53 QIOs working directly with consumers, providers and hospitals to refine care delivery systems throughout the U.S. QIOs are designed to ensure that patients get proper care. The adoption and use of HIT are strategies to achieve program success.
- Medicare Prescription Drug Improvement and Modernization Act of 2003 (Pub. L. 108-173) – This Act includes provisions intended to foster electronic prescribing, e.g., the ability to electronically send a prescription directly to a pharmacy from the point-of-care. These standards for e-prescribing under Part D were effective January 2006.
- Doctor's Office Quality-Information Technology (DOQ-IT) – supports the adoption and effective use of information technology by physicians' offices to improve quality and safety for Medicare beneficiaries. They accomplish this by promoting greater availability of high-quality affordable HIT and providing assistance to physician offices in adopting and using such technology.

MEDICAID -- States have several opportunities to incorporate HIT initiatives into state Medicaid reform plans, such as:

- Section 1115 Waiver (DRA) – States may apply for a waiver to increase their flexibility to develop Medicaid plans that may extend coverage to additional populations, increase covered services, and control costs.
- Deficit Reduction Act of 2005 (DRA) – Grants for states to allow the flexibility to design different coverage options for different populations without applying for a Section 1115 Waiver. These new grant funds provide States with the ability to adopt innovative methods to improve their effectiveness and efficiency in providing medical assistance under Medicaid.

6. Veterans Health Administration (VHA)

The VHA is the largest single medical system in the United States, providing care to 5 million veterans. The VHA has Veterans Health Information Systems and Technology Architecture (VistA), an integrated system of software applications that directly supports patient health care at VHA facilities.

VistA is one of the most widely used EHRs. In February 2007, the Departments of Veterans Affairs and Defense demonstrated the Bidirectional Health Information Exchange (BHIE). This is a joint information technology data exchange initiative that affords VHA and DoD clinicians with the opportunity to view electronic healthcare data from each other's systems, which could be the basis for a national system to exchange medical records securely.

7. Indian Health Service (IHS)

The IHS currently provides health services to approximately 1.5 million American Indians and Alaska Natives who belong to more than 557 federally recognized tribes in 35 states. IHS providers use the Resource and Patient Management System (RPMS), an EHR that allows providers to continuously manage all aspects of patient care. West Virginia adapted the RPMS EHR system for their clinical practice.

8. Movements within the Legislative Branch

H. R. 1467: 10,000 Trained by 2010 Act – This bill would invest as much as \$100 million in health care information technology research and training

S.1408 Health Information Technology Act of 2007 –This bill proposes a grant program to assist physicians, hospitals, skilled nursing facilities, community health and community mental health centers in implementing HIT. The bill also includes changing reimbursement policies in the Medicare system to reward qualifying facilities for adopting interoperability standards, reporting improved patient care, and adhering to strict privacy and confidentiality regulations.

HR. 1952 – This bill would create incentives for physicians to adopt interoperable electronic health systems.

H.R. 2406 – This bill would authorize the National Institute of Standards and Technology (NIST) to establish standards and guidelines for interoperability of EHRs.

S.1455 – This bill would create a non-profit corporation that would design, own and manage a nationwide health information exchange network and ensure that all EHRs are confidential, secure and interoperable.

9. States

States are becoming much more involved in health information exchange initiatives by setting policies to improve accessibility of HIT. The majority of states have introduced HIT related legislation and one fifth of the nation's governors have issued executive orders for state action to improve health care through the use of HIT.

State roles in HIT planning include:

- Start-up Funding – At least 17 state governments are funding programs to examine how HIT may be used or implemented
- Building infrastructure – At least 10 states are facilitating RHIO development studies
- Planning – At least six states have initiated planning projects but have not taken legislative action (National Council of State Legislatures).

The NGA Center for Best Practices was awarded a \$2 million contract from ONC to establish and manage the State Alliance for e-Health. The State Alliance provides a nationwide forum for stakeholders to work together to identify best HIT practices and solutions.

10. Upcoming Initiatives

Personal health records – Continuous records of diagnoses, medications, treatments and outcomes, clinical decision support, and clinical data repositories will dramatically improve continuity of care by 2014.

Bio-surveillance and Public Health – Public and private healthcare providers will make extensive use of bio-surveillance when responding to natural disasters, epidemics and terrorist attacks, including identification and management of the psychological response to trauma.

Continuity of care for military personnel – Portable EHRs will improve access to physical and mental health diagnostic and treatment services for veterans with physical injuries, post-traumatic stress disorder, and traumatic brain injury.

DISCUSSION/QUESTIONS

- Committee members believe that there should be more information about geriatrics and these initiatives. Three telehealth grants are directed partly towards home health, which is mostly geriatric care. The EHRs have definite applications as many geriatric patients see multiple providers and have multiple medications. Last week, Medicare announced a demonstration of personal health records for the elderly.
- There are large variations between the technological savvy of people within generations and across generations. There needs to be initiatives that address these differences. The message needs to be targeted differently to different types of users.
- There should be an effort to track the impact of these technologies on patients as well as on overall population health. The emphasis should remain on the impact on the end user.

BEST PRACTICE: A STUDY OF THE VETERANS HEALTH ADMINISTRATION'S DECADE PLUS EXPERIENCE WITH EHR

Gail Graham, RHIA/Director, Health Data and Informatics
Veterans Health Administration (Washington, DC)

This presentation provides an overview of the Veterans Health Administration's (VHA's) health information systems and technology architecture (VistA). The VHA, the United States' largest integrated health system, transformed itself in the past decade from a collection of traditional safety net hospitals to an integrated health system providing a continuum of care to more than 7.6 million veterans in 1,300 sites. The VHA is affiliated with more medical schools than any other health system. VHA's current challenges, like those of all providers, include the increasing cost and complexity of healthcare; the ability to harness the power of advanced information technologies; and the ability to translate new research breakthroughs quickly into practice. Further, the VHA's patient population is increasingly older and tends to have multiple conditions, often with a coinciding mental health diagnosis. Additionally, more women are entering the military, so the VHA sees more female patients.

The VHA has experienced a growth in patient load, but not a corresponding growth in budget. In 1996, the Veterans Health Care Eligibility Reform Act was enacted, which made more people eligible for care. This Act also enabled the system to be restructured from a hospital system to a health care system. The structural changes were predicated on the assumption of providing the most effective, efficient care required coordination among facilities along with a synergy of resources.

The VHA has had automated information systems in all of its medical facilities since 1985, which was the point when its decentralized hospital computer program began operating. At that time, physicians were using the system to review lab and radiology reports. Therefore, it was a natural progression for doctors to begin using HIT for other reasons, although it was not a smooth transition. The VHA hired staff members charged with determining the best user interface for HIT for different provider types. These staff members were also available for "help at the elbow," so that if a physician is on call and trying to answer an order, there was always help available. VistA provided significant enhancements to the original system with the release of the computerized patient record system for clinicians in 1997. VistA Imaging provides a multimedia, online patient record that integrates traditional medical chart information with medical images of all kinds (e.g., x-rays, pathology slides, video views, scanned documents, cardiology exam results, dental images, endoscopies). The system is now operational at VA medical centers and supports ambulatory, inpatient, and long-term care.

The computerized patient record system (CPRS), within VistA, was developed to provide a single interface for providers to review and update a patient's medical record and provide orders for medications, procedures, x-rays and imaging, patient care nursing orders, and laboratory tests. The CPRS is flexible enough to be used by all providers (e.g. physicians, pharmacists) and can be implemented in a wide variety of care settings. The CPRS organizes and presents all relevant patient data immediately when a patient is selected and provides an accurate view of the current status before any clinical interventions are ordered. The highly graphical interface of the CPRS also allows for its use as a patient education tool. It can be used to show a patient the impact of a medication or health behavior. The next thing that the VHA added was the ability to view data from wherever the patient was seen. Most recently, every part of the record can be seen from any care setting within the VHA. The use of CPRS was mandated in 2003. Today, the CPRS is fully operational at all medical centers and most other VA sites of care. The VHA is also active in supporting public health and bio-surveillance activities. The VHA sends the CDC two feeds of data everyday for bio-surveillance activity; the CDC then feeds the summary information back to the VHA and local health departments illustrating any trends and changes.

The clinical reminder system, which was added, affords providers with the capability of ensuring the initiation of timely clinical interventions, such as screening for vaccinations. Physicians could be prompted by a particular diagnosis, time, or other characteristic of the patient. This system also enables the provider to 1) implement clinical practice guidelines and 2) automatically generate documentation within the record.

Another element that has been added is bar-code medication administration, which tracks medication ordering and changes in dosages. It was originally used for the inpatient wards and is now being used in outpatient departments to include surgery, chemotherapy, and dialysis. A nurse and a pharmacist oversee the implementation and continued development of this important system. A major cost control strategy is the use of formularies and mail order pharmacy distribution. The pharmacy vendor electronically receives the medication orders from each of the VA Medical Centers and ships the medications directly to the patient's home.

A secure patient portal known as HealtheVet provides patients access to their personal health record, online health assessment tools, mechanisms for prescription refills and making appointments, and access to consumer health information. Although deployed nationally, the CPRS and HealtheVet are not yet available at every VHA site because of varied internet access in rural areas. Currently, HealtheVet is available wherever Internet access is available.

The VHA is looking at telehealth and remote health monitoring to accommodate the needs of the aging populations outside of nursing home care. Telehealth enables access to specialty care via telecommunications from a local clinic so that the veteran does not have to travel to a specialty facility. For home monitoring, medical information is fed back to an individual medical center where a nurse may monitor 200 to 300 patients at a time, reviewing anomalies in any of the reporting of the physiological findings being received. Some of these include questions asked to the patient about how they are feeling

or specific items about their activities of daily living. Through this, they can avoid the need for hospitalization for monitoring purposes.

The impact of this system is the ability to see and care for more patients without an increase in budget. The American Customer Satisfaction Index for both inpatient and outpatient satisfaction is consistently higher than that of the private sector. The VHA is moving towards interoperability by adding the Department of Defense record and, in the future, connecting to the regional health information organization. The VHA is also working towards standardizing all information in VA centers across the country.

DISCUSSION/QUESTIONS

- Committee membership expressed interest with respect to the transition for people who serve in the armed forces. Ms. Graham mentioned that the "Bi-Directional Health Information Exchange" allows the information exchange between DoD and VA, but there is a transition period.
- Committee membership asked whether the EHR could be adapted to gather data about emerging issues or whether it is set. For example, there is a lot of new information about veterans from current conflicts returning with mental health problems and these issues may not manifest themselves immediately. Ms. Graham responded that this information is assessed through pre and post deployment assessments and that this information is available in the EHR.
- Committee membership noted that one of the promotions of the EHR is that VA patients are able to access their own information but questioned whether, as a population group, veterans have access to computers and the internet. Ms. Graham stated that the VA has kiosks and other public access points in recognition of the fact that veterans may not have computer access.
- The Committee questioned if there are certain competencies that providers must bring to the table when being trained in order to make the EHR work. Ms. Graham responded that, initially, the VA had to give typing and basic skills tests to physicians before they participated. As training progressed, the VA took a targeted user approach, adopted things like voice recognition software, since that was needed for certain providers to adopt the technology. The VA has also been experimenting with things like free text capability or the use of check boxes in different areas.
- It was noted that the VHA has beneficial relationships with academic institutions. Currently academic health centers have actual formal affiliation agreements with the medical centers either at individual medical centers or with multiple medical centers. For each rotation in the VA, the students from the academic institutions must use the EHR. This is a chance for the academic institutions to be exposed to it and to use it. The partnerships have resulted in a few academic centers attempting to adopt EHR for themselves.
- Committee membership questioned the rationale for just adopting one system. Ms. Graham stated that it would be very difficult to get every health provider to adopt the same system and, as long as the systems are compatible, one system really is not needed. The point of the National Health Information Network and the Health Information Technology Standards panel is to ensure interoperability of the information.

EHR END USER ADOPTION AND CHANGE MANAGEMENT STRATEGIES

Sharron Confessori, PhD/Director, Organization Development and Learning
Bon Secours Health System (Marriottsville, MD)

The purpose of this presentation was to provide an overview of planning and strategy for EHR design and implementation in two organizations, Kaiser Permanente Mid Atlantic States (KPMAS) and the Bon Secours Health System (BSHSI). The presentation also addressed tools that have been helpful and highlighted lessons learned and recommendations for alternative actions.

KPMAS comprises 29 medical centers and 36 facilities, with approximately 6,000 employees, which includes 900 physicians. The union represents three-fourths of the staff, which means that the decisions

had to be made in partnership with the employees. KPMAS implemented an ambulatory EHR within 15 months. The practice management piece, check-in/check-out, and billing were implemented in about seven months, as part of the transition to Medicare Part D. Then, My Chart, the Personal Electronic Health Record, was implemented in 5 months. After the implementation, patients were able to e-mail their physicians, view medical records, and receive lab results on line.

BSHSI is comprised of 14 hospitals that employ 25,000 staff and clinicians, with 8000 affiliated physicians and 200 physicians employed by BSHSI. Their systems are to be rolled out within the next 5 years, with in-patient, ambulatory care, emergency department, electronic prescribing, and hospital management systems (e.g. inventory management, bed management) all being implemented. The first system will go into operation in July 2008.

There are major differences between these two implementations. The KPMAS implementation had a very short time frame and a very tight focus. Optimizing patient safety and treatment came after the system's implementation. The BSHSI implementation occurred over a longer timeline, with a great deal of thought being given to patient safety and improving quality of care. The greatest consideration for implementing the EHR at KPMAS was being market competitive by having a tool that no one else had. Within BSHSI, in some markets this was the case, but not in all cases. The need to motivate physicians to be trained is significant. At KPMAS, the physicians were all employed by the organization so they could be compelled to be trained on the EHR system. In BSHSI, the majority of physicians are affiliated, thus, training would incur a loss of revenue.

In terms of managing change, there are several actions that are very important, centering on building common understanding and increasing comfort with the new information. In practice, this means providing leadership development at all levels of the organization, analyzing the existing work units to understand current capabilities and needs, and determining what workflow changes need to be made and why they need to be made. A critical factor is understanding how people currently do their work, alone and together. Before the technical system is implemented, some kind of analysis must be conducted of efficiencies and inefficiencies. Balancing an implementation timeline with improved process benefits early on is an important part of the discussion.

Others actions include determining the current competencies of the staff who must implement the new system as well as the competencies they are going to need once the system is in place. This effort also requires an understanding of work process disruptions and opportunities where EHR can improve the situation. This can also allow for examining how people approach tasks at work and how to adapt these approaches to the EHR.

The role of change leader is to stimulate and provide space for conversations with stakeholders about the change. These conversations should feature as many visual elements as possible to acquaint potential users with changes that will come with the EHR. A large part of building understanding is finding out who the sponsors and champions are and how to use them, identifying the stakeholders and finding the people who need to be able to adopt and use the system. The strategy can be built from that point through the alignment of the technical system design with the needs of these stakeholders. The change leader should also facilitate experiences with the system. Offering demonstrations and trainings will be critical for increasing the comfort levels of stakeholders.

Once everyone is on board, there will be issues with managing the change. The cost and intensity of the program will create its own energy, but it will require extensive work and committed leaders. The question of who owns the change must be answered early or there is a risk of unclear focus, mixed messages, and resistance to change. The leadership and the individuals themselves should own the transformation and the project team should be there to support the providers in the work that they do. Another critical issue is declaring the unit of implementation, the smallest unit possible, where people have to understand not only their work, but also the work of the people around them. The unit of implementation drives a large part of the mechanical decisions, such as who gets trained and when.

At some point, change management becomes “end user adoption” or the process of encouraging all parties to actually use the system. The critical piece on end user adoption is physician acceptance of the system, which requires substantial resources over a long time period. Although it can be expensive and time consuming, it is necessary to involve the physicians in all aspects of the process because of their natural leadership role within the hospital. For physicians, patient care and patient safety are compelling arguments. Efficiency is a good argument, but initially, because of the time spent learning the system, it is often not cost effective. In the KPMAS implementation, physician schedules were reduced 50 percent to allow time for training and learning. Another issue is that training will take more time, focus, and resources than expected in that people are at different skill levels and learn at different paces.

DISCUSSION/QUESTIONS

- Committee members asked whether there is a set of skills that clinicians need to have to participate in this process. Dr. Confessori responded that there is a set of protocols, just as those for paper medical records. There were minor changes made as far as how you access the records, but the process of using them is the same. There are three core skill sets: 1) a basic understanding of how a Windows-based system works; 2) the ability to work with a mouse; and 3) the ability to navigate a webpage.
- The membership questioned how this could be applied to academic institutions where many different types of providers are going to use it. Dr. Confessori stated that the EHR is going to make it possible for individuals to have very large amounts of information about their patients, about their care, and their outcomes. It will require skilled nurses and physicians to think about how to use that information and convert it to knowledge to help in clinical decision-making. It is not just about teaching students how to use the system; it is more about teaching students how to think, and how to get to knowledge.
- The membership noted that academia does not do particularly well in preparing our graduates for continual change in organizations. It is important to be doing more to make sure our students are prepared to be life-long learners. It is important to partly condition students to think about learning as a lifetime process and providing the resources so that they can learn.
- Members discussed whether use of EHR and HIT led to better patient outcomes.

INFUSION OF INFORMATICS AND HIT INTO THE MEDICAL SCHOOL CURRICULUM

Jeffrey Weinfeld, MD/Assistant Professor
Georgetown University Department of Family Medicine (Washington, DC)

This presentation discussed the process of how health information technology, and related knowledge, skills, and attitudes were diffused into the medical school curriculum at Georgetown University. Dr. Weinfeld also discussed lessons learned and offered insight into the challenges of EHR in university hospital and health center settings. Additionally, he covered the national curricular recommendations and objectives related to HIT.

HIT is a broad umbrella that encompasses many different aspects. It could be a practice management system or PDAs for providers. An EHR might only have the notes that providers write, or it could be broader, with notes, codes, transactions, and demographic data. It can contain decisions and/or support to help providers make better decisions, but little is known about what EHRs can do for outcomes. It is known that using decision support (in PDAs or other formats) can actually improve adherence to guidelines. Also, electronic prescribing can address the issue of medication errors. There is tremendous cost savings with the prevention of medication errors, but studies of time and productivity have yet to show a positive impact of HIT since it takes longer to use and implement an EHR.

The Liaison Committee on Medical Education (LCME) is the nationally recognized accrediting authority for medical education programs leading to the M.D. degree in U.S. and Canadian medical schools. The LCME developed standards and objectives for medical educational programs including the following:

- The program of medical education leading to the M.D. degree must be conducted in an environment that fosters the intellectual challenge and spirit of inquiry appropriate to a community of scholars.
- The educational program must include instructional opportunities for active learning and independent study to foster the skills necessary for lifelong learning.
- The curriculum must incorporate the fundamental principles of medicine and its underlying scientific concepts; allowing students to acquire skills of critical judgment based on evidence and experience and developing students' ability to use these principles and skills wisely in solving problems of health and disease.

LCME programs have specific evaluation standards. The medical school faculty must establish a system for the evaluation of student achievement that employs a variety of measures of knowledge, skills, behaviors, and attitudes throughout medical school. LCME objectives are based on the idea of integrating technology into all courses rather than developing a separate course. This process ensures that a student will have the ability to retrieve (from electronic databases and other resources), manage, and use biomedical information for solving problems and making health care decisions. This includes collecting, critiquing and analyzing information, taking action based on findings, and communicating and documenting processes and results.

The current technological situation in educational programs in U.S. Medical schools is quite varied.

- 46% of programs require students to own or have access to a personal computer
- 28% of programs require students to have a personal digital assistant
- 16% of programs require students to have both a personal computer and a personal digital assistant
- 83% of programs include medical informatics in one or more required courses (mean time 8.7 hours, range 1-52).

Many schools are currently teaching evidence-based medicine (e.g., critiquing medical literature and using it to make decisions). There is a growing body of evidence that suggests that it is possible to teach the use of evidence-based medicine along with best practices. Medline searching is a competency that can, and needs to be, taught in medical education.

The class that is about to enter medical schools in July – August 2007 is the class of 2011. They were roughly born in the mid-'80s and are sometimes referred to as the *millennials* or generation Y. These students are tremendously familiar with technology and the use of the internet. However, this does not necessarily translate into medical competency. The results of surveys of graduating medical students suggest that these students feel the least competent with things that would lend themselves to evidence-based medicine, such as reviewing medical literature, epidemiology or biostatistics. They also felt the least competent with activities like using technology such as a PDA or practicing tele-medicine. While technologically savvy, these students do not have the comfort level with technology that their practices will require.

A Case Study of the Infusion of HIT Into the Medical School Curriculum at Georgetown

Georgetown Medical School is a large, private program that operates a non-profit hospital (without a current EHR). As of 2002, the medical school's objectives were to acquire:

- A knowledge of biomedical science and the ability to acquire, manage, integrate, and apply this knowledge to the care of patients;
- The ability to evaluate critically new knowledge and to determine its relevance to the clinical problems and challenges presented by the individual patient;
- The ability to perform basic clinical procedures;

- The ability to solve and reason through clinical problems;
- The ability to learn independently; and
- The clinical virtues of fidelity, trust, respect for others, excellence, duty, honor, integrity, humility, accountability, and compassion.

Two of the earliest courses to use technology were biostatistics and epidemiology. These courses were also the first to use computers in the classroom. Then, in the 1980s through a grant from NLM, the Integrated Advanced Information Management System was implemented. This was the first system to increase access to technology through options like digitizing the library card catalogue and creating portals for MEDLINE searching.

This led to a course in the 1990s called "Medical Data and Reasoning," similar to what is currently referred to as evidence-based medicine. This was essentially a few lectures and some labs that focused on information retrieval and expert systems, such as decision support systems, and clinical systems. These were the first EHRs.

In the 1990s, the University received a Title VII grant called the Family Medicine Pre-doctoral Grant. This grant was used to develop case-based methodologies for teaching family medicine to family medicine clerks and to ensure that clerks off and on campus were learning the same methodologies. This course increased the use of technology by requiring students to create PowerPoint case presentations, conduct remote presentations via NetMeeting, and manage and present cases on line. At the same time, a group of people were involved in a Public Health Informatics project that introduced first year medical students to both public health and information retrieval. Each student was given an assignment of researching and making a presentation on the demographics, health problems, and issues for one U.S. County. This allowed students to acclimate to retrieving and using medical information and encouraged them to use their problem solving skills.

Through a second grant in 2001, the school incorporated the use of PDAs into student training. This includes the use of PDA-based Patient logs and PDA-based decision support tools to teach prevention. Now the school requires the use of PDAs. Studies show that giving students decision support on PDAs increases personal and professional current, and future, use of evidence-based medicine. In 2003, the school conducted an internal informatics survey and found that 50 percent of their courses and clerkships required that students conduct sophisticated searches of medical information databases, 84 percent of courses and clerkships required students to use email, 46 percent required the use of Blackboard websites and 38 percent required that students critically review a published research report. Family Medicine was the only required course or clerkship that required presentation software (e.g. PowerPoint) to create visual materials to support an oral presentation.

The school created a lecture workshop combination to enhance clerkships by adding the use of evidence-based medicine. The curriculum included a one hour lecture addressing the knowledge, value, and objectives of evidence-based medicine. This lecture taught students how to formulate clinical questions and identify appropriate sources to answer each type of question. The workshop element was a hands-on, two hour exercise pairing clinicians and librarians. The topic was using library resources (i.e., Medline, InfoPOEMs, OVID, MDConsult) to find answers to clinical questions. An evaluation showed that students found the instruction helpful and valued the "hands on" aspect of it. However, students expressed uncertainty in selecting the best resource and critically appraising the information found.

After a change in leadership, the school developed committees to make recommendations for revising existing curriculum. The recommendations were 1) to revisit the existing evidence-based medicine and informatics focus within existing courses and 2) to expand these topics across courses.

Within an academic health center, there were several barriers to making these curricular changes. There were multiple organizations involved, meaning that multiple stakeholder groups needed to commit to the change. There were also financial limitations, and the business case for the expenditures was not always

clear. Within community health centers, there were additional barriers such as time and resource constraints and the clinicians feeling removed from the decision-making process.

There were several institutional lessons learned from this program. First, grants were helpful in overcoming curricular inertia. Second, there needs to be a transitional point when there is a need to invest in infrastructure. Third, small projects can grow into curricular innovations. Finally, having interested faculty members to support the initiative was necessary, but institutional buy-in is critical to long-term success.

DISCUSSION/QUESTIONS

- The Committee noted that there is a greater need for students to learn to use the EHR in the clinical setting, not just learning to integrate technology in the classroom, but actually when they begin to see patients. Going forward, more clinical settings will integrate the EHR. It is very hard for students to feel confident when they enter clinical rotations that use EHRs if they have not been exposed to them before. The goal is to have everyone work towards an ideal future state in which technology is widely used.
- Committee membership questioned whether using EHRs from different vendors in different settings might create information silos. Dr. Weinfeld responded that academia has to teach students to handle different EHRs in different settings. There is a movement to create some standardization within EHRs at the Federal level but, at this point, students need to be taught how to deal with the variations.
- The Committee expressed a concern that the use of evidence-based medicine might lead students to rely on the technology and to think less for themselves. "If there is an algorithm that says if A and B then D, will students learn to think creatively if D is not the case?" Dr. Weinfeld noted in response that the actual definition of evidence-based medicine is "the explicit and judicious use of the best evidence in the care of patients, which includes the patient's point of view and the clinician's expertise along with and the best evidence". In that rubric, there is room for the clinician's judgment.
- Committee membership asked how long it would take the best students to use medical literature to answer a question about how to treat a specific diagnosis in a population. Dr. Weinfeld stated that, for good students who really knew MEDLINE and infoRetrieve, it would take only a few minutes.
- The Committee noted that, in many instances, clinicians are not going to have time to review the literature and practice evidence-based medicine. Rather, they may have to delegate this to other staff members and just review a summary of the findings.
- Committee membership questioned whether, given the costs of implementing technology in academic programs and the helpfulness of Title VII grants, the Federal government might want to tailor some of the grant application proposals. Dr. Weinfeld mentioned that grants might encourage model medical centers and institutions where good use of electronic health records can be emulated. Grants can also help in terms of the curricular development with respect to allowing space to do curricular development and encouraging more advanced informatics training.

USE OF EHR IN CLINICAL PRACTICE AND TRAINING - EXPERIENCES FROM AN ARKANSAS AHEC

Mark Thomas, MD/Residency Faculty
Northwest Arkansas AHEC Center (Fayetteville, AR)

This presentation outlined the use of the EHR throughout the AHEC system in Arkansas. AHECs have trained a total of 597 family physicians that practice in 121 Arkansas communities in 70 of the 75 counties in Arkansas. The AHEC-Northwest is one of seven AHECs and has a budget of \$9.1 million dollars, 132 full and part time employees and 142 clinical faculty, and comprises two family medical centers affiliated

with two hospitals. It also maintains a local medical library. In FY 2005, the two medical centers had a total 30,000 Annual Patient encounters, 125 Emergency Room Visits, 2,500 Hospital Admissions, and 300 Nursing Home visits. The center staff delivered approximately 500 babies and 120 patients per day. The top four diagnoses seen in family practice centers across the country (according to the AAFP) are hypertension, diabetes, upper respiratory infections, and well child care. These common diagnoses are conditions that can be best assisted by the use of an EHR.

In Arkansas, there are some specific drivers of the decision to use EHR. The Arkansas Council on Graduate Medical Education (ACOGME) program requirements state that programs not currently using an EHR system should document their plans to convert to one in the near future. Further, the requirements mandate that all residents must actively participate in scientific inquiry, necessitating time and ability to conduct studies in primary care settings. Finally, the guidelines insist that residents learn how to do practice based quality improvement. Other influences such as market forces, health systems requirements, and regulatory changes at the state level, encourage the adoption of an EHR.

The University of Arkansas medical center uses EHR to varying degrees. Almost all of the ambulatory care clinics use them to some degree. Four of the AHEC clinics have active EHRs and two are in the process of implementing EHRs. The remaining center is planning to convert to a different EHR vendor from their current system.

The traditional practice model could be characterized as practicing alone together. The quality of chronic disease care was dependent on the physician's time and memory and the reliability of the patient in showing up for their office visit. Providers often do not communicate follow-up schedules well and do not know what is going on with patients over time because there is no data. This acute care reactive model does not prevent problems or look at the chronic disease patient prospectively. With the use of technologies like disease registries for chronic care patients, it is easier to use active care models to provide continuity of care and to prevent complications.

The AHECs looked for the following capabilities with respect to an EHR: 1) consolidates the total patient record; 2) accessible from anywhere at any time; 3) allows trending and protocol management; 4) provides a clinical training tool; 5) flexible to change; 6) stores discrete data for research and practice assessment; 7) interoperable; and 8) maintains patient privacy.

The implementation process for one AHEC center began with lots of paper and money spent supporting the paper. Appointments were hand written into an appointment book. Chart documents like lab reports and treatment notes were all on paper. There were also systems necessary for supporting the paper charts, such as creating charts for new patients, filing and storing charts, transcription, and materials costs for items like paper and folders.

The process began with establishing a state level planning group that was charged with configuring the EHR to address the needs of each AHEC and developing an implementation plan. The group budgeted about \$1.2 million to do the statewide implementation and determined how to fund it. The implementation costs included servers for \$10,000. In total, the estimated cost was about \$60,000 per site and \$60,000 in opportunity costs (the revenue that was lost from not being able to see patients while the system was being implemented).

There are numerous areas of learning, which yield future research opportunities. In training, it was discovered that nurses were a vital element in training new faculty and providers. There should be a training grant focused at recognizing the role of the Registered Nurse (RN) and the Licensed Practical Nurse in the Family Practice Center as teachers in the use of the EHR. Additionally, preliminary audits of residents using EHRs found a discrepancy of 5 percent between electronic and paper records due to errors and not recording things correctly. One other potential area of research is ethical considerations with the use of the EHR.

New clinicians/doctors have to discern a number of different aspects when they see a patient, and having the computer in the room makes this learning very difficult. This directly informs the kind of training that students get in medical school when they learn to do a physical exam or take a history. These processes are changing fundamentally, not only due to the presence of the EHR, but also due to how the clinician reacts to it. The clinicians' style influences how they interact with the EHR; for example, patient focused (interpersonal) clinicians will rarely look at records where data focused (informational) clinicians will make greater use of it.

Pilot testing and debugging was a continuous process. There was a pilot group testing the system and continuously debugging the system's configuration. After the hardware and software were installed and configured, the system was thoroughly debugged, and staff education and training began. Currently, the system is operational. Appointments are entered via keyboard and classified by type. When the visit begins, the appropriate tool is automatically provided to the nurse/physician team based on appointment type. All ancillary service results go directly into the electronic chart. The end result has been a reduction in the need for storage space, purchasing costs, personnel costs, and changes in assignments.

The implementation experience at the AHECs has generated several best practices. There are two features of the EHR that contribute to the increased length and decreased effectiveness of the EHR notes. The first is the automatic insertion of phrases into the notes. The other is the copy-and paste command which allows one day's note to be copied and used as a template for the next day's note. This can create confusion and inaccuracies. Suggestions are to use mobile computer monitors and to reserve templates for the documentation of notes. In terms of the clinician patient interactions, the facility should train the clinicians to utilize the technology and encourage them to include the patient in development of the EHR.

The standardized EHR is the central nervous system of a new model for practice.

DISCUSSION/QUESTIONS

- The Committee discussed the idea that e-medicine can lead to more care being provided via email is becoming more prevalent in the literature. This will transform the work of a family physician to managing a population of patients. For example, someone who visits their doctor solely to determine what vaccinations they need to travel abroad is a visit that could easily be handled over email. However, there is currently no billing structure to accommodate that situation.
- The need for trainings and specialized trainers is evident, especially in rural areas. The Committee members felt that something should be done at the Federal level to assist in this area.

USE OF EHR IN RURAL SETTINGS AND ITS IMPACT ON RURAL HEALTH

Tommy Mullins/Administrator & CEO
Boone Memorial Hospital (Madison, WV)

This presentation discussed the implementation of EHR in a small hospital in rural West Virginia. The county is largely rural, and coal mining is the major industry. Technological access in many rural hospitals is lacking. Many do not have access to email through the facility so implementation of an EHR would be very difficult.

The process for this rural hospital began in 1999 with the evaluation of different vendors. At the time, the system was rejected as too expensive. In 2002, the head of the hospital began getting various requests for software packages from different departments (mainly laboratory, home-care, and the pharmacy). The hospital administration realized that if the requested systems were purchased, they would not be able to communicate with each other. There was a need for a re-evaluation of an IT model suitable across the entire facility.

Initially, the administration reviewed the possibilities of expanding the current system, but it was not cost effective to upgrade that system and maintain it relative to getting a new system. Then, the administration explored bids to obtain a new integrated, facility wide, information management system. The process of reviewing bids was beyond the expertise of current staff, so they hired an outside consultant to evaluate the three bids. Two of the three original vendors were invited to demonstrate their product for department heads, mid level managers, and physicians. The administration also conducted site visits to vendor headquarters as well as site visits and telephone conferences with other facilities using these vendors. Finally, multiple large and small staff group meetings were conducted to discuss the pros and cons of each vendor. After 12 months of consideration, the hospital contracted with a vendor that specialized in HIT for rural hospitals.

It is important to have, up-front, 100 percent buy-in from all participants in the institution. This includes engaging all staff from the bottom up; every staff member has to feel a part of the system. Additionally, each division in the institution, including medical staff, has to have a champion for this system that can lead by example. It is especially important to gain physicians' approval so that they can serve as advocates and advise other physicians.

The implementation date was set by the administration and not the vendor, so that the hospital was able to prepare as much as possible prior to adapting to the system. This included time to inventory the computer literacy of all staff to determine who needed extra training. Staff members who needed help were sent for evening computer training. An implementation coordinator was designated as a point of contact for all staff. These coordinators were people with facility-wide exposure, good communication skills and good computer knowledge. At 16 months, the administration implemented the financial, order entry, and ancillary tests resulting in pharmacy, medical records, registration, and business office outsourcing software modules. The Point of Care (POC) implementation for documentation of nursing and ancillary departments and Bar-Code Medication Administration was accomplished three months after the organizational and financial modules (although in retrospect, Mr. Mullins would recommend five to six months). In 2004, the administration introduced "Chart-Link," a web-based patient record that physicians can access at any time.

In March 2005, the hospital implemented Computerized Physician Order Entry (CPOE). This system had the benefits of reducing difficulties associated with illegible physician writing, clarifying physician orders, and reducing medication errors and duplicate therapies. The system also provided for the electronic authentication of an order so no physician signature would be required. The major disadvantage to this system is the length of time for implementation, which resulted in some doctors losing interest in advocating for the change. The final module implemented was the physician's office module, which allows for registration, scheduling appointments and billing, as well as ad hoc report generation.

The most common reasons for EHR failure are weak executive level sponsorship, unrealistic expectations, no organized mechanism for communication and feedback, lack of the formal training plan, and a lack of effective leadership on the physician level.

When considering a vendor, one should access the following issues:

- the kind of facility that the vendor specializes in (e.g. rural facility, large hospital, Critical Access Hospitals);
- the cost of upgrades and software changes;
- the standard to structure patient data submitted in support of payment claims, known interfaces and Health Level Seven (HL7) compliance; and
- the vendor's proposal with regard to sustaining the facility in terms of support and software maintenance.

In the hospital's experience, the minimum capitol investment is \$500,000 with \$100,000 annually in maintenance. About 5 to 10 percent of net revenues should be budgeted for an EHR system. After 3

years, the hospital is still having difficulties with some staff members who cannot use it, so continuous retraining is necessary. There is a limited pool of computer savvy nurses, which can make hiring them more difficult in a shortage market. Hospitals that receive Federal funding have a given timeline for compliance. In this hospital's experience, it has taken 4 years to implement the current system; however, the system is still not 100 percent electronic.

DISCUSSION/QUESTIONS

- Committee membership noted that nurses are sometimes considered more computer-capable. Mr. Mullins stated that, in the instance of this hospital, this was not the case. He noted that the same was true with respect to x-ray and laboratory staff.
- There is a difficulty with getting the medicines that the patient is on at home into the electronic system in the emergency department. Part of the administrative challenge is getting those medicines entered into the system as soon as possible and being careful with what is prescribed in the emergency room.
- The accuracy of the EHR has been evaluated and found to be satisfactory. The majority of contrary orders are given at the bedside by physicians and not entered into the system at all.
- There is a positive impact on teamwork at the organization. EHR requires all of the different departments of the hospital to work together and understand what each is doing. When staff buy-in has been obtained, enhanced unity and teamwork result.
- Exposing Allied Health and nursing professionals to at least some kind of introductory course work in the computer areas would be helpful. There needs to be more collaboration with area educational programs that train these individuals to give them more exposure to computers and EHRs.
- The experience of the vendor is critical to choosing the right one for the facility's needs. Choose the vendor that has experience with the type of facility you have, and the vendor will better understand the issues and needs of your organization.
- Every vendor that is supplying EHR for the medical profession has a core operational system that is very similar. To customize it depends on the setting and the size of the operation.

USE OF EHR IN THE ACADEMIC SETTING

David Dorr, MD, MS/Assistant Professor
Medical Informatics and Clinical Epidemiology — Oregon Health & Science University (Portland, OR)

This presenter discussed training care managers (primarily nurses and other Allied Health professionals) through the Care Management Plus Project. This project focuses on using HIT to support the care management and the treatment of patients with multiple chronic illnesses, meaning that their treatments are subject to multiple guidelines.

Chronic illness is being focused on because medicine does not do a sufficient job in this arena. The chronic illness burden is increasing, so the shift to focus on these needs is becoming even more important. For chronic illness care, specifically, there is a special set of needs that a health care system focused on episodic acute care does not provide. This gap is where HIT and team based care can fill. The question is - how do we prepare people in academic settings to use HIT and team based care to address the needs of chronic illness?

Studies of residents have found that they were not getting good training in chronic illness care. Residents were also lacking a sense of working on a team in the outpatient setting. Further, they were not treating the patients according to the recommended guidelines for a significant portion of the time. HIT can be used to improve the quality of care through computerized reminders, clinician education, practitioner involvement in quality improvement, formal patient self-management programs, the use of disease registries, and the use of nursing care and case management.

The usual care model is created for acute care. If somebody comes in with a symptom, he/she receives the treatment and the physician is paid for that treatment. The connections are not made at the community level and patient education is secondary to treating the symptom. This creates frustration on the part of the patient as well as a lack of efficiency. Continuing medical education is done in lecture format to individual providers, not in the context of team care delivery. In the chronic care model, there is a team-based approach that emphasizes continuous quality improvement and longitudinal chronic illness care. This model includes continuous patient education to encourage self-management of chronic conditions. Within this model, HIT is essential to success. The desired outcome is informed active caregivers, patients, and providers.

The Oregon Health & Science University (OHSU) Program

In order to teach residents to provide continuous care for chronic diseases, the OHSU program selected 60 second and third year residents for a chronic illness management rotation. These residents were trained in a team care model with an intensive HIT focus. There were 580 patients with diabetes mellitus. Of those patients, 27 percent had commercial insurance, 61 percent were female, 26 percent were non-white, and 27 percent had co morbid depression.

For this rotation, residents begin their days reading the patients EHRs and the disease registries, and then planning treatment for patients in a multidisciplinary team setting. The residents work with a multidisciplinary group of professionals to provide total patient care. The medical assistant is really empowered to do a lot in terms of checking on the care of the patient and including the family, while working together to improve communication. RNs serve as care managers; social workers interact with families and the patients in meeting their needs and connecting them to other resources. Pharmacists provide information about medications and interactions. This entire team responds to the needs of the patients and their families.

There are different HIT elements necessary for this kind of model to work. The first is the patient registry. A registry is different from an episode-based EHR that has population-based patient data over time as well as chronic illness care and preventive care needs. The second is the summary sheet at point-of-care, which is basically individual data over time using evidence and guidelines to focus on what needs to happen for each patient. These two HIT elements are used extensively in the improvement team meetings. Each member of the care team was encouraged to use the electronic record.

After participating in this rotation, more than half of the residents felt that they could start a chronic disease care management program. Under this model, patients of the residents were more likely to receive preventative care, such as flu vaccines and cholesterol testing.

The Care Management Plus Program

Implementing care management has a number of major challenges. The current system is created for episode (visit) based care when most of the 'action' (as far as what causes the illness) happens outside the visit. Patients benefit from coaching, motivation, self-management, and education over time to manage what happens outside the office visit. Coordination of care requires substantial amounts of information (e.g., care plan, patient needs, other treating physicians' reports) over time. Care Management Plus can help create a medical home through a proactive, flexible, system that can vary by intensity and function for different populations and needs.

The Care Management Plus program focuses on chronic illnesses, which account for a disproportionate amount of health care needs. About 50 percent of the chronically ill population might have just a mild or moderate chronic illness and may do well with planned visits and self-management. Less than 1 percent of this population has a very high need (e.g. mentally ill and homeless) for services that will require very intense care management. The remaining 49 percent have multiple chronic illnesses. The provider's

ability to manage these complex chronic illnesses is limited because of the volume of knowledge needed and the many conflicting and competing needs of these patients over time.

The core idea is for patients with complex needs to be referred for any one condition and then to have the Care Manager, RN, or Advanced Practice Registered Nurse do a general assessment for all conditions.

The care manager is trained to assess and create a plan for the patient, interact with a number of their providers, and act as a catalyst to make sure that the treatment plan occurs. This provides a structure within the clinic that these patients with intense needs can access. Technology is used to both access and modify the care plan. Communication is one of the most important elements as this is happening over time. There is also an element of evaluation with ongoing feedback.

The Care Management Plus program has two critical HIT elements. The first is the Patient Summary Sheet, which the whole team uses to document and review treatment. The second is a care management tracking database, which is a list of tasks for the care manager. This database helps remind the team members not only what they have planned in terms of the protocols or follow up with patients, but also about the illnesses that they are following and where they are in terms of the treatment plan.

The results of implementing this model reduced the odds of death significantly. Further, admissions for any cause were reduced by 27-40 percent over 2 years. Physicians using the Care Management Plus Program were 8 percent more productive. More efficiency was gained through better documentation, a slight increase in visits, and a change in practice pattern. Given the increase in productivity, a clinic in the right environment could pay for the cost of the care manager. The Care Management Plus program is currently operating in 26 clinics in the state of Oregon.

DISCUSSION/QUESTIONS

- Committee membership asked what kinds of credentials are necessary for care managers and whether they have to be RNs or social workers. Dr. Dorr answered that there are some credentialing programs that offer certificates in care management. There is a master's degree that some nursing schools offer with a focus in care management. Many nursing schools try to teach those skills, but, depending on the clinic population, the skills required may vary. Social workers have the skills required to link patients to resources, but RNs are best for assessing diseases that need clinical monitoring as part of the case management model. In some instances, medical assistants can be trained to assist with this role.
- Committee membership asked what types of changes needed to be made in organizational culture to make these kinds of models work. Dr. Dorr responded that there needs to be a focus on both quality and efficiency. Many organizations try to address the needs of the patients but usually do not have a system in place to do it.
- The Committee requested the ethnic/racial make-up of their patient population. Dr. Dorr indicated that it depends on the clinic; some are majority white and some are predominately minority. They are currently addressing cultural competencies in their training programs.
- Committee membership questioned how interdisciplinary provider communication would translate within the EHR. Dr. Dorr responded that some items can be passed as care plan elements or as discussions back and forth. The EHR can help store information and remind providers about that communication and/or future follow-up activities. Being electronic means that these elements are not dropped, which is a common problem in non-electronic systems.
- The Committee asked what costs are associated with the training and the team approach. Dr. Dorr indicated that currently the system is funded by the Johnny Hartford Foundation. Other Federal entities, such as Federally Qualified Health Centers (FQHC) and Geriatric Education Centers (GECs), and nursing schools envision a very positive future role for inter-disciplinary training in their organizations.

AN URBAN EXPERIENCE — UNDERSTANDING THE REGIONAL HEALTH INFORMATION ORGANIZATION NEW YORK CLINICAL INFORMATION EXCHANGE (NYCLIX)

Gil Kuperman, MD, PhD/Director, Quality Informatics
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There are quality problems in health care. The establishment of EHRs can help, but dissemination is slow. Data about the patient in other institutions is not available to the clinician during the office visit. In primary care, studies have shown that clinical information is missing in 13 percent of visits. In 52 percent of that time, it is available in some outside system. In emergency settings, information gaps are present in 32 percent of the visits, most often in sicker patients. In 48 percent of these cases, that data is essential to care. A study of the Bronx Medicaid managed care program found that 30 percent of emergency department visits are not to the member's primary hospital. In Queens, it was 21 percent. Interoperability increases the value of EHRs in the sense of getting the data from point A to point B in the patient setting. Federal policy is working to target interoperability and there are pilot funding opportunities to encourage the development of interoperable records.

NYCLIX is a non-profit organization with a mission of establishing an interoperable regional data exchange. NYCLIX began as an IT initiative within the Greater New York Hospital Association (GNYHA) to understand what area hospitals could do to work together better. Providing interoperability of records was a prime suggestion, but competitive concerns needed to be addressed so physicians would not be concerned about losing their patients. In order to limit these concerns, it was decided to begin with making emergency care data available to doctors as patients generally do not choose where they go and the potential for competition is limited. Other steps to allay competitive concerns included emphasizing that interoperability was good for the patient and having GNYHA serve as an intermediary to ensure honesty on both sides. These steps brought the city and state Departments of Health, payers, home health, medical societies, and local foundations to the table.

In the effort to make records interoperable, there were a substantial number of technical, business, and privacy issues to address, including evaluating the effort. So, the administration decided to apply for a NLM IAIMS two year, planning grant. While waiting for this grant, New York State announced the Health Efficiency and Affordability Law (HEAL), a four year, \$1 billion bond act for restructuring health care in New York. The first year had a large HIT component, for options like electronic health records prescribing and data-sharing projects. It also encouraged interoperability in that there had to be more than one organization on the project and there had to be data sharing. NYCLIX applied for this grant with 5 goals: 1) to build a technical infrastructure to affect this linkage; 2) to implement this ED-based data exchange application; 3) to support public health activities (e.g. disease surveillance and reporting); 4) to evaluate the impact on cost, quality, safety; and, 5) to create a sustainability plan.

NYCLIX was awarded \$4.7 million through the HEAL program and matching funds. There are 14 participants: 11 hospitals, the Visiting Nurse Service of New York, and two ambulatory care groups participating. The governing board is composed of representatives from each organization and non-voting "interested parties" from the New York Department of Health and the United Hospital Fund. The governance includes several subcommittees. The Legal Committee created the by-laws for the organization, developed participant agreements, ensured compliance with HIPAA privacy and data security rules, and provided financial services. The Technical Committee developed the desired technical architecture for the EHR and selected the vendor. The Evaluation Committee was charged with identifying evaluation topics (e.g., usage, utilization, financial impacts), identifying measures that were data-sensitive, and developing an experimental design. The Clinical Advisory Group did a baseline needs assessment of emergency department physicians to identify their perceived needs related to data exchange, to define the most valuable data elements, to analyze work flow (potential and user initiated), and to determine where the EHR would fit in with the current all paper system. The Communications Committee developed a participant newsletter and websites, and eventually had responsibility for grant writing. The Consumer Committee identified which consumer groups should be involved and how to involve them (e.g., identify the appropriate language to use to explain the technology and to sponsor patient advocates for the technology). The Public Health Workgroup was responsible for tracking mandatory surveillance of reportable diseases, population health reporting, conducting public health scenarios, and maintaining communications between public health and clinicians. Finally, the Business

Committee was responsible for sustainability, identifying potential funders, involving outside organizations in the NYCLIX mission, and tracking the progress of other EHR projects across the nation.

NYCLIX has addressed many early challenges in providing an opportunity to improve care with data interchange. Organizations have learned to work together cooperatively and to minimize the influence of politics and competition. NYCLIX needs to resolve some early technical challenges and prepare for longer-term challenges of being a robust asset to health care in the New York City region. Sustainability is critical to the continued growth of the program. The NYCLIX recently submitted a proposal for the current HEAL 3 grant cycle. The goals of this proposal are to expand the number of organizations that are part of NYCLIX, to integrate two other health data organizations, to allow for the capture of Medicaid claims data, and to identify how to use data exchange to support disease management. This proposal includes 13 stakeholders composed of hospitals, physician groups, non-acute care organizations, payers, and HEAL 1 grantees

DISCUSSION/QUESTIONS

- Committee members questioned the potential disconnect between integrating data from the physician and the initial ER visit and tracking outcomes like patient satisfaction and other evaluation components. Dr. Kuperman responded that there is no disconnect in that the program has the ability to access different databases in the distributed systems.
- Committee members asked what would need to be taught to interdisciplinary health professionals about this product. Dr. Kuperman indicated that increasing awareness of the capabilities is of primary importance.
- There is a shortage of health informatics professionals. The American Medical Informatics Association has a vision to train 10,000 informaticians by the year 2010. At the leadership level, the NLM programs are available but many are academically focused. Master's level programs for clinicians are evolving also.
- The E-Health initiative represents a public/private partnership whose mission is to advance Health Information Technology in health care for the purposes of improvement. This effort consists of about 100 organizations.
- Committee members questioned whether there is any training associated with the reality that participants are not at the same level for utilizing electronic health records. In response, Dr. Kuperman stated that most hospitals are already at the point where they can participate. However, health centers, ambulatory practices, and nursing homes do not have the capability to come readily on board. Training is best placed on making the best use of HIT within health care provider organizations. The current workflows need to be analyzed now, and after, the implementation of the technology.

B. FINDINGS

The Committee felt strongly that they needed more testimony prior to making recommendations for the Seventh ACICBL Report. However, the Committee was concerned that hearing extensive testimony during the September meeting would affect the ability to develop findings and recommendations at the conclusion of the meeting. Having an abridged teleconference call in August was suggested, with shorter, more focused, testimony. All committee members agreed that this would be considered. Additional testimony was requested in the following topic areas.

- Understanding HIT/EMR issues across different health professions (e.g., psychologists and chiropractors) and in diverse settings (i.e., hospitals, inpatient settings and ambulatory care sites in addition to academic settings).
- Identifying how other sectors of the health care system are adapting to HIT/EHR programs and learning about the competencies, barriers, and guidelines for implementing technology in their fields. This information would include not only the different health care practitioner education and training programs, but also community organizations, patient advocate organizations, the National

Library of Medicine (NLM), and other educational disciplines (e.g. business schools, allied health).

- Obtaining input from the organizations within the safety net system, like the FQHCs. Many of these grantees are getting first-hand experience in HIT/EHR systems and it would be a benefit to hear from them.
- Identifying best practices for integrating the needs of students who are more technologically savvy with the needs of older practitioners who may not be accustomed to using technology to assist in the integration process.
- Defining the impact of the Medicaid pay-for-performance arrangements on training providers. Health information technology is a focus of numerous Medicaid pay-for-performance programs, where providers are given incentives to adopt electronic health records and electronic prescribing, often in conjunction with other quality improvement efforts.

The Committee requested testimony on what impact the changing demographics would have on health information technology, specifically on concepts such as the intersection of the medical home and the use of EHRs as a part of pay for performance.

SECTION II. ADVISORY COMMITTEE BUSINESS

- Charter Renewal and HRSA Staff Changes
- Advisory Committee Reports
- Review and Approval of Minutes from September 2006 Meeting
- Topics for Future Meetings

A. CHARTER RENEWAL AND HRSA STAFF CHANGES

During the previous meetings, there were questions about whether the committee would continue to be funded. The committee has continued and the charter has been renewed for two years. The current charter expires in March of 2009.

Several members will be finishing their tenure with the committee at the conclusion of the next meeting in September 2007: Dr. Cavaliere/Chairperson, Ms. Amundson, Dr. Bonner/Co-chairperson, Dr. Cameron, Dr. Charrette, Dr. Elder, Dr. Foster, Dr. Green, Dr. Mason and Ms. Yuhos. A Federal register notice has been published to petition nominations for new members. Additionally, the process for reviewing these nominations has begun.

The committee welcomed the new Acting Associate Administrator for the Bureau of Health Professions, Mr. Steve Pelovitz and Dr. Marilyn Biviano, Director of the Division of Medicine and Dentistry.

B. ADVISORY COMMITTEE REPORTS

The final copies of the Fourth and Fifth Advisory Committee reports have been published and were distributed to the entire Committee. The Sixth report has been reviewed and finalized by the writing committee, and has been sent to the Agency for a final review prior to publishing.

The reports of the other advisory committees (NACNEP and COGME) will be made available to ACICBL committee members.

C. REVIEW AND APPROVAL OF MINUTES FROM SEPTEMBER 2006 MEETING

The Advisory Committee unanimously approved the minutes from the September 2006 meeting.

D. TOPICS FOR FUTURE MEETINGS

FOR THE SEPTEMBER 2007 MEETING:

The Committee will continue to focus on issues related to Health Information Technology (HIT) and Electronic Health Records (EHRs) and their potential impact on Title VII Interdisciplinary, Community Based Training Grant Programs identified under sections 751 through 755, Part D of the Public Health Service Act. The Committee felt that HRSA can be a leader in the development of guidelines and competencies for HIT/EHR implementation in professional training programs and in underserved, community based care programs.

During this September 2007 meeting, the Committee will develop the recommendations to be addressed in the Seventh Annual ACICBL Report. These recommendations will be targeted to the use of advanced technology to enhance interdisciplinary and community based training of health professions students and practicing health professionals.

DISCUSSION

- The Committee found that there is a need to develop informational guidelines and criteria for Title VII grantees specific to selecting and implementing a health information technology system.
- The Committee suggested that there was a need for a recommended set of core competencies for health professionals upon which HIT/EMR training and educational programs can be built. The Committee felt that these core competencies should be graduated, i.e., general enough to work across professions, yet targeted enough to meet the specific informational needs of the different professions.
- The Committee would like to facilitate the provision of information that would help practitioners use electronic records in the development and implementation of evidence-based practices. Currently, practitioners may not be aware of the different forms of electronic databases and information that can be of value.
- The Committee thought that there should be an evaluation mechanism to highlight that HIT and EHRs are effective, to demonstrate a need for them, and to define their benefits for patients, hospitals, and/or ambulatory systems.

FUTURE MEETING TOPICS

Advisory Committee members identified the following possible topics to be addressed in upcoming meetings:

- Examine the issue of the impact of demographic change on health care professionals and the health care system, ensuring that the diversity of patients, providers and faculty are addressed.
- Address the issue of care giving in terms of family caregivers as well as professionals, and the impact of the approaching care giving with respect to workforce shortages in the health care system, particularly in geriatrics.
- Address the issues of the health care workforce shortages in terms of physicians, nurses, and allied health care providers, as well as faculty shortages.
- Assess the impact that the current conflicts in Iraq and Afghanistan will have on medicine and health care, addressing the need for training to provide care for returning veterans, who may present with complex treatment needs.
- Evaluate the impact of bioterrorism preparedness training grant programs on health professional training programs.

COMMITTEE DISCUSSION/CLOSING REMARKS/ADJOURNMENT

The following remarks were made by Advisory Committee members in closing:

- There was some concern expressed about the turnover rate among committee members. As such, the discussion centered on the possibility of appointing members for staggered terms rather than a consistent term of three years for all members. (This concept is one recommended by the Charter and will be implemented.) The Committee suggested continuity of members to work on drafting and finalizing the Annual reports on a regular basis to the degree possible.
- There was an additional concern expressed that the turnover rate might affect the subcommittee membership for both the planning and the writing committees. There was an inventory of committee members regarding their subcommittee obligations. Additionally, there was some discussion of the status of committee members who failed to attend the meetings and whether they would be considered for subcommittee assignments. It was resolved to reach out to absent committee members and get their preferences for subcommittee assignments. Existing members will also be sent reminders of when their terms expire so they can plan accordingly.

Dr. Steve Wilson was nominated and seconded for leadership of the Writing Subcommittee. He accepted the nomination. Dr. Andrea Sherman was nominated and seconded for leadership of the Planning Subcommittee. She accepted this leadership position. A motion was offered that potential candidates for the Chair and Vice Chair of the overall ACICBL Committee identify themselves by the last week of July. Then, each nominee would make a brief comment during the August conference call after which the committee would vote by e-mail. This process will facilitate the announcement of the new Chair and Vice-chair during the September meeting. They would accept the gavel at the end of that meeting.

After this discussion, the committee adjourned.