
**ADVISORY COMMITTEE
ON INTERDISCIPLINARY,
COMMUNITY-BASED LINKAGES
(ACICBL)
Seventh Annual Report
September 2007**

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The views expressed in this report are solely those of the
**Advisory Committee on Interdisciplinary,
Community-Based Linkages**
and do not represent the perspectives of the
Health Resources and Services Administration nor the
United States Government.

THE COMMITTEE

In 1998, under the Authority 42USC 294F, Section 756 of the Public Health Service Act, the Advisory Committee on Interdisciplinary, Community-Based Linkages (ACICBL) was created. The Committee has specific duties to include providing advice and recommendations to the Secretary concerning policy and program development and other matters of significance concerning activities under Section 756, Title VII, Part D of the Public Health Service Act. Additionally, the Committee prepares and submits a report to the Secretary; the Committee on Health, Education, Labor and Pensions of the Senate; and the Committee on Energy and Commerce of the House of Representatives that describes its activities, findings, and recommendations. Specifically, Section 756 directs that:

- The Secretary of the Department of Health and Human Services shall establish an advisory committee, known as the Advisory Committee on Interdisciplinary, Community-Based Linkages (ACICBL).
- The Secretary shall appoint the members of the Committee from a pool of qualified applicants who are health professionals from schools of the types described in Sections 751 through 755, inclusive of Area Health Education Centers; Geriatric Training for Physicians, Dentists, and Behavioral/Mental Health Professionals; Quentin N. Burdick Program for Rural Interdisciplinary Training; and Allied Health and Other Disciplines.
- The Secretary shall ensure a fair balance between the health professions. At least 75 percent of the appointments shall be health professionals representing a broad geographic spectrum, a balance between urban and rural members, and an adequate representation of women and minorities.
- The Secretary shall ensure the appointment of members based on their competence, interest, and knowledge of the mission of the professions involved.

The Health Resources and Services Administration (HRSA); Bureau of Health Professions (BHP); Division of State, Community, and Public Health has responsibility for managing all aspects of this Committee. The Committee is legislatively mandated to convene at least three times annually to discuss relevant issues that impact the Title VII training programs and associated research. Frequently, this effort involves convening experts and consultants from the field for dialogue with the public always being invited.

The Committee was initially chartered on March 24, 1999. The charter was renewed on March 22, 2001; March 23, 2003; March 1, 2005; and March 23, 2007.

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EXECUTIVE SUMMARY

The members of the Advisory Committee on Interdisciplinary, Community-Based Linkages (the Committee) represent training programs that are funded under the Federal Title VII, Part D, Sections 751 through 755 Interdisciplinary, Community-Based Training Grant Programs. The Committee recognizes that the services offered to the respective communities are invaluable to the training and development of the country's health care workforce and affect the Nation's entire health care system as a whole. To assist in this growth and development, the Committee provides recommendations on pertinent topics related to these programs. In alignment with its Federal mandate, the Committee provides advice and recommendations to the Secretary of the Department of Health and Human Services concerning policy and program development and other related matters of significance.

Accordingly, the Committee recognized the tremendous impact of new technology on the health care delivery system and consequently, the strategies employed to educate health care professionals. In 2007, the Committee focused its efforts on obtaining a deeper understanding specific to the use of technology on the advancement of interdisciplinary health care related pursuits. The Committee determined that the advances with Health Information Technology (HIT) and the widespread use of the Electronic Health Record (EHR) were the most pertinent issues associated with the programs represented by the members of the Committee.

In turn, the Committee worked toward gaining insight on the developments related to both the challenges and opportunities of HIT and EHR faced by health care professionals with the goal of providing meaningful advice to the Secretary and the Congress. A secondary objective of the Committee was to provide the leadership of the various training programs with beneficial information related to HIT and EHR based on varied experiences from the users in the field.

As such, the Committee formulated edifying recommendations on how various aspects of the Nation's health care system can best move forward in preparation for the increasing utilization of HIT and EHR. The Committee's findings and suggestions are addressed to the Secretary and the Congress with the goals of further dissemination and implementation of the recommendations to advance the positive outcomes of the various training programs that it represents.

The importance of outcome data in evaluating performance and determining funding in the health care domain will demand that data be collected and analyzed in a systematic and thorough manner. Health Information Technology and the Electronic Health Record offer the prospect of making those processes more complete, concise, and consistent. Furthermore, clinical research in support of evidence-based practices will increasingly require the capacity to accumulate and manipulate large volumes of patient care data, demanding the analytical abilities that only EHR and HIT can offer. Broad-based use of the EHR promises enhanced education of all health professionals and will contribute to studies of the effectiveness of interdisciplinary training and team functioning. Improvement in quality of care is widely believed to be an end result of these developments.

The need for all health care personnel to be able to effectively interact with and use HIT for both patient care and research will increasingly become important as the EHR is adopted throughout the health care system in the United States. The Committee received testimony from an impressive array of national experts who are leading the way in the implementation of the EHR. Among that data, it was noted that 13 percent of health centers, 11 percent of hospitals, and 9 percent of ambulatory health care settings have already implemented some form of EHR. These figures are expected to rise rapidly, despite the negative pressures of costs and training requirements because of the perceived benefits to patient care and clinical research.

The American Health Information Management Association and the American Medical Informatics Association are developing specific basic HIT competencies for the health care workforce as other groups are seeing the need for a common knowledge base. Professional silos are no longer acceptable when communications focus on the individual patient. A 2003 Report from the Institute of Medicine, (Health Professions Education: A Bridge to Quality) cited the need for skills in informatics to be considered as an overarching competency to be taught to health professions students and trainees. How that competency will be included in the various health professions curricula remains a challenge, but interdisciplinary, community-based training sites are poised and situated to play a major role.

The Committee heard testimony regarding the success of the Department of Veterans Affairs (VA) in re-allocating resources to successfully implement an EHR within its health care facilities. Many non-VA centers that provide education and training for health care personnel, including Community Health Centers (HCs) and many interdisciplinary, community-based activities funded through Title VII programs lack the resources to implement HIT systems and the associated training support.

Since EHR systems are not typically supported through clinical or educational budget lines, additional funding may be needed to bring grantees to a useful standard and to maintain that posture through the foreseeable life-cycle of HIT. Safety-net providers (such as HCs) are independent entities with fewer resources and are among those most in need of assistance, both technical and financial, in the implementation of HIT and EHR.

Currently, HRSA grant funds are not targeted toward HIT/EHR capacity-building and training, but the establishment of a HRSA Office of Health Information Technology is a step in the right direction for the Agency. Available EHR systems lack features of interoperability and universality, thus training tends to be isolated to one particular system. If these important features are not incorporated as part of future systems, EHR skills may not be directly transferable to other health care settings. Linkages of vendor-supplied systems to other systems is not a feature of most packages, nor are many systems planned around the information needs of clinicians (as opposed to administrators).

Additionally, the clinical communication component of systems may not have the ability to incorporate information directly from the patient into the record, an element increasingly recognized as a *best practice* in care decisions. In order to assist with the transition to EHR, there is a need to prepare a new health care professional, one who is dually-trained in both a traditional health profession (including an allied health profession) and in HIT. These individuals will have knowledge in the utilization of HIT and EHR systems, as well as possess the sensitivity to the issues and needs surrounding the patient within the health care system. Not every facility or interdisciplinary, community-based entity will need to have such experts on staff, but these individuals could serve as technical consultants in the training of faculty or even vendors to cover multiple sites.

A major concern of the Committee is the provision of a qualified health care workforce and an integral part of that concern is the education and training of health care personnel. It follows that faculty must be available in sufficient quantity and quality. Yet there is clear evidence that the health professions will suffer from a lack of qualified professionals who choose to prepare for an academic career. The Committee received testimony, and discussed at some length, the necessity of new and creative support mechanisms for the development of faculty, especially from within the health professions themselves. The issue extends beyond the topic of HIT.

Whether through new programs or existing ones, there must be a concerted effort to grow the next generation of health professionals in allied health professions or in those further described in Title VII legislation (e.g., psychology, chiropractic, podiatry). One model is the Geriatric Academic Career Awards

Program that offers direct salary support. Extending the concept to interdisciplinary faculty development might also lead to new fellowships, *master teachers* or other new positions within the framework of clinician, researcher, and educator. Other mechanisms might be loan repayment for teachers and the expansion of the National Health Service Corps to include additional health professions.

Another well-recognized issue with HIT and the EHR relates to privacy, confidentiality, and the ethical control of personal health data. These matters must be included in all education and training and at all levels of patient care and in research settings. Technical capability aside, equipment and procedures associated with EHR must consider the protections that are assured by both legal requirements and by strong traditions.

The Committee understands that other advisory committees are grappling with similar issues and concerns. These discussions and considerations should not occur in a vacuum, but in the spirit and context of interdisciplinary collaboration to the ultimate benefit of those whom the programs represented by the Committee must serve.

In an era of declining resources, the Committee developed significant and practical recommendations in response to the findings presented in the testimonies from experts in urban and rural settings who embody the growing and diverse populations and geographical areas of the country.

THE RECOMMENDATIONS

THE SECRETARY AND THE CONGRESS

1. The ACICBL recommends that the Secretary support and the Congress authorize and fund a new Interdisciplinary Faculty Development Program for Title VII Section 750 programs (Section 751: Area Health Education Centers; Section 753: Geriatrics; Section 755: Allied Health) to train both educators and clinicians as experts in the clinical application of Health Information Technology (HIT) and Electronic Health Records (EHR). Institutions with accredited health professions education and training programs should be authorized and funded to plan and develop interdisciplinary faculty development programs to include 1) post-doctoral fellowships; (2) scholarships, teaching, and service training for junior faculty; and (3) mentoring and retention support through demonstration models. Financial assistance should be provided to fellows and faculty enrolled in such programs. A major aspect of this new program is academic career development of faculty as clinician-educators with expertise in the clinical application of HIT/EHR systems in interdisciplinary settings.
2. The ACICBL recommends that the Secretary support and the Congress authorize and fund health professions training programs that will incorporate the use of emerging HIT/EHR systems in the development and implementation of interdisciplinary, community-based training projects in underserved areas. Funds shall be allocated to Title VII Section 750 programs (Section 751: Area Health Education Centers; Section 753: Geriatrics; Section 755: Allied Health) to support the establishment of HIT/EHR training projects which involve safety net providers in shortage areas and include funds to support trainees who participate in such projects in underserved areas.
3. The ACICBL recommends, in response to the growing shortages of allied health faculty, that the Secretary support and the Congress authorize and fund an Allied Health Faculty Loan Repayment Program to support individuals who pursue an advanced degree in allied health in order to become an allied health faculty member, and also become more familiar with the emerging application of HIT/EHR systems in interdisciplinary, community-based sites. Support of this recommendation will increase the number of allied health faculty, students, and graduates and will address allied health personnel shortages in hospitals and clinics in underserved areas.

4. The ACICBL recommends that the Secretary support and the Congress authorize the expansion of the National Health Service Corps (NHSC) Loan Repayment Program to include as eligible participants allied health professionals with a bachelor's degree from a higher educational institution. Funds shall be appropriated to support NHSC and/or state loan repayment programs for allied health professionals willing to work in shortage area sites such as hospitals and clinics located in primary care health professional shortage areas. The extent of the allied health workforce shortage has been documented by the Department of Labor, Bureau of Labor Statistics.

THE SECRETARY

The ACICBL recommends that the Secretary establish feasible requirements and guidelines for the Department of Health and Human Services (DHHS) supported service delivery programs and health professions training programs to encourage grantees to employ HIT/EHR systems that offer a universal user interface and interoperability with regional systems. Variance with the guidelines and requirements shall be obtained from a Federal entity such as the DHHS Office of the National Coordinator for Health Information Technology. Collaboration with the Centers for Medicare and Medicaid Services is strongly encouraged.

HRSA OFFICE OF HEALTH INFORMATION TECHNOLOGY

1. The ACICBL recommends that funds be provided by the HRSA Office of Health Information Technology (OHIT) to Community Health Centers (HCs) and other safety net providers for the development and implementation of HIT/EHR systems. These funds should support interdisciplinary team HIT/EHR projects that demonstrate a partnership between HCs and interdisciplinary health professions training entities, including Area Health Education Centers, Geriatric Education Centers, and Allied Health training programs. Additionally, support should be provided for the establishment and ongoing operation of regional technical assistance resource centers for HIT/EHR implementation by safety net providers and interdisciplinary training programs.

2. The ACICBL recommends that all HRSA initiatives/projects that support the adoption and implementation of HIT/EHR include a broader and lengthened outcomes and evaluation process to provide evidence of successes and limitations for safety net providers and programs that train current and future health care providers. This recommendation would apply to HRSA supported service delivery programs, health professions training programs, initiatives, and projects funded by the HRSA OHIT in concert with the DHHS Office of the National Coordinator for Health Information Technology.

HRSA BUREAU OF HEALTH PROFESSIONS

1. The ACICBL recommends that the HRSA Bureau of Health Professions (BHP) convene a collaborative conference of the four Title VII and Title VIII statutory advisory committees that it oversees and administers: Advisory Committee on Interdisciplinary, Community-Based Linkages; Advisory Committee on Training in Primary Care Medicine and Dentistry; Council on Graduate Medical Education; and the Nursing Advisory Committee on Nursing Education and Practice. This recommendation serves as follow up to similar recommendations made in the Fourth and Fifth Annual Reports of the ACICBL, and is in concert with a recent resolution adopted by the Advisory Committee on Training in Primary Care Medicine and Dentistry and the Council on Graduate Medical Education. This conference could take place in the spring of 2008 and align Committee work products along common themes such as the recruitment of the health professions workforce, preparation and training of the workforce, increased access to care for all segments of the Nation's population, and expanded racial and ethnic diversity in all of the health professions.

2. The ACICBL recommends, in recognition of the need for a set of core HIT/EHR competencies among health professionals, that the HRSA BHP, in collaboration with the HRSA OHIT and the DHHS Office of the National Coordinator for Health Information Technology convene a *best practices* and *lessons learned* conference that features disciplinary and interdisciplinary programs and curricula designed to train current and future providers, across the health disciplines in core HIT/EHR competencies. The *best practices* and *lessons learned* shall serve as a resource for the development of HIT/EHR principles that could be incorporated into the application guidance for health professions training programs.

3. The ACICBL further recommends that the HRSA BHP consider as *best practice* models, those programs and curricula that address cultural, generational,

geographic, and disciplinary differences. Emphasis should be placed on HIT and EHR models that demonstrate the following characteristics: a patient-centered, continuity of care approach; effective communication; cultural considerations throughout the life cycle; and articulation of ethical and privacy issues associated with the use HIT and EHR.

4. The ACICBL recommends that the HRSA BHPPr collaborate with the Association of Schools of Allied Health Professions and the National Network of Health Career Programs in Two-Year Colleges to initiate a national project that would integrate essential elements of HIT and EHR into didactic curricula, ensuring that the components taught fulfill basic competencies needed to operate a variety of associated HIT/EHR systems.

RECOMMENDATIONS with RATIONALE and BENEFITS

Recommendations to the Secretary and the Congress

The ACICBL recommends that the Secretary support and the Congress authorize and fund a new Interdisciplinary Faculty Development Program for Title VII Section 750 programs (Section 751: Area Health Education Centers; Section 753: Geriatrics; Section 755: Allied Health) to train both educators and clinicians as experts in the clinical application of HIT and EHR. Institutions with accredited health professions education and training programs should be authorized and funded to plan and develop interdisciplinary faculty development programs to include post-doctoral fellowships; scholarships, teaching, and service training for junior faculty; and mentoring and retention support through demonstration models. Financial assistance should be provided to fellows and faculty enrolled in such programs. A major aspect of this new program should be academic career development of faculty as clinician-educators with expertise in the clinical application of HIT and EHR systems in interdisciplinary settings.

Rationale: A workforce capable of innovating, implementing, and using health communications and HIT will be critical to the provision of health care services. The need exists to adequately prepare a health care workforce capable of leading change and working in an electronic environment. The report *In the Nation's Compelling Interest: Ensuring Diversity in the Health-Care Workforce* provides specific recommendations for health care institutions. These areas include developing accreditation standards that promote a diverse faculty and student body and identifying resources to overcome financial barriers faced by minority students. Moreover, it is essential to support the passage of legislation to strengthen programs and increase funding for health information and informatics, education programs, student recruitment and retention, and faculty training.

Creative ways are needed to provide faculty development opportunities in the health professions. This could be accomplished through independent new programs or enhancement of existing programs. The current salary support structure of geriatric education could be used as a model. Faculty development across disciplines is necessary to teach HIT effectively, and to attain achievable outcomes. Accreditation standards are needed across professional disciplines regarding the current use of HIT, as well as criteria for those competencies for inclusion in the curricula of the health professions.

Teamwork, along with an interdisciplinary approach, will be needed to develop the HIT program that includes successful implementation of the EHR. Current EHR systems lack sufficient universality to enable training programs to generalize their use to actual practice settings. To facilitate interdisciplinary faculty development and training, funding support is required for loan repayment, academic career awards, and enhancing leadership skills for interdisciplinary programs and different professions. If EHRs were more consistent, training programs could adopt them to serve as training platforms to enhance student and faculty preparation in actual practice. *The Fifth Annual Report to the Secretary and Congress on Healthcare Workforce* recommended that Title VII Interdisciplinary, Community-Based Training Grant Programs be encouraged to enhance the use of information technology in education and training strategies to facilitate retaining health professionals in underserved and un-served areas.

Funding for programming directed toward the implementation of training through integration of allied health and post-doctoral fellowships relative to scholarship, teaching, and service, particularly in support of training for junior faculty, would increase the availability of the healthcare workforce with the skills necessary to fully utilize EHR.

Benefit: Faculty development would target the growth of the next generation of health professionals, necessitating greater development of faculty with HIT skills. More allied health professionals would be prepared to teach HIT and additional health professions would incorporate HIT training in their programs as well. As described in the Title VII and VIII legislation, some existing on-line programs have had success in retraining faculty members and could be applied to an HIT training initiative with appropriate funding and financial assistance for faculty and fellows participating in these programs.

The ACICBL recommends that the Secretary support and the Congress authorize and fund health professions training programs that will incorporate the use of emerging HIT and EHR systems in the development and implementation of interdisciplinary, community-based training projects in underserved areas. Funds shall be allocated to Title VII Section 750 programs (Section 751: Area Health Education Centers; Section 753: Geriatrics; Section 755: Allied Health) to support the establishment of HIT and EHR training projects that involve safety net providers in shortage areas and include funds to support trainees who participate in such projects in underserved areas.

Rationale: Presidential Executive Order 13410 Promoting Quality and Efficient Health Care in Federal Government Administered or Sponsored Health Care

Programs was implemented January 1, 2007. A core purpose of this order is to use HIT to promote quality and efficient health care for programs sponsored by the Federal government. HRSA programs reach every corner of America and provide a safety net of direct health care services to 20 million people annually. Health center grantees deliver preventive and primary health care to about 14.1 million low income and uninsured people. Community Health Centers (HCs) serve roughly one in every four persons in the United States living in poverty. Data tracking, documentation, and fiscal challenges are enormous issues for HCs using paper records. The long term vision of HRSA's OHIT is to transform systems of care for safety net populations through the effective use of HIT. The transition to the EHR and a national health information network will require a significant investment in technologies, human resources, and training.

Benefit: Interdisciplinary, community-based training is an important educational complement to quality care, particularly quality care in underserved areas. Federal support for interdisciplinary workforce training in the use of HIT and EHR systems in direct health care service in underserved areas is essential to promoting quality and efficient health care for federally sponsored programs. The implementation of this recommendation will contribute to improved quality of care, enhanced care to underserved populations, increased patient safety, decreased health care errors, better understanding of health disparities, and an overall reduction of the so-called *digital divide* in the health care delivery system.

The ACICBL recommends, in response to the growing shortages of allied health faculty, that the Secretary support and the Congress authorize and fund an Allied Health Faculty Loan Repayment Program to support individuals who pursue an advanced degree in allied health in order to become an allied health faculty member, and also become more familiar with the emerging application of HIT and EHR systems in interdisciplinary, community-based sites. Support of this recommendation will increase the number of allied health faculty, students, and graduates, and address allied health personnel shortages in hospitals and clinics in underserved areas.

Rationale: In previous reports, ACICBL recommendations have addressed the problem of growing faculty shortages in the allied health professions. These shortages are part of the confluence of several factors including an aging health care workforce, the expansion of the United States health care system, and efforts to increase enrollment in academic allied health programs to meet future health care workforce needs. This will be exacerbated as many of the current faculty in the allied health programs in colleges and universities retire over the next decade without a cadre of professionals prepared to assume these positions. Reasons for not pursuing a faculty career include the additional expense and time for

academic preparation along with modest faculty salaries that can be significantly less than those of practitioners in the health care delivery sector. A significant incentive to pursue a faculty career would be a loan repayment program similar to those available through the Title VIII programs where there is clear evidence that such programs have provided a major incentive to pursue a career as a nurse educator, for example. Such a program for allied health faculty would provide a key opportunity for current health professionals to pursue an academic career.

Benefit: Federal loan repayment programs have proven to be a major incentive for health professionals to become qualified for faculty roles in colleges and universities. However, there is no equivalent program for faculty development in the allied health fields. A loan repayment program to support the development of faculty in the allied health professions would be a major step toward attracting future professionals. In turn, such a program would provide an incentive to prepare the faculty who would educate the future health care workforce.

The ACICBL recommends that the Secretary support and the Congress authorize the expansion of the National Health Service Corps (NHSC) Loan Repayment Program to include as eligible participants allied health professionals with a bachelor's degree from a higher educational institution. Funds shall be appropriated to support NHSC and/or state loan repayment programs for allied health professionals willing to work in shortage area sites such as hospitals and clinics located in primary care health professional shortage areas. The extent of the allied health workforce shortage has been documented by the Department of Labor, Bureau of Labor Statistics.

Rationale: Much of the testimony heard by the Committee and several recommendations of the ACICBL Fourth Report emphasized the critical need for increasing the allied health work force to meet the needs of the health care system of the future. A major impediment to attracting students to the allied health disciplines is the increasing expense of obtaining a higher education. More students are assuming considerable debt through loans leading to substantial repayment obligations after graduation. While careers in the allied health fields offer many opportunities, the salaries are modest compared to many other professional fields and loan repayments can be a considerable burden. The Committee recommends that selected allied health professions be included in the National Health Service Corps loan repayment program. The professions selected should be those whose practitioners are determined to be most at risk for acquiring substantial debt while completing degree requirements.

Benefit: Increasingly students in the allied health disciplines must incur debt to complete their academic requirements and enter their professional field. This creates a serious barrier for attracting the best students. Inclusion of allied health disciplines in the National Health Service Corps loan repayment program would offer a major incentive for students to complete a degree in allied health and remove a major financial barrier.

Recommendations to the Secretary

The ACICBL recommends that the Secretary establish guidelines and requirements for the DHHS supported service delivery programs and health professions training programs to encourage grantees to employ HIT and EHR systems that offer a universal user interface and interoperability with regional systems. Variance to the guidelines and requirements shall be obtained from a Federal entity such as the DHHS ONC. Collaboration with the Centers for Medicare and Medicaid Services is encouraged.

Rationale: The adoption of HIT throughout the health care community has been slow, (there is currently an overall implementation rate of 10 percent for EHR). There has been even less attention given to the adoption of universally compatible HIT systems. The lack of HIT and compatible systems is the biggest threat to efficiency and quality of patient care within the current health care infrastructure. A robust HIT interface will ensure that practitioners in the field have access to evidence-based data and can apply that data in their decision-making. It will facilitate the inclusion of new practice-based evidence into the overall health care database. It is critical that all health care professionals, including those in allied health, be trained in HIT systems as part of their education so that they can become familiar with various applications and act as agents for change. In order to carry out this educational mandate, existing faculties must undertake significant development activities that support integration of HIT into existing curricula.

Benefit: Requiring compatibility of HIT systems for those programs receiving Federal funds for grant training objectives will improve the overall EHR infrastructure. This will encourage these project directors to collaborate and jointly develop systems that support reduction of medical errors, increase access to evidence-based data, and facilitate comprehensive inclusion of new information into existing databases. This will aid in encouraging further development of those HIT systems that demonstrate the capability to improve the overall EHR infrastructure. Additionally, educational institutions will be encouraged to train future health care professionals inclusive of those in the

allied health professionals on systems that are likely to be used in the field, increasing efficiencies and reducing overall costs.

Recommendations to the HRSA Office of Health Information Technology

The ACICBL recommends that funds be provided by the HRSA Office of Health Information Technology to Community Health Centers (HCs) and other safety net providers for the development and implementation of interdisciplinary team HIT AND EHR projects that demonstrate a partnership between HCs and interdisciplinary health professions training entities, including Area Health Education Centers, Geriatric Education Centers, and Allied Health training programs. Support should be provided for the establishment and ongoing operation of regional technical assistance resource centers for HIT AND EHR implementation by safety net providers and interdisciplinary training programs.

Rationale: Health records and HIT are seen as major determinants of success in the work of interdisciplinary, inter-professional health care delivery teams. Nowhere is this truer than in rural and frontier areas and those areas served by HCs. Pressure for practice outcomes measurement is increasing. The Committee heard testimony that an EHR infrastructure and improved information management practices are important means for delivering measurable cost and quality results in practice and in professional training settings. Health informatics can support communication, decision-making, and knowledge management, as well as help to prevent medical errors. These initiatives will require additional funding, both public and private. Capital costs present the biggest barrier to the use of HIT by safety net providers. A Health Affairs study showed that only 13 percent of HCs have EHRs that meet Federal standards. Rates of EHR adoption vary widely, and there is little interoperability across systems. HCs must consult, collaborate, and share experience and knowledge; consortia must also be encouraged. Academic health centers and accredited health professions education programs can be key elements in developing these collaborative relationships. The Veterans Affairs system has demonstrated the value of coordination for implementation of interoperable HIT systems. The Office for the Advancement of Tele-Health through HRSA established regional resource centers to provide needed expertise for telehealth technologies. The Committee believes that a similar model could be used for the present endeavor.

Benefit: A major benefit of HIT AND EHR support for safety net providers, through demonstration projects and regional resource centers is the opportunity for interdisciplinary outcome analysis and management. This will promote good medical decision-making, patient safety, and the practices of evidence-based

care. As these providers serve as preceptors for the next generation of competent health care professionals, educational aspects of a coordinated system of HIT AND EHR will enhance the experience of trainees while assisting in the health care of the patients whom they serve.

The ACICBL recommends that all HRSA initiatives and projects that support the adoption and implementation of HIT AND EHR include a broader and lengthened outcomes and evaluation process to provide evidence of successes and limitations for safety net providers and programs that train current and future health care providers. This recommendation would apply to HRSA supported service delivery programs and health professions training programs, and initiatives funded by the HRSA Office of Health Information Technology in concert with the DHHS Office of the National Coordinator for Health Information Technology.

Rationale: This programming and associated support represents a new effort for HRSA. Prior program efforts were criticized for not having sufficient outcomes data to evaluate program merit. Awardees have raised the issue that awards are insufficient for appropriate outcome evaluation, particularly since evaluation requires longitudinal study processes (i.e., trainee practice behaviors well past graduation) and broader study criteria (e.g., examine health outcomes).

Benefit: Good outcomes evaluation will enable HRSA and Congress to judge the effectiveness of programming.

Recommendations to the HRSA Bureau of Health Professions

The ACICBL recommends that the HRSA Bureau of Health Professions (BHP) convene a collaborative conference of the four Title VII and Title VIII statutory Advisory Committees administered within the HRSA Bureau of Health Professions, namely the ACICBL, Advisory Committee on Training in Primary Care Medicine and Dentistry, Council on Graduate Medical Education, and the Nursing Advisory Committee on Nursing Education and Practice. This recommendation serves as follow up to similar recommendations made in the Fourth and Fifth Annual Reports published by the ACICBL. It is in concert with a recent resolution adopted by the Advisory Committee on Training in Primary Care Medicine and Dentistry and the Council on Graduate Medical Education. This conference could take place in the spring of 2008 and would align Committee work products along common themes such as the recruitment of the health professions workforce, preparation and training of the workforce,

increased access to care for all segments of the Nation's population, and expanded racial and ethnic diversity in all of the health professions.

Rationale: The four Title VII and title VIII statutory advisory committees of the BHPPr, working independently to address the health care needs of vulnerable populations of citizens living in economic and/or geographically isolated communities identified several common problems that, if addressed, could improve the health care status of these unique populations. The HRSA Collaborative Conference would bring together the resources and the unique perspectives of the four statutory advisory committees, providing the opportunity to make unified recommendations to the Secretary and the Congress that would enhance the health care delivery to these underserved communities. During the most recent meetings of the Advisory Committee on Training in Primary Care Medicine and Dentistry and the Council on Graduate Medical Education, both entities recommended that HRSA convene the Collaborative Conference in the spring of 2008.

Benefit: The four statutory advisory committees bring unique and diverse perspectives, but independently identified a number of common issues that impact the ability to recruit, train, and retain the Nation's health workforce. While these shortages are a national problem, the consequences are especially profound in rural and inner-city communities that are economically disadvantaged and have a disproportional concentration of elderly patients with multiple chronic conditions. The committees identified four specific common problems that require attention:

- Enhancement of the preparation of the health professions workforce;
- Expanded racial and ethnic diversity within all the health professions;
- Recruitment of a larger health professions workforce; and
- Increased access to health care for all segments of the Nation's citizens.

These issues should be the initial areas of consideration for the collaborative conference, but should not limit the discussion. The conference outcomes will provide powerful recommendations that could rapidly impact preparation of the national health professions workforce. The expertise and experiences provided by the members of these committees would provide the Secretary with the foundation and unique perspective required to make influential health professions training recommendations to the Congress.

The ACICBL recommends, in recognition of the need for a set of core HIT AND EHR competencies among health professionals, that the HRSA BHPPr in collaboration with the HRSA Office of Health Information Technology and the DHHS Office of the National Coordinator for Health Information Technology,

convene a best practices and lessons learned conference that features disciplinary and interdisciplinary programs and curricula designed to train current and future providers across the health disciplines in core HIT AND EHR competencies. The best practices and lessons learned shall serve as resources for the development of HIT AND EHR guidelines to be incorporated into the application guidance of health professions training programs.

Rationale: The HIT and EHR advances are recognized as essential for the efficiency, safety, and quality of the American health care system. In 2004, the President issued Executive Order 13410, which calls for a nationwide interoperable health information technology network by 2014. Support structures have been put in place to facilitate the achievement of this order. The Office of the National Coordinator for Health Information Technology (ONC) is the principal advisor to the Secretary on the development, application, and use of health information technology. It provides support to the American Health Information Community (AHIC), a federally chartered advisory committee appointed by the Secretary that provides recommendations on how to make health records digital and interoperable, encourages market led adoption, and ensures the privacy and security of those records. The HRSA Office of Health Information Technology is working to identify, disseminate, and provide technical assistance to HCs and other HRSA grantees in adopting model practices and technologies while promoting grantee health information technology advances and innovations as models.

The full integration of HIT AND EHR requires investments not only in technology, but also in people and training. A HIT/EHR savvy workforce with critical skills and competencies is essential to the development of a nationwide health information network. Workforce skills have been identified as a barrier to HIT/EHR adoption. For example, in September 2007 the AHIC considered the workforce issues pertaining to HIT/EHR adoption. Preliminary recommendations included the need for health informatics training and competencies among health professionals. The American Health Information Management Association (AHIMA) and American Medical Informatics Association (AMIA) also recognized the need for an educated workforce and, in response, are working on the identification and development of core HIT/EHR competencies for the full range of health care professions. They have identified five core competencies: health information literacy and skills; health informatics skills in the use of the EHR and personal health records; health information privacy and confidentiality; health information data technical security; and fundamental computer literacy skills.

Critical steps can be initiated in advancing a health workforce prepared to adopt and use the broad-based access to data and knowledge provided by HIT/EHR in

the delivery of interdisciplinary health care through a coordinated effort of the Federal offices engaged in promoting HIT/EHR adoption, professional associations identifying core competencies, and health professions educators sharing HIT/EHR programs, curricular, best practices, and lessons learned.

Benefit: HIT/EHR is a means for the Nation's health care system to:

- Improve efficiency in health care delivery;
- Improve quality of health care;
- Increase patient safety;
- Reduce medical errors;
- Enhance retrieval of health care data;
- Advance delivery of population-based care;
- Provide decision support at the point of care; and
- Improve use of administrative services (e.g., reimbursement).

Without a workforce skilled in HIT/EHR competencies, adoption will be slow, costly, inefficient, and ineffective in achieving the above outlined benefits. The BHP_r is uniquely suited to support the Nation's safety net providers in acquiring HIT/EHR core competencies through the sharing of best practices and lessons learned. Another benefit of focusing HIT/EHR training on safety net providers is that data on health care disparities will become more readily available to assist in tackling this problem.

An interdisciplinary, HIT/EHR training best practices and lessons learned conference will facilitate communication and sharing across health disciplines and among accreditation agencies, professional associations, academic institutions, state and Federal agencies, non-integrated health care organizations (e.g., health centers), and integrated health care systems (e.g., Veterans Health Administration). Such a conference would provide an opportunity to learn from the investments of others and avoid the pitfalls experienced.

The ACICBL recommends that the HRSA BHP_r should consider as best practice models those programs and curricula that address cultural, generational, geographic, and disciplinary differences. Emphasis should be placed on HIT/EHR models that demonstrate a patient-centered, continuity of care approach, effective communication, cultural considerations throughout the life cycle, and articulation of ethical and privacy issues associated with the use HIT/EHR.

Rationale: The Committee heard extensive testimony regarding the opportunities HIT and EHR provide for enhancing administrative processes and reducing patient errors. It is imperative that all health care systems move

forward aggressively to implement EHR systems, but the Committee is concerned that administrative requirements do not overshadow the need to keep the patient at the core of the planning, design, and implementation of an EHR system. Any implementation process must improve patient care and interaction through the collection of more accurate clinical data. Further, any implementation process must address complex issues related to the impact on the new continuity of care systems, on the patient throughout the life cycle, and on the consequences of the ethical and privacy decisions. These and other sensitive issues impact any new administrative system. It is imperative that a diverse interdisciplinary committee of administrative and health care professionals give careful oversight to the planning and implementation process.

Benefit: As HIT and EHR systems are implemented, the involvement of a broad based cadre of administrative and health care professionals will ensure a patient-centered focus that addresses personal, cultural, ethical, and privacy concerns as well as administrative requirements in the adoption of an EHR structure.

The ACICBL recommends that the HRSA BHPr collaborate with the Association of Schools of Allied Health Professions and the National Network of Health Career Programs in Two-Year Colleges to initiate a national project that would integrate essential elements of HIT and EHR into didactic curricula, ensuring that the components taught will fulfill the basic competencies needed to operate a variety of HIT and EHR systems.

Rationale: To improve the ability of the Nation's health system to utilize HIT effectively, education in these systems must begin with the next generation of health care professionals - those who are currently students. Ideally, students would be exposed to the concepts and related components of HIT and EHR while in their didactic and clinical coursework. However, many may enter the workforce without previous exposure to HIT, creating a more difficult and more costly challenge when attempting to learn how to use a specific EHR system. Encouraging the incorporation of the basic tenets of HIT during the academic preparation of students should result in competent graduates who can begin using HIT in practice. Two national associations, the Association of Schools of Allied Health Professions and the National Network of Health Career Programs in Two Year Colleges include member institutions that graduate the majority of allied health professionals in the United States. HRSA, working in collaboration with these organizations, should initiate a national project that would integrate essential HIT and EHR concepts into the curriculum.

Benefit: The goal would be to ensure that all allied health graduates would acquire a basic understanding of HIT and EHR before entering the health care workforce.

THE EXPERTS RESPOND WITH TESTIMONY – JUNE 2007 MEETING

FEDERAL PERSPECTIVES AND POLICY IMPLICATIONS OF HIT/EHR

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Health Resources and Services Administration (HRSA)**

The programs in HRSA provide a safety net of health care services to 20 million people annually. 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. 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; and
- 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. The Office of Health Information Technology (OHIT) promotes the

adoption and effective use of 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 via 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 who 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's HIT policy and programs are coordinated with those of other DHHS programs.

Related activities include the Health Center 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. These telehealth activities coordinate and promote the use of telehealth through fostering partnerships within HRSA and with other Federal and private entities to promote projects and demonstrations, administer grants that advance the use of telehealth technologies, provide technical assistance, and disseminate best practices with regard to these technologies. The HIT Technical Assistance in FY 2007 was evident with the initiation of a center to identify and organize the HIT technical assistance efforts across HRSA.

Network Grant Opportunities include:

- Planning Grants - Less than \$100,000 per year to plan and start implementing HIT initiatives;
- EHR Implementation Grants - Three-year grants to purchase and implement the EHR;
- HIT Innovation Grants - Three-year grants to purchase and implement new HIT initiatives; and
- High Impact EHR Implementation Grants - One-year grant for high impact implementation of an EHR. (Implementation of new EHRs must be in at least 15 sites.)

The Agency for Health Care Research and Quality (AHRQ) and HRSA established a HIT Community for HRSA grantees as a collaboration space for

health centers and networks to foster the adoption of HIT to promote patient safety and higher quality of care. The HC HIT Toolbox is an interactive toolbox that will assist HRSA grantees in planning, implementation, and sustainability. Additionally, the HRSA HIT Grantee Meeting involved 500 HRSA grantees to promote collaboration and knowledge sharing on the subject of promoting HIT adoption by safety net providers.

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 the Food and Drug Administration, Indian Health Services, Centers for Disease Control and Prevention, Department of Defense, and the Veterans Health Administration. 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 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 and 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 Services, the TRICARE program for the Department of Defense and other uniformed services, and the health care program operated by the Veterans Health Administration. This does not include State operated or Federally funded subsidized programs such as Medicaid, the State Children's Health Insurance Program, services provided to Department of Veterans Administration under 38 U.S.C 1703, or HRSA programs. This unfunded mandate was implemented on January 1, 2007.

The OFFICE OF THE NATIONAL COORDINATOR FOR HEALTH INFORMATION TECHNOLOGY (ONC) advises the Secretary 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 DHHS HIT policies and programs internally and with other relevant agencies and is responsible for the implementation of the DHHS strategic plan to guide the nationwide

implementation of interoperable HIT in both the public and private health care sectors.

Initiatives include the 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 privacy and security, product certification, standards, a nationwide health information network, and activities with the National Governors Association Center for Best Practices.

The AGENCY FOR HEALTHCARE RESEARCH AND QUALITY (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 health care quality for low-income people served in under-resourced settings and communities. These initiatives included the National Resource Center for Health Information Technology to assist the health care community adopt HIT through technical assistance and knowledge dissemination and New Ambulatory Safety & Quality Grants to 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.

The CENTERS FOR MEDICARE & MEDICAID SERVICES (CMS)

MEDICARE – supports HIT development through the following:

- Quality Improvement Organizations (QIO), a national network of 53 organizations, work directly with consumers, providers, and hospitals to refine care delivery systems. The QIOs, designed to ensure that patients get proper care, adopted HIT as strategies to achieve program success.
- Medicare Prescription Drug Improvement and Modernization Act of 2003 (Pub. L. 108-173) serves 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 in their offices to improve quality and safety for Medicare beneficiaries. They accomplish this by promoting greater availability of high-quality and affordable HIT for the office-based physician.

MEDICAID – affords States with several opportunities to incorporate HIT initiatives into their reform plans, such as:

- Section 1115 Waiver (DRA) allows States to increase their flexibility to develop Medicaid plans that may extend coverage to additional populations, increase covered services, and control costs and
- Deficit Reduction Act of 2005 (DRA) provides 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.

The VETERANS HEALTH ADMINISTRATION (VHA) is the largest single medical system in the United States, providing care to over five 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 VHA and Department of Defense (DoD) demonstrated the Bidirectional Health Information Exchange, a joint information technology data exchange initiative that affords VHA and DoD clinicians with the opportunity to view electronic health care data from each other's systems, the potential basis for a national system to exchange medical records securely.

The INDIAN HEALTH SERVICE (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. 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 its clinical practice.

MOVEMENTS WITHIN THE LEGISLATIVE BRANCH

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

S. 1408 Health Information Technology Act of 2007 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.

H.R. 1952 creates incentives for physicians to adopt interoperable EHRs.

H.R. 2406 authorizes the National Institute of Standards and Technology (NIST) to establish standards and guidelines for interoperability of EHRs.

S. 1455 creates 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.

States are becoming 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 action to improve health care through the use of HIT. Their roles in HIT planning include:

- Start-up funding with 17 State governments supporting programs to examine how HIT may be used or implemented;
- Building infrastructure with 10 States facilitating RHIO development studies; and
- Planning with six States initiating planning projects without 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, which provides a nationwide forum for stakeholders to work together to identify best HIT practices and solutions.

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 health care 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 and diagnostic and treatment services for veterans with physical injuries, post-traumatic stress disorder, and traumatic brain injury.

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

**Gail Graham, RHIA/Director
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The Veterans Health Administration (VHA), the Nation's 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. The current challenges of VHA, like those of all providers, include the increasing cost and complexity of health care; the ability to harness the power of advanced information technologies; and the ability to translate new research breakthroughs quickly into practice.

Further, the VHA 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 with health care issues that may be different from men. 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 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 and efficient care and 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, 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 to assist physicians on call with questions. This addition provided significant enhancements with the release of the computerized patient record system for clinicians in 1997 along with 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, and endoscopies). The system is operational at VA medical centers and supports ambulatory, inpatient, and long-term care.

The computerized patient record system (CPRS) 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 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 allows for its use as a patient education tool and can show a patient the impact of a medication or the practice of a healthy behavior on one's health status.

The VHA soon added 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 addition of the clinical reminder system 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 offers providers the opportunity to implement clinical practice guidelines and to automatically generate documentation within the record.

Another element that has been added is bar-code medication administration to track ordering and changes in dosages. It was originally used for inpatients, but 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 Health_eVet provides patients with 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 Health_eVet are not

yet available at every VHA site because of varied internet access in rural areas. Currently, Health_eVet 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 of the patient and frequently 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.

EHR END USER ADOPTION AND CHANGE MANAGEMENT STRATEGIES

**Sharon Confessore, PhD/Director
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Bon Secours Health System**

Kaiser Permanente Mid Atlantic States (KPMAS) is comprised of 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. The My Chart or 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.

Bon Secours Health System (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 five years with in-patient, ambulatory care, emergency department, electronic prescribing, and hospital management systems (e.g., inventory 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 implementation of the system. 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. One critical factor centers on 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. Other 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 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 identifying the sponsors, champions, and stakeholders and working with them while targeting those who need 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 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 and 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 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.

INFUSION OF INFORMATICS AND HEALTH INFORMATION TECHNOLOGY INTO THE MEDICAL SCHOOL CURRICULUM

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Health Information Technology (HIT) is a broad umbrella that encompasses many different aspects. It could be a practice management system or Personal Digital Assistants (PDAs) for providers. An EHR might only have 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. 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 medical degree in medical schools in the United States and Canada. The LCME developed standards and objectives for medical educational programs including the following:

- The program of medical education leading to the medical 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; and
- 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. 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 medical schools across the country is quite varied in that 46 percent of programs require students to own or have access to a personal computer; 28 percent of programs require students to have a personal digital assistant; 16 percent of programs require students to have both a personal computer and a personal digital assistant; and 83 percent 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 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 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 GEORGETOWN MEDICAL SCHOOL CURRICULUM

Georgetown, a large, private program, 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, 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 labs 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 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 involved in a Public Health Informatics project introduced first year medical students to public health and information retrieval. Students were assigned a presentation on the demographics, health problems, and issues for one county. This allowed students to acclimate to retrieving and using medical information and encouraged the use of problem solving skills.

Through a second grant in 2001, the school incorporated the use of personal digital assistants (PDAs) into student training. This includes the use of PDA based patient logs and decision support tools to teach prevention. Now, the school requires the use of PDAs. Studies show that giving students decision support on PDAs increases current and future personal and professional 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 mandated 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. As such, the school developed committees to make recommendations for revising existing curriculum.

The recommendations were to revisit the existing evidence-based medicine and informatics focus within existing courses and to expand these topics across courses. 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 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.

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

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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, one of seven AHECs, has a budget of \$9.1 million dollars, 132 full and part time employees and 142 clinical faculty members, and comprises two family medical centers affiliated with two hospitals and 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 childcare. 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) 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. The guidelines insist that residents learn 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. 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 the 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 prevent complications.

The AHECs looked for the following capabilities with respect to an EHR: consolidates the total patient record; accessible from anywhere at any time; allows trending and protocol management; provides a clinical training tool; flexible to change; stores discrete data for research and practice assessment; interoperable; and 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. Systems were necessary to support the paper charts, such as creating charts for new patients, filing and storing charts, transcription, and materials costs for 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. As such, there should be a training grant focused at recognizing the role of the registered nurse 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 five 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 and 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 were continuous processes. 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. With the current operational system, appointments are entered and classified by type. When the visit begins, the appropriate tool is automatically provided 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 generated several best practices. There are two features 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 notes from one day to be copied and used as a template for the next day. This can create confusion and inaccuracies. Suggestions are to use mobile computer monitors and 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 inclusion of the patient in development of the EHR. The standardized EHR is the central nervous system of a new model for practice.

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

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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 hospital administrator began getting requests for software packages from different departments (laboratory, home-care, and the pharmacy). The reality was 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. 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 an outside consultant was hired 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. 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 approval from the physicians 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 staff to determine who needed extra training. Those staff members participated in 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 excellent 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, five to six months are recommended). In 2004, the administration introduced 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 allowed 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 at 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 this hospital's experience, the minimum capital investment was \$500,000 with \$100,000 annually in maintenance. About five to ten percent of net revenues should be budgeted for an EHR system. After three years, the hospital is still having difficulties with some employees who cannot use it; 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. The hospital required four years to implement the current system. Yet, the effort continues to be a work in progress; the system is working to achieve the 100 percent level.

USE OF EHR IN THE ACADEMIC SETTING

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The Care Management Plus 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 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. Health Information Technology can be used to improve the quality of care through computerized reminders, clinician education, and 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 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 worked with a multidisciplinary group of professionals to provide total patient care. The medical assistant was 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 served as care managers; social workers interacted with families and the patients in meeting their needs and connecting them to other resources. Pharmacists provided information about medications and interactions. This entire team responded 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.

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, and other treating physicians' reports) over time. The Care Management Plus Program can help create a medical home through a proactive, flexible, system that can vary by intensity and function for different populations and needs. It focuses on chronic illnesses, which account for a disproportionate amount of health care needs. About 50 percent of the chronically ill population might have a mild or moderate chronic illness and may do well with planned visits and self-management. Less than one 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 due to the knowledge needed regarding 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 two years. Physicians using the Care Management Plus Program were eight 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.

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

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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.

The NYCLIX is a non-profit organization with a mission of establishing an interoperable regional data exchange. It 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 by 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 five 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.

The 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, but 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 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.

The NYCLIX 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. It still 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 phase one grantees.

THE EXPERTS RESPOND WITH TESTIMONY – SEPTEMBER 2007 MEETING

BUILDING THE WORKFORCE FOR HEALTH INFORMATION TRANSFORMATION

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Transition to an EHR and to a national health information network (NHIN) requires a significant investment in technologies, people, and training to succeed. Building the HIT savvy workforce with the critical skills and competencies essential to develop the nationwide health information network is a pivotal part of addressing these needs. Several organizations work together to shape the field of Health Information Management (HIM). The HIM is a profession that serves as a link between users (e.g., clinicians, payers, regulators, and patients-consumers) and technology (EHR and HIT).

The AHIMA has been in existence since 1928 and has more than 51,000 members nationwide. The recent emphasis has shifted from just the health record to the entire field of health information. The Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) established educational, accreditation, and credentialing processes. There are currently 245 accredited academic programs in HIM. In 2006–2007, these programs had more than 14,000 students trained to understand both health records and technology. They are focused on understanding the entire health care organization rather than merely the records. Two professional credentials are available, specifically the registered health information administrator at the baccalaureate level and the registered health information technician at the associate level. The e-HIM is an initiative of AHIMA representing the practice of HIM in an electronic environment.

Organizational goals include promoting the migration from paper to an electronic medical records information infrastructure, reinventing how institutional and personal health information and medical records are managed, and delivering measurable cost and quality results from improved information

management practices. These goals apply to both hospitals and other environments, such as providers in their offices, clinics, nursing homes, and assisted-living facilities. For students, HIM education operates in the domains of data content, structure, and standards; privacy and security management; electronic health record life cycle; data administration and analytics; personal health information management; reimbursement; regulatory compliance; fraud surveillance; and organization and management.

The AHIMA and American Medical Informatics Association (AMIA) developed a joint alliance, called the AAAC Alliance Committee, to work on issues of mutual interest. In 2005, the AAAC held a workforce summit, inviting 48 stakeholders representing the CEOs of health care organizations, government agencies, academic institutions and professional associations. This summit was built on some initiatives from outside the field that address the need for informatics. For example, the IOM quality chasm reports emphasized using informatics to support communication, decision making, and knowledge management and prevent medical errors. The workforce summit produced a report that included five key workforce goals:

- Jointly define a multi-year workforce research agenda;
- Define basic competencies for those who use the EHR in daily work;
- Engage informatics and information management education leaders to prepare a vision of the academic resources and network needed in the United States;
- Seek Federal and private funding to support initiatives; and
- Secure legislative solutions for workforce development and to address retraining shortfalls.

The AAAC report addressed some corresponding issues, such as the shortage of faculty. The AHIMA and AMIA collaborative education goals are to train the current workforce serving the health care industry to use HIT. These initiatives include educating the health professions educators and the entire HIM workforce. The workforce encompasses health information managers, health and medical informaticians (i.e., scholars working on research supporting the systems themselves), and HIT professionals (e.g., software engineers and computer scientists).

In 2007, the AHIMA and AMIA worked on a project to develop core competencies for the health workforce. These were core competencies that would apply to the entire health care profession, from admissions clerks to providers. The competencies, arranged along four core competency domains, included the following:

- Health information literacy and skills;
- Health informatics skills, using the EHR and personal health record;

- Health information privacy and confidentiality; and
- Health information-data technical security.

A fifth domain, fundamental computer literacy skills, was added, but the primary emphasis has been on the aforementioned areas. The core competencies project used a task force of health professionals and other stakeholders to develop a matrix of settings and roles for the core competencies to include:

- Medical care delivery sites, which include acute and ambulatory care, physician offices, military hospitals, enterprise-based outpatient clinics, long-term care facilities, community-based health care organizations, specialty care services, and school health centers;
- Other service delivery sites, such as magnetic resonance imaging facilities, pharmacy, dental clinics, behavioral health and rehabilitation centers, employer occupational health; and
- Ancillary entities, which include public health agencies, regional information exchanges, and health record banks.

The matrix was developed for providers such as nurses, physicians, allied health care, and pharmacists; organizational staff, including IT, administrative personnel, clerical staff, and human resources; and other parties, such as financial-regulatory staff, third-party payers, data analysts-providers, public health workers, consumers, educators, clinical preceptors, students, and emergency medical personnel.

The core competencies were applied across the positions and settings in the matrix to develop a list of skills and abilities required of HIT personnel. For example, for the core competency of health information literacy and skills, a staff member should be able to:

- Use health record data collection tools such as input screens and document templates;
- Apply standard data definitions, vocabularies, terminologies, and/or relevant health care data sets such as OASIS, HEDIS, and UHDDS as used in the organization's health information systems;
- Differentiate between the types and content of patient health records (paper-based, EHR, and personal health record);
- Adhere to health record documentation requirements of external agencies and organizations such as those specified by accrediting bodies, licensure, reimbursement, and discipline-specific good practice;
- Adhere to organizational health record documentation requirements, policies, and procedures; and
- Ensure that documentation in the health record reflects timeliness, completeness, accuracy, appropriateness, quality, integrity, and authenticity.

The AHIMA has a focus on quality healthcare through quality information. Toward this end, AHIMA developed an Internet-based learning lab with an array of health care technology software for HIM students. This virtual lab offers lessons and activities for student practice, instructor training support, and self-paced, instructor-led training. More than 4,000 students from 80 of the 245 programs are currently using this lab. The lab provides students with copies of popular HIT software, a shared library of lab lessons to use with the lab applications, face-to-face and Web support group training, lesson development workgroups, and a growing network of instructors.

The AHIMA has several goals for the future. The group is working toward advancing HIM standards and establishing core curricular standards internationally, increasing training programs internationally, and ensuring the success of EHR nationally. As an association, AHIMA is working to address the need for professional development through educational conferences, distance education, books, audio seminars, professional journals, and other electronic media. The AHIMA is also working to provide information about HIM as a career option for young people through networking and recruiting initiatives. The AHIMA plans to develop a process for certification of EHR-HIT vendors.

INTEGRATING HEALTH INFORMATION TECHNOLOGY INTO THE ALLIED HEALTH PROFESSIONS CURRICULA

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Biomedical informatics is an emerging discipline that has been defined as *the study, invention, and implementation of structures and algorithms to improve communication, understanding, and management of medical information*. The end objective of biomedical informatics is the coalescing of data, knowledge, and the tools necessary to apply that data and knowledge in the decision-making process. This focus on the ability to manipulate information is what separates biomedical informatics from other medical disciplines.

In 1999, the AMIA conceded the need to integrate informatics into health professions education and identified two areas—data mining and interdisciplinary outcome management—wherein this integration could be accomplished. With data mining, a growing number of health care settings use databases, thereby increasing the need for people with the skills to manipulate and extract relevant information. With interdisciplinary outcome management, providers are increasingly being asked to practice evidence-based medicine and work in interdisciplinary teams, increasing the need for new outcomes measures.

The AMIA identified several core competencies with respect to medical informatics for non-medical informatics health professionals.

- Application of a multicultural approach to outcomes by responding to the different needs of different ethnic groups. For example, certain groups respond to medications differently and, as such, there needs to be an adaptation of informatics to address these differences.
- Use of computers by understanding the basic methods of software development, software use, presentations-graphics, e-mail, Internet searches, and human-computer interactions.
- Addressing issues generated by medical informatics via the application of privacy and ethical issues, decision making, learning terminologies, standards, and communication methods.
- Use of information by understanding user-driven clinical systems, using structured data to support evidence-based practice, learning to critically and effectively process information, and evaluating information and information technology.

- Impact of technology to address the impact of technology on public health and how it changes the ways in which people work and live.

The need for medical informatics is pervasive among every health profession, including allied health care. Allied health care accounts for myriad professions and constitutes 30 percent of the total health care workforce, though the estimates vary widely depending on how allied health is defined. These providers are involved in every aspect of patient care, but the collective voice is not often heard. Many compelling examples highlight the communication breakdowns between different allied health providers and between health and traditional allied health providers.

As the EHR is supposed to be a shared resource representing the total health care experience, all providers involved should know how to use it. For example, oral health is considered a reliable predictor of overall health status. A necessary step is to ensure that oral health information is shared with the health care team. Consequently, dentists and allied dental professionals must have informatics skills that commensurate with their participation in the provision of health care. Another example is dieticians, who provide nutritional counseling for both preventive care and for specific disease and chronic disease management. They should have the informatics skills necessary to ensure that other providers understand a patient's risk for drug and food interactions. They should ensure that the nutritional history and status are included in the EHR. If these providers are not taught how to use an EHR, the health care system's ability to respond in cases of emergencies (e.g., biomedical or bioterrorism threats) will be seriously hampered. Pressure for practice outcomes measurement is increasing. If a provider cannot use the technology, these outcomes cannot be evaluated.

The movement toward patient-centered care means that more patients are coming to the provider with health information obtained from the Web. In these cases, providers need to be able to respond with their own information or an interpretation of what has been presented by the patients.

At the University of Medicine and Dentistry of New Jersey, the School of Health Related Professions established a task force to study how to integrate informatics into the undergraduate curricula of its allied health programs. This has been a difficult and time-consuming task. The task force began by working to achieve consensus on the meaning of health informatics. The task force is also grappling with computer literacy issues.

Regional accreditation agencies increasingly require proof of outcomes specific to the graduate's computer literacy at the undergraduate and higher levels. The

task force has begun the development of basic computer literacy skills for their students.

As such, students should be able to:

- Access the Internet for research pertinent to courses of study;
- Use software programs for presentations or papers;
- Analyze and critically compare information sets;
- Store, retrieve, and synthesize pertinent informational data; and
- Demonstrate ethical behaviors in the use of electronic data.

For allied health students, the needs go beyond these skills. Allied health students must understand the basic underpinnings of informatics as a tool for enhanced patient care. Students should be able to manipulate data to test basic hypotheses.

IMPLEMENTATION OF ELECTRONIC HEALTH RECORDS IN HEALTH CENTERS

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Community health centers serve roughly 16 million persons (i.e., one of every four persons in the United States living in poverty). They have a mission to provide health care to the underserved and function as a primary care safety net. The typical HC patient lives in poverty and has low education, literacy and health literacy levels. They are more likely to be members of racial and ethnic minority groups and, in many cases, have limited English proficiency. Typical patients have multiple health problems and present with three or four medical problems embedded within a milieu of complex psychosocial problems. Clinicians deal with a qualitative difference in the level of complexity.

Data and documentation are huge issues for HCs using paper records. Due to the fact that the HC patient base is so complex, charts can have multiple volumes, making it very difficult to find paper records. This can mean that patients are sometimes subjected to unnecessary retesting if records cannot be located. The volume of paper may be a safety issue. Information about a patient may be buried in a chart that the provider has not seen.

Another issue for HCs focuses on tracking rates for visits. Overall, only 50 to 70 percent of the patients confirm their appointments. Some patients may be absent 30 to 50 percent of the time. As HCs receive visit-based reimbursements, they tend to overbook appointments to compensate for no-shows. This overbooking can lead, at times, to very rushed visits during peak patient volumes.

The HCs often experience fiscal difficulty. Half the time, HC expenses exceed their revenues and as a consequence, limited budgetary discretion exists to address the various needs. Clinician turnover is a serious problem. The average stay for a HC clinician is about three years. The level of turnover and change creates a certain amount of disruption that can be challenging in terms of meeting the needs of patients. The turnover can be attributed to the pace of work in HCs, which is consistently heavy and stressful.

Many clinicians who are retained find themselves working part-time because full-time work is too demanding to maintain over a long period. Fundamentally, HCs are faced with the same situation that disadvantaged patients encounter. Patients with the greatest biomedical morbidity and the greatest need for health

care, often have the least ability to pay for it. The same is true for HCs, as they serve a needy population, but oftentimes do not have the resources to fully meet their needs. Despite many challenges, HCs serve an essential function in the health care safety net.

They provide medical homes for patients and employ clinicians committed to making a difference to their patients. The focus within HCs is fundamentally interdisciplinary (i.e., clinicians and other allied health providers work in one site with the same patients). The major strength of this interdisciplinary focus is the ability to adapt to changes in the broader environment, based on the changing needs of the patients.

The HCs have limited resources and limited excess capital to devote to HIT. However, HIT offers many advantages for HCs. The HIT can enhance data retrieval by making it easier to obtain data about patients who are multifaceted with complex charts. This technology offers the ability to provide population-based care (i.e., gathering data on the health status and needs of the population through condition registries and similar processes). It can provide decision support at the point of care, providing integrated and relevant information at the time of service and improve efficiency in the manner in which primary care is delivered and reduce medical errors.

The HIT makes it easier to work within the current reimbursement system and to *up-code* procedures to maximize reimbursement. This is an incentive to use HIT for private practice and HCs supported by private payers. The HCs that are not supported through private insurance are not going to gain much through up-coding. The implementation of pay for performance will motivate health care entities to adopt HIT because those without it will not be able to compete as effectively. However, HIT is not a magic bullet and has limitations. Prior to implementation, a very careful examination is needed to determine how the practice is going to be redesigned as part of the use of HIT.

Some evidence suggests that when HIT is used in HCs, it is more often used to support quality improvement as opposed to other settings. All providers face changing their focus to population health. The core mission of HCs is to provide population care to their entire communities. However, few EHRs provide sufficient registry functions to do this alone, though many do have connectivity potential with other systems. The major issue is tracking. Without a registry, data analysis is needed to determine patients at risk for conditions and to actively work to bring them in. Once patients with diseases are identified, it is necessary to track their progress through recommended treatments and tests. Each step of a recommended treatment is a point at which the patient can get

lost. Registries should be made to connect with EHRs so duplicate information is not being created and entered.

Capital costs present the biggest barrier for the use of HIT. The HCs do not have the capital available and many cannot borrow it. A recent Health Affairs study shows that only 13 percent of HCs have EHRs that meet minimum Federal standards. Several costs come into play, including implementation and that of downturn in patient volume that comes with EHR implementation. Such revenue loss can be critical to HCs.

Yet, HIT enables team-based care and requires major change, commitment, and dialogue on the part of all members of the team. Implementing EHRs is stressful for providers, particularly in HCs wherein the work is already challenging. As such, planning is very important. Equally important, potential unintended consequences must be addressed. If the system is not well planned, not well designed, or does not fit the culture and needs of that particular setting, the consequences can be disastrous.

Though the need for HIT in HCs is significant, the risks of acquiring and implementing HIT can be considerable. Oftentimes, there is very limited expertise available at the HCs. Approximately 40 percent of the HCs do not have a director of IT. Overall, HCs possess fewer reserves, in both human and economic capital. Their costs of recruitment and retention are enormous, especially in primary care and general internal medicine, where the numbers of new graduates have been declining in recent years.

The HCs have the most trouble attracting primary care clinicians. If clinicians leave, a year may elapse before they can be replaced. In turn, HIT does not offer a very good return on investment for HCs, as they are not going to recapture capital, implementation, and planning costs. Though potential savings are possible in terms of reducing medical records staff and transcription, the ongoing costs of training staff and of system maintenance will have to be covered. Oftentimes, people working in HCs are not particularly HIT savvy and may have unrealistic expectations of what EHRs can do. A misalignment of costs and benefits occurs. HIT can reduce overall health care costs, hospitalizations, unnecessary prescriptions, and adverse drug events, but, due to the existing reimbursement methods, the HCs are not going to capture these savings.

The implementation of HIT presents an enormous opportunity for HCs to learn from one another. One of the great strengths of the Health Disparities Collaborative is that it brings HCs together to share their experiences. The collaborative should be used as a model for implementing HIT in HCs. Keeping abreast with advances in HIT requires a dedicated staff person who is able to

translate HIT into clinical practice and adapt vendor systems to the needs of the practice. There should be a way to sort out clinical relevant information. The same is true with respect to decision support.

Staff members will need to redesign the workflow, the exchange of information, and the ways in which tasks are done. The EHR now provides the potential for patients to actually complete information before their visits, but to do so will require changes in the manner in which business is currently conducted. This will generate a huge need to train the trainer within the HCs. Training should begin at the top with the CEO in terms of understanding the issues but will eventually need to be conducted at all levels. It is important to note that some staff might find this change more difficult than others. Tenure in positions may be a consideration along with the numbers of non-technical staff persons.

REVIEW OF TITLE VII INTERDISCIPLINARY, COMMUNITY- BASED TRAINING GRANT PROGRAMS

The legislation set forth in Title VII, Part D, of the Public Health Service Act identified five programs, all with the central mission of training and education, and deemed to have the potential to support linkages that can have positive impact upon the quality and availability of health care services to populations that have traditionally been underserved or are otherwise medically vulnerable.

These programs are as follows:

- Area Health Education Centers (Section 751);
- Health Education and Training Centers (Section 752);
- Geriatric Education and Training Programs (Section 753);
- Quentin N. Burdick Program for Rural Interdisciplinary Training (Section 754); and
- Entities engaged in the education and training for the allied health professions and other disciplines (Section 755).

Although these programs differ in detail, they share common elements; each has the potential for fostering the development and application of interdisciplinary, community-based linkages. This occurs in areas where such linkages are most urgently needed, on health care delivery issues of greatest concern from a community standpoint. They all provide training in community settings for health professions students, medical residents, and local providers. In addition, they provide key links between the academic health institutions, federally qualified health centers, and communities. They all are integral parts of the health care safety net system.

Goals shared by all the programs include:

- Increasing the numbers of health professionals who can function in an interdisciplinary and multidisciplinary, community-based setting, through the training of students in the health professions, education of faculty in academic health centers, and continuing education for health care practitioners;
- Promoting a redistribution of the health care workforce to underserved areas within our Nation; and

- Improving the health status of the most vulnerable of our citizens by providing them access to health care professionals who are technically well-trained, culturally competent in the care they provide, responsive to the needs of the communities in which they work, and comfortable providing care as part of an interdisciplinary team.

CHARACTERISTICS OF INDIVIDUAL PROGRAMS

Area Health Education Centers (AHEC) - (Section 751)

Funding Levels for the AHEC Program	
FY 2002	\$33,346,000
FY 2003	\$32,946,000
FY 2004	\$29,206,000
FY 2005	\$28,971,000
FY 2006	\$28,661,000
FY 2007	\$28,681,000

The goals of the AHEC Program are to improve the recruitment, distribution, supply, quality, and diversity of personnel who provide health care services in underserved rural and urban areas, or to populations with

demonstrated serious unmet health care needs; to increase the number of primary care physicians and other primary care providers who provide services in such areas and to such populations; and to increase health careers awareness among individuals from underserved areas and underrepresented populations.

To accomplish these goals, AHECs carry out the following activities:

1. Develop and support the community-based, interdisciplinary training of health professions students, particularly in underserved rural and urban areas. Exposing health professions students to underserved communities increases the likelihood that they will return to these communities to practice.
2. Provide continuing education and other services that improve the quality of community-based health care. Improving the quality of care also enhances the retention of providers in underserved communities, particularly in federally qualified community health centers.
3. Recruit underrepresented minority and disadvantaged students into the health professions through a wide variety of programs targeting elementary through high school students. Minority and disadvantaged students are grossly underrepresented in the health professions. These students are more likely to practice in underserved communities upon completion of their training.
4. Facilitate and support practitioners, facilities, and community-based organizations in addressing critical local health issues in a timely and efficient manner. AHECs often focus on interdisciplinary education in which multifaceted education programs are developed and are implemented at community-based training and service delivery sites.

AHEC Program Outputs			
	FY 2006 Actual	FY 2007 CR	
Number of medical students trained in community sites in rural/underserved areas	20,000	20,000	--
Number of associated health professions students trained in community sites in rural/underserved areas	20,000	20,000	--
Number of training linkages with community/migrant health centers and other underserved area sites	1,500	1,500	--
Number of local providers who received continuing education on women's health, diabetes, hypertension, obesity, health disparities, cultural competence, and bioterrorism response	315,000	315,000	--
Number of elementary/high school students receiving health career guidance and information from the Kids into Health Careers	330,000	330,000	--
Number of minority/disadvantaged students participating in a health career training and/or academic enhancement experience	42,000	42,000	--
Number of States with AHEC Programs	46	46	--

Source:

<http://www.hrsa.gov/about/budgetjustification08/interdisciplinary.htm>

Health Education and Training Centers (HETC) - Section 752

Funding Levels for the HETC Program	
FY 2002	\$4,400,000
FY 2003	\$4,371,000
FY 2004	\$3,851,000
FY 2005	\$3,820,000
FY 2006	--
FY 2007	--

The goals of the HETC Program are to:

- Improve the supply, distribution, quality, and efficiency of personnel providing health services in the United States along the

- border of Mexico and in the State of Florida;
- Improve the supply, distribution, quality, and efficiency of personnel who provide services in other urban and rural areas, including frontier areas of the United States and health services to any population group, including Hispanic individuals who have demonstrated serious unmet health care needs; and
 - Encourage health promotion and disease prevention through public education in the areas described above.

To accomplish these goals, HETCs carry out the following activities:

- Conduct training and education programs for health professions students in the assigned service area;
- Conduct training in community-based health education services, including training to prepare community health workers; and
- Provide education and other services to health professionals practicing in the area.

Geriatric Programs – Section 753

Funding Levels for the Geriatric Programs	
FY 2002	\$20,400,000
FY 2003	\$27,818,000
FY 2004	\$31,805,000
FY 2005	\$31,548,000
FY 2006	0
FY 2007	\$31,548,000

The goal of the Geriatric Programs is to improve the training of health professionals in geriatrics, through three specifically funded programs.

Geriatric Education Centers are dedicated to the interdisciplinary geriatric education and training of

all health professionals.

Geriatric Training for Physicians, Dentists, and Behavioral/Mental Health Professionals ensure that physicians, dentists, and behavioral/mental health professionals become experts in geriatrics in order to serve as faculty for other trainees in their respective health professions.

Geriatric Academic Career Awards are designed to increase the teaching of geriatrics in medical schools through the development of junior faculty who are committed to academic careers teaching clinical geriatrics.

To accomplish these goals, grantees carry out the following activities.

- Improve the training of health professionals in geriatrics by providing geriatric residencies, traineeships, or fellowships;
- Develop and disseminate curricula to health professionals on the treatment of health problems of the elderly;
- Support the training and retraining of faculty to provide instruction in geriatrics;
- Support continuing education of health professionals who provide geriatric care; and
- Provide students with clinical training in geriatrics in nursing homes, chronic and acute disease hospitals, ambulatory care centers, and senior centers.

Geriatric Program Outputs			
	FY 2005 Actual	FY 2006 Appropriation	FY 2007 Estimate
Number of health care providers receiving training in geriatrics	50,665	--	--
Number of GECs	50	--	--
Number of dollars leveraged from other sources by each dollar of Federal funding	3	--	--
Number of geriatric fellowship trainees	66	--	--
Number of GACAs	104	--	--
Number of Patient Encounters	8,554,951	--	--

Source:

<http://www.hrsa.gov/about/budgetjustification07/interdisciplinary.htm>

Quentin N. Burdick Program for Rural Interdisciplinary Training - Section 754

Funding Levels for the Quentin N. Burdick Program	
FY 2002	\$6,996,000
FY 2003	\$6,954,000
FY 2004	\$6,125,000
FY 2005	\$6,076,000
FY 2006	--
FY 2007	--

The Quentin N. Burdick Program is designed to support the interdisciplinary education and training of health professional teams to enter into practice and/or remain in rural areas. Program goals are to:

- Use new and innovative methods to train health care professionals to provide services in rural areas;
- Demonstrate and evaluate innovative interdisciplinary methods and models designed to provide access to cost-effective comprehensive health care;
- Deliver health care services to individuals residing in rural areas;
- Enhance the amount of relevant research conducted concerning health care issues in rural areas; and
- Increase the recruitment and retention of health care practitioners in rural areas and make rural practice a more attractive choice for health care practitioners.

To accomplish these goals, Quentin N. Burdick Programs:

- Provide interdisciplinary learning experiences for health professions students designed to enhance their understanding of the contribution that each discipline brings to the solution of health problems;
- Conduct educational workshops and activities in rural communities for health professionals and residents; and
- Provide information and awareness activities for students, grades K-12, concerning career opportunities in the health professions.

Allied Health and Other Disciplines - Section 755

Funding Levels for the Allied Health and Other Disciplines Program	
FY 2002	\$9,495,000
FY 2003	\$11,922,000
FY 2004	\$11,849,000
FY 2005	\$11,753,000
FY 2006	\$3,957,000
FY 2007	\$3,960,000

While the main intent of this section addresses the allied health professions, it also includes the education and training of podiatric physicians, chiropractors, and behavioral/mental health practitioners.

Podiatric medicine training grants are used to support residency training programs that encourage primary care, especially for underserved, minority, and elderly populations and for persons with AIDS. Chiropractic demonstration grants help to build collaborative efforts between chiropractors and physicians for patient care and develop research protocols that will significantly expand documented research in the chiropractic field. The Graduate Psychology Education Program addresses the interrelatedness of behavior and health and the critical need for integrated health care services. The program trains psychologists to work with underserved populations and emphasizes an

integrated approach to health care services that underscores the connection between behavior and health.

Note: The FY 2006 budget for Allied Health and Other Disciplines funded the Chiropractic Demonstration Program and the Graduate Psychology Education Program only. The Allied Health Projects and Podiatric Programs were not funded.

The goal for the Allied Health Program is to increase the supply of allied health professionals, which is accomplished by supporting programs that train professionals, especially those most needed by the elderly; developing and supporting programs that enable the transition of baccalaureate graduates into an allied health profession and link academic centers to rural clinical settings through a community-based setting; supporting career advancement training programs for allied health professionals; supporting programs that provide clinical training sites in underserved or rural communities and interdisciplinary training to promote the effectiveness of allied health professionals in geriatric care; establishing centers that apply innovative models that link practice, education, and research around the allied health field; and providing financial assistance to allied health students in fields in which there is a demonstrated shortage and who agree to practice in a medically underserved community.

	FY 2006 Actual	FY 2007 CR
Allied Health Number of graduates	--	--
Number of URM graduates	--	--
Percent of URM graduates	--	--
Number of graduates entering practice in MUCs	--	--
Percent of graduates entering practice in MUCs	--	--
Graduate Geropsychology Number of Grantees	--	-
Graduate Psychology Number of Grantees	20	20
Chiropractic Demonstration Projects Number of awards	4	4
Number of chiropractors involved in research projects	28	28
Podiatry Number of Grantees	--	--

Source:

<http://www.hrsa.gov/about/budgetjustification08/interdisciplinary.htm>

RECOMMENDATIONS – ACICBL ANNUAL REPORTS NUMBERS ONE THRU SIX

The Committee produced six previous reports that focused on the Title VII Interdisciplinary, Community-Based Training Grant Programs. The list of recommendations offered in each report follows:

FIRST REPORT

1. Reauthorization of Title VII Interdisciplinary Training Grant Programs;
2. Increasing appropriations for Title VII Interdisciplinary Training Grant Programs;
3. Encourage collaboration between Title VII Interdisciplinary Training Grant Programs and local institutions that train minority/immigrant populations, community organizations representing those served, and community health centers where primary care is provided;
4. Establish a grant program for Interdisciplinary Education Demonstration Projects to support cooperative community-based ventures among Title VII Interdisciplinary Training Grant Programs and establish administrative preferences and priorities for funding programs that are truly interdisciplinary in scope;
5. Establish an Office or Division of Allied Health within HRSA;
6. Reallocate one percent of National Institutes of Health, Agency for Healthcare Research and Quality, Centers for Disease Control and Prevention, Food and Drug Administration, Department of Education, and Department of Labor annual appropriations to support formal collaborative programming within the Title VII Interdisciplinary Training Grant Programs;
7. Do not require the Health Education and Training Centers Programs to meet criteria for self-sufficiency; and
8. Legislative authority for the Podiatric Medicine Program should be placed in Part D, Section 747 (discipline-specific programs for physicians).

SECOND REPORT

1. Restructure Section 755 to specifically support allied health education and training programs (delete all other disciplines). Additionally, Sections 792 (Health Professions Data) and 799b should be redefined to employ the new list of recognized allied health professions. Create a new Section 756 to support chiropractic research and training in addition to demonstration projects. Create a new Section 757 (through removal of Section 755b1j) to support behavioral mental health for graduate psychology education

- (Section 757a), geriatric psychology education (Section 757b), and graduate social work education (Section 757c). Section 758 should be created for reauthorization of the Advisory Committee on Interdisciplinary Community-Based Linkages by moving the committee authorization from Section 756 to Section 758. Podiatric medicine should be removed from Part D Section 755b2 and placed in Part C (family medicine, general internal medicine, general pediatrics, physician assistants, general dentistry, and pediatric dentistry) and receive a separate appropriation from the allied health budget;
2. The Secretary should adopt measures to encourage collaboration among Title VII Interdisciplinary Training Grant Programs that enhances the diversity of the health professions educational pipeline, strengthens minority-serving institutions, and increases the development and exchange of culturally sensitive and appropriate health information;
 3. Congress and the Secretary should take action to strengthen the capacity of the Allied Health Program in Title VII, Part D, Section 755 of the Public Health Service Act by reserving Section 755 for allied health education and training for the full range of allied health professions. Funds should be directed to those allied health professions demonstrating workforce shortages and serving unserved, underserved, and vulnerable populations;
 4. Title VII Interdisciplinary Training Grant Programs should receive funding to partner with other agencies to educate and disseminate bioterrorism and emergency preparedness education and training;
 5. The Secretary should strengthen the capacity of Title VII Interdisciplinary Training Grant Programs by creating new and enhancing existing linkages between these programs and federally qualified community health centers, rural health clinics, and the National Health Service Corps; and
 6. The Secretary should appoint a member of the Advisory Committee on Interdisciplinary, Community-Based Linkages to the DHHS Rural Task Force.

THIRD REPORT

1. The HRSA Administrator should convene national health professions associations to develop consensus regarding core competencies and curricula for bioterrorism and emergency preparedness;
2. Federal funding should be continued for quality continuing education in bioterrorism and emergency preparedness for practicing health professionals in every State;
3. Federal funding should be available to develop new curricula or adapt existing curricula in bioterrorism and emergency preparedness for students in health professions schools;

4. Federal agencies should coordinate their efforts regarding bioterrorism and emergency preparedness and establish linkages with Title VII Interdisciplinary Training Grant Programs and State programs;
5. BHPPr should work with other Federal agencies, such as the Office of Management and Budget and the Congressional Budget Office, to develop additional performance measures, including the use of qualitative data for Title VII Interdisciplinary Training Grant Programs that specifically evaluate impact on the community health status and economy;
6. Develop a process for sharing data from all Title VII Interdisciplinary Training Grant Programs within BHPPr, among interested Federal agencies, and across the programs; and
7. Congress should appropriate funding for the purposes of evaluation, development of educational research models, and tracking long-term outcomes specific to Title VII Interdisciplinary Training Grant Programs.

FOURTH REPORT

Cross-Cutting Recommendations

1. Congress should reauthorize the Title VII Interdisciplinary, Community-Based Training Grant Programs;
2. The Secretary and Congress should require Federal agencies, including the Department of Labor (DOL), the Department of Education (DOE), the National Institutes of Health, the Agency for Healthcare Research and Quality, the Centers for Disease Control and Prevention (CDC) and others to establish formal funding-based links with HRSA to leverage the resources of the Title VII Interdisciplinary, Community-Based Training Grant Programs and to enhance their reach in the recruitment, training, and retention of the health workforce across the Nation; and
3. The Secretary and Congress should encourage linkages and collaboration between the National Advisory Committee on Interdisciplinary, Community-Based Linkages and DHHS, HRSA, BHPPr and national advisory committees and commissions addressing similar topics.

Cultural Competence and Diversity

4. The Secretary and Congress should include legislative language, applied uniformly, that requires Title VII Interdisciplinary, Community-Based Training Grant Programs to address cultural competency;
5. The Secretary and Congress should include legislative language requiring Title VII Interdisciplinary, Community-Based Training Grant Program grantees to address, as appropriate, faculty development in cultural and linguistic competence. This training should be done in partnership with students, when possible;

6. The Secretary and Congress should strengthen HRSA reporting requirements to include, where appropriate, the collection of qualitative and quantitative data relating to the cultural competence efforts of Title VII Interdisciplinary, Community-Based Training Grant Programs;
7. The Secretary and Congress should through legislative language require Title VII Interdisciplinary, Community-Based Training Grant Program grantees, where appropriate, to conduct program evaluation to support the development of evidence-based strategies for the incorporation of cultural competence efforts in health professions education and training;
8. The Secretary and Congress should appropriate funding incentives to health professions education and training programs focused on culturally relevant health promotion and disease prevention activities targeting diverse, unserved, underserved, vulnerable, and disadvantaged populations; and
9. The Secretary and Congress should encourage Title VII Interdisciplinary, Community-Based Training Grant Program grantees to form partnerships with providers at the State and local level to prepare a culturally competent and diverse workforce.

Health Disparities

10. The Secretary and Congress should through legislative language mandate that HRSA reporting requirements include, where appropriate, collection of qualitative and quantitative data relating to efforts carried out by Title VII Interdisciplinary, Community-Based Training Grant Programs to contribute to a reduction in health disparities. Linkages should be established that provide access to other HRSA data sources related to health disparities to enhance assessment and evaluation activities of Title VII Interdisciplinary, Community-Based Training Grant Program grantees;
11. The Secretary and Congress should through legislative language, applied uniformly, require Title VII Interdisciplinary, Community-Based Training Grant Programs to address the recognition and elimination of health disparities;
12. The Secretary and Congress should through legislative language require Title VII Interdisciplinary, Community-Based Training Grant Programs to provide educational and clinical experiences for students, faculty, and/or practitioners that increase awareness and demonstrate how appropriate, evidenced-based interventions can be used in combination with other measures to identify and lessen health disparities unique to their region or local area;
13. Congress should restore funding for Title VII Interdisciplinary, Community-Based Training Grant Programs to FY 2003 funding of \$89.7 million. Further, the Committee encourages Congress to consider

- additional funding of \$50 million for these programs to enable programmatic growth to further the reduction of health disparities through the continued preparation of a diverse health workforce; and
14. Congress should appropriate \$2 million to HRSA to conduct a study to investigate community health workers/patient navigators in terms of: utilization and cost effectiveness; education and training expectations including career advancement pathways; roles and responsibilities; and contributions to the reduction of health disparities.

Health Workforce

15. The Secretary and Congress should encourage Title VII Interdisciplinary, Community-Based Training Grant Programs to enhance the use of information technology (IT), tele-education, and telehealth in education and training strategies in order to reach and retain health care professionals in remote and underserved areas;
16. The Secretary and Congress should include legislative language that requires Title VII Interdisciplinary, Community-Based Training Grant Programs to utilize strategies to promote effective participation and representation by members of underrepresented racial/ethnic groups to increase the diversity of the health care workforce and reduce health disparities and to improve recruitment, retention, and distribution of the health care workforce;
17. The Secretary and Congress should require the HRSA Administration to change the application review and progress report review criteria to emphasize the use of strategies aimed at increasing the diversity, recruitment, and retention of the health care workforce;
18. The Secretary and Congress should include legislative language that requires Title VII Interdisciplinary, Community-Based Training Grant Programs to design education and training programs that promote effective participation and representation by members of multiple health professions disciplines and their effective interdisciplinary interaction on behalf of patients, special populations, and/or diverse communities;
19. The Secretary and Congress should include legislative language requiring Title VII Interdisciplinary, Community-Based Training Grant Programs to incorporate geriatric education/training in their programs and activities and encourage collaboration with GECs to improve the skills and knowledge of the workforce required to care for the aging population;
20. The Secretary and Congress should expand the GACA Program by allocating increased funding and legislating increased authority to include other doctoral-level health professions disciplines that care for aging populations and to provide mid-career awards to create academic leaders in geriatrics;

21. The planning committee for the BHPPr All Grantee meeting in June 2005 should consider creating a venue to explore strategies to share information, data, and resources among BHPPr grantees; and
22. Congress should expand the legislative authority of the Chiropractic Demonstration Projects Program to establish and include training programs to integrate chiropractic health care with other Title VII Interdisciplinary, Community-Based Training Grant Programs.

Health Workforce Pipeline

23. Funding should be appropriated to support a HRSA consensus conference to include, at a minimum, Title VII Interdisciplinary, Community-Based Training Grant Programs, the National Health Service Corps, and Division of Health Care Diversity and Development Programs. The purpose of the conference will be to identify successful and effective program models that encourage, on an ongoing basis, children and young adults to consider a broad range of health careers;
24. Make a statutory change to all Title VII Interdisciplinary, Community-Based Training Grant Programs to permit, but not require, a portion of grant dollars to be utilized to focus on pipeline programs encouraging young people to enter a full range of health careers;
25. The Secretaries of DHHS, DOE, and DOL should convene a meeting to develop collaborative approaches across their Departments to recruit, educate, and retain greater numbers of children and young adults (K-20) into the health professions. Special emphasis should be placed on program models that target students from disadvantaged and underrepresented backgrounds;
26. The Committee encourages linkages and collaborations with DHHS, HRSA, BHPPr, DOL, DOE, professional associations, and national committees and commissions that are addressing Kids into Health Careers;
27. An additional scholarship and/or loan repayment program should be established through BHPPr that is based on community needs and workforce assessment and would apply to the full range of health professions not currently supported by BHPPr funding mechanisms. Based on the large number of health professions involved, the Committee recommends starting with an appropriation of \$10 million; and
28. Additional funding should be allocated to Title VII Interdisciplinary, Community-Based Training Grant Programs to support efforts in the development and maintenance of academic enrichment programs for students in the health professions pipeline.

Faculty Development

29. The Secretary and Congress should authorize and fund institutions with accredited health professions programs to meet the costs of projects to plan and develop interdisciplinary faculty development programs to include post-doctoral fellowships, scholarship, teaching, and service training for junior faculty, and mentoring and retention support through demonstration models; and provide financial assistance to fellows and faculty enrolled in such programs; and
30. The legislative language relating to geriatric faculty as currently enacted in Section 753 should be revised.
 - Revise 753(b) to read: Geriatric Training Regarding Physicians, Dentists, and Behavioral Health Professionals, including social workers and nurses.
 - Revise 753(b) (3) (A) (iii) to read: Have completed graduate medical education or doctoral training in behavioral and mental health services, including social workers and nurses.
 - Revise 753(b)(4)(c) to read: The term graduate and post-doctoral training in behavioral and mental health services means training experiences that include graduate training resulting in the PhD., an internship accredited by the American Psychological Association, and post-doctoral training that qualifies a person for designation as a health service provider.

FIFTH REPORT

Programmatic Recommendations

1. The Committee recommends that the statutory authorization of the Advisory Committee on Interdisciplinary, Community-Based Linkages be reauthorized;
2. The Secretary and Congress should amend Section 755(b)(3) to read, Carrying out demonstration projects in which chiropractors and physicians collaborate to identify and provide effective treatment for spinal and lower-back conditions or planning and implementing interdisciplinary projects for chiropractic students in programs collaborating with other health professions and at least one allied health profession;
3. The Committee supports its previous recommendation to move podiatry to Section 747. The Committee requests an additional \$1 million to support program development for podiatric students and residents to participate in interdisciplinary education models as part of their education track; and
4. The Committee holds its previous recommendation in the Second Report that states, Create a new Section 757 (through removal of Section 755(b) (1)

(j)) to support behavioral mental health for graduate psychology education (Section 757a), geriatric psychology education (Section 757b), and graduate social work education (757c). The Committee also requests an increase in appropriations to \$7.7 million.

Recommendations for Allied Health

5. The Secretary and Congress should appropriate funding, no less than the previous level of \$35 million, under Title VII, Section 755 specifically for allied health programs to support interdisciplinary, community-based education and training projects. With this additional funding, HRSA should consider funding traineeships as authorized under Section 755(b) (1) (i);
6. Congress should expand the legislative authorities in Title VII, Section 755(b) (1):
 - Innovative projects designed to meet specifically defined and well justified local and regional allied health training needs;
 - Faculty development demonstration grants to address severe faculty shortages in allied health profession programs including interdisciplinary, community-based faculty fellowships in allied health;
 - Projects that establish partnerships with existing HRSA workforce centers to collect, analyze, and report data on the allied health workforce, access, and diversity and provide reports on workforce issues to Congress;
 - Projects that provide incentives for partnerships with local higher education institutions such as 2-year community colleges, tribal colleges, historically black colleges and universities (HBCUs), and Asian/Pacific Islander and/or Hispanic-serving institutions;
 - Projects that provide rapid transition training programs in allied health fields to individuals who have certificate, associate, and baccalaureate degrees in health-related sciences; and
 - Projects that expand or establish demonstration centers to emphasize best practices and innovative models to link allied health clinical practice, education, and research; and
7. Congress should enact the Allied Health Reinvestment Act (AHRA) with the inclusion of Title VII, Section 755 with the revisions proposed by this Committee in this report.

Interdisciplinary Education and Training

8. The Committee recommends that the following definition for interdisciplinary educational development and training be used by BHP for all Title VII Interdisciplinary, Community-Based Training Grant Programs:

Interdisciplinary educational development and training is defined as the collaborative process by which an interdisciplinary team of health care professionals – faculty, clinical preceptors, community health care providers – collaborate, plan, and coordinate an interdisciplinary program of education and training. The collaborative process requires the preparation and functioning of interdisciplinary teams who share knowledge and decision making with the purpose of creating solutions to health care problems that transcend conventional discipline-specific methods and work together in service of patient-centered and/or community-centered health care needs.

9. BHPPr should require through the grant guidance application process that applicants describe the interdisciplinary learning objectives, identify the interdisciplinary competencies, describe how these will be evaluated and measured in all Title VII Interdisciplinary, Community-Based Training Grant Programs, and discuss plans for institutionalizing these interdisciplinary education and training projects;
10. BHPPr should develop common interdisciplinary performance and outcome measures to evaluate the effectiveness of interdisciplinary education and training programs funded by Title VII, Part D;
11. BHPPr should support interdisciplinary education in all programs through its guidance, technical assistance, and creation of opportunities for mentorship, networking, and dissemination of best practice models;
12. Based on the growing body of evidence, including multiple Institute of Medicine (IOM) reports, that interdisciplinary care results in increased patient satisfaction and improved health outcomes, the Committee recognizes the importance of interdisciplinary education and training and recommends that BHPPr facilitate a joint meeting of all appropriate advisory committees or advisory committee representatives to discuss interdisciplinary education and training; and
13. The Committee recommends that HRSA convene a consensus conference on interdisciplinary professional education and training or make interdisciplinary professional education and training a significant topic of the next BHPPr all grantee meeting.

SIXTH REPORT

1. The Secretary and Congress should provide incentives for colleges, universities, and health science centers to create and maintain permanent offices or departments of interdisciplinary health sciences (participating disciplines as defined by current HRSA guidelines) education;
2. The Secretary and Congress should support interdisciplinary geriatrics education/training programs for all professionals and paraprofessionals associated with community health centers, rural health clinics, or related networks and partnerships;

3. The Secretary and Congress should give greater attention to investments in programs that educate and train health care professionals and paraprofessionals through interdisciplinary and community-based programs designed to foster the delivery of quality care to underserved and medically compromised populations;
4. The Secretary and Congress should provide funding incentives and demonstration projects in support of education and training to develop interdisciplinary health professions education clinical teams in conjunction with community health centers, rural health clinics, and other providers in underserved areas, to improve capacity, encourage positive evidence-based outcomes, and enhance the quality of health care;
5. The Secretary and Congress should support interdisciplinary community-based partnerships that provide education/training programs and/or demonstration projects addressing links between oral health and systemic health; establish new models that include oral health as part of comprehensive preventive care; or provide data on the overall health economics impact of preventive oral health approaches;
6. The Secretary and Congress should address the need for workforce development, faculty development, clinical educator development, and access in interdisciplinary geriatrics and gerontology to meet the need for trained professionals and paraprofessionals to provide care for older adults across the continuum of care settings;
7. The HRSA BHPPr should provide Section 752 HETCs, Section 753 Education and Training Relating to Geriatrics, and Section 754 Quentin N. Burdick Program for Rural Interdisciplinary Training grantees funded in 2005 the option for no-cost extensions for up to 12 months to allow for effective use of funds and to preserve vital networks that are critical to addressing health care needs of some of the Nation's most vulnerable citizens;
8. The Secretary and Congress should support community-based linkages of health professions education programs with community health centers, rural health clinics, and other community-based sites in the development of a diverse workforce through education and recruitment activities in both rural and urban medically underserved communities; and
9. The Secretary and Congress should recognize that community health workers are a valuable part of the safety net workforce and should provide funding preferences to interdisciplinary academic and community-based organizations that provide education to community health workers.

FUTURE DIRECTIONS of the COMMITTEE

The Committee continues to evaluate and discuss a number of opportunities that will help to shape the course for future directions. As such, the Committee views the opportunity for a combined meeting of all of the advisory committees within the Bureau of Health Professions, specifically the Training in Primary Care Medicine and Dentistry, Council on Graduate Medical Education, and Nursing Advisory Council on Nurse Education and Practice, as an extraordinary opportunity for these groups of health professions to engage in a collaborative dialogue that focuses on the critical issues in health care, avoids duplicative efforts and offers effective, convincing recommendations to address concerns.

Collectively, the health professions have an obligation and an ongoing social contract with society to engage in more efficient and effective teamwork in meeting current, prospective, and unanticipated health care needs. Potential topics of interest for discussion include health professions workforce shortages, advancing health professions training to meet future health care needs, and improving access by enhancing workforce diversity. Additionally, the Committee accepts its responsibility to ensure the appropriate training of health professions in response to the emerging health care needs of the Nation. The Committee recognizes that these needs may be precipitated by man-made and natural disasters.

The Committee has identified several areas of potential focus emphasizing best practices and models of interdisciplinary education that can be applied widely to health professions education. The Committee will follow the established model of receiving and gathering data from testimony provided by experts and leaders in the field, offering inquiry and utilizing the expertise of its diverse members.

In addition, the Committee will begin to use selected consultants to provide additional perspectives for the planning and developing of future reports. These acknowledged experts in their fields will provide brief documents or white papers that will be used to further inform and enhance the Committee discussion, as well as provide a framework for a working annual report. Building on the foundation made available by the Title VII Interdisciplinary, Community-Based Training Grants Program legislation, the Committee anticipates being more effective with its strategy in developing approaches that will advance the training opportunities for health professions. As the direct result of thoughtful dialogue designed to move toward consensus, specific recommendations with appropriate justifications will be generated and provided to the Secretary and the Congress.

PROMISING TOPICS

Rural Health Care in the United States linked with the role of Title VII Interdisciplinary, Community-Based Training Grant Programs in providing this health care in the future represents an important concern. This area is of interest especially for rural populations faced with growing influences of immigration, increasing numbers of older residents, and advancing numbers of veterans returning from recent conflicts throughout the world. As such, this is the working topic selected for further examination by the Committee for its Eighth Annual Report to the Secretary and the Congress.

Emphasis will be placed on addressing health workforce issues among rural and underserved populations including geriatric health care and care for veterans and their families. Expert testimony will provide perspectives about potential components of a comprehensive rural system of health care as well as workforce faculty and student education and training issues that ensure quality and understanding of policy and related fiscal concerns.

The Role of Public Health in Association with Title VII Interdisciplinary, Community-Based Training Grant Programs in the Nation's Public Health System is another topic of relevance. The Committee continues to work to identify the role of health professionals in addressing public health workforce shortages. With the key role of public health, particularly in emergency preparedness and bioterrorism, there are many opportunities for collaboration, development of effective partnerships and shared training that would support the Title VII programs.

Faculty and Workforce Shortages Coupled with the Role of Title VII Interdisciplinary, Community-Based Training Grant Programs represents another challenge. The accelerated need for increased numbers of highly educated health care professionals in concert with the limited resources of these higher educational systems and the lack of qualified academic and clinical faculty and educational leaders are causes for concern, if a well prepared workforce is to be available for the future. As such, innovative educational models are needed to promote interdisciplinary learning and practice during these complex and uncertain times.

As relevant in years past as it is today, the Committee continues to be interested in *Diversity in the Health Professions and the Role of Title VII Interdisciplinary, Community-Based Training Grant Programs* in enhancing the ethnic and racial diversity of the workforce. Critical to a high quality health care system is a diverse, well educated work force.

This has been a continuing priority of the Committee and has been addressed in previous reports in that diversity issues and meaningful support of Title VII programs must be integrated into upcoming topic agendas as consistent priority areas of concern.

Community Care Giving in Association with the Role of Title VII Interdisciplinary, Community-Based Training Grant Programs in assisting with non-traditional family and community based health care surfaced as an area of concern. This is an example of the more creative thinking of the Committee. With the evolving health care system, much of the actual care given to patients is provided through the family or community members. This is likely to continue in the future. There may be a substantial role for Title VII programs as these community care givers must have a significant level of training if they are to become competent in these care-giving roles.

Ever present is *Patient Safety Connected with the Role of Title VII Interdisciplinary, Community-Based Training Grant Programs* in identifying interdisciplinary models that prepare health professionals with the knowledge, skills, and moral courage to take responsibility for preventing errors. Safety concerns are shared across health professions and provide opportunities for collaboration and training consistent with Title VII programs.

Most recently, the *Concept of a Medical Home* has captured the attention of the Committee members as an approach to delivering comprehensive primary health care services. Likewise, the medical home model directs the need for coordinating every aspect of a patient's interdisciplinary plan of care. The Committee is interested in further exploring how Title VII Interdisciplinary, Community-Based Training Grant Programs could effectively facilitate the direction of interdisciplinary education, training, and practice within medical homes.

While certainly not all inclusive, the aforementioned topics and issues should help to shape the agenda for an ongoing debate that will result in the most appropriate decisions having the most positive influences on the health care outcomes for the medically under-served and un-served communities in this great Nation. The Committee remains poised to play a key role.