Health care reform and the expansion of health information technology can only be as good as a state's ability to implement it. As Chair of the Maryland Health Quality and Cost Council and the Governor's Health Reform Coordinating Council, I am working hard with our State, academic, non-profit, and private partners to prepare Maryland's health care workforce for the 21st century.

This report starts an important conversation about how we can meet the needs of our residents and employers so that Maryland can become a leader in health information technology and one of the healthiest states in the nation.

- Anthony G. Brown, Lieutenant Governor

MARYLAND

GOVERNOR'S WORKFORCE INVESTMENT BOARD

Introduction

Maryland stands at the forefront of a nationwide movement to utilize advancements in information technology to improve the quality and efficiency of individualized healthcare. Central to this effort are federal and state programs, built upon a nascent health information technology (HIT) framework, to encourage the rapid transfer of patient records from paper to an electronic/ digital format, also known as Electronic Health Records (EHRs). Healthcare providers, working in coordination with government, non-profits, the private sector and academia, will utilize the information contained in EHRs to improve clinical decision-making and patient care.

Moving to an EHR environment in Maryland is a work-in-progress. According to the Maryland Health Care Commission (MHCC), hospitals in Maryland have been the quickest to adapt to the concept, with 80 percent reporting EHR adoption, while long-term care facilities report nearly 40 percent adoption to some form of EHR. Predictably, individual physician's offices have been slowest to convert, with only 20 percent of primary care practices reporting adoption, due in large part to technical and financial constraints.

Federal regulations and financial incentives are likely to help precipitate the transition to EHRs among those that have been slowest to adopt. As thousands of healthcare providers convert to EHRs over the next several years, the implications for the evolving HIT industry are significant.

In March 2010, the Governor's Workforce Investment Board (GWIB) convened a Health Information Technology Focus Group to explore what impact an expanding EHR environment in Maryland will have on the workforce. In particular, participants were asked to identify the jobs and skill sets required by healthcare providers as the entire healthcare industry continues to transition into the digital age.

HIT Workforce Background

The HIT industry includes the CIO's and information technology staff of major hospitals, payor organizations, institutions, educational facilities, and public health organizations, as well as information technology managers working as vendors or contractors to a range of healthcare providers. The people who work in this field have been at the forefront of the healthcare industry's efforts to implement HIPAA, computerize business functions, transfer records to digital and electronic formats, improve training opportunities, advance communication systems within the healthcare industry, and utilize technology to support clinical decision-making, As the innovators and implementers in an industry undergoing a major transition, HIT professionals represent an important and growing part of the life sciences community in Maryland.

It is difficult to estimate the size of the HIT workforce in Maryland, in part because the sector includes more than just those people who are working in computer jobs within the healthcare industry (estimated at 1,600 workers). As IT functions have become increasingly integrated into many healthcare occupations, it is arguable that some of these positions should be counted as HIT jobs. In addition, it is unclear how many people work for information technology firms exclusively on projects related to healthcare. It is estimated that these IT positions actually represent a significant portion of the HIT workforce. Further data collection could help to quantify the size and scope of the sector.

There are numerous pathways leading to jobs in HIT, reflecting what one Focus Group participant described as a lattice framework. Most healthcare jobs today require some level of HIT competency and those requirements will continue to grow. As a result, individuals in healthcare may find themselves increasingly moving towards a career in HIT. Similarly, individuals in information technology may find themselves attracted to the challenges and rewards of a career in the healthcare sector, leading them into an HIT profession. As Table 1 indicates, HIT includes a variety of positions with varied educational requirements.

Table 1: Educational Requirements for Jobs in HIT and HIT Managment

Certificate Program / High School Graduate	
Biller/coder Insurance Claims Clerk Acute Care/Ambulatory	Coder Medical Records Clerk
Associate's Degree	
Coder/Code Supervisor Compliance Officer Clinical Data Dictionary Analyst Cancer/Disease Registrar HIM Manager	Quality Improvement Specialist Disclosure Specialist Documentation Specialist Change Master Auditor Trainer
Bachelor's Degree	
HIT/HIM Director Business Process Engineer Healthcare Consumer Advocate Project Manager	Consultant Clinical Data Analyst Compliance Officer Health Information Systems Application Designer
Advanced Degree	
Public Health Information Officer Academic Faculty Corporate Health Information Officer Chief Information Officer Health Informatics Application Developer	Data Mining Engineer Director of Clinical Information Systems Senior Performance Improvement Specialist Applied Information Systems Designer

Source: American Health Information Management Association

Findings

On March 31, 2010, GWIB convened a panel of experts and practitioners from the healthcare and information technology communities to examine the workforce needs and requirements that will be required to help Maryland meet its goal of rapidly moving into a significant EHR environment. Attendees included representatives from healthcare providers, education institutions, HIT vendors and policy organizations, all with some experience in HIT issues. Individuals were divided into two groups to facilitate discussion. One group represented physician's practices and other small healthcare providers while the other group represented hospitals and education institutions.

The groups identified the following issues and opportunities facing Maryland's HIT workforce:

HIT Workforce Findings

Build stronger bridges. The HIT field pulls workers from both the information technology and healthcare sectors. Currently, there is very little formal interaction between the two sectors in support of HIT. In order to develop a robust and successful HIT workforce, bridges between the IT and healthcare sectors need to be developed and institutionalized, so that each discipline can learn and benefit from the other.

Tailor education and training programs to the unique HIT requirements. The skills required for a HIT position extend beyond the fundamentals of any specific information technology or healthcare credentials. Employees in most HIT positions need a strong foundation in both fields, along with skills in critical thinking and change management to help lead organizations through difficult transitions and develop and implement further innovation. New education and training programs need to recognize and address the unique requirements of most positions in this field.

Establish a new field of study. Over the long-term, advancements and innovation in HIT will be driven by IT-skilled individuals who understand the healthcare sector, especially the clinical issues and regulations that often drive medical decisions. The HIT industry could benefit from an effort to pull together the essential elements of the healthcare and information technology disciplines into a new field of study focused specifically on HIT.

Prepare students for success in HIT. A range of skills were identified by Focus Group participants as critical to a successful career in HIT (Table 2). Education and training programs that emphasize the development of these skills will better prepare students for a career in HIT.

IT Workforce Findings

Plan for a workforce bubble. The current influx in federal funding to encourage physicians to adopt EHRs will create a short-term demand for IT workers as small offices are more likely to contract with IT firms to implement initial EHR systems. In addition, a shortage of health care workers means that the best prospect for filling a growing number of HIT related vacancies in hospitals and institutions over the near term may also come from the IT industry. The IT industry could benefit from a better understanding of the needs and requirements that will accompany this projected workforce bubble in order to plan and prepare workers for a growing number of jobs in the HIT sector.

Attract IT workers to healthcare positions. Currently, the healthcare industry in Maryland competes with the defense industry, government, aerospace, and cyber-security for IT workers. Healthcare industry leaders should work closely with the IT sector and academia to develop programs to attract IT workers to positions in the healthcare sector. An effort to "brand" the new HIT industry could help to attract individuals who are interested in the public service benefits that come with a career in healthcare.

Prepare IT workers for jobs in healthcare. IT workers will need specific training and experience in healthcare related issues to succeed in the healthcare setting. Healthcare leaders should help the IT sector to identify or develop training programs to boost the healthcare knowledge of IT workers. In addition, IT students could benefit from experiential education and training programs, such as internships and co-ops to bolster their success.

> **HIT Skills**
>
> - Critical thinking: focus on the big picture and problem solving
> - Clinical integration/interoperability: identifying tools and techniques to improve collaboration regarding patient care
> - Informatics: apply data to improvements in outcomes regarding clinical care
> - Applications: ability to use specific IT tools and applications
> - Project management and leadership: ability to manage workflow and lead diverse, interdisciplinary teams
> - Customer relations and service, including patient engagement
> - Communication skills: listening, writing, speaking
> - Ability to learn and adapt quickly to new trends and technologies
> - Change management and process improvement
> - Security and privacy issues
> - Reporting and compliance issues

Healthcare Workforce Findings

Help small healthcare providers to better manage IT functions. The ongoing maintenance and effective utilization of EHR systems in small practices will likely be managed within the existing organizational framework by current staff. Many of these individuals will require additional and ongoing training in computer applications to take full advantage of the opportunities associated with EHR and other HIT advancements. These small offices could benefit from additional resources and/or collaborative efforts that help defray the costs of training.

Train existing healthcare workers in IT. Healthcare workers with experience in IT are considered more desirable than IT workers with limited healthcare experience for many HIT-related positions. As healthcare employees continue to add IT functions

to their normal duties, the pathway to a career in HIT may become clearer. Healthcare leaders should work with the IT sector and academia to help nurses, physicians' assistants, technicians, and others in the healthcare field to develop their IT skills as a way to advance careers and fill vacancies within HIT.

Integrate IT skills into all healthcare education and training programs. Healthcare workers in the future will be required to utilize information technology in ways not even imagined today. As a result, education and training programs for healthcare professionals must integrate IT applications into the curriculum so that IT skills becomes embedded into the skills set of healthcare workers and, as one participant stated, "become part of our DNA."

Conclusion

The lattice framework that symbolizes the emerging field of health information technology presents both opportunities and challenges. As the state healthcare community moves quickly into a new standard governed increasingly by the availability and mobility of patient data, the health information technology industry will continue to expand in size and stature. Workers will be drawn from both the IT and healthcare sectors. Unfortunately, the competition for both IT and healthcare workers nationwide is already stiff.

In order to remain vibrant and competitive as it grows, the HIT sector will need a variety of creative and achievable strategies, many of them identified here through the work of the Task Force, to help attract and retain a high-quality workforce. Healthcare and IT industry leaders must work together, in cooperation with non-profits, government, and academia to develop programs to plan, prepare, educate and train individuals for a successful career in the exciting new field of HIT. Building bridges between the IT and healthcare sectors will help to ensure that a high quality HIT industry develops and thrives in Maryland.

The focus group laid the foundation for growing Maryland's HIT workforce with the findings detailed in this report. GWIB's next step is to share these findings with educational providers for their review. GWIB will then convene employers and educators / training providers to prepare for implementation of appropriate HIT education and training.

GOVERNOR'S WORKFORCE INVESTMENT BOARD

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