Health Information Technology, Telehealth, and the Health Workforce

What is Health Information Technology?
According to the Office of the National Coordinator for Health Information Technology’s website, HealthIT.gov, "the term "health information technology" (health IT) is a broad concept that encompasses an array of technologies to store, share, and analyze health information."

Introducing technology into health care record keeping and communication tends to focus on increasing access, improving quality and reducing costs. The purpose of most health information technology systems is to facilitate communication among patients, health care professionals, specialists, and expert sources, provide patient health information that is as current as possible and assist patients in underserved locations by providing electronic access to care.

With all of the various ways that health information technology (HIT) can be used and implemented, HIT goes by many different names, including:

- **Telehealth** – electronically delivered services including: access to specialists for rural doctors, electronic pharmacy services for patients in underserved locations, mental health services provided via the internet, remote home monitoring and more. Can also be referred to as telemedicine or telepharmacy depending on its application.
- **Electronic Health Records (EHRs) or Electronic Medical Records (EMRs)** – electronic versions of the medical information collected by health care professionals and organizations about a patient to whom they provide care.
- **Personal Health Records (PHRs)** – similar to EHRs except created and controlled by the patient.
- **Health Information Exchange** – the exchange of health information electronically between organizations and health care providers to ensure that the health care decisions are based on the most up to date information available for a patient.

What workforce is needed to implement and maintain HIT and Telehealth?
The implementation and use of HIT changes the way the health care workforce operates. Often, providers and support staff at a health facility need additional training in order to use an HIT system. For more information on these training needs, see "How does the use of EHRs and
However, additional dedicated HIT staff are also necessary for the implementation and maintenance of HIT and telehealth systems.

According to a 2012 survey by the College of Healthcare Information Management Executives (CHIME), 59% of respondents reported shortages of HIT staff. This survey also indicated that clinical software implementation and support professionals were the HIT workers highest in demand.

There are many different roles, job descriptions and titles for HIT staff. For instance, the Office of the National Coordinator for Health Information Technology (ONC) released a list of six health care professionals that assist with the implementation of EHRs. These include:

- Clinical/Practitioner Consultant
- Implementation Manager
- Implementation Support Specialist
- Information Management Redesign Specialist
- Technical Support & Software Support Staff
- Trainer

More information on the role of these professionals is discussed in a document from the ONC: Health IT Workforce Roles and Competencies.

The Health Resources and Services Administration resource, Careers in Health Information, provides descriptions of common health information technology occupations, including:

- Medical Records and Health Information Technicians
- Certified Medical Coders
- Cancer (Tumor) Registrars
- Chief Information Officers
- Programmers
- Informaticists
- Nurse Informaticist
- Chief Medical Informaticist Officers

Telehealth systems also require dedicate staff that work with, maintain, and promote these systems, some of which are highlighted in the staffing resources offered by the Telehealth Resource Centers. These professions include:

- Project Managers
- Clinical Coordinators
- Business Agents
- Technology Coordinators
How does the use of EHRs and telehealth systems impact health care staff?

**Patient Relationships:** The use of information technology can change the way health care is practiced. According to commentary in the Journal of Academic Medicine written by Dr. Beth Lown and Dayron Rodriguez, "Inside the exam room, for better or worse, these powerful technologies reshape communication, interactions, the patient–physician relationship, and, ultimately, physicians' sense of their professional roles."

**Provider Satisfaction:** Research has been conducted to study the satisfaction of providers with HIT systems and the impact of these systems on their job satisfaction. The 2011 Physician Workflow Study from the Centers of Disease Control found that 85% of physicians were at least somewhat satisfied with their EHR system. Other research found that physician career satisfaction is higher when HIT systems are utilized.

**Provider Retention:** A 2008 report from the Agency for Healthcare Research and Quality highlights the positive impact of telehealth systems on provider retention in rural areas. These systems can reduce rural isolation and provide a "network of peers from other rural and urban communities".

**Training:** The introduction of telehealth systems in the health care workplace has created a need for new training for practicing professionals and health care students. The national network of Telehealth Resource Centers provides information on developing training strategies and accessing training programs on telehealth systems. The national network states that telehealth training occurs:

- "During initial program development,
- Just prior to program kick off – initial initiation of the telemedicine service and
- Ongoing for new staff working in the telemedicine program and refresher training for existing staff.”

HIT systems also demand additional training for health care staff. A report from the Commonwealth Fund evaluated the implementation of EHR systems. In the nine hospitals studied, any training provided by EHR vending companies was not adequate and had to be extended to "virtually all clinical and administrative staff as well as community physicians."

In a January 2010 Health Workforce News interview, Dr. Marty Witrak and Dr. Rondell Berkeland discuss the HIT training provided through nursing, occupational therapy, physical therapy, exercise physiology, athletic training, and social work education programs at the College of St. Scholastica. While these programs were unusual in 2010, recently these types of programs have become more common.

The Office of the National Coordinator (ONC) for Health Information Technology has developed a Workforce Development Program to assist in the training of the HIT workforce, including training for current physicians, advanced-practice nurses, physician assistants, public health professionals etc. Training for the HIT role of Clinician or Public Health Leader prepares
individuals to “lead the successful deployment and use of health IT” through a university-based certificate program.

Other training support and opportunities have also been created through the ONC’s Workforce Development Program, including a Community College Consortia, Curriculum Development Centers, and competency examinations. However, these training opportunities focus less on training the current health care workforce and more on filling the demand for dedicated HIT professionals.

**Workflow:** The Agency for Healthcare Research and Quality (AHRQ) offers resources for assessing and preparing workflows for HIT implementation in their Workflow Assessment for Health IT Toolkit. This toolkit includes explanations of provider experiences when implementing different forms of health information technology. Reported impacts on clinical workflows vary between experiences. Some report that HIT programs allowed providers to spend more time with patients and see additional patients. Others experience slow systems that negatively impacted patient care and the recording of health information.

HRSA also discusses the workflow impacts of new HIT systems in the Rural Health IT Toolbox.

**How does “meaningful use” impact the workforce?**

The Centers for Medicare & Medicaid Services (CMS) offer incentive payments to providers for implementing and utilizing EHR systems. However, in order to receive these incentives, participants must abide by a set of standards for HIT utilization, known as meaningful use. In general, these guidelines require that providers are “meaningfully using” their EHRs by meeting thresholds for a number of objectives.

Meaningful use requirements occur in three stages with various timeframes. The Stage 1 requirements began in 2011, Stage 2 will begin in 2014, and Stage 3 will be required by 2016. Requirements for each stage are explained at HealthIT.gov. CMS also offers a comparison table of Stage 1 and Stage 2 requirements for providers. The most commonly discussed workforce component for successful meaningful use is an adequate supply of a highly trained HIT professionals.

**Do EHRs and telehealth systems facilitate the provision of coordinated and team-based care?**

Telehealth systems can assist with the communication and coordination of health care team members. According to a 2008 report from the Agency for Healthcare Research and Quality, “Telehealth supports and enhances team-based care by connecting providers remotely to foster collaboration and health information exchange.” The report refers to examples where telehealth systems helped to build camaraderie between nurses and pharmacists and improved providers’ attitudes about teamwork. HIT systems can also facilitate care coordination and teamwork. Some examples are discussed in a perspective article written by Ann O’Malley in the New England Journal of Medicine, including:
Creating and maintaining shared care plans between providers.
Coordination between providers for patients who see multiple physicians.
Linking recorded health information from multiple sources to one standard set of treatment plans.
Utilizing individual health records to coordinate population-level health care prevention, preparation and treatment.

A 2011 study from the Society of Teachers of Family Medicine found that certain aspects of EHRs enhance team-based care, while others impede care coordination. Messaging systems available through EHR systems can facilitate more efficient communication between team members. However, inconsistent methods for recording information and utilizing EHR systems can make collaboration difficult and frustrating.

Although HIT has the possibility to assist in the transition to coordinated and team-based care, there must first be improvements in the technology and the health care workforce. The same article from the Society of Teachers of Family Medicine’s Family Medicine journal discusses some of these necessary improvements, including:

- **Standardization**: the use of these systems must become more standardized with health care providers working in multiple settings and various practices recording information similarly.
- **Affordability**: small primary care practices must be able to afford the financial and personnel obligations necessary for implementing HIT.
- **Diagnostic and Treatment Functions**: systems that assist with linking health indicators to diagnoses and treatments need to be further developed.

**How does telemedicine/telehealth extend the reach of specialized health care professionals and impact access to quality care?**

A 2011 paper from United Health Center for Health Reform and Modernization discusses many forms of technology-supported health care delivery methods that have extended the provision of health care services in rural areas. There are many specific examples of the ways that telemedicine can improve health care access, particularly to specialist services:

- **Intensive Care Unit Telemonitoring (e-ICUs)**: A 2012 article highlights an e-ICU system in rural Alaska that has extended the reach of health care professionals located in urban areas. Rural providers can collaborate with tele-hub professionals to assist in monitoring and treating patients and provide “an extra set of eyes for the bedside nurse”. These systems can also provide access to assistance during “tricky -- and often lifesaving -- procedures”.
- **Extension for Community Healthcare Outcomes (ECHO) Program**: An article from the New England Journal of Medicine highlights the ECHO program, which facilitates video conferencing between rural providers and hepatologists to improve access to hepatitis C treatment.
• **Access Telehealth:** highlights other telehealth successes such as Evangelical Lutheran Good Samaritan Society’s use of telehealth monitoring to reduce hospital admissions for an elderly patient.

HIT systems offer other innovative methods of care and provider support to patients and health care professionals in underserved locations. These methods are constantly evolving based on patient and provider needs and continue to grow. Examples include:

• **Telepharmacy** services extend access to medications and medication counseling at rural facilities and communities.
• **Monitoring systems** can facilitate tracking of patient vital signs from their home, such as "smarthomes" that utilize home-based sensors to keep patients in their homes longer.
• Electronic communication can link providers that serve in isolated areas and create "virtual professional communities".
• Health care providers’ use of mobile devices, such as tablet computers and smartphones, known as mHealth, supports the growing trend to "care everywhere".

These and other HIT-supported programs offer new methods for improving health care access and/or quality by extending the reach of health care services, improving the ability of rural providers to address a broader range of medical conditions, and facilitating collaboration between professionals with limited access to their colleagues.

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*This publication is an archived version of a topic guide that appeared on the Health Workforce Information Center (HWIC) web site. HWIC was a national information resource covering a wide-range of health workforce issues. HWIC ceased operation as of February 2014. HWIC was operated by the Center for Rural Health at the University of North Dakota School of Medicine and Health Sciences and funded by the Bureau of Health Professions, Health Resources and Services Administration, U.S. Department of Health and Human Services.*