Health Information Technology: Addressing Health Disparity by Improving Quality, Increasing Access, and Developing Workforce

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Evidence of racial and ethnic health disparities associated with socioeconomic differences is remarkably consistent across chronic illnesses and health care services. In 1985, the U.S. Dept. of Health and Human Services released the Secretary's Task Force on Black and Minority Health.[1] This report was one of the first federal documents to highlight disparities in health and health care between the majority and racial and ethnic minority populations. Subsequent research demonstrates an increased burden of disease for our vulnerable homeless, impoverished rural, migrant, and public housing communities, which suffer greater morbidity and mortality than the general population.[2] Health care reform efforts targeted toward these diverse underserved populations must capitalize on advances in health information technology (IT) and best practices.

Health IT is a vital tool in achieving the goals of health care reform to increase health care access, improve care delivery systems, engage in culturally competent outreach and education, and enhance workforce development and training. The first national survey of federally funded community health centers shows that although 26% reported some electronic health record (EHR) capacity and 13% have the minimal set of EHR functionalities, the centers serving the most poor and uninsured patients were less likely to have a functional EHR system.[3] Community health centers, free clinics and other safety net organizations aim to deliver evidence-based, patient-centered, culturally competent, efficient, high quality health care to underserved populations. Electronic health records can help the health delivery system achieve those goals.

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The National Health IT Collaborative for the Underserved* was launched to ensure that health systems serving vulnerable populations are not lagging behind as health information technologies are developed and implemented. The vision for this collaborative is an interconnected public and private health system where all consumers have access to high quality, affordable care and to the information and technology resources required to maximize their health care services. The Health IT Collaborative has engaged more than 100 partners who are committed to one of four workgroups: Education and Outreach, Workforce Training, Advocacy and Policy, and Finance and Sustainability. The Association of Clinicians for the Underserved is most actively engaged in the Health IT (HIT) Workforce Training and Development Workgroup.

Quality Improvement

Electronic health records have a positive impact on quality of care, patient safety, and system delivery. Clinical decision support within the EHR system prompts clinicians on evidence-based recommended diagnostic and screening tests and immunizations for both primary prevention and chronic disease mangagement. This fosters equitable treatment for diverse populations by eliminating any potential racial or ethnic bias from the health care provider that might affect clinical judgment. Medication errors and adverse drug effects are reduced as the system displays recommended dosages and highlights drug interactions, allergies, and contraindications. The medication module provides formulary and cost information as well as generic alternatives to prescribed medication, which reduces cost for patient and insurer. Patients affected by medication recalls can be identified and notified quickly and easily through simple reporting methods, eliminating labor intensive paper chart reviews. Electronic health records serve as a centralized medical record available remotely to clinicians from multiple clinic sites, affiliated hospitals, or on call, which helps to minimize medical errors and duplication of efforts.

The reporting function of the EHR enables performance monitoring for continuous quality improvement initiatives. Quality measures for prevention, risk factor screening, and chronic disease management are identified and evaluated to provide support for practice interventions and outreach initiatives. An electronic health record that includes documentation of demographics, including race and ethnicity, risk factor assessments, and preventive and chronic disease management decision support, enables the clinician to manage more effectively the complex health care needs of our vulnerable populations.

*The National Health IT Collaborative for the Underserved is coordinated by a consortium of the Healthcare Information and Management Systems Society (HIMSS) Foundation's Institute for E-Health Policy, Apptis, Inc., Summit Health Institute for Research and Education, Inc. (SHIRE), E-Health Initiative, the Association of Clinicians for the Underserved (ACU), and the Office of Minority Health.

Education and Outreach

Access to accurate organized data provides opportunites to perform targeted education and outreach services. Culturally appropriate health literacy education materials are embedded in many EHR systems and can be printed during patient visits. Clinicians can graph a patient's blood pressure measurement or weight for visual tracking of the patient's health goals and success. Demonstrating a direct decrease in blood pressure related to recent weight loss provides positive reinforcement to patients to continue with their self-management regime. Often, this can be a powerful tool to engage a patient in his or her own treatment plan. Patients who are informed active participants in their own care have better outcomes, and their health care is apt to cost less.[4] Preventive care and disease-specific reminder letters can be generated through EHR reports and sent to patients. Patients report feeling that the clinician has a greater investment in their health management when receiving follow up letters and reminders and that they feel more engaged with their plan of care when their clinician uses an EHR.[5]

Mangaging the complex health needs in vulnerable populations is a labor intensive endeavor for both the patient and the clinician. Many such patients require a multiple medication regimen; frequent monitoring of vitals and laboratory studies; lifestyle changes in diet, exercise, stress management, smoking cessation; and encouragement to schedule and adhere to medical appointments and diagnostic tests. With lives complicated by poverty, unemployment, violence, hunger, instability and loss, the priority of managing their health falls to the bottom of or off their list completely until symptoms scare them back into the health care system. As clinicians, we have found that health records can assist in promoting self-management and self-empowerment through improved communication with clinical staff and support outreach which leads to improved health outcomes.

Tim Barker, MD, the Medical Director of The Heart of Texas Community Health Center in Waco Texas, described as follows the challenges his organization faces in caring for 3,500 patients with diabetes: "One of the greatest challenges to chronic care management in public housing communities is keeping patients engaged in their care. They are often lost to follow up care when they do not return for medical visits or refill their prescriptions" (T. Barker, personal communication). As a participant in Health Resources and Services Administration (HRSA) diabetes care collaborative, his center created a model using Community Health Corp (CHC) volunteers to assist in the case management of their patients with diabetes. Dr. Barker described for us the case of an uninsured patient with complex poorly controlled hypertension, diabetes, and coronary artery disease. Despite intensive care from both the nurse practitioner and physician, this patient was not able to improve his disease control. After three visits with the CHC volunteer for self-management counseling, however, the patient achieved remarkably greater control. Recognizing the success of this example, Dr. Barker and his team developed a care delivery model that capitalized upon EHR and the CHC volunteer as an integral part of their health delivery system. They pilot tested a diabetes project where the CHC volunteers were provided with online training on self management counseling for diabetes. They created a diabetic registry in the EHR to identify and recall patients due for routine diabetes care. Two days prior to their scheduled visit,

patients are called again as an appointment reminder and requested to arrive early to meet with the CHC volunteer for self management counseling. The self-management goals addressed are documented into the EHR. Dr. John Gill, a staff physician in this practice reports that this model "helps to engage the patient in education readiness with the consistency of a nonjudgmental message provided by the CHC volunteer and re-emphasized by clinician."

The Heart of Texas Community Health Center currently has twenty three Community Health Corp (CHC) volunteers supported by funding from the National Association of Community Health Centers. These volunteers commit to 11 months of service with stipend and have been trained in the use of the EHR to assist in their role as patient educators, case managers, and self management counselors. Many of these CHC volunteers are college students contemplating careers in health care. Some are adults who are making a career change. One current CHC volunteer had been laid off from a position in health care and sought out the Community Health Corp to remain in the field and to acquire more skills for re-employment.

Shirley Langston is a CHC volunteer who began her relationship with Heart of Texas Community Health Centers as an uninsured patient with newly discovered cardiovascular disease. This experience helped her demystify the health care system and encourage public housing residents to seek health care, adhere to medication regimens, and commit to self management goals which will contribute to their own self empowerment. She said, "As a patient myself, I am able to help change the mindset of the residents, improve their perception of the health center and clinicians, and engage them in taking responsibility for their health management." She has used her new skills to start an outreach advocacy venture. She opened Restoration Haven, a public housing community advocacy organization, which networks with other organizations to provide parenting support classes, tutoring, ministry, transportation, counseling, and outreach.

Workforce and Training Development

Improving quality and providing education and outreach through Health IT require investing in workforce development. Additional human resources and training are necessary to carry out Health IT-supported interventions. Building Health IT skills in the workforce can be supported by programs such as the Community Health Corps and *Jobs to Careers*, a four-year, $15.8 million national initiative of the Robert Wood Johnson Foundation in collaboration with the Hitachi Foundation and the U.S. Department of Labor, which encourages partnerships among employers, educational institutions, and other organizations to improve training and advancement opportunities in frontline workers.

Implementing, sustaining, and optimizing an EHR in a health care network requires staff training and development and often leads to shifts in roles and responsibilities as job descriptions evolve with changes in the operational workflow. The organization's leadership ability to recognize and support staff competency and acceptance level of new job responsibilities contributes to EHR success. Next, one of us (RCC), describes

his experience with workforce development in HIT since implementing an EHR system six years ago in his capacity as Medical Director of Waianae Coast Comprehensive Health Center in Hawaii.

Growing Our Own EHR Team at the Waianae Coast Comprehensive Health Center

We were the first Community Health Center in Hawaii to implement an EHR. The EHR investment was not only in technology, but also in employee potential, which ultimately led to system support, system customization, targeted training, system spread, and community economic development.

The manager of electronic medical records at the Waianae Coast Comprehensive Health Center describes how the EHR system was put into place:

> Implementing an EHR system requires a momentous change in clinical process and requires continued application support to assure sustainability of the new technology. Realizing this, the health center created an EHR team in 2003 comprised of team members all recruited in-house. Recruiting in-house employees was beneficial in that the team was already knowledgeable about the organization's history, had existing trust relationships with the center's staff and providers, and more importantly it helped create system buy-in and ownership by empowering the health center's existing employees with new knowledge. (Michele Kuahine, EMR [electronic medical record] Manager and Innovations Coordinator)

From volunteer to medical receptionist to an employee scholarship for the Medical Assistant School of Hawaii, Michele Kuahine worked as a registered Medical Assistant for thirteen years. As the first hired EHR support staff, she completed intermediate computer hardware and software training within six months. Within one year, she received advanced EHR and passed the vendor certification program. At the time, she was the only NextGen Certified Professional in Hawaii, and the only person outside the NextGen company to become certified. She recently completed a Bachelor of Science degree in Health Care Administration.

Having in-house system support at all times is critical to a successful implementation and prolonged sustainability. Everyone on the five member EHR Team works to support the system; all were recruited in-house, and all were formerly front-line support staff. One said,

> I also took and passed the EHR vendor certification program resulting in a NextGen Professional status . . . EHR Clinical Analyst II at WCCHC. Responsibilities include EHR system implementation, development, support and training. (Ammie Acosta)

Starting as a receptionist, Allyn Momoa moved to the medical records department and spent 16 years working as a medical records clerk, then as a medical records manager. She joined the EHR Team and became Microsoft Office Certified as well as a NextGen Certified Professional. She remarked,

> I am an EHR Analyst III; I help support the EHR application through WCCHC. I help provide training for providers and essential support staff on the use of NextGen EHR and EAS applications. I work with assigned providers to develop customized templates for specialty groups. (Allyn Momoa, EMR Analyst III)

To date the EHR Team has held over 2,000 group and individual training sessions. This involved over 500 employees and an estimated 900 training hours. The WCCHC built an Innovation and Design Center to house a computer classroom, the Health Information Technology Department, the EHR Team and Medical Records Scanning. Continuous training includes monthly Provider and Medical Assistant EHR Workshops introducing new applications and updates. Training expanded to incorporate EHR skill with WCCHC's Graduated Competency Program (GCP). With five cohorts (75 students), GCP takes managers, receptionists, and medical assistants through a work-based learning program that provides college credit, salary raises, and a career path. One analyst described her experience with the EHR this way:

> We all train users on the basics of EMR. But the fun and brainstorming is in building templates out of EMR. Working together with providers is a great benefit. Everyone's goal is to make the system more efficient and user-friendly. (Katherine Sotelo, EMR Analyst)

The WCCHC's EHR team benefits other health centers. Through grants, WCCHC was able to purchase, implement, create a call center and provide system support for three other Native Hawaiian Health Centers on three islands, as the system manager explains here:

> The partnership established its own Super User group with representatives from each of the health centers sharing their expertise in clinic process redesign, the use of an EHR system and associated technical infrastructure requirements. This strategic use of sharing experience and knowledge helped the CHC [community health center] partnership accomplish their shared goal in introducing and sustaining health information technology in their diverse health care settings and culturally sensitive community environment. (Michele Kuahine, EMR Manager and Innovations Coordinator)

By developing and nurturing homegrown human capital, the health center has retained valuable technical support staff keeping EHR operating costs well below the norm. Money usually paid to mainland corporate vendors is instead invested in the employees who live in and support the Waianae Coast Community economy. Thus, system support becomes community support. One employee describes her own hiring this way:

> My Mother has been with WCCHC for over twenty years and she encouraged me to apply at her company. With no medical background I became the IT support desk clerk. Although I wasn't assisting patients directly, I always kept in mind that I was helping my fellow colleagues aid our patients. That was enough to guide me toward a whole different direction, as a career. (Melissa Bobbiles, EHR/EPM Lead Trainer for All Employees)

Policy and Advocacy, Financing and Sustainability

Concerted federal action is needed to encourage the spread of health information technology and ensure a substantial return on investment. National policy must include a commitment to HIT research and development, federal funding through grants or loans especially for financially limited health systems, provision of state or local HIT-support organizations addressing technical and logistical challenges, and investment in national IT infrastructure.[6] The National Health IT Collaborative for the Underserved will examine concrete options for funding and sustainability and advocate new federal and state legislation, regulations, funding, programs, and initiatives targeted towards underserved communities. A comprehensive approach will be required to bring underserved populations into our national Health IT framework, ensuring that there will be no disparity. We close with a message about EHR from the U.S. President:

> Now is the time to protect health insurance for the more than 8 million Americans at risk of losing their coverage and to computerize the health-care records of every American within five years, saving billions of dollars and countless lives in the process. (President Barack Obama, February 2009)

Notes

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