Progress in Interoperable EHR in USA

Charles Sneiderman MD PhD
Bethesda, MD
sneiderman@juno.com

1976-1979
Department of Family Medicine Medical University of South Carolina

http://www.musc.edu/dfm/dfm.html

Microcomputers 1980s
PDAs 2000s

Presidential Mandate 4/04

- In 2004, the President launched an initiative to make electronic health records available to most Americans within the next ten years. Realizing the promise of health IT will help transform our health care system by lowering costs, reducing medical errors, and improving quality of care in a more efficient and hassle-free environment. Greater reliance on electronic health records means that information needed to treat patients effectively will be a few computer clicks away, no matter where the patient is receiving care.

www.whitehouse.gov/news/releases/2004/04/20040427-5.html

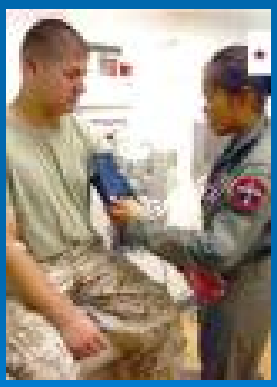
David Brailer, MD PhD
First National Coordinator for HIT
www.hhs.gov/healthit/

Office of the National Coordinator for Health Information Technology (ONC) -The Office of the National Coordinator for Health Information Technology provides leadership for the development and implementation of a nationwide health IT infrastructure allowing secure and seamless exchange of data and records. The ONC advises the Secretary of HHS on health IT policies and initiatives, and coordinates the Department's efforts to meet the President's goal of making an electronic medical record available for most Americans by 2014.

Hurricane Katrina 8/30/05

~1000 die (a typical week according to To Err is Human)

US Military's "New" IOEHR www.ha.osd.mil/AHLTA/



National Health Information Network Vision (Brailer, 2005)

- A NHIN should be a decentralized architecture built using the Internet, linked by uniform communications and a software framework of open standards and policies.
- A NHIN should reflect the interests of all stakeholders and be a joint public/private effort.
- A governance entity composed of public and private stakeholders should oversee the determination of standards and policies.
- A NHIN should provide sufficient safeguards to protect the privacy of personal health information.
- Incentives may be needed to accelerate the deployment and adoption of a NHIN.
- Existing technologies, federal leadership, prototype localized or regional exchange efforts, and certification of EHRs will be the critical enablers of a NHIN.
- Key challenges to developing and adopting a NHIN were listed as: the need for additional and better refined standards; addressing privacy concerns; paying for the development and operation of, and access to the NHIN; accurately verifying patients' identity; and addressing discordant inter- and intra-state laws regarding health information exchange.

Public-Private Partnerships

- American Health Information Community(AHIC)
- Committee on Certification of Health Information Technology (CCHIT)
- National Committee on Vital and Health Statistics (NCVHS)
- Regional Health Information Organizations (RHIO)

AHIC
www.hhs.gov/healthit/ahic.html

- **The American Health Information Community (AHIC) is a federal advisory body, chartered to make recommendations to the Secretary of HHS on how to accelerate the development and adoption of Health IT. The Community will make recommendations to the Secretary of HHS to enable advancement in four areas of focus by the end of 2006.**
- **Consumer Empowerment - Make available a consumer-directed and secure electronic record of health care registration information and a medication history for patients.**
- **Chronic Care - Allow the widespread use of secure messaging, as appropriate, as a means of communication between doctors and patients about care delivery.**
- **Biosurveillance - Enable the transfer of standardized and anonymized health data from the point of health care delivery to authorized public health agencies within 24 hours of its collection.**
- **Electronic Health Records - Create an electronic health record that includes laboratory results and interpretations, that is standardized, widely available and secure.**

Certification Commission for Health Information Technology http://www.cchit.org/

- CCHIT is the recognized certification authority for electronic health records and their networks, and an independent, voluntary, private-sector initiative.
- Our mission is to accelerate the adoption of health information technology by creating an efficient, credible and sustainable product certification program.

National Committee on Vital and Health Statistics http://www.ncvhs.hhs.gov/

- The National Committee on Vital and Health Statistics was established by Congress to serve as an advisory body to the Department of Health and Human Services on health data, statistics and national health information policy. It fulfills important review and advisory functions relative to health data and statistical problems of national and international interest, stimulates or conducts studies of such problems and makes proposals for improvement of the Nation's health statistics and information systems. In 1996, the Committee was restructured to meet expanded responsibilities under the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

Standards Recommended www.ncvhs.hhs.gov/wg-nhii.htm

Technology and Standards for Health Care

Messaging Standards	Used for:
HL7	Clinical data
X12N	Financial data, HIPAA mandated transactions
DICOM	Images
NCPDP	Prescription from providers to pharmacies
IEEE	Bedside instruments, medical information bus
Terminology Standards	
LOINC	
Drugs	NLM/FDA/VA collaboration on RxNorm, NDF-RT
Billing	CPT, ICD-9CM
Clinical	UMLS, SNOMED and others

Table adopted from Stan Huff MD, HIMSS, 2003

Current Procedural Terminology www.amaassn.org/ama/pub/category/3882.html

- The Administrative Simplification Section of the Health Insurance Portability and Accountability Act (HIPAA)of 1996 requires the Department of Health and Human Services to name national standards for electronic transaction of health care information. This includes; transactions and code sets, national provider identifier, national employer identifier, security, and privacy. The FinalRule for transactions and code sets was issued on August 17, 2000. The rule names CPT (including codes and modifiers) and HCPCS as the procedure code set for:
- • Physician services.
- • Physical and occupational therapy services.
- • Radiological procedures.
- • Clinical laboratory tests.
- • Other medical diagnostic procedures.
- • Hearing and vision services.
- • Transportation services including ambulance

Logical Observation Identifiers Names and Codes (LOINC®)

- The purpose of the LOINC database is to facilitate the exchange and pooling of results, such as blood hemoglobin, serum potassium, or vital signs, for clinical care, outcomes management, and research. Currently, most laboratories and other diagnostic services use HL7 to send their results electronically from their reporting systems to their care systems. However, most laboratories and other diagnostic care services identify tests in these messages by means of their internal and idiosyncratic code values. Thus, the care system cannot fully "understand" and properly file the results they receive unless they either adopt the producer's laboratory codes (which is impossible if they receive results from multiple sources), or invest in the work to map each result producer's code system to their internal code system. LOINC codes are universal identifiers for laboratory and other clinical observations that solve this problem. The laboratory portion of the LOINC database contains the usual categories of chemistry, hematology, serology, microbiology (including parasitology and virology), and toxicology; as well as categories for drugs and the cell counts you would find reported on a complete blood count or a cerebrospinal fluid cell count. Antibiotic susceptibilities are a separate category. The clinical portion of the LOINC database includes entries for vital signs, hemodynamics, intake/output, EKG, obstetric ultrasound, cardiac echo, urologic imaging, gastroendoscopic procedures, pulmonary ventilator management, selected survey instruments, and other clinical observations.The Regenstrief Institute (www.regenstrief.org) maintains the LOINC database and its supporting documentation.

Why not be provincial?

- **Disease and Disadvantage in the United States and in England** James Banks, PhD; Michael Marmot, MD; Zoe Oldfield, MSc; James P. Smith, PhD
- *JAMA.* 2006;295:2037-2045.
- **ABSTRACT**
  Context The United States spends considerably more money on health care than the United Kingdom, but whether that translates to better health outcomes is unknown.
- **Objective** To assess the relative heath status of older individuals in England and the United States, especially how their health status varies by important indicators of socioeconomic position.
- **Design, Setting, and Participants** We analyzed representative samples of residents aged 55 to 64 years from both countries using 2002 data from the US Health and Retirement Survey (n = 4386) and the English Longitudinal Study of Aging (n = 3681), which were designed to have directly comparable measures of health, income, and education. This analysis is supplemented by samples of those aged 40 to 70 years from the 1999-2002 waves of National Health and Nutrition Examination Survey (n = 2097) and the 2003 wave of the Health Survey for England (n = 5526). These surveys contain extensive and comparable biological disease markers on respondents, which are used to determine whether differential propensities to report illness can explain these health differences. To ensure that health differences are not solely due to health issues in the black or Latino populations in the United States, the analysis is limited to non-Hispanic whites in both countries.
- **Main Outcome Measure** Self-reported prevalence rates of several chronic diseases related to diabetes and heart disease, adjusted for age and health behavior risk factors, were compared between the 2 countries and across education and income classes within each country.
- **Results** The US population in late middle age is less healthy than the equivalent British population for diabetes, hypertension, heart disease, myocardial infarction, stroke, lung disease, and cancer. Within each country, there exists a pronounced negative socioeconomic status (SES) gradient with self-reported disease so that health disparities are largest at the bottom of the education or income variants of the SES hierarchy. This conclusion is generally robust to control for a standard set of behavioral risk factors, including smoking, overweight, obesity, and alcohol drinking, which explain very little of these health differences. These differences between countries or across SES groups within each country are not due to biases in self-reported disease because biological markers of disease exhibit exactly the same patterns. To illustrate, among those aged 55 to 64 years, diabetes prevalence is twice as high in the United States and only one fifth of this difference can be explained by a common set of risk factors. Similarly, among middle-aged adults, mean levels of C-reactive protein are 20% higher in the United States compared with England and mean high-density lipoprotein cholesterol levels are 14% lower. These differences are not solely driven by the bottom of the SES distribution. In many diseases, the top of the SES distribution is less healthy in the United States as well.
- **Conclusion** Based on self-reported illnesses and biological markers of disease, US residents are much less healthy than their English counterparts and these differences exist at all points of the SES distribution.

Regional Health Information Organizations (RHIO v CHIN)

- Our first step is to foster regional collaborations among health care entities so that a patient's information can be securely stored in the local community but is electronically accessible to those involved with providing their care in that community. A limited number of regional initiatives exist today, but they vary in the ways they approach data sharing and cannot communicate patient information outside their own system. As momentum builds and more regional collaboratives-coined "Regional Health Information Organizations" or RHIOs-are formed, a common approach for their development is needed to support the overall goal of health care data exchange among them. It is expected that the government could have a role in the formation of RHIOs.(http://www.hhs.gov/healthit/goals.html)

Continuity of Care Record www.continuityofcarerecord.org

- The CCR, or Continuity of Care Record, is a standard specification being developed jointly by ASTM International, the Massachusetts Medical Society (MMS), the Health Info rmation Management and Systems Society (HIMSS), the American Academy of Family Physic ian s (AAFP), and the American Academy of Pedeatriccs. It is intended to foster and improve continuity of patient care, to reduce medical errors, and to assure at least a minimum standard of health information transportability when a patient is referred or transferred to, or is otherwise seen by, another provider. The origins of the CCR stem from a Massachusetts Department of Public Health, three-page, NCR paper-based Patient Care Referral Form that has been in widespread use for many years in Massachusetts, and from other minimal data sets both electronic and paper-based.
- The CCR is being developed and enhanced in response to the need to organize and make transportable a set of basic patient information consisting of the most relevant and timely facts about a patient's condition. Briefly, these include patient and provider information, insurance information, patient's health status (e.g., allergies, medications, vital signs, diagnoses, recent procedures), recent care provided, as well as recommendations for future care (care plan) and the reason for referral or transfer. This minimum data set will enhance the continuity of care by providing a method for communicating the most relevant information about a patient and providing both context and support for the electronic health record (EHR) through extensions.

CCR v CRS to CCD

- The CCD is a compromise under development by two previously feuding standards development organizations that developed their own care summary formats: Health Level 7's Care Record Summary and ASTM International's Continuity of Care Record.
- In the compromise CCD, the two groups have agreed to cross-map their two development schemes so that providers using one standard can communicate with providers employing the other. By Joseph Conn / HITS staff writer

Personal Health Record (PHR) and "Banking"

- A coalition of healthcare plans, including members of the America's Health Insurance Plans and the Blue Cross and Blue Shield Association potentially representing 200 million Americans, is working on a project to offer plan members a Web-based personal health record using data gleaned from the plans' own insurance claims, as well as clinical data available through prescription-drug networks and through an as yet undeveloped mechanism to capture laboratory results.AHIP, the trade association for the health insurance industry with 1,300 member payers, "began talking within our industry to see if people wanted to work together to meet this challenge," according to AHIP President and Chief Executive Officer Karen Ignani. An AHIP committee will present the plan to the AHIP board next month, she said. The group is "looking very closely" at using the Health Level 7 format for basic medical-records transmission and data elements and will be working with physicians to perfect the templates used to display the data. Joseph Conn / HITS staff writer 5/22/06
- The Centers for Medicare and Medicaid Services has awarded contracts to healthcare insurers to test personal health records for Medicare recipients. CMS last year announced that it would award a contract to test use of Medicare claims data to populate PHRs. Caroline Broder, Senior Editor Healthcare IT News 7/8/06
- The Robert Wood Johnson Foundation (RWJF) will award a total of $3.5 million to help as many as 10 different research teams design a new generation of personal health records, the Princeton, N.J.-based healthcare philanthropy says. Neil Versel,editor, Health IT World News 7/27/06.