ARIZONA HEALTH FUTURES

health bullets

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Health Information Technology and Quality

Capsule information and trends related to health information technology and its potential to impact affordable, high quality care for all Arizonans.

#1 Health information technology and quality: A brave new world of acronyms

- **Health Information Technology – HIT.** The application of computer hardware and software information processing to the storage, retrieval, sharing and use of health care information data to aid communication and decision making.
- **Electronic Medical Records – EMR.** A digital record of a patient's medical encounters/history that can be transmitted across computer networks.
- **Electronic Health Records – EHR.** A patient's personal health record in digital form. Often used interchangeably with EMR; sometimes refers to a personal EHR that can be accessed by patients and their providers over the Internet.
- **Continuity of Care Record – CCR.** A standard specification being developed 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 another provider.
- **National Health Information Network – NHIN.** A nationwide electronic network to facilitate the transmission of health information across all patients, providers and payers.
- **Health Information Exchange – HIE.** An electronic network linking up specific local information networks to facilitate the transmission of health information between them.
- **Regional Health Information Exchange – RHIO.** An HIE that spans a specific geographical region (city, state, etc.).
- **Computerized Physician Order Entry – CPOE.** Systems that allow physicians to order tests, prescription drugs and other medical services/products over electronic networks.
- **Evidence-Based Medicine – EBM.** The application of scientific evidence/research and rigorous clinical testing to the practice of medicine.
- **Quality Initiatives – QI.** Local, regional and national initiatives to improve health care quality through the application of EBM and other interventions.
- **Pay For Performance – P4P.** Financial incentives/reimbursement mechanisms to pay providers for adhering to defined processes/procedures linked to improved health care effectiveness and efficiency, and/or for achieving improved health outcomes.

#2 HIT investment compared to other industries

- The health care system continues to lag other industries in the development and adoption of new information technologies (IT). Historically, industries such as consumer services, insurance and financial services invest 6.5% – 11.1% of revenues in IT, while the health care industry has invested just 2.2%. Health care IT investment is now playing catch-up, with projected expenditures ranging from 5% – 18% per year.[1]

#3 HIT use among Arizona physicians[2]

- 87% have high-speed internet access.
- 13.5% currently use EHRs.
- 25% are ready to implement EHRs in the next two years.
- Over 29 EHR vendors are active in the Arizona market.

#4 Public perception: HIT, cost and quality

- According to one recent poll:[3]
  - 31% of adults believe new medical technologies will improve the quality of care.
  - 36% believe they will reduce the cost of care.
  - 33% either are unsure (23%) or believe HIT will increase the costs of medical care (10%).
- Public perception of HIT and other medical technologies is often based on limited experience:
  - 16% reported that their doctor has used an electronic medical record.
  - 8% had communicated with their doctor using e-mail.
  - 5% had used a home monitoring device that enabled communication with their doctor's office.
- Public support for the adoption of HIT is based primarily on improving communication with physicians. The use of home monitoring equipment and e-mail tops the list, while digital imaging that can be transmitted electronically and electronic medical records also find strong support.

#5 HIT financial costs/benefits

- A HIT system requires:
  - **Functionality** – the ability to perform key functions, such as CPOE, electronic claims submission and eligibility verification.
  - **Interoperability** – the capacity to link health care providers and exchange data, such as diagnostic test results, images and home monitoring.

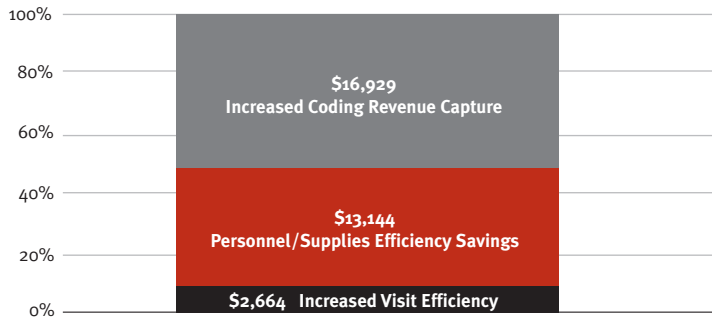
Building functionality and interoperability into a national health information network is associated with both capital and operating expenses. While some estimates of these costs exceed $320 billion over a 10-year implementation period, others put the tab closer to $200 billion (see Fig. 1).[4]

Fig. 1: Estimated 10-Year Cost of Building a National Health Information Network

	Functionality	Interoperability	Total
Capital Costs	$103 billion	$ 53 billion	$ 156 billion
Operating Costs	$27 billion	$ 21 billion	$ 48 billion
Total	$130 billion	$ 74 billion	**$ 204 billion**

- The estimated cost per physician to establish electronic health records (EHR) also varies widely. One estimate is $44,000 in initial cost, and approximately $8,500 per full-time equivalent (FTE) provider per year in ongoing support.[5]
- The average practice pays for its initial investment in 2.5 years and can realize financial benefits thereafter in the range of $33,000 per provider annually (see fig. 2). Even after subtracting ongoing operating costs, the estimated net benefit of EHRs is $24,000 per provider FTE annually.[6]

Fig. 2: Annual Per Provider Financial Benefit of Establishing Electronic Health Records



Average Benefit per MD or NP = $32,737

- **Improved Efficiency.** A fully standardized system could produce efficiency savings of $78 billion per year for the health care system. With the added saving from improved safety within the system, the 10-year net savings estimate ranges from $75 billion for outpatient care to $175 billion for inpatient services. At 15 years, the cumulative savings reaches $142 billion for outpatient and $371 billion for inpatient care.[7]
- **Improved Safety**. Reducing the impact of adverse drug events could save approximately $1 billion per year in hospitals and $3.5 billion per year in ambulatory care settings where recent studies have modeled the cost-effectiveness of CPOE systems.[8]
- **Improved Quality**. HIT systems can integrate evidence-based medical protocols with patient demographics to identify and flag patients for both routine and risk-related screening. For patients with chronic conditions, HIT systems can facilitate tracking of individual patients for monitoring and follow-up care, can generate population trend data, and can inform predictive modeling algorithms. Combined, the benefit from these types of HIT-enabled QI efforts can be measured in terms of life-years gained, increased productivity and health care dollars saved – a net gain of $40 billion per year.[9]

- **Public perception – cost and quality.** Reducing health insurance costs is the key factor behind public support of P4P initiatives and the use of quality metrics. According to a recent poll, nearly 40% of adults support having insurance plans pay more to doctors who provide higher quality care, but their support is geared more toward measures that address preventive care and patient compliance, and less about quality based on the use of specific health information technologies.[10]

#6 Beyond Dollars: Barriers to Implementation

- **Standards**. Beyond dollars, one of the most challenging barriers to implementation of HIT systems is the lack of technical and clinical standards that are necessary to establish interoperability. When success requires that each connected organization must agree to participate at considerable expense, when it could mean substantial workflow redesign for everyone, and when open standards that are key to interoperability accrue just as much benefit to non-contributing competitors, most organizations choose to wait it out and see which set of standards prevails.[11]
- **Standards: An illustrative example.** A pilot project for the Medicare Prescription Drug Benefit is testing 13 initial standards in four domains:[12]
  - Patient selection and data review
    - Eligibility inquiry from prescribers and response from plan sponsors
    - Exchange of medication history information
    - Exchange of medical history information
  - Prescription generation and safety checking
    - Exchange of formulary and benefit information
    - Exchange of clinical drug information, including interactions, warnings/cautions and dosage adjustments
    - Exchange of prior authorization requirements
    - Exchange of standardized codes for clinical drugs, dosage forms and patient instructions
  - Prescription transmission and fulfillment
    - Order transmission between organizations
    - Eligibility inquiry from dispensers and response from plan administrators
    - Security and authentication
    - Prescriber and pharmacy identifiers

- Monitoring and renewal
  - Fill status notification
  - Notification of prescription cancellation and changes

- Resistance to Change. A recent survey of physicians concluded that, to date, "QI has not permeated the culture of professional medicine."[13] Specific results from the survey included responses to a query regarding the ability of a physician's office to generate a list of patients by specific characteristics (see Fig. 3).

Figure 3: Physician Office's Ability to Generate Lists by Patient Characteristics

Patient Characteristic	Very/Somewhat Easy	Very/Somewhat Difficult	Unable To Do At All
Age	49%	37%	14%
Diagnosis or Health Risk	44%	38%	17%
Laboratory Test Results	16%	44%	39%
Prescribed Medication	15%	40%	44%

Lack of information technology in physician offices mirrors their views on sharing quality of care data with others. When asked who should have access to physician quality-of-care data, they responded:

Figure 4: Physician Views on Sharing Quality-of-Care Data

Share Data With:	No, Definitely/Probably Not	Yes, Definitely/Probably
Medical Leadership	27%	71%
Physician's Own Patients	44%	55%
General Public	69%	29%

- **Privacy/Confidentiality Concerns.** Beyond HIPAA, uniform agreements concerning privacy/confidentiality of health information shared across electronic networks are lacking.[14] As much as people believe that electronic medical records can significantly decrease the frequency of medical errors (62%) and reduce health care costs (73%), they also believe that the use of EMRs makes it more difficult to ensure patients' privacy (67%).[15]

- **Sociocultural Barriers.** "IT adoption is 5% technology-related issues, and 95% sociocultural issues, such as change management, political process, leadership, commitment, risk tolerance, finance, and so on."[16]

#7 National-Arizona Initiatives (selected)

- **The Doctor's Office Quality Information Technology (DOQ-IT)** initiative is the 2005 CMS demonstration project designed to foster the adoption of EHRs and HIT in small- to medium-sized physician offices and clinics. Health Services Advisory Group (HSAG) is spearheading Arizona's participation in this national project. The goal of the CMS 8th Scope of Work is to accelerate improvement by offering assistance that will enable transformational, rather than incremental, improvement through information technology, care process redesign, organizational cultural change and developing new partnerships.[17]

- **Medicare Health Care Quality Demonstration**, a 5-year demonstration project to find ways to identify, develop, test, and disseminate major and multifaceted improvements to health care systems at the area or regional level. This is a major initiative to use innovative payments to improve health and reduce costs for everyone in an area, not just for Medicare beneficiaries. Proposals must be submitted by January 30, 2006 or, for applicants wishing to be considered in the second round, a letter of intent must be submitted by January 30, 2006 and a full proposal by September 29, 2006.[18]

- **Agency for Health Research and Quality (AHRQ).** Sixteen recently awarded state and regional demonstration grants in HIT totaling $22.3 million will contribute to AHRQ's ability to learn from pilot projects about the implementation challenges for HIT systems. Many of the grants support efforts in rural communities, where HIT connections to larger systems of support represent a step beyond historical telemedicine projects. Ranging from EMR systems within ambulatory care clinics to the creation of online networks to facilitate education and consultation, the goals of these efforts are to improve care for patients and gain experience in HIT implementation.[19]

- **Ambulatory Quality Alliance (AQA).** A large body of stakeholders that represents clinicians, consumers, purchasers, health plans and others. In September 2004, the American Academy of Family Physicians (AAFP), the American College of Physicians (ACP), America's Health Insurance Plans (AHIP), and AHRQ joined together to lead a collaborative effort to determine how to most effectively and efficiently improve performance measurement, data aggregation and reporting in the ambulatory care setting.[20]

- **Office of the National Coordinator for Health Information Technology (ONCHIT) Initiatives.** The national plan of action consists of four sequential main goals: informing clinicians, interconnecting them, personalizing care, and improving population health.[21]

- **Professional Associations.** The American Medical Informatics Association (AMIA) was formed in the early 1990s and provides leadership and expertise regarding HIT policy issues.[22] On the vendor/applied side, the Healthcare Information and Management Systems Society focuses on developing new products and sharing advances in the field.[23]

- **Regional Health Information Organizations (RHIOs).** Over 100 collaborative RHIOs are underway across the United States in support of improving health care access, efficiency and quality through the use of interoperable electronic health information exchanges. These may cover cities, regions or states, and are supported through a variety of federal, state and private dollars/programs.[24]

- **Arizona Health-E Connection Roadmap.** In September 2005, Arizona Governor Janet Napolitano issued an Executive Order that establishes a representative committee of stakeholders to create a "roadmap" for implementing a statewide electronic health information exchange in order to improve health care quality, increase patient safety, reduce costs over time and provide Arizonans with access to their health information. The Committee and four task force groups are currently engaged in work that is to be completed by Spring, 2006.
- **Arizona Health Query (AzHQ).** A voluntary effort to create an integrated statewide health data system that combines medical information/records from public and private sources in order to inform health policy and practice, and to improve access, quality and efficiency for all Arizonans over time. AzHQ data partners currently provide over four million records in a fully operable data system located at Arizona State University, which is beginning to be used for a variety of research and program purposes. AzHQ is unique for its ability to link patients across systems and over time.
- **Southern Arizona Uninsurance Coalition.** Initially formed to deal with the issue of the uninsured, this coalition has broadened its goal to improve the quality of care and cost-effectiveness of health care delivery for all patients. Partners are currently engaged in activities to ensure that all area health providers utilize a common electronic eligibility screening tool to assist in determining available assistance/coverage for uninsured or under-insured individuals. They also intend to develop a clinical data exchange for physicians and other area health providers.
- **Arizona HIT Accelerator (AHITA).** Established as a grassroots coalition of providers, information technology professionals, DOQ-IT program staff and others, the mission of AHITA is to provide education and assistance with the adoption of electronic health records to small and medium-sized office practices.[25]

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5 Miller, R., et al., "The Value of Electronic Health Records in Solo or Small Group Practices," *Health Affairs*, 24(5), September-October 2005, p. 1127.

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8 Hillestad, R., et al., "Can Electronic Medical Record Systems Transform Health Care? Potential Health Benefits, Savings and Costs," *Health Affairs;* 24(5), Sept.-Oct. 2005, p. 1103-17.

9 Ibid.

10 Harris Interactive Health Care Research, "Public Interest in the Use of Quality Metrics in Healthcare is Mixed – Unless It Allows Them to Reduce Their Health Insurance Costs," *The Wall Street Journal Online,* May 24, 2005. http://www.harrisinteractive.com/news/newsletters/wsjhealthnews/WSJOnline_HI_Health-CarePoll2005vol4_iss10.pdf

11 Cunningham, R., "Action Through Collaboration: An Interview with David Brailer." *Health Affairs; 24(5),* Sept.-Oct. 2005, p. 1150-59.

12 Bell, D., Friedman, M., "E-Prescribing and the Medicare Modernization Act of 2003," *Health Affairs*, 24(5), Sept.-Oct. 2005, p. 1159-69.

13 Audet, Anne-Marie, et al., "Measure, Learn and Improve: Physicians' Involvement in Quality Improvement," *Health Affairs,* 24(3), 2005, p. 843-53.

14 Halamaka, J., et al., "Exchanging Health Information: Local Distribution, National Coordination." *Health Affairs*, 24(5), Sept.-Oct. 2005, p. 1170-79.

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16 Middleton, B., "Achieving U.S. Health Information Technology Adoption: the Need for a Third Hand," *Health Affairs,* 24(5), Sept.-Oct. 2005, p. 1269-72.

17 For more information, see: http://www.doqit.org

18 For more information, see: http://www.cms.hhs.gov/researchers/demos/mma646/default.asp

19 For more information, see: http://healthit.ahrq.gov

20 For more information, see: http://www.ahrq/gov/qual/aqastart.htm

21 For more information, see: http://www.hhs.gov/healthit

22 For more information, see the American Medical Informatics Association web site: www.amia.org

23 For more information, see the Health Information and Management Systems Society web site: www.himss.org

24 For more information on RHIOS, and on HIT projects generally, see the eHealth Initiative web site: www.ehealthinitiative.org

25 For more information, see: www.ahita.org

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