

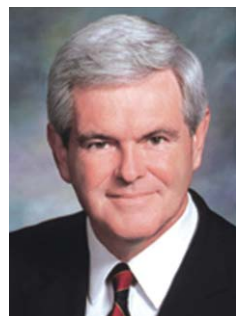
# The Next Medical Revolution— Health Information Technology

Newt Gingrich and Anne Woodbury

A technology is emerging that has the potential to revolutionize the way medicine is practiced in America: health information technology (HIT). Though some medical professionals remain apprehensive about embracing HIT, its likely benefits rival the importance of such medical advances as magnetic resonance imaging (MRI) or the x-ray.

In truth, HIT is no different than other medical devices, which are defined by one medical dictionary as “expendable and non-expendable equipment, supplies,

apparatus, and instruments that are used in diagnostic, surgical, therapeutic, scientific, and experimental procedures.”<sup>1</sup> The newly appointed National Health Information Technology Coordinator, Dr. David Brailer, has told medical audiences that information technology in clinical settings should be viewed for purposes of financial reimbursement in the same way that the industry views



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other medical devices and diagnostic equipment on which modern medicine has come to rely.

Potential HIT benefits to both patient care and the bottom line are far reaching (see Table 1). For example, decision support systems can filter through the most current medical journals to deliver the appropriate medical information at the point of care. As a result, this could help eliminate the 17-year average chasm between discovery and common practice.<sup>2</sup>

Electronic medical records (EMR) can help centralize vital patient information such as lists of prescriptions, allergies, and chronic disease as well as current symptoms, vital signs, and lab results. EMRs could pave the way for more accurate and timely care coordination that

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is inaccessible with paper records. The technology may help reduce preventable medical mistakes that cost both lives and money. Electronic scanning of barcodes on wrist bands and pharmaceuticals at the point of administration could potentially eliminate deadly medication errors. With these types of outcomes, the medical facility in the future will consider handheld computing devices, software, and Web-based applications as fundamental to their practice as budgeting for examination tables, telephones, and stethoscopes.



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The debate over the usefulness and necessity of health information technology has been won. Those who do not agree are denying the obvious—similar to debating the theory of aviation while planes fly over their head. The ongoing debate, unfortunately, is how urgent is the need for health information technology? How fast can health information be responsibly adopted? Despite the myriad of reasons given for sluggish adoption—misaligned incentives, lack of interoperability, and insufficient funding—there is one catalyst that has the potential to boost the transformation if it is fully understood by the American people and policy-makers: patient safety.

The popular media has 24/7 coverage of tragic airline crashes, such as TWA flight 800 that crashed in 1996 killing 230 people. Yet, according to the Institute of Medicine, as many as 268 people lose their lives every day in hospitals due to preventable medical errors—yet there is relative silence. If the American media were to report the daily death toll from medical errors with the same intensity as the tragic, but far less significant stories of the Kobe Bryant trial or the Michael Jackson sexual abuse case, the country would be outraged, prompting political leaders to demand action.

Despite the popular media’s relatively blind eye, several movements gaining momentum will likely shed

## Current Issues

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light on the patient safety issue and hasten the adoption of HIT. These movements are consumer-directed health care, transparency, and biosurveillance.

#### Consumer-Directed Health Care

Consumer-directed health care puts control of health care decision making back in the hands of patients. Employers can financially empower individuals by offering personal health accounts coupled with a high deductible insurance plan—a combination that encourages wise spending while ensuring coverage of high cost

medical care when necessary. With the creation of 100% tax-free health savings accounts in last year's Medicare Modernization Act, consumer-directed health care plans are more affordable and accessible, especially for a large group of the uninsured—the working poor.

Because of the incentives innate in these consumer-directed health care plans, individuals would be motivated to compare care providers on both price and quality. People will no longer choose care providers solely on word of mouth or geographic location, but on the quality of care. Caregivers that use modern information sys-

Technology	Financial Outcomes
Clinical Decision Support Technologies	Intermountain Health Care's (IHC) reduced adverse drug reactions by over 70% and reduced the number of days patients received excessive dosage by 2.9 days by implementing an antibiotic information system that assisted physicians in selecting antibiotic regimens. <sup>1</sup>
Electronic Medical Records (Primary Care Settings)	<ul style="list-style-type: none"> <li>◆ Duke University saw a 13% time savings for physicians using EMR. <sup>1</sup></li> <li>◆ Colorado's Kaiser Permanente's facilities EMR resulted in annual payroll savings of \$4 million, while chart availability is almost 100%. <sup>1</sup></li> <li>◆ Geisinger Medical Center implemented an EMR and found significant increase in the quality of care and decrease in overall cost. Including:               <ul style="list-style-type: none"> <li>□ Increased ordering of aspirin for coronary artery disease</li> <li>□ 33% reduction in Medicare disallowance of tests ordered</li> <li>□ 97% of visits have allergies checked and documented</li> <li>□ About \$1,000 in savings per year per physician due to improved formulary compliance.</li> <li>□ 50% or greater decrease in transcription costs.</li> <li>□ 100% ICD-9 coding of all orders by the provider. <sup>3</sup></li> </ul> </li> </ul>
Computerized Provider Order Entry (CPOE) in ambulatory/outpatient settings	Nationwide adoption of CPOE <ul style="list-style-type: none"> <li>◆ Will eliminate more than 2 million adverse drug events annually.</li> <li>◆ Will prevent more than 190,000 hospitalizations annually.</li> <li>◆ Projected annual savings of \$17 billion (more than \$10 billion in radiology, \$5 billion in lab costs, \$2 billion from hospitalizations related to avoided adverse drug events).</li> <li>◆ It is estimated that providers can eliminate more than \$10 in rejected claims per outpatient visit. <sup>2</sup></li> </ul>
Computerized Provider Order Entry (CPOE) in community hospitals	Brigham and Women's Hospital eliminated 80% of medication errors unrelated to missed dosage using CPOE. <sup>1</sup> Regenstreif Institute used CPOE resulting in lower patient charges and hospital costs principally by reducing length of stay by 10.5%, reducing test charges by 12.5%, and reducing drug costs by 15.5%; CPOE is attributed with decreasing charges per admission by 12.7% overall. <sup>1</sup>
Computer-generated reminders	Regenstreif Institute providers followed practice guidelines 25% more often using computer-generated reminders in an inpatient setting. <sup>1</sup>
Barcoding technology	Danville Regional Medical Center implemented barcoding technology to provide positive identification of drugs and patients at the point of care. The result: <ul style="list-style-type: none"> <li>◆ Prevented over 1,200 wrong drugs or dosages saving over \$730,000.</li> <li>◆ Prevented almost 2,000 early or extra doses, resulting in over \$115,000 in savings.</li> <li>◆ Decreased phone calls by 50% to the pharmacy per day. <sup>4</sup></li> </ul>

**Table 1.** Health Information Technology is saving lives and money.

1. California Healthcare Foundation and First Consulting Group, *Computerized Physician Order Entry in Community Hospitals: Lessons from the Field* (June 2003). 2. Center for Information Technology Leadership, *The Value of Computerized Provider Order Entry in Ambulatory Settings* (March 2003). 3. GAO-04-224 IT for Selected Health Care Functions, 29-31 (October 2003). 4. GAO-04-224 IT for Selected Health Care Functions, 26, (October 2003).

tems, such as decision support tools and electronic medical records, will be able to deliver higher quality care, making the investment in health information technologies more attractive. In addition, consumer-directed health care is fostering a more competitive health marketplace, making the need to adopt health information technologies essential.

## Transparency of Information

Another trend that can infuse momentum into HIT adoption is the demand for transparency of information about quality and cost. Doctors, hospitals, long-term living facilities, and small practice providers are encouraged through private programs or mandated through government action to report their clinical outcomes.

The process of combing through paper records to tabulate the information is diverting human resources away from patient care, prompting some to consider investing in electronic medical records systems that can more easily be cached and queried. In addition, some of the quality metrics reported relate to use of specific information technology solutions, such as electronic prescribing, computerized order entry, and barcoding. This type of transparency is accelerating the rate of adoption of HIT.

## Biosurveillance

America is committed to the war on terror. This includes preparing for the threat of a biological weapon released in the United States. Advancing the national biosurveillance system is urgent because the earlier an outbreak is detected, the easier it will be to treat and contain—resulting in less human suffering and death.

Government agencies collect and analyze information that is already available electronically, such as over-the-counter drug purchases for cold medications to detect an unusual surge of flu-like symptoms or health claims information that can detect a surge in lab requests. However, the most accurate and most revealing information—real clinical data—is still difficult to collect. Real time health care is important to identify events early and also to understand the size of the event, where it is occurring, what is causing it, and how effective response activities are in mitigating it. The national focus on bioterrorism should help support making more

public funds become available for health information technology purchases.

## Looking Ahead

For the Center for Health Transformation (CHT), educating opinion leaders, policymakers, health care providers, and consumers about HIT's human and financial benefits is a top priority. In addition to nurturing the three movements previously mentioned, CHT is educating private and public aggregate purchasers of health care, such as officials at the Centers for Medicare and Medicaid Services and the Federal Employee Health Benefits Plan, on the benefits of personal health records for their employees.

Additionally, the Center is working with health care institutions and providers to identify incentives for health information technology adoption, such as low interest loan programs and malpractice insurance

discounts. Health care institutions have indicated that they are uncertain of what HIT adoption will do to their liability exposure, so CHT is working with providers to decrease legal risk associated with the adoption of electronic medical records and increased transparency. Some states have laws that thwart HIT adoption, so CHT is collaborating with state legislators to break down barriers, such as requirements for written signatures. But much more still needs to be done.

The problems HIT is primed to solve are systemic, no doubt. However, to transform the system, individual leadership is vital. The deciding factor in successfully achieving an electronically connected health system is the willingness of health care professionals to adapt a new way of practicing medicine—one that relies less on an individual's capacity to memorize facts and more on the individual's capacity to leverage electronic information resources. Health care providers by their very nature want to make and keep people well. When faced with a tool that can help save the 268 lives lost daily due to preventable medical errors, the only moral answer is rapid adoption. ♦

## References

1. **Medical Dictionary Online.** Available at: [www.online-medical-dictionary.org/](http://www.online-medical-dictionary.org/). Accessed August 9, 2004.
2. **Institute of Medicine.** *Crossing the Quality Chasm.* National Academy Press, 2001.

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