Executive Summary

Addressing Healthcare Connectivity as a Matter of Life and Death

Americans need a connected system of electronic healthcare information available to all doctors and patients whenever and wherever necessary.

In 2000, the Institute of Medicine (IoM) estimated that between 44,000 and 98,000 Americans die each year from preventable medical errors.[1] Subsequent studies have estimated that the number may be twice as high.[2] Medical errors are killing more people per year, in America, than breast cancer, AIDS, or motor vehicle accidents.[3] This pain and suffering is compounded by the knowledge that many of these errors could have been avoided.

The lack of immediate access to patient healthcare information is the source of one-fifth of these errors.[4]

One of every seven primary care visits is affected by missing medical information.[5] In a recent study, 80 percent of errors were initiated by miscommunication, including missed communication between physicians, misinformation in medical records, mishandling of patient requests and messages, inaccessible records, mislabeled specimens, misfiled or missing charts, and inadequate reminder systems.[6]

Under the current paper–based system, patients and their doctors lack instant, constant access to medical information. As a result, when a patient sees more than one doctor, no doctor knows exactly what another doctor is doing, or even that another doctor is involved. The consequences range from inconvenient to critical or even fatal. Each time an individual encounters a new healthcare

[1] Kohn, L., J. Corrigan, and M. Donaldson. *To Err Is Human: Building a Safer Health System*. Committee of Health Care in America, Institute of Medicine. 2000.
[2] HealthGrades. *In-Hospital Deaths from Medical Errors at 195,000 per Year, HealthGrades Study Finds*. July 27, 2004.
[3] Institute of Medicine and Centers for Disease Control and Prevention. *National Center for Health Statistics: Preliminary Data for 1998 and 1999*. 2000.
[4] Health Research Institute & Global Technology Center. *Reactive to Adaptive: Transforming Hospitals with Digital Technology*, PriceWaterhouseCoopers. 2005.
[5] Smith, Peter, et. al. "Missing Clinical Information During Primary Care Visits," *The Journal of the American Medical Association.* February 2005.
<http://murphy.house.gov/UploadedFiles/HealthCareFYI_5a.pdf>
[6] *Annals of Family Medicine.* July/August 2004.
<http://annalsfm.highwire.org/cgi/content/astract/2/4/317>

provider, that patient must retell his or her medical history. Not only is this redundant, it can introduce error and imprecision, ensuring that no two copies of a personal medical record will be exactly alike. In an emergency, delay and a lack of information can be deadly.

In the age of the Internet, this shortcoming is unacceptable.

Many other problems stem from the lack of connectivity. Since doctors often work independently, the lack of shared knowledge can cause duplicate tests to be ordered, resulting in unnecessary expense and, occasionally, risk, and pain. The same problem exists for prescriptions, which can conflict with one another to create life-threatening drug interactions.

Security and confidentiality are limited by the difficulty of tracking access to paper-based records. The paper-based system necessitates consultations via telephone calls, faxes, and e-mails without the benefit of complete medical records. Patients who want follow-up information on their conditions must schedule time with doctors, nurses, or staff, or conduct research independently—there is no networked access to supporting information.

Handwritten records—most notoriously, prescriptions—are easily misread, causing potentially life-threatening mistakes. Similarly, analysis of large numbers of paper records is impossible, denying the public the benefits of early warnings of dangerous trends in disease or bioterrorism, and other research-driven efforts.

The benefits of a connected system of healthcare information

These problems and others are well addressed by a connected system of healthcare information, one that is referred to in this report as interoperable. The benefits of this interoperable system will extend to both patients and healthcare providers and may be categorized as promoting convenience, confidentiality, access, and quality of care.

Interoperability creates convenience by allowing doctors and other healthcare providers to share medical history, lab results, and other pertinent information in a more timely and accurate way. It makes backups of data easier to maintain, so catastrophic data loss is more easily remedied. It provides improved support for

adults who care for aging parents, especially from far away. Such systems enhance and ease post–diagnosis and post–treatment contact with doctors via on–line services.

By more effectively limiting unauthorized access, and tracking who views personal healthcare information, interoperability provides patients with more security and confidentiality.

Prescriptions and data are typed and stored electronically and not on paper, so they are always readable. Notification of drug or device recalls is faster and more thorough. And interoperability makes possible a powerful public–health resource against bioterrorism, the spread of disease, and other nationwide medical concerns by allowing national–level analysis of trends in disease and symptoms.

In short, interoperable healthcare information enhances the quality of care for all Americans.

The time patients and caregivers must spend filling out forms is dramatically reduced, affecting both cost and convenience. Similarly, the system improves continuity of care when treatment is ongoing and conducted among multiple healthcare providers, an especially important consideration for patients with chronic conditions. After patients move or when they travel, interoperable healthcare information helps ensure care consistent with treatment that is already under way.

In the field of obstetrics, contact with multiple healthcare providers is an almost universal facet of pregnancy and childbirth. Interoperability allows physicians and others to share medical records and to provide additional medical information for expectant mothers. Similar effects benefit rural residents and those who rely on community health centers, who can receive more consistent treatment across multiple providers, a reduction in the number of office visits required, and access to personalized information that can help them live healthier lives.

When all providers in the chain of healthcare are able to share information, it will be much more difficult to commit fraud and abuse. Connectivity will create new opportunities to ensure that prescriptions are valid and have not been duplicated, and the status of payment and reimbursement information will be better integrated and more frequently updated.

The first major manifestation of interoperability in people's lives will be electronic prescribing, also known as e-prescribing. Doctors will be able to file prescriptions without paper, bringing an end to the age-old problems of illegibly written prescriptions, lost prescriptions, delays in taking prescriptions to a pharmacy, and doubts about whether prescriptions have been filled correctly.

In addition to the recommendations made by the Commissioners, this report includes many other resources. There is a timeline in the chapter, *The Problem and The Solution*, that describes steps to create an electronic prescription drug record for every American. Patient and provider stories throughout the report document the challenges in a healthcare system without interoperability—and success stories of current implementations. The *Existing Efforts* chapter documents over 300 interoperability projects under way nationwide. Recommendations of previous commissions, dating back to 1978, digitize the healthcare system and are listed in Appendix C.

In order to make the information contained in this report available to the largest number of people, we have also chosen to make it electronically accessible, on-line (at www.EndingTheDocumentGame.gov) and on a CD-ROM (included with each hard copy of the report). The CD-ROM and Web versions will include such things as a video statement by Secretary Mike Leavitt of the Department of Health and Human Services, as well as interviews with the Commissioners and Dr. David Brailer (National Coordinator for Health Information Technology). There are also audio interviews that detail important ways in which connected health information and e-prescribing have helped save lives and improve the quality of life for patients and care providers.

The quality of our healthcare, on both societal and individual levels, is suffering from the lack of a connected system of healthcare information. The cost comes in injury, wasted resources, and lost lives. Much of the technology for such a system is already being applied to infinitely less critical concerns such as making travel plans on-line and checking bank balances at any ATM. Much of the world has addressed this lack of medical connectivity to a far greater extent than the United States has. Our problem is not a lack of technology, but a lack of attention and a lack of will.

This report describes what can be gained and what is required to achieve an interoperable system of electronic healthcare information. This goal can be reached, and its benefits are worth the effort that will be required.

The evidence cited in this report compels action to achieve an interoperable health information technology system in the United States.

Lives are in the balance.