

MARKLE FOUNDATION

CONNECTING FOR HEALTH

A Public-Private Collaborative



The Steering Group

Key Themes and Guiding Principles

June 5, 2003

Connecting for Health...A Public-Private Collaborative
KEY THEMES AND GUIDING PRINCIPLES OF THE STEERING GROUP

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- **Carol Diamond, MD, MPH**, Managing Director, Information Technologies for Better Health Program, Markle Foundation (*Chair*)
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II. OVERVIEW

Participants in *Connecting for Health...A Public-Private Collaborative* were challenged at their initial meeting in September of 2002 to agree within nine months on a set of clinical data standards and to put into motion a series of actions designed to accelerate the adoption of those standards. By explicitly characterizing the process as a search for “workable answers,” the leaders of the Collaborative recognized that their primary role was neither to exhort nor to report. Instead, the most pressing task was to catalyze specific actions on a national scale that would rapidly clear the way for an interconnected, electronic health information infrastructure.

In pursuing this objective, the Collaborative focused on three key areas:

- Accelerating the rate of adoption of national clinical data standards in order to facilitate true interoperability. This was the task of the Data Standards Working Group.
- Identifying practical strategies and solutions for ensuring the secure and private transmission of medical information. This was the task of the Privacy and Security Working Group.
- Actively working to understand what consumers will need and expect from an interconnected health information system. This was the task of the Personal Health Working Group.

In addition, the members of this Steering Group were asked to articulate a vision for the Collaborative's activities; provide strategic direction and oversight of the three Working Groups; and actively undertake efforts to further the Collaborative's goals.

The results of the activities of the Steering Group and the recommendations from the Working Groups are presented in the short summaries that follow. Each of the Working Groups has also authored a paper that more fully describes its work.

III. THE TASK AT HAND

"To deliver care in the 21st century, the system must have a health information and communications technology infrastructure that is accessible to all patients and providers." National Academy of Sciences' Institute of Medicine, 2002¹

*"Grocery stores are more technologically advanced than hospitals. And that, to me, is uncalled for when you spend \$1.4 trillion on the health care delivery system."
The Hon. Tommy Thompson, Secretary, Department of Health and Human Services, 2003²*

OUR MISSION

Connecting for Health...A Public-Private Collaborative is working to transform how information flows through all segments of the health care system in order to improve the health and health care of every American. Our twin goals are empowering patients to maintain and improve their health and enabling clinicians and health-care organizations to provide safer and more evidence-based care. Achieving these goals requires creating a dynamic, networked information infrastructure that, in turn, must reliably ensure the private and secure movement of vital health information at the time that it's needed to the place where it's needed.

THE NEED FOR CHANGE

Although one of every seven dollars spent on goods or services in the United States goes to health care, our current system is highly fragmented and, in the words of the Institute of Medicine, lacks even "rudimentary" clinical information capabilities. Some estimate that more than 90 percent of the estimated 30 billion health transactions each year are conducted by phone, fax or mail.³ Vital data sit in paper-based medical records that can neither be accessed easily nor combined into an integrated form to present a clear and complete picture of patient care. Everyone who uses the system constantly confronts large gaps in needed information, be it at the doctor's office, the hospital or at government agencies charged with protecting public health. Physicians spend an estimated 20 to 30 percent of their time searching for and organizing information.⁴

This information inadequacy is pervasive. Clinicians must often provide care to individuals without knowing what has been done previously and by whom, leading to treatments that may be redundant, ineffective or even dangerous. The problem of adverse drug events alone represents a sizable opportunity for information systems. An estimated 770,000 people are injured due to adverse drug events annually in the U.S.^{5,6}, and up to 70 percent of these incidents may be avoidable.^{7, 8,9} Nationwide adoption of advanced computerized order entry

1 Institute of Medicine, *Fostering Rapid Advances in Health Care*, 2002.

2 David T. Cook, "Excerpts from a Monitor breakfast on Medicare's long-term challenges," *Christian Science Monitor online*, March 10, 2003. Accessed at: <http://www.csmonitor.com/2003/0310/p25s02-usmb.html>

3 Michael Menduno, "apothecary.now," *Hospitals and Health Networks*, July 1999, 35-36.

4 Soule D, Handler S, Simplifying data entry in electronic health record systems, *Conference proceedings towards and electronic health record Europe*, 1999, Center for Advancement for Electronic Records.

5 Lazarou J, Pomeranz B, Corey P, Incidence of adverse drug reactions in hospitalized patients: a meta-analysis of prospective studies, *JAMA*, 1998, 279: 1200-5.

6 Classen DC, Pestonik SL, Evans RS, et al., Adverse drug events in hospitalized patients, *JAMA*, 1997, 277(4):301-6.

7 Kaiser Permanente, *Clinical Information: Achieving the Vision*, 2002

8 Raschke RA, et al., A computer alert system to prevent injury from adverse drug events: development and evaluation in a community teaching hospital, *JAMA*, 1998, 280:1317-20.

systems in ambulatory care could eliminate up to two million adverse drug events and 190,000 hospitalizations per year, and could save up to \$44 billion annually in reduced medication, radiology, laboratory, and hospitalization expenditures.¹⁰

Conversely, patients who wish to collaborate with their doctors in managing their own health are given little information with which to work. In one survey of 330 patients, 90 percent of respondents believed their personal medical information is so scattered that primary care physicians cannot gain quick access to it.¹¹ A study of cases in a clinic found that pertinent patient data were unavailable in 81 percent of cases, with an average of 4 missing items per case. The entire record was unavailable 5 percent of the time.¹² In another study, inadequate availability of patient information, such as the results of laboratory tests, was associated with 18 percent of the medical errors that resulted in adverse drug events¹³, a problem that could be improved by the use of information systems able to communicate with one another.

In addition, the pace of medical research is slowed because important information is difficult to collect and analyze. Moreover, research breakthroughs can take years to reach patients because there's no information infrastructure to help clinicians easily apply that research at the point of care. It takes an average of about 17 years for new knowledge generated in randomized, controlled clinical trials to be incorporated into everyday medical practice, and even then the application of this research remains highly uneven.¹⁴ One big reason for this delay in deploying new data is that nearly 10,000 clinical trials are conducted annually, generating a volume of information far beyond the capacity of any single practitioner to process and implement.¹⁵

On a broader scale, public health agencies, clinicians and health care organizations struggle to piece together the information needed to identify and respond to a host of health threats that range from naturally occurring disease to deliberate bioterror attacks. Recognizing and responding to this challenge carries large demands for the collection, analysis, coordination and distribution of health information¹⁶.

Experts estimate that 30 percent of the total dollars spent on healthcare each year are wasted due to administrative and clinical inefficiency.¹⁷ Indeed, a complete tally of the individuals affected by information transfer problems would start with everyone who works in any part of the health care field and extend to everyone who sees a doctor, uses a hospital, undergoes a medical test or takes a prescription medication. This structural inefficiency in information flow in health care further weighs down a system already trying to cope with an aging population, a

⁹ Leape LL, Error in medicine, *JAMA*, 1994, 272: 1851-1857.

¹⁰ *The Value of Computerized Provider Order Entry in Ambulatory Settings*, Center for Information Technology Leadership, 2003.

¹¹ Denton IC. Will patients use electronic personal health records? Responses from a real-life experience. *J Healthc Inf Manag.* 2001 Fall;15(3):251-9.

¹² Tang PC, Fafchamps D, Shortliffe EH. Traditional medical records as a source of clinical data in the outpatient setting. *Proc Annu Symp Comput Appl Med Care.* 1994; 575-9.

¹³ Leape LL, Bates DW, Cullen DJ, Cooper J, Demonaco HJ, Gallivan T, et al. Systems analysis of adverse drug events. ADE Prevention Study Group. *JAMA.* 1995;274: 35-43.

¹⁴ Balas EA, Boran SA, Managing clinical knowledge for healthcare improvement. *Yearbook of Medical Informatics*, NLM, Bethesda, MD. 65-70; 2000.

¹⁵ Mark Chassin, "Is Health Care Ready for Six Sigma Quality", *Milbank Quarterly*, 1998.

¹⁶ Teich JM, Wagner MackKenzie CF, Schafer KO, The Informatics Response in Terrorism, Disaster and War., *J Am Med Inform Assoc.* 2002 Mar-Apr, 9(2) 202.

¹⁷ Midwest Business Group on Health in collaboration with Juran Institute and the Sevreyne Group, *Reducing the Costs of Poor-Quality Health Care Through Responsible Purchasing Leadership.* Chicago June 2002

swiftly expanding scientific knowledge base and inadequate financial resources dedicated to information technology.

The Connecting for Health collaborative was brought together by the Markle Foundation to serve as a catalyst for sparking changes that can be rapidly implemented in the real world. It consists of over 100 stakeholders representing every part of the health care system – health care organizations and clinicians, patients, payers, accreditors, government agencies, researchers and health care information systems suppliers. As a critical first step, the Collaborative has taken on the challenge of “interoperability;” that is, addressing the thicket of technical and other issues that must be solved in order for computers at any health care location in the country to be able to exchange and make use of information.

THE CASE FOR INTEROPERABILITY

In everyday life, “interoperability” is something we take for granted. A doctor in Peoria, Illinois picks up a telephone, punches in a set of numbers and is connected almost instantly to a doctor in Peoria, Arizona. It doesn’t matter that one doctor’s phone uses a wireless network while the other is tethered to a cord. It does not matter that each doctor’s telephone is a different model made at a different time by a different manufacturer; that the phones are connected locally by different carriers; and that the call must travel across a telecommunications network built over a period of many years by a wholly separate set of organizations.

By contrast, a sophisticated medical information system sitting in a doctor’s office is frequently unable to communicate with a laboratory or pharmacy system in the hospital down the block, with the information system at a physicians’ group across town or with the system at a health insurer or public health agency. Even if information can be transmitted and received, there is no assurance that the full depth and breadth of information from one system will be comprehensible to another system.

Interoperability is meant to ensure the rapid flow of secure, private and digitized information relevant to all facets of patient care, ranging from common administrative tasks to rarefied clinical minutiae. Just as the stethoscope enabled 19th-century clinicians to hear body sounds they had never heard before (new information) and to hear familiar sounds with new clarity (old information in an improved and more useful context), interoperability can open the way for 21st-century clinicians to take advantage of a torrent of new and more usable information. There will be information at the “point of care” (where patients are treated); information for research into new treatments; and information that can be fed back in an interactive learning environment to improve the safety and effectiveness of the treatments we use today.

The benefits of building this new information infrastructure will extend to clinicians trying to provide the best care to individual patients, researchers looking for new treatments and insurers trying to pay claims. Patients, meanwhile, will be able to access the information they need to assemble a personal health record and collaborate with their doctors.

More broadly, the ability to aggregate digitized information for rapid and thorough analysis – while meeting strict privacy rules -- can also help to protect and improve the health of entire populations, whether the threat comes from naturally occurring disease or from deliberate attack.

THE ROAD AHEAD

The diverse participants in Connecting for Health strongly believe that the time has come to break open the logjam preventing the flow of vital health care information. They recognize that while the technical barriers that once stood in the way of enabling this flow can be removed, other barriers will continue to exist. While a fully interoperable health care infrastructure, once created, will yield ongoing value in terms of quality, safety, and cost-effectiveness, getting there will require leadership as well as innovative investment, reimbursement, and business strategies to assist hospitals, practicing clinicians, and other healthcare organizations with migration. Finally, they recognize that while they are building on the hard work of those who have gone before, success still will require profound and systemic cultural changes.

To foster a system of dynamic connectedness, the public and private sectors must learn to cooperate in a way that maximizes the benefits of their complementary expertise and experience. Those working in the trenches of the health care system must replace a culture of information ownership with a new culture of information guardianship, and they must agree on rules and policies for data sharing that embed this sense of guardianship within bedrock values of privacy, security and respect for patients. Those who lead health care organizations or make health care policy must advocate for information technology to be installed and used to the fullest degree possible.

Although the technical and economic barriers to interoperability are substantial, the potential rewards are even greater. In the 19th century, standardizing the width (gauge) of railroad tracks literally required stopping trains over a stretch of hundreds of miles at a time while teams of men dug up old tracks and put down new ones. Yet interoperability in long-distance transportation was critical to opening up the interior of the nation to settlement and binding together both sides of the continent. Moreover, it set in motion a series of profound changes, with perhaps the most famous example being the decision to make railroad scheduling more efficient by taking away each individual town's freedom to set its own time and switching to our current system of standard time zones.

The America of the 19th century was tied together by steel rails. The America of the 21st century is increasingly tied together by shared information. We believe there is no sector of life where information technology is more important than in health care. By emphasizing implementable standards within a culture of guardianship, we hope to fundamentally change the way in which the health care system gathers, stores and uses clinical information. In nine months of working together, we believe that the participants in Connecting for Health have taken significant steps towards achieving that ambitious goal.

By acting both collaboratively and decisively, participants in Connecting for Health have begun to pave the way for vital health information to enable the best patient care. By acting both collaboratively and decisively, participants in Connecting for Health have demonstrated that blending together the knowledge and experience of the public and private sectors can provide a formula for progress, not paralysis. By acting both collaboratively and decisively, participants in Connecting for Health are working to ensure that the extraordinary potential of information technology to improve the health and health care of each citizen is translated into everyday use as quickly and as effectively as possible. The result will be nothing less than a quantum leap in the breadth, depth, clarity and timeliness of the vital information available to doctors and patients alike.

III. A TALLY OF ACCOMPLISHMENTS

THE STEERING GROUP COMMITMENT TO ACTION

The Steering Group, collectively and individually represent a driving force in health care. They are leaders, decision makers and visionaries in their own right. Their individual commitments and statements represent both the desire and *the will to* transform this vision into reality.

These remarkable statements are attached at the *end of this document*.

ACHIEVING OUR THREE OBJECTIVES

1. DATA STANDARDS—A MEANS TO AN END

THE RATIONALE

In order to fully address the challenges of improving patient safety and quality of care, we must move from “siloes” information systems toward an effective information infrastructure. This new infrastructure should enable rapid, secure, private, and integrated communication among varying information systems. All stakeholders have much to gain from data standards adoption and interoperability. Standards, though, are only a means to an end. The ultimate goal is to transform clinical, administrative and financial transactions in order to “dramatically improve the effectiveness, safety and timeliness of the health care system,” as the Institute of Medicine noted in its 2002 report, *Fostering Rapid Advances in Health Care*.¹⁸

THE GOAL

Interoperability is the critical first step in the creation of a “dynamic connectedness” that allows the movement of necessary health information to where it’s needed, when it’s needed, in a private and secure manner. The Data Standards Working Group concluded that driving the use of interoperable health care systems in the real world require addressing the following key components:

1. Identification of necessary standards
2. Identification of necessary standards that are already “adoption-ready”
3. Identification of the actions needed to make all standards “adoption-ready”
4. Demonstration of the value of standards-based electronic data and systems

¹⁸ Op. cit., Institute of Medicine

5. Development of a migration framework and strategy for reaching system-wide interoperability
6. Commitment and action

WE AGREED THAT

Sufficiently robust standards are currently available today to support the migration to an interoperable health care environment. This migration relies on evolutionary change towards a revolutionary goal. There is a first set of standards that are "ready to move to adoption". Identifying them, and agreeing to them, created the focus of our work in the 9 months of the initiative. These include: HL7 v2.x data interchange standard, the HL7 Reference Information Model, the DICOM standard for imaging, the NCPDP SCRIPT prescription drug information standard, the LOINC vocabulary for laboratory tests, the IEEE/CEN/ISO 1073 medical device communication standard, the ASC X12 administrative transaction standard, HL7 Data Types, Clinical Document Architecture (CDA), and the HL7 Clinical Context Management Specification (CCOW).

Work remains to be done in a number of other domains, including standards related to terminology (and their uniform distribution within the National Library of Medicine's Unified Medical Language System (UMLS)), clinical templates, clinical guidelines, representation of business rules, representation of decision support rules, data elements, disease registries, tool sets, security, identifiers, and the electronic health record. While the Data Standards Working Group will report on these more fully, their readiness varies widely.

The full implementation of standards will require more effective processes for and ongoing investment in standards development, support and maintenance, migration, and integration.

A successful migration framework will also require particular attention to an ongoing need for leadership, a culture of cooperation versus competition, sound privacy and security policies and practices, architectural solutions, sustainable models, and support for real-world implementation. A range of supporting tools will need to be developed and implemented to assist health care organizations in migrating to standards, including implementation guides, conformance processes, and educational materials.

Demonstration and implementation projects are critical to the migration toward an interoperable, electronic healthcare system, in that they test and evaluate feasibility, uncover additional barriers and workable solutions to overcome them, provide replicable practices and tools for others, confirm value for a wide range community stakeholders and build awareness of the benefits.

Critical cultural issues must be addressed in order to create an interoperable health care system that has the characteristics of a dynamic networked information infrastructure. These issues include creating:

- A cooperative, collaborative relationship between government, business, academia, health care organizations, clinicians and patients.
- A clear and actionable consensus by both the public and private sectors on the standards to be adopted.

- A clear consensus at all levels of the delivery system about the need for standards.

Creation of an interoperable health care system that is sustainable over time requires a clear and workable model for value and sustainability. For that to occur, there must be:

- Clear economic value assigned to both quality and safety in health care.
- Planned investments by both the public and private sectors over the course of a timetable delineated in advance.
- Alignment of incentives across multiple stakeholders in order to more closely tie the investment costs to the expected benefits.

The clinical community must play an active role in efforts to migrate toward an interoperable health care system across the entire range of ambulatory and inpatient settings. This requires:

- Leadership and commitment to cultural and operational change
- Activities related to clinical content and terminology
- Investment of resources
- A focus on the end goal on delivering higher-quality, safer care

2. PRIVACY AND SECURITY—THE CRITICAL INGREDIENTS FOR TRUST

THE RATIONALE

Collaboration and sharing data within and across enterprises is critical for improving patient care, enhancing interactions between clinicians and patients, and strengthening public health. However, all parties agree that sharing electronic health information can occur only if reliable mechanisms exist to protect the security and privacy of patient information.

THE GOAL

The goal of the Privacy and Security Working Group was to seek out noteworthy privacy and security practices that are currently in use in order to show that creative solutions are both possible and affordable. In light of the group's tight deadline, we did not set out to conduct a comprehensive survey of practices currently being utilized nor did we attempt to evaluate where a particular organization would rank in its privacy and security practices. Instead, the Working Group identified health care entities that have developed noteworthy technical and managerial practices; i.e., practices that demonstrate the protection of privacy and security while making broad and creative uses of electronic health information. These entities were identified through a review of literature and reports, and through the extensive knowledge of the industry that exists within the membership of both the Working Group and Steering Group.

WE AGREED THAT

An interconnected health care system must be permeated by comprehensive, consistent, and reliable privacy and security practices.

Health care organizations and clinicians can benefit from the identification and dissemination of noteworthy privacy and security practices that have been shown to be feasible, and

whose use has demonstrated the advantages of an interconnected health care system. Identifying these practices can promote their deployment.

Noteworthy privacy practices can be found in a wide variety of clinical practice settings.

Noteworthy practices exhibited at least some of these fourteen principles:

- Trustworthy – can be relied on by patients to protect their health information
- Improved care for the patient – supported the implementation of practices or programs that enhance quality of care
- Increased patient involvement – provided opportunities for the patient to understand and engage in their care
- Enhanced the health care relationship – improved communication between patients, health care organizations and clinicians
- Transparent – provided clear and complete information to patients about their methods and scope
- Interoperable – increased the access to information from independent health care systems
- User friendly – were easily understood and learned by the users
- Ubiquitous – applied to all data within the scope of the practice
- Scalable – could be adopted by organizations of differing size and complexity
- Sustainable – could be funded as part of ongoing operational budgets
- Enabled specific health care functions – allowed patients, health care organizations and clinicians to participate in healthcare in ways that are not readily feasible without the use of private and secure information technology
- Enhanced the ability to protect public health – supported public health reporting and surveillance
- Improve the ability to measure, study, research – facilitated the creation of and access to data for research purposes
- Balance cost and risk – were seen by the implementing organizations as having sufficient value to justify their investment in the practice

Noteworthy practices exist and can be incorporated into a range of interconnected health care activities including:

1. Secure electronic communication
 - Personal patient web pages
 - Secure e-mail
 - Secure patient access to medical records
2. Monitoring patients
 - Secure communication from in-home monitoring device with integrated internet access
 - Electronic transmission of glucose and blood pressure readings
 - On-line video conferencing with case managers
 - On-line patient access to care plans
3. Sharing data across enterprises
 - Governance model for community-wide data sharing for patient care, research and public health
 - Emergency room (ER) data collection for public health surveillance

- Multi-stakeholder data sharing for public health surveillance
- Data use agreements
- 4. Screening e-mail for personal health information (PHI)
 - Creation of secure web sites for e-mail exchange with patients, health care organizations, clinicians, and vendors
 - Established policies for employees to send e-mail securely
 - Automated lexicon to screen and block e-mail with PHI
- 5. Patient access to medical records when they do not have a regular source of care
 - Web based personal health record
 - Patient controls access to record
 - Clinicians and patients can add to the record
 - Project targeted at a migrant health population
- 6. Controlling access to PHI
 - Detailed constraints on access based on role
 - Break the glass function to override routine access constraints
 - Tracking of access
- 7. Tracking access to PHI
 - Development of detailed and routine audit trails
 - Use of audit trails to investigate possible privacy breaches
 - Allowing patients access to the audit trail of accesses to their data
- 8. Authenticating users
 - Single sign-on for clinician and health care organization access to multiple applications
 - Personal key infrastructure for communication among patients and case managers
- 9. Training users
 - Web-based training for employees
 - Role based and general training
- 10. Measuring privacy and security performance
 - Routine reports on key privacy indicators
 - Development of a privacy compliance plan

3. PERSONAL HEALTH—THE PROMISE AHEAD

THE RATIONALE

Because no single clinician or health care entity has possession of all the health information belonging to a single individual, it is important to give individuals the opportunity to have more access and control over their personal health information. Moreover, we believe that giving individuals access to and control over their personal health information will bring benefits to them and to the entire health care system. These include:

- Better ability of patients to maintain health and manage their health care
- More reliable care; e.g., in emergency situations
- Better quality and safer health care by using computers to identify possible problems
- More efficient care, with less duplication of tests and quicker access to results
- More effective communication and collaboration between patients, doctors, pharmacies, and others

- Improved satisfaction, lower cost and greater choice

THE GOAL

The goals of the Personal Health Working Group were to define high-level characteristics of the personal health record; identify consumer requirements and concerns related to that personal health record; and disseminate those findings.

WE AGREED THAT

The makeup of a personal health record (PHR) should be defined clearly, including the information it contains, and standards for accessing and sharing that information. Those managing personal health information – doctors, hospitals, pharmacies, insurers - should collaborate with each other to make it possible for people to access and integrate their own health information. Every individual should have the opportunity to access his/her personal health information and control how it is shared.

Many of the issues that need to be addressed in order to enable people to access their medical information are identical to those that must be overcome to achieve a health information infrastructure that is able to mobilize information to improve the quality of care delivered to patients, conduct timely research to improve health outcomes, and to bolster the public health infrastructure. These issues include an environment that encourages collaboration among local health care organizations and clinicians, the adoption of uniform data standards that would allow a person to bring together all of their health information from different clinicians and health care organizations, and a clear understanding of the balance between privacy and security and convenient access to vital health information. One issue that requires special attention however is the lack of public understanding of the dangers that now exist because they and their doctors don't have adequate, timely, and consistent information available to make health care decisions and manage health day-to-day.

Those managing personal health information are stewards of that data. These individuals and organizations must collaborate with one another – particularly within communities – to ensure that individuals:

- Have access to their personal health information
- Understand how to use that information to better manage their health and health care.

Consumer advocacy groups should help individuals:

- Recognize the value of personal health information in improving health and health care
- Understand the different levels of privacy that may be most appropriate for different situations.

Acknowledgement

The Markle Foundation would like to thank the members of the Connecting for Health Steering Group and all the members of the Working Groups for their extraordinary contributions, which have provided the rich substance of this report. We would also like to acknowledge the superb help of Michael L. Millenson, a senior adviser to the Foundation, in the drafting of this report.

CONNECTING FOR HEALTH STEERING GROUP INDIVIDUAL COMMITMENT TO ACTION

The Steering Group, collectively and individually represent a driving force in health care. They are leaders, decision makers and visionaries in their own right. Their individual commitments and statements represent both the desire and *the will* to transform this vision into reality.

James P. Bradley, Chief Executive Officer, RxHub

RxHub's mission is to connect the prescribing industry so that decision support information may be electronically exchanged between physicians, pharmacists and payers to improve patient safety, enhance the continuity and quality of patient care, and reduce health care costs. RxHub continues to drive standardization and the adoption of interoperable systems—and has incorporated the standards proposed by Connecting for Health in its various applications. RxHub will continue to demonstrate and enhance the advantages of electronic connectivity among industry participants by providing vital information at the point of care in order to help achieve safer outcomes.

Claire Broome, MD, Senior Advisor, Integrated Health Information Systems, Office Of the Director, The Centers for Disease Control and Prevention

CDC believes the use of data standards in clinical information systems is vital to improving our public health system. Interoperable clinical systems will help us more effectively use electronic data in clinical information systems to address the critical functions necessary to protect the public's health, including detection and monitoring, analysis, alerting and communications, and response. Such electronic partnership will increase the timeliness, completeness, and accuracy of information available to public health, while decreasing the burden on clinical partners to provide appropriate data. It will also enhance the ability to get up to the minute information back to clinical partners, for example when a new or emerging disease occurs.

CDC is strongly supportive of accelerating interoperability in healthcare information systems, and we have also been strengthening the capacity of the public health system in this country to be able to receive appropriate standard electronic data. The Public Health Information Network (PHIN) and the National Electronic Disease Surveillance System (NEDSS) provide a common, integrated, and standards-based framework through which we enable electronic real-time data flow, computer-assisted analysis, decision support, professional collaboration, and rapid dissemination of information to public health agencies, and also from public health agencies to clinical partners. Through those initiatives, we are embedding standards such as the ones endorsed by Connecting for Health in the broad range of information systems needed to support the public's health. In partnership with the eHealth Initiative, we have produced public health implementation guides-- specific tools to help in implementing the standards.

In addition, we are active participants in the work of the Consolidated Health Informatics' eGov Initiative—an interagency government initiative designed to promote the adoption of standards within federal government. Finally, as part of our participation in Connecting for Health, we have been partners in the Healthcare Collaborative Network project, which demonstrates both

the technical feasibility and value of an interconnected, electronic, standards-based model of data interchange to many stakeholders in the health care system, to support higher quality and safer care for patients.

Gwendolyn A. Brown, Director, Health Care Policy, EDS, Global Government Affairs

EDS is dedicated to the need for interoperability in healthcare. We believe that the health care information systems community has a critical role to play in driving towards a standards-based, interoperable health care system. EDS is dedicated to open standards and encourages the software application vendors with which it does business, to incorporate all of the standards proposed by Connecting for Health in their various applications. In addition, we will continue to play a role supporting the maintenance and the creation of standards through standards development organization activities. In addition, we plan to continue to incorporate open standards into our many federal and community-based initiatives.

Nancy G. Brown, Senior Vice President, Strategic Planning, McKesson Corporation

McKesson Corporation has been committed to providing information solutions that improve patient safety and is dedicated to the need for interoperability in healthcare. We believe that the vendor community has a critical role to play in driving towards a standards-based, interoperable health care system. McKesson Corporation already incorporates, or will incorporate, all of the standards proposed by Connecting for Health in its various applications. In addition, we will continue to play a role supporting the maintenance and the creation of standards through standards development organization activities. Finally, we are participating in the Healthcare Collaborative Network project to demonstrate our commitment to the value of using information technology and standards in today's health care system

Garry Carneal, President and CEO, URAC

URAC will promote the use of clinical and electronic data standards in its various accreditation programs to promote a more integrated and interoperable health information management system throughout the Nation. Based upon the Connecting for Health recommendations, URAC will evaluate the opportunities to embed clinical and electronic standards into its quality improvement efforts and performance measurement systems. URAC recognizes the critical role that the Connecting for Health initiative is taking on, in part by developing national standards and protocols to address many elements of the health care system that are currently fragmented and siloed. Without a doubt, the Connecting for Health effort represents a real opportunity to both improve patient care and increase the efficiency of the U.S. health care system.

Gary Christopherson, Senior Advisor to the Under Secretary, Veterans Health Administration

The Veterans Health Administration continues to be a strong supporter of the electronic health record, personal health record, health information exchange and health information standards. VistA today is considered as one of the best health information systems (Institute of Medicine (IOM)) and is made available to the public for its use. The next generation HealtheVet-VistA will include major improvements and be even more person-centered and standards-based. We are also strongly committed to interoperability in healthcare as part of our HealthePeople strategy. Working collaboratively with efforts like Connecting for Health, we have demonstrated our support of health information standards adoption and interoperable health care systems through the adoption of those standards for all of our systems. We are co-founders and active leaders in the Consolidated Health Informatics Initiative -- an interagency government initiative designed to adopt standards across the federal government. We further strongly encourage the adoption of national standards to be used throughout health care in the US and other nations. Working with public (e.g. CMS and AHRQ) and private sector organizations (e.g. vendors, provider organizations, and collaborative efforts like Connecting for Health and the eHealth Initiative), we strongly encourage private sector vendors and others (e.g. American Academy of Family Physicians) to make available affordable, high quality and standards-based electronic health records. VistA will continue to be available for public use under the title of HealthePeople-VistA. With many of these same organizations, we are also working to make available personal health record systems and health information exchange mechanisms. Together, all these efforts will greatly improve our ability to improve health and will get us to the IOM goal of being "paperless" by the year 2010.

Carolyn Clancy, MD, PhD, Director, Agency for Healthcare Research and Quality

AHRQ's mission to improve the safety and quality of health care includes a strategic focus on the effective application of health IT. Making this a reality will not be possible without diffusion and adoption of standards for interoperability. We are demonstrating our support for the adoption of data standards and interoperable health care systems through a range of activities, including our participation in a federal initiative to create an integrated national patient safety database, our work towards an Ambulatory Patient Safety Initiative that promotes the use of standards-based electronic tools for patient safety improvement in ambulatory settings, and in the leadership role we play in promoting the acceleration of the adoption and use of standards and technology to support quality and safety. Our commitment to this issue also is manifest in the \$50 million Patient Safety Hospital IT Initiative included in our Fiscal Year 2004 budget. This proposal calls for demonstration projects to improve patient safety and quality of care. In addition, AHRQ participates in the work of the Consolidated Health Informatics Initiative which is an interagency government initiative designed to promote the adoption of standards within federal government.

Molly J. Coye, MD, MPH, Chief Executive Officer and Founder, Health Technology Center

With new progress on interoperability led by the Connecting for Health project, the Institute of Medicine and the federal Consolidated Health Informatics' eGov initiative, our HealthTech members know that their investments in information technology will be orders of magnitude more productive and useful for them, for their clinicians and for their communities. The important work done by Connecting for Health led us at HealthTech - a research organization with more than 24 leading hospital-based delivery system and health plan members - to develop a policy proposal for federal funding of IT investments in healthcare. We are now developing migration pathways for a series of emerging technologies, including wireless, web services and distributed imaging, that directly build on this new progress on data standards.

Michael Cummins, Chief Information Officer, VHA Inc.

VHA Inc. is a member organization; as a result our goals are aligned with our member's goals. VHA members are very concerned about patient safety, operational effectiveness and efficiency. VHA in response to member needs must play a critical role in helping to drive the adoption of data standards and interoperable systems because our members believe these actions will ultimately improve the delivery of health care. VHA has been and will continue to educate our members about the importance of data standards and the need for healthcare leaders to keep in mind the importance of interoperable systems when making information technology purchasing decisions.

Craig Fuller, Chief Executive Officer, National Association of Chain Drug Stores

NACDS is committed to facilitating the widespread adoption of electronic prescribing through true electronic connectivity between prescribers and community pharmacies. We are committed to addressing the need for interoperability in healthcare. We will encourage our membership to incorporate the standards proposed by Connecting for Health

Daniel Garrett, Vice President and Managing Partner, Health Care, Computer Sciences Corporation

Computer Sciences Corporation is dedicated to addressing the need for interoperability in healthcare. We believe that the health care information systems community has a critical role to play in driving toward a standards-based, interoperable health care system. CSC is committed to implementing open standards and encouraging all suppliers to the healthcare industry to incorporate the standards proposed by Connecting for Health. In addition, we will continue to play a role supporting the maintenance and the creation of standards through standards development organization activities. CSC plans to continue to deploy standards in all of our work in the healthcare industry, including our work in the commercial sector, Government Administrative and Regulatory Agencies, and our provider/payor connectivity initiatives.

John Glaser, PhD, Chief Information Officer, Partners Healthcare System

Partners HealthCare System is dedicated to advancing interoperability in healthcare. Information systems interoperability is an essential foundation to our strategic efforts to improve care quality, reduce medical errors, simplify administrative processes and improve service to our patients and providers. We believe that the provider community has a critical role to play in working with our vendors to move to platforms based on open standards. Partners will only build and buy systems that are based on open standards such as the ones proposed by Connecting for Health. In addition, we will continue to play a role supporting the maintenance and the creation of standards through demonstration projects, evaluations of the impact of information technology on the effectiveness and efficiency of healthcare and other research.

John Halamka, MD, Chief Information Officer, Caregroup Healthcare System

CareGroup HealthCare System is dedicated to the need for interoperability in healthcare. We believe that the provider community has a critical role to play in getting systems vendors to move to platforms based on open standards. CareGroup will only build and buy systems that are based on open standards such as the ones proposed by Connecting for Health. In addition, we will continue to play a role supporting the maintenance and the creation of standards through funded demonstration projects and other research. Finally, as part of our participation in Connecting for Health, we have been leaders in the Healthcare Collaborative Network project to demonstrate our commitment to the value of using standards in today's health care system

Linda M. Harris, PhD, Senior Health Communication Scientist, Health Communication and Informatics Research Branch, Behavioral Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute

As primary sponsors of health communication and informatics research at the National Cancer Institute, we believe we can be more effective in preventing and controlling cancer within a system of care in which all participants are interconnected and interdependent. Therefore, we are committed to the development of a seamless and secure health information infrastructure. Toward that end, we will encourage all our current and future grantees to implement the set of standards recommended by the Connecting for Health Steering Group. Additionally, we will initiate a campaign to educate our ehealth research and development community across the country regarding the importance of standards in the research and development of cancer communication and information systems.

Douglas Henley, MD, President, American Academy of Family Physicians (AAFP)

The AAFP is excited to be a part of helping to drive the implementation of clinical data standards through its own efforts to bolster the use of information systems by practicing clinicians in two important ways. First, the AAFP will use those standards recommended by the Connecting for Health Steering Group in its own efforts to take a leadership role to create a breakthrough in the adoption and use of electronic health record (EHR) technology in family

physician offices across the nation. The AAFP is convinced that our current health care system is "broken", and yet it has so much potential for improved quality and enhanced patient safety. Critical to this effort of improving our health care system is the adoption of common data standards for electronic health records to ensure the interoperability of health care information between physicians and other providers of care. Second, the AAFP will continue to educate our members, and indeed all physicians, about importance of underlying data standards for EHRs for those interested in the development or procurement of information systems.

Joseph M. Heyman, M.D, Trustee, American Medical Association (AMA)

The American Medical Association (AMA) supports the "Connecting for Health" initiative in developing standards for connectivity of personal health information. The AMA is committed to working to ensure that computer-based patient record systems and networks, and the legislation and regulations governing their use, include adequate technical and legal safeguards for protecting the confidentiality, integrity, and security of patient-specific data. The AMA believes that efforts aimed at discovering and promoting "best practices" in the delivery of health care services to our patients, including electronic transfer of personal health information, are vital and must be encouraged. These efforts, however, should include input from physicians and must take into account the practice realities of physicians across all settings to ensure that these practices are useful and practical for physicians to implement. The AMA encourages all physicians to become familiar with and capitalize on opportunities to use technology to enhance patient care and ensure patient safety.

Yin Ho, M.D., Director eBusiness, Pfizer

Pfizer is dedicated to addressing the need for information system interoperability in healthcare and is intent on contributing to the adoption of data standards and interoperable, electronic healthcare information systems. We believe these actions will serve to improve the health of individuals and the healthcare system as a whole, while promoting innovation and healthy competition among technology vendors. Pfizer believes that the evolution of electronic connectivity between healthcare stakeholders must be focused on strengthening the patient-physician relationship and cautions that technology could be used inappropriately at the expense of quality patient care. Looking forward, we believe it will be essential for public-private groups like Connecting for Health to continue to work together to chart the course to a better, more connected, health system. The potential of electronic, interoperable healthcare information systems extends far beyond increasing efficiencies, enhancing patient safety to include accelerated clinical research, creating new opportunities to improve and extend peoples' lives

Kevin Hutchinson, Chief Executive Officer, SureScripts

SureScripts is committed to improving the prescribing process by promoting and facilitating the widespread adoption of electronic prescribing through true electronic connectivity between pharmacists and physicians. Working with the nation's healthcare leaders, SureScripts is creating a neutral, secure, efficient system compatible with all major physician technologies and

pharmacy software systems. The company is dedicated to encouraging collaboration between industry leaders as demonstrated by our recent partnership with the Rhode Island Quality Institute (RIQI) on the launch of a statewide electronic prescribing program. The launch in Rhode Island is the beginning of our national launch to provide electronic prescribing services nationwide between physician and pharmacy technology vendors. In addition, our recent partnership with NDCHealth Corporation, making SureScripts Messenger™ Services the exclusive gateway for routing of electronic prescription messages to NDCHealth physician and pharmacy customers, reinforces our focus on cooperation. We are committed to addressing the need for interoperability in healthcare. SureScripts Messenger™ Services incorporates the standards proposed by Connecting for Health today and is committed to the implementation of these standards in the future for various applications in an effort to promote interoperability within the health care system.

William F. Jessee, MD, Chief Executive Officer, Medical Group Management Association (MGMA)

MGMA is playing a critical role in helping drive the adoption of data standards and interoperable systems because we believe these actions will ultimately improve how health care is delivered. We have been and will continue to educate our members about the importance of data standards and to build awareness of the need for them to stress the importance of interoperability when making information technology purchasing decisions. Through education programs, articles in our magazine (MGMA Connexion®), and a variety of other member communications we encourage practices to look for “best in class” electronic solutions to their information management needs. Increased standardization and improved interoperability are essential to the success of that strategy. We also are helping encourage standardization through our corporate involvement in WEDI, SNIP, the Patient Safety Institute, e-Health Initiative, and the National Alliance for Health Information Technology, as well as through the Connecting for Health initiative.

Brian F. Keaton, MD, FACEP, Attending Physician and Emergency Medicine Informatics Director, Summa Health System, American College of Emergency Physicians (ACEP)

Brian F. Keaton, MD, FACEP, a member of the American College of Emergency Physicians (ACEP) Board of Directors, has been an active participant on the Connecting for Health Steering Group. According to Dr. Keaton, “Medical care is optimized when all pertinent patient information is available to treating physicians in a timely and usable manner. Nowhere is this more critical than in the emergency department where the rapid, seamless integration of data from various hospitals, clinics, and physician offices could mean the difference between life and death.” For this reason, he is working to help drive the adoption of data standards and interoperable systems throughout healthcare. “Most emergency departments function as important components of enterprise-wide information systems. Emergency physicians must become active proponents for interoperable systems when their institutions make information technology purchasing decisions,” said Dr. Keaton.

Kenneth W. Kizer, MD, MPH, President and Chief Executive Officer, National Quality Forum (NQF)

The National Quality Forum is committed to facilitating the use of interoperable information management technology in healthcare because it is critical to quality improvement efforts. The NQF is taking a lead role in helping to drive the adoption and use of interoperable data standards, and is working on several fronts in this regard, including through the data requirements used in our voluntary consensus standard performance measures.

Linda Kloss, Executive Vice President and Chief Executive Officer, American Health Information Management Association (AHIMA)

AHIMA, in its educational mission, promotes those data standards identified in Connecting for Health and educates its members regarding the importance of requiring standards-based information systems when making purchasing decisions. Through its e-HIM initiative, AHIMA is supporting an accelerated pace of change to the electronic health record. AHIMA will also continue to educate citizens about their rights to their health information and the importance of personal health records.

David Lansky, PhD, President, Foundation for Accountability (FACCT)

Over the past eight years, the Foundation for Accountability has worked with health plans, state and federal agencies, large employers and many consumer organizations to increase national attention on the quality and safety of health care. Ultimately, meaningful accountability can only happen when we can measure and improve and monitor the quality of care that is delivered. Unfortunately, we've discovered that none of the information systems commonly used in today's health care system permits us to look at quality of care - particularly in ways that matter to patients and families. The development of national data standards, and reliable ways to assure the privacy and security of personal information, and having a shared vision of new information tools that people can control and use - these are absolutely fundamental developments to our long-term goal of a safer, higher quality, and more responsive health system.

Mark Leavitt, MD, PhD, Vice President of Clinical Initiatives, GE Medical Systems Information Technologies

As a leader in applying clinical information technology to improve the quality, safety, and cost-effectiveness of healthcare, GE Medical Systems strongly supports the work of Connecting for Health. We believe that the vendor community has a critical role to play in delivering solutions that are standards-based and interoperable. GE Medical Systems already incorporates, or is planning to incorporate, all of the standards proposed by Connecting for Health in its various applications, and we will continue to play a significant role in the advancement of those standards. Finally, we have been leaders in the Healthcare Collaborative Network project to demonstrate the gains that can be achieved through the application of standards-based, interoperable clinical information technology.

Randy Levin, MD, Associate Director for Electronic Submissions, Food and Drug Administration (FDA)

The FDA is dedicated to the development and implementation of standards supporting interoperability in healthcare in an effort to advance communication of medical product information and improve patient safety. The agency is active in promoting standards within FDA through the FDA Data Council, within the federal government through the Consolidated Health Informatics and other interagency initiatives, and within the healthcare community through our work in Health Level Seven and Connecting for Health. FDA will also incentivize stakeholders to adopt standards and acquire information technologies that will improve patient safety through the bar coding rule and electronic product labeling. Finally, through participation in the Healthcare Collaborative Network project, the agency will help demonstrate both the technical feasibility and value of an interconnected, electronic, standards-based model of data interchange, to many stakeholders in the health care system.

Donald Lindberg, MD, Director, National Library of Medicine (NLM)

The National Library of Medicine (NLM) has a long history of building information infrastructure to support health care, public health, and clinical and health services research. The current NLM Long Range Plan specifically addresses the Library's commitment to work with other federal agencies and private sector organizations to support the establishment, ongoing maintenance, testing, and use of health data standards and to use the Unified Medical Language System (UMLS) resources to facilitate the maintenance and distribution of vocabulary standards. NLM will continue to support the ongoing maintenance and free distribution of clinical vocabularies within the UMLS Metathesaurus and will plan to add important clinical vocabularies to the UMLS

John Lumpkin, M.D., MPH, Senior Vice President, Robert Wood Johnson Foundation and Chair, National Committee on Vital and Health Statistics (NCVHS) (Executive Vice-Chair)

The NCVHS is the Congressionally mandated committee that advises the Secretary of HHS on issues related to health information policy. The NCVHS has consistently advocated for interoperability in healthcare and the adoption of data standards. The NCVHS has made recommendations related to the creation of a national health information infrastructure that have had far-reaching effects in health care. The NCVHS has also successfully developed recommendations resulting in the adoption of standards. Recommendations have also identified ways to facilitate the health care community's move towards the adoption of those standards. Through the work of the National Health Information Infrastructure Workgroup, the NCVHS has highlighted the importance of the use of a personalized health record

Janet Marchibroda, CEO, eHealth Initiative and Executive Director, Foundation for the eHealth Initiative (Executive Director, ex-officio)

The eHealth Initiative, a multi-stakeholder consortium whose mission is to improve the quality, safety, and cost-effectiveness of healthcare through information technology, is dedicated to accelerating the adoption of data standards and interoperable healthcare information systems. In support of this goal, the eHealth Initiative and its Foundation are conducting outreach and awareness-building campaigns targeted to both public and private sector audiences; supporting national and regional efforts to create and sustain electronic, standards-based models of data interchange through demonstration projects--such as the Healthcare Collaborative Network--and related dissemination activities; and promoting the use of financial incentives to support higher quality, safer and more cost-effective healthcare enabled by interoperable information technology.

Arnold Milstein MD, MPH, Medical Director, Pacific Business Group on Health (PBGH), The Leapfrog Group

The Leapfrog Group strongly supports the use of clinical data standards proposed by Connecting for Health. Specifically, Leapfrog will incorporate interoperable standards for pharmacy and laboratory data in its new physician office clinical decision support "leap." This will help drive adoption of lab result reporting formats based on LOINC by clinical labs, lab equipment vendors, IS vendors adoption of NCPDP by pharmacies, PBMs, IS vendors and providers. As the Secretary of HHS endorses other interoperability standards for clinical data exchange, the Leapfrog Group is committed to rapidly integrating them into each of its existing and future leaps.

Margaret O’Kane, President, National Committee for Quality Assurance (NCQA)

NCQA believes that the collective goal of efficient, high quality, healthcare delivery is supported by the work of Connecting for Health, which seeks to identify and address barriers to the sharing of electronic medical data. NCQA plans to promote the use of clinical data standards by adding LOINC codes to our HEDIS specifications. NCQA also plans to make recommendations to the Healthcare Collaborative Network team for streamlining data processing schemes, in order to enable participation of health care organizations that handle aggregate data.

Dennis O’Leary MD, President, Joint Committee on Accreditation of Healthcare Organizations (JCAHO)

The Joint Commission believes that an electronic, interconnected health care information infrastructure is a critical underpinning to fully achieving the quality, safety and efficiency goals commonly held by all Americans. To that end, the Joint Commission is committed to collaborate with other stakeholders to promote the rapid adoption of standards for the computerized exchange of health care data in order that clinical and other appropriate information can be rapidly shared among providers of services and between providers and patients. Furthermore, the Joint Commission believes that the success of accreditation in

evaluating the achievement of national health care goals is greatly enhanced when the collection of quality and safety data is a byproduct of the health care delivery process. It is, therefore, essential that the nation achieve a high degree of interoperability in its information technology infrastructure.

The Joint Commission's performance measurement activities have already contributed to a standards-based, national information infrastructure by requiring accredited organizations to adhere to common standards and measurement specifications for performance data that are transmitted to the Joint Commission. Moreover, the Joint Commission has driven significant consonance between these activities and similar performance reporting efforts of other private and public sector bodies. Additionally, the Joint Commission is committed to doing more to accelerate a standards-based, interoperable health care system. For example, the Joint Commission will 1) continue to be an active collaborator with the private and public sectors to help develop additional data standards (including data dictionaries and data collection protocols) that support interoperability of health care information systems; 2) include in its performance measurement initiatives any new data standards that have achieved wide-spread agreement between the public and private sectors; 3) consider the development of additional accreditation standards that promote the use of information systems designed to support and improve the delivery of safe, high quality health care; and 4) collaborate with other stakeholders on efforts to determine the content and format of electronic health records designed to both solve clinical problems and for use in public health surveillance.

Herbert Pardes, MD, Chief Executive Officer, New York-Presbyterian, the University Hospitals of Columbia and Cornell (Executive Vice-Chair)

NY Presbyterian Hospital System is dedicated to achieving interoperability for IT used in healthcare for two reasons. First, the level of inefficiency that results from lack of standards makes our information technology, and so the cost of healthcare, more expensive. The need to develop interfaces for each new installation adds approximately 30 percent to the cost of IT projects. If we are going to ask for help to absorb the increases in medical costs, we have to fight to ensure that those costs are as low as possible. Second and most important, interoperability will help us provide better care. It will help prevent the errors that are caused by poor communications or lack of access to information. We must fight for interoperability because it is best for patients.

The provider community has a critical role to play in getting systems vendors to move to platforms based on open standards. NY Presbyterian Hospital System will only build and buy systems that are based on open standards such as the ones proposed by Connecting for Health. In addition, we will continue to play a role supporting the maintenance and the creation of standards through funded demonstration projects and other research. Finally, as part of our participation in Connecting for Health, we have been leaders in the National Health Collaboration Network project to demonstrate our commitment to the value of using standards in today's health care system.

James C. Reardon, Chief Information Officer of the Military Health System

“Common health care data standards are essential to improving patient safety and reducing the cost of health care. The Department of Defense (DoD) is an active participant in the Federal e-Government Initiative, Consolidated Health Informatics, and is committed to the adoption of national health care data standards” said Mr. James C Reardon. “As part of its participation in the Connecting for Health Initiative, DoD supported the Healthcare Collaborative Network. This project champions the delivery of high-quality health care and underscores the value of an electronic, standards-based health care information model in exchanging health care data.”

**Russell J. Ricci, MD, General Manager, Healthcare Worldwide, IBM
(Executive Vice-Chair)**

IBM is dedicated to helping hospitals, medical centers and other healthcare providers transform themselves by adopting on demand technology to provide better patient safety and care with the highest quality in the most cost-effective manner. IBM believes information technology vendors--and especially application providers--can and should play a vital role in achieving these goals by supporting a standards-based, interoperable health care system. Such a system would incorporate each of the data standards proposed by Connecting for Health. Widespread adoption of open standards means faster and more accurate electronic communications. Patients and medical professionals will benefit while simultaneously improving the practice of medicine throughout the United States.

**Wes Rishel, Board Chair, Health Level Seven; Senior Vice President, Research
Director, Gartner Group**

HL7 is dedicated to the need for interoperability among healthcare information systems at a national and international level. We play a critical role in helping to create data standards and drive the adoption of interoperable systems. We lead an industry-wide consensus-based process that develops standards that will work for a broad set of stakeholders in health care. We further support the usage of information standards by users and developers of systems by providing educational conferences, analyst certification and tools, and by hosting a community where practitioners of HL7 can come together to solve problems.

**William Rollow, MD, MPH, Deputy Director, Quality Improvement Group, Office of
Clinical Standards and Quality, Centers for Medicare and Medicaid Services**

CMS sees adoption of information technology by providers of care as a key to improving quality and efficiency. IT enables clinicians to have scientific knowledge available to them at the point of care, and helps them more reliably practice good medicine. It gives them access to patient-specific information which originates in multiple places. It enables them to better communicate with patients and contribute to the information which patients need to better manage their own care and make healthcare choices. It enables them to better assess how well they are doing. It cuts their costs in managing information and communicating it.

The benefits of such technology are also substantial for patients. Gains in quality and efficiency give them better outcomes and more affordable care. Better information helps them work more effectively in partnership with clinicians to take better care of themselves, and enables them to make better decisions about care and choices of providers.

CMS sees three elements as crucial in promoting adoption of IT by providers. First we need standards which promote interoperability. Second, we need systems which are standards-based, affordable, and which have the functionality to improve care. Third, we need incentives which reward and recognize providers for using systems to improve quality and reduce unnecessary costs.

CMS values the work which Connecting for Health has done to advance the national agenda toward adoption of healthcare information technology. Connecting for Health represents the kind of public/private collaboration which is necessary to achieve success. We have appreciated the interaction between Connecting for Health's data standards workgroup and the standards-setting activity which we are involved in with other federal agencies through Consolidated Health Informatics. We are excited by the Healthcare Collaborative Network demonstration project, in which we are an active participant, which will help us better explore how to receive and use the electronic information which resides in hospitals for purposes of creating quality measures.

Tom Sullivan, MD, President, Massachusetts Medical Society

The Massachusetts Medical Society is dedicated to the need for interoperability in healthcare and is playing a critical role in helping to drive the adoption of data standards and interoperable systems because we believe these actions will ultimately improve how health care is delivered. We will educate our members about the importance of data standards and build awareness of their need to stress the importance of interoperable systems when making information technology purchasing decisions. In addition, we are currently partnering with other organizations, including HIMSS and ASTM International, to create forms and documents utilizing these standards to assist our members in caring for their patients.

Robin J. Thomashauer, Executive Director, Council for Affordable Quality Healthcare

The Council for Affordable Quality Healthcare (CAQH) is dedicated to the need for greater collaboration to improve the health care experience for physicians and their patients. We support the efforts of Connecting for Health to promote the adoption of universal standards and a more integrated, efficient health care system. These efforts will only serve to enhance our ability to respond to the challenges that face the health care industry today

John Tooker, M.D., MBA, FACP, Executive Vice President and Chief Executive Officer, American College of Physicians

ACP is playing a critical role in helping to drive the adoption of data standards and interoperable systems because we believe these actions will ultimately improve how health care is delivered. We will continue to educate our members about the importance of data standards and build awareness of their need to stress the importance of interoperable systems when making information technology purchasing decisions.

Susan M. Welsh, MD, Vice President, Global Pharmaceutical eBusiness, Johnson & Johnson

Johnson & Johnson is dedicated to the need for interoperability in healthcare and is playing a role in helping to drive the adoption of data standards and interoperable, electronic health care systems, because we believe these actions will ultimately improve health and health care. Accelerating the use of electronic, interoperable health care systems will not only improve patient safety, it will also reduce the cost of and improve the effectiveness of research designed to improve clinical outcomes.

Andrew M. Wiesenthal, MD, Associate Executive Director, Kaiser Permanente

Kaiser Permanente is committed to realizing greater interoperability in health information systems. As part of driving that agenda, we are committed to building and buying only systems that use common, open standards for clinical information such as the ones identified in Connecting for Health.

Jon Zimmerman, Vice President eHealth, Siemens Corporation

Siemens Corporation remains dedicated to applying our global network of innovation to solving real problems in the healthcare industry. One key challenge we pledge to help overcome is the lack of an interoperable health system. We firmly believe that solution providers, like Siemens, will continue to have a strong contribution to make in the definition, development and effective deployment of standards-based interoperating application systems. Siemens is very pleased to participate as a leader in the National Connecting for Health and the Healthcare Collaborative Network project. This is a unique opportunity to work in partnership with a wide array of highly talented and dedicated industry colleagues. This is one more demonstration of our commitment to expanding the value of using information technology and standards to deliver profound and lasting improvements to today's health care system.

Other Connecting for Health Participants

David Hopkins, PhD, Director of Quality Measurement and Improvement, Pacific Business Group on Health

PBGH believes that the widespread adoption of clinical data standards is an essential step toward being able to measure and improve the health care system. The Connecting for Health effort is instrumental to accomplishing three key goals on a nationwide basis: improving measurement, improving patient care, and increasing the efficiency of the U.S. health care system. We will promote the adoption of standards through our own work, such as evaluating opportunities to incorporate standards in quality measures and data collection tools. We will also look for opportunities to embed standards in our "pay for performance" activities wherever information is, or should be, collected electronically.

H. Steve Lieber, President & CEO, Health Information & Management Systems Society (HIMSS)

HIMSS has several initiatives aimed at developing and supporting interoperability in healthcare. Integrating the Healthcare Enterprise (IHE) is a multi-year project supported by HIMSS, the Radiological Society of North America and the American College of Cardiology dedicated to the development of public domain technical frameworks required for interoperability. Over 35 vendors representing numerous applications annually demonstrate the use of these frameworks through actual transactions among existing products at the Annual HIMSS Conference. In 2004, HL7 will join this demonstration to show even more broadly the existence and value of standards' use in the healthcare IT industry. HIMSS also serves as the primary education source for the industry about the importance of data standards and of interoperable systems when making information technology purchasing decisions. Finally, HIMSS represents its 13,000 individual and 130 corporate members in healthcare policy forums in its efforts to improve quality and reduce costs through the use of standards and interoperability.