

DRIVING HEALTH CARE IMPROVEMENTS

Greater Access to Care	Better Patient Outcomes	Improved Research	More Convenient Interactions
Individuals' access to care is directly linked to their geographic location.	Handwritten orders and prescriptions can be misinterpreted, leading to adverse events. Care provided at multiple locations results in providers having incomplete information that makes individuals vulnerable to medical errors.	Providers learn of best practices and evidence-based procedures through medical journals and continuing education courses. Journal articles and studies are based on a small subset of patients with limited data.	Individuals seeking care from new providers spend time manually entering their personal health information and/or requesting transfers of paper records from previous providers. Information entered manually is often inaccurate or incomplete.
<i>Few individuals can access care remotely.</i>	<i>Information controls are not employed to reduce preventable medical errors for hospital patients.</i>	<i>Few providers have real-time access to best practices.</i>	<i>Most individuals manually enter health information for each new provider visit.</i>

Individuals can remotely receive consultations and care by connecting health information to specialists.	The electronic order entry process minimizes medical errors resulting from misinterpretations and human error. Providers have more complete records of patient care, limiting medical errors.	Providers have electronic access to regularly updated repositories of information and best practices. Providers' input into these repositories is integrated systemically into publicly available resources.	Individuals seeking care from new providers can enter their personal health information prior to treatment and/or request that their files be electronically transferred from previous providers. Transferred information from previous providers is accurate, but does not represent a complete health record.
<i>50 percent to 60 percent of individuals can access care remotely.</i>	<i>Improved information controls reduce preventable medical errors by 10 percent to 30 percent.</i>	<i>20 percent to 40 percent of providers have real-time access to best practices.</i>	<i>50 percent to 75 percent of individuals manually enter health information for each new provider visit.</i>

Individuals receive real-time care from specialists, regardless of location.	Electronic orders are audited automatically to detect potential adverse events and incorrect procedures. Providers have access to patients' complete continuity of care records, minimizing medical errors due to incomplete information.	Providers automatically input treatment outcome information into computerized information repositories, supplying other providers with the most current and accurate best practices information, disease registries, evidence-based procedures and formularies.	With patient authorization, health and administrative information is available seamlessly to new providers regardless of location. Patient information is complete and accurate.
<i>100 percent of individuals can access care remotely.</i>	<i>Improved information controls reduce preventable medical errors by 40 percent to 60 percent.</i>	<i>100 percent of providers have real-time access to best practices.</i>	<i>Fewer than 10 percent of individuals manually enter health information for each new provider visit.</i>

IMPROVING WELLNESS & CARE

Infant & Pediatric	Wellness	Acute	Chronic and Long-term
Parents schedule office visits and maintain written records of treatment and immunizations. Providers only monitor and track health, nutrition and development during office visits. Parents and providers communicate in person and over the phone.	Individuals are responsible for managing their prescribed outpatient care and lifestyle modifications. They need to visit health providers to provide updated health data. <i>Few individuals have online wellness programs their providers can monitor.</i>	Care delivery is episodic and reactionary, typically after an individual is sick or receives an annual physical. Providers determine appropriate care through clinical observation, pathology and consultation applied to traditional medical education.	The care received in health facilities is disconnected from ongoing home care provided by on-site providers. <i>Few providers receive health data from patients' homes.</i>

Parents are alerted electronically to recommended care and have access to treatment plans and immunization records online.	Individuals can access their health providers for care management from their homes through secure communications; however, most health data still is gathered at a medical facility.	At-risk populations are identified before a health situation occurs and monitored closely. Providers systematically record clinical observations and treatments and reference that record, along with observation and pathology, for future diagnosis and treatment.	Care extends beyond the health facility through home health equipment, connecting providers to data and on-site personnel. <i>20 percent to 40 percent of providers receive health data from patients' homes.</i>
<i>Parents only monitor and track health, nutrition and development through manually entered electronic health data.</i>	<i>Parents and providers communicate in person, over the phone and by e-mail.</i>	<i>40 percent to 60 percent of individuals have online wellness programs that their providers can monitor.</i>	

Parents follow electronic development plans to monitor child development, schedule appropriate care and access medical records.	Individuals enter progress electronically, allowing providers to monitor progress and alert individuals to potential issues. Providers use the best current evidence, including clinical guidelines, care maps and outcome measures, to make the best decisions about care.	All individuals have access to genomic diagnostics and individualized care. Providers use the best current evidence, including clinical guidelines, care maps and outcome measures, to make the best decisions about care.	Care extends from health facilities to homes, with patients using medical equipment to deliver diagnostic information to providers in real time. <i>100 percent of providers receive health data from patients' homes.</i>
<i>Providers have electronic access to home and school health data to monitor health, nutrition and development.</i>	<i>Parents and providers communicate electronically via e-mail and online consultations.</i>	<i>More than 80 percent of individuals have online wellness programs their providers can monitor.</i>	

ACCESSING & USING INFORMATION

PROVIDERS						
Individuals & Patients	Emergency Providers	Clinicians	Health Facilities	Pharmacists	Government Health Agencies	Insurers & Payers
Individuals have limited real-time access to their health information from outside health care facilities. They can access their information only by contacting providers and waiting for a reply. Data about the quality of a provider is subjective and based on word of mouth. <i>Individuals' access to health information is paper-based.</i>	Emergency providers have limited advanced information about patient conditions. They gather information through patient or third-person interviews and evaluation. Relevant health information is available to emergency providers only if the patient is conscious or the patient is identified and the records are in the facility.	Clinicians only have real-time access to records created within their office or facility. <i>Clinicians have access to little information they need on new patients.</i>	Health facilities operate with limited patient record exchange, except via paper. There is little cross-use of records. <i>Few health records are available electronically.</i>	Pharmacists work from handwritten and phoned prescriptions and use only their patient records to detect potential drug interactions or allergies. Pharmacists have poor access to drug formularies to comply with prescription coverage programs and offer individuals lower cost alternatives. <i>Few prescriptions are produced or transmitted electronically.</i>	Availability of information regarding quality of care, public health alerts, adverse events and health research is limited because the information is gathered by phone and mail. <i>Few agencies share information via the Web or e-mail.</i>	Compartmentalized health records result in redundant tests for individuals and unnecessary paperwork for providers. Insurers and payers have limited information to structure and administer care programs. <i>There is lost time and productivity due to redundant and unnecessary treatment.</i>

Individuals have some electronic access to portions of their personal health information from homes and health care facilities, including prescription and immunization history.	Emergency providers gather information from patients and can communicate that information to appropriate caregivers electronically. Relevant health information is available to emergency providers if the patient is conscious.	Clinicians can access portions of a patient's health record from previous caregivers, in real time, but there are still multiple, separate records for every patient. <i>Clinicians have access to 40 percent to 60 percent of information they need on new patients.</i>	Health facilities cooperate in regional consortia or affiliations and abide by standards-based protocols for transferring patient information among locations. <i>More than 60 percent of health records are available electronically.</i>	Pharmacists work from an electronic copy or printout of prescriptions and have access to the prescribing provider's health records to detect potential drug interactions or allergies. Pharmacists can check drug formularies automatically and recommend substitutions to increase compliance and reduce cost. <i>30 percent to 50 percent of prescriptions are produced or transmitted electronically.</i>	Availability of information regarding quality of care, public health alerts, adverse events and health research is more timely because information is gathered electronically at prescribed intervals. <i>40 percent to 60 percent of agencies share information via the Web or e-mail.</i>	Providers and payers are interconnected, increasing access to patient records and decreasing testing redundancies for patients and unnecessary paperwork for providers. Insurers and payers can access information about high-risk patients and can help to create and monitor care programs. <i>Lost time and productivity are reduced due to partial elimination of redundant treatment.</i>
<i>Quantitative data about the quality and outcome of providers and facilities is available.</i>						

Individuals have electronic access to all of their personal health information, empowering action and ownership of their care.	Emergency providers have real-time access to any pertinent health information for emergency treatment. All relevant medical information is available to the emergency provider regardless of patient's consciousness.	Clinicians have access to a comprehensive version of patients' health records, including common care records provided by other clinicians. With consent, providers can access health information about a patient. <i>Clinicians have access to more than 80 percent of information they need on new patients.</i>	Regional consortia of health facilities are interconnected, giving providers access to complete health records — with patient consent — through interoperable systems. <i>More than 80 percent of health records are available electronically.</i>	Pharmacists are seamlessly integrated with prescribing providers, resulting in maximized accuracy of prescription fulfillment. Pharmacists automatically verify prescription and allergy history, minimizing adverse drug events. <i>More than 80 percent of prescriptions are produced or transmitted electronically.</i>	Availability of information regarding quality of care, public health alerts, adverse events and health research is current and relevant because information is gathered electronically in real time. <i>100 percent of agencies share information via the Web or e-mail.</i>	Providers and payers receive automated alerts to indicate potential redundant procedures and auto populate paperwork based on available information. Insurers and payers have real-time access to information and monitor care programs. <i>A 21st-century e-health system minimizes lost time and productivity due to redundant treatment.</i>
<i>Comprehensive data about the quality and outcome of providers and facilities are available electronically to patients.</i>						

LEADING & ENABLING THE TRANSFORMATION

Driving Collaboration	Adopting Standards	Building Infrastructure	Ensuring Connectivity	Aligning Incentives	Improving Health Records	Maintaining Privacy & Security
Providers and institutions manage health processes, not patient outcomes. There is little incentive or structure to collaborate within industry or government. <i>The vision for e-health is high-level and provides no plan for attainment.</i>	There is a varied set of standards for different aspects of health information that are not uniformly adopted or extensively used by the private sector or government agencies.	Providers securely access health information at fixed locations in health care facilities. <i>Few providers have access to electronic patient information at the point of care.</i>	Connectivity between health facilities is limited, unless the facilities are part of the same broader health organization. Some information cannot be exchanged between separate systems without significant cost. <i>Interoperability is limited to billing and administrative data.</i>	There are no incentives for providers to implement health IT, which is seen as a high-risk investment with limited returns associated with purchase, implementation and operation. Insurers and payers offer no compensation for physician practices and hospitals to implement health IT or migrate away from current business practices.	Health records are a paper collection of transcribed dictation, handwritten text, lab results and film stored manually in medical records departments.	There are conflicting security protocols that inhibit exchange of information. Users have either complete access to information or no access; there are no tiered levels. Consumer fears inhibit the adoption and use of health IT.

Demonstration projects and local information sharing highlight efficiencies and better patient outcomes while providing lessons learned.	Government agencies, in collaboration with the private sector, adopt and provide incentives for uniform use of open, interoperable standards.	Providers securely access relevant information at the point of care through fixed or mobile devices, as well as remotely. <i>More than 60 percent of providers have access to electronic patient information at the point of care through a fixed terminal.</i>	Secure connectivity between health facilities is based on membership and adherence to regional or community or industry standards are established so information can be transferred across separate systems. <i>Interoperability includes pharmacy and lab data.</i>	Public and private payers offer financial incentives for providers to acquire, use and deploy health IT. Insurers and payers allow for limited reimbursement for use of health IT systems and accept electronic billing.	Some health record information is aggregated automatically from various systems and available in both paper and paperless forms. <i>Controls are in place to allow information sharing within a system based on need.</i>	Individual communities and regional consortia implement privacy and security to meet the requirements of the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

Common goals and strategies create cohesive efforts across the industry and government, enabling the creation of a unified e-health vision.	Government agencies and the private sector consistently use standards and health care products and technologies that are certified as standards compliant.	Individuals and providers securely access relevant information from any device, fixed or mobile, anywhere. The infrastructure connecting facilities manages security, privacy and access to information, regardless of where the information is created or distributed. <i>100 percent of providers have access to electronic patient information at the point of care through any data retrieval device.</i>	All health facilities are securely interconnected and have interoperable access to health data on a nationwide basis. Most information can be gathered dynamically across the health system whenever and wherever the patient and provider need it. <i>Interoperability includes all clinical and administrative data.</i>	Public and private health care payers are fully integrated with providers' systems and require electronic billing for reimbursement. Insurers and payers reimburse providers for using health IT, accepting only electronic transactions for billing and reimbursement.	Health information is dynamically available wherever the patient is being treated, within the facility that collected the information or at an unrelated provider.	A uniform set of standards balances the privacy and confidentiality of personal health information with patient consent and identity management of users. Information controls are based on consent, role and need.
<i>There is a sustainable, working e-health system throughout the United States.</i>						

ABOUT THE TECHNOLOGY CEO COUNCIL

The Technology CEO Council is the information technology industry's public policy advocacy organization comprising chief executive officers from America's leading information technology companies: Applied Materials, Inc., Dell Inc., EMC Corporation, Hewlett-Packard Company, IBM Corporation, Intel Corporation, Motorola, Inc., NCR Corporation and Unisys Corporation. Currently, the Technology CEO Council is focused on public policy initiatives related to health care information technology, telecommunications, international trade, innovation, digital rights management, export and knowledge controls, and privacy.

For more information, please visit www.techceocouncil.org.

Set benchmarks and goals. Identify current health care profiles for establishing goals, monitoring progress and driving health care change.

Determine funding priorities. Lead and enable health care transformation with foresighted policymaking and funding decisions.

Every community and institution is unique. This guide is a general framework, not a road map or an assessment. Rather, it can help any community or organization — no matter what its current budget, priorities or technology profile — better understand where it is today and plan for the future.



WHAT YOU CAN DO

EMPLOYERS

- Buy health care from networks that demonstrate a dedication to value (quality and efficiency).
- Reward the adoption of health care IT through pay-for-performance — and initially, pay-for-implementation — and establish ongoing return-on-investment criteria based on desired clinical and administrative outcomes.
- Educate employees on how to request, access, read and analyze their personal health information records.
- Quick Hit:** Provide private, personal and portable EHRs to all employees who want them, enabling access to personal health data by patients and providers.

PROVIDERS

- Use EHRs to enable information sharing and care coordination within and among institutions.
- Use health information tools in your practice for electronic viewing of laboratory and radiology test results, electronic claim submissions and secure electronic patient communications.
- Work with technologists and institutions to improve the continuum of care, bringing clinical experience to bear so electronic systems fit within the workflow of patient care.
- Leverage technological tools that enable greater protection for electronic records than paper records, and ensure procedures respecting patient privacy.
- Work to gain consensus on clinical standard guidelines and quality measures.
- Quick Hit:** Submit electronic prescriptions to ensure timely and accurate fulfillment and minimize risks of adverse interactions.

INSURERS

- Collect and publicize provider value and quality statistics, improving access to health care information for patients and payers.
- Use electronic sources for data collection dissemination wherever possible to ease providers' reporting burdens.
- Establish and implement reimbursement criteria and claim processes for telemedicine.
- Actively participate in the formation, governance and funding of RHIOs for interoperability and decision support.
- Encourage and provide incentives for technology adoption by network providers.
- Quick Hit:** Create portals for patients to view their own clinical and utilization data whenever available.

PATIENTS

- Take advantage of wellness programs and, when available, remote and mobile access to health care providers.
- Seek out information on provider quality and value.
- Encourage your employer to select health care providers based on quality, transparency and value.
- Quick Hit:** Ask your employer to offer a private, personal and portable EHR.

POLICYMAKERS

- Bring measurement and accountability to governmental health care reimbursement systems, transforming Medicare and Medicaid to pay for performance (P4P). Provide initial pay or grants for implementation regimes.
- Widen Medicare and Medicaid reimbursement for telemedicine and other proven new modalities for delivering quality care at lower cost.
- Encourage standards development organizations to converge toward information sharing by ensuring government programs use market-based standards to collect medical data.
- Use IT tools to share medical data across agencies as needed, and leverage this shared information to monitor epidemics and improve our understanding of treatments.
- Promote the development and expansion of state and local efforts to share health information through loans, grants and partnership programs.
- Encourage the development of proactive health technologies via cross-agency funding initiatives focused on new technologies for early detection, prevention and support of healthy behaviors.
- Quick Hits:**
 - Reconcile U.S. House and Senate bills for Medicare reform, including a set-aside for P4P. Pass and enact legislation.
 - Convene community dialogues at the state and local level on ways to improve health care through better information management. Introduce model legislation at the state level, such as the Model Legislation offered on our Web site at: www.techceocouncil.org/modelhealth.

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The e-Health

readiness guide

THE E-HEALTH READINESS GUIDE

While Americans spend over \$1.8 trillion each year on health care, we are not getting the maximum value for our investment. Some have suggested that as much as one-third of these expenditures are administrative overhead, with hundreds of billions wasted on redundant, unnecessary or inappropriate efforts. In part, these inefficiencies are the result of underinvestment in technologies that enable better information management.

The digital tools that have radically improved productivity and quality across our economy have barely touched health care, and it shows. While almost every sector of our economy is transforming itself through new IT-enabled processes (such as direct-to-consumer connectivity, real-time online access to critical

information, and aggregation and analysis of detailed data), our health care sector remains characterized by islands of advanced technologies in a sea of paper.

We can do better. Improved information management can transform the quality, efficiency and value of Americans' health care. With health care costs skyrocketing and the population aging, we must act now to save lives and save money.

The good news is there is growing recognition of the problems and solutions. Stakeholders at all levels — federal and state government leaders, doctors and insurers, employers and patients — are increasingly stepping up to the plate to drive change. Yet much work remains, and we will only succeed with a concerted, coordinated effort.

To help people and organizations track their steps toward 21st-century health care, the Technology CEO Council has created this e-Health Readiness Guide. Inside, we identify 22 categories that cover critical aspects of a comprehensive health care system, with indicators of progress at three stages of e-health readiness:

EARLY STAGE E-HEALTH

TRANSITIONAL E-HEALTH

21ST-CENTURY E-HEALTH

This guide can help any health care stakeholder make critical judgments about their health care delivery system:

Determine where you are today. Bring stakeholders together to develop a consensus on the current state of accessing and using e-health in your community.

Create a community vision. Develop a shared vision for improving wellness and care in your community and nationwide.

USING THE E-HEALTH READINESS GUIDE IS VERY SIMPLE

- Select a category from across the top of the guide and find the stage below that best describes your community or organizational progress.
- Compare your progress in this category with the description in the bottom row of the guide, which highlights the vision of 21st-century e-Health.
- Complete this comparison for each category. This will give you a snapshot of where your community or organization stands today — in 22 critical categories. With this snapshot, you and other stakeholders can begin work on a strategy for developing a healthy system for health care — and for Americans in your community and across the country.