STATEMENT OF

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FOUNDER OF THE CENTER FOR HEALTH TRANSFORMATION,*

BEFORE THE SENATE COMMERCE

SUBCOMMITTEE ON TECHNOLOGY, INNOVATION, AND COMPETITIVENESS

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Chairman Ensign, Senator Kerry, and members of the Subcommittee:

Thank you for the opportunity to testify today about how health information technology is transforming and will continue to transform health and healthcare in America.

We are on the cusp of enormous change. The level of scientific knowledge we will discover over the next 25 years will be four to seven times greater than the last 25 years. Combine this fact with the economic engines revving in China and India, we know that our current path is unsustainable. Look at the American manufacturing sector, particularly the pain of the automakers, where they spend more dollars per car in healthcare than they do in steel. This is the future of all sectors of the economy if we do not change.

The outlook for the federal government is no better. Healthcare consumes 26% of all federal spending and growing, dwarfing every other priority. The looming retirement of the Baby Boomers and their entrance into Medicare will call for painful choices tomorrow if we do nothing today. With continued budget deficits running hundreds of billions of dollars every year, despite the recent "success" of cutting the deficit in half, we will pay a severe price if we do not transform health and healthcare.

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* The Center for Health Transformation is a collaboration of leaders dedicated to the creation of a 21st Century Intelligent Health System that saves lives and saves money for all Americans. For more information on the Center and our Health Information Technology project, please contact David Merritt at 202-375-2001.

Thankfully today we can see the glimmerings of a brighter future. With momentum building for healthcare consumerism, chronic care management tools, and the adoption of health information technology, we know what that brighter future will look like: 100% insurance coverage; consumers will be empowered; quality and price information will be readily available; early detection and prevention will create a culture of health; reimbursement will be driven by outcomes; and the use of interoperable technology will be ubiquitous. We will have built what we call a 21st Century Intelligent Health System.

Change of this magnitude is never easy. But the level of difficulty should not dissuade us from progress, because in the end our goal is a 21st Century Intelligent Health System—a fully interoperable, consumer-centered healthcare system that saves lives and saves money for all Americans. This system will improve individual health, reduce costs, and build a brighter future for all Americans.

And to get there, the widespread adoption of health information technology is essential.

In this testimony, there are eleven key messages that I urge this subcommittee, the Congress, and the private sector to act upon. If we act we will modernize healthcare through the adoption of health information technology and help build that 21st Century Intelligent Health System.

1. Build a National Health Information Network as a Vital Part of Our National Security Preparedness and Response Strategies

In 1954 Vice President Richard Nixon called for the federal government to spend "a very substantial sum of money," $500 million at the outset, to build an interconnected interstate highway system.[1] He called for the federal government to make this a national priority because "... our highway network is inadequate locally, and obsolete as a national system." President Eisenhower had seen the wisdom of an interconnected system as early as 1919, when he was on an Army convoy from Washington, D.C. to San Francisco. It took 60 days to complete the journey.

[1] Richard M. Nixon, Speech to the Governors Conference, Lake George, NY, July 12, 1954.

On June 29, 1956, nearly fifty years ago to the day, President Eisenhower signed the Federal-Aid Highway Act. It called for the construction of more than 40,000 miles of interstate highways and appropriated $25 billion over ten years. This was a vast sum of money, considering that *total* federal spending in 1956 was $70 billion, which made this one of the nation's highest priorities.

It was no mistake that the original highway system was named the National System of Interstate and Defense Highways. The president, the Congress, and the states knew that a national, interconnected system would be a vital tool to properly prepare for and respond to a national emergency. In fact legislation required that one mile out of every four be built in a straight line so that military aircraft could land in case of a national emergency. As Vice President Nixon said, an interconnected system was necessary because of the "appalling inadequacies [of the current system] to meet the demands of catastrophe or defense, should an atomic war come."

Fifty years later another national, interconnected system is needed: this time we must build a national health information system because it, too, is a national security necessity.

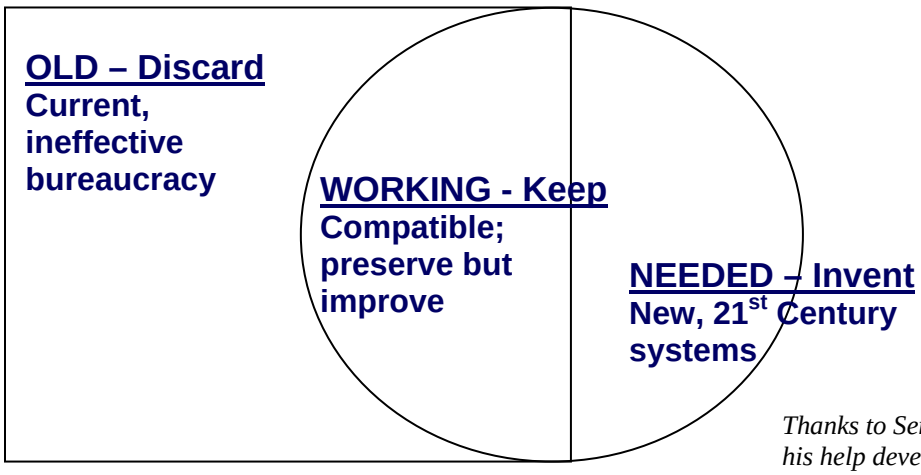
A modernized, interconnected system could electronically monitor and automatically alert officials in an extreme disaster such as Hurricane Katrina, an avian flu pandemic, or a terrorist attack using a weapon of mass destruction. Advanced expert systems could electronically track patient visits, their symptoms, and their conditions; direct scarce resources to where they are most needed; assess the effectiveness of response strategies in close to real time; support contact tracing for appropriate infectious diseases; determine possible origins and causes of an outbreak; and capture other vital sources of data. The earlier we can detect a public health crisis, the better the chance of containing and managing it—and the better chance we have of saving lives and properly caring for those who need it.

Our most recent extreme disaster, Hurricane Katrina, provided many lessons for us to learn. The most important lesson is that bureaucratic systems do not and cannot work. In Katrina we witnessed bureaucratic failure at every level: the city of New Orleans failed, the state government of Louisiana failed, and the government of the United States failed.

Current bureaucracy is best described as a box, be it state government, the federal government, or a local school board. They are inefficient, incompetent, and arrested in time. "Reforms" within the box are nothing more than attempts to appear relevant in today's world, when in fact the box was created by the Civil Service Acts of the 1880s and has not been modernized since the 1930s. Modernization to them is transitioning from quill pens and long hand to manual typewriters and carbon paper.

In the real world we have seen the advent of the radio, television, computers, and the Internet. This world is best described as a circle. It is highly efficient, intelligent, and extremely innovative. We use examples of the circle everyday through services like UPS, FedEx, Google, Amazon, and electronic ticketing. These organizations are centered upon and at the service of the individual, not the system and its mindless processes.

To truly transform we must migrate to this new system over time. We must discard the hopeless parts of the current system, incorporate what does work, and build the rest.



Thanks to Senator Bob Kerrey for his help developing this model

Transforming bureaucracy is the only way we will avert a repeat of the Katrina debacle. For further detail on this subject, please see Appendix II of this testimony, which is a working paper entitled *21st Century Entrepreneurial Public Management: Getting Government to Move at the Speed and Effectiveness of the Information Age*.

Because of bureaucratic failures, survivors of Hurricane Katrina had to rebuild much of their lives, but unfortunately they have had to rebuild their healthcare history as well. One million one hundred thousand paper medical records were destroyed in Katrina's fury and the subsequent floods. Most survivors fled the Gulf with no medical histories, no medication lists, no treatment regimen, no lab results—no healthcare documentation of any kind.

When citizens made their way to emergency shelters, how did healthcare professionals properly care for them with no information? Think of the AIDS patients who were taking an intricate drug cocktail to prolong their lives. Think of the Medicare beneficiaries who were taking multiple prescriptions to treat a host of chronic conditions. What about the cancer patients who were in the middle of radiation treatment—what happened to them after their paper medical records were destroyed?

M.D. Anderson in Houston, one of the premier cancer treatment centers in the world, treated hundreds of evacuees in the aftermath of Hurricane Katrina. For those Gulf residents who were in clinical trials with the National Cancer Institute, their data was electronic and available immediately at M.D. Anderson, and their treatments were resumed exactly where they left off. For those who were not in a clinical trial and did not have their records stored electronically, doctors scrambled to quickly redo tests and recreate intricate treatment regiments. Intuitively we know that many people died as a result. Their cancer ultimately killed them—but the lack of information most assuredly did as well.

In the wake of Katrina, the Department of Veterans Affairs (VA) demonstrated the power of electronic health records in action. As the hurricane barreled towards the Gulf Coast, the VA made final backup copies of tens of thousands of electronic health records for their veterans in the region. Unlike the hundreds of thousands of citizens who received care with no documented history, when veterans arrived at VA facilities across the country, their full medical histories were intact and available immediately.

A generation ago our leaders made a national, interconnected highway system a national priority, and today we have the most modernized transportation infrastructure in the world. It changed the face of America forever. It released the power of interstate commerce, created a national sense of community, connected

rural America with urban cities, and drove innovation from coast to coast. The benefits, both economically and socially, are incalculable.

A national, interconnected health system would have the same effect. When there is no emergency, this network could be leveraged in innumerable ways in the routine care of patients. This could be the information highway that every healthcare provider in the country could use in the course of care. From electronic prescribing and transmitting images to clinical trials and medical research—this could be the technical infrastructure that allows for the connectivity, efficiency, and improvement that we all aspire to achieve. Networks like the World Wide Web and network application platforms, such as Internet2, hold such explosive potential that it would be tragic to not leverage them in healthcare.

The Congress must make the construction of a national health information network a top priority. In such a dangerous world, it should be an integral part of our national security strategy. I urge the Congress to take action on this priority now. It is an investment in the health and security of our country.

2. Transform the Reimbursement System to Reward Quality Outcomes and Drive Adoption of Health Information Technology

We get what we pay for. We have designed an acute-care system that is based on the myth of the fifteen-minute cure…just go see your doctor, and he will make you better. Today we are doing a wonderful job if our measures of success are inefficiency, high costs, and poor patient health. If we are satisfied with these outcomes, with its needless deaths and waste, then we should maintain the status quo. But if we truly want an intelligent,
modernized health system that delivers more choices of greater quality at lower cost, then we must enact real change—starting with the reimbursement structure.

Our current payment system is not based on the quality of care that is delivered. Instead it pays providers for simply delivering care, regardless of outcome. Hospitals and providers that deliver better care are for the most part reimbursed at the exact same rate as those who provide poorer care.

Additionally, the payment system encourages the overutilization of resources. Like any contracted professional, be it a plumber or a builder, doctors

are paid for performing their craft, which in this case is treating patients. They are not paid for keeping their patients healthy and out of their office or hospital—they are paid when they treat their sick patients in their office or hospital. This approach is so perverse that many argue that medical errors actually reward a hospital or physician because they can then bill for additional services.

We need a new model. Reimbursement drives adoption, be it a new test, device, or treatment, and we need a reimbursement model that takes into account the *quality* of the care that is delivered, not simply that it *was* delivered.

Current pay-for-performance and other incentive programs are a first step toward an outcomes-based payment structure. The Centers for Medicare and Medicaid Services (CMS) and many private insurers are partnering with their physician and hospital networks to pilot new financing and delivery models based on outcomes, from the Leapfrog Group and Integrated Healthcare Association to Blue Cross Blue Shield plans and Bridges to Excellence. All of them know that reimbursement drives adoption.

In Georgia the Center for Health Transformation is leading the nation's largest Bridges to Excellence diabetes program. Led by UPS, BellSouth and Southern Company, all members of the Center for Health Transformation, there are currently fourteen major employers, including the state of Georgia, participating in the program. The state medical society and hospital association are actively participating as well. Serving in the role of administrator are Blue Cross Blue Shield of Georgia, Humana, Aetna, CIGNA, Kaiser Permanente, and UnitedHealthcare. Physician recruitment efforts are ongoing, with WellStar Health System and the Morehouse Community Physician Network leading the way.

The program, like other pay-for-performance initiatives, pays incentives to physicians who practice best standards of diabetes care. The program encourages individuals with diabetes to see these physicians to improve their quality of life and avoid the long-term complications of the disease. In the process, physicians are rewarded for providing high-quality care, individuals with diabetes are healthier, and employers save money. A recent actuarial analysis of the program by Towers Perrin reports an estimated savings of $1,059 per individual if blood pressure, Hemoglobin A1C, and LDL control measures are met. By saving lives

and saving money, this Bridges to Excellence module should be the minimum standard of diabetic care throughout the country.

CMS will soon roll out an innovative initiative called the Medicare Health Care Quality Demonstration Program, also known as the 646 demonstrations. A major focus of these five-year demonstrations will be to improve the delivery of care in ambulatory offices by testing significant changes to payment and reimbursement, as well as performance measures and the practice of evidence-based medicine. Health information technology, and reimbursing for its use, will be front and center.

Reimbursement drives adoption. One example is telemedicine. This is an innovative and cost-effective approach that allows hospitals, clinics, and physicians without technology to partner with those that do. Videoconferencing with experts, transmitting images and records for second opinions, remotely monitoring patients, and virtual emergency rooms and tele-pharmacy services are some of its uses. Particularly for rural facilities, telemedicine improves patient care by increasing access to specialists, and it also saves money by delivering better care and reducing expensive services.

Most insurers reimburse their network providers for telemedicine, which drives adoption, because they know it will save lives and save money. Colorado is poised to become the 39th state to reimburse its Medicaid providers for telemedicine services. Unfortunately this means that eleven

states still do not reimburse providers for using this technology. This short-sighted perspective, most likely based on perceived budget savings, is blind to the financial savings that technology can bring, and, more importantly, the improved health outcomes.

One way to guarantee better health outcomes—which in the system of future should bring higher reimbursement rates—is to encourage the use of health information technology, such as electronic health records, decision support tools, barcoding, and computerized physician order entry. Please see the attached appendix to this testimony for documented clinical results and operational efficiencies that health information technology can bring.

If we truly want better health at lower costs, the number one priority of every stakeholder in healthcare should be to get technology into the hands of every provider in the country. And the surest way to accomplish this is to reimburse hospitals and physicians for using health information technology in the course of care. Reimbursement indeed drives adoption.

Insurers—especially Medicare and Medicaid—should incentivize the purchase of health information technology through higher reimbursement rates. From electronic prescribing tools to electronic health records, even nominally higher rates will drive the adoption of technology because providers want long-term, predictable revenue streams. Consider the Hospital Compare site, www.hospitalcompare.hhs.gov. CMS reimburses at a slightly higher rate those hospitals that electronically report their quality data. With an incentive of only .45%, nearly 99 percent of hospitals electronically submit their data. Organized properly, the broad adoption of technology would be no different.

Health insurance giants Aetna and CIGNA Healthcare recently announced that in select markets they will reimburse physicians for conducting electronic or web-based consultations with their patients. Studies have shown that utilizing technology this way decreases administrative time for providers and their staffs, increases patient satisfaction, and decreases office visits and utilization. Every other insurer, including Medicare and Medicaid, should follow their lead.

The real question boils down to this: if a provider endangers their patients' lives by delivering care through a paper record, should we pay them the same as a provider that delivers better care because they invested thousands of dollars in technology? A rational reimbursement system would pay more for the latter.

Representative Nancy Johnson introduced H.R. 3617, The Medicare Value-Based Purchasing for Physicians' Services Act, which begins the transformation to a new system. Congress should lead by holding hearings on this vital topic and begin the necessary process of building a new and rational payment system.

3. Create Legislative Exemptions to Stark and Anti-Kickback Laws to Speed Health IT Adoption and Deliver Better Care

Physician adoption of electronic health records is woefully inadequate, and current Stark and Anti-kickback laws are part of the problem. Congress should

pass reforms that create new exemptions to these statutes so that hospital systems and other entities can choose to provide community physicians with health information technology, particularly electronic health records. These reforms will speed the widespread adoption of health IT, quickly close the "adoption gap" between large and small physician practices, and, most importantly, improve the lives and healthcare of millions of Americans.

With tens of billions of dollars lost every year due to fraudulent claims and payment abuses, Stark and Anti-Kickback laws seek to protect the system—and patients—from criminal providers and suppliers. The Anti-Kickback laws prohibit hospitals, home health providers, nursing homes, and other providers from giving or receiving "remuneration," or financial incentives, to physicians and others in exchange for referring patients to their facilities. The Stark statutes prohibit physicians from referring their patients to a hospital, urgent care center, laboratory, or other facility with which they (or a family member) have a "financial relationship," be it as an investor, contractor, or owner of the facility.

Unfortunately these laws are also barriers to the widespread adoption of health information technology. Even the Government Accountability Office concluded as much:

> "[These laws] present barriers by impeding the establishment of arrangements between providers—such as the provision of IT resources—that would otherwise promote the adoption of health IT… Health care providers are uncertain about what would constitute violations of the laws or create a risk of litigation. To the extent there are uncertainties and ambiguity in predicting legal consequences, health care providers are reluctant to take action and make significant investments in health IT."[2]

Representatives Nancy Johnson and Nathan Deal introduced H.R. 4157, which, among other things, creates new exemptions to these statutes that will permit hospitals, doctors, and other organizations to drive adoption of health information technology at the physician level. Representatives Lacy Clay and Jon Porter introduced H.R. 4832, which also provides clear, concise, and workable reforms. Under these exemptions hospital systems and other entities, such as

[2] GAO-04-991R, August 13, 2004, *HHS's Efforts to Promote Health Information Technology and Legal Barriers to Its Adoption*

pharmaceutical manufacturers and clinical laboratories, could utilize their existing IT infrastructure to provide the hardware, software, connectivity, and support to their community physicians, clinics, and rural hospitals.

A hospital executive told us at the Center for Health Transformation that if the Congress were to pass straight-forward legislative exemptions, his system would wire 6000 physicians within twelve months. That is dramatic progress that is blocked by current law. By preventing the rapid adoption of health information technology, the current Stark and Anti-kickback statutes are not protecting patients—they are endangering them. It is time the Congress enact exemptions to these statutes before even more American lives are lost.

4. Modernize the Congressional Budget Office to Ensure Accurate Scoring and Encourage Transformational Legislation

Financing the adoption of health information technology could be rapidly expedited with reimbursement reform at HHS and reforming Stark and Anti-kickback statutes. But it would be expedited even more quickly by modernizing the scoring processes at the Congressional Budget Office (CBO). Ensuring more accurate scoring at the CBO will lead to transformational legislation and a dramatic improvement in American health and healthcare. Doing so will literally save thousands of American lives and billions of their tax dollars.

The CBO blatantly ignores the economic growth, efficiencies, and cost savings that result from implementing innovative and transformational policies.

This mindless approach was on full display last week when it scored the Stark and Anti-kickback exemptions of H.R. 4157 as actually *increasing* healthcare costs.[3] Analysts concluded that the adoption of technology through these exemptions would increase fraud and abuse, which would result in an "increase in the volume of services that Medicare and state Medicaid programs pay for, thus increasing costs." They stated this as fact, even though there was not a shred of evidence to support this claim.

Even more mind-boggling is that, while stating unequivocally that these exemptions would increase costs, they were uncertain that the use of health

[3] Letter from Acting CBO Director Donald Marron to Rep. Charles B. Rangel, June 15, 2006.

information technology actually improves care and saves money: "it might lead to administrative efficiencies…it might also result in more effective health care…it might mean less use of medical services…it might mean an increase in utilization."

They saved their most outrageous statement for last: "CBO does not estimate any net change in direct spending as a result of these other effects." In other words, health information technology does not improve care and does not lower costs.

I call on the CBO to publicly explain the 34 case studies in Appendix I, which document real results from real hospitals and real physicians who everyday see the benefits of their investments in health information technology. Three examples:

- The Indiana Heart Hospital in Indianapolis built a new facility that is totally paperless, which reduced medication errors by 85%.

  If we could achieve the same results nationwide, we would save more than 6,000 Americans every year, since medication errors kill nearly 7,500 citizens annually, according to the Institute of Medicine.[4] CBO would not score this.

- PeaceHealth is a billion-dollar hospital system with facilities in Alaska, Washington, and Oregon. With the help of GE Healthcare, a member of the Center for Health Transformation, PeaceHealth built a sophisticated electronic health record that helped triple its patients' compliance rate with diabetic guidelines, thanks to a combination of online disease management tools and the involvement of diabetes educators. As a result, hemoglobin A1C levels of less than 7, the target level for diabetes control, improved from 44 percent in 2001 to more than 60 percent last year.

  Diabetes was the sixth leading cause of death in the US in 2000 and costs the system $132 billion every year.[5] If the results that PeaceHealth documented with its diabetics were seen nationwide, we would save

[4] Institute of Medicine (IOM), "To Err Is Human: Building a Safer Health System", 2000.
[5] Centers for Disease Control and Prevention National Diabetes Fact Sheet, http://www.cdc.gov/diabetes/pubs/factsheet.htm

thousands of lives and billions of dollars every year. CBO would not score this.

- The Health Alliance Plan and Henry Ford Health System in Southeastern Michigan partnered with the Big Three automakers, which are all members of the Center for Health Transformation, to implement electronic prescribing in the region. In the first 12 months of the program, the technology electronically caught more than 85,000 prescriptions that generated drug-interaction or allergenic alerts. According to the Henry Ford Health System, the $1 million start-up investment generated a $3.1 million savings, primarily due to increased generic drug utilization. Generic use jumped by 7.3% because of the automatic alerts that physicians receive when they begin to prescribe a branded drug if a comparable generic is available.

  If federal legislation were introduced to wire the nation's physician offices for electronic prescribing, the savings would be breathtaking. With more than three billion prescriptions written every year,[6] studies have concluded that universal electronic prescribing could save an estimated $27 billion every year.[7] CBO would not score this.

- Within the year the state of Tennessee will deploy to every Medicaid beneficiary an electronic health record filled with their personalized medical history. Tennessee officials project that for every $1 spent on the new technology in its first years of operation, the state will save $3 to $4—from reductions in duplicate tests, adverse drug effects, and unnecessary inpatient admissions. Some estimate that the savings from this investment could grow to as much as 9-to-1, as the number of doctors using the system increases. CBO would not score this.

CBO refuses score these kinds of savings. From their perspective a similar federal approach would result in a net loss against the federal budget, even though such ubiquitous technology would have a dramatic net gain in revenue because it would help deliver better care.

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[6] Agency for Healthcare Research and Quality. MEPS Highlights #11: Distribution of health care expenses, 1999.
[7] eHealth Initiative, *Electronic Prescribing: Toward Maximum Value and Rapid Adoption*, April, 2004.

With the search underway for a new CBO director, this is the perfect time for the Congress to modernize the office. Representative Jim Nussle, chairman of the House Budget Committee, and Senator Judd Gregg, chairman of the Senate Budget Committee, should immediately hold hearings on this vital issue and push the CBO to modernize its thinking and ensure accurate scoring.

5. Pass Federal Legislation on Health Information Technology Now

For the last year the Congress has played games on health information technology. More than a dozen bills have been introduced, but still nothing has become law. It is time for the Congress to act.

The Senate passed S. 1418, the Wired for Health Care Quality Act. This bill, among other things, directs the Secretary of Health and Human Services (HHS) to develop uniform quality measures to be used to assess the quality of care a patient receives, including elements of a qualified health IT system. It also contains grant funding for connecting physicians and creating community networks, authorizing $652 million from 2006 through 2010.[8]

Last week H.R. 4157 was passed by the House Ways and Means Committee, and key provisions were also passed by the House Energy and Commerce Committee. The bill, most notably, creates clear and workable exemptions to Stark and Anti-kickback laws; complements current federal activities to develop interoperable data standards; lays out a roadmap to create a consistent and common framework of state and federal privacy laws; and requires HHS to move to ICD-10 coding.

The House and Senate should see immediately pass legislation that:

1) Drives adoption of health information technology and spells out the federal government's role in developing interoperability standards, including deadlines for action;
2) Provides meaningful grants or an innovative loan program to spur adoption, in the absence of reimbursement reform;

[8] Notwithstanding the overwhelming evidence that health information technology dramatically improves the quality of care while saving money, the CBO score did not incorporate any macroeconomic savings in its analysis. The CBO provided a four-page overview of the federal dollars that would be spent, but not a word on the anticipated savings.

3) Creates clear, concise, and straightforward exemptions to Stark and Anti-kickback statutes so that hospital systems and other entities can choose to provide community physicians with health information technology, particularly electronic health records;
4) Begins the process of harmonizing the wide discrepancy between state and federal privacy laws, while ensuring consumer confidentiality;
5) Directs HHS to move to ICD-10 coding, despite its complexity, to ensure that technology captures accurate information, and;
6) Makes uniform quality measures and reporting a vital part of this bill.

There has been enough posturing on this issue by both chambers and both parties. Now it is time for leadership. When the Congress does send a bill to President Bush, I urge Members to avoid checking this issue off your list. To truly build a 21st Century Intelligent Health System, this must be the first of many legislative initiatives, from reimbursement reform to its role in national security, health information technology should be a priority for years to come.

6. Solve the Interoperability Issue by Developing Data Standards for Health Information Technology

Interoperability means that every stakeholder in healthcare will have the ability to securely exchange electronic data in the course of patient care. This may sound impossible, considering that we hope to connect hundreds of thousands of doctors; thousands of hospitals; tens of thousands of pharmacies; hundreds of insurers; 300 million patients; all fifty state governments; Medicare; public health agencies; long-term care facilities; and dozens of other entities.

While this does appear daunting, technology is the easy part. Through the Internet, fiber-optic cables, high-speed connectivity, and the continued innovation of technology companies, the technology exists today to build a national, interconnected system.

The private sector, particularly those companies that develop health information technology products and those that use them, should take the leading role in developing data standards that will enable the electronic exchange of information from one system to another.

Data standards of interoperability have been achieved in other industries. Tom Friedman, in his book *The World is Flat*, provides an excellent summary of how the private sector collectively agreed upon data standards for the Internet, so that every system spoke the same language. They gave up competing over who could build the best island of isolation, fit with its own language, platforms, and applications. Instead they agreed to a common framework where they would compete on service, functionality, and quality. This common playing field gave rise to the modern Internet and all of its marvels. Healthcare should follow this model.

The Electronic Health Record Vendors Association (EHRVA) is doing just that. EHRVA is a group of more than forty technology companies, lead by industry innovators like Siemens, GE Healthcare, and Allscripts, all of which are members of the Center for Health Transformation. The EHRVA recently released an updated Interoperability Roadmap that outlines workable and pragmatic approaches over the next few years to achieve a common framework where all systems can exchange information. The vendor community (which creates most of the health IT products) and hospitals and doctors (who actually use these products) must actively partner together for us to move ahead. These efforts should be mindful of or in conjunction with any federal efforts on data standards and interoperability, such as Secretary Leavitt's American Health Information Community.

7. Support Community Efforts to Build RHIOs and Health Information Exchanges

Building the system of tomorrow requires action today. From adoption and interoperability to consumer engagement and data research, innovators at the local and regional level are not waiting for others to lead. Hospitals, doctors, technology vendors, health plans, state and local governments, employers, and consumers are collaborating in hundreds of communities from coast to coast to build regional health information organizations (RHIO) for the betterment of individual health.

The federal government sees the value in these efforts as well. Last year the Department of Health and Human Services awarded four contracts worth nearly $20 million to build prototypes for a national health information network. Technology leaders such as Microsoft, Cisco, IBM, CSC, and Sun Microsystems

will work with RHIOs from across the country. These demonstrations will provide key lessons that communities can learn.

The characteristics of RHIOs differ greatly from one to the next, just as communities themselves differ from one to the next. Differences abound in geographic location, size, scope, sophistication, and stakeholder involvement. There is no single recipe for success. However, the experiences of health information exchanges from across the country will be invaluable as we progress toward building the national health information network. While there are significant differences between RHIOs, there are four crucial areas all efforts must address if they are to succeed: financing, health management, privacy and security, and interoperability.

Financing is critical to every business – local and regional healthcare networks are no different. These initiatives must bring value to their communities, participating organizations, and perhaps most importantly, they must bring value to the consumer. But to build such a network, proper funding is needed. Many health information exchanges have relied on grant funding as their primary revenue stream. In the long run, with little hope for large federal investments, this business model is not viable. Health information exchanges must be independent and self-sustaining, and their operating costs must be borne by all participating stakeholders. If the value of a RHIO is demonstrated to its community, the market will ensure its financial viability.

The key promise and payoff from a connected healthcare community is improving the quality of care that all patients receive—from reducing medical errors to monitoring chronic conditions to discovering new treatments. RHIOs must be designed so that clinicians exchange patient data in real time for use at the point of care. Changes of this magnitude are always disruptive. That is why RHIOs must be designed to complement workflow rather than complicate it. By data-mining patient health information, we will yield new breakthroughs in treatments, therapies, and understanding of disease that will transform the practice of medicine.

Health information exchanges must make privacy and security a top priority. If personal health information is not secure, if consumer privacy is not adequately protected, the network is doomed to fail. A uniform patient identifier is part of this process, be it a common algorithm or a unique number. By ensuring

that the right patient's information is pulled at the right time, both clinicians and patients will have confidence in the RHIO, and the public can be convinced that their electronic information is accurate, confidential, and secure. One step in the right direction is to dramatically toughen the penalties for hacking into electronic medical files and making slander laws applicable to publishing or posting online any personal health information. The Congress should closely examine possible changes to Title 18 of the U.S. Code of Criminal Procedures that would harshly punish the malicious use of personal health information.

Connecting a healthcare community means developing technologies so that all stakeholders can share information in real time: hospitals, pharmacies, physicians, nurses, long-term care facilities, health plans, and consumers. This is daunting – but it can be done. The technical architecture will differ from one RHIO to another, but the use of common data standards will not. Through their experiences and successes, RHIOs can push the industry to reach consensus and convergence upon common data standards that will help achieve interoperability. This must be done with existing systems in mind. Data standards must be designed so that current technologies can be upgraded to meet new requirements, rather than forcing providers to replace current systems and start from scratch.

As industry stakeholders come together in communities across the country, the Congress—as well as state and local governments—must actively engage these efforts. From funding and regulatory reform to building networks and Medicaid engagement, these projects are laboratories of innovation. Many will likely fail, but some will likely succeed, and they could provide a guidepost for the rest of the nation to follow.

8. Empower Consumers with Personal Health Records, A Significant Step in Building a 21st Century Intelligent Health System

Personal health records are a significant step forward in building a 21st Century Intelligent Health System. Hospital admissions, physician office visits, diagnosis codes, procedure codes, pharmacy orders, and other valuable pieces of information are often electronically captured by a health plan through the claims process. Laboratory and other clinical data is even more valuable. Combine these two data sets with other information such as family history, allergies, and medication history, we have a powerful foundation on which to build a personal health record that will help improve individual health and healthcare.

Insurers, providers, and technology vendors are actively building and deploying interfaces that consumers can securely use for decision support, education on chronic conditions, and email with their providers. Using claims data, health plan personal health records are often personalized with an individual's medical history, contact information for their physicians, and tailored information for their health conditions. Representatives Jon Porter and Lacy Clay introduced the Federal Family Health Information Technology Act of 2006 (H.R. 4859), which complements many of the existing efforts already underway in the health plan community to deploy consumer-centric personal health records. CMS should also move quickly to deploy personal health records to all Medicare beneficiaries.

Consumers will be an integral part of any national health information network because it will be designed around them. At the end of the day we are talking about the health of each individual American, and personal health records are an innovative and important way to engage them to proactively take responsibility for their health.

9. Ensure Consumer Confidentiality by Protecting Privacy and Strengthening Security

Individuals have the right to control—and must have the ability to control—who can access their personal health information. All health information technology should be deployed to improve individual health, not to protect the status quo of proprietary claims to data. Each stakeholder should be given equal access to the record—by the consumer—in the course of delivering care. At the same time consumer privacy protections at the state and federal levels should be consistent. Health information technology and the sharing of medical data must not be constrained simply because it moves from one state to another. An integrated regulatory and statutory framework should complement technology, not complicate it. H.R. 4157 lays out a reasonable roadmap to accomplish this.

10. Uphold the Individual's Right to Know Price and Quality of Health Services

Every American has the fundamental right to know the price and quality of health and healthcare services *before* making a purchasing decision. Sites like www.myfloridaRx.com and www.floridacomparecare.gov must become the norm

in a consumer-centered system. CMS is moving in this direction, by posting prices for 30 common procedures in Medicare, and every state should follow Florida's lead.

An individual's right to know price and quality goes hand-in-hand with health information technology. Electronic physician offices, wired long-term care facilities, and modernized hospitals can easily capture and report price and quality information. But they must first have the capability to capture information. This is yet another reason why the adoption of health information technology is so vital.

For more information on this important issue, please see my testimony I provided on this subject to the House Energy and Commerce Committee Subcommittee on Health on March 15, 2006. This is available at www.healthtransformation.net.

11. Create an Undersecretary of Commerce for Health to Drive Innovation, Economic Growth, Competition, and Quality Care

Most policy debates frame healthcare as a problem—whether a matter of financing, provision, equity, or quality. While important, these discussions ignore that the health sector is not only the largest sector of the U.S. economy, but it is a vibrant and quickly growing sector as well.

The position of Undersecretary of Commerce for Health should be created within the Department of Commerce, and should be charged with ensuring that domestic and international policies do not stifle the innovation and competitiveness of this increasingly vital sector of the economy. The Undersecretary would be charged with ensuring that: (1) regulations do not place unwarranted burdens on healthcare companies; (2) foreign governments protect the intellectual property rights of U.S. companies and allow these companies fair access to their domestic markets; and (3) the U.S. government enthusiastically and meaningfully promote the U.S. health sector in the international marketplace.

The Undersecretary of Commerce for Health would be the sole undersecretary within Commerce charged with representing the interests of a specific sector of the U.S. economy. This attention is warranted for two reasons. First, the healthcare sector is subject to greater government regulation than any

other leading sector of the U.S. economy. Thus, it follows that at least one senior official within the U.S. government be explicitly charged with ensuring that these domestic and international regulations do not place an undue burden on the sector. Second, the healthcare sector is of vital importance to all Americans, as the following points make clear:

- *Economic Engine*. The healthcare sector is the largest component of the U.S. economy, accounting for one seventh of U.S. economic activity. Composed of 8,500 firms (mostly employing fewer than 50 people), the U.S. medical technology industry already sustains 350,000 high-value manufacturing jobs paying an average of 49 percent more than those in other manufacturing sectors and accounts for roughly half of the $175 billion global production of medical products and supplies.

- *Job Creation*. The healthcare industry is the largest high-value job-creating sector in the United States—in 2002, health services accounted for 12.9 million American jobs. The Department of Labor projects that by 2012, one out every six new jobs will be created within the healthcare sector. A 2003 New England Health Care Institute study showed that every job in the medical technology sector generates another 2.5 jobs elsewhere in the economy.

- *International Competitiveness*. Boasting the world's leading pharmaceutical companies, medical device manufacturers, and treatment facilities, the U.S. health sector hold tremendous potential for significantly reducing the U.S. current account deficit. However, the $3 billion trade surplus the United States has historically enjoyed in this sector has recently vanished, prompting serious questions about the fairness of overseas markets.

- *Quality of Life*. The most significant output of U.S. health sector—increased quality of life for Americans, as well as for beneficiaries of U.S. innovation throughout the world—is not captured by conventional economic measures. Yet it is of fundamental importance to all Americans.

Health information technology and the Undersecretary of Commerce for Health go hand-in-hand: without technology, there will be little innovation, and the deliver of care will continue to lag behind other nations. Technology,

innovation, and better quality care will be a magnet for people from all over world to visit our country and utilize our system.

The creation of this position is another way for the federal government to take a lead role in promoting the adoption of technology and innovation. I urge the Congress to hold hearings on this issue and quickly create this vital position.

Looking Ahead

If healthcare in America is to survive and transcend the challenges of the future, we must build a 21st Century Intelligent Health System that saves lives and saves money for all Americans.

In a 21st Century Intelligent Health System, every American will have the tools to maximize their health, happiness, and security. Every American will have insurance coverage and access to the care that they need when they need it. Every American will be empowered to make responsible decisions about their own health and healthcare. Every American will own their health records. Every American will have a right to know the price and quality of medical services.

In a 21st Century Intelligent Health System, the focus will be on prevention and wellness. Innovation will be rapid, and the dissemination of health knowledge will be in real time and available to all. And reimbursement will be a function of quality outcomes, not a function of volume.

This will require fundamental changes, but they are changes that are absolutely necessary. I know that this will indeed improve consumer health, reduce costs, and build a brighter future for America.

Appendix I

The following success stories document the progress that the private sector has made deploying health information technology, from real clinical improvements to conclusive efficiency gains. These serve as a small sample of what is happening in communities across the country where transformational leaders are coming together to implement technology that saves lives and saves money. While I cannot vouch for the accuracy of the case studies, I applaud each of the success stories that were forwarded to us. I urge the Congress to examine

them in more detail, seek out other successes that are happening in your states and districts, and actively support them.

Allscripts
www.allscripts.com

We are fortunate to have a healthcare IT industry that has consistently provided innovative solutions to all sectors of healthcare. From saving lives to saving money, the healthcare IT industry is working closely with doctors, nurses, technicians, administrators, and patients to change the paradigm of waste and inefficiency to one that promotes quality, efficiency, and a return on investment. In California the Brown & Toland Medical Group implemented health information technology including electronic health records and personal health records. The group received $3.2 million in 2004 and 2005 from a major pay-for-performance program, scoring in the top 10 percent of all California medical groups and IPAs enrolled. In the District of Columbia, in just 30 days, physicians at George Washington University Medical Faculty Associates, a non-profit, academic multi-specialty DC-based medical group practice decided that they couldn't afford to wait any longer on technology. In an impressive show of teamwork, GW implemented the EHR for 100 physicians in only 30 days.

America's Health Insurance Plans and Blue Cross Blue Shield Association
www.ahip.org and www.bcbsa.com

America's Health Insurance Plans and the Blue Cross Blue Shield Association, both members of the Center for Health Transformation, are partnering in the area of personal health records (PHRs). Patient-centered PHRs hold the potential to transform the health care system. They will empower both consumers and their caregivers with information; help promote the use of effective, evidence-based treatments and procedures, help improve the safety and effectiveness of health care quality; and ultimately, decrease health care costs. However, AHIP and BCBSA recognize to realize these objectives, PHRs must be both portable and interoperable. As an individual moves through the health care system, from plan to plan, employer to employer, or into the Medicare program, the information in the PHR should be readily available. AHIP and the BCBSA are developing a standardized minimum PHR data content description, the processing rules, and standards required to ensure data consistency, record portability, and PHR interoperability. These standards will be made publicly available later this year.

Last November, AHIP released an in-depth report on health insurance plans' latest IT solutions in areas such as e-prescribing, digital radiology, online decision support, electronic health records, and personal health records. A useful, one-page summary is available at:
http://www.ahipresearch.org/pdfs/AHIP_InvHealthIT_05.pdf

Bridges To Excellence
www.bridgestoexcellence.org

Bridges To Excellence has created innovative programs that are, through financial incentives and public recognition, encouraging physicians and physician practices across the country to adopt and use better systems of care, in particular EHRs. This technology, as well as following best practices, is helping to deliver better care for patients with chronic conditions. During its pilot phase, more than 1000 physicians in Boston area and Albany have significantly changed the way they practice medicine, adopted EHRs, and are delivering better clinical and financial outcomes for all their patients—Medicare,

Medicaid, and private sector employers. As a result of the efforts, the employers participating in BTE have saved over $3 million in direct medical costs and their employees are getting better care.

CareScience, A Quovadx Company
www.carescience.com

With the help of CareScience™ Quality Manager, St. Vincent Indianapolis Hospital has dramatically improved its approach to blood utilization and management. By analyzing and comparing blood usage practice patterns, St. Vincent Indianapolis Hospital has increased the safe utilization of blood, improved patient outcomes and reduced blood utilization costs. In fact, the organization has reduced total blood use by 30%, decreased iatrogenic blood loss in critical care settings by 86%, and documented $4.4 million in blood acquisition cost savings over five years with an estimated $35 million in total cost savings when fully accounting for labor, supplies, and reduction in adverse event—all as a direct result of improvements in blood management.

Utilizing CareScience Quality Manager and the philosophy of "care-based management of cost," North Mississippi Medical Center was able to thoroughly investigate their trauma & neurosurgery patient populations, identify root causes, and engage a team of clinicians across departments to improve processes and treatment protocols. The end results included improved patient outcomes, increased staff satisfaction, reduced length of stay, and a savings of over $1.4 million for Medicare patients alone.

Citizens Memorial Healthcare, Bolivar, Missouri
www.citizensmemorial.com

Citizens Memorial Healthcare is an integrated rural healthcare delivery system with 1,538 employees and 98 physicians serving a population of 80,000 in Southwest Missouri . The system includes one hospital, five long term care facilities, 16 physician clinics and home care services. Citizens' electronic medical record crosses the continuum of care and is used by every admitting physician.

92% of registered patients are "known to the system" and therefore not asked to repeat demographic information. 20,000 bar-coded express registration cards have been issued. More than one half of radiology exams are scheduled directly by a physician office. 64,860 patient records have been created. A unique EMR identification number links visits together. Physicians are able to view individual visits, multiple visits, or all visits in one comprehensive online chart. Over $1,000,000 in supply and procedure charges are captured per month as a byproduct of care documentation. "Yellow-sticker-charging" has been eliminated from hospital inpatient floors. Citizens has also experienced an improvement in the revenue cycle through a decrease in accounts receivable for the Citizens physician clinics, an increase in supply charges per patient day, and a decrease in claim denials. Because of its efforts, CMH was awarded a Nicholas E. Davies EHR Recognition Program, sponsored by the Healthcare Information and Management Systems Society (HIMSS). The program recognizes healthcare provider organizations that successfully use EHR systems to improve healthcare delivery.

Clearwave
www.clearwaveinc.com

Clearwave, a member of the Center for Health Transformation, is the ATM network of healthcare. Clearwave is implementing technology within physician offices that will allow the real-time identification of patient benefits, create a network for the delivery of Individual Health Records (IHR,

PHR, VHR) to the physician, as well as allow patients to do a self pay as it relates to copays, outstanding balances, and high deductible amounts. For too long, physicians have not been in control of real-time benefit determination and/or obtaining payment at the time of service, and with the advent of consumer-directed health plans, the physicians financials are at serious risk. The Clearwave network via its self-service kiosk will ensure physicians get paid in a more timely manner with real-time data support.

The Clearwave network is not just for the large or financial viable practices. The Clearwave network is priced so that all physicians can participate whether in Atlanta or Vidalia because it not driven by the installation of costly hardware but by an internet connection. Clearwave is currently rolling out hundreds of kiosks in the Georgia and Florida markets, with thousands to follow in the near future.

Covisint, a subsidiary of Compuware Corporation
www.covisint.com

Led by North Carolina State Medicaid, BCBSNC and WakeMed Health & Hospital's Raleigh Campus, healthcare providers and payers across the state coalesced around Covisint's web-based technology environment to exchange patient information. More than 57 hospital systems and 317 post acute and ancillary providers within the state are managing external patient communications through this secure online environment.

By expediting communications with nursing homes and the state Medicaid program—combined with a commitment to quality case management—WakeMed Raleigh reduced the average length of stay for patients being transferred to nursing homes by 1.35 days. Advanced Home Care, one of the largest privately held home medical equipment companies in the region, reduced Medicaid prior approval turnaround time to less than 10 days, where the average for the industry is 83 days. The company attributes this improvement to rapid, online physician signature collection and e-form communication with Medicaid – enabled through the Covisint environment. Other results included increased employee productivity, management oversight, and accountability into external communications, as well as increased patient satisfaction. Expanding throughout the southeast to Louisiana, South Carolina, Georgia, Virginia and Florida, Covisint's technology environment is now more than 6,000 users.

DaimlerChrysler Corporation
www.daimlerchrysler.com

DaimlerChrysler Corporation, along with General Motors and Ford Motor Company, all members of the Center for Health Transformation, partnered with Medco Health Solutions and RxHub to form the Southeast Michigan e-Prescribing Initiative (SEMI). The goals of the initiative are to actively promote the adoption of electronic prescribing standards and practices by the Southeast Michigan prescriber community, reduce medication errors and associated costs, and improve the quality of care. Also partnering in the initiative are Health Alliance Plan and Henry Ford Health System. Participating in the initiative are Blue Cross Blue Shield of Michigan and PharmaCare. This initiative is also supported by the United Auto Workers.

To date, more than 800 physicians have enrolled in the SEMI program. In 2005, SEMI was awarded a grant by the Centers for Medicare and Medicaid Services to study the results of the initiative on seniors. Henry Ford Health System and Health Alliance Plan were awarded the Health Information Technology Award by the Greater Detroit Area Health Council in part because of their success in enrolling over 60 physicians into the SEMI program. In Feb. 2006, the Henry Ford physicians reached the milestone of

500,000 prescriptions placed via e-prescribing. From a quality of care standpoint, e-Prescribing messages alerted doctors to 6,500 potential allergic reactions. From a cost standpoint, 50,000+ prescriptions were changed or cancelled due to formulary alerts, which increased the use of generic drugs. Additionally, e-Prescribing helped improve overall generic use rate by 7.3 percent, which will save $3.1 million in pharmacy costs over a one-year period.

DaimlerChrysler has also been working with Ford Motor Company and General Motors to transform health and healthcare through the use of best practices and health information technology. Working together with Covisint, a division of Compuware and member of the Center for Health Transformation, the three automakers have engaged employers, hospital systems, physician groups, and health care payer organizations to join an eight-week pilot project that will gather input for a long-term healthcare IT solution in southeastern Michigan. The goal is to increase patient safety by reducing medical errors and reducing health care costs. Electronic health record technology will also provide patients with greater control of their information, empowering individuals as health care consumers. The three autos are also working with the State of Michigan's Health Information Network (MI HIN) Conduit to Care project to promote connecting health care communities across the State of Michigan.

Electronic Health Record Vendors Association
www.ehrva.org

HIMSS EHRVA is a trade association of Electronic Health Record (EHR) vendors who have joined to lead the accelerated adoption of EHRs in hospital and ambulatory care settings. Representing an estimated 98% of the installed EHR systems across the country, our industry contributions are founded in a competency to recognize the diverse needs of our combined provider clients—and a capacity to respond with a unified voice relative to core challenges within today's healthcare environment. The association focuses on issues surrounding standards development, the EHR certification process, interoperability, performance and quality measures, and other EHR issues subject to increasing government, provider and payer-driven initiatives and requests.

The Certification Commission for Healthcare Information Technology (CCHIT) process for certificating EHRs was greatly advanced through EHRVA contributions and involvement. In addition to thousands of hours dedicated to providing detailed feedback to the Commission, the association has provided a commissioner and work group-level representation to the CCHIT since its inception. While continuing to engage the Commission in dialogue related to process transparency, achievable certification targets, and improving the cost effectiveness of the certification process, EHRVA members remain engaged in CCHIT efforts through participation in the certification process for ambulatory EHRs and in representation in current and new work groups.

Geisinger Health System, Danville, Pennsylvania
www.geisinger.org

As her father was slowly dying of liver disease, Carol agonized over his condition. Even though she lived in New Jersey, far from her father, she took an active role in his care. With her father's permission, Carol used the Internet to securely view portions of his electronic medical record from Geisinger Health System in Danville, Pennsylvania. MYGeisinger.org allowed Carol to check her father's lab results, view his medications, order prescription refills, and make appointments. From New Jersey Carol noticed unusual fluctuations in his temperature and alerted his doctor in Pennsylvania. Her vigilance, even from hundreds of miles away, was able to forestall the possible onset of pneumonia.

Another Geisinger patient was visiting her son in Bar Harbor, Maine, when she suddenly saw double. Her son immediately took her to the local emergency room, where doctors reviewed portions of her Geisinger medical record online. With her permission, they reviewed her vital signs and previous test results and compared them to her current status. Fortunately, her vision returned to normal and she was soon released from the hospital. Her online medical record avoided a series of uncomfortable, unnecessary, and expensive tests had been avoided.

HCA (Hospital Corporation of America)
www.hcahealthcare.com

HCA, a member of the Center for Health Transformation with more than 170 hospitals in the U.S., has created and recently completed implementation of eMAR (electronic medication administration record), the largest hospital barcode system to help prevent medication errors. The system uses hand-held scanners and mobile laptop computers to read barcode labels on medications and patient armbands. An HCA nurse scans the barcode labels and the system checks the patient's electronic medication record to help ensure the right patient receives the right dose of the right drug at the right time through the right route. In 2005, more than 116 million doses of medication were scanned using eMAR, and HCA estimates it helped prevent more than 2 million medication errors. According to the American Society of Hospital Pharmacists, only 10% of U.S. hospitals are using barcode systems like HCA's eMAR.

HealthTrio
www.healthtrio.com

HealthTrio, a member of the Center for Health Transformation, has developed a PHR/EHR which consists of a combination of personal entry data and an ambulatory electronic health record. The foundation of the HealthTrio PHR/EHR is clinical information collected from claims data residing in the various health plans, which then ensures that the list of encounters between the consumer and the provider is a complete irrespective of the number of providers and facilities visited by the patient. The PHR/EHR is supplemented by the consumer's own direct personal entries. Initial input is done by completing a "Health Risk Assessment" and appropriate surveys. The patient could enter their progress and history through free text. This record is further supplemented by electronic import or download of the information from pharmacy benefit managers, providing a medication list and history, as prescribed by all the providers interacting with the patient. Selected clinical information, which is necessary for continuing care of the patients from the labs, outpatient facilities, and hospital EMRs, is imported into the PHR/EHR by using HL7 or customized interfaces. This record then allows for better coordination of care and prevents duplication of tests and medications. In addition, SNOMED has been deeply integrated in the technology, so the information in the PHR/EHR is all encoded.

The integration of SNOMED into the PHR/EHR is going to produce a transformational change in the practice of medicine by allowing electronic analysis of very large population-based studies and would provide criteria for evidence-based practice of medicine, profiling of the providers, allowing transparency of the cost and quality of care provided by the providers. Care management and disease management could be done more effectively at a fraction of the cost.

Henry Ford Health System, Detroit, Michigan
www.henryford.com

At Henry Ford Health System (HFHS) in Detroit, Michigan, information for more than 3.5 million patients has been recorded electronically and made available to Henry Ford providers throughout SE Michigan since the 1980's. Henry Ford physicians have not seen a paper chart at hospital bedside or clinic since 2001. Everything is electronic.

HFHS is currently committing approximately $90 million to convert its vast electronic data repository into a fully automated and interactive system. HFHS estimates a 100% return on investment within four years. They expect an 8% to 10% savings in operational efficiency. This savings is measured by the number of physician or other provider hours expended per patient day. The savings increase capacity and allow the same number of physicians, nurses and allied health professionals to provide care to more patients. HFHS expects a 10% savings on patient throughput. Rework, readmissions, and hospital discharge inefficiencies (resulting in longer lengths of stay) are a common source of cost that can be eliminated through the fully automated and interactive medical record. They expect a 2% to 7% savings in billing recovery. Savings accrue primarily through better capacity to bill for services provided, but not captured or adequately documented without the Automated Medical Record improvements. HFHS is deploying more than 1,500 end-user devices in 2007, including computers on wheels, TabletPCs, laptops, and handheld devices at a cost of about $8 million. This investment supports the full spectrum of clinicians (physicians, nurses, therapists, pharmacists) engaged in entering and reviewing patient information at the point of care in a wireless environment.

Humana and BCBS of Florida
www.humana.com and www.bcbsfl.com

Blue Cross Blue Shield of Florida and Humana, a member of the Center for Health Transformation, have partnered to roll out a statewide personal care profile based on health plan claims data to share information that may be useful to physicians in treating plan members. Using the existing Availity infrastructure, which all network physicians with Humana and BCBS of Florida currently use to check eligibility, a button will be added that will allow physicians and nurses to print a simple two-page summary with a patient's medication history, lab order history, diagnosis codes, and provider information. This effort lays a foundation upon which both health plans and healthcare providers can add on functionality to make the technology more sophisticated with the ultimate state being achieved with increased quality of care.

In a future phase of this program, a consumer who currently has coverage with Humana changes plans and selects BCBS of Florida, their personal care profile will still be available to their physician transcending the plan to plan data barrier. This multi-plan approach is the only one of its kind in the country. It is the beginning of a permanent personal care profile that follows the consumer wherever they go. Nearly a third of Floridians are covered by Humana and BCBS of Florida, and these two plans are actively recruiting other insurers to join the effort, including Medicaid. By adding Medicaid beneficiaries to the project, more than half of the state's population will be involved.

IBM
www.ibm.com/us/

Prospective healthcare involves collaborating with employees in a coordinated fashion to improve health—in effect, heading problems off before they occur. IBM, a member of the Center for Health Transformation, is developing patient-centric programs that are doubly proactive: they both reach out to a wider range of employees, and are more able to help them anticipate and manage health risks.

The personal health records that IBM is providing to its U.S. employees are a prime example of this patient-centered approach. When an IBMer first goes to the Web site for their personal health record, they are offered a financial incentive to complete an employee health risk appraisal, develop a personal preventive care action plan, and identify quality hospitals in their area. Based on the results, an IBMer can subscribe to receive expert information, articles, and advice on how to reducing their risks. It identifies eligibility for additional benefits and services such as disease management and refers employees to those resources. Decision support tools for drug comparison and interactions, hospital quality and Leapfrog results (from the Leapfrog Group's performance measurement system) provide individual support for optimizing benefits quality and costs.

For IBM, the risk assessment tools and the personal health records provided to its workforce are an investment that is recouped through improvements in employee health and the significant cost savings that result. As a result of our consumer-centric health programs for employees, IBMers are healthier and have lower health expenses than others in our industry. We have demonstrated that information-rich, patient-centric wellness programs aren't marginal benefits. They are very good business: IBM's employee injury and illness rates are consistently lower than industry levels; IBM has documented significant decreases in the number of health risks among its workforce as a result of participating in wellness initiatives; IBM's disease management programs have demonstrated a 9%-24% reduction in emergency room visits and a 13-37% reduction in hospital admissions resulting in an overall 16% reduction in medical and pharmacy costs adjusted for medical trend over a 2 year period. IBM has also had significant success in improving the management of care for employees with chronic problems such as asthma and diabetes.

With the health improvements, IBM has seen cost benefits. IBM healthcare premiums are 6% lower for family coverage and 15% lower for single coverage than industry norms. IBM employees benefit from these lower-costs as well—they pay 26 to 60% less than industry norms. In total, these well-being programs deliver more than $100 million in annual savings.

Inland Northwest Health Services
www.inhs.org

Inland Northwest Health Services (INHS), a 501(c)(3) in Spokane, Washington, and member of the Center for Health Transformation, is a shared services organization providing centralized information technology and clinical systems across the continuum of care covering 34 hospitals and numerous physician clinics in Washington, Idaho and Alaska. Four new hospitals are in progress in southern California. This network is significant because of its size (2.7 million patient records), breadth of clinical data and images available, and because competitive healthcare facilities have been collaborating successfully on the governance and technology infrastructure for more than nine years. Facilities are contributing to a regional data repository, with standardized data and a common Master Patient Index, which allows health care providers to access needed patient data from any hospital in the region. The repository also includes data from reference laboratories and imaging centers, providing a single source of comprehensive information about any patient. Providers can either view the data via a secure web portal, download it wirelessly to a personal digital assistant, or have the data transferred as a standard electronic message to their clinic's electronic medical record system. INHS not only makes data available when and where it is needed, the standardized approach to hospital information systems saves money. Further, the centralized data repository provides a ready source of information on the health of the population, for use in public health and bioterrorism surveillance.

INHS is also implementing a centralized approach to physician office electronic medical record systems. In this model, INHS serves as an Application Service Provider, housing EMR systems for physicians on central servers. This helps physicians implement and maintain EMR systems at a lower cost than individual physicians would pay on their own. Further, the centralized approach assures that INHS can readily develop interfaces between the hospital system and the EMR system, allowing bi-directional electronic transfer of data between the two systems. The result will be a comprehensive electronic health record, with healthcare providers able to access ambulatory care, emergency room, and inpatient data from wherever care is delivered. Because of this simplified approach to EMR adoption and utilization, INHS anticipates that 40% of physicians in the Spokane area will be using EMRs by the end of 2006.

InterComponentWare (ICW)
www.us.icw-global.com or www.us.lifesensor.com

ICW is a leading international e-health provider founded in Germany with transforming market entry strategies for the U.S. ICW delivers components for interoperability solutions for healthcare stakeholders, utilizing "connector" technology and the patient-centered and patient-owned LifeSensor®, a true interoperable Personal Health Record. ICW interoperability can enable bidirectional auto-population of data to and from the LifeSensor PHR. Continued technology expansion includes recent integration of the CHILI web-server into the ICW hospital networking solution, now allowing access to DICOM image data, permitting viewing of digital images and videos, magnetic resonance tomographies, and x-ray and ultrasound images in a virtual patient record.

ICW has played vital roles in the national e-health card (eCard) program in Germany and Austria. Current ICW projects in Europe include: 1) a physician's network enabling interoperable connectivity, which has been recognized as a leading RHIO in a study by the University of Erlangen; 2) a privately funded implementation of a regional eHealth network, which delivers interoperability to providers, practitioners and pharmacies, and via LifeSensor, patients; 3) an interoperability project at Rhön Hospitals connects existing, but until now, isolated information systems without requiring the replacement of existing software. ICW is also involved with hospital and clinical projects including the "Partnership for the Heart" program at Charité hospital, for patients with chronic heart failure, utilizing remote patient monitoring. ICW is also leading a breast cancer project at University of Tubingen, which enables authorized medical personnel outside the University system to view and add treatment information, resulting in better patient management, improved care, and better health outcomes.

McKesson Corporation
www.McKesson.com

For more than 170 years, McKesson has led the industry in the wholesale delivery of medicines and healthcare products. Today a Fortune 16 corporation, McKesson delivers vital pharmaceuticals, medical supplies, and healthcare IT solutions that touch the lives of more than 100 million patients each day in every healthcare setting. As the world's largest healthcare services company with a customer base that includes more than 200,000 physicians, 25,000 retail pharmacies, 5,000 hospitals and 600 payers, McKesson is well positioned to help transform the healthcare system.

Today more than 4 million care providers use McKesson's Horizon Clinicals® solutions to process more than 22 million orders per week. More than 500,000 full time equivalent registered nurses rely on McKesson solutions to deliver safe, high-quality care. The company's bar-code medication

administration solution issues more than 649,000 alerts weekly. Its interdisciplinary documentation solution automates chart audits required for regulatory purposes, reduces documentation time by up to 35%, and in combination with bar-coded medication administration, improves nursing satisfaction by up to 45%. McKesson currently records over 3 million logins each month to its Web-based physician portal. This online gateway lets community-based physicians, hospitalists, and other caregivers log on once to gain single-source access to the patient's virtual EHR, no matter where the data resides.

McKesson offers a medication administration system that features barcode technology to support the hospital team and protect the patient by verifying the "five rights" of medication administration: right patient, right drug, right dose, right route and right time. The barcode technology used in McKesson's solution suite has been shown to reduce medication administration errors by as much as 87%.

M. D. Anderson Cancer Center, Houston, Texas
www.mdanderson.org

The University of Texas M. D. Anderson Cancer Center has enabled its health transformation through the development of ClinicStation, its in-house developed electronic medical record system. This year, more than 74,000 people with cancer will receive care at M. D. Anderson, and about 27,000 of them will be new patients. Approximately one-third of these patients come from outside Texas seeking the research-based care that has made M. D. Anderson so widely respected. With the ClinicStation EMR, M. D. Anderson's caregivers initiate over 1.5 million patient queries a month reviewing digitally available information such as images (240,000 studies reviewed/month), transcribed clinical documents (3.3 million/month), radiology reports (658,000/month), as well as pathology and laboratory reports (1.8 million/month). M.D. Anderson caregivers access the EMR system via both wired and wireless access in the hospital, out-patient clinics, offices and even remotely from home or while traveling . When outside M.D. Anderson, caregivers have remote access to their patient's records via a virtual private network (VPN) connection. The ClinicStation EMR allows caregivers to simultaneously review and consult on patient records regardless of where they are located (access is available anywhere with an Internet connection). While there is universal access to patient records, access is restricted to authenticated users. Every accession of patient data is permanently recorded in audit record databases.

Most patients referred to M. D. Anderson have their diagnosis of cancer revealed on diagnostic imaging studies prior to their arrival. Patients bring these "outside" studies on film or ever more commonly on compact disks (CD-R). M.D. Anderson informatics personnel have developed innovate diagnostic image importation software to allow images obtained throughout the country and world to be imported directly onto the M.D. Anderson Picture Archiving and Communications (PACS) system and then made instantly available for caregivers to deliver expert diagnostic oncology opinions. In the past year, over 33,000 "outside" studies were imported into M.D. Anderson's PACS system. Of the 77 million images available on PACS from the past 12 months, over 5.6 million images (7.3%) originated from "outside" studies. Currently, over 190 million images, representing the past 5 1/2 years of diagnostic study information is available for instant review. As filming of M.D. Anderson studies is no longer routinely performed, upon request, patients are provided CD-R disks of images from their M.D. Anderson studies. This technology improves patient health because radiologists are better able to diagnose current cancer status by comparing the current study to imaging studies obtained months or in some cases years before.

Methodist Medical Center of Illinois, Peoria, Illinois
www.methodistmedicalcenter.org

Methodist Medical Center has been at the forefront in implementing electronic systems to reduce medical errors and improve physician access to patient records and test results. The 353-bed facility has not only reduced medication errors by 50% using barcode scanning at the bedside, but it uses technology to provide network physicians anytime, anywhere access to information on 18,000 inpatients and more than 300,000 outpatients each year. When a medication is scanned at a patient's bedside, it is verified against the physician order and screened for allergies, interactions, and therapeutic duplication by pharmacists using the pharmacy system. Two of Methodist's 15 nursing units have achieved the targeted 90% rate for medication barcode verification. For its efforts, Methodist achieved the National Patient Safety Goals with zero violations.

Methodist also achieved an almost-perfect score from the Joint Commission on Accreditation of Healthcare Organizations—ranking it in the top 4% of all U.S. hospitals. But that was not enough for this hospital, which also supports 30 clinics and physician practices. Using McKesson's ambulatory EHR many redundant, inefficient paper-based processes in ambulatory settings were eliminated. Methodist practitioners now write more than 40,000 electronic prescriptions monthly, and paper charts for medication-related issues have been virtually eliminated. In addition, chart pulls related to medication refills were reduced by 93%. Methodist also estimates it will save $300,000 in external transcription fees.

MinuteClinic
www.minuteclinic.com

MinuteClinic, a member of the Center for Health Transformation, is the pioneer and largest provider of retail-based health care in the United States, with 82 MinuteClinic health care centers in 10 states and 150 – 200 additional centers planned by the end of 2006. MinuteClinic has managed approximately 500,000 patient visits using an electronic medical record system that guides diagnosis and treatment, generates patient education materials and builds diagnostic records that are sent to primary care providers. The EMR embeds nationally established clinical practice guidelines from the Institute for Clinical Systems Improvement, the American Academy of Family Physicians and the American Academy of Pediatrics. This system provides a foundation for generation of Continuity of Care Records (CCR) and HL7 patient encounter reports. MinuteClinic actively seeks and supports ways to improve the secure, appropriate exchange of patient care information by electronic methods.

North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT), Chapel Hill, North Carolina
www.ncdetect.org

NC DETECT is a secure, Web-based system that provides access to emergency department data (ED) in a timely manner to authorized users at the local, regional and state level. NC DETECT receives ED data from disparate hospital information systems across the state electronically on a daily basis. Aggregated and standardized based on CDC's Data Elements for Emergency Department Systems (DEEDS), the data are immediately available to authorized users via a secure, database-driven, Web-based portal. The portal provides reporting on disease and injury conditions and utilizes both diagnostic data and syndrome-based data. Emergency department data, and the other sources soon to be loaded into production, are also instrumental in monitoring the public's health after natural disasters. Hurricanes especially have had a huge effect in North Carolina in recent years, and NC DETECT will greatly reduce the burden on data providers when it comes to reporting on disaster-related illness and injury. Because of its efforts, NC DETECT was awarded a Nicholas E. Davies EHR Recognition Program, sponsored by

the Healthcare Information and Management Systems Society (HIMSS). The program recognizes healthcare provider organizations that successfully use EHR systems to improve healthcare delivery.

Northwest Physicians Network, State of Washington
www.npnwa.net

The Northwest Physicians Network is comprised of nearly 400 providers representing primary care and more than 30 different specialty disciplines in two Washington state counties. NPN incorporated in January 1995 and is now the largest IPA in the state. The foundation of its success is based on the belief that patient centered, physician driven care, coupled with solid data, responsible use of resources, and active disease management programs are imperative components to the successful delivery of care.

NPN has sponsored the South Sound Health Communication Network, linking patients to their doctors and their clinical data. Approximately 275 independent community doctors, nurses, and office managers are online. Quest Diagnostics and Medical Imaging Northwest now push lab data and imaging results into the Network for real-time consultations and complete patient data storage. One seven-physician clinic in Pierce County, Washington, implemented the Network to complement their existing EHR system. A line-item audit of the previous twelve months versus the twelve months after implementation reveal impressive savings: savings from administrative supplies, $7142; savings from FTE reduction, $19,600; savings from dictation reductions, $7525. Total workflow net savings per physician was $4098, for a total net savings per year of nearly $30,000.

Partners HealthCare, Boston, Massachusetts
www.partners.org

Partners HealthCare is an integrated health system founded by Brigham and Women's Hospital and Massachusetts General Hospital in 1994. In addition to its two academic medical centers, the Partners system also includes community hospitals, specialty hospitals, community health centers, a physician network, home health and long-term care services, and other health-related entities. Computerized physician order entry will be completely implemented in all Partners acute care hospitals by the end of 2006. Electronic medical records are being used or implemented by ~85% of physicians at the academic medical centers and 52% of community primary care physicians in our Network. We have roughly 6,000 physicians in our Network of which 4,300 are targets for ambulatory EMR (excluding pathologists, anesthesiologists, radiologists and other specialists who would be unlikely to use an ambulatory EMR).

Partners IT executives, who are members of the College of Health Information Management Executives, are implementing a “fail safe” system for medication ordering and administration, including computerized physician order entry, “smart” pumps, electronic medication administration record software, and bar-coding of patients, staff, and drugs.

PeaceHealth
www.peacehealth.org

PeaceHealth is a billion-dollar hospital system with 1.4 million patient records with six facilities in Alaska, Washington, and Oregon. With the help of IDX (now GE Healthcare), a member of the Center for Health Transformation, PeaceHealth built the Community Health Record. The Community Health Record contains all the information a provider needs to care for a patient—from lab results to MRI images to cardiology charts. It is secure, HIPAA-compliant, and totally online. Patients can access their

records from anywhere via a secure connection—individuals are able to refill prescriptions, correspond via email with doctors, check lab results, schedule appointments, and request referrals. Every stakeholder has access to these records, including doctors, nurses, case managers, health plans, and independent physician groups.

Adverse drug events have been reduced by 83 percent, as documented by a pilot study in Eugene, Oregon. Allergy lists are close to 100 percent complete, thanks to an expert technical rule that flags missing information. Compliance with diabetic guidelines has tripled in three PeaceHealth facilities, thanks to a combination of online disease management tools and the involvement of diabetes educators. Hemoglobin A1C levels of less than 7, the target level for diabetes control, improved from 44 percent in 2001 to more than 60 percent last year. And LDL levels of less than 100, the target range, jumped from 28 percent in 2001 to 52 percent last year.

Per-Se Technologies
www.per-se.com

In the U.S. approximately 20% of new prescriptions and as many as 30% of refillable prescriptions are never filled. The adoption of technology in the prescribing process provides a way for physicians to know when a patient is not taking his medication. Ensuring patients take their medication as prescribed significantly reduces healthcare costs by avoiding situations where patients arrive sicker at a healthcare provider than if they had taken their medication. To help reduce medical errors and the cost of healthcare, Per-Se Technologies began an electronic prescribing initiative in early 2006 to help physicians electronically obtain a complete picture of a patient's medication history and plan coverage before issuing a new prescription.

Through partnerships as well as Per-Se's extensive customer base, Per-Se is connected to more than 20% of U.S. physicians, more than 50% of U.S. hospitals, more than 90% of U.S. pharmacies, and all of the nation's insurance companies. Per-Se's ePrescribing offering provides functionality during the prescribing process to a physician at the point of care. This functionality includes patient medication history to assess drug allergies and drug-to-drug interactions, and checks benefit plan drug formularies to facilitate less expensive generic drug use. Per-Se's goal is to increase ePrescribing adoption of the nation's physicians from today's 2-3% to more than 30% by 2010.

Presbyterian Healthcare Services, Albuquerque, New Mexico
www.phs.org

A true end-to-end medication management system drives out errors at every stage where they can occur – ordering, transcribing, dispensing, and administering. Presbyterian Healthcare Services in has been building such a system since 1999, beginning by automating pharmacy operations to support barcode point-of-care medication administration, or "BPOC." Results of a three-year study showed a 77.9 percent drop in medication administration errors. In 2004, PHS integrated BPOC with a pharmacy information system that enables nurses and pharmacists to share information regarding patient allergies, schedule changes, and missing doses. Via pharmacy-laboratory system integration, the pharmacist is notified of abnormal values. A nursing electronic documentation system incorporates the updated medication administration record in the patient's chart after every med pass. And a secure portal gives clinicians anywhere, anytime access to patient information. More than 1,000 physicians and other caregivers use it today.

Most recently, PHS introduced a computerized physician order entry system with clinical decision support (CPOE/CDS) to its hospitalists, with other physician groups scheduled a month apart throughout the year. Two-way communication with the pharmacy system simplifies the verification process, eliminates transcription errors and enables physicians and pharmacists to share a common drug knowledge base, formulary and allergy information. As a result of this large technology deployment, between 2002 and 2005 the mortality index at Presbyterian Hospital dropped from 1.2 to 0.9. Harm rate has also continued to decline to a current low of 0.48 (number of adverse drug events per 1,000 doses), which is within the top 10th percentile for harm rate nationally.

Quality Improvement Organizations
www.ahqa.com

Under a performance-based contract with Medicare, Quality Improvement Organizations (QIOs) in every state and territory in the U.S. are supporting healthcare transformation by giving free hands-on assistance with health IT adoption to more than 3,500 doctors. To help these doctors avoid simply automating our current system of care, QIOs are providing valuable support with the redesign of care processes to improve quality and efficiency. And QIOs are not just working with practices in affluent areas—nearly one quarter of the practices receiving QIO assistance are those that treat underserved patients.

Medicare's investment in health IT adoption assistance through the QIOs holds significant promise for achieving higher quality of care for Americans. Policymakers should examine the approach QIOs are taking to help physicians effectively use health IT and consider how this could strategy could also help the increasing number of long-term care providers pursuing the use of IT for better quality care for the frail and elderly. QIOs in at least 42 states are also supporting local health information exchange efforts, many in leadership roles. QIOs are helping accelerate the formation of these efforts by serving as neutral conveners, bringing together diverse stakeholders—including home health agencies and nursing homes—to build consensus around governance structures, sustainable business plans, and policies for data use and information sharing.

Quest Diagnostics
www.questdiagnostics.com

Quest Diagnostics, a member of the Center for Health Transformation and the nation's largest clinical reference laboratory, has developed its Care360 patient-centric physician portal for small to mid-size physicians and physician practices. Care360 allows a medical practice to easily collect, review, and seamlessly communicate vital clinical aspects of a patient's medical history, including laboratory and medication information. Care360 is positioned as an affordable alternative to expensive and complex EHR systems for ambulatory physician practices that are seeking clinical information technology solutions. Care360 gives the physician a convenient way to order laboratory tests and prescriptions online; an effective and integrated view of a patients' laboratory and medication history at the point of care; and the ability to share information securely with other physicians and other caregivers within and beyond their office for treatment and other appropriate purposes in a truly interoperable fashion. Additionally, Care360 provides physicians with the tools for participating in pay for performance programs.

By virtue of its national network of Care360 and other systems and a clinical transaction infrastructure supporting over 80,000 physicians nationwide and over 1,000,000 clinical transactions daily, Quest

Diagnostics is playing a leadership role in the growing number of community initiatives focused on healthcare information technology adoption and interoperability.

Quovadx
www.quovadx.com

Quovadx, a member of the Center for Health Transformation and a worldwide supplier of healthcare interoperability solutions, has enabled the Florida Department of Health (FDOH) to transform a manual set of data collection processes and disparate applications into an integrated system for reporting and analysis of critical information for public health and safety. Utilizing Cloverleaf® Integration Services from Quovadx, the FDOH now provides managers and policy makers with access to critical data residing in various counties and application systems across the state.

These vastly improved capabilities enable the FDOH to immediately distribute alerts as soon as lab reports are processed by the Cloverleaf engine for the early detection and intervention of impending healthcare risks. Laboratory data needed for disease surveillance programs can now be accessed within 48 hours compared to the previous average of ten days. Additionally, on a federal level, the department can now make connections between diseases and infected persons or populations in multiple locations, enabling the FDOH to respond to national biohazard security threats, such as smallpox or anthrax, quickly identify and respond to regional outbreaks and environmental hazards, and securely transmit data from their Immunization Registry to the CDC.

Southeast Texas Medical Associates, Beaumont, Texas
www.setma.com

SETMA began in 1995 as a single-location, primary-care practice with five providers utilizing transcription for documenting medical records. In 1997, SETMA had grown to a 10-provider practice and realized that future growth and development was limited by the paper-based medical record. Today, SETMA has three clinical locations and 36 clinical personnel, including 23.0 full-time-equivalent physicians. In 2005, SETMA was located directly in the eye of Hurricane Rita, however, no medical records were lost as a result of SETMA's EHR and back-up process. Because of its efforts, SETMA was awarded a Nicholas E. Davies EHR Recognition Program, sponsored by HIMSS. The program recognizes provider organizations that successfully use EHR systems to improve healthcare delivery.

Patients can request prescription refills online, with requests automatically routed for physician approval and transmission to a pharmacy. Prior to implementing the EHR, SETMA had a 20% immunization compliance rate. Post EHR, it exceeds 80%. Comprehensive electronic disease management efforts have been launched, with over 5,000 patients assessed through a comprehensive program each month. SETMA has established a continuum of care model of healthcare delivery by tying the clinic to the hospital, to the physical therapy clinic, to the home, to the hospice, to the home health agency, etc. The full continuum of care, is captured electronically.

Decreases in medical transcription costs saved more than $340,000; increases in average billable charges generated more than $150,000 in revenue; overall average charge per patient visit increased 20% and the average collection increased 30%; administrative staff required to handle the patient's chart decreased by 76.7%, saving more than $120,000 per year; the average man-hour cost to establish a chart decreased 85%, an annual savings of more than $22,000; average cost for administrative supplies decreased more than 87%; the practice saved more than $380,000 in paper and supply costs; amount of time required to

handle phone call inquiries that required the chart has been reduced by 73%; number of tasks decreased from 18 down to 2, total annual savings exceed $103,000; and number of claim denials has decreased 26%, reduced days in accounts receivables by 7 days, thus increasing actual revenues by $102,000.

Southwest Medical Associates, a subsidiary of Sierra Health Services, State of Nevada
www.smalv.com

The largest medical group in Nevada, Southwest Medical Associates, a subsidiary of Sierra Health Services, is changing the way doctors practice medicine. SMA successfully deploying Allscripts Electronic Health Record, TouchWorks™ to its nearly 250 medical providers, and is providing electronic prescribing to all of the physicians in the State of Nevada—for free.

It has worked. In 2005, Nevada physicians wrote more than one million electronic prescriptions for their patients, making them a leader in electronic prescribing practices with a growing body of data proving a reduction in medical prescription errors and a significant improvement in utilization of generic prescription drugs. Electronic prescribing ensures that physicians write safe, clean prescriptions for their patients, and helps them select medication alternatives that are covered by their patients' insurance plans, thereby reducing the out-of-pocket cost of prescription drugs for their patients.

More than $5 million saved. After three years of using electronic prescribing, SMA's generic fill rate (GFR) had achieved a 4.8% lead over a controlled group of physicians in other SHS network groups that do not use electronic prescribing. Because every one point increase in GFR equals a cost savings to the organization of 1.5%, SMA's increased generic utilization saves $4.75 million each year, or 7.2% of its 2005 drug spend of $66 million. TouchWorks, which is a full electronic health record, also greatly streamlines the process of approving prescription refills, in the process creating indirect financial savings to SMA of $208,640 a year through increased nurse productivity. Taken together, the EHR's annual financial savings of $4.96 million has netted SMA a reduction in costs of $5.17 per prescription on average. SMA's solution also has increased formulary compliance for the group's physicians, and enhanced patient safety. Thanks largely to its eRx initiative, SMA now has a generic utilization rate of 73.2%, one of the highest rates in the country.

SureScripts
www.surescripts.com

SureScripts was founded in 2001 by the National Association of Chain Drug Stores and the National Community Pharmacists Association to improve the quality, safety, and efficiency of the overall prescribing process through electronic prescribing. The SureScripts Electronic Prescribing Network is the largest network to link electronic communications between pharmacies and physicians, allowing the electronic exchange of prescription information. Through the SureScripts Network, providers can send and receive new prescription information, renewal requests, other messages related to prescriptions, medication history, and formulary/eligibility information. SureScripts' system helps to ensure neutrality, patient choice of pharmacy, and the provider's choice of the best therapy. The pharmacy industry has been a leader in implementing information technology in healthcare, resulting in cost savings, efficiency in the delivery of care, and better healthcare.

Virtua Health
www.virtua.org

Virtua Health is a community based four hospital system in Southern New Jersey. While in the process of installing EHR and other ancillary technology in their hospitals, they are using the opportunity to streamline clinical workflows, reduce duplication and waste, and improve patient care. Virtua has brought in a clinical informaticist from PricewaterhouseCoopers (PwC) to assist in realizing these opportunities. An early adopter of Six Sigma methods in healthcare, Virtua has been able to realize savings of several million dollars in operations. Simultaneously, Virtua is piloting a physician practice based EHR which will ultimately be integrated with the hospital EHR. Through this process, Virtua hopes to improve communications with the community physicians as well as provide better continuity of care.

Along the continuum, Virtua has implemented an electronic record for their home care division. Patient discharge information is automatically passed to the home care agency. Appointments scheduling is accomplished electronically before the patient leaves the hospital. Homecare nurses carry tablets or laptops to the patient's home where all of the necessary information is available. Nurses travel from home to the clients and transmit information to the main office each evening. Productivity has increased, patients are seen in a more timely fashion, and cost savings have been close to $1 million by implementing technology simultaneously with streamlining workflow.

Appendix II

21st Century Entrepreneurial Public Management as a Replacement for Bureaucratic Public Administration:

Getting Government to Move at the Speed and Effectiveness of the Information Age

By Newt Gingrich

December 12, 2005

It is simply impossible for the American government to meet the challenges of the 21st century with the bureaucracy, regulations and systems of the 1880s.

Implementing policy effectively is ultimately as important as making the right policy. In national security we have an absolute crisis of ineffective and inefficient implementation which undermines even the most correct policies and risks the security of the country. In health, education and other areas we have cumbersome, inefficient, and ineffective bureaucracies which make our tax dollars less effective and the decision of representative government less capable. People expect results and not just excuses.

To get those results in the 21st century will require a profound transformation from a model of Bureaucratic Public Administration to a model of 21st Century Entrepreneurial Public Management.

As Professor Philip Bobbitt of the University of Texas has noted: "Tomorrow's [nation] state will have as much in common with the 21st century multinational company as with the 20th century [nation] state. It will outsource many functions to the private sector, rely less of regulation and more on market incentives and respond to ever-changing consumer demand."

It is an objective fact that government today is incapable of moving at the speed of the Information age.

It is an objective fact that government today is incapable of running a lean, agile operation like the logistics supply chain system that has made Wal-Mart so successful or the recent IBM logistics supply chain innovations which IBM estimates now saves it over $3 billion a years while improving productivity and profits.

There is a practical reason government cannot function at the speed of the information age.

Modern government as we know it is an intellectual product of the civil service reform movement of the 1880s.

Think of the implications of that reality.

A movement that matured over 120 years ago was a movement developed in a period when male clerks used quill pens and dipped them into ink bottles.

The processes, checklists, and speed appropriate to a pre-telephone, pre-typewriter era of government bureaucracy are clearly hopelessly obsolete.

Simply imagine walking into a government office today and seeing a gas light, a quill pen, a bottle of ink for dipping the pen, a tall clerk's desk, and a stool. The very image of the office would communicate how obsolete the office

was. If you saw someone actually trying to run a government program in that office you would know instantly it was a hopeless task.

Yet the unseen mental assumptions of modern bureaucracy are fully as out of date and obsolete, fully as hopeless at keeping up with the modern world as that office would be.

Today we have a combination of information age and industrial age equipment in a government office being slowed to the pace of an agricultural age mentality of processes, checklists, limitations, and assumptions.

This obsolete, process-oriented system of bureaucracy is made even slower and more risk averse by the attitudes of the Inspectors General, the Congress, and the news media. These three groups are actually mutually reinforcing in limiting energy, entrepreneurship, and creativity.

The Inspectors General are products of a scandal and misdeed oriented mindset which would bankrupt any corporation. The Inspectors General communicate what government employees cannot do and what they cannot avoid. The emphasis is overwhelmingly on a petty dotting the i's and crossing the t's mentality which leads to good bookkeeping and slow, unimaginative, and expensive implementation.

There are no Inspectors General seeking to reward imagination, daring risks, aggressive leadership, over achievement.

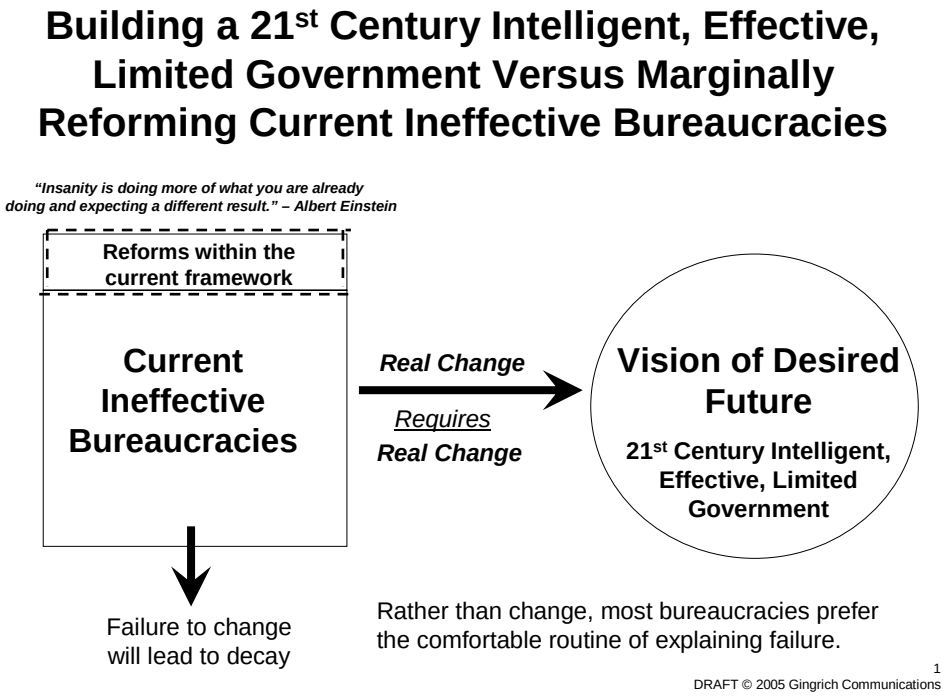
Similarly, the members of Congress and their staffs are quick to hold hearings and issues press releases about mistakes in public administration but there are remarkably few efforts to identify what works and what should be streamlined and modernized.

Every hearing about a scandal reminds the civil service to keep its head down.

Similarly, the news media will uncover, exaggerate and put the spotlight on any potential scandal but it will do remarkably little to highlight, to praise, and to recognize outstanding breakthroughs in getting more done more quickly with fewer resources.

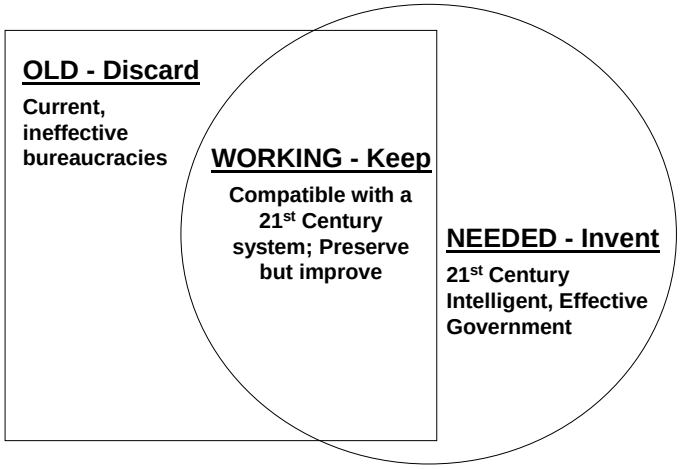
Finally, the very nature of the personnel system further leads to timidity and mediocrity. No amount of extra effort can be rewarded and no amount of incompetent but honest inaction seems punishable. The failure of the system to reinforce success and punish failure leads to a steady drift toward mediocrity and risk avoidance.

The difference in orientation between what we are currently focused on and where we should be going can be illustrated vividly.



Of course, it is not possible to reach the desired future in one step. It will involve a series of transitions, which can also be illustrated.

Transitioning to a 21st Century Intelligent, Effective, Limited Government Will Necessarily Mix the Old and the New



(with thanks to Senator Bob Kerrey for developing this model)

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Without fundamental change, we will continue to have an unimaginative, red tape ridden, process-dominated system which moves slower than the industrial era and has no hope of matching the speed, accuracy and agility of the information age.

The Wal-Mart model is that "everyday low prices are a function of everyday low cost." The Wal-Mart people know that they cannot charge over time less than it costs them. Therefore if they can have the lowest cost structure in retail they can sustain the lowest price structure.

This same principle applies to government. The better you use your resources the more things you can do. The faster you can respond to reality and develop an effective implementation of the right policy the more you can achieve.

An information age government that operated with the speed and efficiency of modern supply chain logistics could do a better job of providing public goods and services for less money.

Moving government into the information age is a key component of America being able to operate in the real time 24/7 worldwide information system of the modern world.

Moving government into the information age is absolutely vital if the military and intelligence communities are to be capable of buying and using new technologies as rapidly as the information age is going to produce them.

Moving government into the information age is unavoidable if police and drug enforcement are to be able to move at the speed of their unencumbered private sector opponents in organized crime, slave trading and drug dealing.

Moving government into the information age is a key component of America being able to meet its educational goals and save those who have been left out of the successful parts of our society.

Moving government into the information age is a key component of America being able to develop new energy sources and create a cleaner environment with greater biodiversity.

Moving government into the information age is a key component of America being able to transform the health system into a 21st Century Intelligent Health System.

This process of developing an information age government system is going to be one of the greatest challenges of the next decade.

It is not enough to think that you can simply move the new developments in the private sector into the government. The public has a right to know about actions which in a totally private company would be legitimately shielded from outside scrutiny. There will inevitably be Congressional and news media oversight of public activities in a way that would not happen in the purely privately held venture.

As Peter Drucker warned thirty years ago in *The Age of Discontinuities*, the government is different. There are much higher standards of honesty and fairness in government than in the private sector. There are legitimately higher standards for using the public's money wisely. There are legitimate demands for greater

transparency and accountability. The public really does have a right to know about actions which in a totally private company would be legitimately shielded from outside scrutiny. There will inevitably be Congressional and news media oversight of public activities in a way that would not happen in the purely privately held venture.

There are also legitimately higher expectations of accuracy. In early July, in yet another adjustment to an earlier estimate, the Congressional Budget Office revised its budget deficit projections for this fiscal year. In less than six months, the CBO was off by nearly 12 percent. If the Office of Management and Budget agrees with the new CBO projection, its estimate will have missed the mark by nearly 24 percent—an error of more than $100 billion. How can our elected officials make informed policy decisions with such faulty analysis? We deserve honest answers.

The House and Senate Budget Committees should hold hearings to reform the current CBO scoring processes because modernizing government starts with open and accurate budget projections. These projections must include the impact that proposed legislation will have on the private sector, not just its impact on the federal budget. For instance, federal spending that promotes health information technology or medical innovation has the potential to save countless lives and billions of dollars in the private sector. But without scoring these benefits CBO and OMB will never be able to distinguish between legislation as an investment and legislation as a cost.

All of these factors require us to develop a new model of effective government and not merely copy whatever the private sector is doing well.

That new model can be thought of as 21st Century Entrepreneurial Public Management.

21ST CENTURY ENTREPRENEURIAL PUBLIC MANAGEMENT

The term 21st Century Entrepreneurial Public Management was chosen to deliberately distinguish it from Bureaucratic Public Administration. We need two terms to distinguish between the new information age system of entrepreneurial management and the inherited agricultural age system of bureaucratic administration.

The one constant is the term public. It is important to recognize that there are legitimate requirements of public activity and public responsibility which will be just as true in this new model as they were in the older model. Simply throwing the doors open to market oriented, entrepreneurial incentives with information age systems will not get the job done. The system we are developing has to meet the higher standards of accountability, prudence, and honesty which are inherent in a public activity.

We have to start with a distinguishing set of terms because we are describing a fundamental shift in thinking, in goals, in measurements, and in organization. Changes this profound always begins with language. People learn new ideas by first learning a language and then learning a glossary of how to use that new language. That is the heart of developing new models of thought and behavior.

Shifting the way we conceptualize, organize and run public institutions will require new models for education and recruitment as well as for the day to day behavior.

We must shift from professional public bureaucrats to professional public entrepreneurs. We must shift from administrators to managers. The metrics will be profoundly different. The rules will be profoundly different. The expectations will be profoundly different.

A first step would be for Schools of Public Administration to change their titles to Schools of Entrepreneurial Public Management. This is not a shallow gimmicky word trick. Changing the name of the institutions that attract and educate those who would engage in public service will require those schools to ask themselves what the difference in curriculum and in the faculty should be.

The President, Governors, Mayors, and County Commissioners should appoint advisory committees from the business community and from schools of business to help think through and develop principles of 21st Century Entrepreneurial Public Management.

PRINCIPLES OF 21ST CENTURY ENTREPRENEURIAL PUBLIC MANAGEMENT

This is a topic which is just beginning to evolve. Over the next few years it will lead to books, courses, and even entire programs. Obviously it can only be dealt with briefly in this paper. For more information and for developments since the date of this paper, go to www.newt.org and click on 21st Century Entrepreneurial Public Management.

The following are simply an introductory set of principles:

1. Every system should define itself by its vision of success. Unless you know what a department or agency is trying to accomplish (and has been assigned to accomplish by the President and the Congress), you cannot measure how well it is doing, how to structure the agency, how to train the employees so they can be an effective team. Definition of success precedes everything else.

2. Planning has to always be in a deep-mid-near model. For government deep is probably ten years, mid is about three years and near is next year. Unless the agency plans back from the desired future it is impossible to distinguish between activity and progress. In Washington and most state capitals far too much time is spent on today's headline and today's press conference and not nearly enough time is spent preparing for tomorrow's achievement.

3. Every agency and every project has to be planned with a clear process of:

    a. defining the vision of success;
    b. defining the strategies which will achieve that vision;
    c. defining the projects (definable, delegatable achievements see below) necessary to implement the strategies;
    d. defining the tasks which must be completed to achieve the projects;
    e. defining the metrics by which you will be able to measure whether the project is on track; and
    f. turning to the customers, the experts, and the decision makers and following a process of listen-learn-help-lead to find out whether your definition of success and definition of

implementation fits their understanding. This process properly used turns every person into a consultant helping improve your planning and your execution.

4. Every significant system requires a reporting process comparable to the COMSTAT and TEAMS reporting instituted by Mayor Giuliani in the New York City Police Department and the Prisons. Giuliani's *Leadership* is a good introduction to the concept of COMSTAT and similar reporting and managing tools. The key is for senior leadership to constantly (weekly in key areas, monthly in others) review the data and make changes in a collaborative way with the team charged with implementing the system. Every significant strategy requires an Assessment Room in which the senior leadership can visibly see all the key data and review the totality of the strategy's implementation in one sweeping overview. Determining what metrics should be used to define success and maintaining those metrics with accuracy is a major part of this process. The absence of COMSTAT systems, the absence of Assessment Rooms, and the absence of routine review is a major factor in the ineffectiveness and inefficiency of the Federal Government in almost every department. "You get what you inspect not what you expect" is an old management rule. If no one knows what is going to be inspected and if no data is available for inspection it should not surprise us that the current system also does not function very well.

5. When a strategy is not working well senior leaders need to ask the following tough minded questions:
    a. Is the strategy the right one (this suggests a courageous re-examination of external realities to see if we have simply tried to do the wrong thing)?
    b. If it is the right one then is the problem resources?
    c. If we have the right strategy and the right resources then do the people implementing it need more training?
    d. If we have the right strategy, the right resources, the right training, do we have the wrong people in charge?
    e. If everything looks like it should be working is there something inherently wrong with the structure and the system which needs to be changed so we can achieve our goals?

f. If everything is in place but it still is not working, are there regulations which are slowing us down and making us ineffective and if there are who is drafting up the replacement regulations to be issued by the President or whatever authority is required?
g. If everything is in place that the Executive Branch can control is the problem with the law and should the President send to Congress proposed changes to enable the strategy to be implemented?
h. Can these seven steps be undertaken on a weekly or at most monthly basis so the rhythm and tempo of government can begin to match the requirements of the information age?

6. The process of defining and managing projects will require profound changes in the laws governing personnel, procurement, etc. Projects are the key building block of Entrepreneurial Public Management. They permit the senior leader to delegate measures of accomplishment rather than measures of activity. A simple distinction is between asking bureaucracies to engage in cooking and asking someone to prepare dinner for 12 people at 8 o'clock tomorrow night for $11 a piece and making it Mexican food. The Bureaucratic Public Administration request for cooking allows the bureaucracy to report on activities (we are cooking every day, we are studying cooking, we are having a cooking seminar) without any metric of achievement. The process of defining achievements and delegating them is virtually impossible under today's personnel, procurement and spending laws. A clear example of the difference can be found by studying the division commanders' use of commander's emergency money in Iraq with the Coalition Provision Authority process. One division commander told me they could use the emergency money to order cars from a local Iraqi and that Iraqi could procure the cars in Turkey and drive them to the local town faster than they could process the paperwork in Baghdad to begin the process of purchasing through the CPA. The Congress and the President agreed to spend $18 billion rebuilding Iraq and ten months later $16 billion was still tied up in paperwork. Only the commander's emergency money was being spent in a timely, effective way. The same experience happened in Afghanistan where the United States Agency for International Development could not process the paperwork fast enough

to meet the requirements of rebuilding Afghan civil society. One commander said that in rebuilding a society after a war "dollars are to rebuilding what ammunition is to a firefight." If the ammunition for the war were as constrained and slow as the dollars in reconstruction we would lose every war. Getting the system to move at the speed of wartime requirements and at the speed of information age processes requires a totally new model of delegating massively to project managers who are measured by their achievements not by the details of process reporting. This will be the most profound change in shifting from Bureaucratic Public Administration to Entrepreneurial Public Management and it will require substantial change in law, in culture, and in congressional and executive leadership expectation. To be sustained it will also have to be understood by reporters and analysts so the news media is focused on the same metrics as the leadership.

7. At every level leaders have to sift out the vital from the nice. In the information age there is always more to do than can possibly get done. One of the keys to effective leadership and to successful projects is to distinguish the vital from the useful. A useful way to think of this is that lions cannot afford to hunt chipmunks because even if they catch them they will starve to death. Lions are hyper-carnivores who have to hunt antelopes and zebras to survive. Every leader has to learn to distinguish every morning between antelopes and chipmunks by focusing on success as defined in a deep-mid-near time horizon then allowing that definition of success to define the antelope that really have to be achieved in order for the project to work.

8. An effective information age system has to focus on the outside world and "move to the sound of the guns." In the Bureaucratic Public Administration model which was developed at the cusp of the shift from an agrarian to an industrial society the key to focused achievement was to define your silo of responsibility and stick within that silo. As long as you were doing your job within that system of accountability you were succeeding even if the larger system were collapsing or failing. In the information age this internally oriented approach is doomed to fail. There are too many things happening too rapidly for people to be effective staying focused only on their own system. As Peter Drucker pointed out, in his classic, The Effective Executive, effective leaders

realize that all the important impacts occur outside the organization and the organization exists for the purpose of achievements measured only by outside occurrences. Since the world is so much larger and so much faster moving than our particular activity we have to constantly be paying attention to the outside world. The military expression of this is the term OODA-loop. In the modern military the winning side Observes a fact, Orients itself to the meaning of that fact, Decides what to do, Acts and then loops back to Observe the new situation faster than its competitor. The winning team is always more AGILE and AGILITY is a vital characteristic for winning systems in the information age. This process is characterized by Dr. Andy von Eschenbach of the National Cancer Institute as the ability to discover-develop-deliver as rapidly as possible. However you describe these capabilities, they are clearly not the natural pattern of Bureaucratic Public Administration. They have to become the natural rhythm of Entrepreneurial Public Management if government is to meet the requirements of the information age.

9. When dealing with this scale of complexity and change people have to be educated into a doctrine so they understand what is expected and how to meet the expectations. We greatly underestimate how complex modern systems are and how much work it takes to understand what is expected, what habits and patterns work, how to relate to other members of the team. The more complex the information age becomes and the faster it evolves, the more vital it is to have very strong team building capabilities so people can come together and work on projects with a common language, common system, and common sense of accountability. Developing this kind of common understanding is what the military calls doctrine. Every system has to have a doctrinal base and the team members will be dramatically more effective if they have a shared understanding of the doctrine of their team.

10. The better educated people are into doctrine, the simpler the orders can be. The less educated someone is into the common doctrine, the more complete and detailed the orders have to be. With a very mature team that has thoroughly mastered the doctrine and applied it in several situations, remarkably few instructions are required. In a brand new team the orders may have to be very detailed. The Entrepreneurial

Public Management system has to have the flexibility to deal with the entire spectrum of knowledge and capability this implies.

11. The information age requires a constant focus on team building, team development, and team leadership. It is the wagon train and not the mountain man that best characterizes the information age. People have to work together to get complex projects completed in this modern era. It takes a while to build teams. There should be a lot more thought given to changing personnel laws so leaders can arrive in a new assignment with a core team of people they are used to working with. Admiral Ed Giambastiani of the joint Forces Command (which has responsibility for pioneering information age transformation in the military) has captured the distinction in modern sophisticated team requirements. He has a single chart that shows the growth in maturity towards truly interdependent teams. These teams are integrated, collaborative, inherently joint, capabilities based and network-centric. Entrepreneurial Public Management will require similar standards of sophisticated organization and teamwork for it to work at its optimum.

12. Information technology combined with the explosion in communications (including wireless communications) create the underlying capabilities that should be at the heart of transforming government systems from Bureaucratic Public Administration to Entrepreneurial Public Management. The power of computing and communications to capture, analyze and convey information with stunning accuracy and speed and at ever declining costs creates enormous opportunities for rethinking how to deliver goods and services. These new capabilities have been engines of change in the private sector. They are the heart of Wal-Mart's ability to turn "everyday low price is a function of everyday low cost" into a realistic implementation strategy. They are at the heart of the revolution in logistics supply chain management. They are this generation's most powerful reason for being sure we can expect more choices of higher quality at lower cost. We have only scratched the surface of the potential. The Library of Congress now has a digital library with millions of documents available 24 hours a day 7 days a week for free to anyone in the world who wants to access them through the internet. It is possible for every school in the country to have the

largest library in the world by simply having one laptop accessing the internet. This is a totally different kind of system for learning. NASA is now connecting to schools to allow students to actually direct telescopes and search for stars from their classroom. This is an extraordinary extension of research opportunities to young scientists and young explorers. The potential to use the computer, the internet, and communications (again including wireless) has only begun to be tapped. The more rapidly government leaders study and learn the lessons of these new potentials the more rapidly we will invent a 21st century information age governing system which uses Entrepreneurial Public Management to produce more choices of higher quality at lower cost.

13. Creating a citizen centered government using the power of the computer and the internet. The agrarian-industrial model of government saw the citizen as a client of limited capabilities and the government employee as the center of knowledge, decision and power. It was a bureaucrat-centered model of governance (much as the agrarian-industrial model of health was a doctor-centered model and the agrarian-industrial school was a teacher-centered model). The information age makes it possible to develop citizen centered models of access and information. The Weather Channel and Weather.com are a good example of this new approach. The Weather Channel gathers and analyzes the data but it is available to you when you want it and in the form you need. You do not have to access all the weather in the world to discover the weather for your neighborhood tomorrow. You do not have to get anyone's permission to access the system 24 hours a day 7 days a week. Google is another system of customer centric organization that is a model for government. You access Google when you want to and you ask it the question that interests you. Google may give you an answer that has over a million possibilities but you only have to use the one or two options that satiate your interest. Similarly Amazon.com and E-Bay are models of systems geared to your interests on your terms when you want to access them. Compare these systems with the current school room, the courthouse which is open from 8 to 5, the appointment at the doctor's office on the doctor's terms, the college class only available when the professor deigns to show up. Government is still mired in the pre-computer, pre-communications age. A key component of Entrepreneurial Public Management is to ask every morning what can be

done to use computers, the internet, CDs, DVDs, teleconferencing, and other modern innovations to recenter the government on the citizen.

14. A customer centered, citizen centered model of governance would start with the concept that as a general rule being online is better than being in line. It would both put traditional bureaucratic functions on the internet as is happening in many states (paying taxes, ordering license tags, etc.) but it would also begin to rethink major functions of government in terms of the new internet based system. The information age makes possible a lot more citizen self help as defined by the citizen's needs. If learning is individually centered and adapted to the needs of each person, and available when they need it and on the topics of skills they need, then how would that learning system operate? If prisoners out on parole were monitored by wireless information age technology to ensure they were going to work, taking their classes, staying out of off limits areas, etc., then how would the new model parole system operate? If migrant children could be connected to an online, videoconferencing and teleconferencing learning system so they had a continuity of learning experience how would that process operate? These are just some examples of how a citizen centered new model would be different from doing using information systems to improve the existing agrarian and industrial era delivery systems.

15. One of the key side effects of information technology and ubiquitous communications is the development of much flatter hierarchies and much greater connectedness across the entire system. In private business, the military, and in customer relationships, there is a much flatter system of information flow. The power of knowledge is to some extent driving out the power of the hierarchy. A networked system seems to operate very differently than the pyramid of power which has been dominant since the rise of agriculture with a few at the top giving orders to the many at the bottom. Increasingly, who knows is defining who is in charge. Entrepreneurial Public Management will have a much more fluid system for shifting authority based on expertise and on identifying what knowledge needs to be applied so the right informed person can be brought in to make the decision as accurate and effective as possible. Bureaucratic Public Administration defined who was in the room by a system of defined authority without regard to knowledge.

Entrepreneurial Public Management will define participation in the decisions by a hierarchy of knowledge and experience rather than a hierarchy of status and defined authority.

16. There will be a radical shift toward online learning and online information. In the information age people need to know so much in so many different areas and the knowledge itself keeps changing in a rapidly evolving world that it is impossible for the traditional classroom based continuing education system to keep up with modern reality. The combination of videoconferencing, online learning, mentoring and apprenticeships will presently create a totally different system of professional development and continuing education. Governments will shift from flying people to conferences and workshops towards having videoconferences. They will also shift from courses built around the teacher's convenience and occurring inconveniently in time and place toward on going learning opportunities that can be accessed 24/7 so people can learn when they need, what they need, and at their own convenience. This will increase the learning while decreasing the cost in both time and money.

17. Personnel mobility will be a major factor in the information age and will require profound changes in how we conceptualize a civil service. The information age creates career paths in which the most competent people move from challenging and interesting job to challenging and interesting job. A government civil service that required a lifetime commitment was both guaranteeing that it would not attract the most competent people and guaranteeing that it would not have the flexibility to bring in the specialists when they are needed. A new system of allowing people to move in and out of government service, to move from department to department as they are needed, to accumulate and take with them health savings accounts and pension plans, to build up seniority with each passing assignment, and to be able to rise without continuous service as long as their experience and knowledge has risen, these are the kind of changes which will be necessary for an Entrepreneurial Public Management system to attract the kind of talent it will need in the information age. It may also make sense for different governments to agree to count the experience in other governments in assigning status and

pension eligibility so people could move between governments as well as within them.

18. Outsourcing is inevitably going to be a big part of the information age. Virtually every successful private sector company uses outsourcing extensively. The ability to create competitive pressures and shift to the best provider is inherent in the outsourcing model. Applying these principles to the public sector will both save the taxpayer money and improve substantially the quality and convenience of services provided to the citizens. It is also simply a fact that in many of the most complex developments of the information age the public sector bureaucracy simply cannot attract the expertise and build the capability to manage the new systems effectively. In these cases outsourcing is the only way to bring new developments into the government.

19. Privatization is a zone that needs to be readdressed in Washington and in the states. At one time the United States was a leader in privatization but now we have fallen far behind many foreign countries. There are a number of opportunities for privatization which would help balance the budget, increase the tax rolls of future contributors to government revenue, and increase the efficiency of the services delivered to the citizen. The Thatcher model of selling some of the stock to the beneficiaries of the services dramatically reduced resistance to privatization in Britain. A similar strategy of developing an economic incentive for those most likely to object to conclude that privatization was a good thing for them personally would lower the resistance and increase the opportunity to move naturally market oriented entities off the government payroll and into the market where it belongs.

20. For activities where privatization would be wrong there is a pattern of public-private partnerships which should be examined. The Atlanta Zoo was on the verge of being disaccredited because the city of Atlanta bureaucracy simply could not run it effectively. Mayor Andrew Young courageously concluded that the answer was to create a public-private partnership with the Friends of the Zoo. The city would continue to own the zoo and would provide some limited funding but the Friends of the Zoo would find additional resources and would provide entrepreneurial leadership. The Friends of the Zoo then recruited Dr. Terry Maples, a

brilliant professor from Georgia Tech and a natural entrepreneur and salesman. With Terry's leadership and the Friends of the Zoo's enthusiastic backing, he rapidly turned ZooAtlanta into a world class research institution and a wonderful attraction both for the families of the Atlanta area and to visitors from around the world. ZooAtlanta went from being an almost disaccredited embarrassment to an extraordinary example of a public-private partnership. Other zoos around America have had similar experiences with new entrepreneurial leadership bringing new ideas, new excitement, and new resources to what had formerly been a government run institution. The government retains ownership of the zoo but the daily operations are under the control of the entrepreneurial association that raises the money and provides strategic guidance. The result is far more energy and creativity and a great deal more flexibility of implementation than could ever be achieved with a purely public bureaucracy. This is the model that should be applied to creating a truly national zoo in Washington where the National Zoo has suffered from the problems of a neglectful bureaucracy. This is also a model of the kind of activities which could be used in many other areas. When something can't be privatized or outsourced the next question should be whether or not there is a useful public private partnership that might be used to accomplish the same goals with fewer taxpayer resources and more creativity, energy and flexibility.

21. As a general principle, proposals that (i) dramatically improve applying logistics supply chain management, go paperless, adapt a quality-metrics system and/or (ii) outsource or privatize, should be viewed by 3rd party independent experts with no financial interests as well as by the agency to be changed. As a general rule government agencies or department leaders faced with improvements that will shrink their work force or shrink their budget will be reluctant to say yes. There are no incentives and rewards in government for downsizing and modernizing. The senior leader and the legislative branch need third party opinions as well as the in-house review and the vendor's proposal to ensure that the maximum improvements are being implemented.
22. Create pressure for modernizing government at all levels by requiring federal and state governments to benchmark best practices every year and agree to pay no more than 10% above the least expensive, most effective programs. This approach would create a continuous pressure to have government programs in each state constantly adapting toward

better outcomes at lower cost. This approach also might entail providing a bonus to the state which has the best program in the country. It would also create an annual rhythm of benchmarking and data gathering which would revolutionize how we think about government. Benchmarking would also make very visible the cost of recalcitrant government unions and the cost of bureaucratic resistance to modernization.

23. This system of Entrepreneurial Public Management requires profound changes in the analytical assumptions of the Congressional Budget Office (CBO) and the Office of Management and Budget (OMB). Today neither office has a model for distinguishing between investments (which increase productivity and lower cost) and pure costs. Neither system has a model for offsetting future savings against innovation and technological breakthroughs. Neither system has a model for the impact of incentives on behavior. The result is both systems are essentially reactionary and premodern in their assessment of proposed policies. In many ways the CBO-OMB reactionary models are the greatest single roadblock to sound investment in an incentivized, technologically advanced, dramatically more productive future. Their scoring systems reinforce current spending on obsolete bureaucracies and inhibit investments in profound change.

These 23 principles are examples of the kind of thinking which will be required to move from a system of Bureaucratic Public Administration to a system of Entrepreneurial Public Management. It is one of the most important transformations of our lifetime and without it government will literally not be able to keep up with the speed and complexity of the information age.

THE LEGISLATIVE ROLE IN DEVELOPING 21ST CENTURY ENTREPRENEURIAL PUBLIC MANAGEMENT

The Congress and state legislatures should begin holding hearings on the difference between a government run according to the information age principles of Entrepreneurial Public Management from a government run according to the principles of Bureaucratic Public Administration. For the legislative branch the changes will include:

- Replacing the current civil service personnel laws with a new model of hiring and leading people including part time employees, temporary employees, the ability to shift to other jobs across the government, the ability to do training and educating on an individualized 24/7 internet based system;

- Radically simplifying the disclosure requirements which have become a major hindrance to successful people coming to work for the federal government;

- The Senate adopting rules to minimize individual Senators holding up Presidential appointments for months. The current process of clearing and confirming Presidential personnel should be a national scandal because it disrupts the functioning of the Executive Branch to a shocking degree. There should be some time limitation (say 90 days) for every appointment to reach an up or down vote on the Senate floor (this is separate from judicial nominations, which is a different kind of problem). The current Senate indulgence of individual Senators is a constant wound weakening the Executive Branch ability to manage;

- Creating a single system of security clearances so once people are cleared at a particular level (e.g., Secret, top secret, code word) they are cleared throughout the federal government and do not have to go through multiple clearances;

- Writing new management laws that enable entrepreneurial public leaders to set metrics for performance and reward and punish according to the achievement level of the employees;

- Within appropriate safeguards creating the opportunity for leaders to suspend and when necessary fire people who fail to do their jobs and fail to meet the standards and the metrics;

- Working with the major departments to reshape their education and training programs and their systems of assessment so they can begin retraining their existing work force into this new framework;

- Developing a new set of goals and definitions for the Inspectors General's job and refocusing those professionals into being pro-active partners in implementing the new Entrepreneurial Public Management approach including in their own offices;

- Designing a new salary structure that reflects the remarkable diversity of capabilities, hours worked, level of knowledge, independent contracting, part time engagement, etc., that is evident in the information age private sector;

- Passing a new system of procurement laws that encourage the supply chain thinking that is sweeping the private sector;

- Developing a new model of Congressional and state legislative staffing to ensure that enough experts and practitioners are advising legislators at the federal and state level so they can understand the complex new systems that are evolving and that are transforming capabilities in the private sector;

- Transforming the Congressional Management Institute so it is playing a leading role in developing the new legislative version of Entrepreneurial Public Management (some states have similar institutions);

- Transforming the General Accounting Office, the Congressional Research Service and the Congressional Budget Office into institutions that understand and are implementing the principles of Entrepreneurial Public Management;

- Developing a system for educating new members of Congress and new congressional staff members into these new principles;

- Creating an expectation that within two years every current congressional staff member will have taken a course in the new method of managing the government in an entrepreneurial way;

- Rethinking the kind of hearings that ought to be held, the focus of those hearings, and the kind of questions that government officials ought to be answering;

- Designing a much more flexible budget and appropriations process that provides for the kind of latitude entrepreneurial leaders need if they are to be effective;

- Establishing for confirmation hearings the kind of questioning that elicits from potential office holders how they would work in an Entrepreneurial Public Management style and apply these questions with special intensity to people who come from a long background of experience in the traditional bureaucracy.

With this set of changes the legislative branches will have prepared for a cooperative leadership role in helping the executive branch transform itself from a system dedicated to Bureaucratic Public Administration into one working every day to invent and implement 21st Century Entrepreneurial Public Management.