



Center for Health Transformation
Better health, lower cost

Build Eisenhower's Highway System for Today's Needs

Center for Health Transformation

David Merritt
Project Director

Table of Contents

Introduction - 1 -

Hurricane Katrina..... - 2 -

Interoperability Now - 3 -

Use in Peace Time - 5 -

Introduction

Fifty years after President Eisenhower paved the way for an interstate highway network, we need an interconnected healthcare system to electronically link physicians, hospitals, pharmacies, public health agencies and other key first responders.

Fifty years ago, in the summer of 1956, 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 for those projects over 10 years. This was a vast sum of money, considering that total federal spending in 1956 was \$70 billion, making it one of the nation's highest priorities.

President Eisenhower forced the country to act. He stated, "The obsolescence of the nation's highways presents an appalling problem of waste, danger and death." The president, the Congress and the states knew that a national, interconnected highway system would be a vital tool to prepare for and respond to a national emergency. Many envisioned their use as runways for military aircraft in case of a national emergency, so it was no mistake that the original name of Eisenhower's vision was the National System of Interstate and Defense Highways. As he put it, an interconnected system "is as necessary to defense as it is to our national economy and personal safety."

Half a century later, another national, interconnected system is needed. Our generation must build a national health information system because that is equally vital to our national security.

A modernized, interconnected healthcare system would electronically link physician offices, hospitals, pharmacies, public health agencies and other key first responders, providing valuable data to prepare for and respond to an emergency.

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 perform a variety of essential services including electronically tracking patient hospital visits, their symptoms and their conditions; directing scarce resources to where they are most needed; assessing the effectiveness of response strategies in close to real time; supporting contact tracing for appropriate infectious diseases; determining possible origins and causes of an outbreak; and capturing other vital sources of data. Coupled with powerful

applications like Google Earth and Google Maps, for instance, our response will be significantly more effective.

Strong Angel III was a recent disaster-response exercise where technology was given a key role in responding to an extreme disaster; in this case, a highly virulent pandemic coupled with cyberterrorist attacks on communication networks. Participants ranged from the U.S. Joint Forces Command and General Motors to leading technology companies like Microsoft, IBM and Google. These innovators were able to work through the myriad problems, problems we will undoubtedly see in a true emergency, to deliver real-time data to public officials and first responders. We must ensure that healthcare data is part of any response.

The earlier we can detect a public health crisis, the better the chance we have of containing and managing it. But electronic information – applied nationwide, wherever it is needed – is the key. Without it, we are no better off than in the days before Eisenhower’s highway system.

Hurricane Katrina

Survivors of Hurricane Katrina had to rebuild much of their lives, and unfortunately they have had to rebuild their healthcare histories as well. More than 1 million paper medical records were likely 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. The tragic story of Ada Roppolo is emblematic. She was evacuated from a New Orleans nursing home prior to the storm and turned up at Baptist Medical Center in San Antonio a week later with no medical records. The San Antonio Express-News described her this way:

“Now clean, safe and tucked under a white blanket at Baptist Medical Center, Ada Roppolo is silent about the hellish ordeal she endured as New Orleans flooded. The mute and frail elderly woman was one of 300 hospital patients evacuated to San Antonio on military transport planes last weekend when a national medical disaster plan was activated. She came with no medical records or clues about her past. Only a wristband with her name and a room number – 304A. Doctors at Baptist don’t even know what hospital or nursing facility she came from.

“‘We have nothing else but that,’ Dr. Eduardo Uribe said as he fingered the yellowed plastic band during his daily rounds on Wednesday. He stroked her thin white hair and gently kissed her forehead. ‘Our social workers are trying to find out more about her, but we have nothing so far.’”[1]

Her physical condition was heartbreaking. It turns out that at age 88, Ada Roppolo could not walk, was nearly blind and because of Alzheimer's disease, she could barely speak. Luckily, a good Samaritan with an interest in genealogy read about her plight and used the Internet to track down her family. While this story has a happy ending, it is inexcusable that the richest and most powerful country in the world has such an antiquated system that it would allow its citizens to suffer in such conditions. A modernized, interconnected system would have prevented this tragedy.

Ada Roppolo survived, but others were not so lucky. When other citizens made their way to emergency shelters, how did doctors and nurses with no information properly care for them? Think of the AIDS patients who were taking an intricate drug cocktail in order 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 treatment – what happened to them after their paper medical records were destroyed?

The doctors at M.D. Anderson in Houston know. M.D. Anderson is one of the premier cancer centers in the world, and its doctors treated hundreds of evacuees in the aftermath of Hurricane Katrina. For those Gulf residents who were in clinical trials with the National Cancer Institute (NCI), their data had been captured electronically during the course of their treatment. For these patients, their information was immediately available to doctors at M.D. Anderson, and their treatments were resumed exactly where they left off. For those who were not in an NCI clinical trial, the vast majority did not have electronic records, and doctors at M.D. Anderson scrambled to redo tests, spending precious time recreating intricate treatment regimens.

Intuitively, we know that many people died as a result. Their cancer killed them – but the lack of information most assuredly did as well.

The Department of Veterans Affairs (VA) also demonstrated the power of health IT after Hurricane Katrina. Because of the VA's long investment in health IT, when veterans from the Gulf arrived at VA facilities across the country, their full medical histories were electronic, intact and available immediately.

Interoperability Now

Building Eisenhower's system for today's needs requires action now, and developing industry-wide data standards of interoperability is vital. Interoperability means that every stakeholder in healthcare will have the ability to securely exchange electronic data, be it in the course of routine care or after an extreme disaster. This may sound impossible, considering the vast networks that we hope

to connect: hundreds of thousands of doctors; thousands of hospitals; tens of thousands of pharmacies; hundreds of insurers, 300 million citizens; all 50 state governments; Medicare; public health agencies; long-term care facilities; and dozens of other entities.

The task does appear daunting, but technology is the easy part. Through the Internet, fiber optic cables, high-speed connectivity and the continued innovation of technology companies, the technology already exists today to build a national, interconnected system. What we require now are common standards to allow for the seamless exchange of data.

Data standards of interoperability have been achieved in other industries. In his book, *The World Is Flat*, Thomas L. Friedman provides an excellent summary of how the private sector collectively agreed upon data standards for the Internet. The challenge was to ensure that every system spoke the same language, so 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 private sector, particularly those companies that develop and use health information technology products, should take the lead role in developing data standards that will enable the electronic exchange of information from one system to another. The federal government can continue to facilitate this development by collaborating with the private sector through the Health Information Technology Standards Panel.

President Bush signed an executive order on August 22, 2006, that applies additional pressure to move ahead. Two of the key provisions state: 1) as four health-related departments of the federal government purchase or upgrade health IT systems, they must comply with interoperability standards; and 2) as providers, health plans and other providers that contract with the federal government purchase or upgrade health IT systems, they must comply with interoperability standards. Putting the purchasing power of the federal government behind adoption of interoperable technology is the right thing to do. But this has little impact until interoperability standards are finalized.

Working in collaboration with the federal government, the private sector must quickly adopt these standards. We cannot build Eisenhower's system without them.

Use in Peace Time

President Eisenhower's leadership changed the face of America forever. His vision of a national highway system created a wave of prosperity that we continue to ride today. It opened new markets through interstate commerce, created a national sense of community, brought the modern world to rural America and drove innovation from coast to coast. The total sum of benefits, both economic and social, is incalculable.

A national health information system would have the same profound effect on the United States. When there is no emergency to respond to, it would be the information highway that every doctor and healthcare provider in the country could use in the course of care.

A recent study by the Institute of Medicine entitled "Preventing Medication Errors" concluded that patients experience an average of one medication error for every day they are hospitalized, amounting to more than 1.5 million errors every year – more than 7,000 of which are fatal. Electronic prescribing and having real-time patient information can virtually eliminate these errors.

One example is Piedmont Hospital in Georgia. After implementing a computerized physician order entry system, its medication errors dropped from more than seven per 10,000 to less than one per 10,000 – more than an 80 percent documented drop. And this is just one hospital. Imagine how many lives would be saved if every hospital, doctor, long-term care facility and pharmacy were plugged into a national electronic prescribing network. Real-time information on patient medications and allergies, coupled with decision support tools, would instantly transform healthcare.

From electronic prescribing and remote patient monitoring to clinical trial applications and medical research, a national health information system could be the highway that allows for the connectivity, efficiency and improvement that we all aspire to achieve in healthcare. Networks like the World Wide Web and network application platforms, such as Internet2, hold such explosive potential that it would be tragic not to leverage them in healthcare.

In a dangerous world, health information technology can and should be an integral part of America's national security strategy. Just like the nation's highway system was designed to do 50 years ago, a health information network will eliminate the "waste, danger and death," as President Eisenhower put it, of the current system. The dire necessity and stunning potential of building a national, interconnected system will indeed save lives and save money – in wartime and in peace. Our predecessors knew this 50 years ago. What is our excuse?

Endnote

1. "Roads to Recovery," San Antonio Express-News, September 8, 2005.