The Current State of Healthcare in the United States

- Overview
  - Healthcare costs in the United States continue to rise and are straining available resources.
    - The cost of healthcare services is expected to rise 7.5 percent in 2013, more than three times the projected rates for inflation and economic growth.\(^1\)
    - In 2010, the World Bank reported that healthcare costs reached 17.9\% of U.S. Gross Domestic Product ("GDP")\(^2\) and is expected to reach 20\% of the U.S. GDP by 2021.\(^3\)
    - In 2011, the average annual premium for employer-sponsored health insurance was $5,429 for single coverage — up 8\% from 2010 — and $15,073 for family coverage — up 9\% from 2010.\(^4\)
    - According to the U.S. Dept. of Health & Human Services ("HHS"), growth in national health expenditures is expected to average 6.1 percent per year between 2009 and 2019.\(^5\) The health share of GDP is projected to reach 19.3 percent by 2019.\(^6\)
    - Spending on Medicare and Medicaid is projected to average 6.9 and 7.9 percent, respectively, per year through 2019.\(^7\)
    - Overall, real per person spending on healthcare has risen by 40 percent in the past decade.\(^8\)
The U.S. has the highest share of per capita healthcare spending out of all OECD counties, at $7,290, which is two and a half times the OECD average.\(^9\)

Chronic conditions are on the rise across all age groups and currently account for 75 percent of the nation’s healthcare costs.\(^{10}\)

According to the Centers for Disease Control ("CDC"), more than 133 million Americans have at least one chronic disease.\(^{11}\) These individuals account for 81 percent of hospital admissions, 91 percent of prescriptions, and 76 percent of all physician visits each year.\(^{12}\)

As of July 2011, nearly 20 percent of rural residents considered themselves to be in only “fair” or “poor” health.\(^{13}\)

It is estimated that healthcare coverage costs for people with a chronic condition top $6,000 annually, 5 times higher than those without.\(^{14}\)

From 1999-2010, the percentage of adults aged 65 and over with both hypertension and diabetes increased from 9% to 15%; prevalence of hypertension and heart disease increased from 18% to 21%; and prevalence of hypertension and cancer increased from 8% to 11%.\(^{15}\)

By 2025, chronic diseases will affect half of the U.S. population, an estimated 164 million Americans.\(^{16}\)

A shortage of healthcare professionals threatens to place additional strain on the healthcare system.

According to the American Academy of Family Physicians (AAFP), the number of U.S. medical school students entering primary care has decreased by nearly 52 percent since 1997.\(^{17}\)

Only half of the needed number of physicians is currently entering the field. HHS predicts that healthcare staffing shortages will increase significantly after 2014, when 32 million more Americans become insured as mandated by the federal healthcare reform law.\(^{18}\) AAFP predicts a shortage of about 40,000 physicians by 2020.\(^{19}\)

A shortage of nurses is also impacting the system. According to one study, 46 percent of nurses report that the shortage is decreasing the amount of time they can spend with their patients.\(^{20}\)
• With the senior population set to double by 2050,\textsuperscript{21} such a shortage could create significant problems for the healthcare system.

• A recent poll of healthcare quality experts found that biggest issues patients will face in light of staffing shortages are spotty care, longer waits for primary care physicians, and medical errors.\textsuperscript{22}

  o The high number of uninsured individuals is further exacerbating these issues.

• According to the Census Bureau’s 2011 Current Population Survey (CPS), there were 49.9 million uninsured individuals in 2010, or 16.3\% of the total population.\textsuperscript{23}

• Young adults comprise the largest and fastest growing segment of the uninsured population.\textsuperscript{24} The percentage of American ages 25-34 without insurance is 28.4 \%.\textsuperscript{25}

• As of 2012, there are 95 million people in the United States covered by government health insurance, which equals 31\% of the population.\textsuperscript{26}

\textit{An Introduction to Broadband & Telemedicine}

• \textbf{The Role of Digital Technologies in Modern Healthcare}

  o The future of healthcare will depend on the effective incorporation of digital technologies to streamline the practice of medicine and decrease costs.

  • The U.S. health IT market is expected to grow at a compound annual growth rate (CAGR) of over 24\% between 2012 and 2014.\textsuperscript{27}

  • According to a recent survey by Intel, 89 percent of healthcare executives expect telemedicine to transform the U.S. healthcare system in the next decade.\textsuperscript{28}

  o Broadband-enabled telemedicine, a key element in the future of healthcare, encompasses:

    • Real-time remote patient consultations;

    • Remote monitoring of patients’ vital signs and conditions;

    • The storing and forwarding of critical health information for analysis and diagnosis (e.g. MRI results and electronic health records[EHRs]);
The provision of specialized services over long distances (e.g. teledentistry, telepharmacy, telepsychiatry, and mHealth); and

The wide availability of health information to patients and caregivers.

- However, challenges remain to fully incorporating digital technologies like broadband into the practice of medicine.
- For instance, EHR upgrades are potentially very expensive. HHS estimates that a previously certified EHR for hospital use will cost at least $50,000 to upgrade, and to prepare for a new certification will probably cost $138,000 or more.\(^{29}\)
- Physicians may be reluctant to incorporate telemedicine into their practice for a variety of reasons, including not wanting to rely on technology, not wanting to be trained on the equipment, and fear that technological malfunctions will lead to malpractice suits.\(^{30}\)

**Overview of Current Broadband-Enabled Telemedicine Uses**

- **Patients**
  - Patient engagement has increased dramatically. More organizations are providing services to patients, allowing them to view or contribute information on their health status.
  - Digital and social media are spurring the development of new consumer-focused tools for patients and their ability to manage their own health and wellbeing.\(^{31}\)
  - Recent research demonstrates that the amount of time spent researching health information increases when individuals switch from dial-up Internet service to broadband.\(^{32}\)
  - In 2000, more than half of all Internet users had used the Web to obtain medical or health information.\(^{33}\) That number rose to 60 percent by the end of 2007.\(^{34}\) As of 2011, 80 percent of Internet users now gather health information online,\(^{35}\) while 27 percent have reportedly tracked their weight, diet, exercise routine, or some other health symptom online.\(^{36}\)
  - While more individuals are using the Internet to access health information, the amount of Americans adopting broadband in their homes has remained essentially the same since 2009.\(^{37}\)
According to PwC, approximately half of all consumers are willing to use the Internet, computers and telephone to access healthcare services. The most popular method to access care is e-mail consultation, followed by online consultations.38

- The amount of adults who own and use their cellphones to access health information has risen from 17% in 2010 to 31% in 2012.39

- Smartphone owners are more likely to use their phone for mHealth purposes than non-smartphone owners.40

- In addition, an IDC survey of consumers found that 4.6% of respondents had used videoconferencing to receive medical care. Further, respondents age 35 and under were much more likely to have used telemedicine tools than those age 65 and older.41

### Providers

- At least 300 hospitals in the U.S. and some two-thirds of radiology practices use some form of teleradiology.42

- According to the CDC, over 50% of office-based physicians are using an electronic health records system, which is up from 2007 when it was at 34.8%. Additionally, the proportion of physicians who adopted EHRs increased as the size of the practice increased.44

- In 2010, HHS awarded $20 million to support EHR adoption in 1,655 critical-access and rural hospitals in 41 states through the Regional Extension Center program.45

- A more recent study revealed that 7 percent of U.S. physicians use online video conferencing to communicate with their patients.46

- Indeed, physicians are increasingly finding video conferencing a practical communication channel for discussing non-urgent issues with their patients.47

- Concerns preventing adoption of video services are related to reimbursement, liability, and HIPAA rules; thus, some providers are looking to form partnerships with insurance companies.48

- According to CompTIA, more than 50% of physicians use a smartphone for work purposes.49
Currently, 26 percent of physicians use e-prescription tools. Of those, about 70 percent use an application on their EMRs.\textsuperscript{50}

- According to Surescripts, 52\% of office-based physicians used e-prescription systems in 2011, compares to less than 10\% in 2008.\textsuperscript{51}

The Journal of the American Medical Association recently reported on a study finding that the use of telemedicine services in ICUs resulted in lower mortality rates, lower rates of preventable complications, and shorter stays in ICUs and hospitals generally.\textsuperscript{52}

\subsection*{Innovators}

- A recent study estimated that “the market for telemedicine devices and services will generate nearly $3.6 billion in annual revenue within the next five years.”\textsuperscript{53} As a result, many innovators in the private sector are increasing their investment in broadband-enabled telemedicine tools.

- The need to cut healthcare costs, enhance clinical/administrative workflow of hospitals, and demand for faster, error-free, efficient healthcare delivery, is fueling the healthcare provider IT market worldwide.\textsuperscript{54}

  - The global healthcare IT market is expected to grow from $99.6 billion in 2010 to $162.2 billion in 2015, at a CAGR of 10.2\% from 2010 to 2015.\textsuperscript{55}

- The U.S. market for wireless home-based healthcare applications and services is also expected to grow significantly. Valued at approximately $304 million in 2009,\textsuperscript{56} the market is expected to grow at a five-year cumulative annual growth rate of over 80 percent, becoming a $4.4 billion industry by 2013.\textsuperscript{57}

- According to ABI Research, the market for wearable wireless sensors will likely grow to more than 400 million devices by 2014.\textsuperscript{58}

- Further, the mHealth market—worth $1.2 billion in 2011—is projected to grow at a compound annual growth rate of 39\%.\textsuperscript{59}

\textbf{The Impacts of Broadband on Telemedicine}

\subsubsection*{Increases the Geographic Reach of Healthcare}

- Broadband enables the delivery of robust, interactive, and real-time telemedicine services to all parts of the country, even the most rural and remote areas.
• While just 20 percent of the U.S. population resides in rural locations, chronic illnesses and poor overall health rates are higher in rural areas than in urban locations. In general, relative to the overall population, rural residents are older, have lower incomes, have fewer physicians available to care for them, and have fewer employer-provided health insurance options.60

• As of 2011, about a third of rural patient hospitalizations take place in urban hospitals.61 Moreover, patients from rural areas reported that that they are forced to travel, on average, 60 miles to visit a specialty care physician.62

• Broadband-enabled telemedicine applications such as teleconsultation, teleradiology, and remote monitoring greatly expand the geographic availability of healthcare63 and provide equitable access to quality care in medically underserved communities.64

• Teleconsultations reduce the need for in-person referrals and allow patients to receive care without a face-to-face visit with a specialist.65 In rural and low-income areas such tools provide a cost-effective method of providing citizens with quality care.66

• In addition, the numerous health-related applications on mobile devices significantly expand the availability of health and medical resources. Physician-targeted apps include medical reference tools, diagnostic tools, continuing medical education alerts, and patient records programs. Programs designed for patient use include those for medication compliance, mobile and home monitoring, home care, managing health conditions, as well as wellness and fitness.67

- Enables Cost-Savings and Other Economic Impacts

  o Remote monitoring in particular could significantly reduce healthcare expenditures.

  • A major study from 2008 estimated that “a full embrace of remote monitoring alone could reduce healthcare expenditures by a net of $197 billion (in constant 2008 dollars) over the next 25 years with the adoption of policies that reduce barriers and accelerate the use of remote monitoring technologies.”68

  • If employed on a daily basis to address chronic illness, remote online monitoring may save hospital, drug, and outpatient costs by 30 percent and also improve the quality of care and quality of patients’ lives.69
Early disease detection enables cost-savings in the long-term.

- Using remote monitoring tools to recognize and intervene in the early onset of diseases like Alzheimer’s and other dementia could delay their development. It was recently estimated that “interventions that could delay the onset of Alzheimer’s disease by as little as one year would reduce prevalence of the disease by 12 million fewer cases in 2050.”

- Early intervention for people at risk of congestive heart failure – the leading cause of hospitalization in the U.S – could save anywhere from $5 billion to $7 billion per year.

Cost-savings are also enabled through the reduction of unnecessary or redundant consultations, tests, and transfers.

- Providers who have implemented EHRs save money and time by spending less time searching for paper charts, transcribing, calling labs or pharmacies, reporting, and fixing coding errors.

- A study from 2008 estimated that broadband-enabled real-time video consultations could replace upwards of 45 percent of in-person visits regarding heart-related matters.

- One study estimates that telemedicine “could save the U.S. healthcare system $4.28 billion [annually] just from reducing transfers of patients from one location, such as a nursing home for medical exams at hospitals, physicians’ offices, or other caregiver locations.”

Considerable cost-savings may be realized by using telemedicine to care for the nation’s elderly and for people with disabilities.

- Broadband-based health resources can save approximately $927 billion in healthcare costs for seniors and people with disabilities over the 25-year period between 2005 and 2030.

The transition towards an electronic health infrastructure will also create new job opportunities.

- A major study from 2009 estimated that an investment of $10 billion in health IT in one year could create or retain 212,000 U.S. jobs for a year.
Improves the Quality of Healthcare

- According to the FCC, “[t]he e-prescribing component of EHRs helps avert known drug allergic reactions and potentially dangerous drug interactions, while facilitating the ordering of laboratory tests and reducing redundancy and errors. EHRs also provide easier access to critical laboratory information and enhance preventative care.”

- If used correctly, telehealth can deliver a 15% reduction in emergency room visits, 20% reduction in emergency admissions and 14% reduction of in bed stays. Further, telehealth can reduce the mortality rate by 45%.

- Telestroke programs enable attending specialists to be available at a moments notice, and can make assessments of patients as if they were on site. In addition, a 2010 study of stroke centers found that, over a five year period, the correct emergency stroke treatment decisions were made 96 percent of the time with audio/video telemedicine technology, compared to just 83 percent for telephone consultations.

- A decade-long study found that remote interpretation of pediatric echocardiograms via telemedicine helped speed diagnosis and treatment of potentially serious heart conditions in children.

- Another recent study found that nearly 43 percent of paper prescriptions contained an error. However, the percentage of errors dropped to just 7 percent for prescribers using an electronic system.

- Moreover, according to one recent report, telemonitoring may reduce the mortality of patients with heart failure by as much as 20 percent.

- In addition, telemedicine tools can help ensure that patients take their medications by providing real-time updates and reminders.

State and Federal Government Recognize the Benefits of Health IT

- Twelve states, covering over 106 million Americans, have adopted mandates for telehealth services without any adverse or unintended consequences.

- There are currently 39 state Medicaid programs that provide some reimbursement for telehealth services, with behavioral health having the most rapid expansion of reimbursement policies.
The federal government has taken steps to ensure that electronic health systems are strong, secure, and communicate with each other.

- In May 2011, the Centers for Medicare and Medicaid Services relaxed stringent credentialing and privileging requirements that had previously prevented a large amount of telemedicine treatment.87

- As of Sept. 2010, the Department of Defense (DOD) had allotted approximately $2 billion over the last 13 years towards implementation of an electronic health record system - EHR Way Ahead.88 A GAO report confirms DOD’s plans to continue supporting and upgrading its EHR system through 2015 to improve performance and enhance functionality.89

- The combined efforts of stakeholders in the federal, state, local, nonprofit, and private arenas have produced a vibrant telemedicine industry that continues to develop and deploy lifesaving services and applications to patients and healthcare providers across the country.

- A bill was introduced in July 2012 called the Veterans E-Health & Telemedicine Support Act of 2012, which would enable providers affiliated with the Department of Veterans Affairs to deliver telemedicine services across state lines. In addition to providing veterans with more and better healthcare, this would eliminate the requirement that providers be licensed in the same state as their patients.90

Summary of Observations & Data Regarding Broadband and Telemedicine

- Broadband enables telemedicine and the delivery of critical healthcare services to remote and home-bound patients, facilitates enormous cost savings, and empowers individuals by providing them with access to critical medical information.

- Broadband is facilitating the development of a new generation of telemedicine tools, services, and devices, which have bolstered healthcare in this country and resulted in measurable and significant cost savings to providers and patients.

- Broadband-enabled telemedicine is shifting the healthcare paradigm towards more individualized and convenient care by, among other things, allowing for more robust in-home health monitoring and treatment.

- An array of public and private sector initiatives is spurring innovation, deployment, and use of broadband-enabled telemedicine services across the healthcare industry. Government programs that strategically subsidize private efforts have been particularly effective and represent a viable approach for bringing telemedicine services and broadband to every part of the country.
Many opportunities exist for local, state, and federal government to implement forward-looking policies that encourage continued innovation and use of telemedicine services. These include continuing to update antiquated laws related to insurance reimbursement, reining in overly expansive tort laws, and modernizing privacy standards.

Substantial investment in next-generation networks is essential in order to realize the full range of broadband-enabled telemedicine tools and services.
ENDNOTES


6 Id.

7 Id.

8 Economic Case for Health Care Reform at p. 2.


15 See Centers for Disease Control and Prevention, NCHS Data Brief, Multiple Chronic Conditions Among Adults Aged 45 and Over: Trends Over the Past 10 years, July 2012, available at http://www.cdc.gov/nchs/data/databriefs/db100.htm.

16 Growing Crisis of Chronic Disease at p. 1.


19 Id. at p. 3.

20 Id. at p. 4.


22 Healthcare Staffing Shortage at p. 1.

TELEMEDICINE – STATS, DATA & OBSERVATIONS  PAGE 12 OF 16


Id.


Id.


47 Id.

48 Id.


61 Modernizing Rural Health Care at p. 3.

62 Id.


66 Highlands County, FL, for example, will be utilizing telepsychiatry to deliver mental care to the rural county’s citizens in order to overcome the county’s lack of physicians and funding. See Aiyana Baida, Mental Health Group to Use Live Videoconferencing, April 21, 2010, Highlands Today, available at http://www2.highlandstoday.com/content/2010/apr/21/la-mental-health-group-to-use-live-videoconferenci/.


77 National Broadband Plan at p. 201.


Id.