



# Healthcare Information Technology:

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## Executive Summary

Healthcare providers, such as hospitals and physician practices, are facing unprecedented challenges and opportunities in terms of health care information technology in the United States today. Healthcare information technology is developing at an unprecedented pace. At the same time, providers, consumers and payers are demanding more cost effective, quality and productive healthcare. Access to meaningful healthcare information and transparency is required by regulators, as well as, providers and consumers. Developments in clinical applications and capabilities are allowing us to improve, measure, and communicate improvements in patient care. All of these developments, as well as a national focus on healthcare reform and government incentives for the meaningful use and management of healthcare information, qualify the next few years as the most exciting yet in terms of healthcare information technology in the United States.

Unprecedented opportunities exist to offer finance and leasing products and services to this rapidly emerging sector known as healthcare technology. Opportunities to provide greatly needed financing resources and expertise to an extremely large and underserved market abound, while at the same time, challenges are driven by complex regulation, a difficult economy, and lack of understanding by all parties to these complicated transactions. The healthcare private sector and government investment in healthcare information technology in the U.S. offers exciting opportunities for leasing and finance companies in 2010 and beyond. However, these services will be much more complex and require a significant understanding of the healthcare industry, recent legislation, regulations, and healthcare technology, as well as equipment leasing and finance. Developments in healthcare technology will transform the delivery of healthcare in the U.S. and globally. It will not be easy, but the benefits are well worth the effort required for success in this process.

This report explores the health care operating environment today, emerging information technologies, federal incentives and regulation, and opportunities and challenges identified by healthcare professionals and finance and leasing professionals. Information, resources and tools are also provided.

## Introduction

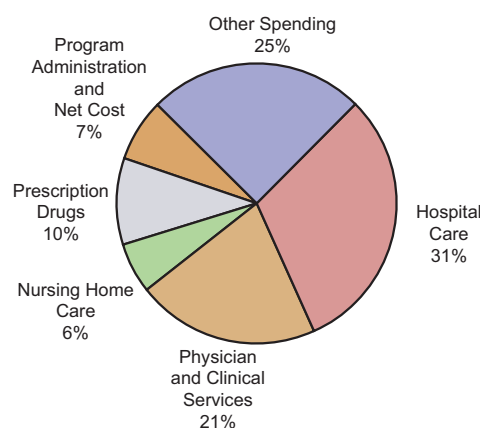
Healthcare information technology is developing at an unprecedented pace. At the same time, providers, consumers and payers are demanding more cost effective, quality and productive healthcare. Access to meaningful healthcare information and transparency is required by regulators, as well as, providers and consumers. Developments in clinical applications and capabilities are allowing us to improve, measure, and communicate improvements in patient care. All of these developments, as well as a national focus on healthcare reform and government incentives for the meaningful use and management of healthcare information, qualify the next few years as the most exciting yet in terms of healthcare information technology in the United States.

Yes, this will be an exhilarating time for the brave adventurers offering finance and leasing products and services to this rapidly emerging sector known as health care technology. Opportunities to provide greatly needed financing resources and expertise to an extremely large and underserved market abound, while at the same time, challenges are driven by complex regulation, a difficult economy, and lack of understanding by all parties to these complicated transactions.

### Opportunity: A Very Large Market

The healthcare provider market needing services is huge, challenging, complex and potentially extremely rewarding for healthcare leasing and finance organizations. The long-term projection for Healthcare in the United States is for continued growth in real terms and absolute terms. However, in 2008, the U.S. health care spending growth slowed to 4.4%, which is the slowest rate of growth experienced over the past 48 years. (Micah Hartman, 2010, pp. 147-155) The deceleration was broadly based for almost all payers and healthcare goods and services. Total spending on health care has doubled over the past 30 years from less than 8% to approximately 16% of gross domestic product (GDP) in the United States today. In January 2010, the centers for Medicare and Medicaid Services (CMS) reported that healthcare spending rose to \$2.3 trillion in 2008. (Centers for Medicare & Medicaid Services, 2010) The Congressional Budget Office (CBO) estimates that this percentage will double again over the next 25 years to over 31% of GDP. (Congressional Budget Office, June 17, 2008). This growth reflects a long-term historical trend to rising Healthcare expenditures as Healthcare expenditures growth is expected to outpace GDP growth.

#### The Nation's Health Dollar, Calendar Year 2008: Where it Went



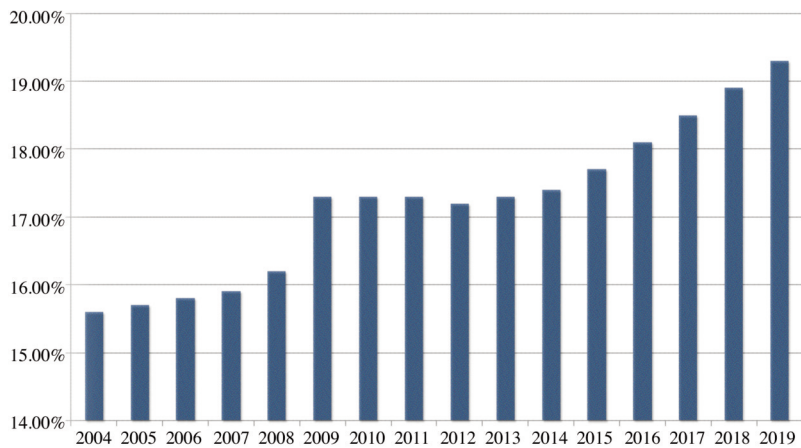
Note: Other Spending includes dentist services, other professional services, home health, durable medical products, over-the-counter medicines and sundries, public health, other personal health care, research and structures and equipment.

SOURCE: Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group.

In February, 2008, the director of the National Health Statistics Group in the Office of the Actuary of the Centers for Medicare and Medicaid Services, along with several of his associates, estimated that Healthcare expenditures in the U.S. will grow from \$ 2.1 trillion in 2006 to \$ 4.3 trillion in 2017. (CMS, Office of the Actuary). Over the period 2008-2018, average annual health spending growth (6.2 percent) is expected to outpace average annual growth in the overall economy (4.1

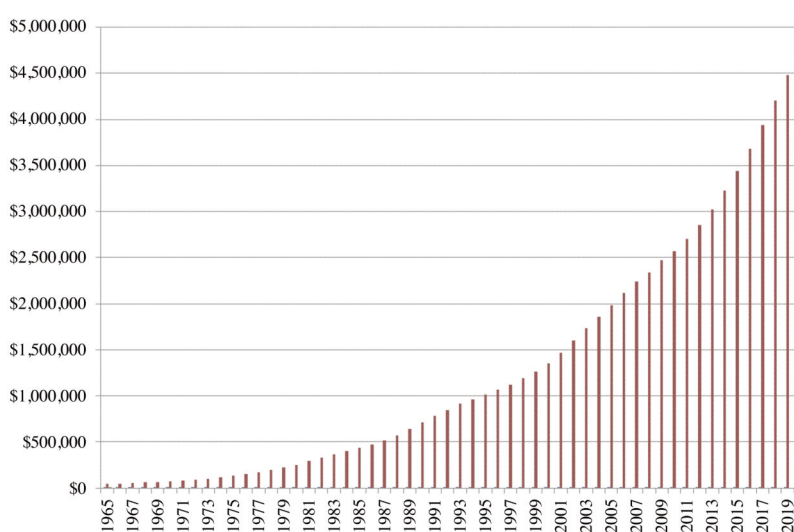
percent). By 2018, national health spending is expected to comprise just over one-fifth (20.3 percent) of GDP. (Office of the Actuary in the Centers for Medicare & Medicaid Services, 2010). The charts below show the changing percentage of healthcare expenditures as a percent of GNP and the relative growth of healthcare expenditures compared to overall GNP growth. (Office of the Actuary in the Centers for Medicare & Medicaid Services, 2010).

**Historical and Forecasted U.S. Health Expenditures as Share of Gross Domestic Product (GDP)**



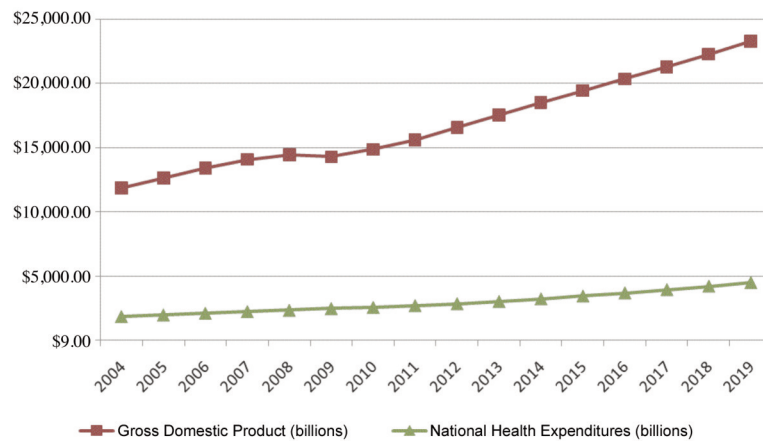
Centers for Medicare & Medicaid Services, Office of the Actuary.

**Historical and Forecasted U.S. Health Expenditure (millions)**



Centers for Medicare & Medicaid Services, Office of the Actuary.

### Historical and Forecasted U.S. Health Expenditures Compared to Gross Domestic Product (GDP)



Centers for Medicare & Medicaid Services, Office of the Actuary.

There are six major forces impacting the future growth of the healthcare industry. These are:

- An aging U.S. population
- Growing labor shortages
- New medical treatments
- Technology
- Globalization
- Government policy including reimbursement for health services

The first three forces listed tend to increase healthcare costs while the next two tend to decrease healthcare costs. The most significant major force impacting healthcare expenditures is demographics, a force over which policy makers have little control. An older population requires more health care and the aging of the U.S.'s population is driving up U.S. healthcare costs. The median age of the U.S. population is projected to rise from 29 in 1980 to 41 in 2020. At the same time, a growing shortage of trained labor in the healthcare industry, particularly for nurses and technically skilled people, is generating significant inflation in healthcare expenditures. New treatments may make medicine more expensive or they may reduce costs depending on the nature of the treatment. Technology provides the healthcare industry with a wide variety of tools to deliver improved care. At the same time technology provides a wide variety of tools to manage the healthcare industry more efficiently and effectively. Technology is the key to increased productivity in the healthcare industry that will increase the supply of healthcare in the face of growing demand and lower its cost. In the past, technology has been a driver of increased costs. However, many new technologies actually provide significant cost savings



while improving the quality of health care. Globalization is also emerging as a major factor in the supply of health-care in the U.S. Because globalization brings lower cost labor to the U.S. healthcare industry, it is a force to reduce costs.

Generally Government policy is a wild card that can have a widely varying impact depending on the policy

implemented. Government is the central player in the healthcare industry.

Government decisions will determine how much and how fast the healthcare industry grows in the future. In addition, incentives will impact the types of products and services used to deliver healthcare. Government policy and regulation, along with technology, will play the central role in determining the future of healthcare because government directly and indirectly bears the majority of the nation's health costs. Government is the largest source of direct payment for healthcare. Based on the latest projections provided by the government, Medicare and Medicaid (including state funding), represent 35 cents of every dollar spent on healthcare in the United States in 2008.

Since welfare reform was enacted in 1997 making many more families eligible for Medicaid, the growth of Medicaid has accelerated. Between 1999 and 2005, the average number of persons covered by Medicaid has grown from 34 million in 1999 to 47 million in 2005, surpassing the number covered by Medicare (41.8 million) to make Medicaid the largest government health insurance program in terms of beneficiaries. However, Medicare should resume its place as the largest program in terms of those covered in the near future. The percentage of the U.S. population over 65 is expected to grow from 13% of the population in 2000 to 20% of the population in 2030 while the absolute size of the age group over 65 doubles. (CMS, Office of the Actuary) This growth will dramatically increase the number of Medicare beneficiaries.

The Federal Government's direct payment for healthcare does not stop with Medicare and Medicaid. The Federal Government has many other major health care programs including programs for veterans through the Veterans Administration, the healthcare services of the Department of Defense, health insurance programs for Civil Service employees, programs of the Public Health Service, and Congressional health insurance programs. Beyond the Federal government, significant additional governmental payments come from state and local government payments for health care services and insurance. Beyond direct government payment for health care, there is significant indirect cost to the government at both the Federal and state level from tax rules providing for the deductibility of health insurance premiums and various health-related expenses.

How government reacts to the combination of an aging population, new health-care treatments, health worker shortages, and rising medical costs will be a central

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force in shaping the environment of the healthcare area. Because government payments are primarily in the form of reimbursement of healthcare charges, changes in the rules governing what charges the government will reimburse can drastically change the revenues and finances of healthcare providers. This can happen with the stroke of a pen as happened with the Balanced Budget Act of 1997 when reimbursements were adjusted downward by Congressional mandate with significant negative impact on the cash flow and financial situation of many healthcare providers. Although this happened over a decade ago, its impact remains in the minds of healthcare providers.

Healthcare in the 20-year period from 2010 to 2030 will be shaped by the interaction of a growing demand for healthcare from an aging population, coupled with continued explosive growth of medical knowledge with new treatments for a wide variety of medical diseases and problems, and the limit on the resources of society with a continuing struggle to pay for medical care. This interaction

will put a premium on increasing productivity in healthcare.

This premium on productivity will be driven by the fact that in addition to being very large and rapidly growing, the U.S. healthcare industry has a high degree of inefficiency. The U.S. healthcare industry has been reported to consume a 50-100% greater share of U.S. GNP than countries in the European Union with no significant differences in the health qualities of the population by any standard measure such as life expectancies. Healthcare consumed 14.6% of U.S. GDP in 2002 compared to 11.2% of GDP in Switzerland, 10.9% in Germany, 9.7% in France, 9.6% in Canada, and 7.7% in the United Kingdom for the same year. However, despite the high level of U.S. healthcare expenditures compared to other countries, the U.S. only ranked 16th out of 22 industrial countries in terms of healthcare outcomes. The dramatic impact healthcare costs currently have on the national economy, and their even greater impact in the future, will require innovation and substantial efforts to improve the efficiency and effectiveness of the healthcare industry with most of this effort being concentrated in capital investment in technology to improve productivity.

### **Opportunity: An Underserved Market**

For decades, healthcare has underinvested in information technology. The difficult economy has further delayed capital expenditures for healthcare information technology by healthcare providers, such as physicians and hospitals. Investment in healthcare technology is essential to providing quality healthcare in an efficient and effective manner in today's environment. Macro-trends in the healthcare industry indicate a growth of the healthcare industry in real terms as more people are treated by the system. There is a growing emphasis on productivity to contain both real growth cost pressures and inflationary pressures from labor shortages. The critical element in improving the productivity of the healthcare industry and restraining its cost growth is capital investment in productivity improving technology that will substitute capital for labor. Both macro-trends indicate a substantial increase in capital expenditures by healthcare organizations.

The biggest area for the healthcare productivity improvement in the future will be information technology. Currently, the healthcare industry has one of the lowest levels of information technology utilization of any major industry group. In the U.S. according to Gartner Dataquest, healthcare spent 2.5% of net revenues on information technology in 2002 compared to an overall average for all industries of 3.9%. Of 11 major economic sectors, healthcare spending per employee ranked 8th behind all sectors except education, construction and mining on a global basis. The leading sector in spending per employee, finance, spent approximately 25 times per employee the amount spent by the healthcare sector per employee. (Datamonitor, November 24, 2005)

However, though healthcare comparatively has underinvested in information technology, its information technology expenditures are still very large because the healthcare sector is so large. Healthcare providers will spend as much as \$39.5 billion on information technology by 2008, according to Datamonitor. This already very large market will get much larger in the future as the underinvestment in information technology by the health care sector is remedied in the years ahead.

One example of the potential of technology to promote efficiency and effectiveness in the healthcare system is the area of medical records. A major component of the cost of healthcare is record keeping of all types. Most of this record keeping is done on paper records or on antiquated legacy computer systems. Healthcare information technology includes a wide variety of technology, such as electronic health records (EHR), personal health records (PHR), practice management systems, hospital management systems, clinical management systems, telemedicine, pharmacy systems, remote patient monitoring, and other existing and emerging technologies. An electronic health record is comprised of a specific set of applications that provide support for direct patient care. Information management systems specialists provide technical expertise and support. The Healthcare Information and Management Systems Society (HIMSS) is the healthcare industry's membership organization exclusively focused on providing global leadership for the optimal use of healthcare information technology (IT) and management systems for the betterment of health-

care. (<http://www.himss.org/ASP/index.asp>). The 2009 Annual Report of the U.S. Hospital IT Market, an industry report prepared by HIMSS Analytics and HIMSS (HIMSSAnalytics, 2009), describes how many people in the US healthcare industry, our government, and the media use the terms electronic medical record (EMR) and electronic health record (EHR) interchangeably.

*Financial barriers were reported as having the greatest effect on decisions regarding the adoption of electronic health record and the physician practice.*

Forecasts of the costs, for the implementation of electronic medical records only (that has already been accomplished in much of advanced world), range from a minimum estimate of \$50 billion by the Lewin Group, to an estimated \$200 billion in a study completed in early August, 2005 by a group of information technology experts and published in the *Annals of Internal Medicine*. (Lewin Group, Inc, March 2005)

Though many large private companies operate in the healthcare industry, small, private firms, such as medical practices, are the most significant business form in healthcare, followed by not-for profit organizations, such as nonprofit hospital organizations. In July 2008, the New England Journal of Medicine reported that costs associated with the implementation of electronic medical records (EMR) are the primary reasons why many doctors have yet to adopt them, according to a study based on RTI International data. (Catherine M. DesRoches, July 3, 2008) RTI surveyed 2758 physicians between September of 2007 and March 2008. Of respondents, 66 percent of the ones not yet using EMR systems said cost was a barrier. Other reasons cited for not using EMR included: failing to find a system that met a doctor's needs; return on investment and concerns about obsolescence.

Among doctors who have EMR, only 4 percent said the systems were "fully functional." (Catherine M. DesRoches, July 3, 2008) with key patient safety features such as prompts when a medication may react badly with another drug the patient is already taking. 13% reported having a basic system without key patient features. In multivariate analyses, primary care physicians, and physicians practicing in large groups, and hospitals or medical centers, and in the western region of the United States, were more likely to use electronic medical records. Physicians reported positive effects of the systems on several dimensions of quality of care and high levels of satisfaction. Financial barriers were reported as having the greatest effect on decisions regarding the adoption of electronic health record and the physician practice. (Catherine M. DesRoches, July 3, 2008)

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records, but only 9% of small practices with 1 to 3 doctors (where almost half of U.S. doctors practice) utilizing electronic medical records. (June 2008; Catherine M. DesRoches, July 3, 2008) For small practices, the key constraint on implementing electronic medical records is cost with the total cost of switching estimated at about \$60,000 per doctor (for a cost nationally for all doctors in the hundreds of billions of dollars). (Catherine M. DesRoches, July 3, 2008) Fortunately, in 2010 the costs of this technology have decreased significantly for small physician practices due to improvements in technology and increased competition.

Recent evidence supports the efficacy of investment in healthcare technology. Leaders at many medical group practices recently reported that they rely on information technology (IT) to help provide cost effective care, according to the Medical Group Management Association's (MGMA's) *Performance and Practices of Successful Medical Groups: 2009 Report Based on 2008 Data*. (Medical Group Management Association (MGMA), December 2009)

The Healthcare Information and Management Systems Society (HIMSS) has proposed that the healthcare industry could achieve remarkable improvements in access and reduce healthcare costs overall by investing \$25 billion to improve acute and ambulatory healthcare information technology environments (Healthcare Information and Management Systems Society (HIMSS) , 2010). A substantial investment in healthcare technology is essential today for many reasons discussed in this report. Included in the \$787 billion funded in the Act of the American Recovery and Reinvestment Act (ARRA) is approximately \$20 billion in funding for healthcare IT, including incentive payments to physicians who implement and use eligible electronic medical records systems under the conditions laid out in the law. These provisions are discussed in detail later in this report.

Better performing practices appear to diverge from their peers when it comes to backing that reliance with money. Roughly 78.5 percent of high-performing practices agreed or strongly agreed that they relied on "electronic information systems to help provide cost-effective care." Some 74.5 percent of their peers agreed or strongly agreed with the statement. High-performing multispecialty practices, primary care specialties, orthopedic surgery practices and cardiology practices all spent slightly more than their peers on IT as a percentage of total medical revenue.

Better-performing organizations were significantly more likely to have a fully integrated electronic medical/health records (EMR/EHR) system than others: 39.7 percent vs. 31.6 percent. The same is true of partially integrated systems: 15.6 percent of better performers vs. about 14 percent of others, the report indicates. (Medical Group Management Association (MGMA), December 2009)

While little difference existed in the number of organizations that planned to implement an EHR/EMR in the next 12 months (more than 11 percent), significantly more top-performing practices had plans for implementation within 13 to 24 months: 19 percent vs. 14.1 percent. (Medical Group Management Association (MGMA), December 2009) Top-notch practices also paid more for the acquisition and maintenance of their systems. Better-performers paid approximately \$28,000 per physician to purchase and implement their systems, and then paid approximate-

ly \$500 per physician per month for maintenance. Others paid \$20,400 per doctor for acquisition and implementation, and another \$400 per month per doctor for maintenance. Leaders at a number of the practices profiled in the survey report say how the transition to an EHR was rough but worth the challenge. (Medical Group Management Association (MGMA), December 2009)

In February 2010, executives from 168 healthcare organizations in the United States participated in a study conducted by healthcare management consulting firm Beacon Partners for the purpose of evaluating where hospitals are today in the process of adopting EHRs. This recent study shows that most hospitals are well on their way to implementing some form of EHR solution. (Beacon Partners, 2010) Most hospitals are reviewing or have completed the review stage of implementing new technologies. And because there are so many options, finding the best solution is challenging. Two thirds of the executives stated that they prefer and desire an integrated enterprise system.

*Almost 2/3 of the executives stated that they will be hiring or outsourcing to compensate for their lack of internal resources in this area.*

However, Beacon Partners report that almost every organization is facing multiple hurdles on the process. Keeping up with the ever-changing requirements is also difficult. 20% of the executives report that their current system is not CCHIT compliant, and they will need to upgrade as a result. More troubling, two thirds of the executives report that they are not familiar with Stark regulations. Almost 2/3 of the executives stated that they will be hiring or outsourcing to compensate for their lack of internal resources in this area. (Beacon Partners, 2010)

In addition, the HIMSS reports that the majority of US hospitals are in the early stages of electronic data management. However HIMSS

reports that most of the more than 5000 hospitals and health systems that HIMSS Analytics surveys each year have plans for or have begun implementation of EMR environments. US hospitals are continuing to advance their EMR capabilities to meet new market demands and requirements, even in the difficult economic environment that was experienced in 2008 and 2009. (HIMSSAnalytics, 2009)

The 2009 Annual Report of the U.S. Hospital IT Market, an industry report prepared by HIMSS Analytics and HIMSS (HIMSSAnalytics, 2009) describes market drivers and factors influencing the electronic medical record environment through 2010 as:

- Lack of access to capital may impact the acquisition and installation of EMR products through 2010.
- An anticipated infusion of funding by Congress and the Obama administration is expected to drive the adoption and use of EMR, and improve patient safety and clinical outcomes, while reducing healthcare delivery costs.

- An increased focus on patient safety is expected to decrease medication errors and medical errors.
- An increased focus on proving quality of care will impact care reimbursement models.
- The speed and quality of creation of interoperability standards and vendor adoption of these standards will impact the ability to improve clinical integration and data sharing.
- The efforts of the US government to improve data sharing of patient medical information between providers will be important.
- The failure of regional health information organizations (RHIOs) due to a lack of clinical data sharing between or among provider systems needs to be resolved to support their business models.
- The need to cut clinical operating costs for acquiring, managing, and analyzing clinical data will be important.
- A shift of focus to revenue cycle management IT implementations due to regulatory changes (e.g., v5010 claims transaction standards, and ICD-10 coding updates), and increased budget competition for EMR environment applications will impact the market.
- A potential increase in IT operating expenses as more sophisticated and complex EMR applications are implemented must be monitored and managed.

Evaluation of US hospitals by type, bed size, and region with 2008 data demonstrated:

- Academic/teaching hospitals had the highest mean and median EMR adoption model scores for all hospital types; this is unchanged from 2007.
- The greater than 600 bed market had the highest mean score and median score by bed size, while the 501 to 600 segment had the highest median score in 2007.
- The New England region had the highest mean and median score by region, while the Mid Atlantic region had the highest median score in 2007. (HIMSSAnalytics, 2009)

As a result of this study, for 2009 through 2010, the HIMSS researchers anticipate a decrease in the rate of growth of hospitals with the early clinical decision support systems implemented to conduct error-checking with order entry; for example, drug/drug, drug/food, drug/lab conflict checking (normally found in the pharmacy). At this level of support there is some medical image access from picture archive and communication systems (PACS) available for access by physicians via the organization's intranet or other secured networks outside the radiology department. The rate of decrease in growth will depend upon the length and severity of the current economic recession. (HIMSSAnalytics, 2009)

HIMSS reported that the hospital market segment shows the highest growth by application from 2007 to 2008 as follows:

- Clinical data repository (CDR): rural, medical surgical and single hospital systems had the best growth in 2008.
- Clinical decision support systems (CDS): non-academic, non-medical/surgical hospitals, rural and single hospital systems had the highest growth per segments. However, all segments demonstrated good growth in this dimension in 2008.

- Computerized practitioner order entry (CPOE): multiple hospital systems and medical/surgical hospitals showed the highest growth in 2008.
- Order entry: non-academic hospitals and single hospital systems had the highest growth in 2008.
- Physician documentation: academic/teaching, urban and medical/surgical hospitals showed the highest growth in 2008. (HIMSSAnalytics, 2009)

Academic/teaching and medical/surgical hospitals have the highest growth in physician-focused applications, such as physician documentation. Academic medical centers tend to pioneer new application technologies and treat a higher volume of patients. (HIMSSAnalytics, 2009)

*Better performing organizations were more likely to have fully integrated electronic medical/health records (EMR/HER) than others.*

In addition, the Medical Group Management Association (MGMA) researched the use of electronic medical records and other health care technology in medical practices and released findings in December 2009. MGMA is a leading membership association for professional administrators and leaders of medical group practices. Since 1926, MGMA has delivered networking, professional education and resources, and political advocacy for medical practice management. MGMA's 22,500 members lead 13,700 organizations nationwide in which some 275,000 physicians

provide more than 40 percent of the health care services delivered in the United States. (Medical Group Management Association (MGMA)) Each year the MGMA conducts a voluntary cost survey and a compensation and production survey to its membership. Better performing medical practices are identified and interviewed to determine the reasons for their success so that other medical practices can learn from them.

In December 2009, the Medical Group Management Association (MGMA) reported that better performing multispecialty practices, primary care practices, orthopedic surgery practices and cardiology practices all spent slightly more than their peers on healthcare information technology as a percentage of total medical revenue. In addition, better performing organizations were more likely to have fully integrated electronic medical/health records (EMR/HER) than others: 39.7 percent vs. 31.6 percent. The same is true of partially integrated systems: 15.6 percent of better performers vs. about 14 percent of others, according to the Medical Group Management Association's (MGMA's) *Performance and Practices of Successful Medical Groups: 2009 Report Based on 2008 Data*. While little difference existed in the number of organizations that planned to implement an EHR/EMR in the next 12 months, significantly more top-performing practices had plans for implementation within 13 to 24 months: 19 percent vs. 14.1 percent. (Medical Group Management Association (MGMA), December 2009)



Better-performing practices also paid more for the acquisition and maintenance of their systems. Better-performers paid approximately \$28,000 per physician to purchase and implement their systems, and then paid approximately \$500 per physician per month for maintenance in 2008. (Medical Group Management Association (MGMA), December 2009) Other practices paid \$20,400 per doctor for acquisition and implementation, and another \$400 per month per doctor for maintenance. While little difference existed in the number of organizations that plan to implement an EMR/EHR within the next year, significantly more top-performing medical practices have plans to implement these systems within the next two years. (Medical Group Management Association, December 2009)

It is likely that healthcare providers will constrain capital expenditures and until they have a better understanding of the financial impact on their businesses of federal health care reform legislation. The healthcare industry can be expected to face a difficult macroeconomic environment through 2010 and beyond. There will be amazing opportunities for some innovative and well managed healthcare companies and difficult challenges for healthcare companies ill prepared for the changing environment. It is important to help businesses in the healthcare sector understand how to best invest today and in the future and help their businesses thrive in a complex and challenging economic and regulatory environment.

### **Challenge: Difficult Economic Environment**

The high level of unemployment in the United States economy today caused by the national recession has resulted in rising bad debt and uncompensated care costs in the healthcare sector. As discussed in this report, capital markets remain tight and many financial sources are no longer available to healthcare providers. The overall long-term outlook for the healthcare industry is not good without significant changes in the business and economics of healthcare. The costs associated with increased demand for medical care from an aging population and the growth of new treatments to fill that demand are on a collision course with the human and financial resources available to supply that care.

For many healthcare businesses, difficult financial challenges hit before the economic crisis of fall 2008. The Healthcare Financial Management Association (HFMA) reported that a widening gap between the “have” and “have not” healthcare organizations was apparent in 2003. (Healthcare Financial Management Association, 2003) (Healthcare Financial Management Association, 2004) HFMA explained how the “have” organizations have the size, revenue diversity, and balance sheet strengths to support capital and other investments. They generate adequate cash flows and have had access to capital markets to support strategies of renewal and expansion. In contrast, HFMA describes the “have not” organizations—as much as one-third of all hospitals—struggling to meet critical capital needs, and having limited access to capital markets. HFMA describes how the “have not” organizations have relied on cash flow from operations, grants from private and public organizations, bank lines of credit, and philanthropy to survive. (Healthcare Financial Management

Association, 2004) (Healthcare Financial Management Association, 2004)

HFMA describes how in recent years, the financial markets have provided the “have” organizations with access to low-cost capital. And the economy helped the “have not” organizations survive. In both cases, important services were maintained and often enhanced during recent years. (Healthcare Financial Management Association, 2004) (Healthcare Financial Management Association, 2004)

However, in the fall of 2008, the capital markets have become constrained for almost all healthcare organizations. Worsening economic conditions are hurting cash flows. Philanthropic contributions are decreasing. As hospitals face difficult decisions in the coming months, they must ensure that their decisions reflect the best interests of their communities. Difficult choices include considering the variety of options for restructuring the healthcare industry. Options include merger or acquisition, closing some facilities, restructuring services provided, disruptive innovation in delivery options, and others.

In addition to the problems of healthcare providers, about 57 million Americans were in families with problems paying medical bills in 2007—an increase of 14 million people since 2003, according to a September 2008 national study by the Center for Studying Health System Change (HSC). ((HSC), 2008) Problems paying medical bills increased for both nonelderly insured and uninsured people. Although the rate of medical bill problems is much higher for uninsured people, most people with medical bill problems—42.5 million—had insurance coverage. About 2.2 million people with medical bill problems were in families that filed for bankruptcy as a result of their medical bills, and a much larger number reported other financial consequences, such as problems paying for other necessities and having to borrow money. The increase in medical bill problems—especially among insured people—is the main reason why more people reported unmet medical needs because of cost in 2007 than in 2003. ((HSC), 2008)

The pass-through of rising medical costs to employers in the forms of higher premiums is going to encounter greater resistance from employers who will increasingly try to raise co-pays for employees or drop medical coverage altogether. Similarly, there will be significant difficulty at both the Federal and state level to increase revenues to cover the demand for increased medical care. Both the Federal government and state governments will be under growing budgetary pressure in coming decades. The fiscal pressures on the Federal government have already been outlined, but the pressures on the states is just as great making it very difficult for the Federal government to shift any more of the cost burden to the states as it has tried to do with the Medicaid program. Financial pressures at both levels of government will put challenging pressures on reimbursement rates and the ultimate revenue to the healthcare system. Squeezed revenues from restricted government reimbursement, and lack of ability to pay by individuals and businesses, added to the growing capital needs of the healthcare industry will put pressure on industry margins and exacerbate the weakening financial situation of the industry. Healthcare will undoubtedly be a major area for investment for decades into the future.

Many physician practices and hospitals are selling to investors, restructuring, or closing due to economic difficulty. Medical practices are reporting changes in patient and payer behavior as a result of recent economic difficulties. Many patients are delaying or avoiding medical care due to economic hardship. As a result, medical practices are seeing lower patient volumes and higher no-show rates. Many patients who do visit medical practices are having difficulty paying for services, and medical practices are reporting an increasing percentage of self-pay accounts receivable and increasing bad debt expense.

Health insurers are responding to investors, who are demanding returns on their investment, and are paying claims more slowly and denying more claims. Medical practices are reporting an increase in erroneous denials, no response claims, and payments below contract rates from commercial payers. Practice managers are responding by investing in electronic medical record technology to allow the practice to enhance and demonstrate clinical quality. They are also working to attract and retain patients in other ways to allow them to deliver higher-quality and value than competitors. Controlling costs is essential. And optimizing revenue, through accurate billing and management of accounts receivable, is more important than ever. Access to credit is difficult, if available at all, to medical practices in today's market.

The American Hospital Association released the results of a survey of 1078 community hospital CEOs regarding the effect of the economic crisis in healthcare entities in April 2009. (American Hospital Association, 2009) Findings included:

- The number of patients without health insurance or other means to pay for healthcare is increasing. Patients covered by Medicaid and other low income assistance programs are also increasing.
- Most hospitals have reduced staff, cut administrative expenses, and eliminated services.
- When compared to 2008, hospitals reported a 65% increase in the number of hospitals expecting to report a loss the first quarter of 2009.
- 80% of respondents indicated that capital projects for facilities, clinical technology, or information systems have been postponed or eliminated since 2008. This reduction included some projects that were already in progress.
- Physician request for hospitals to provide on-call pay or employment increased substantially. (American Hospital Association, 2009)

However the federal government continues to cut funding for Medicare and Medicaid and has not moved quickly enough to drive industry standards that are needed to promote interoperability between healthcare information technology applications. Hospital information technology operating expenses as a percentage of the total hospital operating expenses were down in 2008 compared to 2007. (2009 Annual Report of the U.S. Hospital IT Market, HIMSSAnalytics and HIMSS, 2009)

In late 2007 and throughout 2008, the municipal market experienced dislocations related to the subprime mortgage crisis and associated difficulty in the credit mar-

kets. Difficulties included the downgrading of municipal bond insurers and the collapse of the municipal auction rate securities market. Credit enhancements provided by AAA rated bond insurers had been a prominent feature of the municipal securities market for many years. At the beginning of 2008, approximately 50% of all long-term municipal bonds were insured. However, during 2008 credit agencies extensively downgraded bond insurers, mostly as a result of their exposure to subprime mortgage products. Many outstanding insured municipal bonds were affected by these downgrades. The use of bond insurance on new issues decreased substantially during 2008.

In addition, the \$200 billion market for municipal auction rate securities collapsed during 2008. Prior to this time, municipal auctions for the securities rarely failed. As the subprime mortgage crisis became evident and concerns regarding the credit quality of bond insurance used for municipal auction rate securities increased, auctions began to fail early in 2008. Investors lost confidence in the auction process. This loss of confidence led to more auction failures and the collapse of the municipal auction rate securities market. (American Institute of Certified Public Accountants, 2009)

Since the most extreme dislocations and liquidity shortages that occurred in the last quarter of 2008, general conditions in the municipal securities market have improved. Retail demand has responded to higher yields, particularly for high grade credit, and has compensated for the loss of demand by many traditional institutional and leveraged accounts. However, imbalances in supply and demand and illiquidity problems remain in certain segments of the market as of early 2009, especially for lower rated issues and securities and certain market sectors such as housing. (American Institute of Certified Public Accountants, 2009) Many large and small equipment finance and leasing companies report that in 2009 they remain challenged to raise capital. However, in late 2009, the market appears to be improving slowly. Unlike prior periods of temporary illiquidity, the current recession has impacted many money-center, super-regional and regional banks, as well as other large financial institutions. (Equipment Leasing and Finance Association, 2009) New sources of capital are entering the business of equipment leasing and finance, as many highly experienced equipment finance companies exit.

### **Challenge: Complex Regulation and Implementation**

Notwithstanding potential benefits, adoption of information technology and healthcare has been slow for many reasons. First, healthcare information is extremely complex. Clinical data are textual and contextual, rather than simply numeric and discrete. The capture of clinical data and processing is difficult to automate. Because of these factors, EHRs have been difficult to design and implement. Second, the healthcare industry has been extremely slow to recognize the benefits of investment in healthcare information technology. Concerns remain regarding who is the primary beneficiary and whether reimbursement and other incentives will cover the cost. Third, capturing, processing, reviewing, analyzing and communicating clinical information has not included information technology to date for many providers.

Many physicians fear standard documentation and changes in workflows when using EHRs will impair their everyday work. They have not learned what is possible with HIT, HER, or HIE. And frequently, when their organizations have purchased healthcare information technology, they have not fully implemented the product and fail to benefit from the technology available. Fortunately, many recent provider graduates, including physicians, grew up with a variety of computers, and their training includes wide use of healthcare technology.

*The healthcare industry has been extremely slow to recognize the benefits of investment in healthcare information technology.*

In addition, physicians, nurses, patients, hospital administrators, pharmacists, laboratory managers, radiologists, financial managers, attorneys, process improvement engineers, trainers, vendors, and many other members of the health care community may be involved in selecting, implementing and using healthcare information technology. The users of these systems must be involved in defining the vision, establishing expectations and benefits, interacting and reacting to systems as they are developed, and adopting the systems to maximize benefits. Policies and procedures must support how people will use the systems to achieve optimum benefits. EHRs require hardware and software, as well as the elements described above, to function effectively.

Patient safety is the goal of many of the health information technology (HIT), electronic health records (EHR), and HIE initiatives. The Institute of Medicine (IOM) was established in 1970 to serve as an advisor to the nation on improving health. IOM has concluded that the solution to preventing medical errors is building a safer health system that uses healthcare information technology, as well as removing blame and focusing on prevention. Recent reports of the IOM have emphasized the importance of a healthcare information infrastructure. (Institute of Medicine of the National Academies, 2009) According to the IOM, benefits of HIT, EHR, and HIE include improving the quality of care; enhancing patient safety; supporting health-maintenance, preventive care, and wellness; increasing productivity; improving patient and provider satisfaction; supporting revenue enhancement; supporting predictive modeling and developing evidence-based healthcare guidance; and maintaining patient confidentiality.

The primary purpose of health records is for communication among members of the healthcare team. However, many providers see the primary purpose of health records as documentation. This is particularly true in the United States, where providers are dependent on documentation for reimbursement and evidence in legal proceedings. Acquiring and managing clinical information using the data available in medical records is almost impossible with paper records and standalone, poorly managed clinical systems. The ability for clinicians to be assisted through automated

clinical decision support, and for the system to learn through pattern analysis, make applicable prompts, and mine data, contributes to evidence-based medicine (EBM) and improves quality of clinical care, patient safety, efficiency and effectiveness.

Medical records are often lost, in another location, or inaccessible for other reasons. Frequently information cannot be extracted from charts without costly, manual systems, so quality activities are often minimally performed. Lack of access to information also impairs medical research. In addition, handwriting is often impossible to read. As a result of poor handwriting, errors frequently occur in medication management, where medication errors can result in the critical health complications, or worse, death of patients.

And another challenge that has slowed the adoption of healthcare information technology is that of privacy and security concerns. However, paper records and many poorly designed systems are even more vulnerable to these issues. The health insurance portability and accountability act of 1996 (HIPAA) provided privacy and security regulations regarding individually identifiable health information held by health plans, healthcare clearing houses, and provider covered entities. When held by these covered entities, the information is referred to as protected health information (PHI).

However, HIPAA only applies to the designated covered entities and indirectly via business associate contracts with their vendors and other business associates. HIPAA does not apply to individually identifiable health information outside the designated areas, such as when consumers maintain personal health records (PHR) on the web. Such information is not protected by HIPAA, and use of the website is only regulated by the Federal Trade Commission (FTC) with respect to business practices. The American Recovery and Reinvestment Act of 2009 addresses many of these issues.

### **Challenge: Acute Shortage of Skilled Healthcare IT Workers Challenges Providers and Provides Opportunity for Vendors**

Assembling a team of healthcare information technology workers with the complex mix of clinical, computer, and process skills required to support advanced healthcare applications has always been difficult. However, over the next five years the healthcare sector will experience acute shortages of skilled healthcare information technology workers. The Office of the National Coordinator for Health Information Technology (ONC) estimates that an additional 51,000 healthcare information technology workers will be needed over the next five years. Given that there were approximately 108,000 healthcare information technology workers in 2007, the workforce will need to grow by 50 percent. (Larkin, February 2010)

In February 2010, Health and Human Services Secretary Kathleen Sebelius and Labor Secretary Hilda Solis announced a total of nearly \$1 billion in Recovery Act awards to help health care providers advance the adoption and meaningful use of health information technology (IT) and train workers for the health care Jobs. The awards will help make health IT available to over 100,000 hospitals and primary care physicians by 2014 and train thousands of people for careers in health care

and information technology. This Recovery Act investment will help grow the emerging health IT industry which is expected to support tens of thousands of jobs ranging from nurses and pharmacy techs to IT technicians and trainers. (US Dept of Health and Human Services, 2010)

The over \$750 million in HHS grant awards Secretary Sebelius announced are part of a federal initiative to build capacity to enable widespread meaningful use of health IT. This assistance at the state and regional level will facilitate health care providers' efforts to adopt and use electronic health records (EHRs) in a meaningful manner that has the potential to improve the quality and efficiency of health care in the US. Of the over \$750 million investment, \$386 million will go to 40 states and qualified State Designated Entities (SDEs) to facilitate health information exchange (HIE) at the state level, while \$375 million will go to an initial 32 non-profit organizations to support the development of regional extension centers (RECs) that will aid health professionals as they work to implement and use health information technology - with additional HIE and REC awards to be announced in the near future. RECs are expected to provide outreach and support services to at least 100,000 primary care providers and hospitals within two years. (US Dept of Health and Human Services, 2010) While these programs will not give participants the experience needed to manage nature healthcare information technology implementation projects, they will help establish a common basic knowledge and disseminate best practices for using electronic medical records.

Healthcare information technology providers such as Siemens Healthcare and GE Healthcare report a surge of interest in outsourcing. Siemens reports that their massive data center processes more than 200 million financial and clinical transactions a day for more than 1000 customers ranging from community hospitals to integrated delivery networks and academic medical centers. The healthcare providers may have large information technology teams on site, yet hire outsourcing services so that they can focus on quality improvement and safety programs. In addition, compliance teams analyze complex and ever-changing regulations and incentives, and translate them into manageable systems for customers.

*Health and Human Services Secretary Kathleen Sebelius and Labor Secretary Hilda Solis announced a total of nearly \$1 billion in Recovery Act awards to help health care providers advance the adoption and meaningful use of health information technology (IT) and train workers for the health care Jobs.*

### **Solutions: Healthcare Information Technology Provisions in the Economic Stimulus Bill**

The significance of the Federal government in affecting the adoption of health information technology cannot be overstated. According to the *American Journal of Medicine*, in April 2003, most advanced countries had between 50% and 90% of their medical records in electronic form compared to 5% for the U.S. This difference in 2003 was generally due to historic government policy. For example, in Britain, the government (which dominates healthcare through the National Health Service) has made the implementation of electronic medical records a major priority. The result has been far more extensive implementation of computerization in general and electronic medical records in Britain than in the United States.

In late April of 2004, President George Bush recognized the significance of electronic medical records when he set a goal for all Americans to have electronic health

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records within ten years and established the position of National Health Information Technology Coordinator within the Department of Health and Human Services to oversee the achievement of that goal.

In June of 2005, the key role of the Federal Government in stimulating the adoption of information technology by the healthcare industry was recognized by Congress when two of its key leaders, Senate Majority

Leader Bill Frist and Senator Hillary Clinton, in a bipartisan effort co-sponsored new legislation titled “Health Technology to Enhance Quality Act of 2005”. The bill implements health information standards that would support the establishment of interoperable health information systems and electronic exchange of health information. In addition, it codified and made permanent the position of National Health Information Technology Coordinator established by President Bush. And importantly, it authorized \$125 million annually in grants to local and regional consortiums to implement health information technology infrastructure providing funding for the necessary IT investment. It also provided exemptions from Stark and Anti-kickback laws to allow hospitals, health plans, and others to offer health information technology equipment to physicians as long as the purpose is to reduce medical errors, improve quality, reduce costs, improve care coordination and streamline administration thereby reducing a hidden barrier to the adoption of information technology by physicians.

In June of 2008 in the electronic medical records area, the Federal government announced a \$150 million Medicare project that offered doctors incentives to move from paper to electronic medical records. The pilot program, which targeted 1200



small practices in 12 cities, provided individual doctors with up to \$58,000 over the five years of the project to move from paper to electronic medical records. (Catherine M. DesRoches, July 3, 2008)

On February 17, 2009 President Obama signed into law H.R.1, the American Recovery and Reinvestment Act of 2009, also known as the economic stimulus package (ARRA). (111th Congress, 2009) Section 13402 of the Health Information Technology for Economic and Clinical Health (HITECH) Act, Title XIII of Division A and Title IV of Division B of the American Recovery and Reinvestment Act of 2009 (ARRA)

provides the legislation provisions affecting healthcare, including hospitals, physicians and other providers. The HITECH Act strongly supports the implementation of electronic health records (EHR) through funding assistance, incentives, disincentives, and education. In the act, the federal government has provided incentives, such as stimulus funding to healthcare providers to acquire necessary healthcare technology. At the same time, the federal government has legislated penalties in the future for providers who fail to acquire necessary information technology such as reduced payment for services. Opportunities abound for those who understand the investment needed, incentives provided, potential penalties, financial structures possible, healthcare economics, the healthcare market and financial resources available, and healthcare technology.

The focus on EHR adoption and health information exchange (HIE) bring attention to privacy and security concerns regarding patient information. In response to these concerns, the HITECH Act includes many additional provisions to protect electronic health information and individual rights. The American Health Lawyers Association addresses these issues in the HITECH Act Resource Guide. (American Health Lawyers Association , 2009)

Medicare and Medicaid providers, in particular, will be eligible for up to \$17 billion in incentive payments to adopt healthcare information technology (HIT). However, many specifics affected by this bill remain undefined and will be subject to Department of Health and Human Services (HHS) regulation. Details on the payment mechanisms, requirements to qualify for payment, and many of the privacy provisions will be published over time in the Federal Register for public comment.

In an effort to increase the use of electronic health records (EHRs) in hospitals,

*Opportunities abound for those who understand the investment needed, incentives provided, potential penalties, financial structures possible, healthcare economics, the healthcare market and financial resources available, and healthcare technology.*

medical practices, and other provider organizations, the legislation includes financial incentives based on the Physician Quality Reporting Initiative (PQRI). Eligible professionals can be reimbursed for up to \$44,000 for adopting a qualified electronic health record. The Centers for Medicare and Medicaid services (CMS) define eligible professionals to include medical doctors, dentists, podiatrists, optometrist, and chiropractors. However, hospital-based physicians such as pathologists, anesthesiologists, emergency physicians or hospitalists, who furnish substantially all of their services in a hospital setting using hospital facilities and equipment, are not eligible for the incentive payments. Physical therapists are not eligible for the EHR incentives and are not subject to the penalties.

The federal stimulus funds will not be available for EMR's until 2011 under the HITECH Act of the American Recovery and Reinvestment Act (ARRA). In addition, the federal government has not yet set specific guidelines for determining what constitutes a qualified system under the regulations.

There are two incentive payment programs outlined under the HITECH Act which relate to electronic medical records. One of the programs is through Medicare and another through Medicaid. Providers can only submit an application for payment of an incentive bonus from one of the programs. Therefore it is important for providers to analyze your payer mix to determine where they stand to benefit the most. Both incentive payment programs require the data provider prove “meaningful use” of an electronic medical record product to qualify for the incentives.

### **Meaningful Use**

“Meaningful Use” is defined in three ways in the HITECH Act”

- Use of a certified product complete with ePrescribing capability as determined appropriate by the Secretary of Health and Human Services.
- The certified electronic health record technology is connected for the electronic exchange of patient health information.
- The certified electronic health record technology complies with the submission of reports on clinical quality measures.

On December 30, 2009, CMS announced a notice of proposed rulemaking (NPRM) to implement provisions of the Recovery Act that provide incentive payments for the meaningful use of certified EHR technology. The proposed rule outlines provisions governing the EHR incentive programs, including defining the central concept of “meaningful use” of EHR technology. CMS’ goal is for the definition of meaningful use to be consistent with applicable provisions of Medicare and Medicaid law while continually advancing the contributions certified EHR technology can make to improving health care quality, efficiency, and patient safety. To accomplish this, CMS’ proposed rule would phase in more robust criteria for demonstrating meaningful use in three stages.

The proposed Stage 1 criteria for meaningful use focus on:

- electronically capturing health information in a coded format,
- using that information to track key clinical conditions,
- communicating that information for care coordination purposes,

- and initiating the reporting of clinical quality measures and public health information.

The proposed criteria for meaningful use are based on a series of specific objectives, each of which is tied to a proposed measure that all eligible professionals and hospitals must meet in order to demonstrate that they are meaningful users of certified EHR technology.

The proposed rule organizes the criteria around five broad policy objectives that apply to stage one implementation:

- improving quality, safety, efficiency and reducing health disparities
- engage patients and families and their healthcare
- improve care coordination
- improve population and public health
- ensure adequate privacy and security protections for personal health information

The full list can be found in the notice of the proposed rule. (Centers for Medicare & Medicaid Services (CMS))

For Stage 1, which begins in 2011, CMS proposes 25 objectives/measures for eligible professionals (EPs) and 23 objectives/measures for eligible hospitals that must be met to be deemed a meaningful EHR user. In 2011, all of the results for all objectives/measures, including clinical quality measures would be reported by EPs and hospitals to CMS, or for Medicaid EPs and hospitals to the states, through attestation. In 2012, CMS proposes requiring the direct submission of clinical quality measures to CMS (or to the states for Medicaid EPs and hospitals) through certified EHR technology. CMS recognizes that for clinical quality reporting to become routine, the administrative burden of reporting must be reduced. By using certified EHR technology to report information on clinical quality measures electronically to a health information network, a state, CMS, or a registry, the burden on providers that are gathering the data and transmitting them will be greatly reduced. The burden of generating the necessary information for the provider to then use the information to improve health care quality, efficiency, and patient safety will also be reduced. (Centers for Medicare & Medicaid Services (CMS))

Further details regarding the type of reporting, level of connectivity, and criteria standards will be drafted by the Centers for Medicare and Medicaid Services (CMS) and approved by the Secretary of Health and Human Services before the incentive payment programs are fully implemented.

### **Amount of Medicare Incentive Payments to Physicians**

The amount of Medicare incentive payments to physicians will be based on an amount equal to 75% of the Health and Human Services (HHS) Secretary's estimate of allowable charges, up to a maximum of \$15,000 for the first payment year. Incentive payments will be reduced in subsequent years and end in 2015. Providers who report using an electronic health record capable of E-prescribing will no longer be eligible for the keep prescribing bonuses established by the Medicare Improvements for Patients and Providers Act (MIPPA) of 2008 (The Centers for

Medicare & Medicaid Services (CMS), 2009) therefore avoiding double dipping of bonuses. Payments will be made as follows:

- Year 1:
  - as much as a maximum of \$18,000 if the first payment year is 2011 or 2012
  - as much as a maximum of \$15,000 if the first payment year is 2013
  - as much as a maximum of \$12,000 if the first payment year is 2014
- Year 2: as much as a maximum of \$12,000
- Year 3: as much as a maximum of \$8000
- Year 4: as much as a maximum of \$4000
- Year 5: as much as a maximum of \$2000

However, the incentive payment amounts will be increased by 10% for eligible professionals and a health professional shortage area (HPSA). In addition, providers who have already implemented health information systems qualifying for incentive payments as described above whose first payment year is 2011 or 2012 will be eligible for an initial, larger incentive payment up to \$18,000. In 2014, the payment limit for new adopters will be \$12,000, as shown above.

The Medicare payments will be calculated by multiplying the submitted allowable charges to Medicare by 75%, up to a capped amount for the year. For example, a physician hoping to collect the full incentive payment of \$18,000 in 2011 will need to submit allowable charges to Medicare of at least \$24,000. Alternatively, if physicians submitting only \$16,000 in allowable charges to Medicare would collect only \$12,000 in 2011 even though the capped amount is higher.

### **Medicare Part B Incentive Payments to “Meaningful” EHR Users**

CMS will make Medicare Part B incentive payments to physicians who demonstrate that they are “meaningful” EHR users. The definition of “meaningful user” is to be determined by the HHS Secretary. The legislation includes three requirements:

- The physician must use certified EHR technology that includes electronic prescribing.
- The EHR technology must be connected to provide electronic exchange of health information.
- The eligible professional must submit information for the period on the clinical quality measures and other measures selected by the HHS Secretary.

On the other hand, the legislation provides disincentives for providers who fail to meet meaningful use of electronic medical records by 2014. For example, a physician who does not demonstrate meaningful use in 2014 will experience Medicare fee schedule payment reductions beginning in 2015. Reductions will be:

- Down to 99% of the Medicare fee schedule for 2015.
- Down to 98% of the Medicare fee schedule for 2016.
- Down to 97% of the Medicare fee schedule for 2017 and each subsequent year.

However, if the Secretary of Health and Human Services (Secretary) finds that less than 75% of eligible healthcare professionals are meaningful users of electronic health records beginning in 2018, the Secretary can further reduce the fee schedule to 96% and then 95% in subsequent years, but not further.

While the majority of the funding in the HITECH Act is reserved for utilization based incentive bonuses, a portion of the discretionary funds will go to grant programs to help organizations offset upfront purchase costs. The details of these programs are not yet available, but they will almost likely address primary care practices, rural or high Medicaid practices, or those seeking to establish a medical home model.

The calculations used to determine the Medicare incentive payments to hospitals demonstrating meaningful use of electronic medical records are much more complicated than calculations for individual providers. (111th Congress, 2009)

### **Medicaid Provisions**

Under Medicaid, a healthcare provider is eligible for incentive payments if the provider:

- is not hospital-based and has at least 30% of the provider's patient volume coming from Medicaid patients;
- is a pediatrician, who is not hospital-based, and who has at least 20% of the patient volume coming from Medicaid patients;
- practices predominately in a federally qualified health clinic or a rural health clinic, and has at least 30% of the provider's patient volume coming from Medicaid patients;
- is a Children's Hospital, or an acute care hospital that is not described in clause (i) of the legislation, and that has at least 10% of the hospital's patient volume coming from Medicaid patients.

Incentive payments will be based on a calculation of factors the physicians Medicaid mix in combination with up to \$25,000 the first year and \$10,000 each subsequent year for five years, all multiple I by 85%. The highest potential for Medicaid payment is \$63,750. In addition, providers filing under Medicaid must first demonstrate meaningful electronic health record usage by 2015 and will not be eligible for payment until after 2021. Also, pediatricians, because they have to meet a lower threshold of only 20% Medicaid patients to qualify for the incentives, are only eligible for 66% of the incentive payments described above. (111th Congress, 2009)

The stimulus legislation allows up to \$63,750 in federal contributions toward the adoption, implementation, upgrade, maintenance, and operation of certified DHR technology for eligible providers. As much as 85% of \$25,000, or \$21,250, subject to a cap on average allowable costs, will be provided to eligible providers to assist them in adopting, implementing, and upgrading certified electronic health record systems. As much as 85% of \$10,000, or \$8500, would be provided to eligible providers to operate and maintain such systems for up to five years. Providers are eligible for 85% of costs to adopt an electronic health record up to \$75,000 over six years. Hospitals, community health centers, and rural health clinics are eligible for the full payment. (111th Congress, 2009)

For not-for-profit entities (NFPs), many new compliance requirements are included in the recovery act related to the receipt and use of funds. Section 1512 of the recovery act identifies the information and requirements for reporting including the total amount of recovery funds received from each federal agency and a detailed list of all projects or activities for which recovery funds are obligated an extended. In addition, detailed information is required for all subcontracts and sub grants awarded by the recipient. These reports will be available for public inspection on the Internet. (111th Congress, 2009)

The Centers for Medicare and Medicaid Services (CMS) are developing an electronic means to identify and locate healthcare providers who qualify to receive a share of the billions of dollars in meaningful use incentives provided under the stimulus law. One option under consideration is a national electronic directory, which would allow CMS to communicate directly with thousands of physicians through the nationwide health information network (NHIN) to determine who is eligible to receive the incentive payments and avoid making duplicate payments. Tony Trenkle, director of CMS Office of e-Health Standards and Services, is heading this effort.

### **Comparative Effectiveness Research**

The American Recovery and Reinvestment Act (ARRA) provided \$1.1 billion for comparative effectiveness research. The purpose of comparative effectiveness research (CER) is to provide information that helps clinicians and patients choose which option best fits an individual patient's needs and preferences. Patients increasingly and appropriately want to take responsibility for their care, and comparative information is necessary to allow informed decision-making. The AARA allocated \$400 million to the Office of the Secretary in the US Department of Health and Human Services (HHS), \$400 million to the National Institutes of Health (NIH), and \$300 million to the HHS Agency for Healthcare Research and Quality. AARA also established the Federal Coordinating Council for Comparative Effectiveness Research (the Council) to provide optimum coordination of comparative effectiveness research conducted or supported by federal departments and agencies. (Federal Coordinating Council for Comparative Effectiveness Research, June 30, 2009)

The Council recommended that the primary investment for the comparative effectiveness research funding should be in data infrastructure. Data infrastructure includes linking current data sources to address comparative effectiveness research questions, developing distributed electronic data networks and patient registries, and partnering with the private sector. Other areas of investment include dissemination and translation of comparative effectiveness research findings. Comparative effectiveness research will be an important tool to inform decisions for priority populations and priority types of interventions, and to reduce health disparities. (Federal Coordinating Council for Comparative Effectiveness Research, June 30, 2009)

### **Recovery and Reinvestment Act (Recovery Act) Awards**

On December 9, 2009, President Obama announced nearly \$600 million in American Recovery and Reinvestment Act (Recovery Act) awards to support major construction and renovation projects at 85 community health centers nationwide and help networks of health centers adopt Electronic Health Records (EHR) and other Health Information Technology (HIT) systems. The awards are expected to not only create new job opportunities in construction and health care, but also help provide care for more than half a million additional patients in underserved communities. (White House Office of the Press Secretary)

### **Federally Qualified “Community” Health Center Grants**

The President also announced a new demonstration initiative to support the delivery of advanced primary care to Medicare beneficiaries through community health centers. To qualify for funding, a health facility must be a Federally Qualified “Community” Health Center. Grants of \$508.5 million will be provided through the Facility Investment Program (FIP) program to address pressing health center facility needs. Also, as much as \$88 million will be available to help Health Center Controlled Networks improve operational effectiveness and clinical quality in health centers by providing management, financial, technology and clinical support services. The new Recovery Act funds are the latest in a series of grants awarded to community health centers, which deliver preventive and primary care services at more than 7,500 service delivery sites around the country to patients regardless of their ability to pay. Health centers serve more than 17 million patients, about 40 percent of whom have no health insurance. Both programs will be administered by the Health Resources and Services Administration (HRSA), an agency of the U.S. Department of Health and Human Services (HHS). ([www.whitehouse.gov](http://www.whitehouse.gov) 12/9/2009)

### **Solutions: Important Technology Developments**

In addition to more traditional hardware and software applications, cloud computing is receiving a great deal of attention for its potential cost savings, flexibility, and green technology. Cloud computing applications are conducted on computers access through the Internet and controlled by a vendor. The healthcare data is hosted on servers in one or more locations. The National Institute of Standards and Technology (NIST) defines cloud computing as a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. The deployment models are public, private, community, and hybrid clouds. NIST defines the five essential characteristics of cloud computing as:

*On-demand self-service.* A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service’s provider.

*Broad network access.* Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).

*Resource pooling.* The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or datacenter). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

*Rapid elasticity.* Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

*Measured Service.* Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported providing transparency for both the provider and consumer of the utilized service. <http://csrc.nist.gov/groups/SNS/cloud-computing/> (National Institute of Standards and Technology, 2010)

For healthcare providers, such as hospitals and medical practices, cloud computing offers benefits such as much lower expenses for hardware, much dedicated physical space for IT, and little or no requirement for in house IT support personnel. In addition, cloud computing may be attractive for healthcare providers have significant processing and storage requirements. The new U.S. Chief Information Officer (CIO), Vivek Kundra, is an advocate of cloud computing applications and recently launched <https://apps.gov> as a resource to educate the public regarding these applications. However, risks include privacy concerns and e-discovery concerns.

Other new healthcare delivery and service models are emerging. Google, Microsoft, Wal-Mart, CVS, and others are introducing new models to support more efficient and cost-effective access to primary care and other patient services. The delivery of healthcare is shifting to an ambulatory model and hospitals must develop strategies to transform their facilities resources and capital to support this market transition. The exchange of healthcare data throughout integrated systems is essential to success in these models.

### **Health Information Exchange**

Health information exchange (HIE) describes the exchange of health information across various provider locations, extending beyond the integrated delivery network where there is common ownership, to exchange information for patient care in an



effort to promote safety, efficiency, and quality. Participants in the health information exchange may also include public health departments and the Centers for Disease Control and Prevention (CDC), in an effort to promote preventive services, improve population health, and contain disease outbreaks.

Employers, payers, and the federal government are interested in realizing efficiencies through HIE for healthcare delivery. Consumers also actively participate in their healthcare through HIE services. Local health information organizations (LHIOs), regional health information organizations (RHIOs), sub network organizations (SNOs), connected communities, and other organizations also participate in health information exchange. These organizations use various technologies to exchange data and integrate systems. Vendors supplying these services may be referred to as HIE vendors or service providers.

Researchers from Harvard University, Brigham and Women's Hospital, and Boston Veterans Affairs Hospital recently surveyed all known RHIOs in the United States. The study, "Characteristics Associated with Regional Health Information Organization Viability," was published in the Journal of the American Medical Informatics Association. The current issue is available at <http://jamia.bmj.com>. This study researched two outcome measures, which included whether the RHIO was operational, and the percent of operating cost covered by revenue from participants. The researchers concluded that involving hospitals and ambulatory physicians, and securing early funding from participants increased the likelihood of financial viability. In addition, exchanging a narrow set of data and involving a broad group of stakeholders were independently associated with a higher likelihood of being operational.

In a separate study, 1043 licensed physicians in Massachusetts were surveyed to examine physician attitudes toward health information exchange. The researchers found that these physicians generally have a positive perception of health information exchange, but are not willing to pay for participation. They also expressed concerns about privacy. [http://www.healthdatamanagement.com/news/HIE\\_viability\\_survey\\_research\\_RHIO-39535](http://www.healthdatamanagement.com/news/HIE_viability_survey_research_RHIO-39535)

### **Nationwide Health Information Network**

In addition, the federal government is working to achieve HIE across the country through the nationwide health information network (NHIN). As of fall 2009, there has been a NHIN prototype, and trial implementations of the NHIN. However, the NHIN is in the conceptual stages.

The predominant standards development organization in health information technology is the Health Level Seven (HL7). HL7 is an all volunteer not-for-profit organization involved in development of international healthcare standards. HL7 is also used to refer to specific standards developed by this organization. HL7 and its members provide a framework and related standards for the exchange integration, sharing, and retrieval of healthcare information.

## Challenges for 2010 and Beyond

The Centers for Medicare and Medicaid services (CMS) are responsible for implementing payment systems and standardizing amounts paid for healthcare services to hospitals, physicians and other providers for Medicare patients. Each year CMS reviews these fee schedules against established criteria and adjusts as needed.

CMS is proposing significant changes in reimbursement to address concerns of the Medicare Payment Advisory Commission (Med PAC) and the United States Government Accountability Office (GAO) regarding rapid growth and high costs imaging services. CMS is proposing that payment be reduced for services that require expensive equipment which would produce a redistribution of the resulting savings to increase payments for other services, such as primary care services. The current payment rates assume that a physician who owns expensive equipment, discussed in this legislation, uses it approximately 50% of the time. However recent survey data suggest that this expensive equipment is being used more frequently. The per treatment costs, for purchasing, maintaining, and operating this type of expensive equipment, decline as the use of this type of equipment increase. CMS suggests this makes a reduction in payment appropriate. However, providers debate this point.

Given the constant changing status of economic conditions affecting healthcare organization, finance and leasing organizations may want to consider modifying procedures to evaluate risks that may affect healthcare organizations in the current economic environment such as:

- legislative and regulatory developments
- changes in reimbursement and their impact on revenue
- constraints on the availability of capital and credit
- going concern and liquidity issues
- off balance sheet financing
- special-purpose entities, joint ventures, or other complex financing arrangements
- volatile real estate markets
- volatile business markets

Additional risks related to the economic crisis that may influence a healthcare organization's ability to continue as a going concern include:

- Some lenders may be looking for ways to withdraw from current lending relationships.
- A healthcare organization's financial health could be weakened if their suppliers or customers have been significantly affected by the economic crisis.
- Some healthcare organizations may hesitate to discuss factors related to their ability to continue as a going concern.
- And organization's future may be impaired by its financial support of a related party.

Healthcare organizations may need to extend lines of credit or refinance debt during difficult times. If negative operating conditions continue, it is important to understand how management plans to turn conditions around. If key staff members have left, what action is underway to replace these key people? What is the plan to

maintain or increase liquidity in the balance sheet? Are there restrictive covenants or other restrictions in place that could limit management's ability to improve the economic condition of the healthcare organization? Careful review of the financial statements, tax returns, notes, and underlying data is essential in these difficult times. If an audit report exist, all details must be carefully reviewed and understood.

### **Opportunities and Challenges for Healthcare Finance and Leasing**

In conclusion, the Healthcare private sector and government investment in healthcare information technology in the U.S. offers exciting opportunities for leasing and finance companies in 2010 and beyond. However, these services will be much more complex and require a significant understanding of the healthcare industry, recent legislation, regulations, and healthcare technology, as well as equipment leasing and finance. Developments in healthcare technology will transform the delivery of healthcare in the U.S. and globally. It will not be easy, but the benefits are well worth the effort required for success in this process.

This area of opportunity is rapidly evolving, and has many moving parts. A collaborative team approach can be extremely effective in addressing the healthcare technology challenges today. The collaborative team can be formal or informal, or simply a social network of professionals that communicates as needed. The collaborative team should include well informed and knowledgeable finance and leasing professionals with appropriate healthcare finance experience and a good understanding of the timing and

*These services will be much more complex and require a significant understanding of the healthcare industry, recent legislation, regulations, and healthcare technology, as well as equipment leasing and finance.*

amount of financing needed, vendors with excellent products and support designed to meet the healthcare technology requirements, an engaged customer base that remains active and contributes to improvements and success to the healthcare technology products and services, an effective regulatory compliance team that works effectively with CMS to ensure that all requirements for the stimulus money and reimbursement for services are maintained at all times, and an effective health law team. Experience with specific medical specialties, academic medical centers, community hospitals, and other types of healthcare organizations can also be helpful when working with specific organizations. The finance and leasing professional must earn respect as a knowledgeable and trusted advisor, who knows who to call when specific expertise is needed.

A number of ELFA member companies have taken a proactive approach to the healthcare information technology market by designing programs to help hospitals and physician offices accelerate EMR adoption. These programs include assistance with EMR certification which is the precursor to federal stimulus reimbursement eligibility, interest-free and step-up loans and deferred payments to address uncertainty about future standards and provide interim funding.

Such financing programs enable healthcare providers to accelerate adoption of EMR's and further their efforts to reduce cost and improve patient care through greater access to valuable information at the point of care.

The federal stimulus funds will not be available for EMR's until 2011 under the HITECH Act of the American Recovery and Reinvestment Act (ARRA). In addition, the federal government has not yet set specific guidelines for determining what constitutes a qualified system under the regulations. To overcome these barriers to immediate adoption of EMR's, GE's program for example commits to support their customer's ability to meet the "meaningful use" standards, which have yet to be defined. (GE Launches Program to Doctors, Hospitals to Accelerate EMR Adoption; First \$100 Million of healthymagination Commitment , 2009)

A very different example of an opportunity for equipment finance and leasing involves the 2009 partnership of Wal-Mart's Sam's Club with electronic medical record vendor eClinicalWorks and Dell, Inc. to sell medical records to physicians. Sam's Club began offering the package in spring 2009 starting at under \$25,000 for the first physician in the practice and \$10,000 for each additional doctor. Ongoing costs were estimated at \$4000-\$6500 per year. (Kathryn Mackenzie, 2009) The package includes a Dell hardware including a desktop and tablet PC installed by Dell technicians and software-as-a-service applications from eClinicalWorks. The price also includes five days on-site training by eClinicalWorks technicians.  
[http://www.samsclub.com/shopping/navigate.do?catg=13350&pid=050909\\_CreativeKeywordeClinic&landing=eclinicalworks](http://www.samsclub.com/shopping/navigate.do?catg=13350&pid=050909_CreativeKeywordeClinic&landing=eclinicalworks)

The EMR bundles are sold online at [www.samsclub.com](http://www.samsclub.com) and the order process takes 10 to 12 weeks and includes a series of steps to analyze the practice and determine specific needs. (Kathryn Mackenzie, 2009) The pricing transparency for this product has been a breakthrough for the market. And financing for this product may be an opportunity for independent finance and leasing professionals.

The Equipment Leasing and Finance Association (ELFA) has experienced and knowledgeable members who are developing effective new approaches on a daily basis to meet the needs of this volatile market. Equipment finance and leasing professionals interviewed for this report serve a variety of healthcare markets ranging from small professional practices to very large professional practices, hospitals, and very large integrated healthcare delivery systems. Deal sizes range from an average of \$7000 to an average of \$7 million depending on the market served and services provided. Professionals interviewed included healthcare financial groups from very large financial corporations and banks, manufacturers, vendor leasing companies, middle-market lenders, as well as small independent leasing company professionals.

Underwriters and collectors were also interviewed. Global as well as domestic finance and leasing professionals were included.

Equipment finance and leasing services discussed in the interviews provided in the healthcare information technology area include:

- vendor financing
- fair market value leases (operating leases)
- finance leases (capital leases)
- tax exempt financing
- tax exempt bonds issuance
- revolving lines of credit
- term loans

And other innovative approaches to meet specific vendor and healthcare client needs. Interviewees report that in the current environment, vendors are taking more risk to sell products because traditional financing vehicles are able to take less risk to allow them to sell products.

Summarized in the Appendix are some of the ideas expressed by this group in recent interviews.

Healthcare information technology groups that can provide necessary expertise and research can be found at the American Health Lawyers Association (AHLA), the Healthcare Information and Management Systems Society (HIMSS), Healthcare Financial Management Association (HFMA), the Medical Group Management Association (MGMA), the American Hospital Association (AHA), as well as specialty specific groups for each area of healthcare.

### Appendix: Interviewee Comments

Topic Raised by Interviewee:	Comments:
Current Economic Environment	<ul style="list-style-type: none"> <li>• Many hospitals are struggling today. They have been battered by poor investment performance and freezing of bond markets in recent years. Fortunately, both of these areas appear to be improving today. However, much uncertainty remains.</li> <li>• New healthcare IT sales have dropped 30-40% in recent years due to uncertainty and lack of access to capital</li> <li>• Delay of purchases due to uncertainty</li> <li>• Historically non-profit hospitals went to bond market every 3 years and the EFLA members filled the void between those years. However, when the bond market dried up, hospitals delayed acquisitions.</li> <li>• Market can move very fast when health care reform, expected revenues and expenses, and ARRA requirements for funding and penalties become clearer</li> </ul>
Customers Served	<ul style="list-style-type: none"> <li>• 85% of hospitals are non-profit</li> <li>• Hospitals and medical practices are exploring additions and upgrades in healthcare information technology today.</li> <li>• Hospitals and physicians are forced to diversify their financing strategy due to loss of access to tax exempt bonds in recent years</li> <li>• Hospitals are in better shape to invest in new technology than outpatient providers today.</li> <li>• Many new healthcare IT vendors need access to capital to continue development and to provide financing to healthcare customers</li> <li>• Reimbursement cuts led to many medical and dental practices struggling with leases</li> <li>• Patients lost medical and dental coverage when they lost jobs               <ul style="list-style-type: none"> <li>- Increase in bankruptcy</li> <li>- Practices acquiring non-traditional equipment to expand cash service line, such as adding spas, lasers, and cosmetic procedures</li> </ul> </li> <li>• Many new technologies and equipment dropping to dramatically low price points today</li> <li>• Pricing on a per use basis for a few months to allow medical providers to try equipment</li> <li>• A lot of confusion and misrepresentation of reimbursement available for nontraditional procedures.</li> </ul>

Topic Raised by Interviewee:	Comments:
Opportunities specific to healthcare information technology	<ul style="list-style-type: none"> <li>• Federal initiatives and stimulus dollars are provided vital resources to allow necessary healthcare information technology upgrades and additions.</li> <li>• Many experienced health care professionals available in today's market due to recent financial challenges in the market</li> </ul>
Challenges specific to healthcare information technology	<ul style="list-style-type: none"> <li>• 30-40% drop in equipment sales and financing in this sector described in recent years due to reduced reimbursement for services, lack of access to capital and financial uncertainty. Great need today!</li> <li>• Clients must achieve "meaningful use" to be eligible for Federal stimulus dollars.</li> <li>• Stimulus dollars may not be available for at least 2 years (24 months) so the challenge is to structure how to finance investment today until stimulus funds are received</li> </ul>
Role of Equipment Finance and Leasing	<ul style="list-style-type: none"> <li>• Integrating the financial approach into a consultative role is essential:               <ul style="list-style-type: none"> <li>- value and quality issues</li> <li>- federal reimbursement</li> <li>- cash management</li> <li>- tax issues</li> <li>- healthcare regulation and compliance</li> </ul> </li> <li>• Access to lenders for vendors. Banks have tightened credit policies.</li> <li>• Identify which funding sources are available to accommodate specific vendor needs.</li> <li>• Access to capital is essential. Banks have money but need best returns for least risk.</li> <li>• Providing appropriate financing vehicles for Healthcare IT customers</li> <li>• Some large equipment finance and leasing organizations are making acquisitions to build out the product and service line needed to address this market.</li> <li>• Must be able to present a broad range of products and services to customers to best meet their changing needs and the changing environment.</li> <li>• Equipment replenishment, maintenance, and upgrades need to be reflected in cash flow</li> <li>• Health law and compliance issues must be considered with respect to physician self-referral assumptions. Legal advice is essential.</li> <li>• Precertification may be required by Medicare and other payers.</li> </ul>

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