Five Enabling Technologies for Provider Healthcare Reform

IN THIS PERSPECTIVE

This IDC Health Insights Perspective identifies five key technologies that will give providers a foundation to achieve the functionality, operational, and business understanding they need to respond to both the American Recovery and Reinvestment Act (ARRA) and the Patient Protection and Affordable Care Act (PPACA).

On March 23, 2010, President Barack Obama signed into law the Patient Protection and Affordable Care Act of 2010 (HR 3950), which aims to provide health insurance coverage to approximately 32 million uninsured Americans and reform health insurance for all Americans. Following the signing and corrections to the bill, the battle rages on as follow-on rulemaking efforts are expected to take some time to resolve the details, relative costs, and issues of implementing PPACA. However, for U.S. providers, the technology implications of PPACA mainly build on the technology implications put in place by the American Recovery and Reinvestment Act in February 2009. To support both PPACA and ARRA, IDC Health Insights has identified five key technologies that providers will need to achieve ARRA subsidies, control costs, and prepare to meet the demands of implementing PPACA. These are:

- Meaningful use technologies for ARRA, including health information exchange (HIE), electronic medical records (EMRs), and computerized physician order entry (CPOE)
- Analytics including business, clinical, and operational intelligence
- Clinical decision support (CDS)
- Virtualization including server and client technologies
- Service-based delivery of applications and storage
Situational Overview

Three Pillars of Healthcare Reform: Access, Cost, and Quality

Improved access and quality while reducing healthcare cost is the main driver behind health reform. However, the current $940 billion bill does little to overhaul the U.S. healthcare system as a whole. It does not include tort reform or a public option that many health reform advocates wanted. Many of the key provisions focus on health insurance reform by reigning in discriminatory practices of payers and expanding coverage. For example, insurance companies will no longer be able to deny coverage based on preexisting conditions or drop members when they become sick, and young adults will be able to stay on their parents' plan until they turn 26. In 2014, health insurance exchanges will be established to enable those without employer-sponsored insurance to buy insurance; insurance premiums will be subsidized for individuals with income up to 400% of the poverty line. Access to insurance coverage increases; while a positive measure, it creates an influx of new consumers into a system already facing severe shortages of primary care physicians and nurses and will set up an untenable situation. (See Title V. Health Care Workforce, which addresses such issues as increasing the supply of healthcare workforce members, enhancing training, and supporting the existing workforce.) Concomitantly, and of significant concern to providers, is the $500 billion in Medicare cuts over the next 10 years to fund expanding insurance coverage. The American Medical Association is decrying the 21% reduction in Medicare fees (separate from this bill) paid to physicians and warning that physician practices will limit the number of Medicare patients they see or turn them away altogether, thus exacerbating access to healthcare by our most fragile citizens.

There are modest attempts to control future healthcare costs by making preventive care and medical screening services more affordable by eliminating co-payments and deductibles for them. Chain restaurants and food vendors with more than 20 locations must display caloric content of their foods on menus. (See Title IV. Prevention of Chronic Disease and Improving Public Health, which outlines a litany of programs, initiatives, grants, and services related to improving public health and extending preventive care.)

The legislation creates a Center for Medicare and Medicaid Innovation to test new payment and service delivery models, such as accountable care organizations, to reduce program expenditures while preserving or improving the quality of care. Other provisions to improve quality include linking payments to quality outcomes, value-based purchasing, increased quality measures reporting, and the creation of a "National Strategy for Quality Improvement." (See Title III. Improving the Quality and Efficiency of Health Care, which describes actions that the
Secretary of Health and Human Services is required to take to transform the healthcare delivery system.)

**Future Outlook**

**The Role of Healthcare IT in Health Reform**

Healthcare IT will play a central role in achieving the objectives of healthcare reform. In this sense, we see five key technologies that will help providers meet the meaningful use objectives of ARRA, control costs, and prepare to meet the demands of PPACA. These include:

- **Meaningful use technologies for ARRA, including HIE, EMR, and CPOE.** These three technologies are specified under the ARRA requirements for demonstrating meaningful use and qualifying for stimulus funding. They support goals laid out by the federal government that include the exchange of healthcare information between providers; improvements to the quality, safety, and efficiency of care delivery; patient communication; care coordination; population health management; security; and data privacy. EMR, CPOE, and HIE, alongside supporting infrastructure investments, have been seeing recent growth in investment by providers since the introduction of ARRA in February 2009 and will continue to see investment through 2016. The penalty period for non-implementation of these technologies under ARRA begins in 2015, when eligible provider organizations that cannot demonstrate meaningful use of these applications will see a reduction in Medicare reimbursement.

- **Analytics including business, clinical, and operational intelligence.** Healthcare providers, in an effort to improve care quality, reduce costs, and respond to the call for healthcare reform, are increasingly turning to analytics-enabled business strategies. While analytics is not an explicit requirement of meaningful use under ARRA, the monitoring and measurement of the core metrics required for demonstrating meaningful use clearly has an inherent component of reporting and analytics, which provider organizations may choose to fulfill with either analytics embedded in their EMR, CPOE, and HIE engines or standalone data aggregation, warehousing, and analytics toolsets. Providers faced with the additional demands of healthcare reform, such as new reimbursement strategies that feature bundled payments and quality measures reporting, will need to develop strategies for better understanding and addressing their cost structure, improving patient safety and quality of care. These strategies are spearheaded by investments in EMR, CPOE, and HIE technologies that have ARRA funding attached; the next wave of IT investment by providers will build on this foundation. A key component of this next wave will be business intelligence (BI) applications that combine data from clinical, operational, financial, and other
applications. These analytics tools are essential if hospitals are to realize the operational, financial, and clinical benefits from their EMR, CPOE, and HIE investments.

- **Clinical decision support.** With newly implemented EMR, CPOE, and HIE technology, and data warehousing support in place to help aggregate and understand data, providers will have unprecedented visibility into their costs, trends, outcomes, and operational issues. Combining data from clinical and other systems and across care settings makes it possible to get a full view of the patient experience, with visibility into costs, processes, events, outcomes, and bottlenecks. Analytics tools will allow providers to identify points in the process that need improvement and develop best practice–based guidelines and strategies for improvement. Gaps and opportunities to improve care and safety can be identified using these business, operational, and clinical intelligence tools and then operationalized using clinical decision support applications. Interventions at the point of care will be required to meet targets for efficiency, patient safety, and quality care.

With newly implemented EMR, CPOE, and HIE technology, and analytics support in place to help aggregate and understand data, providers will have unprecedented visibility into their costs, trends, outcomes, and operational issues. From this information platform emerge three interrelated disciplines: evidence-based medicine, protocol-based medicine, and personalized medicine. Evidence-based guidelines and protocols when embodied into software, such as EMRs, CPOE, and eprescribing, are often referred to as clinical decision support, clinical analytics or, more broadly, clinical intelligence. Clinical alerts warning clinicians to potential medication errors due to drug-drug interactions or patient allergies and identifying patient gaps in care, for example, enable interventions at the point of care required to meet targets for efficiency, patient safety, and quality care. Clinical decision support will make information and alerts about best practices and interventions available to providers at the point of care and will facilitate implementation of care plans and interventions, closing the loop.

- **Virtualization including server and client technologies.** The growth in adoption of clinical information systems with ARRA will result in a proliferation of point-of-care computing, dramatically increasing the number of client machines and applications that provider IT teams need to manage. In point-of-care computing, demands on availability, uptime, and performance are high, while the budgets to implement and manage devices are small. This has made tools that drive improved performance of applications as well as efficiencies in the management of client computing imperative for healthcare. With costs at the forefront of the discussion for provider organizations, managers will seek to
optimize their infrastructure, including their IT environment. Client and server virtualization technology provides proven cost savings and demonstrated improvements to the performance, availability, and security of provider applications and will be a key enabling technology for provider organizations.

- **Service-based delivery of applications and storage.** The deadline-focused IT implementations required to qualify for ARRA incentives have strained the physical and human resources of IT departments at provider organizations. Healthcare IT professionals are under pressure to deliver complex applications with high performance and security, while tight budgets demand cost reduction initiatives. With this scenario in place, IT professionals will seek service-based offerings that reduce the infrastructure burden on their organizations while at the same time reducing operating costs and the capital investment. The service-based delivery options that will be adopted by providers to meet these demands include application hosting and management and software as a service for new and existing applications, as well as cloud-based storage. To achieve meaningful use of EHRs and truly reform healthcare, healthcare organizations must think in terms of clinical transformation, not just implementing technology for technology's sake. Clinical transformation is an incremental process, starting with EMR, EHR, and CPOE deployments. The natural progression from collecting and sharing data (e.g., EHRs and HIEs) to creating actionable information from that data (e.g., guidelines, protocols, actionable advice) will ultimately enable continuous improvement leading to cost reductions and better outcomes, as depicted in Figure 1. In addition, greater data collection will enhance transparency and help consumers make better healthcare decisions (e.g., select a health plan, provider, or treatment option) by providing pricing, quality, and rating information. Comprehensive data will also help detect fraud, the reduction of which is supposed to offset some of the associated costs of this bill.
The effective use of healthcare IT to deliver better care more efficiently, measure quality, and identify areas for financial, operational and, most importantly, clinical improvement will address some of the major challenges facing health reform. The provisions of the healthcare insurance reform bill are expected to leverage the investment in healthcare IT funded by ARRA. But still, more needs to be done to reduce the actual cost of healthcare, especially as the number of health insurance beneficiaries approaches 95% of the U.S. population.

**Essential Guidance**

The combination of healthcare reform, the HIT stimulus package, and an industry rife with legacy technologies has created a perfect storm for new investments in healthcare applications such as electronic
medical records, computerized physician order entry, health information exchange, and telemedicine. The investment in these applications by providers is driving a demand for supporting technologies, including other clinical applications, hardware, storage, and services, to build the infrastructure and performance levels required to support provider adoption of healthcare applications.

**For Healthcare Providers**

For healthcare organizations, time is of the essence to maximize ARRA incentive payments, and to prepare for health reform simultaneously exacerbates the challenge:

- **Deploy healthcare IT strategically.** Healthcare organizations should conduct a gap analysis to identify missing areas of functionality to meet meaningful use requirements and then prioritize those technologies that will fill these gaps, provide a positive return on investment, and transform clinical performance.

- **Consider SaaS-based solutions to acquire technology cost effectively and accelerate implementation timelines.** Increasingly, vendors are expanding delivery options to include SaaS, in addition to on-premise and hosted options. SaaS-based applications and storage services can lower up-front costs and have predictable ongoing costs. SaaS can be particularly helpful to small and midsize healthcare organizations with limited IT infrastructure, staff, or ability to invest in infrastructure.

- **Require new solutions to have flexible, modern architecture.** Web services and SOA-based architecture provide technical flexibility that enables healthcare organizations and their vendors to respond to new requirements, whether they be imposed to meet new business objectives, standards, or regulatory mandates, such as ARRA and PPACA.

- **Engage clinician champions to promote EHR, CPOE, and HIE use.** Implementation does not equate to adoption. It will not be enough to simply acquire the requisite technologies and implement them in time to meet ARRA and PPACA timelines. Enlisting physician champions can help encourage recalcitrant clinicians to use EHRs, CPOE, HIE, and other clinical applications that promote patient safety and improved outcomes. Attention must also be paid to end-user training and promotion of the new technologies.

- **Establish a solid foundation of core technologies and well-integrated products that support the three cornerstones of BI: data quality, data integration, and metadata management.** Disciplined, mature methodologies and work processes that ensure a clear understanding of both the source data and the underlying
business or clinical processes, and the relationships between them, are critical for ensuring data consistency and data quality. Successful BI and CI deployment will require strong support and involvement by senior clinical, financial, and administrative executives.

- **Develop a strategic plan for virtualization.** Begin by inventorying existing server resources and assessing the potential economic benefits of standardization, consolidation, and virtualization. Provider IT organizations seeking to expand server inventories or replace aging equipment should work with their suppliers to benchmark the performance and economics of virtualized versus traditional server configurations.

- **Partner with your vendor.** Engage with a vendor that can do more than simply provide and install the software, but rather a vendor that can serve as a partner, and has deep domain expertise and a successful track record with similar efforts at comparable institutions, not just excellent technical support.

**For Technology Vendors**

For technology vendors, the opportunity presented by ARRA and healthcare reform both expands budgets and creates opportunities for innovation when seeking to serve healthcare organizations. Investment and innovation will reach across the spectrum of healthcare organizations, including integrated delivery networks, hospitals, ambulatory care, imaging and surgical centers, and large and small physician practices.

This document identifies five key technologies that will be essential to the implementation of ARRA and healthcare reform for providers. Funding is available for providers to deploy technology, and while functionality required for meaningful use will come first, we also expect providers to invest in the four supporting technologies identified in this document to facilitate their objectives according to their needs, budgets, and stage of adoption. Technology vendors should be prepared to meet the needs of healthcare organizations in these areas.

To effectively target the healthcare IT opportunity, it is important for horizontal IT vendors and partners to:

- **Get smart about the healthcare opportunity.** Understanding the overall healthcare landscape, market dynamics, and provider business processes is critical to tailoring solution offerings to the needs of practices.

- **Build relationships with established healthcare vendors.** Horizontal IT vendors may want to support the healthcare market by forming new relationships with healthcare IT providers,
releasing new functionality and technologies targeted at the healthcare market or offering specialized promotion and positioning that help providers recognize the benefits of offerings or take advantage of stimulus funding.

- **Package technologies to include the supporting functionality, hardware, and services providers’ need.** It can be helpful to package applications, hardware, support, and services that provide solutions sets providers need to accomplish objectives such as meeting meaningful use requirements. This is particularly important in the ambulatory practice area, where solution bundles are attractive to small practices and create opportunities for vendors to combine products, services, and support.

- **Target the information resources used by providers.** It is important to build a presence with the resources providers use in gathering information on and selecting technology. These include vendor Web sites, informational Web sites, physician-focused social networking sites, and Webinars. Relationships with professional organizations and affiliated hospitals can also be helpful.

- **Partner with healthcare IT vendors.** Providers will look first to the proven solution providers with a presence in the healthcare industry and a history of providing applications, such as practice management, billing, and EMR, to small practices and their affiliated hospitals. Partnering with vendors that are well positioned with targeted practices will be important for establishing new offerings aimed at providers.

Technology companies will want to develop offerings for healthcare organizations of all sizes and types using small and medium-sized business channels to reach the last mile into small hospitals and practices across the spectrum of care delivery, where individual opportunities may be smaller but a significant portion of investment dollars will lie.

**LEARN MORE**

**Related Research**

- *Vendor Assessment: Industry Short List for Health Information Exchange Technologies* (IDC Health Insights #HI222529, March 2010)


• **Microsoft Acquires Sentillion and Broadens the Amalga UIS Platform** (IDC Health Insights #HI221547, December 2009)

• **Vendor Assessment: The Industry Short List of Electronic Health and Medical Records for Small and Midsize Ambulatory Practices** (IDC Health Insights #HI220502, November 2009)

• **Vendor Assessment: The Industry Short List of Electronic Health and Medical Records for Large Ambulatory Practices** (IDC Health Insights #HI220600, November 2009)

• **The Economic Stimulus Bill: A "HITECH HIT"** (IDC Health Insights #HI216955, February 2009)

• **The Future of Business and Clinical Intelligence in the U.S. Provider Market** (IDC Health Insights #HI216056, January 2009)

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