



2014

State of the U.S. Healthcare Information Technology Industry

AN INDUSTRY REPORT PROVIDED BY

HIMSS Analytics[®] and **HIMSS**[®]

Contents

A Letter from the CEO and EVP of HIMSS and HIMSS Analytics	1
Background and Purpose	4
Executive Summary—Market Overview	5
Key Findings—HIT Market Analysis	6
Key Findings—HIT Vendors in the Market	9
Key Findings—Most Frequently Acquired Applications	10
On the Horizon—What to Expect in 2014 and Beyond	16

HIMSS Mission

To globally lead endeavors optimizing health engagements and care outcomes through information technology.

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For more information about HIMSS Analytics, please visit www.himssanalytics.org.

A Letter from the CEO and EVP of HIMSS and HIMSS Analytics

DEAR HEALTHCARE EXECUTIVE:

Welcome to the *2014 State of the U.S. Healthcare Information Technology Industry*, produced jointly by the Healthcare Information and Management Systems Society (HIMSS) and HIMSS Analytics LLC, the wholly-owned, not for profit market research arm of HIMSS. We are very pleased to present this high-level view of the current state of information technology (IT) adoption in U.S. hospitals based on data from the HIMSS Analytics® Database and the Dorenfest Integrated Healthcare Delivery System+ (IHDS+) Database™.

From governmental incentives and regulations, to investments for ICD-10 conversion, to planning for major investments into enabling new technologies, healthcare IT executives in 2013 continued to face a multiplicity of challenges from an increasingly complicated healthcare environment.

Since the inception of the Meaningful Use (MU) program through November 2013, the U.S. Department of Health and Human Services (HHS) made incentive payments of over \$17.7B to American hospitals and eligible providers authorized under the HITECH¹ provisions of the American Recovery and Reinvestment Act of 2009 (ARRA).² This amount is just shy of double the \$9B paid out by the program through November 2012.

We at HIMSS and HIMSS Analytics believe the incentive program is clearly having an accelerating effect in healthcare information technology (HIT) adoption in U.S. hospitals. Our position is supported by the increased number of hospitals satisfying the criteria of advanced electronic medical record (EMR) capabilities as reported in the HIMSS Analytics Electronic Medical Record Adoption ModelSM (EMRAM). HIMSS Analytics has profiled hospital EMRAM scores from the time of the initial stimulus payments in Q2 of 2011 through Q3 of 2013. During this period, there was a 100 percent increase in the number of Stage 7 hospitals and a 175 percent increase in Stage 6 hospitals. Additionally, Stage 5 had more than a 240 percent increase. No other nation HIMSS Analytics monitors shows a similar EMRAM growth.

¹ Health Information Technology for Economic and Clinical Health Act.

² http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Downloads/November2013_SummaryReport.pdf

In 2013, HIMSS Analytics began validating Stage 7 ambulatory clinics. By year end, over 1,050 clinic sites representing numerous healthcare enterprises earned the Stage 7 designation. Each of these sites is truly paperless in nursing and physician documentation, achieving in excess of 95 percent computerized practitioner order entry (CPOE) utilization, and use a patient portal to improve patient engagement to help drive improvements in chronic disease management.

In early December 2013, the Centers for Medicaid & Medicare Services (CMS) proposed extending MU Stage 2 to 2016 and delaying the start of MU Stage 3 to 2017. CMS and the Office of the National Coordinator for Health Information Technology (ONC) aim to use the delay to gather more data from successful implementations of MU Stage 2 to inform the policies of Stage 3. While the “perfect storm” of MU regulations, ICD-10 adoption and continued implementations of clinical systems continues to brew, it has been delayed for now.

We also saw that the number of hospitals per Integrated Delivery Network/System (IDN) increased to 7.3 from 7.0 last year and 6.9 in 2011. This remarkable increase may be driven by two significant factors. First, the investment market was very favorable in 2013, allowing many IDNs to have the available cash needed for acquisitions. Second, the looming Affordable Care Act financial changes are driving organizations to “strengthen the base” and protect market share via consolidations.

We believe that 2013 will be seen as the beginning of a “cool down” in enterprise-wide clinical system sales since the majority of hospitals are well on their way to meeting the spirit, if not the “law” of the MU regulations. We do foresee that two areas of investment will accelerate in the near future, however: deriving more value from the acute care and ambulatory data to significantly improve the cost model of the continuum of care, and investment in analytics and revenue cycle systems to survive in the new payment models.

In response to demand for value from HIT investments, HIMSS has created the Healthcare IT Value Suite™, which is a library of value-focused, evidence-based examples of derived value framed by HIMSS’ multifaceted Health IT Value STEPS™.

The Healthcare IT Value Suite organizes the information and creates a common vocabulary to identify, classify and discuss the many known examples of health IT value.

We hope you find this edition of the *2014 State of the U.S. Healthcare Information Technology Industry* informative, compelling, and stimulating. And as always, you can count on HIMSS Analytics and HIMSS to be your most trusted and comprehensive source of market information on the adoption of IT applications in today's U.S. healthcare provider environment.

Best regards,



John P. Hoyt
Executive Vice President
HIMSS Analytics



H. Stephen Lieber
President and CEO
HIMSS



Background and Purpose

Welcome to the *2014 State of the U.S. Healthcare Information Technology Industry* publication! In this new year-end report, HIMSS Analytics takes a look back at the acquisition and implementation behaviors of U.S. hospitals as reported in the 2013 HIMSS Analytics® Database and Dorenfest Institute, as well as identifies movements in the market we believe will increasingly impact the healthcare information technology (HIT) industry in 2014 and beyond.

HIMSS Analytics was founded as the research arm of HIMSS in 2004 when HIMSS acquired the Dorenfest Integrated Healthcare Delivery System+ (IHDS+) Database™ from Sheldon I. Dorenfest & Associates. Rebranded as the HIMSS Analytics Database, the database is widely regarded as providing unprecedented market intelligence on the HIT industry. At present, the database includes profiles on more than 5,400 U.S. non-federal hospitals and over 36,000 affiliated healthcare organizations. In addition to collecting basic demographics of each individual healthcare organization, the database catalogues information on the implementation status of each organization's software, hardware and infrastructure portfolios, purchase plan information, and identification of hospitals with major capital building projects.

In order to ensure the data in our database is current and accurate, HIMSS Analytics' dedicated research staff contacts each healthcare organization's senior information technology (IT) executive at least once a year, with a request to provide information to complete his or her organization's profile. Once the executive completes his or her self-reported profile, the data undergoes an extensive quality review before it is made available to our clients.

In all, 107 clinical, financial and other applications used by hospitals, ambulatory clinics and home health facilities were tracked in the 2013 survey. The analysis presented in this report focuses on:

- Application acquisition and implementation highlights of the past five years
- Number of vendors in the HIT space
- Spotlight on issues driving HIT purchases in 2013 and 2014

The information in this report complements the more inclusive and in-depth analysis available in the Essentials reports published quarterly by HIMSS Analytics. For more information, please refer to the following links:

- www.himssanalytics.org/research/essentials.aspx
- www.himssanalytics.org

Executive Summary—Market Overview

The U.S. HIT industry in 2013 continued to be a bright spot in a slow, recovering economy. Not only did a large number of healthcare organizations continue to acquire and/or implement HIT applications this last year, but there was an increased number of vendors servicing the HIT industry, suggesting positive job opportunities for this sector of the economy. The high level of HIT acquisition and implementation behavior evidenced this year was most likely spurred on by the federal government's continued Meaningful Use (MU) incentive program, as well as other looming governmental mandates (e.g., ICD-10 coding conversion).

The influence of the federal government in the HIT industry over the last few years via MU requirements has arguably created an “unnatural market” which has likely influenced the purchasing behaviors of providers. This impact is clearly evidenced in the acquisition and implementation priority providers have placed on the adoption of electronic medical record (EMR)-related applications. Patterns of hospital purchasing behavior show that EMR-related applications are among the most commonly acquired, purchased and implemented of all the applications tracked in the HIMSS Analytics Database. Despite the industry's continued positive activity through 2013, evidence suggests that the level of purchase activity may be slowing and should be closely monitored over the next few months and years.

With respect to HIT issues to watch in 2014 and beyond, the HIMSS Analytics team believes there will be continued interest in clinical and business intelligence-related solutions, and increased activity in the revenue cycle management (RCM) markets. It is also our belief that vendors and providers alike will be under increased pressure to clearly demonstrate the value of their HIT investments. This latter issue is of concern as the failure to “sell” the value of HIT to the varied stakeholders may negatively impact the positive growth we have witnessed over the last few years.

Key Findings—HIT Market Analysis

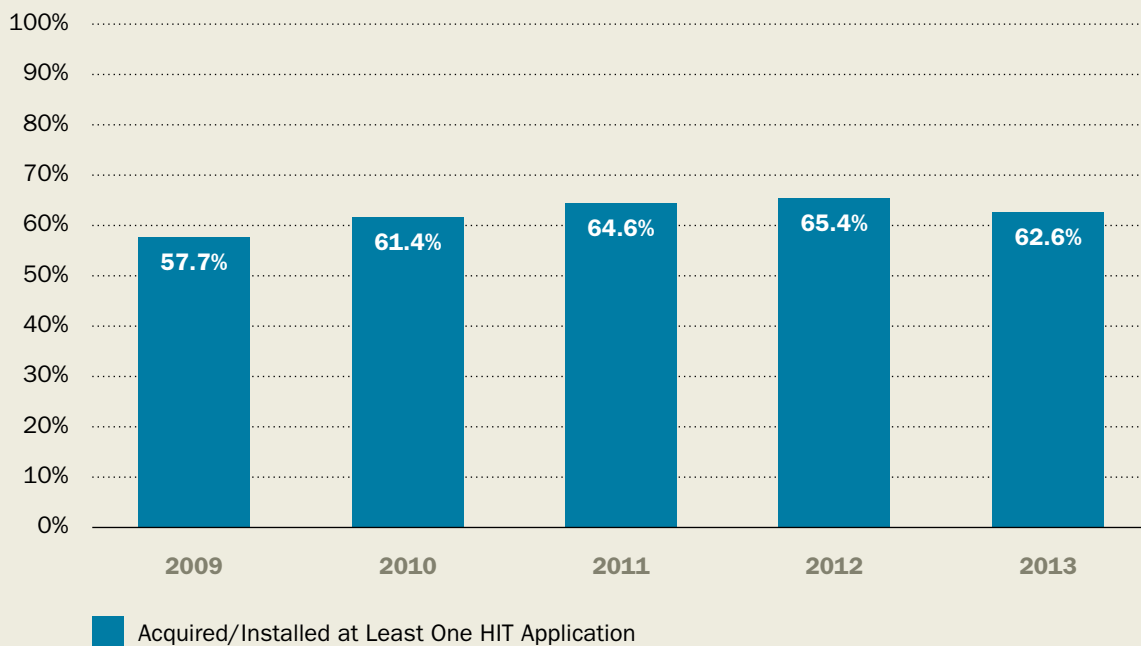
The 2013 HIMSS Analytics Database clearly indicates that U.S. hospitals continue to be active in the acquisition and implementation of HIT solutions.³

While acquisition and implementation activities may have slowed in 2013 compared to previous years (see Figure 1), approximately two thirds of U.S. hospitals (62.6 percent) in the 2013 HIMSS Analytics Database reported acquiring and/or installing at least one HIT application during the previous 12 months.

Based on the acquisition/implementation trends of the past five years, the U.S. hospital industry can be characterized as a fairly “experienced HIT buyer market.” To illustrate this, by the end of 2013, roughly

90 percent of all hospitals had reported to either contract to install or had installed at least one HIT application during the last five years. This finding suggests the vast majority of hospital leaders have had some type of interaction and perhaps opinion about HIT and HIT vendors. There are definitely pros and cons to selling to an experienced buyer market. With 90 percent of hospitals interacting on some level with an HIT vendor during the past five years, HIT purchasing decision makers should have some degree of vendor name awareness and recognition. On one hand, this awareness and recognition could help some vendors with wide market presence to be included in a

Figure 1. Percentage of Hospitals Acquiring and/or Installing at Least One HIT Application (2009 – 2013)



³ Acquisition and implementation activities are flagged in the HIMSS Analytics Database by identifying those hospitals in which the status of a particular HIT solution we monitor is reported as “Contracted not yet installed” or “Installation in process.”

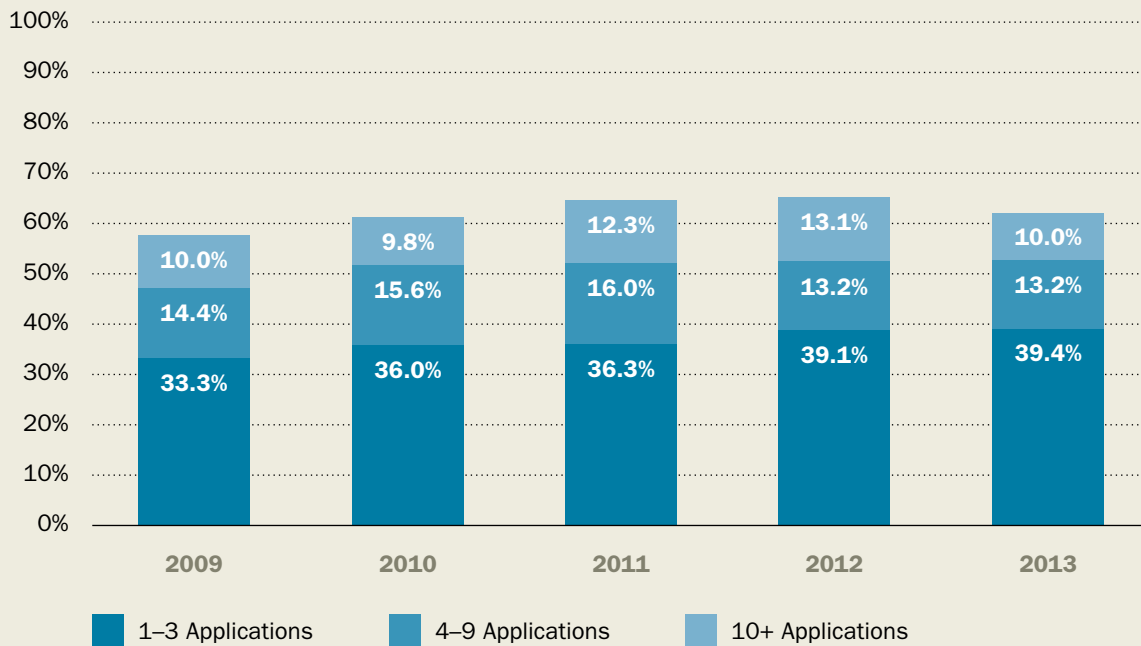
prospective HIT buyer’s “consideration set.” On the other hand, vendors with limited market presence and awareness have to work harder to push themselves in front of prospective clients.

As depicted in Figure 1, the HIT activity level in 2013 reflects a slight downturn in market activity when compared to 2012. While the overall HIT market activity trend had been positive between 2009 and 2012, there was a slight bending of the growth trajectory between 2011 and 2012, suggesting the HIT market had hit a tipping point. This year’s data confirms 2012 was an apex in market activity as many hospitals have made the acquisitions needed to achieve the early stages of

MU. What the trajectory does not indicate is the future trend of HIT acquisitions. However, with much work to be done to achieve Stage 2 of MU, indications are that the market will still be strong for some time to come. Please see the “On the Horizon” section for details on what to expect in 2014 and beyond.

HIT acquisition and implementation behaviors have been fairly predictable in the past few years. Based on the number of HIT applications that are in transition at any one time in a year (see Figure 2), there is a relatively stable pattern in the percentage of hospitals managing four or more applications. Historically, roughly one quarter of U.S. hospitals each year report acquiring

Figure 2. Percentage of Hospitals Acquiring and/or Installing a Range of HIT Applications (2009 – 2013)



and/or installing four or more HIT applications. Figure 2 also indicates that the percentage of hospitals acquiring/installing a relatively limited number of applications (1-3 applications) has been growing over the past five years.

The relative stability in the size of the market transitioning each year with multiple HIT applications at once indicates two trends:

- Hospitals' HIT needs are being satisfied via a steady progressive approach. Hospitals are not endeavoring to change too many HIT applications at once. Some hospitals are less likely to “rip and replace,” but rather they are implementing core systems or augmenting their current stable environment. What is not known is if this progressive (yet limited) approach is a

purposeful strategy by hospital leaders, or is a resource (financial or employee) and bandwidth issue. If resources were available, would there be more activity of multiple HIT application acquisition and implementation?

- The market for large-scale implementations, such as transitioning on four or more applications in a year, is limited. While roughly one quarter of the market is still a sizeable market to penetrate, the relative stability of the market engaged in large-scale changes seems to be set and perhaps shrinking. Future research should explore the rationale hospital leaders used to initiate “large scale” HIT projects, as well as monitor the size of this segment of the market to see if it changes.

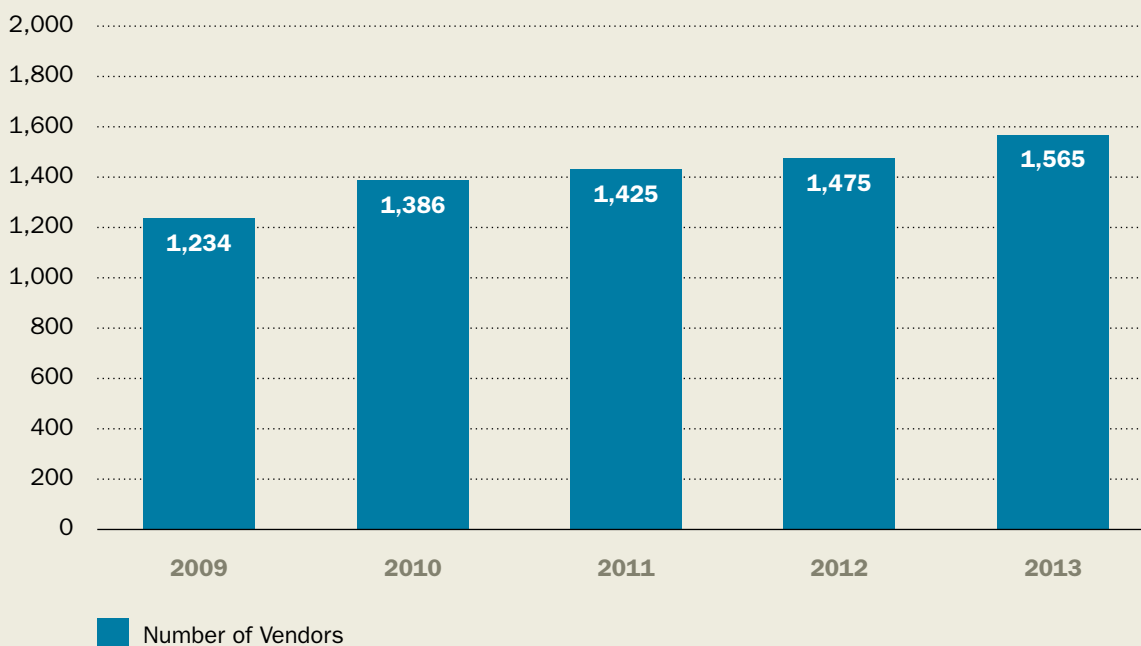
Key Findings—HIT Vendors in the Market

An analysis of the HIT vendors servicing the healthcare market indicates that the number of HIT vendors entering the U.S. market continued to grow in 2013. As reflected in Figure 3, the number of HIT vendors servicing the U.S. hospital market in 2013 reached a five-year high. The rate at which vendors have entered the HIT market has fluctuated somewhat over the past five years. For example, the rate of growth from 2009 to 2010 was at 11 percent, dropped to around three percent from 2010 through 2012, before increasing to six percent

between 2012 and 2013. It is highly likely that this growth is due to the entrance of niche market vendors attempting to leverage opportunities tied to the MU incentive program.

Findings from the HIT market analysis provide comprehensive evidence quantifying the attractiveness of the hospital market as a prime focus for IT opportunities. While these findings come as no surprise to those involved in the industry, it is the type of evidence entrepreneurs and venture capitalists seek.

Figure 3. Number of HIT Vendors Servicing the U.S. Hospital Market



Key Findings—Most Frequently Acquired Applications

Among the more than 100 HIT applications tracked in the HIMSS Analytics Database, EMR-related applications are the most commonly acquired and implemented applications by U.S. hospital providers. When comparing the top five most frequently acquired and/or implemented applications in U.S. hospitals in 2013 (see Figure 4), to the applications included in the HIMSS Analytics EMR Adoption ModelSM (EMRAM), the applications with the most activity tend to reflect those applications critical in EMRAM Stages 3 through 6. This suggests that the applications related to EMRs are a priority for HIT buyers (see the following section on the EMRAM for more details on the different EMRAM stages).

Figure 4 also shows that the acquisition and/or implementation focus on HIT applications intimately

tied to the EMR was true not only in 2013, but for each year over the last five years. From 2009 through 2013, CPOE ranked as the number one most acquired and/or implemented application, followed by physician documentation as the second most acquired and/or implemented application.

The findings reported in Figure 4 also suggest there has been consistency in the most commonly acquired and/or implemented applications in U.S. hospitals. Over the five-year period analyzed, the composition and ranking of the applications included in the top five most acquired and/or implemented applications have remained largely stable with few modifications.

The final observation from Figure 4, we would like to note, refers to the priority U.S. hospitals have placed on the acquisition and/or implementation of

Figure 4. Most Frequently Acquired Applications (Top Five Applications in Which 1 Is Most Acquired/Implemented Application and 5 Represents the 5th Most Acquired/Implemented Applications)

Top Five Acquired/Implemented Applications	2009	2010	2011	2012	2013
Computerized Practitioner Order Entry (CPOE)	1	1	1	1	1
Physician Documentation	3	2	2	2	2
Electronic Medication Administration Record (eMAR)	2	3	3	3	3
Nursing Documentation	4	4	4	4	4
Order Entry (Includes Order Communications)	6	5	5	5	5

physician-focused HIT applications. The data suggests HIT will have a greater impact on the physician's role than ever before. The increased use of HIT in physicians' workflow in the hospital has been expected. The best practice evidence suggests HIT leaders should be engaged with their medical staff long before the first EMR application is purchased and installed. Understanding the HIT-related needs, wants and desires of attending and referring physicians is critical for HIT leaders to harness if they want a successful and functional EMR environment. Hospital administrator and medical staff relationships vary from hospital to hospital, and not all HIT leaders are proficient in engaging their medical leaders. A great opportunity exists for vendors and consultants to specialize in assisting hospital leaders bridge the physician and HIT chasm.

Introduction to the EMR Adoption ModelSM (EMRAM)

The focus on EMR-related applications evidenced in Figure 4 strongly suggests the federal mandate to automate patient records—via the Health Information Technology for Economic and Clinical Health Act (HITECH) incentives included in the American Recovery and Reinvestment Act of 2009 (ARRA)—have had considerable impact on the buying behaviors

of U.S. hospitals, a finding that is reflected in the progressive shifting distribution of hospitals in the various stages of the EMRAM.

EMRAM is a maturation model of EMR adoption and utilization in U.S. hospitals developed by HIMSS Analytics in the mid-2000s. In recognizing our unique position in amassing data on the HIT inventory of hospitals and their affiliated entities throughout the world, HIMSS Analytics leaders developed the EMRAM in 2006. In 2012, HIMSS Analytics developed the Ambulatory EMR Adoption ModelSM (A-EMRAM), a similar model for tracking the adoption of EMR applications in physician offices and ambulatory clinics. HIMSS Analytics has also modified these models for international use.

The EMRAM and A-EMRAM use proprietary algorithms to track the adoption of EMR applications in hospitals and ambulatory facilities. The basic premise of the adoption model is that an organization's adoption of EMR technologies can be scored using the IT inventory data captured by the HIMSS Analytics Database. Through the proprietary algorithm, each hospital receives an EMRAM maturation score based on the EMR and other key clinical applications they have implemented.

HIMSS Analytics' EMRAM scoring methodology defines a healthcare organization (HCO) into eight stages ranging from Stage 0 (largely paper-based environment) to Stage 7, the pinnacle of an environment in which paper charts are no longer used to deliver patient care. The eight stages of the EMRAM are defined as follows:

- **Stage 0**—The organization has not installed all of the three key ancillary department systems (laboratory, pharmacy and radiology).
- **Stage 1**—All three of the major ancillary clinical systems (laboratory, pharmacy and radiology) are installed.
- **Stage 2**—Major ancillary clinical systems feed data to the clinical data repository (CDR) that provides physician access reviewing all orders and results from one location. The CDR contains a controlled medical vocabulary, and the clinical decision support/rules engine for rudimentary conflict checking. Information from document imaging systems may be linked to the CDR at this stage. The hospital may be health information exchange (HIE)-capable at this stage and can share whatever information it has in the CDR with other patient care stakeholders.
- **Stage 3**—Nursing/clinical documentation (e.g., vital signs, flow sheets, nursing tasks, nursing notes, medication review/reconciliation, eMAR) is required and is implemented and integrated with the CDR for at least one inpatient service in the hospital; care plan charting is scored with extra points. The eMAR application is implemented. The first level of clinical decision support is implemented to conduct error checking with order entry (i.e., drug/drug, drug/food, drug/lab conflict checking normally found in the pharmacy information system).
- **Stage 4**—CPOE for use by any clinician licensed to create orders is added to the nursing and CDR environment along with the second level of clinical decision support capabilities related to evidence-based medicine protocols. If one inpatient service area has implemented CPOE with physicians entering orders and completed the previous stages, then this stage has been achieved.
- **Stage 5**—The closed loop medication administration with bar-coded unit dose medications environment is fully implemented. The eMAR and bar coding or other auto-identification technology, such as radio frequency identification (RFID), are implemented and integrated with CPOE and pharmacy to

maximize point-of-care patient safety processes for medication administration. The “five rights” of medication administration are verified at the bedside with scanning of the bar code on the unit doses medication and the patient ID.

- **Stage 6**—Full physician documentation with structured templates and discrete data is implemented for at least one inpatient care service area for admission

history and physical, progress notes, consult notes, discharge summaries or problem list and diagnosis list maintenance. Level three of clinical decision support provides guidance for clinician activities related to protocols and outcomes in the form of variance and compliance alerts. A full complement of radiology picture archiving and communication systems (PACS) provides medical images to physicians via an intranet

Figure 5. U.S. EMR Adoption Model, Q3 2013

US EMR Adoption Model SM			
Stage	Cumulative Capabilities	2013 Q2	2013 Q3
Stage 7	Complete EMR; CCD transactions to share data; Data warehousing; Data continuity with ED, ambulatory, OP	2.1%	2.2%
Stage 6	Physician documentation (structured templates), full CDSS (variance & compliance), full R-PACS	10.0%	11.1%
Stage 5	Closed loop medication administration	18.7%	20.9%
Stage 4	CPOE, Clinical Decision Support (clinical protocols)	14.6%	15.1%
Stage 3	Nursing/clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology	34.5%	31.9%
Stage 2	CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging; HIE capable	9.0%	8.4%
Stage 1	Ancillaries - Lab, Rad, Pharmacy - All Installed	3.8%	3.5%
Stage 0	All Three Ancillaries Not Installed	7.2%	6.9%

Data from HIMSS Analytics® Database ©2013 HIMSS Analytics

N = 5,439 N = 5,437

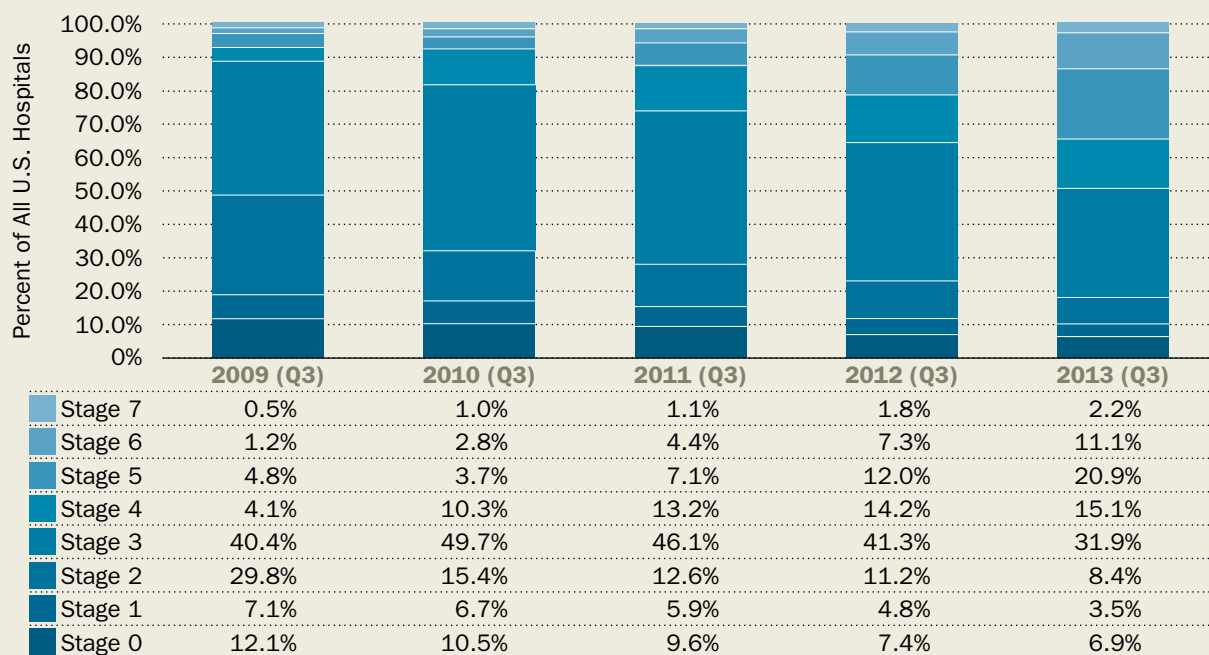
and displaces all film-based images for radiology services. Cardiology PACS and document imaging are scored with extra points.

- **Stage 7**—The hospital no longer uses paper charts to deliver and manage patient care and has a mixture of discrete data, document images and medical images within its EMR environment. Advanced data analytics to develop and apply clinical and business intelligence are being used to analyze patterns of clinical data to improve quality of care, patient safety and care delivery efficiency. Clinical information can be readily shared via standardized electronic

transactions (i.e., Continuity of Care Document – CCD) with all entities that are authorized to treat the patient, or an HIE (i.e., other non-associated hospitals, ambulatory clinics, sub-acute environments, employers, payers and patients in a data-sharing environment). The hospital demonstrates summary data continuity for all hospital services (e.g., inpatient, outpatient, emergency department [ED], and with any owned or managed ambulatory clinic).

Figure 5 (on the previous page) depicts the EMRAM profile of U.S. hospitals as of the end of September 2013.

Figure 6. Array of U.S. Hospitals by EMRAM Stage Status (2009 – Q3 2013)



Shifting Profile of the EMRAM Landscape

First released to the market at the end of 2006, the EMRAM profile of U.S. hospitals has clearly indicated a progressive adoption of EMR capabilities. See Figure 6 for details from 2009 to 2013.

Examining the percent of hospitals with low-functioning EMR capabilities (EMRAM Stage 0 to Stage 2) reveals that there has been a steady decline of hospitals in this segment. A notable shift in the distribution of hospitals in EMRAM Stage 2 between 2008 and 2009 occurred, coinciding with the start of the U.S. government's ARRA/HITECH initiative. There is also an increase in the percentage of hospitals with advanced capabilities. At the end of 2007, there were only 40 hospitals in Stage 6 and not one U.S. hospital reached Stage 7. By Q3 2013, 658 U.S. hospitals reached Stage 6 and 160 U.S. hospitals achieved Stage 7.

These EMRAM-related figures provide evidence that the HIT market has benefited from the government "kick-starting" the adoption of select HIT applications.

Moreover, the continued shift of hospitals into the higher stages of the EMR capabilities yields the intended benefit of strengthening the nation's management of clinical patient information.

However, questions on how long we can sustain the current levels of EMR advancement must be asked. What impact will the adoption and implementation processes have on the evolution of the HIT market once the government is no longer involved? In other words, once federal incentives are no longer a driver for continued EMR application adoption, will the industry continue this progression or has the market been trained to require government involvement to stimulate the HIT buying process? This undoubtedly impacts other critical purchases as providers may defer purchasing non-clinical HIT applications (e.g., revenue cycle management applications) in order to "wait and see" if more incentive monies will be made available.

On the Horizon—What to Expect in 2014 and Beyond

Up to now, much of this report has focused on acquisition/implementation behaviors that have dominated the attention of the HIT industry. Indeed, we can expect much of the HIT industry to continue to place a priority on the EMR in the next few years as, arguably, the best predictor of future behavior is past behavior. But what's next? What forces are at work now which may not be reflected in the acquisition/implementation behaviors of hospitals in the HIMSS Analytics Database, but may have an impact on the future? Based on information from HIMSS subject matter experts and our understanding/analysis of the HIT environment, the following section details a few areas HIMSS Analytics will be closely watching in 2014 and beyond.

Clinical and Business Intelligence

As evidenced in our previous discussion regarding the adoption of the EMR in U.S. hospitals, many healthcare providers now have the EMR infrastructure in place to harness patient data. While the EMR can benefit individual patients with a more seamless approach to the management of their care, the transformational changes driven by federal healthcare reform have created an environment in which healthcare organizations must begin to understand what is happening within their organizations as well as with individual patients and the patient populations

they serve. To this end, analytics—the discovery and communication of meaningful patterns in healthcare data—is a critical force in healthcare reform. By mining the clinical and financial records of patients for patterns of behaviors associated with specific outcomes, healthcare organizations can uncover insights to help them become more effective in their communities.

HIMSS and HIMSS Analytics have received feedback from our members regarding learning more about ways HIT can help providers leverage aggregate patient data, commonly referred to as clinical and business intelligence. And indeed, data from the HIMSS Analytics Database suggest a growing number of providers are adopting tools to help them mine the patient data they are collecting. For example, over the last five years the percentage of U.S. hospitals with a clinical data storage and mining solution grew by more than 20 percent.

The attraction of mining big data sets is not unique to healthcare. Many other industries have already effectively leveraged analytics to advance their business. Organizations such as FedEx, Google, and Walmart, to name a very few, have applied analytics and business intelligence in ways that have allowed their organizations to enjoy competitive advantages that competitors find hard to duplicate or compete with. Using techniques like advanced analytics (predictive modeling, marketing optimization, risk analysis, etc.)

and business intelligence (reporting, online analytical processing, analytics, data mining, text mining, etc.), other industries have led the way in the use of analytics solutions, approaches, tools, and success.

Leveraging “big data”—or the use of larger and even external data sets, effective and pervasive business intelligence, mobile technology, cloud computing and other advances in technology and data management—is commonplace in many leading companies of industries other than healthcare. Healthcare can no longer ignore the opportunities that analytics has provided to other industries. The needs for healthcare industry care management, quality management, and cost control have reached the lowest point. It is our belief, therefore, that clinical and business intelligence tools will continue to grow in use in U.S. hospitals, and certainly will be something the HIT community will want to monitor. But having a tool to help explore patient data does not necessarily mean a provider organization will effectively use the information. There are many factors which need to be in place for an organization to fully leverage the tools at its disposal. In fact, it may be that not all hospitals in the U.S. have or are able to have the foundational girders in place to be clinically and operationally intelligent organizations. Perhaps a more significant insight is to assess a provider’s analytical capability.

To that end, HIMSS Analytics partnered with the International Institute for Analytics (IIA) to release to the market a new maturation model assessment effort in 2013—the DELTA-Powered Analytics Assessment.⁴ The DELTA-Powered Analytics Assessment employs a web-based survey to collect organizational importance and effectiveness data across 33 analytical competencies from analytics users, providers and enablers to assist healthcare organizations in understanding their analytical capabilities in comparison to other organizations, both inside and outside of the healthcare industry. The assessment delivers an industry-agnostic numerical measurement of an organization’s analytical maturity across the five foundational areas of the DELTA model:

- Data**
- Enterprise**
- Leadership**
- Targets**
- Analysts**

While knowing one’s position in a new territory is important information, having a map to navigate one’s way to a desired state is perhaps more significant. HIMSS Analytics has therefore coupled the DELTA-Powered Analytics Assessment program with a DELTA-Powered Maturity Roadmap. This program provides a

⁴ <http://www.himssanalytics.org/emram/delta.aspx>

basic maturation roadmap for healthcare organizations interested in moving their capabilities forward across the five DELTA foundational areas. By linking the DELTA-Powered Analytics Assessment survey results by DELTA foundational area with the DELTA-Powered Maturity Roadmap, healthcare organizations can effectively manage specific key milestones and organizational activities required to strategically plot a course towards improved analytical capability and results. The maturity roadmap provides specific capabilities and competencies for each of the DELTA models' five core competency areas and for each of the five maturity levels from "Beginner" through "Leader." It is our hope that the analytical maturity path provided by our model will give healthcare organizations the direction they need to enable transformation of their services in a meaningful way that adds value to customers and improves organizational performance.

Revenue Cycle Management

The second area of focus we believe is ripe for activity surrounds RCM-related solutions. "Revenue cycle" is a fairly broad term which includes the entire life of a patient account from creation to payment, in which revenue-related processes flow into and affect one another. The business processes supported by the applications in the RCM category are critical to a

hospital's financial viability. RCM applications and procedures are implemented by healthcare organizations to prevent operating losses resulting from error, fraud, technological breakdowns or patient defaults. RCM solutions also improve prompt collection of accounts receivable and increase liquidity levels. Revenue cycle is therefore a critical process for healthcare organizations to effectively manage. When processes are executed correctly, the cycle performs predictably and can ensure organizations receive payment for services rendered in a timely and efficient manner. However, when problems arise, especially early in the cycle, the impact can be devastating for a hospital.

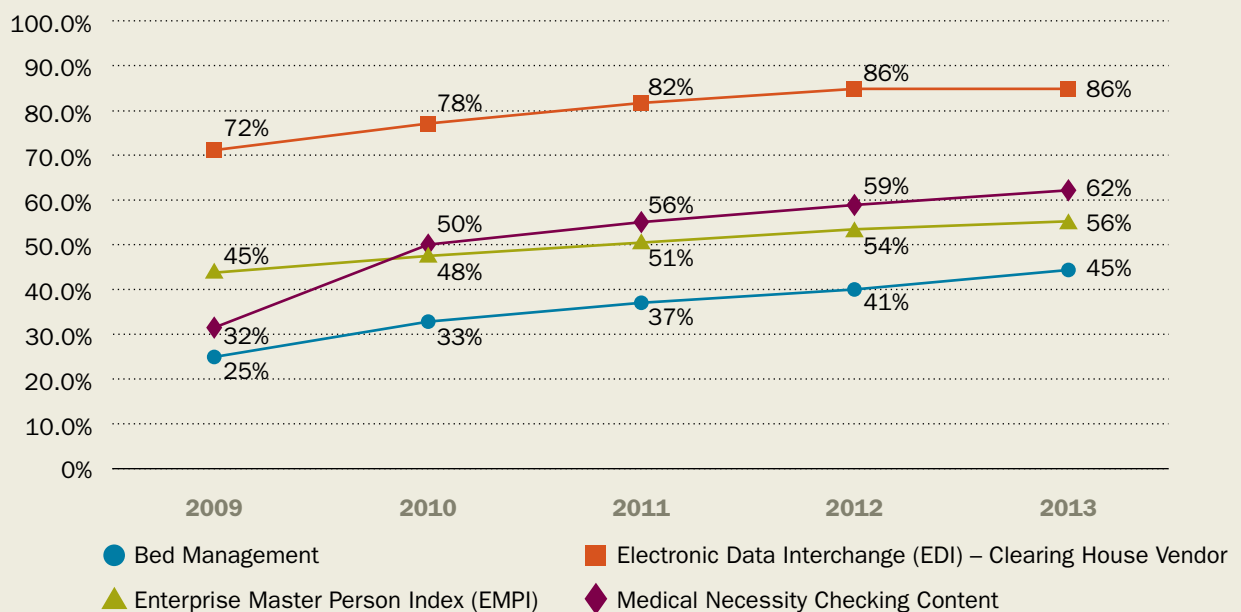
The HIMSS Analytics Database tracks eight different RCM applications including admission-discharge-transfer (ADT)/registration, bed management, contract management, credit/collections, electronic data interchange (EDI), enterprise master person index (EMPI), patient billing and patient scheduling. Of these eight RCM applications, bed management, EDI, EMPI and medical necessity checking content demonstrated the greatest growth over the past five years (*see Figure 7*).

While data from the HIMSS Analytics Database suggest RCM applications are fairly standard business tools in many U.S. hospitals, we believe the healthcare RCM industry is poised for significant activity, in part because of administrative neglect. This is not to say

hospital leaders have been derelict in their oversight of the hospital’s HIT infrastructure, or that non-clinical applications are not deemed necessary by U.S. hospital HIT buyers. To the contrary, IT leaders have rightly focused their attention and energies in leveraging the federal incentive dollars available to them for implementing an EMR. The MU incentive program instituted by the federal government has arguably created an “unnatural market” by artificially elevating the attractiveness of one type of HIT solution over all

others. In theory, since hospitals do not have unlimited human capital and financial resources, they must prioritize their efforts. The priorities for non-clinical applications have been placed on the “back-burner” as hospitals have learned to rely on older, more aged legacy systems or no system at all. If this view is accurate, it is expected that the non-clinical application market will become an important factor and the current focus on EMR applications will create a non-clinical application market “bubble” in the near future.

Figure 7. Key RCM Application Adoption—Most Relevant Change in Adoption Rates from 2009-2013



Moreover, we believe RCM tools are poised for renewed attention in a post-MU incentivized world because recent government mandates surrounding ICD-10 conversion are ensuring providers have the appropriate RCM tools in place to facilitate the proper coding of care services. These changes in the payment landscape will pressure hospital leaders to ensure their revenue cycle runs effectively and efficiently. Deficiencies in these systems could be extremely costly for hospitals if unchecked.

Spotlight on Demonstrating the Value of HIT

The third and final issue we believe will emerge as significant in 2014 and beyond surrounds efforts to demonstrate the value of HIT. For many years the healthcare industry has largely viewed HIT investments as justifiable because they are assumed to yield multiple benefits for varied stakeholders. And the reality is that it makes sense that we could increase responsiveness, efficiency, security, privacy, accuracy, access, and insight into improving care delivery by eliminating paper-based systems, reducing manual processes, and—ultimately—identifying and applying the best clinical and business practices through clinical decision support and analytic algorithms. Yet over the past year or so, there has been a growing chorus of voices to include

reporters, clinicians, patients, and congressional committees, questioning the value of HIT investments.

These pressures are creating an environment in which providers and vendors are being pressured to demonstrate the value of HIT, and therefore, the reason why we believe this issue will percolate as a priority in the industry. Recognizing the need for a consistent way to understand, evaluate, and communicate the real-world impact of HIT, HIMSS launched the Health IT Value Suite in 2013.⁵ The Health IT Value Suite is a comprehensive knowledge repository that classifies, quantifies and articulates the clinical, financial and business impact of health IT investments. By using a taxonomy and framework called “STEPS,” the intent of the Health IT Value Suite is to help providers, policymakers and payers evaluate the success of their IT investments by offering relevant and credible HIT investment and implementation examples.

The Health IT Value STEPS™ model documents the benefits of health IT across the following five categories:

- Satisfaction**
- Treatment**
- Electronic data/information**
- Prevention and patient education**
- Savings**

⁵ www.himss.org/valuesuite

About HIMSS

HIMSS is a global, cause-based, not-for-profit organization focused on better health through information technology (IT). HIMSS leads efforts to optimize health engagements and care outcomes using information technology. HIMSS is a part of HIMSS WorldWide, a cause-based, global enterprise producing health IT thought leadership, education, events, market research and media services around the world. Founded in 1961, HIMSS WorldWide encompasses more than 52,000 individuals, of which more than two thirds work in healthcare provider, governmental and not-for-profit organizations across the globe, plus over 600 corporations and 250 not-for-profit partner organizations, that share this cause. HIMSS WorldWide, headquartered in Chicago, serves the global health IT community with additional offices in the United States, Europe, and Asia.

About HIMSS Analytics

HIMSS Analytics supports improved decision-making for healthcare organizations, healthcare IT companies and consulting firms by delivering high quality data and analytics expertise. The company collects and analyzes healthcare organization data relating to IT processes and environments, products, IS department composition and costs, IS department management metrics, healthcare delivery trends and purchasing-related decisions. HIMSS Analytics is a wholly-owned, not-for-profit subsidiary of HIMSS.



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