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PROFESSIONAL INFORMATION TRANSFORMING NORTH AMERICAN HEALTHCARE MARKETS™





## V12N1

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## Implication of Meaningful Use and ARRA Stimulation *By Arthur Gasch – MSP Founder*



Because of healthcare reform, the U.S. healthcare landscape is becoming more complex, expensive and highly unstable. The outcomes so far bear little resemblance to the Obama Administration rhetoric about creating jobs and stimulating the economy under ARRA. In many ways the results for the EMR market have had just the opposite effect.

The American Recovery & Reinvention Act (ARRA) purported to fund adoption of the Electronic Medical Record (EMR) if users achieved “Meaningful Use” (MU) of the technology. The trouble was that the definition of MU was omitted from the February 2009 ARRA bill; nor has it been finalized in the 15 subsequent months since then, a period characterized by physicians and hospitals initially poised to purchase EMRs, retreating to the EMR market side lines to wait for the MU issue to be clarified. Bluntly put, Congress and Dr. Blumenthal and company have driven the EMR market into 15 months of stagnation. The impact of HITECH so far has been like an elephant wading into a kid’s plastic swimming pool and then sitting down – squashing a few kids and squeezing out the little water it contained in the process.

On January 9, 2010, the government issued over 200+ pages of additional regulations to define MU, but far from settling the matter, this action prompted tens of thousands of comments, some of which were 30 pages (or longer) about MU’s problems. These included comments from 26 percent of EMR developers. Then in April, 27 members from both parties of Congress issued a letter to Secretary Sebelius that pointed out how MU as presently structured would hurt larger medical centers and how MU’s all or nothing definition would likely make achieving it far more difficult and risky to physicians (in particular) than it needs to be. MU as it is currently defined, is an all-or-nothing proposition and if a practitioner fails on one MU requirement, they do not qualify for government HITECH reimbursement, even if they met (or exceed) all of the other MU requirements successfully.

Currently, the Office of the National Coordinator (ONC) is reworking the MU requirements, trying to take into account all the documented problems pointed out during the comment period. As a result, MU revisions are not likely to appear before June or to become final before July of 2010. Potential hospital and physician buyers have now brought in cots and sleeping bags, realizing that the wait to clarify MU is going to take a while. Not surprisingly, neither hospitals nor physicians are rushing to buy an EMR. Based on the 13th MSP/Andrew Benchmark, new EMR sales were down for 29 percent of EMR developers in 2009, while only 11 percent reported growth. Real results of ARRA in

the EMR segment have been more shrinkage than growth, by a factor of 3:1. EMR developers reported that if MU definitions remain unresolved for most of 2010, sales will be down for 56 percent compared to 8 percent who expect increases – a 7:1 ratio.

In 2009, 32 percent of EMR vendors reported that ARRA increased employment, compared to 11 percent who reported it caused layoffs. If uncertainty about MU continues through 2010, the percentage of EMR developers that report employment increases shrinks to 16 percent, with 8 percent forecasting further loss of jobs. This suggests the EMR market is poised to fall back into recession if the government doesn’t get its MU act together soon. Because of poor execution, the potential positive impact of ARRA on healthcare markets has been greatly diminished.

October 1, 2010 was the date for the first year’s MU certifications, with reimbursement to begin in January. If MU is clarified by July 2010 (something that is by no means certain) how much time will EMR developers have to bring their EMRs into compliance with such standards, so that even their current customers can receive software that is capable of supporting MU functionality for 90 days to meet the October 1, 2010 dead line?

Few (if any) practices will achieve 3 months of MU performance by October 1, 2010; certainly no practices that did not already have a deployed EMR. Given that most practices won’t even start to plan an EMR adoption until MU is finalized, EMRs may not be deployed and achieving MU by the following (October 1, 2011) deadline. To date, the government’s wisdom is that October 1, 2011 is the last deadline for receiving the maximum reimbursement for deploying an EMR. After that, MU reimbursement drops off significantly each year. Why should an Eligible Professional (EP – term for person able to become a Meaningful User of an EMR) be penalized because the Washington policy makers and bureaucrats took almost two years to define two words – Meaningful Use? Forty-three percent of EMR developers report that government regulations have increased the price of EMRs, while 57 percent say it has not, but zero percent believe it has decreased the price. All in all, ARRA has provided no EMR market stimulation and inflationary increases in EMR prices, setting up the industry for a slip back into recession in 2011 if MU is not quickly resolved. Not a good track record for a \$34 billion dollar expenditure.

Hospitals are also being pressed to adopt EMRs across their clinical units and to upgrade diagnostic areas to support MU reporting and interoperability in their clinical areas. Since many hospitals provide lab results to attending physician practices (who will presumably begin adopting

MU-capable EMRs that must report lab, radiology and pharmacy results electronically in formats that are compliant with MU interoperability standards); they will face the loss of such business from attending physicians.

For some smaller and Critical Access Hospitals (CAHs) the revenues from physician-ordered lab tests can amount to nearly 10% of hospital revenues. Hospitals that can't support the MU reporting standards of their attending physicians face the loss of such business to national laboratories (LabCorp or Quest or others) who can. Since Uncle Sam reimburses any losses these CAH's incur, that means more cost to Uncle Sam. MU implications also ripple down to patient monitoring vendors in all hospitals, who increasingly need to receive, format and display lab data on bedside workstations, as well as support CPOE ordering.

The challenge is that some hospital Laboratory Information System (LIS) vendors don't support interoperability standards like ELINCS II and LOINC data wrapped in CCR or CCD "envelopes." Some in-hospital EMR developers want monitoring vendors to spend up to \$100K in order to become compatible with their proprietary Application Program Interfaces (APIs). This puts smaller monitoring system vendors between a rock and a hard place. If they don't pony-up the API money to EMR product companies (Cerner for example) for their proprietary interface, they can't display Cerner LIS information on their bedside monitors (at those hospitals that have Cerner LIS systems).

The key is to get the Lab Information System (LIS) vendor to report in standardized formats to both the hospital and to the attending physicians who are utilizing the hospital labs for testing. All LIS vendors need to support HL7, CCR, CCD, ELINCS (LOINC codes) for lab results; and the government should simply mandate that all labs report their data as LOINC codes in standard message wrappers as a part of their CLIA requirement. Why haven't they done that? Hospitals could have put a stop to this long ago, by demanding LIS standards-compliant systems – but didn't.

Hospitals are faulted by the press as being slow adopters of computer technology, which is absolutely not so. The average large hospital today has more CPU complexity than almost any industry except perhaps nuclear power or the military. Hospitals can have up to 100 different computer systems in their walls, many controlling various imaging, therapeutic machines and monitoring devices, with others for research or business purposes. So the problem is not that hospitals have been slow adopters, but that their computer systems are so complex and extensive, and made by so many different suppliers, that connectivity and interoperability are truly challenging issues.

The real challenge in hospitals and enterprise systems today is creating ways to harmonize the large number of diverse systems and proprietary protocols. It is a problem that

other industries did not have to face. Suppose your car had 100 computers in it, each with a different CPU, memory and data bus – how easy would it be to get them all to communicate with each other? Because hospital computer technology is too expensive to simply abandon all at once, they are constrained to create "systems of individual, disparate computer systems" in order to integrate information flow across the enterprise. So, mandating interoperability may simplify infrastructure in the long-term, in the short-term, it simply further complicates the problem until older legacy systems can be replaced with newer, less expensive, more standards-compliant ones.

That brings us around to MU certification. At this stage MU certification seems to need an entirely new certification organization because apparently the CCHIT organization is not up to the task. It seems as if CCHIT, and the \$38K fees it collects from all CCHIT-certified EMR developers wasn't adequate to certify Meaningful Use, so the government had to create a new organization to do that. Do you believe that? Can you spell "boondoggle?" Forty-eight percent of EMR developers are not continuing CCHIT certification, with 23 percent planning a definite pull-out. Some vendors have angry feelings about CCHIT.

The ONC has proposed a complicated and costly, two-stage approach in establishing a federal Electronic Health Record (EHR) certification process. OK, fine – but then shut down CCHIT and refund all of the fees they have collected for their apparently inadequate certification, and remove CCHIT certification as a pre-requisite in the EMR process. What, dismantle something that doesn't work? When has our government ever done that? Look what it is doing with Homeland Security. If it doesn't work, build a bigger, more inefficient bureaucracy!

The first new certification would be a temporary stage and part of the mandate would be to establish different methods for testing (and certifying) EHR products. These would become the ONC-approved bodies, which could establish their own testing of EHR/EMR vendors. The goal of these temporary testing bodies would be to expedite the evaluation process. The second stage, the proposed permanent process, appears to be much more complex as it involves individual testing laboratories that would be accredited by the National Institute of Standards and Technology (NIST), an independent ONC-Approved Accreditor (ONC-AA), and multiple ONC Authorized Certification Bodies (ONC-ACBs). These permanent evaluators would certify products based in part on the independent testing results. The "better idea" is to have all EMR developers now pay TWO certification fees to two different certification organizations, for the privilege of selling their EMR in the U.S. market to anyone who wants to achieve MU and government reimbursement for their EMR expenditure. If this all sounds needlessly complex (and expensive), it is!

While the Obama Administration continues to tinker in healthcare to create ever more government control and bureaucracy, it is simply extinguishing the EMR market, driving many companies into bankruptcy and putting the Americans who previously worked for them into unemployment lines. We aren't the only ones who have noticed this, the American Hospital Association recently issued the following statement to the ONC:

*"While we understand that the temporary process is meant to provide an expedited process to ensure certified products are available on the market as soon as possible, the two-stage approach for certification will prolong the current instability in the health IT marketplace, which ONC should take steps to limit. In the near term, the market will be negatively affected by queues for certification; rapid growth in demand for vendors' products; limited vendor capacity to support installations; and health IT workforce shortages. Linking the two certification programs and building confidence in the value of certification under the process will provide a measure of assurance for those buying and selling certified products."*<sup>1</sup>

*Indeed, one of the widest reaching new proposals from Medicare and Medicaid (CMS), in its notice of proposed rule making, or NPRM, was for the ONC-ACBs to conduct surveillance of certified EHRs after they have been tested, certified and installed. That means that CMS is not content with testing of EMRs/EHRs alone, but they want some body to test them after they are in use, in the hospital setting. Even the FDA does not require that for drugs, but apparently this regulatory expansion is needed for EMR systems? But on what basis? Again, the AHA commented, "Surveillance of installed, certified products is, however, a new concept in health IT that, as the NPRM notes, raises many questions. It is difficult for stakeholders to answer those questions, however, without a better understanding of what the process is meant to accomplish, what it will entail, and how the results of surveillance efforts will be used.*

*We request, therefore, that ONC conduct and make available to the public a thorough study on the purpose, scope and process for surveillance of certified EHRs. The study should involve consultation with all relevant stakeholders and include, among other things:*

- *A clear discussion of the expected benefits of surveillance;*
- *A summary of alternative approaches to surveillance;*
- *A discussion and estimate of the expected impact on stakeholders, including providers whose facilities are chosen for the surveillance process;*
- *Examples of how surveillance has been conducted in related areas, such as NIST's program to validate cryptographic modules for conformance to Federal Information Processing Standard Publication (FIPS) 140-2;*

*A comparison of the surveillance process to other forms of accreditation in health care, such as required accreditations for health care providers to comply with Medicare conditions of participation; and a discussion of how the results of surveillance might be used by the federal government, by vendors and by purchasers of systems.*

*In considering the process for surveillance from the provider perspective, relevant questions include:*

- *Will surveillance only involve interactions with the vendor, or will the ONCACBs also involve providers with installed systems?*
- *If providers with installed systems are involved, how will the ONC-ACB choose them? What notice will be required?*
- *If surveillance is conducted at a particular provider site, what activities will take place? Will the ONC-ACB need access to a provider's information systems? If so, how will HIPAA privacy requirements be met? Will a business associate agreement be required? Will the ONC-ACB introduce new data to a provider's system to conduct tests? If so, what assurances will the provider have the ONC-ACB will not negatively impact its system? How will costs incurred by the provider be reimbursed?*

*A thorough study will, no doubt, bring to light additional questions."*<sup>2</sup>

The CCHIT certification body, which compelled EMR vendors to modify their software to include what CCHIT deemed necessary (not necessarily what physicians wanted in their EMRs and apparently not what the government accepted as sufficient), added an additional \$38K to the cost of certifying an EMR, raising the \$43K (as of October 2006) cost of EMRs/MD even higher. Of course, the government reimbursement amount (\$43K) does not cover additional costs new requirements would add. The real cost of government-mandated regulations remains hidden from EMR buyers.

So, here is a summary of where the EMR/EHR adoption process stands at this writing. Meaningful Use definition is languishing, physicians and hospitals are not adopting EMRs at the rates predicted by the administration because they are confused by the delay in defining MU, the reimbursement schedule and how the government intends for them to proceed. The costs of EMRs have risen and continue to rise. One quarter of EMR developers are suffering in the market and a subset will fail outright. In spite of this, the Obama administration and CMS are considering even more regulations for ongoing surveillance.

EMRs and EHRs are great technologies and essential for any truly integrated health care to occur in this country, but to date every action the government has taken has hurt many and helped few in the U.S. EMR market. Yet EMR is essential for healthcare reform to work, so essentially the Obama Administration is shooting itself in a vital organ, and the American taxpayer as well, who is paying the ever escalating bill to finance this expensive venture.

<sup>1</sup> American Hospital Association website: <http://www.aha.org/aha/letter/2010/100510-cl-hitcert.pdf>

<sup>2</sup> Ibid.

## Excerpt Three From:

# Successfully Choosing Your EMR: 15 Crucial Decisions

## Interoperability Beyond EMRs

### Crucial Decision

**What is your preferred level of interoperability with other EMRs, EHRs, or HIOs, PHRs, Registries and Public Health Agencies?**

**This chapter also addresses the following questions:**

- What is the NHIN and what composes it?
- Why are PHRs, RHIOs, HIOs and Web portals important?
- Why do you need to bother with standards at all and which are important?

### EMR Adventures

As Lynn walks into Dr. Alex Glass's office she remarks, "I think something strange is going on with our EMR supplier. There is a report on the Internet that the company is being acquired by Galactic EMR Healthcare systems."

"Has Galactic EMR notified us of this?" asks Dr. Glass.

"Not to my knowledge," replies Lynn (the office manager). "But I believe it because the software release from our EMR company is now nine months later than promised, and they keep hedging on when its going to be available."

"Boy, if this is true, it isn't good news," comments Dr. Glass. "It's still hard to believe. Galactic EMR already has acquired three other EMR companies, why would they want another one?" he questions.

"Perhaps they don't care about our EMR company's product, but are just after the market share," suggests Lynn. "Galactic EMR has a history of acquiring companies just to put competitors out of business and to get the support revenues and market share. They seem to grow by acquisition, rather than by product innovation," comments Lynn.

"Well, that's really bad for us. If all Galactic EMR is interested in is their market share, they aren't likely to forge ahead with the enhancements we have been waiting for. Several of the EMRs they have already acquired we dismissed when we bought our current EMR, because they weren't doing new product development on any of them, but just pushing those customers to replace the systems with the 'go forward' Costs-too-Much, Does-Everything (C2MDE) brand EMR," says Dr. Glass.

"Yep, and their C2MDE product doesn't have the templates we need for our ophthalmology practice either," Lynn remarks. "We are just not a large enough specialty for Galactic to care about. Where does that leave us going forward?"

"Well, our current EMR does support all of the interoperability standards. We should be able to export encounter summaries for all of our patients in CCD format, so if we can find an alternative other than C2MDE that accepts CCD formatted records, we could migrate to that system. In fact, that may be our only alternative, because I don't think

C2MDE is interoperable with our EMR. Perhaps Galactic is planning on making it so, but they aren't at present."

"I hate to think about migration – we just installed this EMR two years ago. We haven't had it long enough to get a good return on our investment. Perhaps if we end up doing that, we should look at a Web-based EMR service, rather than deploying the EMR in our office, like we did this time," says Dr. Glass. "That would at least mean we don't have to make a large up-front investment in buying an EMR application, we could just pay a monthly fee and expense it as we go along."

"That might be the best approach," agrees Lynn. "Practice revenues have increased since we deployed our system, but we haven't fully depreciated it yet, that will take two more years."

"Well, at least we did one thing right. Getting a system that supported interoperability standards helps to assure we can move patient encounter summaries to any of the other systems that support these same standards. That means we aren't locked into what Galactic EMR is pushing on us," asserts Dr. Glass.

"Right, we can wait and see what commitments Galactic EMR is willing to make once the acquisition is finalized. That will take 6-9 months anyway, maybe a year, and we will have almost depreciated our current EMR by that time. That will be the right time to make a move. By then, perhaps more EMR systems will be supporting CDA and CCR standards. Is that being pushed by CCHIT-certification and by Meaningful Use criteria under the 2009 ARRA legislation?" asks Lynn.

"I'm not sure, but I'm hoping it will help us even though we have already adopted," replies Dr. Glass.

"If so, that may be one of its best features," replies Lynn.

### Communication, Communication, Communication

Hopefully, you won't find yourself in Dr. Glass's situation, but market consolidation does happen, in fact the ARRA legislation is accelerating it and big I.T. vendors with legacy hospital products are always on the lookout for mid-sized EMR products. It allows them to interface one EMR product to their legacy I.T. product's lab, pharmacy and radiology systems, and promote themselves as an integrated group practice and hospital I.T. supplier. This is but one scenario that begs for better interoperability and this chapter will describe several other scenarios.

One important area for improvement is the implementation of current standards for data exchange that will allow physicians to export the essence of medical charts out of one EMR developer's system and import it into another EMR developer's system (EMR portability). In spite of all the stated support that some EMR companies publicly make about implementing standards, many of these EMR suppliers still have not achieved full support for those standards in

their various EMR systems, and in some cases have not made multiple EMR systems they own, able to fully communicate with each other. This lack of interoperability makes EMR portability challenging in some cases. Physicians concerned about patient record migration will want to evaluate support for Continuity of Care Document (CCD) creation carefully, as that is the best way so far to move data out of an EMR and into another one; lean towards EMRs that support document interoperability standards.

This chapter is really all about communication – don't problems usually come down to that? (By the way, we will define and explain all of the abbreviations we have used (and more) in this chapter.)

## The Nationwide Health Information Network (NHIN)

You have probably guessed that the vast realm of electronic healthcare didn't stop with the EMR at your point-of-care, which is just the first layer in a much larger venture into electronic healthcare records that the government is promoting called the Nationwide Health Information Network (NHIN). NHIN is envisioned as a means of exchanging health information via a network of state and regional systems (or networks).

These state networks are organized as Regional Health Information Organizations (RHIOs), which perform health information exchanges as the building blocks for the new NHIN. The NHIN road map describes the technologies, standards, laws, policies, programs, and practices that enable health information to be electronically shared among multiple stakeholders and decision makers to promote healthcare delivery. The work to create NHIN is on-going, most recently funded by the ARRA (HITECH) legislation and will expand the work of the 19 organizations that participated in the NHIN trial implementation projects conducted since September 2007. The Integrating the Healthcare Enterprise (IHE) organization is being proposed as a standards-based approach to verification of connectivity.

When completed, the NHIN will provide a network-of-networks foundation for an interoperable, standards-based, secure exchange of healthcare information. The Achilles heel of the program is physician adoption of EMRs; even if the NHIN existed right now, only 14-17% of the nation's group practices would be able to actually use it.<sup>1</sup>

We encourage physicians considering EMR adoption to look beyond their offices and consider how they can exchange information with the other "players" across this healthcare I.T. landscape. Think about your EMR as more than an office automation tool – it will eventually be a powerful way to connect to many other people and systems.

The players in the healthcare I.T. landscape include:

- Your patients (and their Personal Health Records (PHRs));

- Your colleagues in other medical offices or hospital clinics who also care for your patients;
- The hospital where your patients are admitted;
- National laboratories or other diagnostic entities;
- Your county or state public health departments;
- Any RHIOs doing Health Information Exchange (HIE) in your state;
- The Centers for Disease Control (CDC) and other federal agencies;
- The third-party payers and CMS for your Medicare/Medicaid patients;
- Any disease research or immunization registries you may be connected to;
- Drug companies and others doing healthcare research.

## Stakeholders Slow to Adhere to Standards

This vast array of healthcare providers today have very little in common in the way they structure and store data, and if it weren't for standards, their (eventual) ability to exchange data would be quite limited. Currently, it's as if they all speak different languages, with a little bit of broken English thrown in.

Several registries and some other entities are enthusiastic fans of their own proprietary data formats and have resisted efforts to change them. Only recently have they become more cooperative but there is still work to be done. This may be a matter of limited finances and redevelopment expenses which ARRA funds can address.

## Organizations Building the NHIN

The U.S. has entitled the overall healthcare I.T. landscape the Nationwide Health Information Network (NHIN). It is an attempt by groups such as HISPC, HITSP, FHA, CCHIT, NIST, NCVHS<sup>2</sup> and others to create an infrastructure that can exchange data using standards derived from the HL7<sup>3</sup> Version-3 Reference Information Model (RIM). The standards involved for the data itself include: SNOMED CT (for clinical documentation terminology), NCPDP Scripts (for drugs), LOINC (for lab results), all wrapped into a Clinical Document Architecture (CDA) record format. When this infrastructure is completed, it will be a system of information systems that securely exchanges (using SSL encryption)<sup>4</sup> health information among various stakeholders. The key word is exchanges, as the NHIN is not supposedly intended to be a

<sup>2</sup>Health Information Security and Privacy Collaboration (HISPC), Health Information Technology Standards Panel (HITSP), Federal Health Architecture (FHA), Certification Commission for Healthcare Information Technology (CCHIT), National Institute of Standards and Technology (NIST), National Committee on Vital and Health Statistics (NCVHS).

<sup>3</sup>HL7 is an international community of healthcare experts and information scientists collaborating to create standards for the exchange, management and integration of electronic healthcare information.

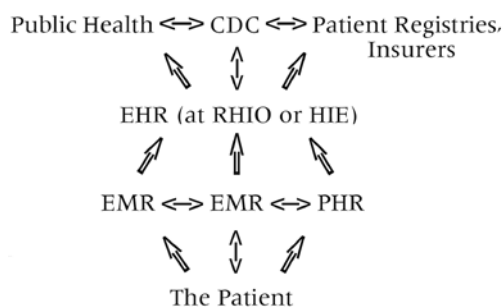
<sup>4</sup>SSL – Secure Socket Layer, the same encryption used for sending credit card information across the Internet now.

<sup>1</sup>HIMSS Web site Definitions & Acronyms, [http://www.himss.org/ASP/topics\\_FocusDynamic.asp?faid=143](http://www.himss.org/ASP/topics_FocusDynamic.asp?faid=143).

health data store, but an exchange mechanism. That was a lot of (probably new) acronyms, so let's make this whole idea more understandable (keep reading, it becomes clearer).

## Overview of the Three Layers

The first layer is right above the patient at the caregiver level. This is where most source data exists, including in the patient's own Personal Health Record (PHR), if they have one. This could be called the health information source layer or data source layer. Figure 8.1 is a simplified depiction of the layers that make up the NHIN.



**Figure 8.1** The Patient and Three Levels of Patient Data

The second layer contains the Electronic Health Records (EHRs) coordinated by regional organizations involved in Health Information Exchange (HIE), which is the abbreviation for the exchange of data. HIO (Health Information Organizations) do the exchange, and if they are regional, then they are Regional HIOs (or RHIOs). RHIOs consolidate data from one or more EMRs into EHRs.

The third layer is a conglomeration of mostly data and specialized organizations, such as: public health, immunization registries, disease registries, government, insurers, drug companies and others.

### Benefits That NHIN Brings to Physicians

Why should you care about these layers and the standards they contain when choosing your EMR? One good reason is that they provide you with an exit path for your patient records if it turns out you can't live with your new EMR and need to get a divorce (or if it dies, or is kidnapped by a larger EMR developer in a merger).

### Layer One: The Patient (Data Source) Layer

The first layer has one source of information, but is kept in potentially two different types of systems:

- EMRs, which are Electronic Medical Records with information captured by physicians from patient encounters; and
- PHRs, which are Personal Health Records that are composed of data provided by the patient directly about themselves, or patient summaries of EMR encounters

provided by physicians (or any caregiver) and given to the patient at the end of their encounter, and then kept in the patient's PHR.

Both are data repositories, e.g. data exists and persists in these structures. We will discuss each of these in turn, before going to layer two.

### Many EMRs and One PHR

Layer one has many EMRs, because each patient care provider creates one for the patient. If a patient has five doctors, there could be five EMRs. There could also be an EMR for each hospital or clinic where the patient is seen. Also, any home healthcare agencies or nursing homes or rehabs could create an EMR for the patient.

### Patient Identification and Authentication

Each of these entities has the patient indexed under a completely different ID number. However, since patients change insurance IDs, these numbers may not be based on their current ID. Some providers just create arbitrary ID numbers. This makes identifying and authenticating the same patient across all of their providers, a big challenge, but only when one of these caregivers wants to exchange health information with another – which generally happens at the next layer up in the system.

### Inconsistent Health Information Organization

Each care provider also has a different data structure in which the patient's health information is stored. There is not generally any commonality unless all the providers happen to be using the same EMR product.

### The Patient's Information About Themselves

The patient's own Personal Health Record (PHR) also exists at this level. It consists of whatever information he/she has on himself or herself, whether abstracted from an encounter from an episode of care with a professional caregiver, or just his/her own observations about their health, heart rate, state of mind or whatever, organized in no particular or consistent structure.

The key is for the EMRs that exist in the office of a caregiver to be able to read from and write to these various PHR files. There are currently over 130 PHR vendors, and quite a few of them offer Web-based solutions.

Keeping track of which EMRs connect to which PHRs is a full-time endeavor. There is going to be a huge shakeout before PHRs will be very useful. Today, a physician confronted by a patient with a PHR who wants to share the data, has no idea what format it's in or how it might be structured. The PHR structures are improving now that there is a standard, but unless the EMR and PHR vendor are the same, the ability to exchange meaningful and structured PHR data is mostly unworkable at present. As you ponder what EMR may work in your office, you may want to expand your criteria

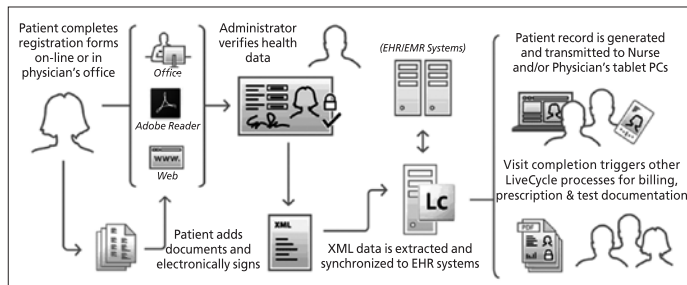
to see what EMRs can also provide PHR and patient portal functionality.

**Could PDF Satisfy EMR/PHR Meaningful Use Requirements?**

EMR interoperability and EMR portability, though two different subjects, are joined at the hip, both of which are going to be woven throughout the government’s Meaningful Use functionality requirements. These requirements currently state, (you will) “provide patients with electronic copies of – or electronic access to – clinical information (including lab results, problem lists, medication lists, allergies) per patient preference (e.g. through PHR).” Now you will begin to see the practical reasons why you need to care about standards.

Fulfilling your responsibility of enabling patients to access data is another reason that standards are important to you. The ability of an EMR to write out an “encounter summary” in a usable format can be based on the Continuity of Care (CCR) standard, which allows Personal Health Records (PHRs) with CCR input capabilities to utilize your EMR information.

The Adobe PDF format, which has become a general business standard, has applications helpful to you as well. You can satisfy your patient information requirements by being able to provide an Adobe PDF document that has extensions that comply with the PDF Healthcare Standards group (that works under the auspices of the AIIM<sup>5</sup> organization).



**Figure 8.2** Using an Adobe PDF as a Healthcare Information Container (diagram courtesy of Adobe Software).

The point is that Adobe PDF provides a relatively quick and inexpensive way to satisfy the previously-stated patient documentation access criteria for Meaningful Use. Certainly the patient can accept the PDF record of his/her encounter and stuff it into any PHR and even have some encoded, XML-tagged data and structure to boot.

**Transferring Hospital Patient Data Into Attending Physician EMRs**

Hospitals don’t want to support dozens of customized interfaces to different EMR products, which is why they

<sup>5</sup> AIIM is a non-profit organization focused on helping users understand challenges associated with managing documents, content, records, and business processes (www.aiim.org).

have promoted the EMRs offered by the legacy I.T. vendors that are already located in their hospitals. However, this approach can be stifling for attending physicians who often need more flexibility in EMR functionality than the EMRs available from the legacy vendors. This is where integration companies like Medicity and Axolotl come in. Medicity provides the Novo Grid, essentially a standardized data buffer that hospitals can write into using one standard set of protocols, and which can then be accessed by a diversity of EMR solutions each supporting one customer interface. It gives hospitals the ability to write data into the Novo Grid and deliver that data to a large number of authenticated physician practices within a minute or two.

If your hospital is offering you an EMR that comes from one of its legacy vendors, the use of a product like the Medicity Novo Grid can be the answer to the hospital achieving the one interface it needs, and at the same time allowing you to choose any of 200+ EMRs that best fit your practice needs. Only four companies come close to meeting MSP EHR Selector™ requirements when 46 specialties are asserted.

**Patient Web Portal Services**

A Patient Web portal is a site on the World Wide Web that provides personalized capabilities to patients using it. It provides services that work on multiple platforms such as PCs, Personal Digital Assistants (PDAs), and cell phones, in spite of their all having potentially different user interfaces.

Portals can remain a way of communicating within layer one (patient to physician and back again), and portals can be used to communicate between layers. Figure 8.3 lists some common services that Web portals can currently provide.

**Figure 8.3** EMR/Web Portal Features

Feature	Yes	3 <sup>rd</sup> Party	Xtra \$	Future
Patient Able to Request Appt.	56%	9%	6%	28%
Patient Education	47%	11%	8%	28%
Patient Exchanges E-mail with MD	47%	4%	4%	18%
Patient Able to Request Rx Refill	48%	9%	9%	35%
Patient Able to Enter Data	40%	9%	6%	40%

**To Portal or Not to Portal, or Let Hometown General Do It**

Web portals raise serious security issues and dramatically increase exposure of your patient data. Brushing all such concerns aside, NCVHS appears to be poised to require that Web portals, hosted by individual practices, be deployed in the first year of Meaningful Use, according to Paul Tang.<sup>6</sup> These would support a subset of such features as: reporting of lab results to patients, providing patients a convenient way

<sup>6</sup> *Is the Bar Still Too High?* By David Raths. Published Sept. 2009 by Healthcare Informatics

to request prescription refills, making office appointments, finding and downloading patient educational material, downloading a summary of their last office encounter to their PHR, viewing some elements of the patient chart, and conducting e-mail dialog with their physician(s).

All of this is fine as long as it is secure.

## Layer Two: The Data Exchange Layer

PHR is one approach to having a patient and his/her various healthcare providers exchange health information encounter-by-encounter at layer one directly. In the larger world, the government is planning for most HIE (Health Information Exchanges) to occur at layer two, through the vehicle of a national Health Information Organization (HIO) that connects to various Regional Health Information Organizations (RHIOs) that build ad-hoc EHRs (Electronic Health Records) from queries to a patient's individual physician, hospital, nursing home, home healthcare or other EMR system.

The geographic footprint of a RHIO can range from a local community to a large multi-state region. The term RHIO and Health Information Exchange (HIE) are related but different entities. A HIE is information exchange (verb), while the RHIO is the organization (noun) that is managing the exchange (HIE) of health data.

In contrast to direct transfers at layer one, layer two provides health information consolidation, creating an ad-hoc set of electronic health information to support unplanned or emergency care by a provider who is not normally associated with the patient. The EHR (Electronic Health Record) is an on-demand record concerning any patient, composed of data collected from one or more EMRs and from PHRs (when available).

## Health Information Exchange (HIE) & Introduction to RHIOs

Regional Health Information Organizations (RHIOs) are groups of organizations and stakeholders that have come together for the purpose of electronic Health Information Exchange and are focused on improving the quality, safety, and efficiency of healthcare delivery. Regional Health Information Organizations (RHIOs) don't warehouse health information, they simply expedite its exchange as a service. It is an important issue of governance (who controls things). Physicians and other providers are not enthusiastic about giving up patient records or control of patient records.

## Master Patient Index (MPI) – Critical to Safe HIE

The challenge and key to safely exchanging health information is knowing who it belongs to. That means some sort of Master Patient Index (MPI) must exist, so that John Doe's healthcare record needed by the emergency department at Hometown General gets John Doe's health records from his various

providers, and not Jonathan Doe's health records. That being the case, there are two requirements.

This chapter also covers the following topics at Layer Two:

- Contrasting Various HIE Methods
- Unorthodox Immunization and Disease Registries

## Layer Three: The Nationwide Specialized Layer

The third (nationwide) layer in the hierarchy includes various government agencies at the local, state and national levels; such as local and state public health agencies, quality organizations, the Centers for Disease Control, Homeland Security and the Department of Defense. Data at this level can be a mixture of patient-identified, and patient-de-identified information, depending on the group collecting it and the intended use.

The most important aspect of Figure 8.1 is how the data is moved from one system to another at the same or different levels in the diagram, and who controls the release and movement of that data. The computer systems at each of these different levels and organizations in each level are all designed by different companies and organizations, so unless there are standards that all adhere to, the complexities of doing the conversion required to understand the data and move it, quickly becomes so complex and expensive.

## Patient Authorization — Clandestine Data Mining

Much patient information is already flowing among these three levels, without patients' explicit knowledge. For example, the average American is not aware that information on prescription refills (for 200 million Americans) is available automatically to insurance companies, as an aid in underwriting the risk for new policy applications. This is why underwriting that used to take a week or two, now happens in less than five minutes. Should such information be released to a person's employer? Should an employer be able to find out that the employee (or job candidate) is routinely taking anti-depression drugs, or drugs to slow HIV progression, or anti-seizure medications? Most people's first reaction is, no! But what if the person is applying for the position of airline pilot, or ferry boat captain, or train engineer. Welcome to the brave new world of EMR, EHR, PHR, RHIO, HIE and flawless MPIs that exist in the NHIN. And you thought you were just automating your current paper-based office!

## The Rise of Standards Committees

EMR buyers and the government are looking for a small set of well-defined and widely-adopted standards with which to harmonize communications among the diverse EMR stakeholders at all three layers in the just described Healthcare I.T. infrastructure (NHIN).

Rather than mandate a new standard and force everyone to comply with it, the U.S. government is encouraging all the current healthcare information players to play nice in the existing healthcare information “standards sandbox”.

### How the Standards Process Operates

Standards typically occur when a leading vendor that has a successful way of doing something puts the word out that his way should become the “standard”. They then move inside the auspices of a group like HL7 or ASTM and create a “standard” that details how something is done. Standards are the glue of interoperability, about connecting all three layers of the U.S. healthcare system.

### Too Many Cooks, Too Many Non-Harmonized Standards

The problem is not that EMR developers don’t support standards; rather, there are too many (sometimes conflicting) EMR data interchange standards. Until there is standards harmonization between IHE and both of these other organizations around one set of healthcare standards, no ubiquitous method to interoperability will emerge. Meaningful Use criteria could be a means of encouraging that harmonization. As a physician purchasing EMR now, you need to include contract language that requires your EMR to fully support whatever harmonized standard finally emerges.

### Key Players in NHIN Standardization Efforts

If you read the earlier part of the NHIN discussion, you recall that there were a lot of organizations helping put the NHIN together. Here are a few and what they are engaged in:

- CAQH (the Council for Affordable Quality Healthcare) [www.caqh.org](http://www.caqh.org) and their Committee on Operating Rules Exchange (CORE) supporting HIPAA X12N 270-271 transactions for patient eligibility inquiries, as well as HIPAA X12N 276-277. The organization says of itself, “CAQH ... is a catalyst for industry collaboration on initiatives that simplify healthcare administration. CAQH solutions promote quality interactions between plans, providers and other stakeholders; reduce costs and frustrations associated with healthcare administration; facilitate administrative healthcare information exchange and encourage administrative and clinical data integration.”
- The Healthcare Information Technology Standards Panel (HITSP) is an outgrowth of the American National Standards Institute (ANSI). Its mission is to serve as a cooperative partnership between the public and private sectors to achieve a widely accepted and useful set of standards that will support widespread interoperability among healthcare software applications and allow them to interact in a local, regional and national health information networks across the U.S.

**Figure 8.4** Common HITSP Standards Summary

Standard ID	Version	Description or Purpose
IS-01	3.1	EHR Laboratory Report
IS-02	3.2	Biosurveillance
IS-03	3.1	Consumer Access to Their Healthcare Records
IS-04	2.0	Emergency Responder Electronic Health Record (ER-EHR)
IS-05	2.0	Consumer Empowerment & Access to Clinical Information Via Media
IS-06	1.1	Quality
IS-07	1.1	Medication Management
IS-08	1.0	Personalized Healthcare (Genetic Information)
IS-09	1.0	Consultation & Transfer of Care
IS-10	1.0	Immunization & Response Management
IS-11	1.0	Public Health Case Reporting
IS-12	1.0	Patient-Provider Secure Messaging
IS-77	1.0	Remote Monitoring

CONNECT is a software solution that lets federal agencies securely link their existing systems to the NHIN. CAQH and HITSP are but two of the more than 20 federal agencies that collaborated to build CONNECT. Figure 8.4 shows some of the HITSP standards.

### What Else is Covered in This Chapter

Space does not permit covering all of the content in Chapter 8 of *Successfully Choosing Your EMR; 15 Crucial Decisions*, but the paragraph headers give you some idea of the content:

- Web-Based EMR Interoperability
- Congress and Healthcare
- Obstacles Remain
- Wrap Up and Scorecard of Your Crucial Decisions

## Discover What You Don't Know from Your Data; Empower the Whole Team to Work Smarter

**Challenge 1 — The Need for Improved Clinical Performance** Steve Volpini is Clinical Information System - Project Coordinator for the Regional Cancer Program (RCP) at Sudbury Regional Hospital in Sudbury, Ontario, Canada, one of 14 in the province of Ontario. RCPs (created and funded through Cancer Care Ontario) “respond to local cancer issues, coordinate care across local and regional healthcare providers, and work to continually improve access to care, reduce wait times and improve quality” for their patients. A key consideration for RCP funding is reducing patient wait times so, for Sudbury Ontario, obtaining daily updates on patient wait times is a critical issue. Clinicians and management alike need detailed wait time information on a per-site, per-provider basis to make adjustments in staffing patterns to better serve their fluctuating patient population.

Until recently, Steve had not been able to acquire such data in a timely manner. In fact, his only option was to wait for Cancer Care Ontario to provide access to their data portal – a process that takes up to two months, making it impractical as a daily management tool. Steve investigated using currently available reporting tools, but they required significant application development and programming savvy. Steve concluded it would be, “a mountainous task to use standard reporting tools to create sub-report upon sub-report to get to the patient specific information necessary to take action”. What Steve needed was the ability to mine clinical data in real-time on his own, so that he could have up-to-the-minute snapshots of his clinic's performance, with the ability to drill down to specific site, provider, and patients.

**Challenge 2 — The Need for a Payer Strategy** COA, a major medical clinic in the Southwest U.S., was challenged a year ago when they learned that one of their payers was giving an exclusive contract for oncology to

another provider. How was COA going to handle this loss of revenue, the impact on patients, potential loss of other patients, and what could they do to recover? The practice administrator at COA was tasked with quickly sorting out these issues. COA is a multi-site clinic with fifteen providers but does not have a large IT team or dedicated business analysts, so running detailed database queries and creating custom reports to get at the necessary data was not an option.

**Business Intelligence Needs and Healthcare** These are but two examples of the many challenges that arise in a healthcare business intelligence environment – challenges that are getting tougher as demands for data increase, resources shrink and automation moves to smaller providers and practices. Solutions to such challenges are hard to find. Most business intelligence solutions are not designed to help end-users guide daily operations or make strategic decisions. Instead, they focus on providing summary information to senior management, or providing operational data for after-the-fact billing and claims processing. While these are also critical tasks, they are very different from providing information in formats useful to managers and healthcare decision makers, who need to visual and understand trends and patterns hidden in mountains of data, so they can adjust tactics, strategies and direction. The challenge is how to find and understand the “stories” hidden inside the data. That requires examining trends, outliers, and data patterns – something that varies from situation-to-situation and can't be easily “programmed” ahead of time using traditional business intelligence systems. Instead of structure and qualified access, users must have freedom to access and explore the specific information they need, when they need it. However, what we have today when trying to use information to move to evidenced-based practice is what we call the “cycle of pain”. It comes in two

forms: expensive and delayed Custom Reports and secondary (Excel) shadow data system modeling.

The “Custom Report Cycle” happens constantly and starts with a request from an end-user for a special query of the data to answer a business question. Usually the IT group is backlogged, so it may take a couple of weeks (if you are lucky) for some results to come back. Often, since the initial request was poorly framed (or if the need changes once the requester sees the report results), another special query is generated and moves back into the request queue and two more weeks elapse. There is nothing real-time or interactive about this process. Everyone is frustrated and the user is not well served. Timely decisions aren't made or the wrong decision is made in light of the retrospective data that finally emerges long after the fact.

The “Excel Shadow System Cycle” starts with a download of a portion of core data into Excel, which the end-user slices and dices to get at an answer. This process is time consuming and sometimes challenging (if you aren't an Excel pivot-table guru) and can result in some inaccuracies, since all of the data you need might not have been downloaded. Once you arrive at an “answer” you still have the task of transforming it into formats, reports and graphs that can be communicated to other management. Furthermore, as the Excel download ‘lives on’ and ages, it less and less reflects reality.

**Worse in Healthcare** In addition to the problems listed above, implementing business intelligence in healthcare is uniquely challenging due to the typically fragmented and decentralized system-of-systems it comes from. This fragmentation and lack of interoperability and integration imposes stringent and changing reporting requirements and increases costs. Often each ‘data domain’ has its own data

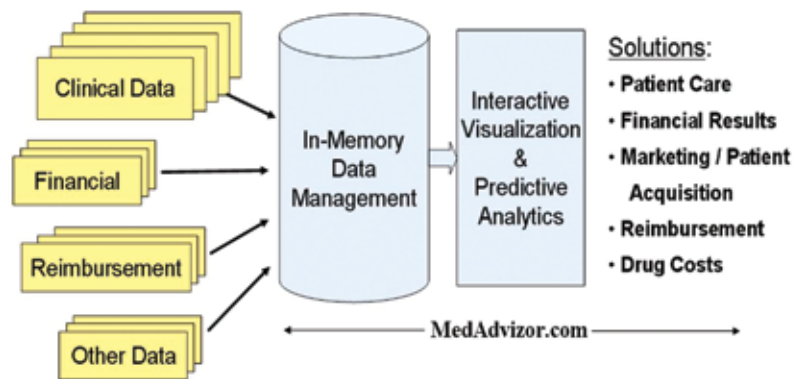
gatekeepers, who aren't always pleased to extract or provide unlimited access to data needed to solve your problem. In most healthcare settings, the IT department is generally overloaded and hard pressed to provide such help. Now with ARRA (American Recovery and Reinvestment Act)/HITECH expanded HIPAA requirements, conversion of ICD9-CM to ICD10-CM, time adoption of EMR, enhanced security, more wireless networking, to name but a few – even less support may be available and the service queue may be backed up out into the streets.

**Need to Enable and Support Decision Makers** Fortunately, there is a better solution that allows decision makers at all levels to understand and explore the stories, patterns, and trends embedded (hiding) in the data to empower more-timely, fact-based decisions. The solution is characterized by:

- Flexible, quick and easy access to information;
- One time set up and implementation;
- End-user access to do their own extraction and graphical formatting; subset and crosstab analysis;
- Visual display that enables providers and other stakeholders to understand what the data is saying.

The solution we have come across is MedADVIZOR ([www.medadvizor.com](http://www.medadvizor.com)), an in-memory, data visualization and analysis software by ADVIZOR Solutions, Inc. of Downers Grove, IL. This solution enabled Steve Volpini to grab production data “on the fly” – loading it directly from his IMPAC MOSAIQ SQL Server database - and bring it into memory on his desktop for browser-based interaction with a highly-visual dashboard interface. As for ease-of-use, Steve reported, “The user interface is intuitive. I like it.” He also noted that his administrators could create their own STAT reports with little training. Other benefits included the ability to drill anywhere, get updated data instantly from the MOSAIQ database, and customize the data that is loaded using SQL queries as needed. Now Steve reports that, “I

### New Technologies Enable Better and Faster Decision-making



can pop open a project, click and drill down. It takes 20 seconds versus a couple of days to get the answers and detail I need. What used to be an impossible two month project can now be done very quickly.” In addition, his managers can run full reports in seconds, with results being displayed in visually appealing, easy-to-understand graphs and charts, which Steve’s oncologists can instantly comprehend.

COA (our second clinical challenge) also implemented the MedADVIZOR’s in-memory-based, data visualization solution. This made its core financial data easy to slice and dice to uncover the facts necessary to understand their change of business implications. Rather than extracting database tables into Excel and spending weeks trying to cut the data, the administrator was able to click on a chart and see the results instantly in graphical form. Not only did it take hours instead of weeks to do the analysis, but the graphical output displays communicated results clearly and quickly to the physicians. The COA team were enthusiastic because they quickly understood the facts, and were able to make the right decisions about how to proceed. In fact, in a meeting with the providers, the administrator charged with finding solutions was able to drill into the data and answer their questions as they asked them – in real-time during the meeting. The result – the administrator’s fact-based analysis al-

lowed him to understand the business implications and budget accordingly.

**Cutting-Edge Technologies** The Med-ADVIZOR solution leverages three core technologies: (1) interactive visualization, (2) in-memory analytics, and in some cases (3) predictive analytics. The result is a solution that allows end-users to mine their data, explore patterns and anomalies, and perform ad hoc query and analysis to quickly discover answers to their most pressing questions – all without relying on others to prepare data or interpret the results.

**Interactive Visualization** It is a pioneer in a new category of “Interactive Data Visualization” tools that empower people to interpret and analyze vast amounts of data in formats that humans can process visually. Visual analytics is the science of analytical reasoning facilitated by interactive visual interfaces. People use visual analytics tools and techniques to:

- Synthesize information and derive insight from massive, dynamic, ambiguous, and often conflicting data;
- Detect the expected and discover the unexpected;
- Provide timely, defensible, and understandable assessments;
- Communicate assessments effectively for action.

Studies have shown that visualization is the best way for humans to comprehend data beyond three dimensions – much more so than displaying it in wide, tabular spreadsheets or pivot-tables. The MedADVIZOR interactive visualization solution allows users to find and highlight particular segments or sub-groups of a larger population across many dimensions by simply clicking on what is seen in the display. With that click, the underlying data in-memory changes and updates all other displays to show the selection. These segments or sub-groups can then be easily compared with other segments to determine best practices or trends.

**In-Memory Analytics** The MedADVIZOR in-memory analytics supports the concept of end-user analysis and visual discovery by enabling very fast interaction, slicing and dicing, and calculation. No predetermined structure is required, so the analysis can be completely ad-hoc against any combination of any elements in any table loaded into the memory pool. Since the detail is all in-memory, as the end user slices and dices the data, the detail list is constantly changing. When done, the end user can easily export his/her list (of customers, products, underperforming employees, etc.) to another system for action.

This in-memory approach has especially strong advantages when the relationship between the tables is not one-to-one. Consider the relationship between providers and patients who may have many treatments and charges. With an in-memory approach there is no need to normalize or pre-structure the data – rather it is all brought in from the database in its original form and calculations and aggregations are done on-the-fly utilizing dynamic soft “links” created between the tables. In

this case the user might want to first look at total charges from Providers A and B for a specific set of treatments in one month, and then compare them with the same set of treatments four months later. Is one Provider substantially higher than the other? Did one go up while the other went down? Or, maybe the issue is to examine the volume and profitability of Provider A’s referrals from Referrer C for the past three months. How does that compare with the data from the prior three months? With an in-memory approach these calculations can be performed very rapidly, on-the-fly. The selections are made by clicking on displays on dashboard pages, and the results are seen instantly in a combination of tabular reports and graphical visual displays that connect to the in-memory data. Modern computers, larger memories, 64-bit processors, and in-memory analytics can handle data from the largest healthcare providers in off-the-shelf PC and server hard-

**Predictive Analytics** Predictive analytics complements interactive visualization and in-memory analytics by using mathematical tools and statistical algorithms to examine and determine patterns in one set of data in order to predict behavior in another set of data. Human perception can be used to cross compare five, or ten, or maybe even fifteen dimensions of data. Most people are not capable of seeing patterns in data with more dimensions than that, which is where predictive analytics comes in. Predictive analytics utilizes statistical algorithms that can easily examine hundreds of dimensions, and find the ones that best explain a selected group. It integrates particularly well with in-memory data and data visualization as users can easily select groups (outliers, targets, etc.) visually. When they do this, their visual selection “tags” that group in the core data tables in the memory pool. The statistical algorithms then run against this selection. Since all the data

is already resident in-memory, the operation is very fast. Once the model completes, it can be used to “score” the rest of the population for “fit” with the target. Since the full set of data again is already resident in-memory, this is a fast and simple one-click operation that adds a “score” field to the core data table in the memory pool.



Patient Profile Screen

ware. Data can be loaded from the core databases periodically (typically once a day), or upon the occurrence of a trigger or event, or on demand by the end-user. The approach that is used depends on the questions being answered, and the needs of the end-user community. In-memory analytics has the following advantages: it can be ad-hoc, it is fast, flexible, can be done across tables, is simple to query and offers both summary and detail analysis.

An example of use would be finding those patients whose claims have been rejected in the past three months. This could be a target of perhaps 10,000 claims out of one million claims filed. The target (10,000) would be modeled against the base population of one million. The result would be a list of which dimensions were most related to the rejected claims. For example, perhaps “employer group” explains 15% of this target, ICD9 code 10%, etc. Then within each employer group the model would create “buckets”

listing those employers most likely to result in rejected claims, and those least likely. Same with ICD9 codes, etc. This approach provides a great descriptive understanding of the likely causes of the problem. Then, scoring the rest of the population would rank current patient treatments by their likelihood to also become claim rejections – presumably in time to take early action!

**Clear Results and Rapid Payback** With the advent of large-scale healthcare information systems and the pervasive growth of electronic medical records, healthcare organizations are now amassing unprecedented amounts of data about their patients and business processes. While this seems productive at first glance, without effective analytics the end result is environments that are data-rich, yet timely and specific-information poor. Healthcare professionals are increasingly turning to new technologies, like the MedADVIZOR software, to gain vital insight that improves financial and clinical outcomes in several areas:

Patient Care – understand diagnosis/treatment/physician outcomes;

Financial Results – understand direct and referral sources of revenue, direct and indirect costs;

Marketing/Patient Acquisition – determine which activities are most effective at attracting patients;

Reimbursement – which groups/payers are most profitable, which result in high levels of claim rejections, etc;

Drug Costs – understand practice prescription habits.

Patient care studies show that when practice providers can see and understand success metrics, results improve. This intuitive, visual scorecard approach improves a practice's ability to monitor patient care, staff utilization, and other key business measures. Coupled with the capability to quickly drill-down from summary to root-cause-detail, practitioners can gain

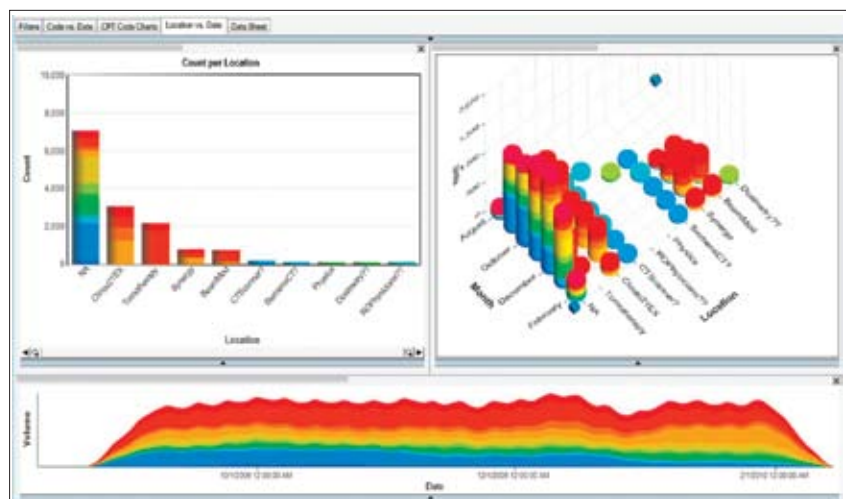
key insights on a range of metrics that support provider performance, treatment results, process effectiveness, patient admissions, churn and profitability. Services can be adjusted based on trends and patterns that relate to patient volumes and demographics, as well as conditions treated. The introductory clinical challenges and article sidebar provide actual case examples of how patient care was improved by effective business intelligence that enables the end-user team to “see” the “stories” in their data, and use that to make better and more informed decisions.

MedADVIZOR's solutions also provide flexibility so that people can analyze and understand the financial results of their business. Costs are reduced when labor utilization, purchasing patterns, procedures employed, and prescription patterns are understood. In one case staffing and scheduling processes were adjusted to better match the seasonal and weekly flow of patients. In another, practice revenues were sliced and diced into the subset that was the direct result of their geneticist's activities. Once the revenues were matched with the known costs, a business decision could be made as to whether this program should continue, and at what level. These are the types of ad-hoc analyses that can be done by the people in the healthcare business unit, who are empowered to get the ‘story’ out of

the data. Prior to deploying end-user-oriented data discovery tools this was not possible, or at best got derailed in the dysfunctional “cycle of pain” process previously described. How would this fit in your hospital – in clinical engineering, risk analysis, and so on? How could it reduce the load on the I.T. department by empowering some users to do their own projects?

MedADVIZOR's predictive analytics can play a strong role in the complex area of reimbursement. Understanding patterns of full pay, partial pay, and rejected claims is a clear key to profitability.

**Market and Patient Acquisition Growing Discipline in Healthcare** While market and patient acquisition may be a relatively new concept for the healthcare industry, it is well established in others. Does the hospital want to get a handle on its referring physicians? How concentrated are they? Which ones are bringing in new patients? How loyal are they to the institution? Many healthcare systems can't easily quantify the amount of revenue they derive from their largest referrers, and have few (and in some cases, no) programs in place to support and build on their loyalty. Much of the data to tackle this deficiency already exists in core systems, and can be augmented by outside demographic and survey data. The problem is all this data is often stored in separate and disconnected



Clinical Locations Trend Screen

systems, which makes it difficult to integrate into a holistic view. But when integrated, the benefits can be rapid and substantial.

### **An Emerging Information Democracy**

The transition to the underlying concept of users having freedom to explore depersonalized healthcare information is not always an easy one. One barrier to this information democracy is fear, which can take two forms – fear that enabled end-users will misuse information and make bad decisions, and fear that the people currently in control will lose power and perhaps relevance in the healthcare enterprise. In fact, that hasn't been the experience to date. Organizations that have enabled their management and staff to access data themselves increase the number of decisions they can make, because the wait for business intelligence data is eliminated. This technology empowers users to multiply the number of decisions by three-to-four times, and make more good, fact-based decisions. Once the burden of producing custom reports and data extracts is removed (often with workload reductions of 70% or more!), the IT team is freed up to focus on more strategic issues – working with data users, which is more creative, rewarding, and impactful to the organization. So don't let fear issues stifle the movement to the information democracy. As in any organization, top management's leadership is critical to creating an empowered vision of the future and a way of life that is better for all.

### **Vision for the Future: End-User Enablement**

To date, business intelligence empowerment tools have penetrated less than 20% of the available healthcare market of end-users. Emerging technologies like MedADVIZOR, with its in-memory-data management, interactive visualization, and predictive analytics, enable end-users to break the cycle of pain and improve their performance, making the ROI for such technologies compelling. The benefits are experienced by both staff and patients alike, and result in more efficient and safer healthcare operations. Δ

## **Case Study 1: Hematology Oncology Associates Focuses on Financial Best Practices to Improve Performance**

Kari Young is the practice administrator at Hematology Oncology Associates of Albuquerque, New Mexico (HOA), a single-site medical oncology center whose practice consists of six providers, including one physician who performs genetic screening and counseling for patients and family members with hereditary cancers. In addition to standard patient cancer treatment, HOA has participated in clinical trials for over twenty years. Kari is the primary individual using MedADVIZOR at the site. She discovered the software when her practice was searching for an Electronic Medical Record vendor three years ago. As part of their search, they visited a clinic in St. Louis that was using IMPAC's MOSAIQ EMR software, along with MedADVIZOR. They recommended using MedADVIZOR because of its superior functionality and ease of use, which resulted in HOA's purchase of MedADVIZOR, implemented last year.

Kari has found the Financial Analysis Dashboard particularly helpful for budgeting, strategic planning, and cost center analysis. All of these areas have been quick and easy to analyze using MedADVIZOR because of its rapid data mining capability and graphic visualizations. Kari noted that, "Five years ago, one item on my wish list was to be able to press a button and see a report." That's no longer on her list. What used to take weeks of non-stop research and manipulation to create Excel spreadsheets now takes Kari only a couple of hours. For Kari, the key benefit to her and her practice has been substantial time savings and the ability to take on other projects. Kari noted that having all the data available in the graphic form for the providers to see was a significant part of its value. HOA's physicians were pleased to see important information in a graphical display, including their highest revenue-producing CPT code and which providers were most revenue-producing for the practice.

When it comes to strategic planning, Kari has used MedADVIZOR to ameliorate HOA's position with regard to their payer mix. She can also look at their referral mix to make sure they are not too dependent on any one referring source. MedADVIZOR has also helped in the area of marketing, making sure they are communicating well with their top referrers and target audience for the center. The software also helps for cost center analysis in one of their niche businesses, Genetics Counseling. The software allowed Kari to quickly filter out HOA's data to identify revenue generation associated with the physician who serves as the Genetics Counselor. She could quickly isolate the data down to single year, single provider, CPT codes and consults, to distinguish what revenue Genetics Counseling produced around patient visits as compared with other types of treatments. She could then answer the question, "Are the expenditures justifying the Genetics Counseling cost center?"

Kari anticipates expanding the use of the Clinical Analysis Dashboard to include chart review, tracking critical outcomes, evaluating standards of care to determine whether HOA is excelling or simply meeting standards, and tracking clinical trials. MedADVIZOR will enable her to identify which patients meet the criteria for research and tracking set by the New Mexico Tumor Registry. Other applications where this same approach can help include: denial tracking, volume/counts data analysis, scheduling analysis, and tracking patient flow. In light of the easy and rapid data mining for financial and clinical analysis for Kari, the clear, easy to understand visualization capabilities for the physicians and other stakeholders, and the future benefit potential, the application provided a solid return on HOA's investment in the this software. Δ

## Case Study 2: Oncology Convergence Analyzes Reimbursement in Order to Enhance Revenue

Oncology Convergence (OCI) works with oncology based practices across the nation, with the goal of helping them enhance their revenues and reduce their overhead costs. Their customer base includes dozens of medical oncology, radiation oncology, pediatric oncology and GYN oncology practices. Some are office based, others hospital based, and some are integrated cancer centers. They range in size from solo practitioners to large multi-specialty hospitals.

OCI's work is data intensive, and leverages data from multiple sources and systems. OCI team members explore their clients' data in ad hoc manners to discover patterns and trends, and identify outliers. They need to be able to move quickly from high level patterns in summary views of the data, all the way down to individual charges for each patient in order to take action. The summary provides the high-level view, but the detail is critical for taking action.

Traditional reporting and scorecard tools have not provided the flexibility and ease of use necessary for OCI business analysts to dig into the data. So, a year and a half ago they added in-memory interactive visualization tools from MedADVIZOR. Up until that time the analysts were reliant on IT staff with strong database skills to cut the data and prepare it in the right way for analysis. Unfortunately OCI's best analysts had extensive experience in healthcare administration and oncology based practice operations, not database queries!

This new data discovery and analysis capability has allowed OCI to launch a program called Radiation Revenue Recovery™, and a second one called Infusion Revenue Recovery™. These programs identify:

- Changing reimbursement rates
- Unbilled procedures
- Incorrectly billed unit amounts

Once these items are identified, OCI's experienced staff assists its clients in re-billing the appropriate charges back to the patient's insurance plan. The resulting return has been substantial: (1) more revenue, (2) reduced clinical staff time used for chart audits, (3) reduced administrative staff time used chasing down insurance claims, and (4) reduced bad debt.

OCI is now working on a new initiative to implement both financial and clinical analysis data discovery solutions at their clients' sites. The goal is empowerment, providing clients the tools so that they can ultimately manage and optimize their revenue and cost flows on their own. OCI believes that the new interactive visualization products are simple enough to use that client practitioners can now explore their data on their own, and make ongoing decisions for revenue recovery and cost containment without outside help. Δ



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## Vendor Short Takes & News; HIMSS10

### 4MEDICA

(Los Angeles, CA) A provider of Web-based connectivity between physicians and clinical laboratories, announced the launch of its Integrated Health Record (IHR™) at HIMSS, which includes modular components designed to enable hospitals and eligible providers to demonstrate “meaningful use” and qualify for federal government incentives in 2011. A multi-source, patient-centric medical record, the IHR unites data across diverse care settings to give physicians quick access to a complete picture of the individual patient at critical decision points. For more information visit [www.4medica.com](http://www.4medica.com).

### ABEL MEDICAL SOFTWARE INC.

(Burlington, Ontario, Canada) ABEL Medical Software Inc., a Microsoft Gold Certified Partner, is a privately held corporation. As a self financed, debt free company using the latest Microsoft .NET technologies, we are well positioned to offer value to physicians for their investment in our products and services. This value includes any necessary customization to ensure that our software quickly adapts to your existing workflow and continuously changing requirements. Developer of ABELMed EHR-EMR/PM v11, the first electronic health record (EHR) product to achieve CCHIT Certified® 2011 Comprehensive certification\*, ABEL Medical Software Inc. also offers a one-stop solution for software and related services that includes any required hardware at cost. In addition to delivering fully integrated software that is easy to use and includes a full and comprehensive billing package, we offer on-site/on-line training, 24/7/365 telephone support and a range of associated services that include Patient/Practitioner Portals, Remote Backup and Backup Data Verification Services, as well as Remote Computer Monitoring and Administration. Our personalized pre/post implementation support and efficiency in customizing our products to suit the workflows of a variety of practices makes us the ideal choice for small and medium sized physician offices. Furthermore, our comprehensive and fully integrated practice management software optimizes billing and practice administration. ABEL Medical Software Inc. is seeking business partners that are interested in offering services such as training/implementation, hosting data centers, etc. at national as well as local levels. Visit [www.abelmedicalsoftware.com/himss](http://www.abelmedicalsoftware.com/himss) for more information or contact Angela Spinks (AngelaS@abelmedicalsoftware.com) or call 800-267-ABEL (2235).

### AMAZINGCHARTS

Amazing Charts is a leading electronic health records (EHR/EMR) solution for small and medium sized healthcare practices. Designed by physicians for physicians, Amazing Charts allows scheduling, intra-office messaging, and complete documentation of the medical encounter in a fast, efficient, and straight-forward manner. Priced at just \$995 per physician, Amazing Charts is one of the most affordable solutions available, costing literally thousands of dollars less than com-

petitors. Used by more than 3000 practices across the United States, Amazing Charts regularly receives high user ratings for quality, support, ease of use, and impact on productivity. The latest version release, Amazing Charts 5.0, now includes CCHIT 2008 Ambulatory EHR certification, e-prescribing, health maintenance, evidence-based practice, and many other new features and functions. For more information go to [www.amazingcharts.com](http://www.amazingcharts.com) or contact Kathleen Repoli (kathleen@amazingcharts.com) or call 866-382-5932.

### DOCUSYS

(Atlanta, GA) DocuSys, Inc., a market-leading provider of innovative systems for anesthesia information management, medication management and presurgical care management systems, announced at HIMSS that it has partnered with Mindray North America, formed from the combination of Mindray International and Datascope Patient Monitoring. Mindray North America manufactures, markets and distributes patient monitoring, anesthesia delivery and portable ultrasound devices for the inter-operative anesthesia, post anesthesia, emergency medicine and critical care environments. DocuSys is a developer of technological solutions for health care providers that enable automated anesthesia care documentation and medication management. For more information go to [www.docusys.com](http://www.docusys.com).

### DOX PODIATRY

(Scottsdale, AZ) DOX Podiatry is a leading Podiatry specific web-based electronic medical records and office management solution. Installed in hundreds of Podiatric offices across the country, DOX Podiatry takes the complex out of EMR and makes creating compliant electronic health records quick and easy. With the only complete Podiatry specific medical database, DOX Podiatry includes every location, diagnosis, treatment, and plan option for every condition below the knee. For more information go to [www.DoxEmr.com](http://www.DoxEmr.com) or contact Stuart Finn (info@doxemr.com) or call 877-270-3518.

### ECLINICALWORKS

(Westborough, MA) eClinicalWorks®, a market leader in ambulatory clinical systems, announced an option of on-demand deployment of the eClinicalWorks unified electronic medical records (EMR) and practice management (PM) system and complimentary eClinicalWorks solutions at HIMSS. This will remove the wait time for installation by allowing self-activation of the EMR/PM system and add-on services including Patient Portal, Enterprise Business Optimizer (eBO), eClinicalWorks P2P, eClinicalMobile and eClinicalMessenger. Initially available for the Software as a Service (SaaS) model, eClinicalWorks will soon make it available to customers looking to implement via a client/server model. Customers will have the flexibility to independently install eClinicalWorks solutions and other modules that eClinicalWorks contracts with, allowing them to set-up aspects of care, including state immunization registries, on their own.

This will leave only the training and workflow analysis to be scheduled, which can be completed in a matter of weeks. On-demand deployment will be available in Q2 2010. For more information go to [www.eclinicalworks.com](http://www.eclinicalworks.com).

### ECLIPSYS

(*Atlanta, GA*) Announced the addition of an integrated suite of mobility applications designed for the Apple iPhone® and Apple iPod touch® at HIMSS. The mobility applications are built on Helios by Eclipsys™, the company's recently announced industry-defining open platform. Featuring a differentiating user interface built specific for mobility, constituent-specific devices and native integration with Eclipsys' leading Sunrise Enterprise™ suite of healthcare information technology solutions, Eclipsys' mobility applications bring a next-generation approach to smart phone technology in healthcare. Eclipsys also announced the release of Helios by Eclipsys™, an open architecture platform designed to deliver vendor choice and flexibility to a sector grappling with lagging technology adoption and soaring costs at HIMSS. Moving away from traditional, proprietary operating systems, Eclipsys™ is opening up its platform to provide certified third-party companies open, secure access to common services and visual and data integration. Through Helios by Eclipsys™, healthcare organizations can now utilize best-of-breed applications in an integrated environment with Eclipsys enterprise solutions. The result is reduced costs, enhanced ability to embrace and extend current technology investments, and removal of the technology innovation constraints caused by waiting for a single vendor's development timeline. For more information go to [www.eclipsys.com](http://www.eclipsys.com).

### GOOLGE

(*Mountain View, CA*) At HIMSS, Google announced an integration with Surescripts, a leading electronic prescribing network in the United States, to help accelerate the availability of prescription drug history to our users. The Surescripts network connects doctors who prescribe medication to all of the nation's major pharmacy chains, leading health insurance plans and pharmacy benefits managers (PBMs), as well as more than 10,000 independent pharmacies nationwide. Surescripts provides access to prescription benefit and history information on behalf of health insurance plans representing 65 percent of patients in the U.S. Google also announced future integration with the University of Pittsburgh Medical Center (UPMC) that will give patients the ability to add health information to an EHR maintained by doctors using their own Google Health PHR. UPMC is working on this integration with Google Health, Carnegie Mellon University and their technology partner dbMotion. Finally, we're announcing the launch of three more integration partners: Citizen Memorial Healthcare (CMH), a rural healthcare network providing care to residents in southwest Missouri, Iatric Systems, an integration consultant, which can facilitate Google Health integrations for hospitals and healthcare systems, and the the Withings WiFi Body Scale, which allows Google Health users to seamlessly update their weight and other data to their online profiles. For more information go to [www.google.com](http://www.google.com).

### GREENWAY MEDICAL TECHNOLOGIES

(*Carrollton, Georgia*) Greenway Medical Technologies provides the latest in electronic health record (EHR), ambulatory healthcare and clinical research business solutions and services to more than 22,000 healthcare providers nationwide, in 30 specialties and subspecialties, by enhancing the delivery of patient care through innovative HIT software and on-demand services that allow physician practices to function at their highest level of efficiency. Greenway's integrated and single-database EHR, practice management and interoperability flagship solution, PrimeSuite®, is a key component of the integrated physician's infrastructure solution, which serves as the starting point of a long-term business plan for physician practices, hospitals, IDNs, IPAs, Health Information Exchanges (HIE), Regional Extension Centers (REC) and Federally Qualified Health Centers (FQHC), by integrating a practice's clinical, financial and administrative processes, allowing practices to increase profitability, enhance patient satisfaction and facilitate adherence to compliance guidelines. PrimeSuite 2011 is a CCHIT Certified® 2011 Ambulatory EHR, additionally certified in CCHIT's Comprehensive program for Child Health and Cardiovascular Medicine with optional Advanced Reporting. PrimeSuite also received three "Best in KLAS" awards in the 2009 Top 20 Best in KLAS Awards: Software & Professional Services report: PrimeSuite Chart in Ambulatory EMR, 2 to 5 and 6 to 25 physicians, and PrimeSuite Practice in Practice Management, 6 to 25 physicians. This marked the fourth consecutive year PrimeSuite Chart was named Best in KLAS in Ambulatory EMR, 6 to 25 physicians. Greenway's integrated solutions, which also feature the standards-based data exchange engine PrimeExchange®, the clinical trial and analytics solution PrimeResearch®, financial and administrative solution PrimeRCM® and the online patient portal PrimePatient®, which together positions Greenway customers for the successful pursuit of certified EHR implementation incentives and meaningful use criterion. For more information go to [www.greenwaymedical.com](http://www.greenwaymedical.com) or contact Rebekah Green ([info@greenwaymedical.com](mailto:info@greenwaymedical.com)) or call 866-636-8356.

### HEALTH LANGUAGE

(*Denver, CO*) Launched the Language Engine Access Portal (LEAP) at HIMSS, which enables Web access to terminologies, code sets and management tools. The portal will allow hospitals, physician practices and their vendors to easily locate, download, update and extend terminologies without installing a separate application. LEAP supports interoperability, meaningful use requirements, ICD-10 conversion, evidence-based care, quality reporting, optimized billing and other key healthcare information technology (HIT) initiatives by leveraging Health Language's industry-leading medical terminology tools. For more information go to [www.healthlanguage.com](http://www.healthlanguage.com) or call 720-940-2900.

### HEALTHFUSION, INC.

(*Solana Beach, California*) MediTouch EHR™ from HealthFusion is a fully integrated, Web-based, touch screen Electronic Health Record — affordable, secure, and backed

up by J.D. Power and Associates “Outstanding Customer Service”. HealthFusion’s MediTouch EHR™ is fully integrated with our Practice Management and Clearinghouse solutions, optimizing the physician experience as well as registration, scheduling, claims, billing, and collections for your staff. You are mobile and simply use your fingertips to record data on a touch screen computer, easier and faster than using a stylus pen, keyboard, or a traditional paper chart. Many EHRs are not very customizable, forcing physicians to rely on rigid templates with tiny checkboxes that make documenting encounters hard. With MediTouch, you are in control and can program the system to say what you want it to say. The software anticipates your practice pattern and is trained to think like you do. Keep Your Focus on the Patient: Providers are often pulled away from their patients and back to the computer screen with most EHRs, a major patient complaint and concern. HealthFusion’s touch screen interface is simple, powerful, and fast, so you never have to fear losing the patient/physician bond that you have worked so hard to establish and preserve. EHR Features for Today and Tomorrow: This always up-to-date, online, secure, system manages SOAP progress notes, problem lists, medications, allergies, tests, consults, orders for labs and x-rays, e-Prescribing, centralized document management, and much more. For more information go to [www.HealthFusion.com/EHR](http://www.HealthFusion.com/EHR): Contact HealthFusion or contact Chris Neppes ([cneppes@HealthFusion.com](mailto:cneppes@HealthFusion.com)) or call 858.523.2120 x.199

#### HENRY SCHEIN MEDICAL SYSTEMS/MICROMD

(*Melville, NY*) Henry Schein Medical Systems provides mature, cost-efficient MicroMD practice management and EMR solutions that have helped physician practices of all sizes—from solo practices to multi-specialty medical groups and community health centers to billing services—enhance operational efficiency, increase profitability and improve patient care. MicroMD PM is easy for staff to learn, highly-scalable and cost-effective, featuring a proven record of delivering a demonstrable return on investment. MicroMD EMR is an intuitive electronic medical records solution that encompasses clinical workflows and processes in primary care and specialty practices. MicroMD EMR Version 7.0, a CCHIT Certified<sup>SM</sup> product for CCHIT Ambulatory EHR 2008, enables physicians to move toward a paperless workflow while improving patient care in a simplified manner. MicroMD EMR includes functionality such as: Advanced e-Prescribing through our Surescripts/RXHub certification, which provides prescription eligibility, drug history and formularies, interfacing with multiple clearinghouses, medical devices, labs, immunization registries, templates that support multiple types of documentation that can be defined by the end-user/physician, built-in data from SNOMED and First Databank®, and discrete data views. MicroMD EMR is a single platform solution, which can also be paired with our practice management solution, MicroMD PM, to create a single, integrated suite of products to help you simplify your administrative and clinical workflows. For more information go to [www.micromd.com](http://www.micromd.com) or contact Bethany Edenfield ([bethany.edenfield@micromd.com](mailto:bethany.edenfield@micromd.com)) or call 800.624.8832.

#### HILL-ROM

(*BATESVILLE, IN*) At HIMSS, Hill-Rom announced the extension of its smart room technology to provide a choice of solutions that connect the smart bed and other medical devices to the Electronic Medical Record (EMR) on both a wired and a wireless platform. Hill-Rom’s approach provides customers with a choice between wired and wireless solutions without the need for expensive middleware from other vendors. The Hill-Rom connectivity platform creates options for hospital staffs to choose the solution that is optimal for their existing hospital IT infrastructure. In turn, this technology can improve the clinical workflow for nurses and reduce the clinical documentation burden for front-line caregivers by automating medical device data transmission to the EMR. For more information go to [www.hill-rom.com](http://www.hill-rom.com) or contact Lauren Green-Caldwell ([lauren.green-caldwell@hill-rom.com](mailto:lauren.green-caldwell@hill-rom.com)) or call 812-934-8692.

#### INTEGRATED CLINICAL CARE

(*New York, NY*) Integrated Clinical Care (ICC) is offering intelligent EHRs for medical facilities and independent practitioners including a highly efficient CIS and CPOE as well as an oncology specific interactive EHR, designed by clinicians for clinicians, to help streamline the patient care process, automate the chemotherapy and pathology stage as well as reduce medication errors, increase process efficiency and bring down operating costs. ICC Oncology Tools deploys a vast array of rich clinical documentation, automation for protocol selection, staging, pathology, chemotherapy dosing and self-loading Registries. The company offers oncology providers with an advanced tumor registry that is both interactive and fully automated. The data is fed directly from the EHR without human intervention and can be retrieved at will by simple queries. The most salient cancer and tumor information is readily available for practitioners to track down their outcome patterns, measure up protocol relative effectiveness and have real time data to support clinical decisions. It is also an efficient tool for cohort selections which can now be processed in a matter of a few short hours instead of the lengthy manual effort required by human data manipulation. ICC offers advantageous financing terms to help its clients minimize the impact of these acquisitions on their cash flow. The ICC intelligent interactive EHR is one of the core applications in the new agenda of the American Society of Clinical Oncologists (ASCO) to promote clinical automation and greater patient safety. For more information visit [www.iclinicalcare.com](http://www.iclinicalcare.com); or contact Michel Eric ([info@iclinicalcare.com](mailto:info@iclinicalcare.com)) or call 1-888-422-4404 /1-646-871-9557.

#### INTEGRATED DIGITAL SYSTEMS

(*Manassas, VA*) IDS released new MedDocsPHR the first zero foot print, FIPS 140.2 Level 3 encrypted Patient Healthcare Records .NET application that runs independently on a secure and ruggedized IronKey USB device. This device permits the healthcare provider and patient the ability to drag and drop patient records, x-rays (DICOM viewer included) and record key patient health history and data in an SQL database with a GUI interface for data, documents and x-rays.

Application includes a full ICD-9 look-up and auto-correction capability. For more information, go to [www.idss.net](http://www.idss.net) or contact Larry Hunt ([ldhunt@idsscan.com](mailto:ldhunt@idsscan.com)) or call 800-283-0999.

### LSS DATA SYSTEMS

(*Eden Prairie, MN*) LSS Data Systems, partnered with MEDITECH, develops, markets and supports physician practice management software and ambulatory medical record systems used by healthcare organizations across the country and around the world. The LSS Medical and Practice Management (MPM) suite is a robust ambulatory Electronic Medical Record with electronic prescribing/ordering, physician documentation, scanning, scheduling, billing, authorization/referral management and reporting tools. Thousands of physicians and other healthcare providers use LSS software, representing a diverse clientele crossing virtually every major type of physician practice and specialty. Please visit [www.lssdata.com](http://www.lssdata.com) for more information on LSS and the MPM suite. For more information go to [www.lssdata.com](http://www.lssdata.com) or contact Megan Salmela ([msalmela@lssdata.com](mailto:msalmela@lssdata.com)) or call 952-941-1000.

### M2 INFORMATION SYSTEMS, INC.

(*Edmonds, WA*) MicroBloggingMD is a disruptive technology providing frontline care providers with information delivered in a way that promotes timely patient care, compliance with hospital regulations, and allows a hospital to meet the ARRA requirements without a huge investment of time from their medical staff. Each MicroBlog provides specific information to the provider in a subscription mode. The information is delivered in the order it is processed throughout the institution allowing providers to act on the most current information available. All of the information is delivered to a smart phone (iPhone, BlackBerry, Palm, or Pocket PC) for easy access for your providers. For more information go to [www.microblogginmd.com](http://www.microblogginmd.com) or contact Kent Hargrave ([khargrave@m2is.com](mailto:khargrave@m2is.com)) or call 425-771-7699.

### MCKESSON

(*San Francisco, CA*) McKesson offers a wide variety of practice management systems that are easy to use and rapidly deployable. Practice Partner®, our award-winning, fully integrated electronic health record (EHR) and practice management solution, empowers physicians to improve the care quality and increase bottom-line productivity. Practice Partner modules, available separately or together, include: Practice Partner® Patient Records, Practice Partner® Medical Billing and Practice Partner® Appointment Scheduler. Backed by the experience of a trusted industry leader, our proven solution has an established customer base of more than 25,000 users in medical practices of all sizes and specialties. At the core of Practice Partner is Bright Note Technology™ — the dynamic processing power that utilizes single-note synchronization to instantaneously populate patient data across the entire chart. Working like a physician's chart, the single screen-progress note within Practice Partner, coupled with Bright Note Technology, delivers a powerful tool to help you quickly search and access data throughout the entire practice record. The ability to access patient information and gener-

ate meaningful data is essential to delivering exceptional health outcomes and driving profitability. By automatically categorizing patient and practice level data into searchable and exportable fields, Bright Note Technology provides physicians and staff with quick access to information optimizing reimbursements, facilitating clinical care reporting and generating pay-for-performance data. For more information go to [www.mckesson.com/practicepartner](http://www.mckesson.com/practicepartner) or contact Lisa Santos ([l.santos@mckesson.com](mailto:l.santos@mckesson.com)) or call 800.770.7674.

### MEDICITY

(*Salt Lake City, UT*) Announced at HIMSS that it is collaborating with Emdeon, Inc. (Nashville, TN), the nation's largest financial and administrative health information exchange solution provider, to create the first "converged" national health information exchange. The collaboration leverages Emdeon's national network of payers, providers, and pharmacies and Medicity's clinical exchange network, based on Medicity's innovative iNexx Health 4.0 platform. For more information go to [www.medicity.com](http://www.medicity.com).

### NEXTGEN HEALTHCARE INFORMATION SYSTEMS, INC.

(*Atlanta, GA*) NextGen Healthcare Information Systems, Inc commented at HIMSS that the Notice of Proposed Rule Making issued last week on electronic health record (EHR) incentive programs moves the healthcare industry closer to securing American Recovery and Reinvestment Act (ARRA) stimulus payments for healthcare IT adoption. The company noted, however, that further guidance is needed to lead providers through the requirements to become meaningful users of EHRs. To help navigate the criteria, NextGen Healthcare has produced new educational resources and opened its Community Forum for discussion, questions and comments. NextGen Healthcare's resources include: Getting to Meaningful Use. In this guide, NextGen Healthcare walks providers through six critical steps toward becoming meaningful users of EHRs, including advice on researching EHRs; what to look for in product demos; planning a timeline for selection and implementation of the EHR; and preparing their staff for change. NextGen also offers a Multimedia and Education Portal to help providers understand and maximize opportunities created by the ARRA, NextGen Healthcare's Inside Health Reform portal offers case studies, videos, a series of free educational webinars and white papers, FAQs, and an EHR revenue improvement calculator. Also, NextGen Community Forum. A discussion board has opened on NextGen.com for providers to post their comments and questions about meaningful use criteria. NextGen Healthcare will incorporate the feedback in its official response to CMS. Providers can also use the public forum to learn best practices from peers and NextGen Healthcare experts to address the latest industry challenges. Also, Support for Grants and Funding Opportunities. NextGen Healthcare is the only EHR vendor to help its clients identify and apply for appropriate grant opportunities through its Grants Resources Center. Clients can find valuable information and work with NextGen Healthcare to assess their opportunity to participate in "Beacon Communities," "SHARP," and other funding being made available as part of

ARRA. For more information go to [www.nextgen.com](http://www.nextgen.com) or contact Patrick Doyle ([sales@nextgen.com](mailto:sales@nextgen.com)) or call 215-657-7010.

### NOTESMD

*(Beverly Hills, CA)* NotesMD is an intellectual property company that has developed a totally WEB based point of care health record solution with record “low time to neutrality” that is now available for partnership or licensing. The product is mature, in use for over 10 years with a patient base of nearly 100,000. The code is available for customization or private branding or to jump start your current development effort. For more information call Ronald P. Karlsberg MD at 310-508-7004.

### ORION HEALTH

*(Santa Monica CA)* Orion Health is a market leader in providing clinical workflow and integration technology around the globe. The Orion Health Concerto Physician Portal provides healthcare workers with easy access to patient data and trends, and reduces errors and omissions by streamlining information transfer. Nearly 200,000 physicians in more than 500 hospitals are using Orion Health Concerto™ portal to access critical health data stored in electronic health records (EHRs). Orion Health’s partners include leading health system integrators and IT vendors such as Accenture, IBM, Oracle Corporation, Initiate and others. Orion Health has more than 1,000 clients around the world, including Lahey Clinic, Maine’s HealthInfoNet, New York State Department of Health, UCLA Medical Center, and U.S. Centers for Disease Control and Prevention (CDC). More information can be found at [www.orionhealth.com](http://www.orionhealth.com) or contact Michael Burke ([michael.burke@orionhealth.com](mailto:michael.burke@orionhealth.com)) or call 310-526-4025.

### PANASONIC

*(Seacaucus, NJ)* Panasonic Computer Solutions Company announced the new Toughbook C1, the world’s lightest 12.1” convertible tablet PC. This new business-rugged device is designed for road warriors and mobile workers in a variety of roles within the healthcare market. The Toughbook C1 is powered by the Intel® Core™ i5 520M vPro™ processor, offering up to 10 hours of battery life. The C1 supports multi-touch and digitizers to allow input via finger, gestures and electronic stylus pen. Its triple hinge design significantly reduces hinge failures (a common problem of convertible tablets) by separating two actions normally required of a single hinge. The C1 also features optional SmartCard and fingerprint readers, webcam, built-in microphone and Qualcomm’s new Gobi2000™ mobile broadband technology to help maximize mobile worker productivity. For more information visit [www.panasonic.com](http://www.panasonic.com) or contact Devin Kingdon by email at [devin.kingdon@cohnwolfe.com](mailto:devin.kingdon@cohnwolfe.com).

### PATIENTNOW

*(Englewood, CO)* PatientNOW is Stimulus Ready. Full EMR and Practice Management software for Plastic Surgery,

Dermatology, OB\GYN and Medi Spas. Unique features include Document Management system for the paperless office, Easy to use patient tracking system with automatic reminders, Automated Appointment Reminder using text page and Email with no monthly charges, Integrated Photo Management. For more information go to [www.patientnow.com](http://www.patientnow.com) or contact Jerry Jacobson ([jjacobson@patientnow.com](mailto:jjacobson@patientnow.com)) or call 800-436-3150 x86.

### PICIS

*(Wakefield, MA)* Picis redefines ED information systems with ED PulseCheck 4.2, the only solution to address all five of the greatest challenges hospitals face today — pressures from regulatory audits, patient bottlenecks, revenue leakage, interoperability of systems and meaningful use. ED PulseCheck 4.2 is the only solution that provides a complete set of management and operational tools to optimize the ED, and hospital performance in terms of medical necessity, patient disposition, reimbursement and reduced audit risk. With CareBridge integrated into version 4.2, Picis delivers the industry’s first EDIS to solve the medical necessity documentation issue by capturing required information needed to support a physician’s admission decision as a routine part of clinical workflow. By addressing disparities directly from the start, when a patient enters the hospital in the ED, Picis shows hospitals how to recoup millions of potential lost revenue while improving compliance. Version 4.2 improves communication between the ED and inpatient floors by providing visibility across hospital resources and identifying constraints that directly impact ED performance and capacity. Another new feature of version 4.2 improves hospital charging for intravenous infusion and injection services, which drives increased accuracy of hospital reimbursements for these costly services, estimated at approximately \$10 per ED patient visit. For more information go to [www.picis.com](http://www.picis.com) or contact Ann Joyal, Director of Corporate Communications ([Ann\\_Joyal@picis.com](mailto:Ann_Joyal@picis.com)) or call 781 557 3057.

### REMEDYMD

*(Sandy, UT)* RemedyMD has spent the last 7 years developing the most powerful, configurable, and scalable registry technology in the world. Researchers and clinicians combine our applications, tools, and data with their own expertise to their competitive advantage. RemedyMD registries have unsurpassed flexibility to adapt “on-the-fly” as research needs and parameters evolve. Our tools make it possible to use all your existing data and to collect, aggregate, and harmonize new data collection. RemedyMD’s Translate™ addresses all of the processes required to load data. Ongoing data collection is addressed by our Encounters EDC™ tool as well as myHealthManager™. This data is aggregated in the Mosaic Repository while OntologyManager™ seamlessly cross-maps different terms, concepts, and associations among data sources while keeping original data in tact. The data can then be hosted securely in RemedyMD’s enterprise ORACLE® database. For custom queries, RemedyMD’s QueryBuilder™ reveals complex insights about data in as lit-

tle as 15 minutes that otherwise would have taken 6 months (or been altogether impossible) using “toy” registry tools. And, because of RemedyMD’s advanced architecture, our fully configurable registries are ready to be used in days, not months. Researchers seeking to identify the most effective outcomes based on variables they define needn’t look any further than RemedyMD’s Compare™. For those researchers needing a better way to manage all aspects of collecting, processing, and banking biospecimens, RemedyMD has created its BiospecimenManager™ application. As of Feb. 28, 2010 (Rare Disease Day), due to the under-funded nature of rare disease research, RemedyMD announced its new “RegistryOnDemand” offering exclusively for rare disease researchers. This includes access to all tools, data infrastructure, and applications at one low monthly subscription rate. There are no long-term contracts required, and before June 1, 2010 RemedyMD is waiving a \$10,000 setup fee. For more information go to [www.remedymd.com](http://www.remedymd.com) or contact Gary D. Kennedy ([gkennedy@remedymd.com](mailto:gkennedy@remedymd.com)) or call 801-733-3300.

### SUNQUEST

(*Tucson, AZ*) New solutions introduced at HIMSS10 included Sunquest Business Intelligence Solutions™, which provides real-time, dashboard-driven meaningful operational and clinical metrics, as well as the Integrated Clinical Environment (ICE) Physician Portal™ that will enhance physician and patient affinity to laboratories by enabling community interoperability. Sunquest products include ICE PP and BI Software Solutions. For more information go to [www.sunquestinfo.com](http://www.sunquestinfo.com) or contact Donald A. APR ([donaald.mounce@sunquestinfo.com](mailto:donaald.mounce@sunquestinfo.com)) or call +1-520-570-2114.

### VENYU & INSITEONE

VenYu (*Baton Rouge, LA*) and InSiteOne (*Wallingford, CT*) VenYu, a leader in commercial solutions for data protection, availability and recovery and InSite One, a leader in medical data archiving, exchange, and business continuance solutions, announced a joint partnership aimed at helping healthcare institutions and providers manage soaring amounts of electronic medical data at HIMSS. VenYu, a PHNS subsidiary, also brings expansion opportunity to the partnership through geographically-diverse, SAS70 qualified, datacenters. For more information, go to either [www.venyu.com](http://www.venyu.com) or [www.insiteone.com](http://www.insiteone.com) or call 800-441-0091.

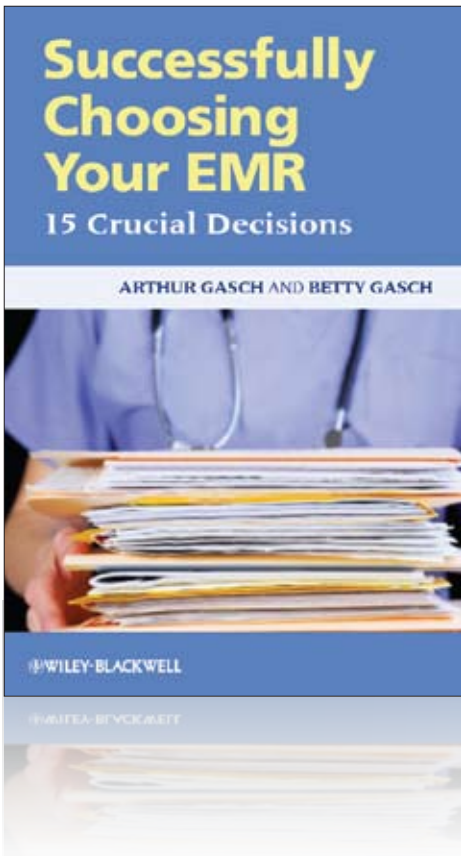
### VERSASUITE

(*Austin, TX*) VersaSuite is a state of the art enterprise software suite that offers an easy to use and easy to learn integrated solution for managing all aspects of any sized ambulatory or inpatient medical institution. With the ability to run as a native Windows application or over the Internet in a web browser, VersaSuite can be deployed in any clinical environment using almost any computer system. Featuring state of the art n-tier technology, VersaSuite is the most scalable, fully integrated Electronic Health Record (EHR) and Enterprise Practice Management (EPM) solution available on the market. With an underlying infrastructure that dynami-

cally scales to the size of the environment, VersaSuite can be implemented effectively in the most demanding clinical environments, enabling efficient resource management and helping physicians improve patient care. VersaSuite provides an advanced, configurable, and seamlessly integrated software suite that brings together a feature-rich EPM including easy to use batch electronic billing, EHR including advanced drawing and e-prescribing, detailed Inventory Management and Point of Sales, robust Radiology Information Systems/ Picture Archiving Communication System (RIS/PACS), and in-depth marketing analysis, in both ambulatory and inpatient environments. VersaSuite-eHR is CCHIT certified, DICOM compliant, an active member of the IHE initiative, and adheres to all international standards for interoperability including HL7. For more information go to [www.versasuite.com](http://www.versasuite.com) or contact Kyle Samani ([ksamani@versasuite.com](mailto:ksamani@versasuite.com)) or call 512-293-6021.

### WOLTERS KLUWER HEALTH

(*Ambler, PA*) Wolters Kluwer Health, a global provider of information for healthcare professionals and students, unveiled Medi-Span® Clinical at HIMSS, a robust clinical decision support (CDS) platform that delivers the functionality, interoperability and medication-related CDS necessary to advance the practice of evidence-based medicine and to achieve meaningful use of health IT. “*In developing Medi-Span Clinical, we listened to the needs and concerns of both EMR vendors and clinician users. This enabled us to deliver an advanced medication decision support platform that is easy to implement and use, and that eliminates many of the interoperability challenges plaguing other drug compendia,*” said Arvind Subramanian, President and CEO, Wolters Kluwer Health Clinical Solutions. For EMR vendors, Medi-Span Clinical delivers CCHIT-compliant medication-related clinical decision support and enables client organizations to meet multiple criteria for meaningful use, as currently defined. Medi-Span Clinical is comprised of a suite of Application Programming Interfaces (API) that allows health information system vendors to utilize Medi-Span content, terminology mappings and featured functionality in a manner that seamlessly integrates into new and existing EHR applications. Utilization of APIs allows development efforts to focus on the application rather than the underlying data structure. Visit [www.wolterskluwer-health.com](http://www.wolterskluwer-health.com) for more information.



## Successfully Choosing Your EMR: 15 Crucial Decisions

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