Standards Insight

HIMSS 2004: Interoperability and the $87 Billion Question

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HIMSS Overview

The 2004 Annual HIMSS Conference & Exhibition once again provided a vantage point from which to assess healthcare information technology (HCIT) industry trends and interoperability initiatives. Reportedly surpassing all previous attendance records, HIMSS 2004 provided many data points but not always in a coherent pattern. Patient safety and controlling costs are the drivers for much HCIT interest and activity. HCIT is seen as a solution to medical errors and to controlling costs, a point noted in the President's State of the Union message. The question, highlighted in Newt Gingrich's keynote, is how rapidly can we meet the challenge of using HCIT to enable a twenty-first century health care system. In response the HCIT industry has advocated for new initiatives, more funding and support for interoperability standards. In Gingrich's formulation, the HCIT industry's response is "yes … if" we have new initiatives, new funding and new interoperability standards. We will examine these three conditions from the perspective of the 2004 Annual HIMSS Conference & Exhibition.

Shifting HCIT Initiatives: CPOE to EHR

Computerized provider order entry (CPOE) has been the touchstone of patient safety initiatives. Yet at the HIMSS conference, we witnessed waning enthusiasm as healthcare

organizations recognize the need to first have a solid enterprise clinical information system and electronic health record (EHR) system in place. Industry sources noted that CPOE is not being as rapidly adopted as had been anticipated last year. Physician acceptance, particularly without the full EHR, remains low. Many vendors' CPOE implementations are not interfaced with either pharmacy or medication administration systems – leaving the medication errors loop open. Moreover, bar-coded medication administration systems, which do not necessarily need a full enterprise clinical information system (CIS), are seen as an immediate step that captures most of the safety benefits of CPOE as well as prevents downstream administration errors. This shift in priorities was reinforced by the Food and Drug Administration's announcement of a two-year deadline for the pharmaceutical industry to add bar coding to individual prescription drugs.

That the EHR has emerged as the key healthcare information technology initiative was certainly reinforced at HIMSS. The EHR has become synonymous with the enterprise infrastructure and is the shared container for the National Health Information Infrastructure (NHII). The EHR (or a more detailed electronic medical record) system is key to improving internal processes, including CPOE, as well as enabling the sharing of patient data between providers and secondary users. We have discussed these topics in recent issues and will not repeat the analysis here.

Progress in Interoperability Standards

The HL7 EHR System Functional Model and Draft Standard

As discussed in last month's issue, Health Level Seven (HL7) is preparing a new EHR System Functional Model Draft Standard ballot for release to the voting pool later in March. The EHR Collaborative[1] used the HIMSS conference to conduct town meetings and straw votes on the candidate ballot in order to provide additional final feedback prior to ballot publication. Overall, the EHR Collaborative reported positive feedback from HIMSS attendees. The straw vote results reflected a reversal from the original ballot results, showing a better than two-thirds approval rate. While comments varied, one sensed that the model and draft standard should be pushed further, faster. To better accommodate different views, HL7 plans to separately ballot its three functional sections, direct care, supportive and infrastructure. There is good reason to believe that the ballot will pass this time, which will provide a basis for moving forward.

[1] The EHR Collaborative (www.ehrcollaborative.org) is a seven-member consortium of healthcare membership organizations, including HIMSS, that is assisting HL7 by conducting fact finding and outreach programs on the proposed EHR-S draft standard.

HL7 – IHE Technical Interoperability Demonstration

This was the first combined interoperability demonstration for HL7 and IHE.[2] More than 60 organizations, including vendors, federal agencies and sponsors participated in four separate scenarios: patient safety, tumor reporting, public health surveillance and clinical trials. The interoperability scenarios primarily reflected inter-enterprise transactions using existing standards and profiles as well as the emerging HL7 Version 3 standards. Although the scenarios themselves did not represent any national infrastructure, the interoperability demonstration highlights the potential benefits, methods and shortcomings of interoperability standards to support inter-enterprise interoperability, a core building block of an NHII. As we have noted in the past, such demonstrations force the industry to identify problems and gaps that might not otherwise be apparent in a top-down model driven approach. We anxiously look forward to the "report card" of lessons learned. Specifically we want to know what are the technical gaps in existing standards that would prevent the inter enterprise exchange of key data, such as the Continuity of Care Record or public health reports. This is an important question to resolve. Saying y*es we can* begin a transition using existing standards *if* we can make the business case is far different than *no we can't because* we need to wait for next generation standards.

The $87 Billion Question

Perhaps the most important data point to come out of HIMSS this year was the Center for Information Technology Leadership (CITL) projection of $87 billion in net annual savings if providers could automate health information exchange of patient care related transactions with their trading partners.[3] In fact this is an important hypothesis but can easily be misinterpreted by policy makers and healthcare information technology leaders.

The Value Proposition

To begin, the purpose of the study was to estimate the economic value of health information exchange based on a patient-provider encounter. The study did not examine clinical benefits, such as reduced medical errors. It estimated the number of external clinical, administrative and financial transactions that are generated from each hospital and clinic (physician office) encounter. It defined four levels of interoperability from Level 1, which includes no electronic transactions, i.e., use of paper, phone calls, etc. to Level 4, full interoperability. Levels 2 and 3, are intermediate steps, electronic machine transportable and machine-organizable, i.e., use of standard messages without standard content. Thus, as shown below, there are six modeled provider-partner transactions (including provider to provider), which at Level 4 generate net savings of $395 billion over the first ten-year ramp up period and of $87 billion each year thereafter. This

[2] HL7 at www.HL7.org is the foremost clinical interoperability standards developer. Integrating the Healthcare Enterprise (IHE), in which HIMSS is prime sponsor, is a voluntary membership group that implements existing standards based on IHE profiles.

[3] Blackford Middleton MD presented on behalf of CITL (www.citl.org). The study presentation was not published. Therefore the following description and numbers depend on the oral presentation.

analysis includes projected HIPAA transaction savings ($29 billion) and some part of the ambulatory CPOE savings ($35 billion), which the CITL projected last year.

Level 4 Net Cost Savings (in billions)	10 Year Rollout Total	Annual Steady State
Provider	$56.8	$33.7
Payor	194	30.4
Lab	84	13.1
Imaging	53	8.2
Pharmancy	5.5	1.3
Public Health	0.6	0.1
Total	$393.9	$86.8

Source: B. Middleton. The Value of Healthcare Information Exchange and Interoperability. Presented at HIMSS Annual Conference on Feb 23, 2004.

In calculating the net savings, CITL estimated the cost of provider systems and interfaces at $266 billion and partner interfaces at $10 billion. Each would incur annual support costs of $14 billion and $500 million respectively. The presumption in the model is that all provider "clinical" systems, e.g., EHR systems, will have to be replaced and upgraded or acquired initially.

An inference of the model is that interoperability standards could be valued at $60 billion a year – the difference between Level 3 exchange of non-standard content and Level 4 exchange of fully interoperable content. Inherent in this inference and the model is that in order to achieve Level 4, full interoperability among different trading partners, all providers must adopt systems that use the same content and model structure for data, messages and documents.

What are we to make of this highly publicized study and its $87 billion savings? We could close our eyes and accept the results as the value proposition for spending $250 billion plus on clinical systems over the next 5 years. Why not jump on this?

Limitations

There are two key limitations in the analysis that can lead to incorrect policy and national strategy. The study is based on a static cost savings model that does not reflect healthcare economics in the United States. First, consider the "cost savings" component of the model. Roughly $90 billion in steady annual savings for states[4] is attributed to timesavings due to automating transactions between providers and their partners. As any system vendor knows from sitting across the table from a CFO, these are "soft dollars." To result in dollar savings, these timesavings must be monetized either by work force

[4] Similarly, CITL posits $14 billion in annual steady state savings from eliminating unnecessary or duplicate tests and treatments. It is noted that a payer's cost is a provider's revenue and as above would have to be returned to the ultimate payer in order to count as savings.

reduction or increased productivity that results in lower production costs. Second, in a static model we assume that all other factors, i.e., reimbursement, remain the same so that the monetized benefits of time savings go to providers and their partners. Of course in our health system, it is unlikely that any monetized savings would go to provider or partner[5] bottom lines. In fact the savings or increased productivity would go back to the ultimate payer, be it the CMS/taxpayer, employer/employee or all of us as a society. Why? Because our health system reimbursement limits "average" profits.[6] Thus in a dynamic model, we would expect that any savings or productivity gains would be recaptured by the ultimate payers and society rather than as higher profits to providers.

The Trap

This is the trap of a static model of reimbursement. Either provider and partner organizations would fail to monetize the costs savings or, if they did, the savings would be recovered by ultimate payers in the form of lower reimbursement. But cost savings and increased productivity are not bad policy goals for a country concerned with rapidly rising healthcare costs. However, they are not "on average" part of a return on investment justification for investing $266 billion in HCIT by providers and their partners. In fact the investment, if indeed it can lead to this level of benefits, will require the form of either an unfunded mandate or the cost of doing business. In truth, in a dynamic system, market leaders will invest in "exchanges" when they can gain advantage, and as adoption occurs, productivity increases. The net of most investment in automation is productivity gains, not hard cost savings. The peculiar difficulty of investments in information exchange is that they do not yield competitive advantage to individual provider organizations or if they do, other providers will not participate.

Policy Implications

The $87 billion savings figure can lead to two types of policy errors. First, the number is sufficiently large so as to become a point of interest in the Washington budget scoring game. It would, for example, pay for extending full health coverage to the uninsured. Policy makers, already convinced that the healthcare system is awash in money, will assume that there is money to fund major new initiatives. But this proposition represents a transfer of savings, if realized (or additional costs, if not), from a provider's HCIT investment to be applied to other programs. This is good public policy but an unfunded mandate that will be opposed by the healthcare industry.

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[5] Payers are identified as one of the trading partners. In most cases these are intermediaries, i.e., health plans, that get paid for administering health insurance operations, rather than the ultimate payer. Like providers, health plans are not permitted, on average, to keep windfall profits but are forced by larger payers, i.e., CMS and employers, to lower their premiums.

[6] A proper understanding of profit strategy in healthcare is beyond the scope of this document. However, in summary successful healthcare organizations consistently beat the average in terms of volume and operating margin. One of the characteristics of the strategy is that the successful healthcare organization must adopt new technologies and programs faster than the inherent profits are squeezed out of "average" reimbursement.

Second as we see the outline of the NHII begin to take the form of a series of local health information infrastructures (LHII), the value proposition of health information exchange as outlined by CITL, may obscure the real business challenges inherent in LHII. If one assumed away the business issues by saying that participants will save $87 billion a year, then no rigorous business case analysis will underpin the strategy. Like CHINs before them, LHII will have no visible means of support particularly when tied to new investments of $266 billion. Relying on the CITL assumption that all providers and payers would have to acquire and use systems based on common standards adds significant costs and inherently slows a rollout compared to relying on transition based on standard interchange transactions prioritized by clinical and economic value.

In both policy cases, the gap between good policy and unfunded mandates is misaligned financial incentives, not the need for more funding or technical standards. Unless the healthcare system pays for participation in inter-enterprise information exchange it will not happen. But the payment should be tied to improving care, patient safety and efficiency, i.e., pay for performance, not as an add-on to existing payment schemes.

Ultimately the CITL study is an important road sign in identifying potential cost savings and productivity gains for a nation facing an increasingly more costly healthcare system. But it is not a roadmap. As an industry we share the belief that investing in clinical systems will improve care and control costs. But we need to recognize the need to base national, local and individual organization strategy on viable business cases. So we really need to say *yes we can* improve care and save money (even more than $87 billion) *if* we have aligned business incentives. Otherwise we will be saying *no we cannot* use HCIT to improve care and save money *because* providers do not have the incentives to invest in HCIT and data exchange infrastructure.

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