Report from the Field: HIMSS 2012

I recently spent three days (20-22 February) at the 2012 meeting of HIMSS (Health Information Management Systems Society) in Las Vegas. I attended a number of sessions and spent a good deal of time on the exhibit floor exploring several major topics: There was a lot to see in three days, and a fair amount of noise, but also some interesting and valuable information that I want to share with CHC colleagues.

First, Big Data and Gamification – We're not there yet

I'll get the easy, and disappointing, stuff out of the way first. Despite the extreme hype, at least in the technology community, regarding gamification and 'Big Data', I found little evidence that these were much more than buzzwords to the majority of vendors. 'Big data' are huge datasets where the challenges of data capture, storage, search, sharing, and analytics are not readily addressed by existing tools. Experts continue to predict that this will be increasingly important in healthcare, yet while almost every vendor I spoke to claimed to have a strategy, only the largest EMR vendors seemed to have any real idea of what an ultra-large data set might be. Only the Department of Defense, Veterans' Administration and CMS colleagues had a better understanding of just how large data sets could get, and acknowledged that they were not working with ultra-large data, yet.

My impression is that we are still very early in the use of ultra-large data sets in healthcare. If the 5-year CMS Claims Archive is only 16TB, and has never been analyzed in its entirety[1], then most other data sets are going to be (much) smaller. But over time, as ever- larger data sets are made available and need to be analyzed, "big data" understanding and capability will become more important. Further, the silence was deafening on "gamification" or the use of game design techniques to enhance the user experience in non-game applications. Jane McGonigal, Director of Game Research and Design at the Institute for the Future has written widely on this issue, (see: "Reality is Broken: Why Games Make Us Better and How They Can Change the World") but there was a notable absence in the HIMSS community of any discussion of her work and its implications for patient- and provider-facing applications.

So, what was the buzz about? Let's get right to it: 1) the design and implementation of applications for patient-centered healthcare focusing on care transitions including medication reconciliation and information transfer; 2) the use of social media in the healthcare; 3) the state of the 'art' in Health Information Exchange

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[1] Personal communication: Natasha Balac, Group Manager, Data Applications, San Diego Supercomputer Center UC San Diego.

(HIE); and 4) the state of the art in EMR including clinical data analysis, visualization & function for supporting care transitions.

Patient-Centered Applications

Every EMR vendor is offering a patient portal, and there are many small vendors offering independent portals. However, very few applications actually provide useful and usable capability for patients. The Epic & eCW patient portals appear typical of available EMR portals in that they are not very patient oriented; instead, they are designed to elicit information from the patient (consent forms, pre-registration, patient history, and the like) and perform front-office functions rather than provide the patient with a real resource.

eCW's portal is the best one that I saw, in terms of functional capabilities. It allows patients (at least) the following functions:
- Send messages to the provider's office (but not directly to the provider);
- Enter medical history;
- Complete registration for visits;
- Request prescription refills;
- Check (some) lab results;
- Have (limited) on-line consults with provider (chat);
- View statements;
- Schedule appointments;
- View educational materials;

In addition the provider's office may:
- Post lab & imaging results for patient viewing;
- Post & obtain patient consent forms;
- Send reminders;
- Post educational material for viewing.

Still, there is little opportunity for direct interaction with a provider, and most of the information that is available to view is posted by the provider's office.

Here's a screenshot of the eCW Patient Portal[2], to provide a sense of what the patient actually sees when accessing the application:

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[2] http://www.eclinicalworks.com/products-patient-portal.htm
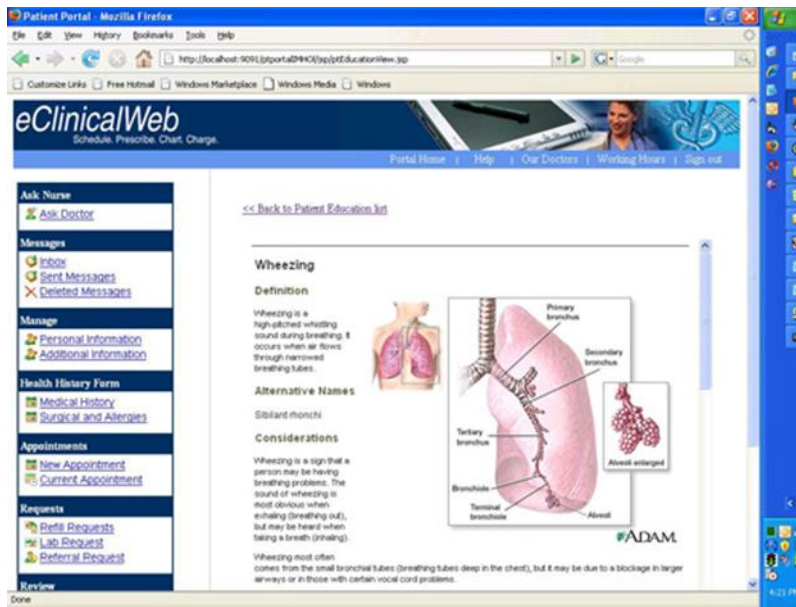
Many of the large payer and provider organizations also have patient portals. The best of these is probably the Kaiser portal. It allows direct email connection between patient and provider and provides information from the EMR and other records, including visit summaries, selected clinical, educational and benefits data.

Of the small vendors, the most interesting one I saw was Jardogs (I don't know the origin of the name, so don't ask), who offer the FollowMyHealth™ application, which they describe as a 'universal health record'. This is a SAAS application with a web-based front-end that aggregates data from multiple sources (EMRs) and provides:

- Access to EMR data (can be limited by provider); visit summaries; and preventative & follow-up care reminders;
- Ability to review & pay bills on-line;
- Ability to request appointments & prescription refills;
- Substantial patient-directed privacy settings that permit the patient to control, to a certain extent, what (patient-provided) information a provider can see.

The application is ONC-ACTB approved for Stage 1 Meaningful Use (as a component, not a full EMR), and can be used to fulfill the patient access requirements of S1 Meaningful Use. It also can be set up to communicate with registries. Of the 10-15 small vendor products I reviewed, this was the only product that came close to being patient-centered.

There appear to be very few applications that are truly patient-centered, or provide data and functionality designed from and in support of the patient-user perspective. This may explain why use of social media in healthcare is so hot right now.

Social Media

Once again, many large vendors and most EMR vendors were marketing their support for and /or provision of social media functions. Each had an offering and a

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strategy for social media that included some combination of captive chat and canned educational materials. For the EMR vendors, this was primarily the ability to chat with the provider's office. For some, like analytics vendor Microstrategy, it was the ability to analyze media from social media interactions.

However, I did not come across any vendors that appeared to have a robust product offering or a real understanding of how social media could be used effectively in healthcare. A key challenge for vendors – and providers - is that this ship may well already have sailed in the form of the public social media networks such as Twitter, YouTube, and Facebook. A recent PWC survey ("Top Health Industry issues of 2012: Connecting in Uncertainty" PwC, November 2011) found that one-third of U.S. consumers in total, and just over one half of those under 35 years of age, used public social media for healthcare purposes, primarily to get advice, or to exchange information on providers or care procedures. Another way to look at this is 40% of U.S. consumers used one of four public social media sites: (Facebook (18%), YouTube (12%), Google+ (8%), and Twitter (6%)), while another 4% used specialized public sites such as WebMD or PatientsLikeMe. The large healthcare vendors and provider organizations now have to find ways of developing relevant, cost-effective alternatives, or integrating with the activity that is already taking place, either by allowing the use of public media as part of their function and /or by adapting and using it as part of their offering, or by creating value-add functionality that expands the capability and utility of publicly available products. The bottom line should be more and better transparency in provider/patient communication, patient/patient communication, availability of search, and availability of educational material to address healthcare needs. Stage 2 Meaningful Use certainly appears to emphasize provider/patient interconnectivity and social media should be a primary way to achieve this.

State of the Art in HIE

HIE is a (complex) solution looking for a problem. This is why sustainability is so hard. From both a technical and a business standpoint, the current models are not aligned with actual data sharing needs. Most actual sharing is required between emergency departments of local hospitals or between community health centers and local emergency departments or specialty and ancillary providers. Actual interregional data sharing is rarely required; the corollary is that architecture that connects networks of networks is overkill for local data sharing. These issues, combined with the political and socio-cultural impediments to (even local) data exchange, along with the emphasis on direct style interconnection in the Stage 2 Meaningful Use criteria will, in my opinion, make large-scale or inter-regional HIE increasingly less possible and potentially, less relevant over time. However, the need for aggregate data across localities and communities for research and analysis begs a solution.

Current EMR Including Data Analysis, Visualization & Provision of Function for Transitions & Care Coordination

Analysis & Visualization

I spoke with a number of EMR vendors, and each one- AllScripts, AthenaHealth, Epic, NextGen, eCW, GE, Greenway, PracticeFusion, OpenEMR and others - had a plan for improved analysis and data visualization. Most of these were described as dashboards that allowed some configuration for what was displayed and how it might be combined or analyzed. Most of the 'analysis' was Excel-style graphing for single, or in some cases multiple, discrete valued variables such as Hb1ac or blood pressure. In some cases, the dashboard was combined with alert capabilities. In no case did I see an integrated analysis and care management system – that is, all of the applications were summaries of existing EMR data formatted for a dashboard-like display. The analysis, in all cases, was limited to summary plots.

There was one interesting development here: In December 2011, Microsoft & GE Healthcare announced their intention to form a joint venture to produce a 'game-changing' healthcare app. That joint venture was announced by the parties during the HIMSS meeting, with the formation of Caradigm. The joint venture will have an executive team and Board separate from either existing company and will take technology contributions from both companies. Microsoft is contributing Amalga (provider data summary), Vergence (SSO & context management) & expreSSO (SSO), while GE is contributing eHealth (HIE) & Qualibria (knowledge & analysis environment developed in conjunction with InterMountain Healthcare & the Mayo Clinic).

eHealth is perhaps best known for being selected by Geisinger Health System as the infrastructure for KeyHIE, a healthcare exchange in central and northern Pennsylvania comprising seven hospitals and other healthcare organizations, with a combined patient population of about 3 million. eHealth is a relatively robust, enterprise integration type HIE infrastructure. Qualibria is described by GE as a clinical knowledge solution that aggregates and displays data from disparate sources (multiple EHRs, registries, labs, medication history etc.) and applies analytics to specified data sets, displaying the results of the analytics along with the data and providing alerts based on clinical observations and analysis. The app is displayed as a complex dashboard or spreadsheet with embedded analytic results and alerts.

The first iteration of Caradigm will use Amalga as the infrastructure and Qualibria as the primary application, while it is intended that subsequent versions will use Amalga on top of eHealth and use Vergence to provide SSO & context-based security/privacy for the Qualibria application. I was impressed by the demo, which shows how the application combines clinical data from multiple sources with analysis and decision support recommendations. Given the varied technical and functional history of the products contributed by the vendors, this remains one to watch.

Transitions and Care Coordination

Neither Caradigm nor any of the EMR-based solutions I looked at provide reasonable support for care coordination or care transition. The EMR vendors appear to believe that having a single provider signed into an EMR somehow provides support for a care team, and coordinates the information needed to facilitate transition. Transition is a process, not a set of information, and applications that facilitate transition need to address that process in the context of both the patient/caregiver & the care team, not individual

providers. This is especially important as health centers move further along toward team-based care and patient centered medical homes.

Part of transition, as well as an independent process in its own right, is medication reconciliation. The EMR vendor reps I spoke with demonstrated the ability to display multiple medication lists, often from different sources. Of course, there are companies that focus, or focus in part, directly on reconciliation, including PatientKeeper, Mediware & Iatric. PatientKeeper provides an aggregated list of medications (along with a medication history) synthesized from RxHub, SureScripts & DrFirst (its own portal). Iatric, claims to be designed for use at transition. It provided a modifiable medication history/list and then generated a discharge medication list along with prescription instructions a part of a discharge summary. These were as good as any of the products I saw. However, I did not see any product, even the complete EMRs, that provide all of the data necessary to support the transition process. Such a product needs to include not only patient profiles and care summaries with recommendations for future care, but also medication reconciliation, a mechanism for the acceptance of responsibility for the patient and a way of certifying the closure of the transition.

Summary

Apart from all of the justifiable attention focused on the status of healthcare reform, there are currently three large-scale forces influencing the development and use of HIT: 1) Meaningful Use Stage 2 (announced at the HIMSS conference), 2) patient-centered care including Patient-Centered Medical Home and a general emphasis on care continuity & transitions,; and 3) the use of social media in healthcare. All three are interrelated, and each emphasizes connectivity as well as new and deeper uses of medical information, including evidence-based decision making, predictive modeling, and comparative effectiveness. Much of what was displayed and promoted by the vendors fell into these categories. The good news was that most vendors, government agencies, and healthcare delivery organizations . are focused on these forces, the bad news was that the vendors were most typically responding with "more of the same" of their products and services. Few were taking novel or, to my mind, highly productive approaches to addressing these forces. In particular, the large EMR vendors had a lot of marketing material about patient-centered capabilities, clinical decision-making and social media functions, but few to none of them actually showed any real capability in these areas. Some small (specialized) vendors did much better than the large EMR vendors, especially in patient-centered areas. All of the EMR vendors will eventually meet MU Stage 2 criteria, but meaningful use is more than just providing function to meet the criteria.

I believe that several areas will need to be addressed, and will be addressed in the next few years in order to make HIT more effective and efficient. First is the simplification of both data collection and the connectivity necessary to provide data sharing. .. Connectivity today, especially as it related to EMT and integration, is way too complicated) to be used effectively at the point of care. Second is the improvement of data analysis and visualization. Almost all vendors have some capabilities here, but for

the most part they are too complex to be immediately useful in the clinical decision-making process (Caradigm may be an exception, depending on how they develop). Finally, social media is a critical dimension of healthcare as we move forward. A near-majority of people in this country already are using public social media to obtain and share healthcare information. HIT vendors must figure out how to effectively integrate what people are already doing into their social media strategies. . HIMSS next year is in New Orleans, and I'm looking forward to some beignets and coffee and seeing if progress is made in any of these areas.

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