Electronic Health Record EHR realities

Joe-Max Wakim

Assistant Director for Medical Applications-Computing &Networking Services-Medical Center-AUBMC.

There are three places where healthcare is typically provided. At a hospital, patients are admitted for planned or emergency medical treatment. In a family medicine or specialty clinic, patients are treated by an individual or a group of clinicians. At home, patients are taken care of by nurses or social workers. In the first two settings, assessments, clinical notes and test results are usually gathered on paper and stored in distributed filing rooms. Accessing these documents can be tedious and time consuming. Since the patient record is fragmented, patients quickly realize that they have to keep a copy of their own records in case they ever need to change doctors. Access to these documents can be crucial for effectively following-up a patient's treatments. Moreover, these documents are often illegible when hand written.

IT has facilitated processes and functions for many years in industry, commercial and financial sectors. Surprisingly it has also been used in healthcare for over three decades, so why isn't the patient record electronic yet? The primary purpose for its use in healthcare was to collect financial information in order to charge for services rendered. In the last 20 years, many international companies have built solutions to address the intricate medical requirements of healthcare using proprietary standards. This meant that once a hospital adopted a solution, they were locked into using that solution almost indefinitely because migrating the data into a new system would be very costly. These solutions were also very expensive to implement and manage so such investments were only made by the few who could afford them. Other healthcare institutions opted to develop their own in-house solutions to remain in control of their data.

In the United States and Europe, billions of US Dollars and Euros are being spent on healthcare information technology (HIT), this includes computers, software, connectivity and telemedicine solutions for remote assistance. Hospitals and private practices are mostly being encouraged to adopt EHRs because of their potential benefits. In reality, the use of EHRs in the US is currently very low. Less that 5% of hospitals have a comprehensive electronic record solution and less than 10% have a partial solution.

Looking into the future, it's safe to assume the following:

1. HIT will develop at a faster rate than ever before in the coming 10 years. This is due to the increased interest and investments being made. Incentives are being given to clinicians that adopt EHR solutions in hospitals or their private clinic practices.
2. The new generation of patients is more health conscious and computer literate than ever before, making online transaction is second nature to them. Patients research diseases and possible treatments before visiting their physicians. Hence, physicians have to stay up-to-date to keep up with the questions raised by their patients and the advances in medical care. In order to do that, they need to stay updated and connected to valuable Internet resources.
3. The future EHR will have to be more portable. Personal Health Record (PHR) will become more prevalent. Patients are going to want to access their records wherever they are. Already software giants Microsoft and Google have built personal health portals for those who are interested in maintaining their own records. Users can keep their information online and share parts of it with whomever they wish. Physicians can also access their patients' records if authorized for the continuity of care. The use of mobile devises to access medical data will also increase significantly.
4. Legislation changes will have to be adopted to protect healthcare information security and confidentiality. New laws will have to be introduced in order to legalize the use of digital signatures for insistence. The banking sector has benefitted from similar laws for years in many countries.
5. True inter-operable exchange of health information between organizations may not become routine for at least another five years. Institutions and companies are encouraged to use existing standards as well as new ones being established in order to make information more exchangeable. This is very challenging at the moment because of the complex data sets used to collect healthcare data. Meanwhile every institution and solution vendor will keep using their own standard and try to force it on others.

What's available now? Existing electronic health record solutions provide access to administrative and clinical information that is stored on one or multiple system. Every patient file is given a unique number and all documents related to patients' visits are grouped virtually. When used

efficiently, clinicians can access patient history, clinical assessments, problems, progress notes, medications, vital signs, allergies, laboratory results, cardiology reports, radiology reports and more wherever and whenever they need to. Additionally EHRs help streamline medical workflows, configured decision support tools can be used to give clinicians assess to up-to-date evidence based protocols, alerts can also be configured to pop up if there are potential risks when orders are made.

If adoption of EHRs promises to unify the distributed health information and transform medical practice by making it possible to exchange meaningful information, why is it taking so long to be adopted? Realistically speaking, implementing EHRs is very challenging and costly. It requires a multidisciplinary approach and resources that few institutions have been able to commit. Millions of US dollars have been spent on solutions that have failed due to lack of commitment and foresight. Even though the benefits are clear in everyone's mind, adopting an EHR has barriers and challenges associated with it:

a. Financial, EHRs tend to be costly, if there is no clear return on investment it is hard for institutions and private practices to absorb the initial and subsequent maintenance cost.
b. Technical, the challenges lie in the logistical approach of the implementation, maintenance and updates. Some solutions are complex due to the way they evolved over time. It may be difficult to tightly integrate them with existing applications.
c. Hardware, inversing in the network infrastructure and identifying the right number of terminals needed and their locations is paramount. Without an adequate number of fixed and mobile terminals medical workflows can be impacted.
d. Usability, because of their complexity, EHRs tend to require many months of hands on training. The less usable a system is, the less likely it will gain the support of the clinicians and support staff impacting productivity hence the less likely to succeed. This characteristic is often underestimated.
e. Legal, if digital signatures for instance are not authorized, for medico-legal reasons, documents have to be printed and signed creating a layer of duplication and added cost.
f. Change, clinicians need to be involved in the change process. They are the key players and if they do not adopt the system being implemented it will fail. HR support is also crucial, without the skilled support staff, valuable time can be wasted and it is likely that the quality of the data collected will be compromised making it less valuable to clinicians when they need it. A significant amount of time and effort is needed to properly implement and benefit from the patient safety features such as decision support or safety alerts.
g. Quality, medical records departments have to learn new skills in order to audit the process of collecting data and verify the completed charts electronically. If this process is not controlled, charts may be filed incorrectly and serious errors could be made.

Moving forward and despite all the challenges, all healthcare centers will be inclined to adopt EHR solutions in the next few years so what are the issues that should be taken into consideration?

1. Building the right team;

Technical challenges can usually be overcome however changing habits can be more difficult. Although, it may be easier to start from a clean slate, it is not always possible. i.e. When a new hospital is constructed, process and procedures are designed with HIT in mind and when a solution is implemented everyone adopt it from day one. In existing institutions where processes and procedures are already established and designed based on paper workflows it is more challenging. Either way a multidisciplinary team is needed to plan for a sustainable EHR solution and gain staff's commitment and support. The team should include representation from all potential users and they should all work together on defining realistic objectives and expectations.

It is no use planning to land on the moon if there are no plans to form a team of astronauts to fly the probe.

Within a hospital, the team should include administration, medical records, doctors, nurses, administrative staff from the laboratory and radiology departments, finance, servicing departments and IT. For national initiatives, the team can include representatives from the ministry of health, the national social security fund, insurance companies, pharmaceutical industry, order of hospitals, order of physicians and nurses, HIT associations and more.

An EHR solution requires detailed planning by a multidisciplinary team of professionals.

Many have failed thinking that change will follow the implementation. In reality the change has to take place before and during the implementation.

2. Planning phase;

The EHR functions needed should be clearly determined by the team for each set of end user requirements e.g.:

- Improve prescription processing; increase efficiency and patient safety through computerized order entry to reduce medication and transcription errors.
- Make information accessible securely at the point of care and remotely.
- Save money by improving workflow, saving time lost due to duplicative efforts such as having to reenter patient information.
- Improve documentation.
- Reduce medication errors.
- Comply with international standards such as the Joint Commission International (JCI) for hospital accreditation and Health Insurance Portability and Accountability Act (HIPAA).

3. Adopting a process;

Selecting and implementing a foreign solution may not always be possible because of the differences in the required standards or legislative issues therefore a process should be adopted to avoid being side tracked by the many features an EHR can offer. Values and measures also need to be defined in order to assess the success of the implementation.

4. Technology requirements;

When selecting a mission critical application such as an EHR, it is important to consider the desired availability of the solution. It would be nice to have 99.999% up-time but requiring five 9s can prove to be very costly. Every institution needs to assess the cost of their down time and decide how many 9s they can afford. High availability, disaster recovery and simple backup scenarios should be evaluated before a selection can be made. Other technical issues that also need to be taken into consideration include:

- Integration with existing Hospital Information System (HIS) administrative (e.g. ADT) and medical applications (e.g. LIS, RIS). This could be done via directly accessing database tables or by using messaging standards such as HL7.
- Network bandwidth requirements.
- Data storage requirements.
- Data format, since there is no international standard for storing EHR records yet, it is important to understand if it is possible to access the data for migration into another system in the future.
- Remote secure access by referring physicians and patients. Access to medical information should be restricted to patients, healthcare providers and third parties if it is deemed essential for the care of the patient. All parities should adopt the strict measures to make sure that the information in their possession is kept confidential.
- Application deployment requirements.
- Training requirements.
- Reporting requirements.
- Security requirements.
- Data interchange requirements. If data is to be exchanged with third parties, interfaces will need to be created. e.g. MOH, NSSF, insurance companies.
- System administration resources needed to maintain the application in optimal working condition.

5. Funding and Sustainability;

Return On Investments (ROI) on such projects cannot always be calculated. Initial investments are needed but more importantly there has to be a commitment to financing the project over its life cycle. In the US and Europe, there are government incentives to help finance HIT initiatives. Other form of financing may have to be developed in other regions.

Conclusion

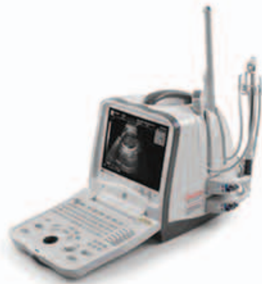
Although the levels of use of electronic health records are still low, it is suggested that adoption rate will increase quickly. Stakeholders and policymakers need to work together to face the challenges in order to improve patient care. Clearly this will depend on the goals they defined and health information technology strategy used. Financial resources, clinicians' input, training of support staff as well as interoperability requirements will be necessary to successfully achieve the transition from paper to electronic records.

References:

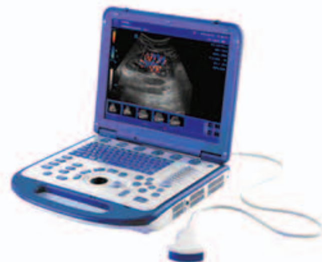
Are Electronic Medical Records The Future?
Wyatt Andrew
Published online May 19, 2009
http://www.cbsnews.com/stories/2009/05/19/eveningnews/main5026117.shtml
Stimulating the Adoption of Health Information Technology
David Blumenthal, M.D., M.P.P.
Published online April 9, 2009
http://content.nejm.org/cgi/content/full/NEJMp0901592
Use of Electronic Health Records in US Hospitals
Jha, Ashish K., DesRoches, Catherine M., Campbell, Eric G., Donelan, Karen, Rao, Sowmya R., Ferris, Timothy G., Shields, Alexandra, Rosenbaum, Sara, Blumenthal, David.
N Engl J Med Published online March 25, 2009.
DOI: 10.1056/NEJMsa0900592
http://content.nejm.org/cgi/content/full/NEJMsa0900592
How to Select an Electronic Health Record System that Healthcare Professionals can Use
Robert M. Schumacher, Ph.D., Jayson M. Webb, Ph.D., Korey R. Johnson, M.S.
Published online February 5, 2009
User Centric, http://www.usercentric.com/
Does Health Care Have an Electronic Future?
William J. Holstein
Published online August 18, 2009
http://www.strategy-business.com
Health Information Technology Resource Toolkit
Published online May 20, 2009
http://ehealth.kansashealthonline.org/
Health Information Technology: 2007 and 2008 State Legislation
http://www.ncsl.org/print/health/forum/HIT_Enacted.pdf
Microsoft Health Vault
www.healthvault.com
Google Health
https://www.google.com/health
Health Informatics Standards and Information Transfer: Exploring the HIM Role
Gretchen Murphy, MEd, RHIA
Mary Brandt, MBA, RHIA, CHE
http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_000024.hcsp?dDocName=bok1_000024
Accomplishing EHR/HIE: Lessons from Europe
Dr. Harald Deutsch, Fran Turisco
Published online May, 2009
http://www.federalnewsradio.com/pdfs/CSC_Accomplishing_EHR_HIE_eHealth_Lessons_from_Europe.pdf
Certification Commission for Health Information Technology
http://www.cchit.org/
Health Insurance Portability and Accountability Act (HIPAA)
http://www.hipaa.org/
Health Level Seven (HL7)
http://www.hl7.org/about/index.cfm

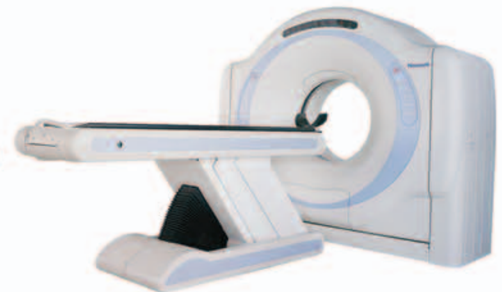
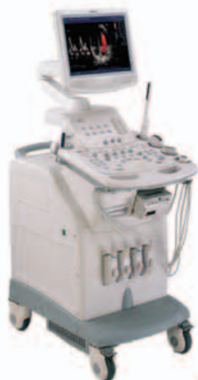
MEDCONSUL

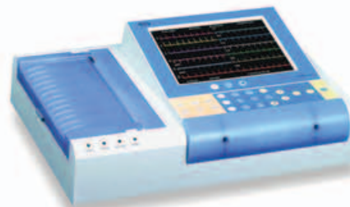
MIDDLE EAST s.a.r.l.

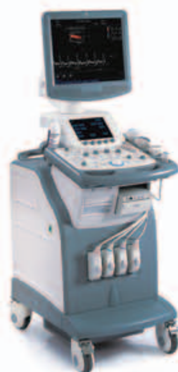


Neusoft







Badaro, Horch Kfoury, 2058-8504, Hauchar bldg

P.O.Box 116-5295 Museum, Beirut 1106-2030 LEBANON

(961) 1 387746

(961) 1 384141

info@medconsul.com

www.medconsul.com