Electronic Medical Record Adoption In Hospitals The Lebanese Experience

Youssef Bassim, MD, FACS, MSc Ortho, MHS
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Dr. Youssef Bassim

Consultant to University of Balamand President for Healthcare and Hospital Affairs, Lebanon

Email: yrbassim@hotmail.com

Dr. Bassim is an orthopedic surgeon and HIT consultant with 20 years of experience in clinical practice and medical administration and lately was CMO in one of the prominent hospitals in Kuwait. He is a fellow of the American College of Surgeons and is a Certified Consultant Orthopedic Surgeon by the Saudi Commission for Health Special- ties. He chaired the Management of Information (MOI) chapters for the JCl and CBAHI accreditation systems in his previous work place and became Chief Data and Information Officer for one of the biggest university hospitals in Lebanon. He was awarded by Dr. Gro Harlem Bruntland, WHO Director General, the Tobacco Free World Award for Outstanding Contributions to Public Health. He was appointed as Project Manager by HIMSS (Healthcare Information Management & Systems Society) on Electronic Medical Records Adoption Model (EMRAM) project in Lebanese hospitals and currently, as healthcare consultant, he is supervising the construction of two big healthcare facilities and is an HIT consultant for one of the largest pharmaceutical industries in the region. Apart from his educational activities, he is teaching Business Intelligence in Healthcare for graduate students. Previously, he was part of the HIT team at the Lebanese Ministry of Public Health and was involved in coordinating with all healthcare stakeholders in Lebanon to create the blueprints and roadmap for the e-health project on a national level. Along the same lines, he put a plan to transform the MOH from a semi manual organization all the way to a real e-facility.

Healthcare globally is shifting towards value-based delivery models with a strong focus on enhancing the role of technology:



TO INCREASE THE QUALITY OF CARE



TO OPTIMIZE THE USE OF DATA TO MANAGE POPULATION HEALTH



TO DECREASE OVERALL
HEALTH CARE
EXPENDITURES

EHR is not an IT solution / project

EHR is a clinical application

End-users







Physicians

Nurses

Patients

Paramedical team

IT team(s)



BENEFITS OF EHR (US top decision makers)



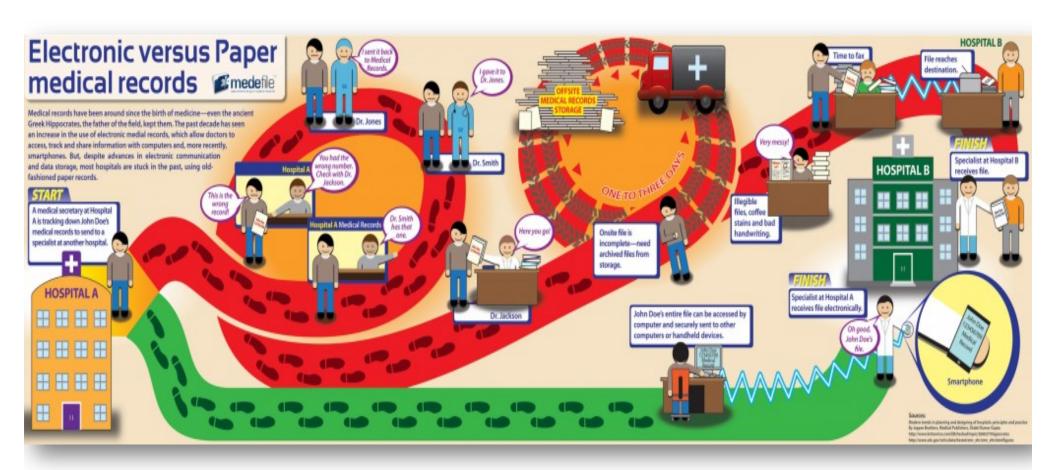
In his 2004 State of the Union address, President **George W. Bush** stated, "By computerizing health records, we can avoid dangerous medical mistakes, reduce costs, and improve care."



Hillary Clinton, announced a proposal to introduce legislation to encourage development of a national health information infrastructure, including the adoption of EHRs.



In February 2009, President Obama stated in his speech to Congress: "Our recovery plan will invest in electronic health records and new technology that will reduce errors, bring down costs, ensure privacy, and save lives,"



Benefits to Patients



An increase in patient safety through a reduction in medical and clinical adverse events



Improved communications between the patient and the caregiver



Reduction in length of stay due to improved operational efficiency



Rapid intervention during critical periods of care facilitated by real time alerts and reminders



Improved medications management



More Access to electronic media & social information

Benefits to Healthcare Professionals

U

A work
environment
attractive to care
providers
Enhanced ability for
clinicians to
coordinate care
because of
simultaneous
access to the
electronic record



access to the electronic record Decreased number of avoidable clinical incidents

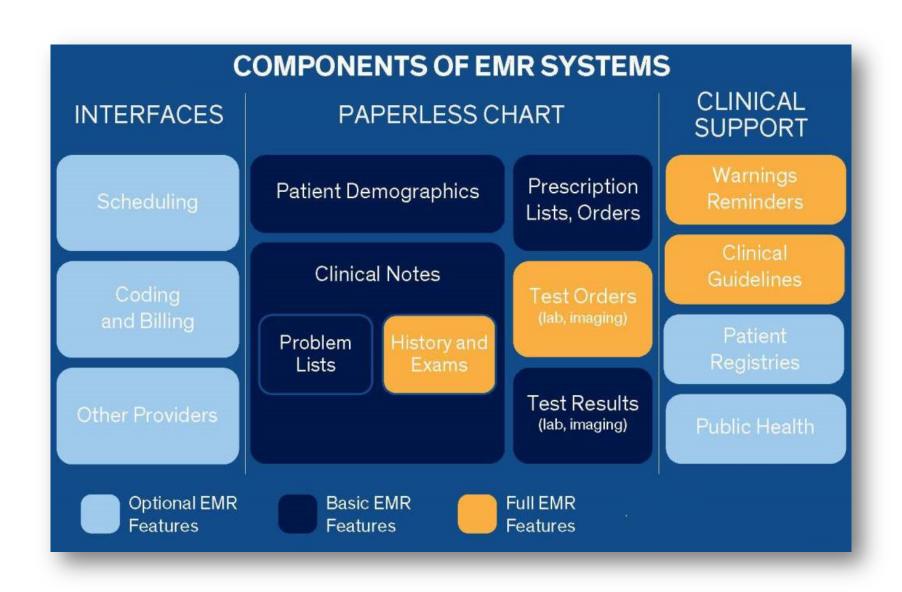


Reduction in transcription, legibility and omission errors



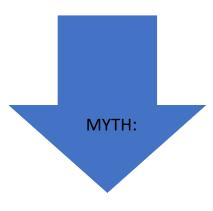
Reduced time locating/collecting patient information Reduction in administrative tasks, clinicians will have more time to communicate with patients about their care and needs





EHR Vs. EMR

Scheduling & billing integration	V	V
ePrescribing	V	V
Lab ordering and review	V	V
Data collection	V	V
Internal reporting and tracking	V	V
Patient Documentation Participation	V	
Patient Access	V	
Data can be electronically shared outside practice	V	
Digital patient communication	V	
External tracking and reporting	V	
Secure data access off premises	V	
Health information exchange compatibility	V	



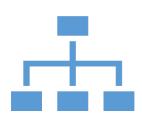
If we could only find the 'perfect' EMR, everything would fall into place

EMRs are complex systems requiring multiple services to go right:

REALITY:

- EMR is a 'mission critical' application required every 10 min in primary care, unlike billing which has a higher tolerance for failure
- Training is essential / difficulty in finding training places
- Hardware configuration and installation
- Software and Hardware support
- Implementation planning --Practice Management consulting and change management
- A computer lab needed to test new software and hardware --before using it in a production setting in a busy clinic
- EMR is like Enterprise Resource Planning (ERP) software

Physicians' Perspective







The physician approach to EMR selection is a telling clue to our approach to EMRs

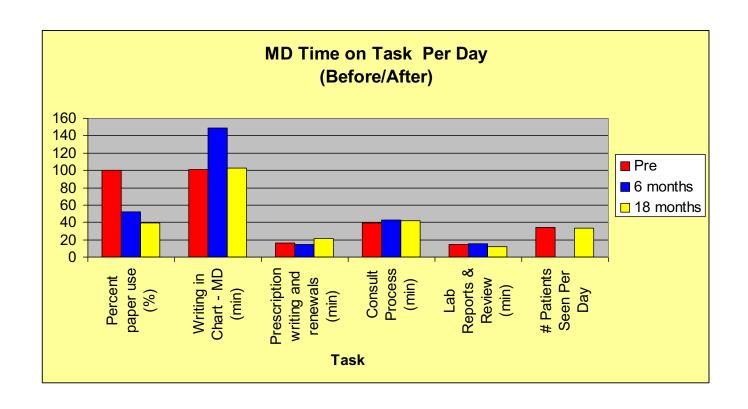
We judge the EMR by its interface and by its features

Quite different from IT or administrator approach

Physician expectations are much, much greater than the technology can deliver today We expect that technology will:

- Improve our productivity and streamline our workflow
- Support us in good clinical decisionmaking (I.e., have medical 'common sense')
- Make information more accessible
- Save us money

Workflow Change



ORGANIZATION

Paper-based records dispersed across different medical facilities are often incomplete, contributing to unnecessary, repeat testing and treatment. Dispersed records are also inefficient because new providers have to retrieve a patient's charts and notes from multiple offices.

EHR reduces the redundancies across healthcare providers and allows the assembly of a complete record of patient history in one easily accessible file. A complete patient record in digital format makes it easier to generate longitudinal reports that can improve extended care.

ng information is faster because
he retrieval and faxing process and
Paper record systemtronically. EHR provides access to
office staff has toormation about a patient, so other
to fill in partial records.

EACH PATIENT VISIT

requires approximately 10-13



So each physician accumulates around 975 new pages of paper work each week.

1000s of tons of paper are consumed by the healthcare industry each year, causing storage issues and environmental harm

vides 24/7 access to ab results from any location Using mobile applications, ss records on-the-go, ts or while on rounds. AFTER 5 years of using EHR, practices reported an operating margin 10.1% higher than practices in their first year of EHR use.

APPROXIMATELY 4.5 MILLION ambulatory visits related to adverse drug events occur annually in the U.S.

ABOUT 400,000 of these instances result in hospitalization.

These adverse drug events could be avoided by using EHR to track patient medication history and to flag patients prescribed to several medications

Health Benefits

BARRIERS

The lack of EHR implementation until recent years may have been due to:

- Lack of standards
- Unknown costs and return on investment
- Difficulties operating EHR systems
- Significant changes in clinical/clerical processes
- Lack of trust and safety

Financial Barriers

Cost

Business case

High initial physician time, costs

Lack of incentives

Organizational Change Barriers

Fear of slower
Workflow and lower
productivity

Migration from paper

Problems in
Customizing and
reorganizing templates
& workflow

Staff training

Technological Barriers

Inadequate data Information **Lack of standards Fragmentation** infrastructure exchange Office & providers Inadequate Commercial **Technical** attitudes and technical support products competency culture **Lack of Leadership**

Other Barriers

Consumer Barriers

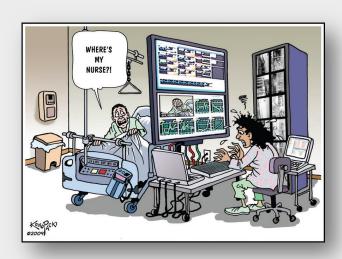
- Consumer acceptance
- Privacy

Social Barriers

- Data Security and privacy
- Legal
- Health care settings
- Stakeholder support

Facilitators for EHR Implementation

- Financial
- Technical
- Psychological
- Social
- Change Management



Financial Facilitators

Provide documentation on return on investment

Show profitable examples from other EMR implementations

Provide financial compensation

Technical Facilitators

Educate physicians and support ongoing training.

Adapt the system to existing practices

Implement EMR on a module-by-module basis

Link EMR with existing systems

Promote and communicate reliability and availability of the system

Acquire third party for support during implementation

Timeline

Provide support during implementation phase to convert records and assist

Provide training sessions to familiarize users

Implement a user friendly help function and help desk

Redesign workflow to achieve a time gain

Psychological Facilitators

Discuss usefulness of the EMR

Include trial period

Adapt system to current medical practice

Demonstrate ease of use

Start with voluntary use

Let fellow physicians demonstrate the system

Social Facilitators

Discuss advantages and disadvantages for doctors and patients

Information and support from physicians who are already users.

Ensure support, leadership, and communication from management

Legal Facilitators

Develop
requirements on
safety & security in
cooperation with
physicians & patients

Ensure EMR system meets these requirements before implementation.

Communicate on safety and security of issues

Change management

Select a project champion; preferably an experienced physician

Let physicians (or representatives) participate during the implementation process

Communicate the advantages for physicians and use incentives

Ensure support, leadership, and communication from management Return on Investment (ROI)

- Full cost of an EHR
- Measurable Financial ROI
- ROI Calculator



The full cost of an EHR includes:

- the software purchase price
- additional computer hardware
- implementation including the training of staff
- customization of the system
- ongoing technical support
- system maintenance
- future program upgrades.



Measurable financial ROI includes:

- increase in income from more accurate coding
- greater time efficiency as a result of rapid chart documentation
- expanded patient load because of this efficiency
- reduced office supply costs such as paper and printing supplies.

EMR ROI / EHR ROI Calculator

 The following Calculator can help you estimate how much cost you can expect to save by implementing an EMR or an EHR system

http://www.4medapproved.com/research_tool_ROlcalc.php





When health-care providers complete their documentation on an EHR, the need for a transcriptionist is often eliminated. This efficiency has generated an estimated savings of \$300 to \$1,000 or more per month per physician.



Often, undercoding occurs by medical providers. However, with an EHR, more accurate level-of-care coding is based on documentation from the review of systems and examination within the office visit assessment.



EHRs help recover lost revenue for the practice. Malpractice insurance carriers are considering or currently giving discounts to their insured when an EHR is utilized.

Return on Investment (ROI)

- \$ Costs are quite high --\$800-1200/month/physician
- Financing EMR systems is a major challenge to sustainability
- New evidence shows great benefit for insurers and payors --\$86,000 per physician over 3 years
- Other jurisdictions (Australia, UK, Europe) have had great success with EMR when payors subsidize the costs
- High rates of EMR failures increases the perceived cost –failures are as high as 75-80%

Issue: Cost-Value-Price



Healthcare Information Management Systems Society (HIMSS)

An organization exclusively focused on providing global leadership for the optimal use of healthcare information technology (IT) and management systems for the betterment of healthcare.

Electronic Medical Record Adoption Model, Healthcare Information Management Systems Society (HIMSS), www.himss.org

HIMSS Analytics

"The Electronic Medical Record Adoption Model EMRAM and A-EMRAM (Ambulatory EMRAM) benchmarks ensure hospitals are effectively utilizing strategic information technology investments according to a proven prescriptive approach.

The EMRAM model helps hospitals and clinical / ambulatory practices track and benchmark their EMR adoption and utilization".





EMR Adoption Model HIMSS Analytics

- HIMSS Analytics created the EMR Adoption Model™
 - Hospital based
 - -Stages 0 7
- Developed a methodology and algorithms to score hospitals surveyed relative to their ITstatus
- Provides peer comparisons reports





EMR Adoption Model (EMRAM) - 2005

Stage 7	Complete EMR; CCD transactions to share data; Data warehousing; Data continuity with ED, ambulatory, OP								
Stage 6	Physician documentation (structured templates), full CDSS (variance & compliance), full R-PACS								
Stage 5	Closed loop medication administration								
Stage 4	CPOE, Clinical Decision Support (clinical protocols)								
Stage 3	Nursing/clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology								
Stage 2	CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging; HIE capable								
Stage 1	Ancillaries – Lab, Rad, Pharmacy – All Installed								
Stage 0	All Three Ancillaries Not Installed								



Times have changed

It was time for more significant changes

Needed to better reflect current state of an advanced EMR environment

All stages were affected

Time to raise the bar globally

Focus more on functions accomplished and less on technology itself

How is technology used to improve care quality and patient safety?



EMR Adoption Model (EMRAM) - 2018

Focus more on functions accomplished and less on technology itself

How is technology used to improve care quality and patient safety?

STAGE	Himss Analytics EMRAM EMR Adoption Model Cumulative Capabilities					
7	Complete EMR; External HIE; Data Analytics, Governance, Disaster Recovery, Privacy and Security					
6	Technology Enabled Medication, Blood Products, and Human Milk Administration; Risk Reporting; Full CDS					
5	Physician documentation using structured templates; Intrusion/Device Protection					
4	CPOE with CDS; Nursing and Allied Health Documentation; Basic Business Continuity					
3	Nursing and Allied Health Documentation; eMAR; Role-Based Security					
2	CDR; Internal Interoperability; Basic Security					
1	Ancillaries - Laboratory, Pharmacy, and Radiology/Cardiology information systems; PACS; Digital non-DICOM image management					
0	All three ancillaries not installed					

Himss Analytics

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Learn more about EMRAM and get your score

We drive the health IT market in the direction it needs to go











AMAM

Angluting Meturity Adoption Me



CCMMContinuity of Care Maturity Mode



DIAM
Digital Imaging Adoption Model

Improved
Patient Care
and Health IT
Insights

Himss Analytics

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Middle East EMR Adoption Model ^{sм}				
Stage	Cumulative Capabilities			
Stage 7	Complete EMR; CCD transactions to share data; Data warehousing; Data continuity with ED, ambulatory, OP			
Stage 6	Physician documentation (structured templates), full CDSS (variance & compliance), closed loop medication admin			
Stage 5	Full R-PACS			
Stage 4	CPOE, Clinical Decision Support (clinical protocols)			
Stage 3	Nursing / clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology			
Stage 2	CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging; HIE capable			
Stage 1	Ancillaries - Lab, Rad, Pharmacy - All Installed			
Stage 0	All Three Ancillaries Not Installed			

Prima	Primary Care EMR Adoption Model ^{sм}				
Stage	Cumulative Capabilities				
Stage 7	Robust Clinical & Business Intelligence (C&BI), robust Health Information Exchange (HIE) with community based EHR				
Stage 6	Advanced CDS, proactive care management, population health management				
Stage 5	Patient Engagement				
Stage 4	CPOE, physician documentation with CDS, some discrete data exchange				
Stage 3	Nursing documentation with CDS, e-prescribing				
Stage 2	CDR, order entry, access to results from outside facilities				
Stage 1	Access to clinical information, unstructured data, multiple data sources				
Stage 0	Paper chart based				

European EMR Adoption Model ^{sм}								
Stage	age Cumulative Capabilities							
Stage 7	Complete EMR; CCD transactions to share data; Data warehousing feeding outcomes reports, quality assurance, and business intelligence; Data continuity with ED, ambulatory, OP.							
Stage 6	Physician documentation interaction with full CDSS (structured templates related to clinical protocols trigger variance & compliance alerts) and Closed loop medication administration.							
Stage 5	Full complement of PACS displaces all film-based images.							
Stage 4	CPOE in at least one clinical service area and/or for medication (i.e. e-Prescribing); may have Clinical Decision Support based on clinical protocols.							
Stage 3	Nursing/clinical documentation (flow sheets); may have Clinical Decision Support for error checking during order entry and/or PACS available outside Radiology.							
Stage 2	Clinical Data Repository (CDR) / Electronic Patient Record; may have Controlled Medical Vocabulary, Clinical Decision Support (CDS) for rudimentary conflict checking, Document Imaging and health information exchange (HIE) capability.							
Stage 1	Ancillaries - Lab, Radiology, Pharmacy - All Installed OR processing LIS, RIS, PHIS data output online from external service providers.							
Stage 0	All Three Ancillaries (LIS, RIS, PHIS) Not Installed OR Not processing Lab, Radiology, Pharmacy data output online from external service providers.							

Janvier 2012

▶ Programme MHS(7) Master Management de l'Hôpital et de la Santé AMES - Analyse Management des Etablissements de Santé





Master Management de l'Hôpital et de la Santé (07) Promotion 2012

MASTER PROFESSIONNEL M2 Analyse et Management des Etablissements de Santé AMES

A National Survey on Electronic Medical Record (EMR) Adoption in Lebanese Hospitals; Barriers and proposed solutions for implementation.

REPUBLIC OF LEBANON MINISTRY OF PUBLIC HEALTH

THE DIRECTOR GENERAL

7430/1/12 26/04/2012

I have reviewed your proposal concerning the Electronic Medical Adoption survey in Lebanon and I am pleased to inform you that the Ministry Health (MOPH) has found your survey to be very relevant and aligned with the objectives and plans for reforms.

As you may know, Lebanon is becoming one of the best destin healthcare in the region. The advances in medical technology and the accerprocess have pieneered in improving the quality and outcome of health delivery. processor trans-processor or improving in-query man structure or account nervery, translated in interespect investments in health technology and has agracted a los of transmiss in increased investments in nearth teamertogy and has intracted a axes of to the Lebanese healthcare imbusty. Furthermore, the visa billing systems and a postment mechanisms provided by MOPEI have motivated the hospitals to introd payment incommuna provided by about a more efficient operations. One in their systems in order to have better and more efficient operations. One ns users agreemen in server so move owner now assers without supersonnes. Other technology which is still weak in Lebanon which is related to bealth in recommungs which is some wears in Leusania white is remote to beams it technology is the adoption of electronic medical record (EMR) in the Lebanese

Thus we have decided to fully support your national survey on electron and doctors clinics. rous we next second as may support your massess survey on economic record adoption model (EMRAM) in the Lebanese hospitals which will be neoral susption mosts (Entitively) in the Lebanese apoptions without the Collaboration with the Lebanese syndicate of hospitals and the Healthcare Infl. and Management Systems Society (HIMSS), in addition we will provide you and reassignment organisms country (contracts), in addition, any one process for necessary backup from the ministry to ensure you have complete cooperation. Lebanese Public hospitals.

The MOPH believes it is a good opportunity for the Lebanese healthca to put Lebanon on the interestional map regarding EMR adoption. This could to pur Lorenton un use mermatunun map reganting times meadont. In accessive incensive for improvement for all hospitals in medical technology and w international varsions to approach the Lebanese healthcare industry. In addit survey will be the first step in introducing the concept of healthcare inform survey will be the first step in increasing see concept to maintener mean encouraging all interested perties in pursuing post graduate studies in this field.

Kind regards,





Syndicate of Hospitals in Lebanon Momber of the International Marginal Folication Banker of the International Mains of Phinair Marginals



نقابسة المستشفيات في لبستان حضو الإنجاد الدولي المستشفيات حضو الإنجاد الدولي الإستشفاء المداس

صائر رقع : ۲،۹۲/٤٩ بيروت في : ٢٦/٤/٢٦ ٢

هضرة العدير المعترم

نحية وبعدا

في ضوء الطلب المقدم الي مجلس النقاية من الدكتور يوسف ياسيم بشأن حاجته اللهام (Electronic Medical Record Adoption Model) وذلك لزوم البحث السذي يجرب Healthcare Information and Management Systems Society الأعداد اطروحته لنيل دبلوم در اسات عليا من المعهد العالي للاعدال،

يهمنا ان تحيطكم علما لله لا ماتع من التعاون معه والايعاز الى المعنيين لمسماعت يهمه الم يعمدون مسمد عند مديم من معدون معه ورديجار من معدون مسمد عند عند زيارته كم تعدد كم المعدود بهما عند زيارته كم تعدد كم المعدد المستدر المعدد المعدد المستدر المعدد المستدر مع تقرير بنتيجة تعليل المعدومات المستدر مع تقرير بنتيجة تعليل المعدومات المستدر مع تقرير بنتيجة تعليل المعدومات المستدر مع سبهى سريه ويسم عي سبب ويالمدار كالمربع عليه. كافة المستشفيات وبالامكان لاحقا الاطلاع عليه.

والثمين من تجاويكم .

وتقضلوا بقبول الاحتتراء .







Contact name or rounter section
Meditec, Benta Trading Building
Sin El Fil, Asie Found Chehab Dr Youssef Backim PORCE: \$5395 LEBANON

April 27, 2012

Agreement between Dr Youssel Bessim and HIMSS Analytics Europe

This letter of engagement [LOT] outlines the agreement for HBMSS Analytics Europe [HAS] to collect data for 135 acute hospitals and to deliver its Dischools Medical Record Adoption Model [DMBAM] score sking with benchmarking reports based on the respective collected data to Dr Yousef Baselin.

NAC will provide the following services free of chance under the terms and conditions of this agreement:

- The collection from \$25 acuse brogstate, for details on the data collection process see below.
- Data collection from 326 acute borgitals; for details on the data collection process use below.

 Provide the includinal trust COs with online access to their redshifts at Data Market acute and
 banchmarking reports little darket, allowing each banging to compare to and benchmark with peers in
 Europe, the U.S. or Canada. The includinal DMMAN scores and benchmarking reports are confidential
 to the according requirement.
- Europe, the U.S. or Canada. The Individual ENDAM scores and benchmarking reports are confidential to the provide organizations.

 Provide the Younger Ensainer Ensains with customized benchmarking reports for the hospitals under its responsibility than benchmark reports. The based on pears that will be determined through a series of selection criteria to be selected by by Younger Essains from a list determined through a series will then be conserved and delivered in POF format.

 Provide the Individual sort COR and Or Younger Basedow with a country insight report searching key or parket that the Individual sort COR and Or Younger Basedow with a country insight caport featuring key provide a gaze analysis based on the ENDAM (Le. key system componence roloting to achieve higher traper per hospitals); Accide in the interpretation of benchmarking i sports.
- Provide a gap analysis based on the EMEMAN (i.e. key system components relixing to achieve higher target per hospital). Assist in the interpretation of benchmarking reports.

 Organize and participate in a half-day workshop with key cask-fellows of the Youwell Baselin to present and Gaussi the outcomes in the content of they country fellings from standard statistical analyses (full electronic Country of the C benchmarking reports.

Out of scope / svalishin at a fee for service

- Data collection from other parts of the healthcare chain (i.e. primary and settiary care provided; its possible, but cannot be provided the of charge.
 A diditional consulting sendom involving further primary or secondary research, statistical enablyses and customized reporting are available at tea-for-service.

ANDRE BERGER STATES SERVICE SE



Method

- Two standard questionnaires: Hospital readiness and barriers facing hospital for EMR implementation
- EMRAM scoring model adopted by HIMSS

All sent to the IT director of each hospital in order to fill in which stage the hospital is operational.



Ĺ	E	HR A	doption: A Barrier	Analys	is Qu	estionnaire							
Hosp #	Hosp Name:			Medical Dir IT Director:				ı				-	
							Agree Disagree N/A					_)
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	Is affordability a top barr												l .
	High up-front financial co							Agree	Disagree N/A			_	
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	lack of financial support	Barriers:	Physicians are worried about slow			•	d-41					_ /	////
	lack of providing IT quar	Ë	affect productivity and financial re		pnysicians	s' workflow and does not allow for var	nations in style can adversely					_ //	
Barriers:	EHR return on investme	Ba	workflow design, system integration	on, and netw							Agree Dis	sagree N/A	
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a E	There is limited research	Change	and how to align these systems in There are concerns that IT technol			Lack of standards in content, info					1 1 =		
m		19		3, , ,		practice, decision support, securi Technical challenges include: ba				rance and system sting			
Financial	there is a lack of support	<u> </u>	Moving to a paperless system ma	v create an		Lack of consistency in the identifi							
2	Physicians report spend	na	An additional concern is having in			Edok of consistency in the identiti	Information						
<u></u>	during that initial time	음	-	Cus		There is a lack of a coordinated a							
i	Implementation timefram	zai	Complementary changes include	entering pat			Inadequate o	lata ex	change				
	there are concerns about	Organizational	reorganizing office workflow proce	esses		There is a lack of adequate elect	ronic data exchange between	EHR an	d clinical data systems such	as lab, radiology,			
	there is a lack of financia	ncia C	Staff training to use a new tool ma	ay temporari		There is a lack of IT communicat		ystems sı	uch a clinic, physician organi:	ation, hospital, health			
	Misalignment of incentiv		There are questions about the typ	es of trainin		plan or other provider organization Fragmentation							
	Lack of reimbursement a	TOTAL			::	Lack of standard EHR systems	Fragm	entatio	on				
	third party payers Public and private insure				5	there are hundreds of unique EH	R software producing a fragm	nented IT	market				
TOTA	· '				Ψ̈	"Difficulty finding an electronic me	edical record solution that is r	not fragm	ented over several vendors of	r IT platforms"			
TOTA	-				a		Inadequate tec	chnica	l support				
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					g	Time for customizing disease-spectrum Time redesigning the workflow a		cumentat	tion shortcuts to speed their t	ocumentation			
Consumer Barriers:	Consumer acceptance, t				Technological barriers:	Time reasongrining and thermien a	Commerci	al prod	ducts				
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						clinicians to do more computer in				-,			
					TOTAL								

EMR Readiness Assessment Questionnaire Hosp# Hosp Name: Medical Director: IT Director: Statement Statement Strongly Ag Communication/Perception Agree All stakeholders potentially affected by an EMR initiative have been iden **Business Goals** Clinicians have had an opportunity to ask questions regarding the EMR in There has been a defining" event in the organization or industry/market environment that has Clinicians understand the benefits of an EMR and are enthusiastic about demanded an EMR solution. Top-level executives are willing to implement incentives to modify emplo The EMR initiative is mentioned in the organization's strategic plan and is linked to achieving encourage EMR adoption. specific future organizational goals. Stakeholders have been/will be included as part of the project team from Senior management views EMR as key to meeting future organizational goals. All stakeholders understand their role in making the EMR initiative a succ There is a clear and defined set of EMR goals and measurable objectives broken down by areas of **Patient Orientation** the healthcare organization. A strong patient focus permeates every department in the organization. The CEO and executive body understand EMR and the business benefits it can bring. Business decisions are driven by patient needs. Commitment/Sponsorship A profile of the organization's optimal patient care and treatment has be The CEO and executive body understand the financial and time commitments that the initiative communicated across the organization. requires, and are willing to make these investments. There is a common and effective set of terminology used within the organization to describe the The CEO and top-level executives are committed to supporting and improving the EMR initiative to type and status of a patient. a resource level consistent with success. Methods for capturing and enhancing patient care have been identified and documented. Top-level executives and clinicians are the chief sponsors for the EMR initiative. All current patient touch-points in the organization have been identified and mapped. The IT staff is involved in quality improvement and other patient care initiatives and is willing to What the "patient satisfaction view" will look like has been mapped. collaborate with clinicians toward shared objectives. EMR design will be driven by what is important to patient care and patient satisfaction. A steering committee of top-level executives and clinicians has agreed to support and guide the Workflow and Processes project. rent workflow and processes have been identified and documented. **Data Management** The organization is p organization has identified and prioritized areas where EMR could be best applied. Top-level executives recognize the importance of integrating databases containing patient need be. s in which EMR will improve current workflow and processes have been identified. Top-level executives nce and accounting departments have clear, documented processes that clinicians and other Data ownership issues and "turf wars" have been addressed and rectified. system performance users adhere to and have mastered. It has been/will be decided and documented which data from which systems will need to integrate Most physicians des sicians actively participate in initiatives that promote leading practices and improve patient with the EMR solution. clinicians as open an ty through reduction of treatment variations. Data accuracy and integrity procedures have been addressed and rectified. Some physicians are **Technology Evaluation** Measurement responsibility for key of evaluation criteria was/will be used in the EMR vendor selection process. system to the physic The EMR initiative is/will be justified on a return on investment (ROI) basis. EMR vendor is very familiar with the organization's environment and customer interaction A pilot with established success/failure measurement criteria will be run prior to full implementation to assess rollout readiness. nician-defined user interface was/will be a primary consideration in EMR software selection. Ongoing measurement systems have been/will be developed to validate that the rollout has met need for remote access to the EMR system has been assessed. project goals. ware choices are/will be based on the applications and environment in which the hardware will Training/Support A budget is/will be in place to provide end-user training. Training for all user groups has been/will be scheduled well in advance of the final rollout. Training includes reference materials that can be used before, during, and after training.

A budget is/will be in place to provide reasonable coverage for EMR support services.

Staff is/will be in place to implement, provide support for, and maintain the new

EMR system.

52 items

The survey strategy depends on the objectives which are guided by the following research questions

01

1) What are the different interests and expectations of the managers and the health staff, and how they should be aligned in order to adopt EMR system?

02

2) What are the challenges of the managers and problems faced by the endusers while transitioning their practice from paper to PC?

03

3) What are the strategies adopted by managers to overcome barriers faced by while implementing the EMR?

Weak understanding of EMR adoption in hospitals with lack of knowledge about its benefits. Out of those 50 hospitals that were contacted, only 23 hospitals responded.





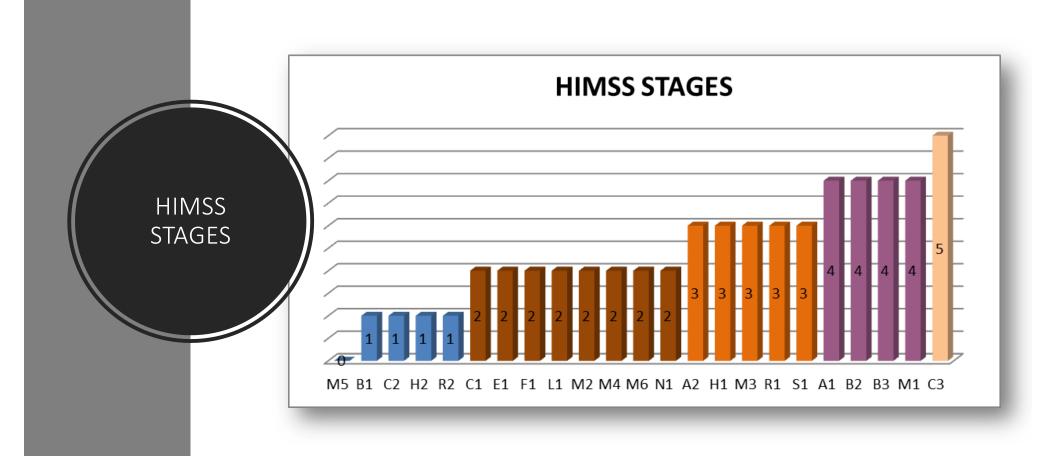
the stages status of the surveyed hospitals was linked to their bed capacity, accreditation category and academic status.

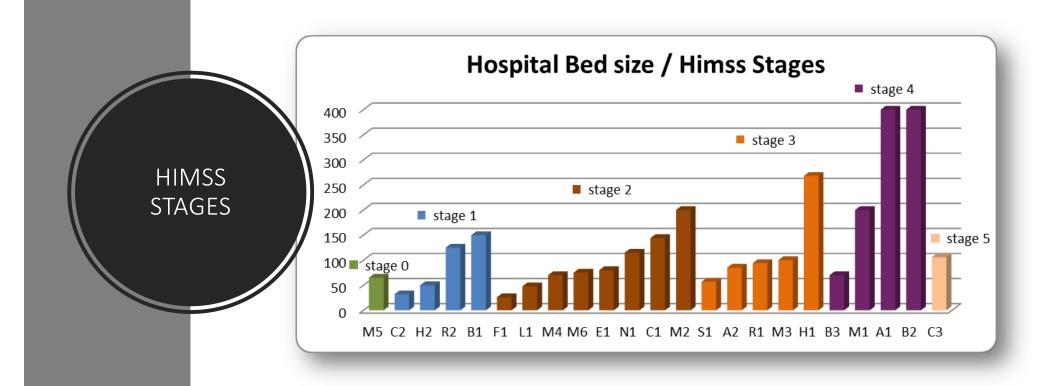


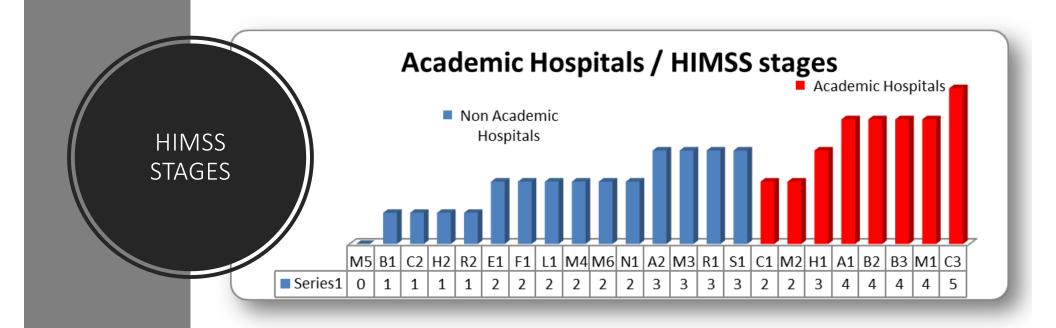
Bed size capacity had no relation with stage level whereas there was a trend that academic hospitals or those who had higher accreditation category had higher HIMSS stage.

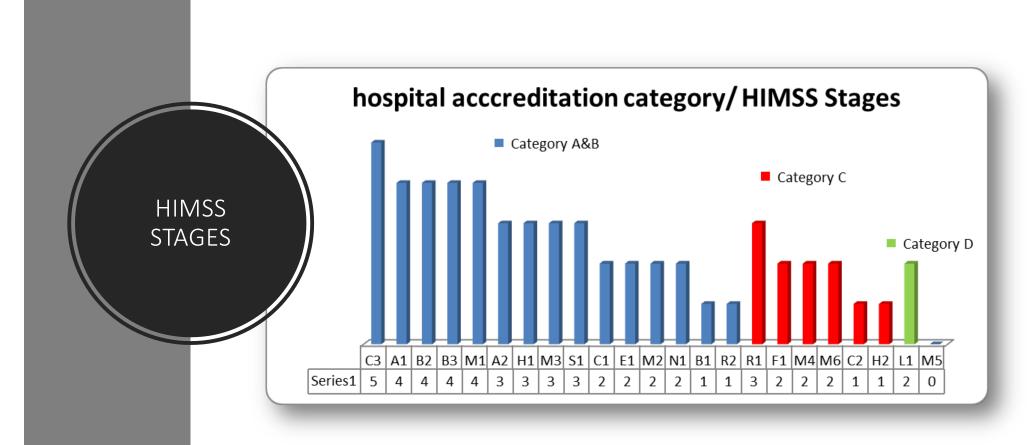


Most of the hospitals faced similar adoption barriers known internationally and most IT directors expressed their well position for their readiness for EMR implementation process.





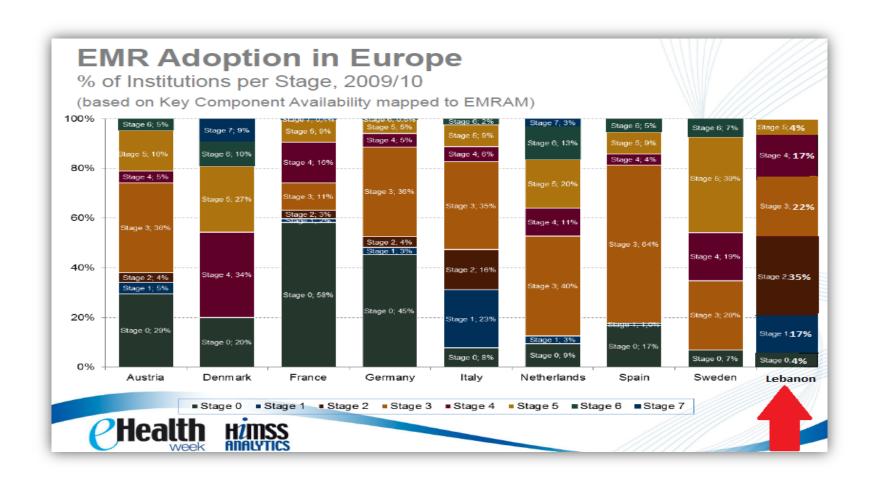




Lebanon v/s North America

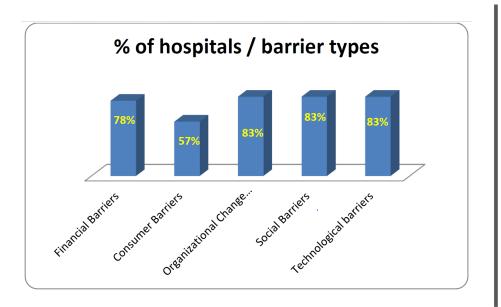
2012

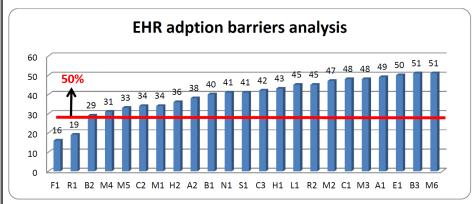
EMR Adoption Model SM							
Stage	Cumulative Capabilities	CAN	USA	LEB			
Stage 7	Complete EMR; CCD transactions to share data; Data warehousing; Data continuity with ED, ambulatory, OP	0.0%	1.1%	0 %			
Stage 6	Physician documentation (structured templates), full CDSS (variance & compliance), full R-PACS	0.5%	4.4%	0 %			
Stage 5	Closed loop medication administration	0.2%	7.1%	4 %			
Stage 4	CPOE, Clinical Decision Support (clinical protocols)	1.7%	13.2%	17%			
Stage 3	Nursing/clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology	33.2%	46.1%	22%			
Stage 2	CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging; HIE capable	23.9%	12.6%	35%			
Stage 1	Ancillaries - Lab, Rad, Pharmacy - All Installed	12.2%	5.9%	17%			
Stage 0	All Three Ancillaries Not Installed	28.3%	9.6%	4 %			



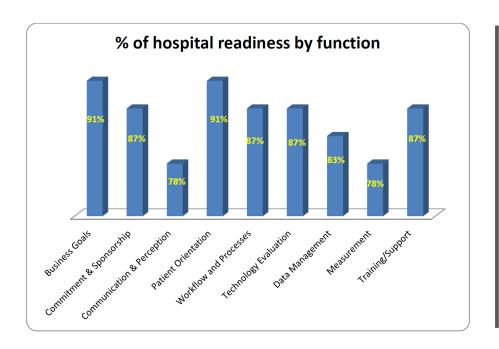
2012

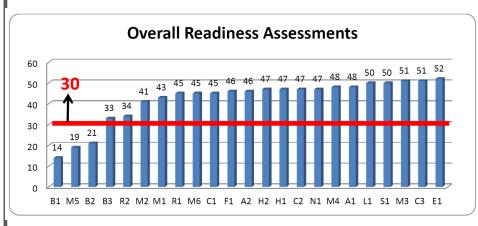
EHR Adoption Barrier Analysis





EHR Overall Readiness





Limitations of the survey

2012



Selection of the 50 hospitals out of 117 private and 8 public hospitals based on their high activities



Out of the 50 preselected hospitals, the more interested and more **ready** hospital for EMR adoption responded



The detailed spread sheet used by HIMSS analytics was not used because of the high resistance of IT directors to comply

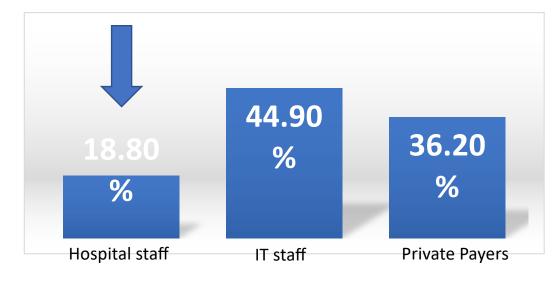


The managing and medical directors were not included in this survey



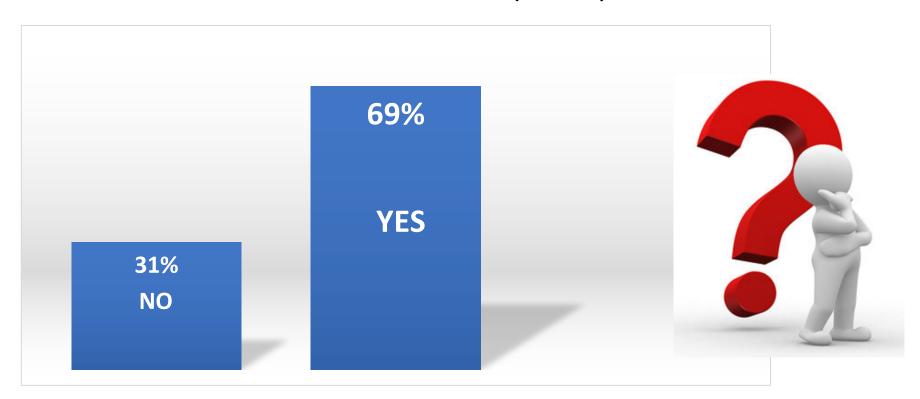
Participants characteristics

Hospital staff (Physicians, Nursing, Administration)	14
Information Technology staff (IT staff, IT Leadership)	31
Private Payers (Insurance, Social organizations)	26
Total	71



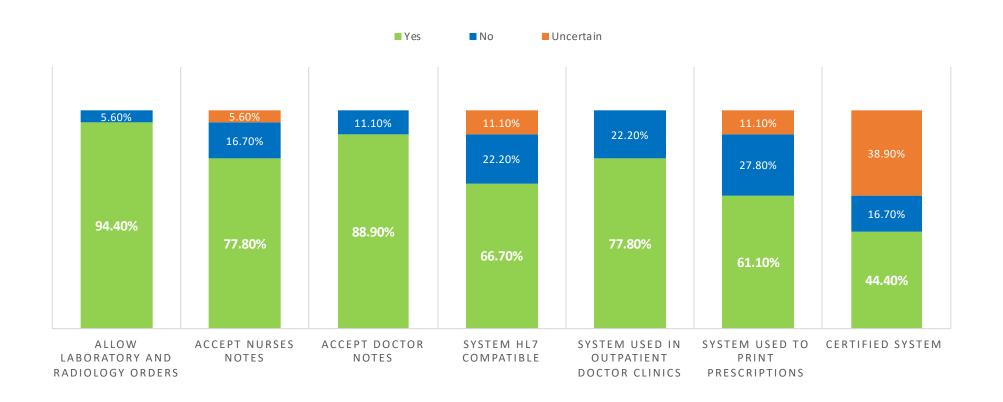
2019

Does your organization have an Electronic Health Record (EHR)?



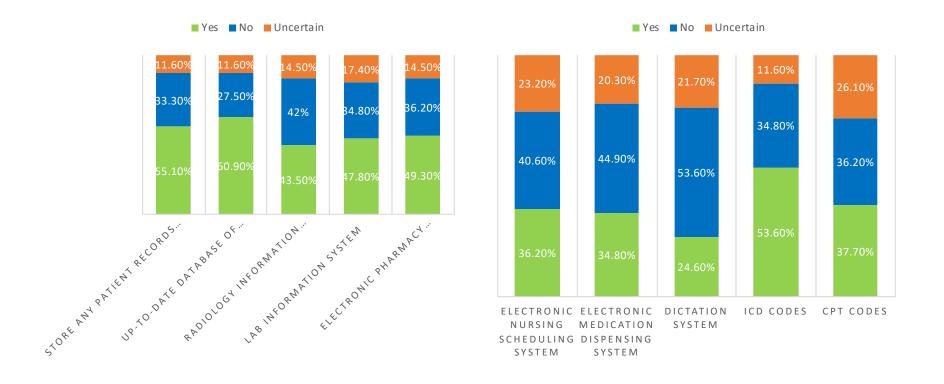
EHR Current Status

2019



2019

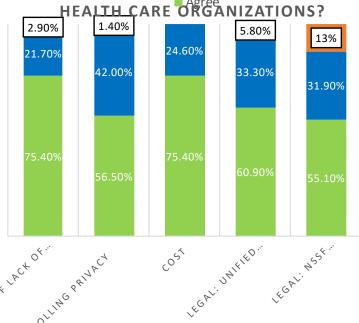
EHR modules



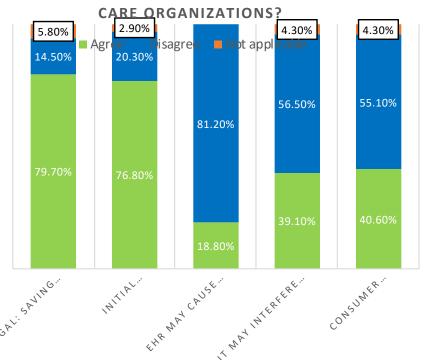
BARRIERS

2019



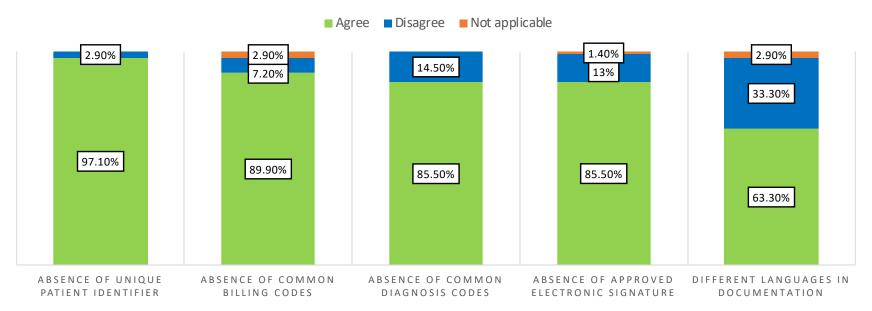


DO YOU AGREE OR DISAGREE THAT THE BELOW FACTORS ARE OBSTACLES TO EHR IMPLEMENTATION AT THE LEVEL OF HEALTH



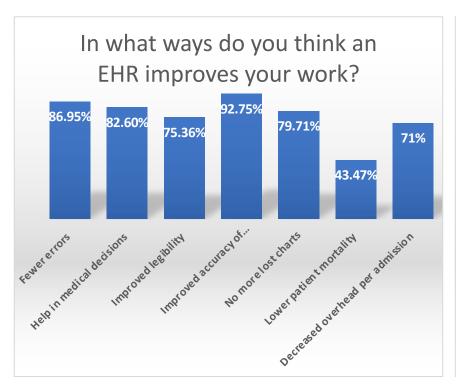
Obstacles to e-Exchange of Medical Information 2019

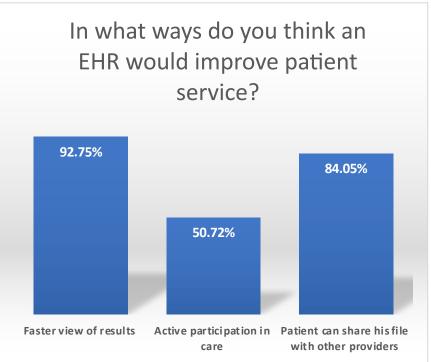
DO YOU AGREE OR DISAGREE THAT THE BELOW FACTORS ARE OBSTACLES TO EXCHANGING MEDICAL INFORMATION ELECTRONICALLY IN LEBANON?

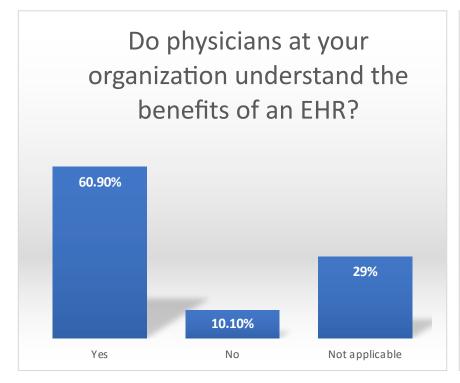


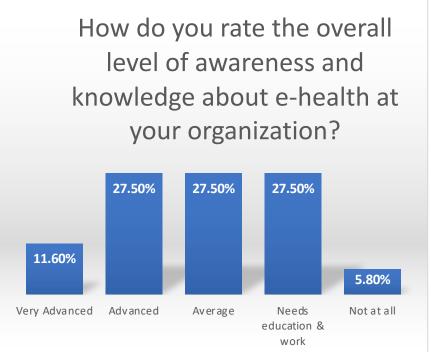


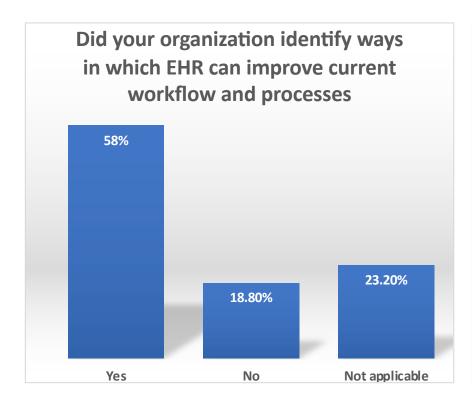


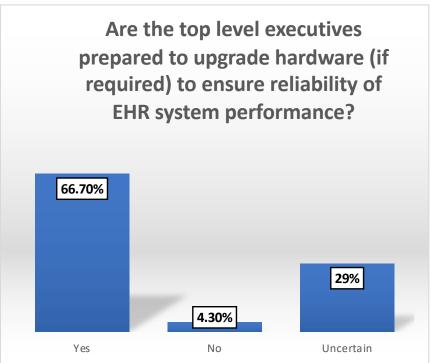












More on the Value of EMRAM

How are hospitals & clinics scored?

The HIMSS Analytics EMRAM incorporates methodology and algorithms to automatically score hospitals around the world relative to their EMR capabilities.

The process is **fully confidential**, which defuses all concerns any hospital might have on which stage the assessment places them in.



How do hospitals and clinics benefit from EMRAM?



EMRAM Assessment provides **guidance** to hospitals in a swiftly changing ecosystem.



The assessment produces solid data and meaningful statistics that is well structured and presented with defined correlations to the EMR adoption maturity model.

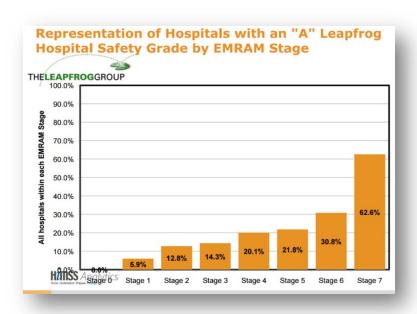


The report provides insights on hospital clinical services quality, patient safety, and operations efficiency.

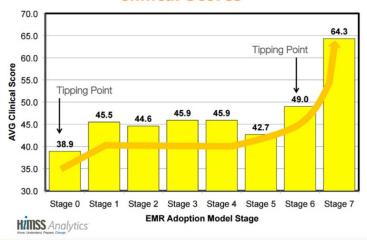


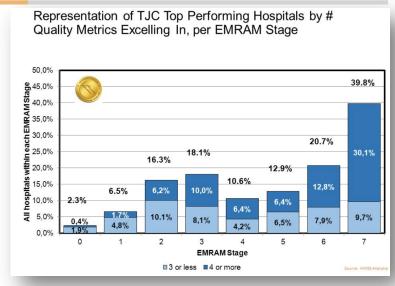
In addition to highlighting areas of improvements, benefits realization, and **ROI indicators** play a major role guiding healthcare organizations' strategies and driving technology investments.

Relations between EMRAM stage on Quality and value-based purchasing



Value-based purchasing (vbp) Clinical Scores





EMR Adoption Model

- All lower stages must have been achieved before a higher level is considered as achieved
- A hospital can achieve Stages 3-6 if it has met all of the application requirements for a single patient care service (e.g., single nursing floor, cardiology service)
- It's important to note that initial assessments for all stages (except 6 & 7) can be conducted remotely through the EMRAM annual study, whereas stage 6 & 7 surveys are conducted through on-site visits conducted by HIMSSlead teams.



EMR Adoption Model

- This assessment collects detailed HIT data and tracks the implementation and adoption of EMR applications through each stage of the EMR Adoption Model.
- It's important to note that initial assessments for all stages (except 6 & 7) can be conducted remotely through the EMRAM annual study, whereas stage 6 & 7 surveys are conducted through on-site visits conducted by HIMSS-lead teams.
- Three outcomes expected from the participation in the EMR evaluations:
 - Hospital's EMRAM Score
 - Gap Assessment Reports
 - Benchmarking Reports



EMRAM History & breakdown: Gulf region

- As of today, hundreds of hospitals and thousands of ambulatory clinics have received the Stage 7 EMRAM and A-EMRAM awards across the USA.
- In the Gulf region, 23 sites in total have achieved stage 6 & 7
 EMRAM as shown below:

Stage	Facility Count	Location
Stage 7 Hospitals	1	KSA
	1	UAE
Stage 7 Primary Care Facilities	1	KSA
Stage 6 Hospitals	14	UAE
	4	KSA
	2	Qatar
Stage 6 Primary Care Facilities	0	N/A



MENDATION

Hospital management and IT directors level

Hospitals should allocate more funding for HIT projects.

The IT director should be part of the decision making body of the hospital.

Provide continuous training for all IT staff

The hospital should create an IT environment

Hospitals should participate in regional information networks and with vendors

Collaborate with other healthcare organizations to control costs

Hospitals should conduct researches on economic issues for the development and maintenance of the EMR system.



Health Authorities level (Ministry of Public, Third party payers and Syndicate of hospitals):

The EHR standards should be put as an integral part of any accreditation process.

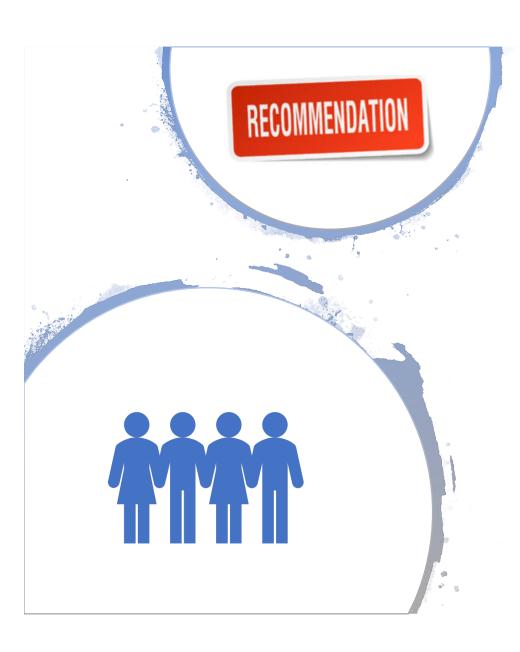
Awareness about the high demand of HIT careers and the coordination with universities to create both undergraduate and post graduate programs in HIT

coordination with international organizations and societies such as HIMSS

Provide grant funding and Provide payment incentives

Facilitate development of national standards and code sets

legal definition of EHR/EMR and regulations should be defined to regulate the content, structure, ownership & preservation of medical records.



In Conclusion

- Champions Identification
- Right Leadership
- Shared Vision
- Right Culture
- Governance / decision making
- key stakeholders are engaged early and accountable to lead the clinical transformation