

Electronic Medical Records (EMR) Road Map for Hospitals

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Why the need for this talk?

- Growing **Demand** for EMR
- Still a *LOT* of **Confusion** about EMR
- Opportunity for **Innovation** and Change

Electronic Medical Records

- “a **secure, real-time, point-of-care**, patient-centric information resource for clinicians. The EHR aids clinicians’ decision-making by providing access to patient health record information when they need it and incorporating evidence-based decision support.

- HIMSS EHR Definitional Model

Electronic Medical Records

- It provides **real-time access** to patient health information.
- It captures data from **various clinical data sources**.
- It is used by clinicians as a **primary information resource** in the delivery of patient care.

How do we get there?
Where do we start?



[Home](#) > [Electronic Medical Record Adoption Model](#)

ELECTRONIC MEDICAL RECORD ADOPTION MODEL

HIMSS Analytics EMRAM

EMRAM: A strategic roadmap for effective EMR adoption and maturity

The HIMSS Analytics Electronic Medical Record Adoption Model (EMRAM) incorporates methodology and algorithms to automatically score hospitals around the world relative to their Electronic Medical Records (EMR) capabilities. This eight-stage (0-7) model measures the adoption and utilization of electronic medical record (EMR) functions. Move your organization closer to achieving a near paperless environment that harnesses technology to support optimized patient care by completing each stage below. Our expert advisors are available with helpful tools to move your organization along its journey.


[Download an EMRAM Information Sheet](#)

[Download EMRAM Requirements](#)

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


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Going “paperless”: Is it
REALISTICALLY achievable?

US EMRAM Stages by Year

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Stage 7	0.0%	0.0%	0.3%	0.7%	1.0%	1.2%	1.9%	2.9%	3.6%	4.2%
Stage 6	0.1%	0.8%	0.5%	1.6%	3.2%	5.2%	8.2%	12.5%	17.9%	27.1%
Stage 5	0.5%	1.4%	2.5%	3.8%	4.5%	8.4%	14.0%	22.0%	32.8%	35.9%
Stage 4	3.1%	2.2%	2.5%	7.4%	10.5%	13.2%	14.2%	15.5%	14.0%	10.1%
Stage 3	18.7%	25.1%	35.7%	50.9%	49.0%	44.9%	38.3%	30.3%	21.0%	16.4%
Stage 2	40.0%	37.2%	31.4%	16.9%	14.6%	12.4%	10.7%	7.6%	5.1%	2.6%
Stage 1	17.4%	14.0%	11.5%	7.2%	7.1%	5.7%	4.3%	3.3%	2.0%	1.7%
Stage 0	20.4%	19.3%	15.6%	11.5%	10.1%	9.0%	8.4%	5.8%	3.7%	2.1%
N	4237	5073	5166	5281	5337	5458	5458	5449	5467	5460

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Stage 0 HIMSS Description / Details

- All three ancillaries not installed
- The organization has not installed all three key ancillary department systems (laboratory, pharmacy, and radiology).

Stage 0

- Only HIS
- Some ancillary automation
- No (or very minimal) integration

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Stage 1 HIMSS Description / Details

- Ancillaries - **Laboratory, Pharmacy,** and **Radiology/Cardiology** information systems; **PACS**; Digital non-DICOM image management
- All three major ancillary clinical systems are installed
- A full complement of radiology and cardiology PACS systems provides medical images to physicians via an intranet and displaces all film-based images. Patient-centric storage of non-DICOM images is also available.

Stage 1

- Automation of ALL (100%) Diagnostic Departments
- Digitization of ALL (100%) Diagnostic Workflows
- Acquire and implement Ancillary IT Systems
- What about other medical imaging and files?
 - Cardiology
 - Endoscopy videos
 - Ultrasound
- What about other tests? Is there a system for that?

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Sample Hospital Diagnostic Tests


- Anatomic Pathology – Histopathology, Cytopathology
- Laboratory – Hematology, Clinical Chemistry, Microbiology, Blood Bank, Molecular Diagnostics, Reproductive Biology, Toxicology, Immunology, Genetic Testing
- Digital Imaging – plain X-rays, CT scans, MRI, Ultrasound, Fluoroscopy, Mammography, PET scan
- Cardiology – ECG, Echocardiography
- Nuclear Medicine
- EEG/EMG
- Endoscopy
- Pulmonary Function Tests
- Audiometry



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Acquire IT Systems
Automate Workflows
Digitize Clinical Data



Stage 2 HIMSS Description

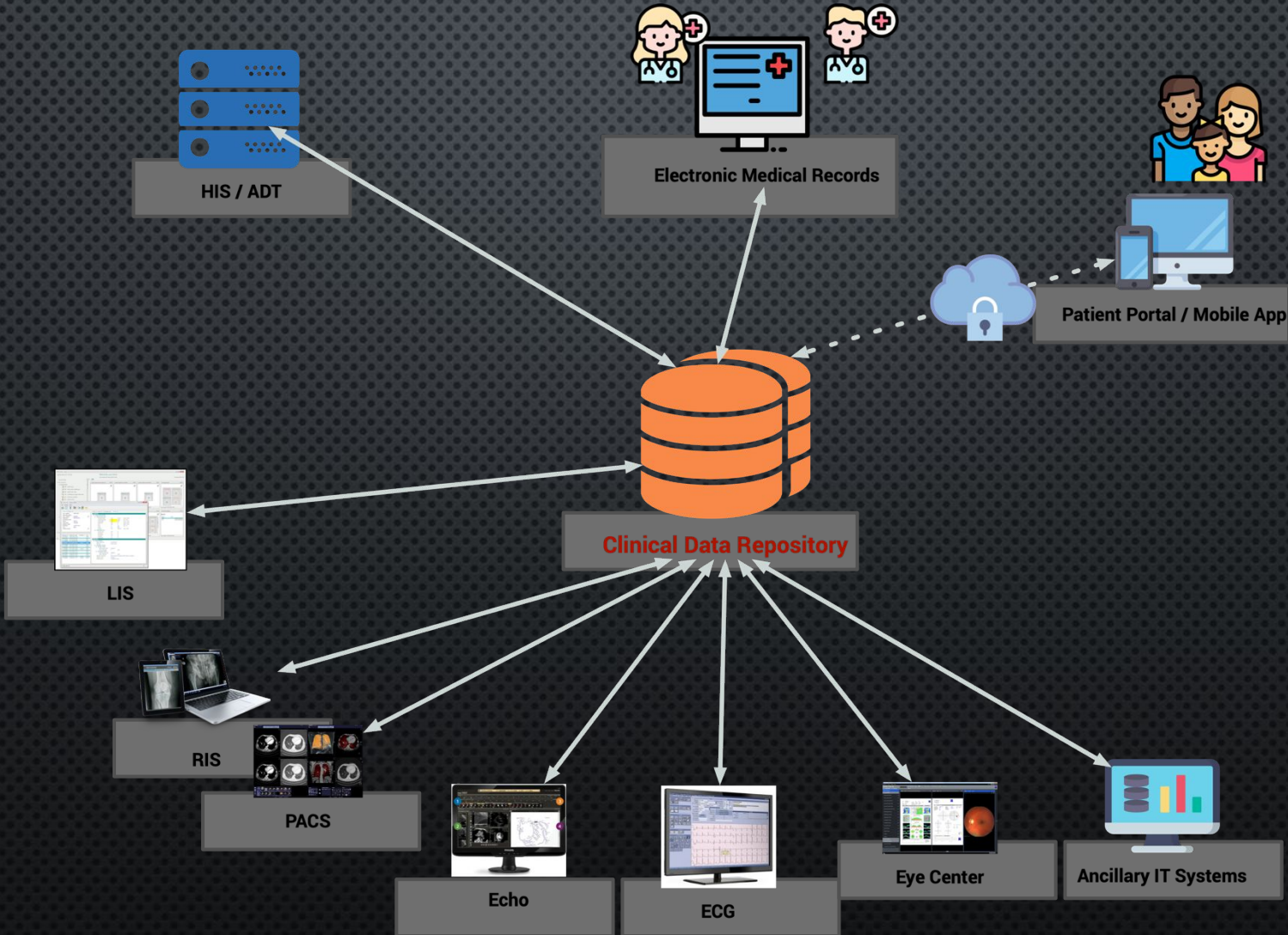
- CDR; Internal Interoperability
- Major ancillary clinical systems are enabled with internal interoperability feeding data to a single **clinical data repository (CDR)** or **fully integrated data stores** that provide seamless clinician access from a **single user interface** for reviewing all orders, results, and radiology and cardiology images.
- The CDR/data stores contain a **controlled medical vocabulary** and order verification is supported by a **clinical decision support (CDS)** rules engine for rudimentary conflict checking.
- Information from **document imaging systems** may be linked to the CDR at this stage.

Stage 2

- Integration, integration, integration!!!
 - All clinical IT systems talk to each other
- **Single Source of Truth**
 - **Storage, Access and Retrieval** (Results and Reports)
 - Used by **CLINICIANS**
 - Can be used for other clinical purposes
 - **Integrated** with all other IT systems around hospital

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Clinical Data Repository




Stage 2

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- **Single Source of Truth**
 - **Storage, Access** and **Retrieval** (Results and Reports)
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 - Integrated with all other IT systems around hospital
- **Standards** and Terminologies
 - HL7, LOINC, SNOMED
 - ICD-10, CPT


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Acquire IT Systems
Automate Workflows
Digitize Clinical Data



Integrate everything!
Single source of truth
Standards



Stage 3 HIMSS Description

- **Nursing and Allied Health Documentation**; Electronic Medication Administration Record (eMAR)
- 50 percent of nursing/allied health professional documentation (e.g., **vital signs, flowsheets, nursing notes, nursing tasks, care plans**) is implemented and integrated with the CDR.
- Capability must be in use in the ED, but ED is excluded from 50% rule. The Electronic Medication Administration Record application (eMAR) is implemented.

Stage 3

- Multi-disciplinary, Team-based Documentation
- Clinical Documentation
 - Nursing
 - Allied Health
 - Physician
- Recording of Patient Care
 - Vital Signs
 - Flowsheets
- Electronic Medication Administration Record

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Why this, before this?

HIMSS Analytics EMRAM

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Complexities of **REAL** Clinical Documentation

- Forms
- Flows
- Fields
- Reports
- Transactions
- Teams / Users
- Compliance
- Conversion
- Integrations
 - Before
 - After


Stage 3

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Clinical Documentation
Multi-Disciplinary
Team-based



Acquire IT Systems
Automate Workflows
Digitize Clinical Data



Integrate everything!
Single source of truth
Standards



Stage 4 HIMSS Description

- **CPOE With CDS**; Nursing And Allied Health Documentation
- 50 percent of all medical orders are placed using Computerized Practitioner Order Entry (CPOE) by any clinician licensed to create orders. **CPOE is supported by a clinical decision support (CDS)** rules engine for rudimentary conflict checking, and orders are added to the nursing and CDR environment.
- CPOE is in use in the Emergency Department, but not counted in the 50% rule.
- Nursing/allied health professional documentation has reached 90% (excluding the ED).
- During EMR downtimes, clinicians have access to patient allergies, problem/diagnosis list, medications, and lab results.

Stage 4

- Advanced Clinical Documentation
- Multi-disciplinary, Team-based **Ordering** and Delivery of Care
- **Computerized Provider Order Entry (CPOE)**
 - Beyond Billing Charges
 - Hospital Units/Departments Accept Orders and Tasks


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The REALISTIC Target for EMR Implementations

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(Clinical) Ordering
Multi-Disciplinary
Team-based

Integrate everything!
Single source of truth
Standards

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HiMSS Analytics **EMRAM**

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PH Situation – DIGITAL DIVIDE

- There is a REAL **DIGITAL DIVIDE**.
- Very little options to go beyond Stage 1.
 - No local vendors for 2-6
- International vendors have Stage 6-7 features.
 - Usually too expensive for most

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REALISTIC OPTIONS for PH Hospitals

- **Build** your OWN EMR.
 - A few big PH hospitals did this.
- Go **International**
 - Buy and implement Software from US / India / Other Countries.
- **Work together???**
 - Collaborate to build the **EMR for PH Hospitals**

Thank you! Questions?

- For more information, questions and feedback, please email me at mikemuin@medprojects.com.

