



HEALTHCARE INNOVATIONS
FOR A BETTER TOMORROW

Addressing the
State of the
Electronic
Health Record
(EHR)

STOP
TALKING.
START
CURING.



Agenda

Definitions

Attributes

Differences

Adoption Model

Current State

Challenges

Implementation considerations



What is it?

EMR

CMR

EHR

EPR

PHR

CPR

CCR

Just another TLA!!!

TLA = Three Letter Acronym

Are you confused?.....



What do they mean...

EMR = Electronic Medical Record

CMR = Computerized Medical Record

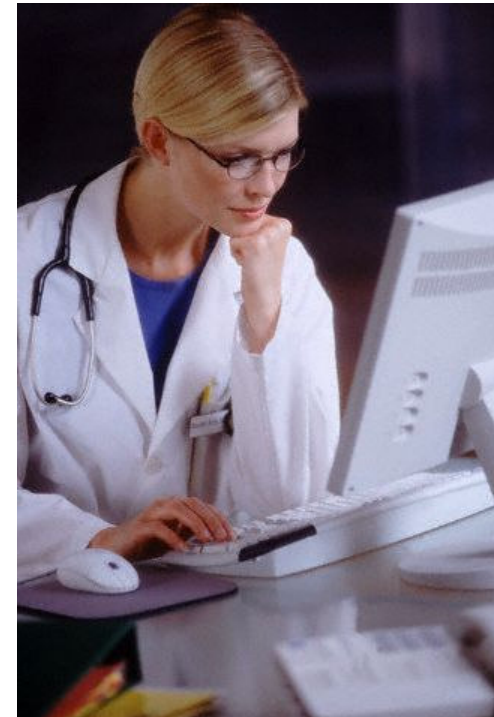
EPR = Electronic Patient Record

CPR = Computer-based Patient Record

CCR = Continuity of Care Record

EHR = Electronic Health Record

PHR = Personal Health Record



Definition - Electronic Medical Record (EMR)

An application environment composed of the clinical data repository, clinical decision support, controlled medical vocabulary, order entry, computerized provider order entry, pharmacy, and clinical documentation applications. This environment supports the patient's electronic medical record across inpatient and outpatient environments, and is used by healthcare practitioners to document, monitor, and manage health care delivery within a care delivery organization (CDO). The data in the EMR is the legal record of what happened to the patient during their encounter at the CDO and is owned by the CDO.



Source: HIMSS Analytics



Definition - Electronic Health Record (EHR)

The Electronic Health Record (EHR) is a longitudinal electronic record of patient health information produced by encounters in one or more care settings. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports. The EHR automates and streamlines the clinician's workflow. The EHR has the ability to independently generate a complete record of a clinical patient encounter, as well as supporting other care-related activities such as decision support, quality management, and clinical reporting.



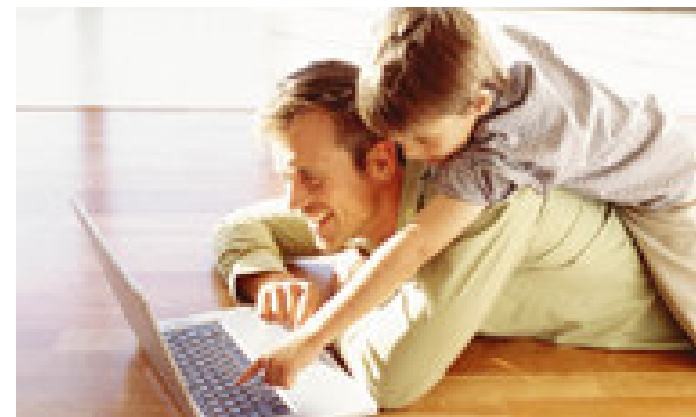
Source: HIMSS Analytics



Definition – Electronic Personal Health Record (ePHR)

An electronic Personal Health Record (“ePHR”) is a universally accessible, layperson comprehensible, lifelong tool for managing relevant health information, promoting health maintenance and assisting with chronic disease management via an interactive, common data set of electronic health information and e-health tools. The ePHR is owned, managed, and shared by the individual or his or her legal proxy(s) and must be secure to protect the privacy and confidentiality of the health information it contains. It is not a legal record unless so defined and is subject to various legal limitations.

Source: HIMSS





Attributes of an EMR

To be an EMR it needs:

- Clinical Data Repository
- Controlled Medical Vocabulary
- Clinical Decision Support
- Computerized Provider Order Entry
- Clinical Documentation
- Pharmacy



Attributes of an EHR

Eight core functions:

- Health information and data
 - CDR/Document imaging/Family linking
- Order management
 - COE/CPOE/e-Prescribing
- Result management
 - e-Labs/Result Review/Result sign-off
- Decision support
 - Interaction checking/Error checking/Clinical Reference
- Electronic communication and connectivity
 - Interface capability/HL7 support
- Patient support
 - Patient portal/Secure messaging/Patient education material
- Administrative processes and reporting
 - E&M Coding/Documentation templates/Workflow management (refills/phone calls)
- Reporting and population health
 - Standardized reports/Parameter based reports

Source: US Institute of Medicine



The difference between EMR & EHR

Electronic Medical Records

- The legal record of the CDO
- A record of clinical services for patient encounters in a CDO
- Owned by the CDO
- These systems are being sold by enterprise vendors and installed by hospitals, health systems, clinics, etc.
- May have patient access to some results info through a portal but is not interactive
- Does not contain other CDO encounter information

Electronic Health Records

- Subset of information from various CDOs where patient has had encounters
- Owned by patient or stakeholder
- Community, state, or regional emergence today (RHIOs) – or nationwide in the future
- Provides interactive patient access as well as the ability for the patient to append information

Source: HIMSS Analytics



EMR vs EHR vs PHR

EMR: Provider-Centric

Owned, managed and controlled by the provider

The legal document of care delivered

EHR: Aggregate record

Electronic record, spans time and distance

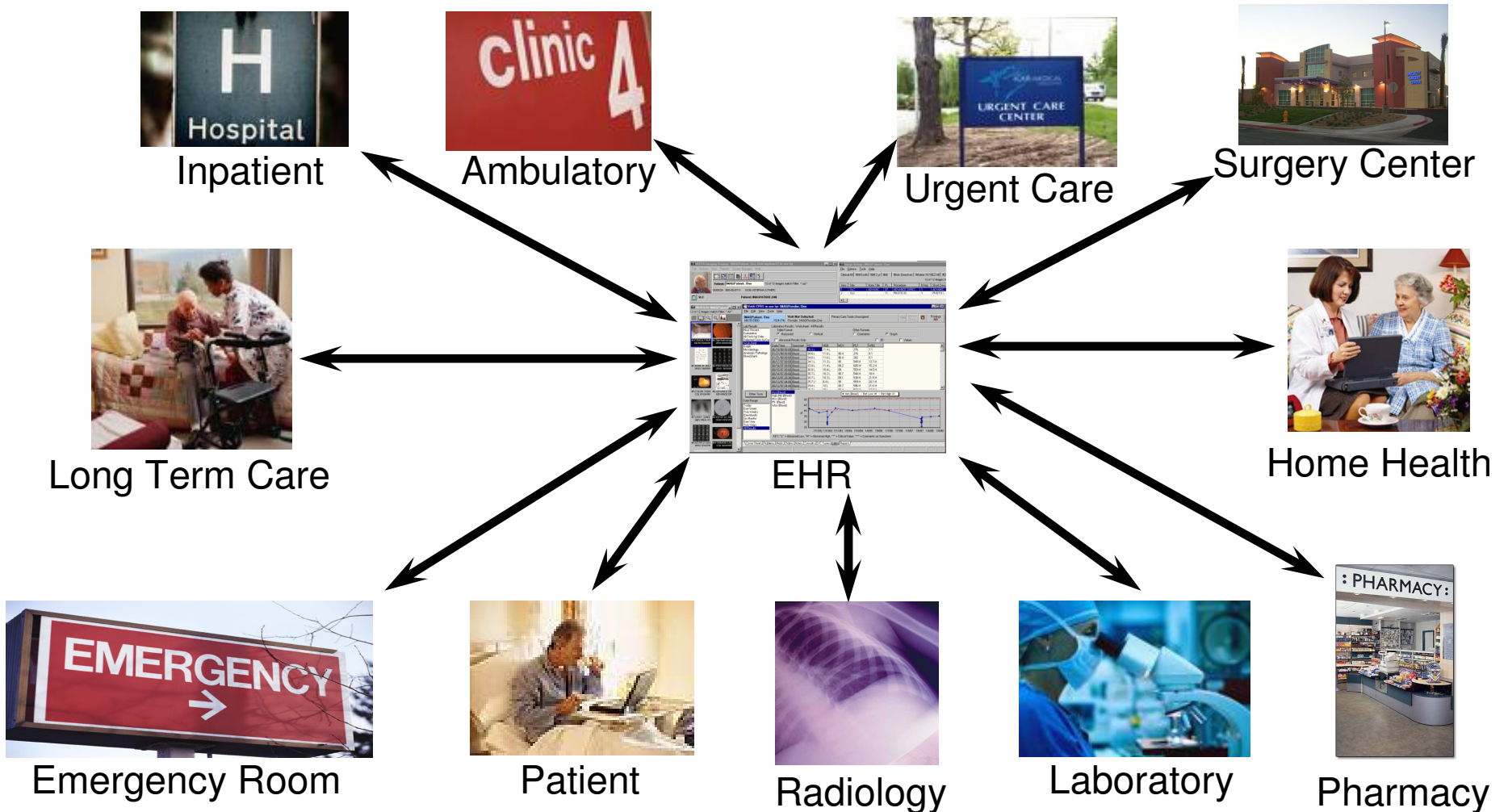
Spans multiple providers, institutions and delivered care

PHR: Patient-Centric

Owned, managed and controlled by the individual



Integrating information from multiple sources





So, the foundation for the EHR is a good EMR.

How do you assess where an organization is with their EMR?

HIMSS Analytics EMR Adoption Model defines 7 levels of adoption.



EMR Adoption Model

Stage	Description
0	<ul style="list-style-type: none">•Some clinical automation may exist.•Laboratory and/or pharmacy and/or radiology not installed.
1	<ul style="list-style-type: none">•All three major ancillaries (laboratory, pharmacy and radiology) installed.
2	<ul style="list-style-type: none">•Major ancillary clinical systems feed data to clinical data repository (CDR) that provides physician access for retrieving and reviewing results.•CDR contains a controlled medical vocabulary (CMV) and the clinical decision support system and rules engine for rudimentary conflict checking.•<i>Optional for extra points</i> – Information from document imaging systems may be linked to the CDR.
3	<ul style="list-style-type: none">•Clinical documentation installed (e.g. vital signs, flow sheets, nursing notes, care plan charting, and/or the electronic medication administration record (eMAR) system are scored with extra points and are implemented and integrated with the CDR for at least one service in the hospital.•First level of clinician decision support is implemented to conduct error checking with order entry (i.e. drug/drug, drug/food, drug/lab, conflict checking normally found in the pharmacy).•Some level of medical image access from picture archive and communication systems (PACS) is available for access by physicians via the organization's intranet or other secure networks.
4	<ul style="list-style-type: none">•Computerized practitioner/physician order entry (CPOE) for use by any clinician added to nursing and CDR environment.•Second-level of clinical decision support related to evidence-based medicine protocols implemented.•If one patient service area has implemented CPOE and completed previous stages, this stage has been achieved.
5	<ul style="list-style-type: none">•The closed loop medication administration environment is fully implemented in at least one patient care service area. The eMAR and bar coding or other auto-identification technology, such as radio frequency identification (RFID), are implemented and integrated with CPOE and pharmacy to maximize point-of-care patient safety processes for medication administration.
6	<ul style="list-style-type: none">•Full physician documentation/charting (structured templates) are implemented for at least one patient care service area.•A full complement of radiology PACS systems is implemented (i.e. all images, both digital and film-based, are available to physicians via an intranet or other secure network.
7	<ul style="list-style-type: none">•Clinical information can be readily shared via electronic transactions or exchange of electronic records with all entities within a regional health network (i.e., other hospitals, ambulatory clinics, sub-acute environments, employers, payers and patients).

Source: HIMSS Analytics



Where are we currently?

EMR Adoption Model – Q3 2007

		% of Hospitals US
Stage 7	Medical record fully electronic; CDO able to contribute to EHR as byproduct of EMR	0.0%
Stage 6	Physician documentation (structured templates), full CDSS (variance & compliance), full PACS	0.3%
Stage 5	Closed loop medication administration	1.5%
Stage 4	CPOE, CDSS (clinical protocols)	2.1%
Stage 3	Clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology	22.6%
Stage 2	CDR, CMV, CDSS inference engine, may have Document Imaging	39.7%
Stage 1	Ancillaries – Lab, Rad, Pharmacy	15.6%
Stage 0	All Three Ancillaries Not Installed	18.3%

Source: HIMSS Analytics Databases (derived from the Dorenfest IHDS+ Database™)

N = 4343

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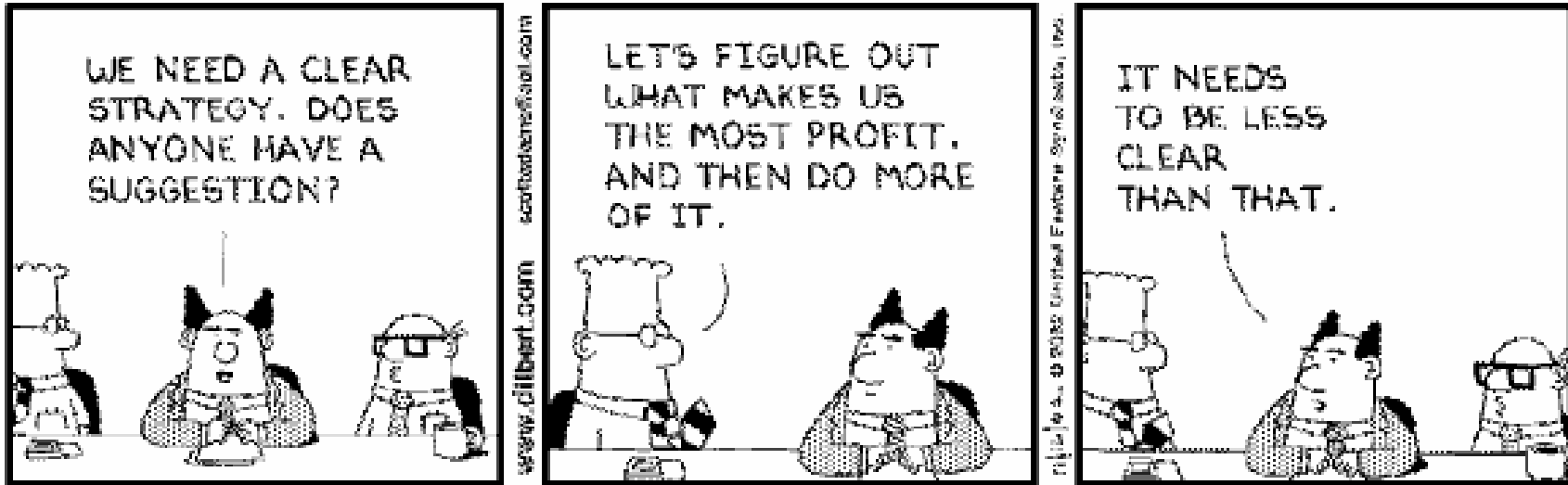
Challenges

- Technical standards vary – multiple systems that cannot talk to each other. Sharing of information is challenging
- Different types of records – content of information varies, e.g., some will have a list of tests performed, but no results
- Not many doctors use electronic health records
- Control of data and privacy issues – Patient does not necessarily have ‘ownership’ of their own data.



Implementation Considerations

- Strategy: Clear; documented; well communicated
- Governance: Executive and Physician support an absolute requirement
- Business Process Redesign: Technology alone is not going to make a difference. Processes have to change
- Staffing: Right levels and skill sets – IT and Operations
- Change management: Prepare all stakeholders for change. Clear communication.
- Clinical Content: Standardize where possible. Supporting organizational structures have to be in place.
- Usability: Hardware, software and facilities



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