



# How the EHR Can Deliver Measurable Cost & Quality Results

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# Improving HIM Functions

**AHIMA /**

***e-him Initiative:***


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- **Deliver measurable cost and quality results**
- **Improve healthcare through better information**

*-accurate*

*-timely*

*-complete*



<b>EMR Adoption Model<sup>SM</sup></b>			
<b>Stage</b>	<b>Cumulative Capabilities</b>	<b>2007 Final</b>	<b>2008 Final</b>
<b>Stage 7</b>	Medical record fully electronic; HCO able to contribute CCD as byproduct of EMR; Data warehousing in use	0.0%	0.3%
<b>Stage 6</b>	Physician documentation (structured templates), full CDSS (variance & compliance), full R-PACS	0.8%	0.5%
<b>Stage 5</b>	Closed loop medication administration	1.4%	2.5%
<b>Stage 4</b>	CPOE, CDSS (clinical protocols)	2.2%	2.5%
<b>Stage 3</b>	Clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology	25.1%	35.7%
<b>Stage 2</b>	Clinical Data Repository, Controlled Medical Vocabulary, Clinical Decision Support, may have Document Imaging	37.2%	31.4%
<b>Stage 1</b>	Ancillaries - Lab, Rad, Pharmacy - All Installed	14.0%	11.5%
<b>Stage 0</b>	All Three Ancillaries Not Installed	19.3%	15.6%
<b>Total Hospitals</b>		<b>n=5073</b>	<b>n=5166</b>

\* Data from HIMSS Analytics.com



# HIMSS Analytics

## EMR Adoption Model

### Stage 2

31.4%

- Ancillary clinical systems feed data to clinical data repository (CDR) for physician retrieval and review
- CDR contains a controlled medical vocabulary (CMV)
- May have document imaging



# HIMSS Analytics

## EMR Adoption Model

### Stage 3

35.7%

- **Clinical Documentation (vital signs, flow sheets, nursing notes, care plans)**
- **1<sup>st</sup> level of clinical decision support is implemented to conduct error checking with order entry – drug/drug, drug/food, drug/lab**
- **PACs available outside Radiology**



# HIMSS Analytics

## EMR Adoption Model

### Stage 4

2.5%

- **CPOE – Computerized practitioner / physician order entry -**
  - Physician enters orders via computer linked to error prevention software
    - ~ Drug Allergies
    - ~ Weight-based dose calculations
    - ~ Alerts to critical lab value
- **Second level of clinical decision support related to evidence-based medicine protocols**

### Evidence Based Medicine

Physician selects treatment options based on the best research



# Clinical Decision Support:

**Getting the right information to the right clinician at the right time in the right format**

**Patient data to support ordering process:**

- allergies
- weight
- height
- current medications
- lab results
- problem list



# Public Law 111-5

## American Recovery & Reinvestment Act/ARRA

### Section 3000 – Health IT Definitions

#### Qualified Electronic Health Record:

##### Has the capacity -


- *to provide clinical decision support*
- *to support physician order entry*
- *to capture and query information relevant to healthcare quality*
- *to exchange electronic health information with, and integrate such information from other sources*



## ARRA: Meaningful Use Definition

**Outcome: Improve quality, safety, efficiency and reduce health disparities**

***Providers must demonstrate meaningful use of EHRs to qualify for Medicare and Medicaid incentive payments in 2011.***



## 2011 Objectives: (18 total)

- **CPOE – Hospital / 10% of all orders directly entered by authorizing provider**
- **Provide patients with timely electronic access to their health information**
- **Provide patients, upon request with an electronic copy of their discharge instructions and procedures at the time of discharge.**

# Document Imaging / Scanning

## What It Is

Imaging System is a bridge to the paperless EHR

- Access
- Remote Coding
- Release of Information
- Record Completion
- Medical Record Processing

## What It Is Not

Imaging System is not an electronic health record system that captures discrete data elements

- Will not provide ability to search the system on discrete data elements or provide decision support
- Will not provide immediate, real-time access to all documents
- Will not eliminate paper

Ref: Journal of AHIMA / Nov-Dec 2008

## ❖ Patient Care

## ❖ Medical & Nursing Education

## ❖ Research

- **Vanderbilt University Hospital – 488 beds**
- **Monroe Carell Jr. Children’s Hospital – 216 beds**
- **Vanderbilt Psychiatric Hospital – 88 beds**
- **The Vanderbilt Clinic – 100 speciality practices**
  - **Vanderbilt-Ingram Cancer Center –  
TN’s only comprehensive cancer center**
  - **Level 1 Trauma Center**
  - **Level IV Neonatal Intensive Care Unit**

## Stage 6

.5% / 42 hospitals

- **Full physician documentation (structured templates) implemented for at least one patient care unit**
- **Full complement of radiology PACS Systems implemented (all images – both digital and film) available to physicians via an intranet**

Stage 6 / VUMC

.5% / 42 hospitals

2008 Clinical Systems Enterprise Use

	<u>Total</u>	<u>%</u>
➤ <u>Electronic Note Documentation/Star Forms</u> (Clinic Notes, Progress Notes, H&P, Discharge Summary, Nursing & Allied Health)	2,906,641	30%
➤ <u>Scanned Images</u> (Clinic records & external medical records)	6,408,220	66%
➤ <u>Transcribed Reports</u> (Operative Notes, Consults, ED notes, Clinic notes)	360,803	4%



# EHR Data Entry Methods

## Electronic entry by user

- **Structured - templates**
- **Free text – individualized picture of patient**

## Transcription

- **Dictation**
- **Speech Recognition**
  - **Back end**
  - **Front-end:     Radiology**  
                          **GI Endoscopy**

## Scan handwritten documents

- **Forms signed by patient**



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# Improving HIM Functions

## Transcription:

➤ **Cost Reduction: (-\$500,138) ↓ 27%**

<u>FY 08-09</u>	<u>FY 07-08</u>	<u>FY 06-07</u>	<u>FY 05-06</u>
\$1,383,000	\$1,632,695	\$1,721,453	\$1,883,138

➤ **Discharges: (+16.5%)**

<u>FY 08-09</u>	<u>FY 07-08</u>	<u>FY 06-07</u>	<u>FY 05-06</u>
51,589	47,980	46,759	43,064

# Improving HIM Functions

## Inpatient Medical Records/ Ancillary and Transcribed Reports

- No printing
- Paper costs: ↓ 67% (since June '06)

### Average Annual Costs

<u>FY 08-09</u>	<u>FY 07-08</u>	<u>FY 06-07</u>
\$5,712	\$8,028	\$16,548



# Improving HIM Functions

## VUMC Record Completion:

- < 1% delinquent records (14 days after discharge)
- Electronic notification of e-signatures in Physician worklists**
- H&Ps, Op Notes, Discharge summaries monitored concurrently**
- Medical record analysis at discharge to be phased out**



# Improving HIM Functions

## VUMC Release of Information:

**2-day turnaround**

**50,000+ annual requests:**

- 90% of requests from electronic record**
- Discharge Summaries & Operative Notes from 1994 in StarPanel**
- Free copies to walk-in patients (up to 20 copies)**
- Fax to providers for continuity of care thru StarPanel**



# Improving HIM Functions

## VUMC / Turnaround Time Standard

*The elapsed time beginning with the vendor's receipt of the voice file and ending with the electronically acknowledged receipt of the electronic transcribed document on the designated Vanderbilt server.*

2008 / Total transcribed reports: 360,803

Percent meeting turnaround standard: 98%  
(2 hrs. – 24 hrs.)



# Improving HIM Functions

## VUMC Physician Order Entry

### ➤ CPOE/Computerized Physician Order Entry

- Decision Support
- Customized Order Sets
- Alert to Provider to Sign Verbal Orders
- Converts “Do Not Use” Abbreviations

## Advanced Directive

- Alert to Providers that patient has a scanned Advanced Directive



# Improving HIM Functions

## VUMC / On-site Medical Record Review / External Auditors

- Panels created for record requests**
- Reviewers given temporary access to electronic records on panel**
- No printing required**



# Improving HIM Functions

## VUMC Documentation Improvement & Coding

**–2008 Overall Coding Accuracy Rate: 96%**  
*(audited by 3M)*


➤ **Structured Templates Document:**

- **Patient Information/structured and non-structured**
- **Medical Necessity and Intensity of Service**
- **Comorbids and Complications**
- **Present on Admission**
- **Severity of Illness**
- **Risk of Mortality**

# General Surgery History & Physical Template



## General Surgery History and Physical

Date of Service:  03/18/2009

Attending MD:

**SKIN** (*Documentation as to the presence or absence of pressure ulcer(s) is required*)

Pressure Ulcer(s):  Absent  
 Present

Number	Location	Stage
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

# Patient Portal

## My Health @ Vandy

**77,000 enrolled users (adult & pediatric)**

- **Daily Users: 3,200**
- **Lab and Radiology results**
- **Send & receive secure messages with your doctor's office**
- **Request new appointments**
- **View your personal medical information**
- **Pay Vanderbilt bills**
- **Read relevant medical information**



## VUMC Research

### *In Pursuit of Personalized Medicine*

– **Personalized Medicine = healthcare “tailored” to each individual’s genetic makeup**

– **National Institute of Health –**

*How Electronic Medical Record Systems can be used for large-scale genetic research*

– **DNA Databank Resource – anonymous collection of genetic & clinical research**

▪ *Preserve patient privacy*

▪ *Allow access to the rich clinical EHR information*



## VUMC/DNA Data Bank:

- Patient consents to their discarded tissue and leftover blood to be used for genetic research
- Natural Language Processing tools search EHR to find cases that fit clinical parameters for specific medical conditions
- Discovery of genetic links to disease susceptibility and drug response

# Weighing the Benefit and Risk of Electronic Records

“How important do you think it is for the health care providers you see to use electronic or computer-based medical records instead of using paper-based records?”



“If the U.S. adopted a system where medical records were kept electronically and could be share online, how likely do you think it is that an unauthorized person would get access to your medical records?”



From a survey of 1,238 adults conducted via telephone on March 12, 2009, for National Public Radio, Kaiser Family Foundation, and Harvard School of Public Health. “The Public and the Health Care Delivery System.” [www.npr.org/documents/2009/apr/nprpoll\\_topline.pdf](http://www.npr.org/documents/2009/apr/nprpoll_topline.pdf).