Using Health Information Technology to Ensure Inpatient Quality and Safety

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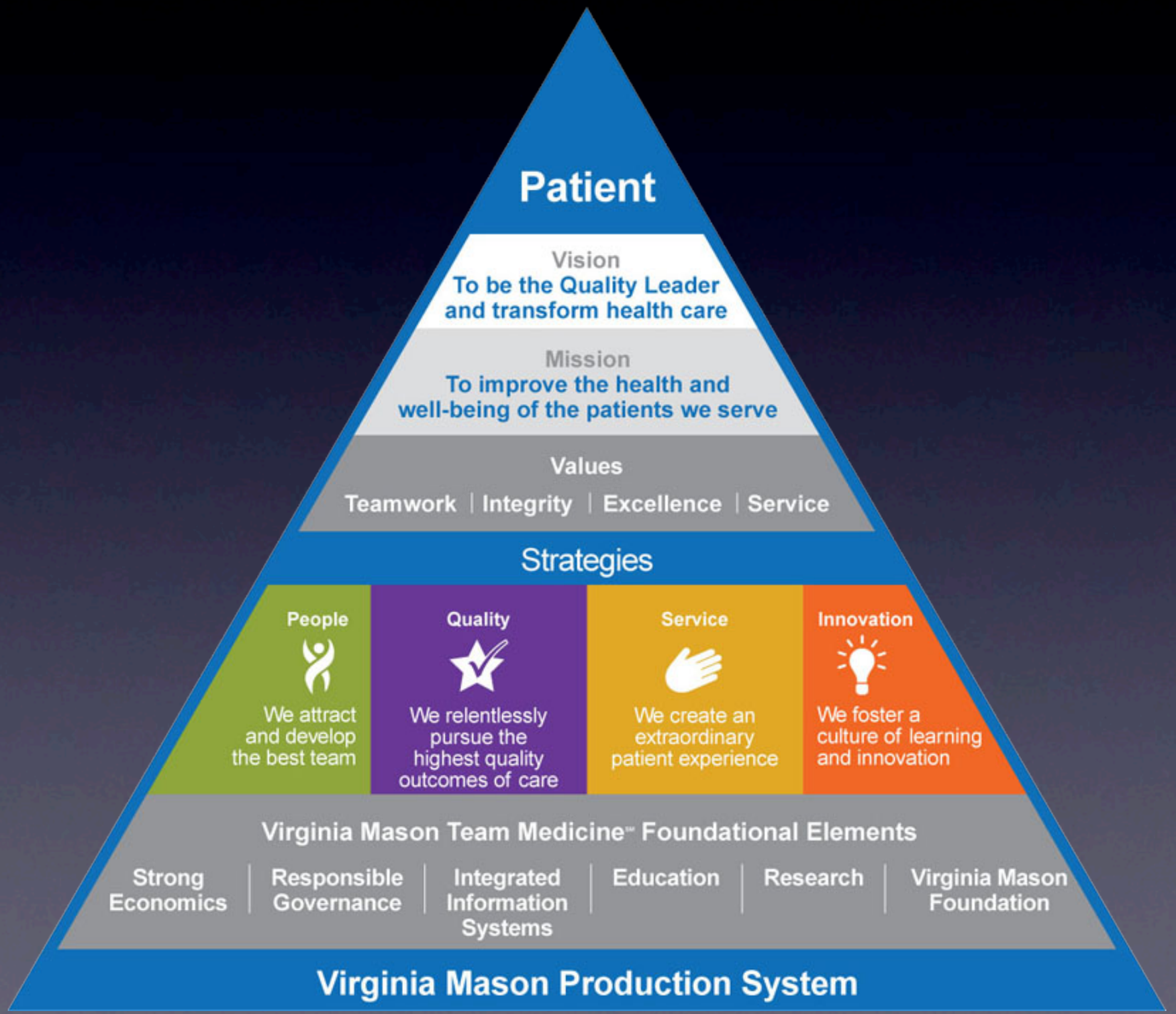
University of Washington


VIRGINIA MASON
EMERGENCY

Using Health Information Technology to Ensure Quality and Safety



Patient

Vision

To be the Quality Leader and transform health care

Mission

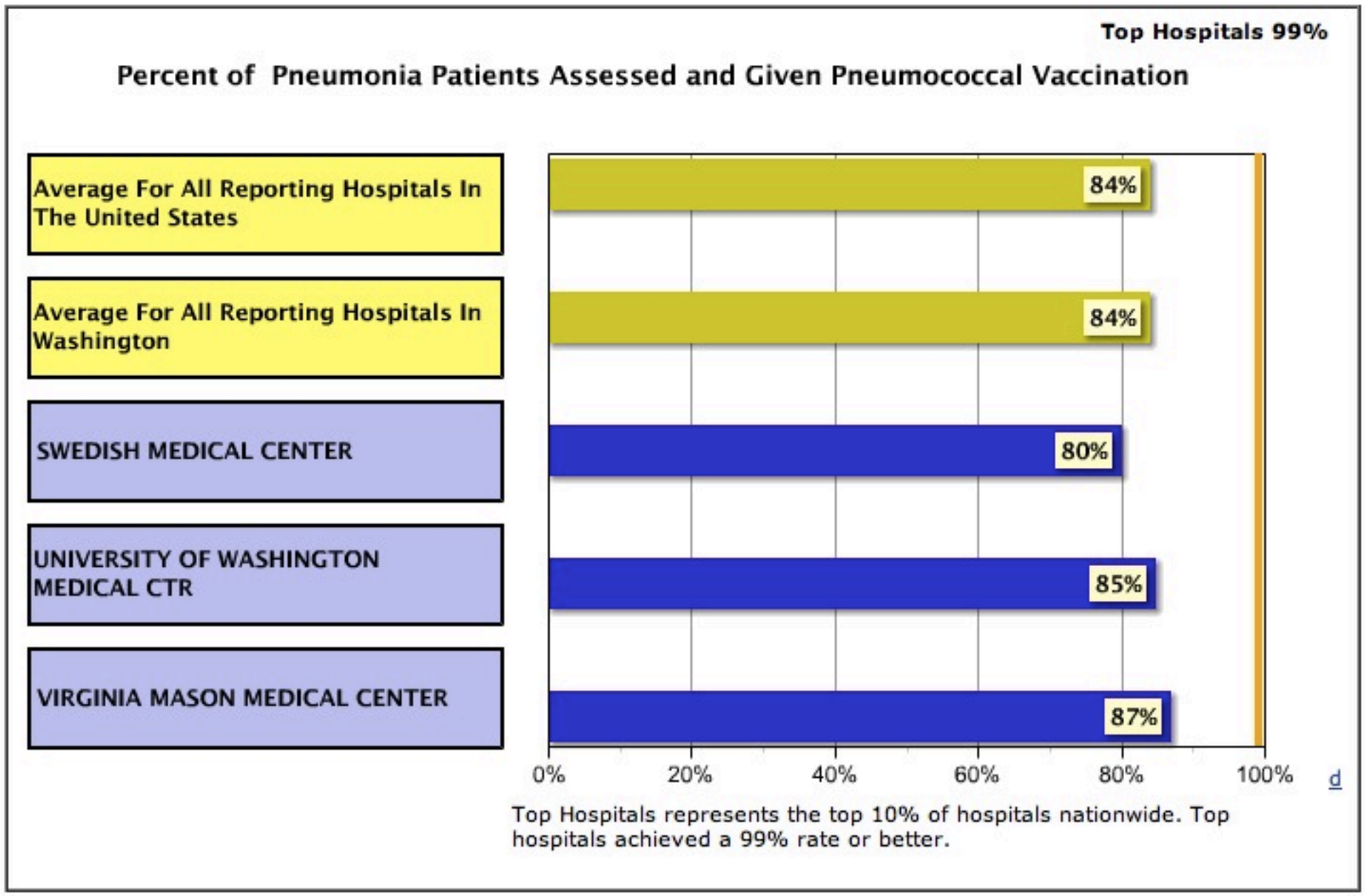
To improve the health and well-being of the patients we serve

Hospitalcompare.hhs.gov

Hide Information

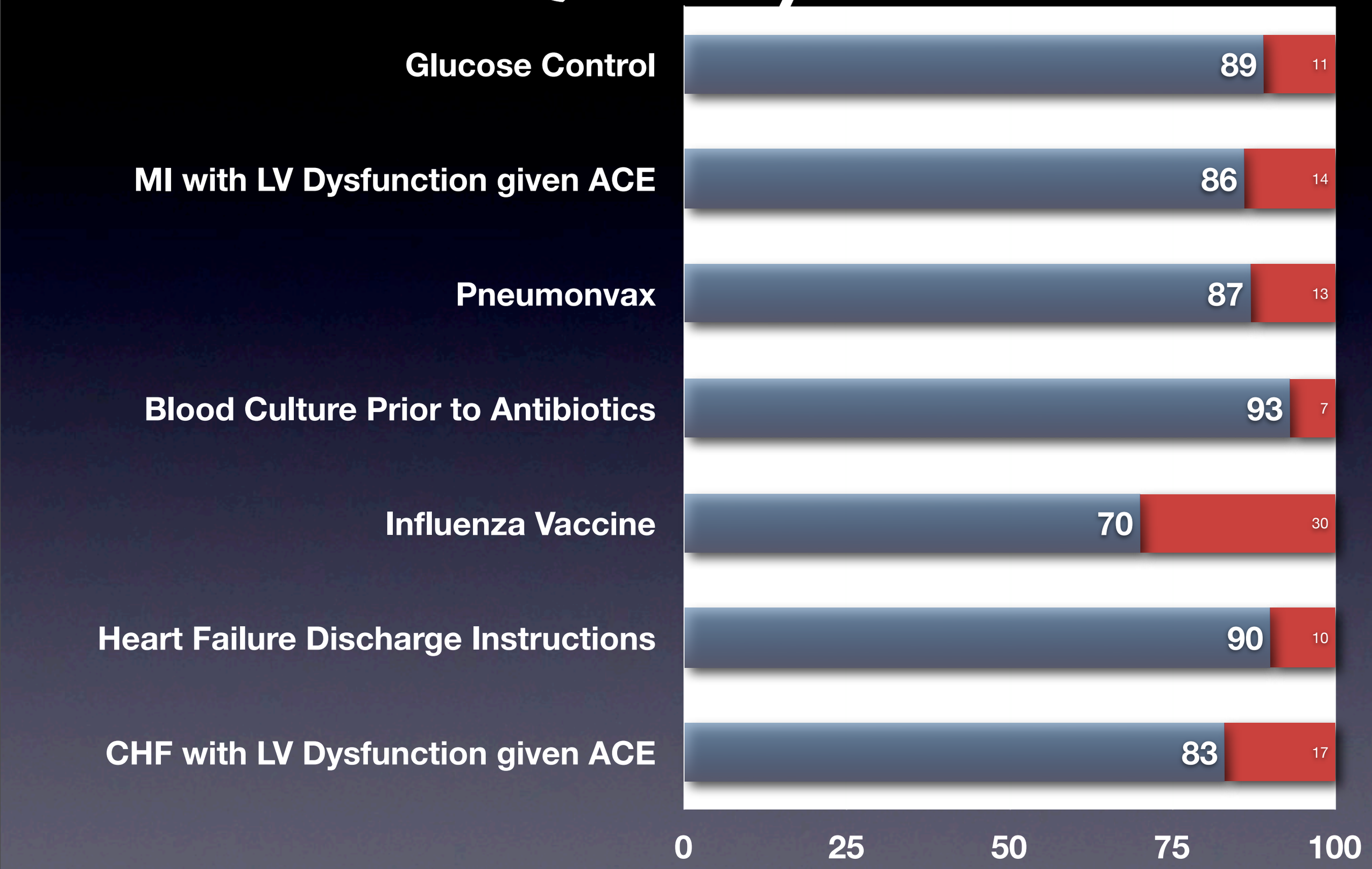
Percent of Pneumonia Patients Assessed and Given Pneumococcal Vaccination

The rates displayed in this graph are from data reported for discharges January 2008 through December 2008.

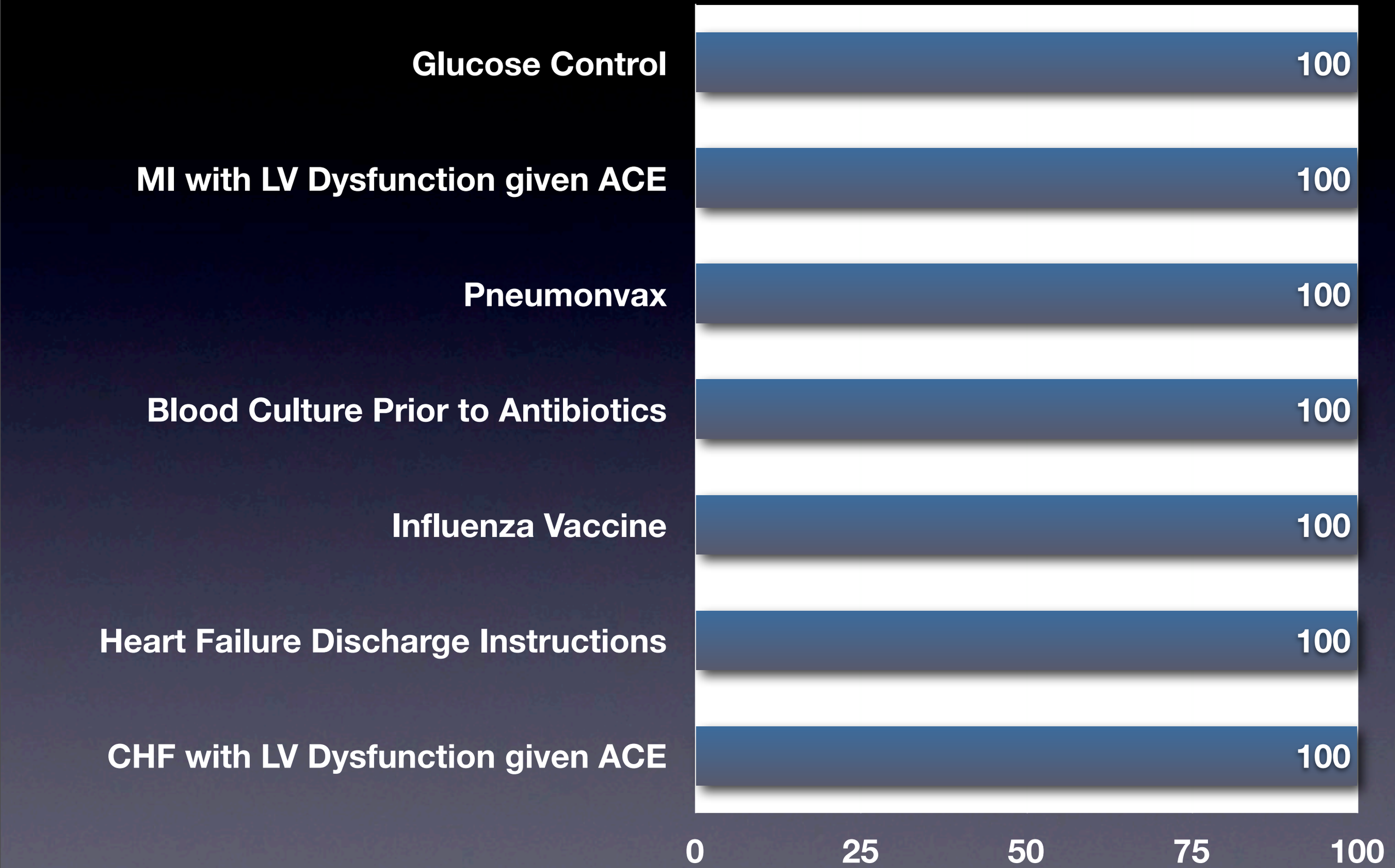


Also see whynotthebest.org

VM Quality Now



Quality Goal



So what's good enough?

Imagine 96% quality at VM…

600 defective surgeries/year

501 defective transfusions/year

40,000 defective medication administrations/year

10,800 wrong meals served/year

68,000 defective bills sent/year

5,000 defective paychecks/year

So what's good enough?

Imagine 99.9% quality at VM…

15 defective surgeries/year

17 defective transfusions/year

1,000 defective medication administrations/year

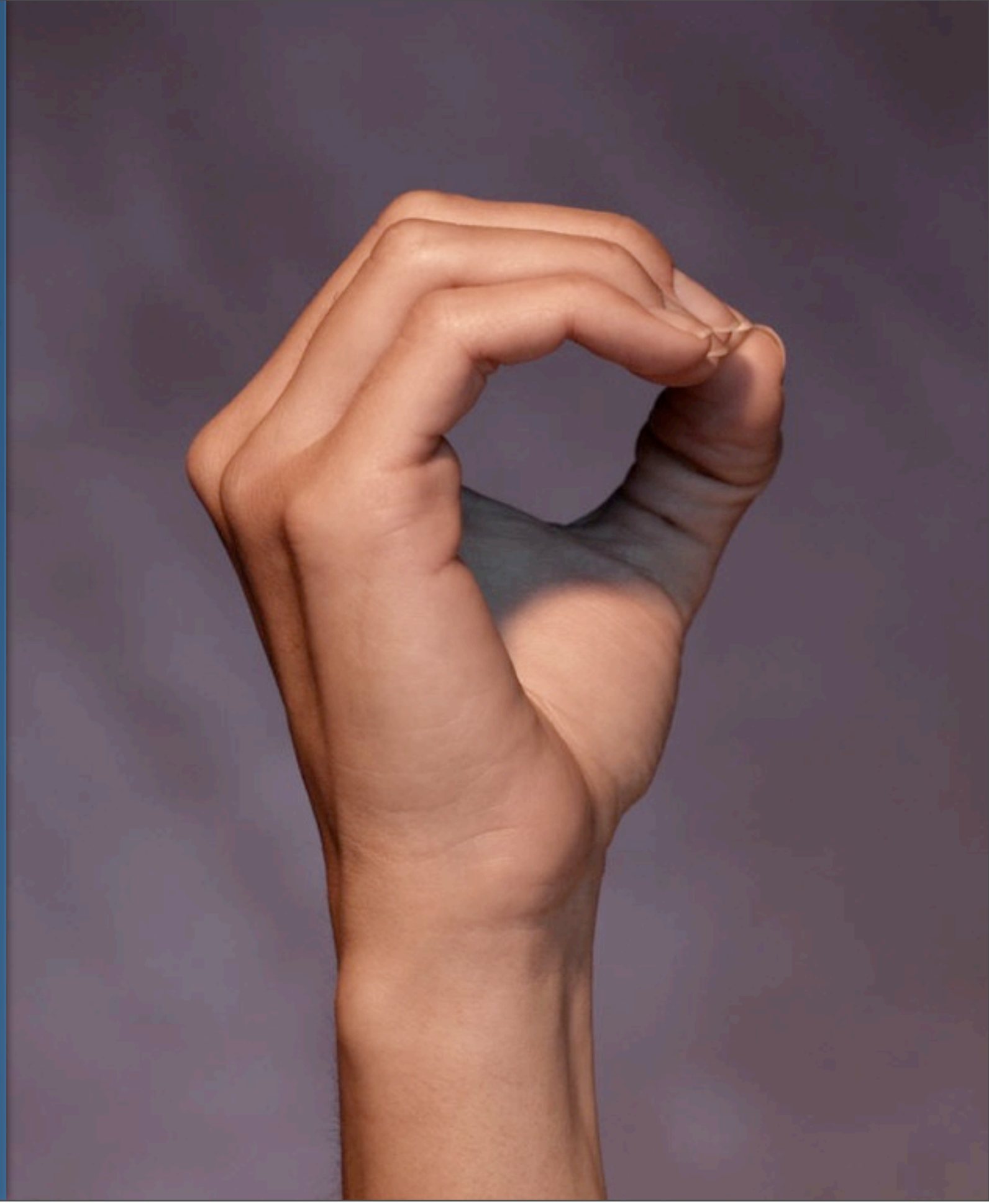
182 wrong meals served/year

17,000 defective bills sent/year

125 defective paychecks/year

Defects are mistakes that go uncorrected

The purpose of VMPS is to ensure zero defects



ORIGINAL INVESTIGATION

Improving Outcomes in Elderly Patients With Community-Acquired Pneumonia by Adhering to National Guidelines

Community-Acquired Pneumonia Organization International Cohort Study Results

Forest W. Arnold, DO; A. Scott LaJoie, PhD; Guy N. Brock, PhD; Paula Peyrani, MD; Jordi Rello, MD; Rosario Menéndez, MD; Gustavo Lopardo, MD; Antoni Torres, MD; Paolo Rossi, MD; Julio A. Ramirez, MD; for the Community-Acquired Pneumonia Organization (CAPO) Investigators

Background: To define whether elderly patients hospitalized with community-acquired pneumonia (CAP) had better outcomes if they were treated with empirical antimicrobial therapy adherent to the 2007 Infectious Diseases Society of America (IDSA)/American Thoracic Society (ATS) guidelines for CAP.

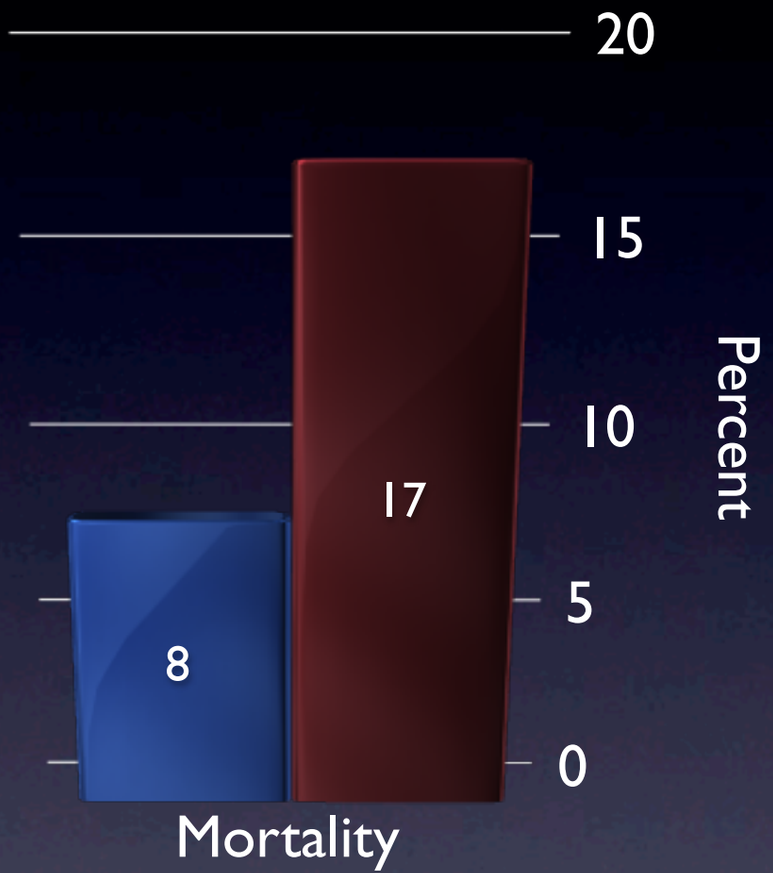
Methods: This was a secondary analysis of the CAPO International Cohort Study database, which contained data from a total of 1725 patients aged 65 years or older who were hospitalized with CAP. Data from June 1, 2001, until January 1, 2007, were analyzed from 43 centers in 12 countries including North America (n=2), South America (n=4), Europe (n=4), Africa (n=1), and Southeast Asia (n=1). Initial empirical therapy for CAP was evaluated for guideline compliance according to the 2007 IDSA/ATS guidelines for CAP. Time to clinical stability, length of stay (LOS), total in-hospital mortality, and CAP-related mortality for each group were calculated. Comparisons between groups were made using cumulative incidence curves and competing risks regression.

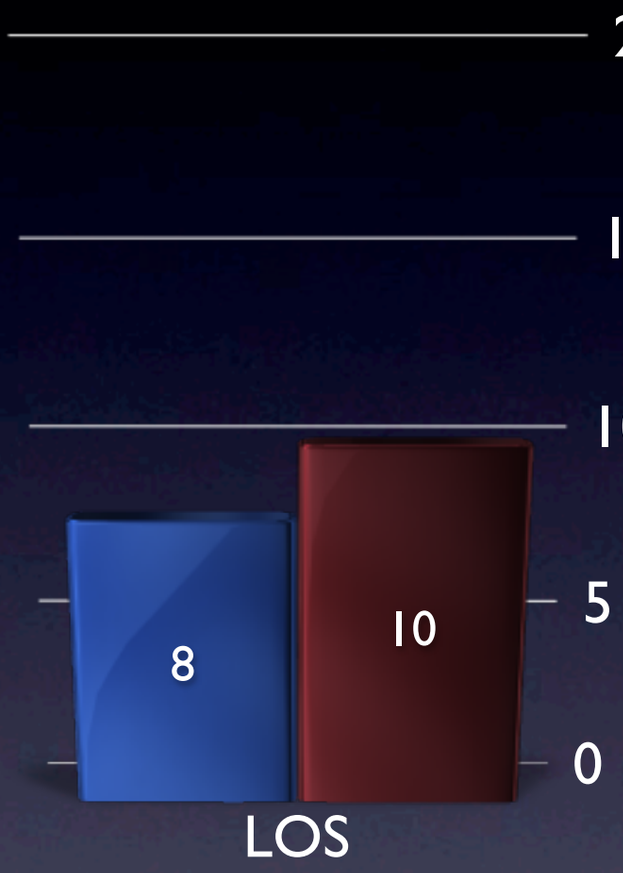
Results: Among the 1649 patients with CAP, aged 65 years or older, 975 patients were given antimicrobial regimens adherent to the IDSA/ATS for CAP guidelines, while 660 patients were treated with nonadherent regimens (465 patients were "undertreated"; 195 were "overtreated"). Adherence to guidelines was associated with a statistically significant decreased time to achieve clinical stability compared with nonadherence: the proportion of patients who reached clinical stability by 7 days was 71% (95% confidence interval [CI], 68%-74%) and 57% (95% CI, 53%-61%) ($P<.01$), respectively. Guideline adherence was also associated with shorter LOS (median adherence LOS, 8 days; interquartile range [IQR], 5-15 days; median nonadherence LOS, 10 days; IQR, 6-24 days) ($P<.01$) and decreased overall in-hospital mortality (8%; 95% CI, 7%-10% vs 17%; 95% CI, 14%-20%) ($P<.01$).

Conclusion: Implementation of national guidelines at the local hospital level will improve not only mortality and LOS of elderly patients hospitalized with CAP but also time to clinical stability.

Arch Intern Med. 2009;169(16):1515-1524

Guideline Adherence





Compliant

Non-Compliant

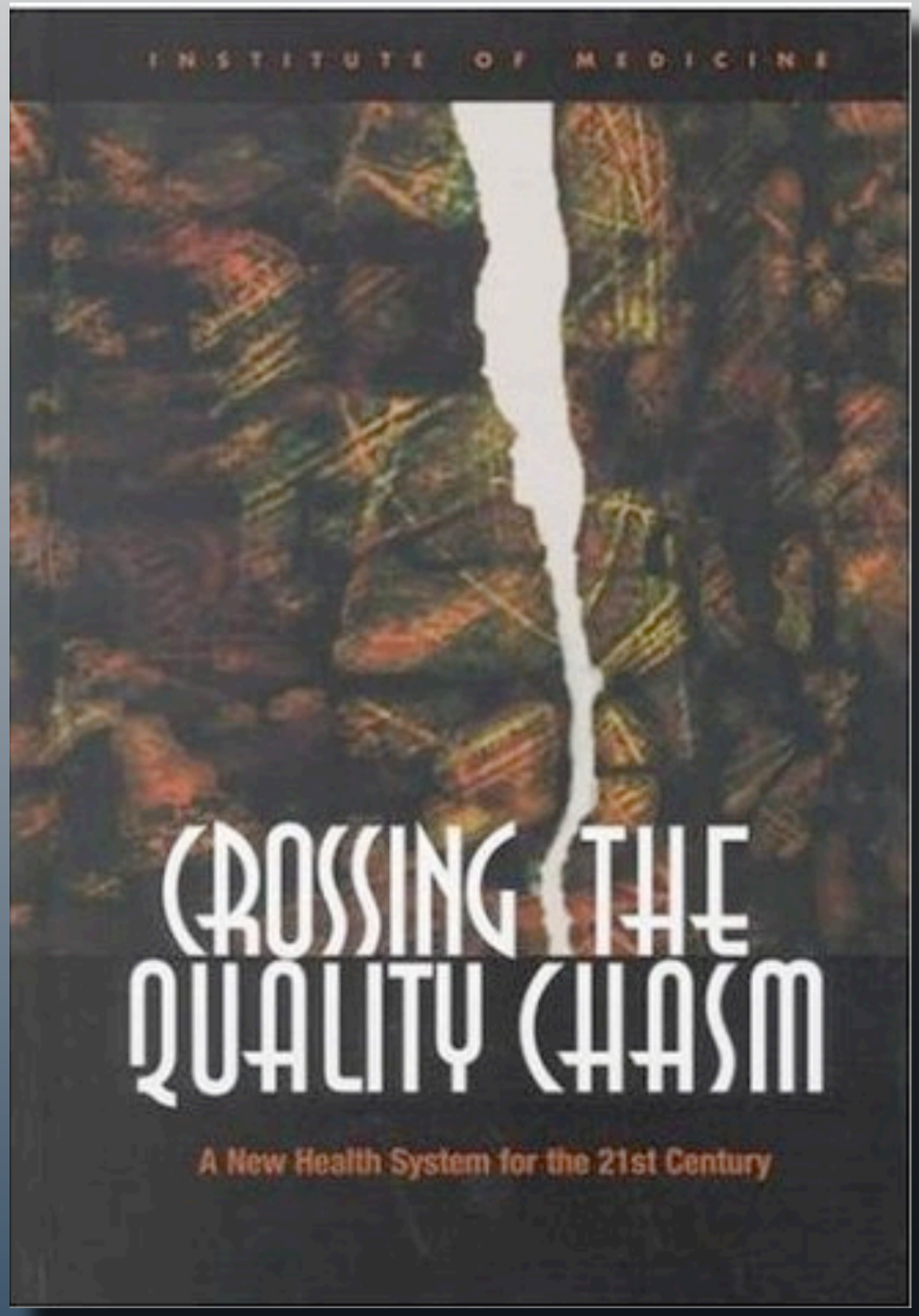
"If all hospitals performed at the level of a 5-star rated hospital ... 22,590 Medicare deaths could potentially have been avoided from 2006 through 2008."

HEALTHGRADES®
GUIDING AMERICA TO BETTER HEALTHCARE®

Rate Hospitals with 1-5 Stars Based on Quality

HealthGrades Seventh Annual Patient Safety in American Hospitals Study

March 2010



2001

"... information technology must play a central role in the redesign of the health care system if a substantial improvement in quality is to be achieved over the coming decade."

"... the elimination of most handwritten clinical data by the end of the decade."

ORIGINAL INVESTIGATION

Clinical Information Technologies and Inpatient Outcomes

A Multiple Hospital Study

Ruben Amarasingham, MD, MBA; Laura Plantinga, ScM; Marie Diener-West, PhD; Darrell J. Gaskin, PhD; Neil R. Powe, MD, MPH, MBA

Background: Despite speculation that clinical information technologies will improve clinical and financial outcomes, few studies have examined this relationship in a large number of hospitals.

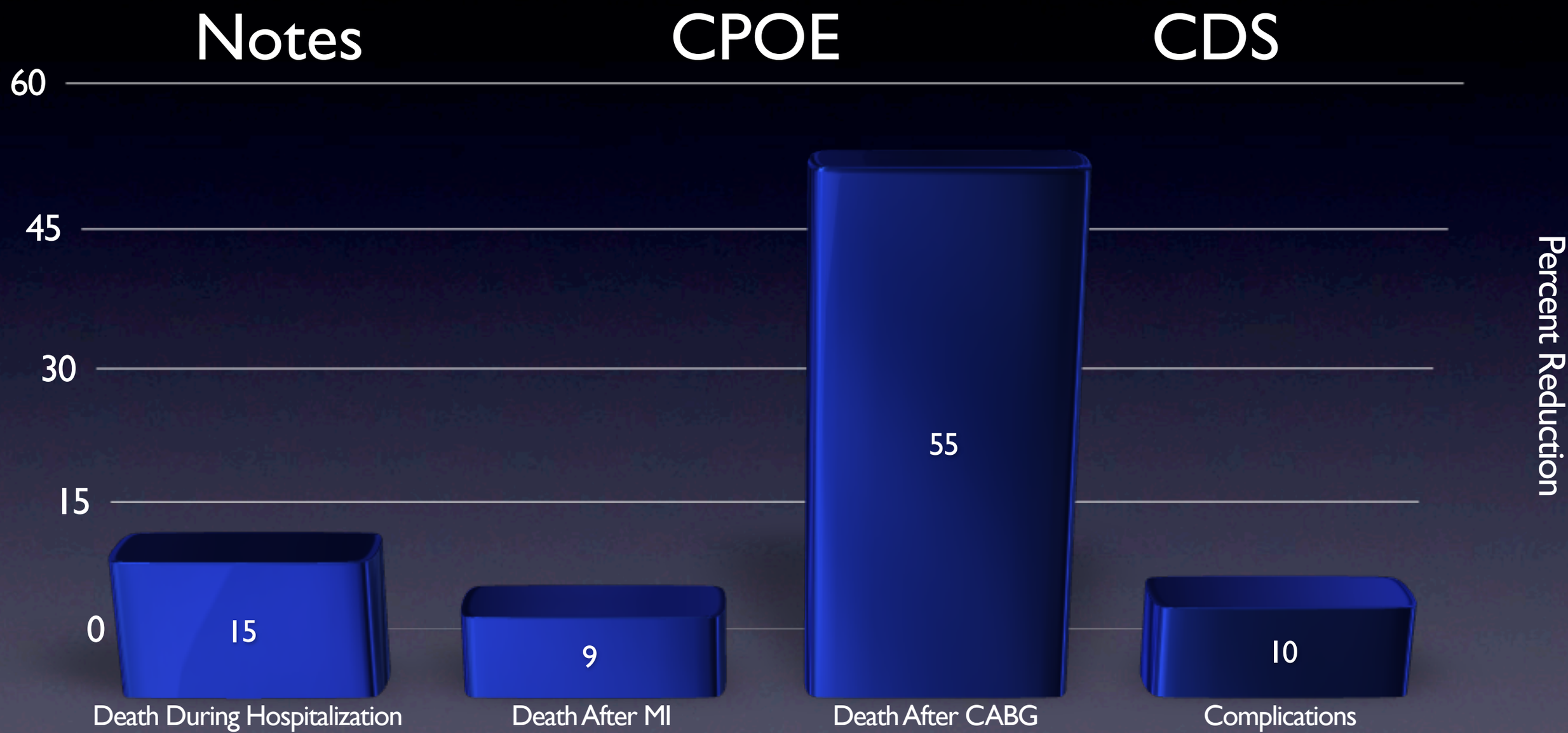
Methods: We conducted a cross-sectional study of urban hospitals in Texas using the Clinical Information Technology Assessment Tool, which measures a hospital's level of automation based on physician interactions with the information system. After adjustment for potential confounders, we examined whether greater automation of hospital information was associated with reduced rates of inpatient mortality, complications, costs, and length of stay for 167 233 patients older than 50 years admitted to responding hospitals between December 1, 2005, and May 30, 2006.

Results: We received a sufficient number of responses from 41 of 72 hospitals (58%). For all medical conditions studied, a 10-point increase in the automation of notes and records was associated with a 15% decrease in the adjusted odds of fatal hospitalizations (0.85; 95% confidence interval, 0.74-0.97). Higher scores in order entry were associated with 9% and 55% decreases in the adjusted odds of death for myocardial infarction and coronary artery bypass graft procedures, respectively. For all causes of hospitalization, higher scores in decision support were associated with a 16% decrease in the adjusted odds of complications (0.84; 95% confidence interval, 0.79-0.90). Higher scores on test results, order entry, and decision support were associated with lower costs for all hospital admissions (–$110, –$132, and –$538, respectively; $P < .05$).

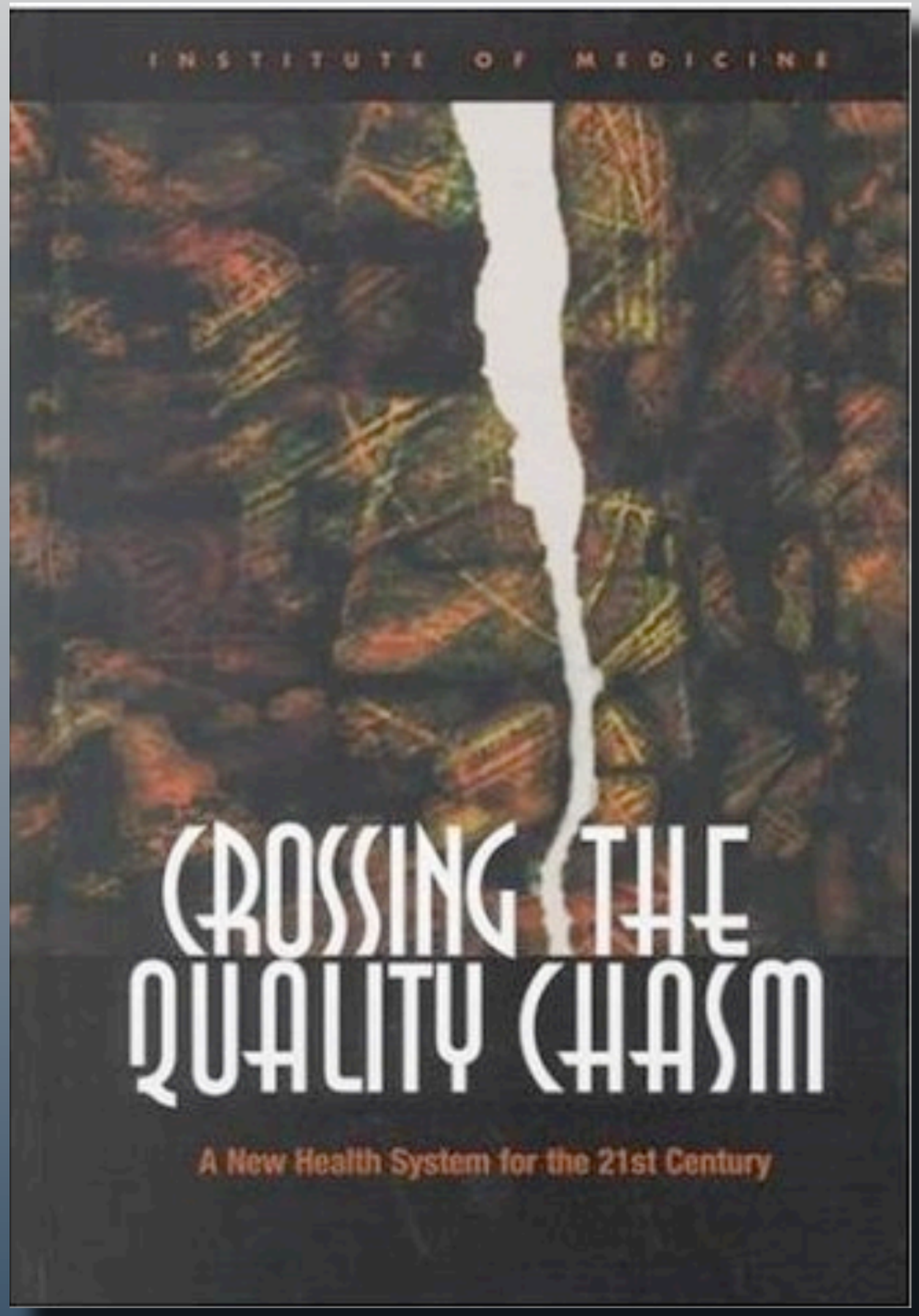
Conclusion: Hospitals with automated notes and records, order entry, and clinical decision support had fewer complications, lower mortality rates, and lower costs.

Arch Intern Med. 2009;169(2):108-114

IT and Inpatient Outcomes



Survey of 41 Hospitals in Texas



2001

"... the elimination of most handwritten clinical data by the end of the decade."

Eight Months Until the End of the Decade

The NEW ENGLAND JOURNAL of MEDICINE
April 16, 2009

SPECIAL ARTICLE

Use of Electronic Health Records in U.S. Hospitals

Ashish K. Jha, M.D., M.P.H., Catherine M. DesRoches, Dr.Ph.,
Eric G. Campbell, Ph.D., Karen Donelan, Sc.D., Sowmya R. Rao, Ph.D.,
Timothy G. Ferris, M.D., M.P.H., Alexandra Shields, Ph.D., Sara Rosenbaum, J.D.,
and David Blumenthal, M.D., M.P.P.

Table 3. Electronic Requirements for Classification of Hospitals as Having a Comprehensive or Basic Electronic-Records System.*

Requirement	Comprehensive EHR System	Basic EHR System with Clinician Notes	Basic EHR System without Clinician Notes
Clinical documentation			
Demographic characteristics of patients	√	√	√
Physicians' notes	√	√	
Nursing assessments	√	√	
Problem lists	√	√	√
Medication lists	√	√	√
Discharge summaries	√	√	√
Advanced directives	√		
Test and imaging results			
Laboratory reports	√	√	√
Radiologic reports	√	√	√
Radiologic images	√		
Diagnostic-test results	√	√	√
Diagnostic-test images	√		
Consultant reports	√		
Computerized provider-order entry			
Laboratory tests	√		
Radiologic tests	√		
Medications	√	√	√
Consultation requests	√		
Nursing orders	√		
Decision support			
Clinical guidelines	√		
Clinical reminders	√		
Drug-allergy alerts	√		
Drug–drug interaction alerts	√		
Drug–laboratory interaction alerts (e.g., digox-	√		
Adoption level — % of hospitals (95% CI)	1.5 (1.1–2.0)	7.6 (6.8–8.1)	10.9 (9.7–12.0)

* A comprehensive electronic-health-records (EHR) system was defined as a system with electronic functionalities in all clinical units. A basic electronic-records system was defined as a system with electronic functionalities in at least one clinical unit.

By Robert M. Wachter

Patient Safety At Ten: Unmistakable Progress, Troubling Gaps

doi: 10.1377/hlthaff.2009.0785
HEALTH AFFAIRS 29,
NO. 1 (2010):

ABSTRACT **December 1, 2009, marks the tenth anniversary of the Institute of Medicine report on medical errors, *To Err Is Human*, which arguably launched the modern patient-safety movement. Over the past decade, a variety of pressures (such as more robust accreditation standards and increasing error-reporting requirements) have created a stronger business case for hospitals to focus on patient safety. Relatively few health care systems have fully implemented information technology, and we are finally grappling with balancing "no blame" and accountability. The research pipeline is maturing, but funding remains inadequate. Our limited ability to measure progress in safety is a substantial impediment. Overall, I give our safety efforts a grade of B−, a modest improvement since 2004.**

Robert M. Wachter
(bobw@medicine.ucsf.edu) is professor and associate chair of the Department of Medicine at the University of California, San Francisco.

EXHIBIT 1

An Assessment Of Our Progress In Ten Key Patient-Safety Domains, 1999–2004 And 2004–2009

Safety category	2004 grade	2009 grade	Comments
Regulation/accreditation	A–	B+	An important early driver, but much of the low-hanging fruit has now been picked
Reporting systems	C	B+	Key intervention was the adoption of the NQF list to support error reporting; some improvement in analytical abilities at provider organization and state/national levels
Health information technology	B–	C+	Surprisingly low uptake over past 5 years; increasing evidence of health IT–related safety hazards and implementation challenges; new infusion of federal dollars should promote health IT adoption
Malpractice system and accountability	D+	C+	Increased pressure for accountability has led to more emphasis on "Just Culture"; more accountability at leadership level as well; practical approaches for balancing "no blame" and accountability still lagging
Workforce and training issues	B	B–	Limited but increased engagement by providers; evidence regarding impact of residency duty-hour limits mixed; nurse shortage eased but primary care shortage worse; few organizations adopting robust teamwork, culture change, or simulation programs
Research	–[a]	B–	Stronger methods are emerging; moderate, but insufficient, increase in funding; still limited data on what works; field still debating fundamental questions regarding evidence standards for safety studies
Patient engagement and involvement	–[a]	C+	Patient advocacy movements small; impact of "how can patients protect themselves?" efforts uncertain; significant progress on disclosure policies and practices
Provider organization leadership engagement	–[a]	B	Stronger focus on safety by boards, "C-suite," as business case becomes more robust; uptake of strong leadership interventions (root-cause analyses, Executive Walk Rounds) improved but spotty
National and international organizational interventions	–[a]	A–	Much stronger engagement by AHRQ, NQF, Joint Commission, ACGME, WHO, IHI, and others; better dissemination of tools, training, and requirements; some wide-scale change efforts (IHI campaigns, Michigan and WHO checklist studies) have illustrated capacity for broad engagement and measurable progress
Payment system interventions	–[a]	C+	Impact of P4P in quality uncertain; P4P not yet applied to safety because of measurement challenges; Medicare's "no pay for errors" is a provocative initiative; no evidence yet about impact and concerns regarding unintended consequences
Overall grade for progress in patient safety	**C+**	**B–**	**Most striking improvements in reporting and leadership; gaps in IT and accountability are most concerning, but both areas should see significant progress, driven by new funding (IT) and emerging consensus (accountability)**


Back
USAA
Log Off
Deposit@Mobile℠
Capture Front of Check
07/04/2009
Joseph H. Member
$ 100.00
One Hundred & no/100
for services rendered
Hazel Anderson
Smooth the check and place it on a
dark-colored, well-lit, non-reflective
surface. Then align the top of the check with
the edge guide on the next screen.
Cancel
Next
Home
More Tools
Contact Us

OpenTable®

Restaurant Reservations - Free • Instant • Confirmed

Home | My Profile | Sign Out | Mobile | Help

Seattle Restaurants, Washington Restaurants

1 Select Location

Select a Location

See other U.S. cities

See also: Portland, Vancouver BC

2 Refine Search Criteria

All Neighborhoods

All Cuisines

- OR -

Enter Restaurant Name

See all Seattle restaurants (168)

3 Select Date, Time & Party Size

12/04/2009 | 7:00 PM | 2 people

mm/dd/yyyy

See Results On A Map

Find a Table

Welcome, Barry

200 Dining Points

No Upcoming Reservations

- My Favorites
- View Your Dining Feedback

Offers and Events in Seattle / Washington

- **New Year's Eve 2009**
  Menus & Celebrations
- **Earn Free Meals Faster**
  See 1,000 Point Restaurants
- **Traveling for NYE?**
  Celebrations around the World
- **Get OpenTable Mobile**
  Free Android, BlackBerry, iPhone, and Palm Apps
- **Diners' Choice 2009 Winners**
  Top 50 Good for Groups Restaurants
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  Top 50 Best Italian Cuisine
- **Sunday Brunch**
  Restaurants & Menus

OpenTable Diners' Choice™

All Seattle / Washington

Good for Groups

Best Overall

Neighborhood Gem

Romantic

Most Booked

Best Food

Italian

Seattle

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Good for Groups

1. Maggiano's - Bellevue
2. Indochine Asian Dining Lounge
3. FareStart
4. Il Fornaio - Seattle
5. The Melting Pot - Seattle
6. Blackfish at Tulalip Resort Casino
7. Moshi Moshi Sushi
8. Tavolata
9. Barrio - Bellevue
10. Cutter's Bayhouse

Find tables at these Good for Groups restaurants

As voted by more than 77,200 diners.

List Updated: 11/02/2009

NEW

Planning a banquet or party? Try our Private Dining page

Dining Rewards

Free Meals Faster
Earn 1,000 Points

Most booked 1,000-Point tables

- Tulio
- La Dolce Vita Seattle
- Il Fornaio - Seattle
- Danube Bistro
- Rover's
- Buenos Aires Grill
- Dahlia Lounge
- Dulces Latin Bistro
- The Melting Pot - Tacoma
- Beach Cafe

See All 1,000-Point Tables >

New Restaurants

New Seattle Restaurants

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SEEDIE

Welcome to

The Society for Exorbitantly Expensive and Difficult to Implement EHRs

Welcome to SEEDIE

SEEDIE, the Society for Exorbitantly Expensive and Difficult to Implement EHR's, is a healthcare IT standards organization that is completely funded and operated by a select group of proprietary electronic health record vendors.

Unlike independent, objective, professional organizations created to help medical professionals select and implement interoperable EHR solutions, SEEDIE promotes healthcare IT systems that play well in the sandbox if, and only if, it is in the best interests of a particular vendor.

While the other groups argue endlessly about which standards are most appropriate in pursuit of "plug and play" solutions, SEEDIE recognizes that data exchange should only occur after a lengthy and expensive custom integration process. Further, that integration should require ongoing technical support from multiple vendors.

What does this little girl have to do with selecting an EHR?

ABSOLUTELY NOTHING! But it does register 10 on the warm and fuzzy meter!

EXTORMITY.COM
HAS BEEN APPROVED FOR SEEDIE CERTIFICATION

Extormity

Status of Implementation

The NEW ENGLAND JOURNAL of MEDICINE
April 16, 2009

SPECIAL ARTICLE

Use of Electronic Health Records in U.S. Hospitals

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Barriers to Implementation

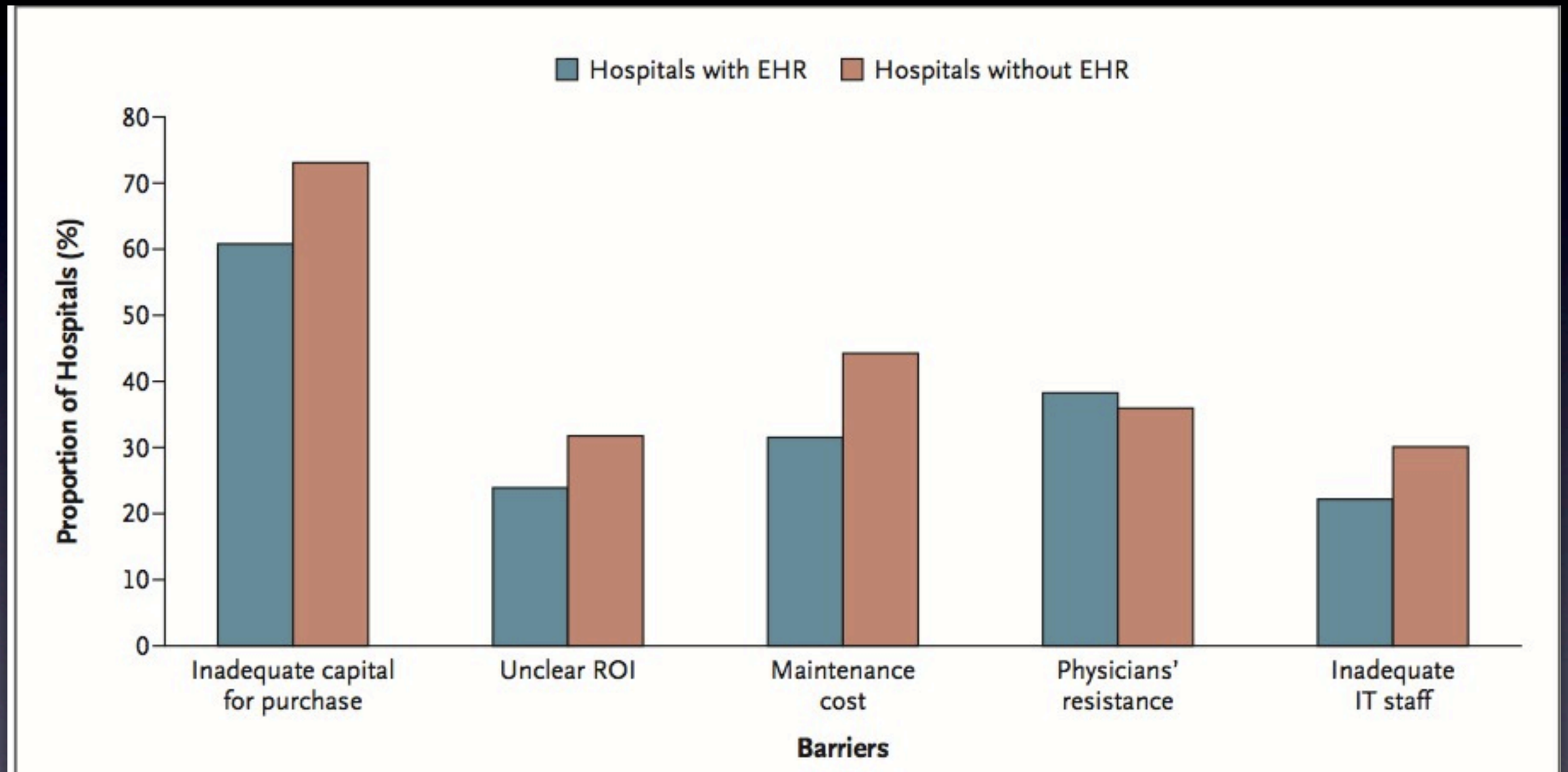


Figure 1. Major Perceived Barriers to Adoption of Electronic Health Records (EHRs) among Hospitals with Electronic-Records Systems as Compared with Hospitals without Systems.

Facilitators of Adoption

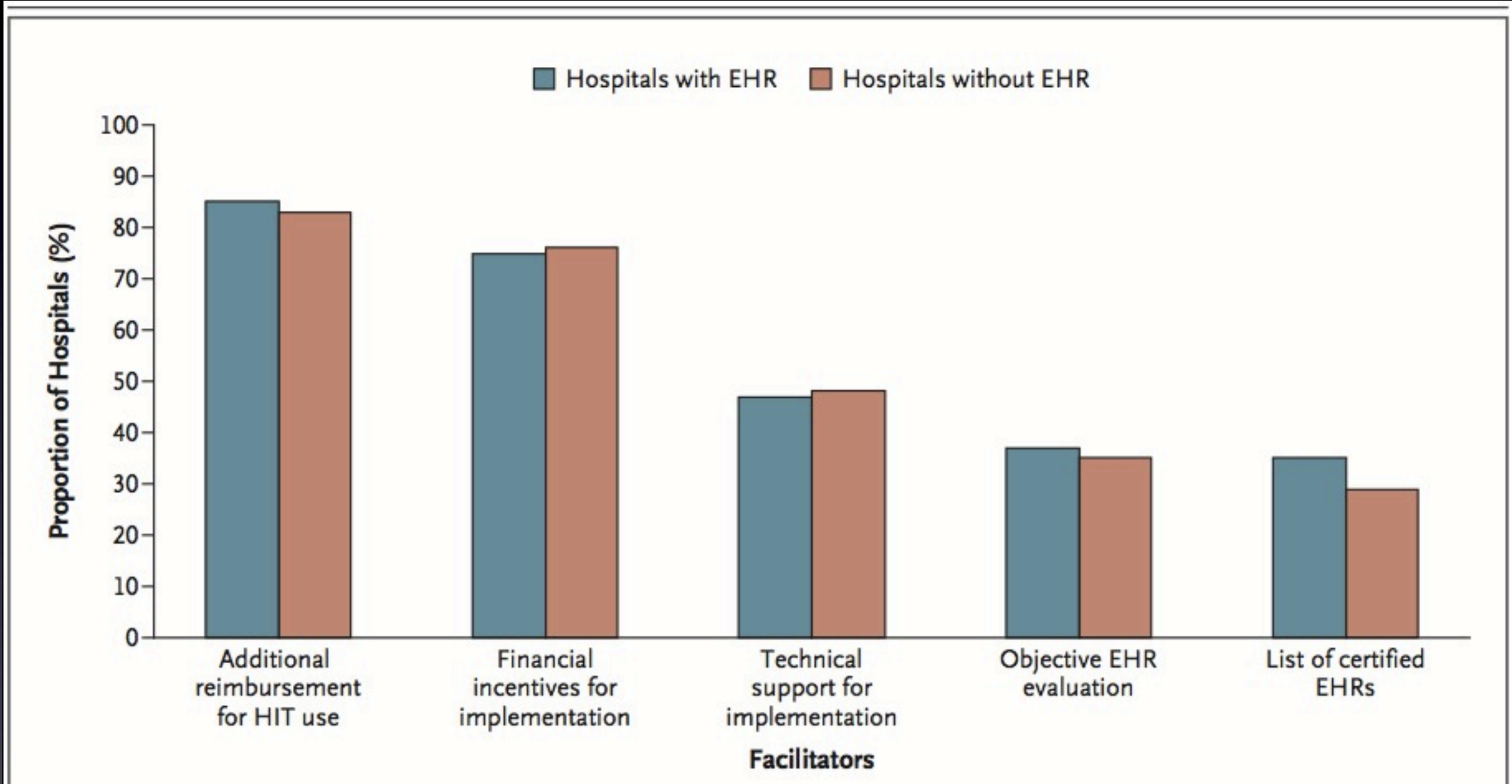


Figure 2. Perceived Facilitators of Adoption of Electronic-Records Systems among Hospitals with Systems as Compared with Hospitals without Systems.

Federal Funding

HITECH Act

- ARRA- American Recovery and Reinvestment Act
- Health Information Technology for Economic and Clinical Health
  - $19 Billion for EHRs
    - $2 Million/Hospital/Year
  - Meaningful Use Criteria

Critical HIT Components Needed to Ensure Quality

- Computer System
- Discrete Data
- Right Software/Programing
- Realtime Provider Feedback
- Group (Team) Situational Awareness

Critical HIT Components Needed to Ensure Quality

- Computer System
- Discrete Data
- Right Software/Programing
- Realtime Provider Feedback
- Group Situational Awareness

VM Record Storage in Georgetown

UW Record Storage Sand Point Naval Hanger

Server Cabinet

$40M of Computer Equipment

30 Terabytes of Disk

7,500,000 Songs or 60 Years of Listening!

Tape Backup

Electronic Health Record

American Hospital Assn. study, "Continued Progress: Hospital Use of Information Technology," Feb. 27, 2007

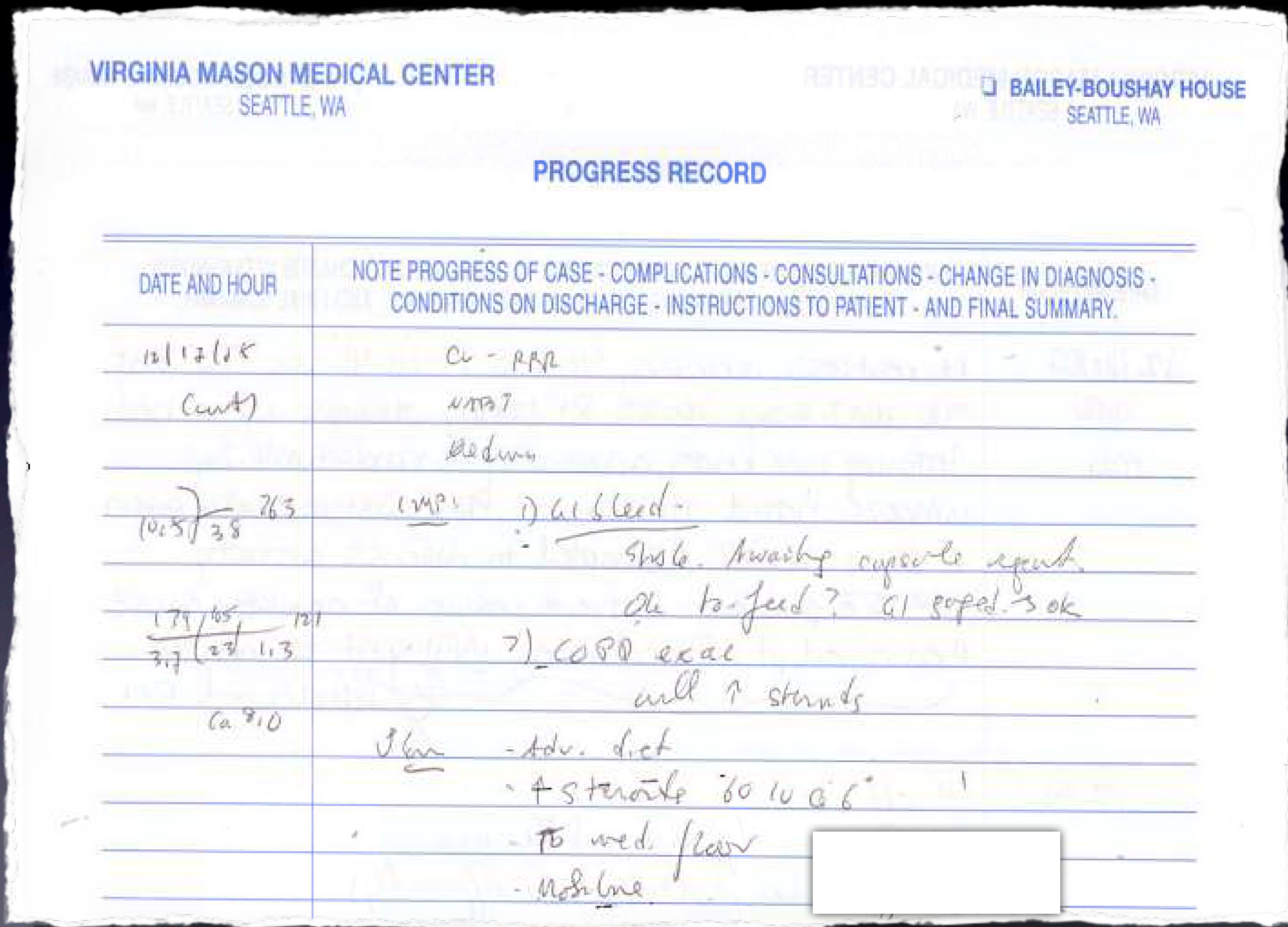
- $17,616 per bed in 2006
  - $12,060 for operating costs
  - $5,556 for capital costs
- 400 Bed Hosp-> $10 Million

Critical HIT Components Needed to Ensure Quality

✓ Computer System

- Discrete Data
- Right Software/Programing
- Realtime Provider Feedback
- Group Situational Awareness

Handwritten Note



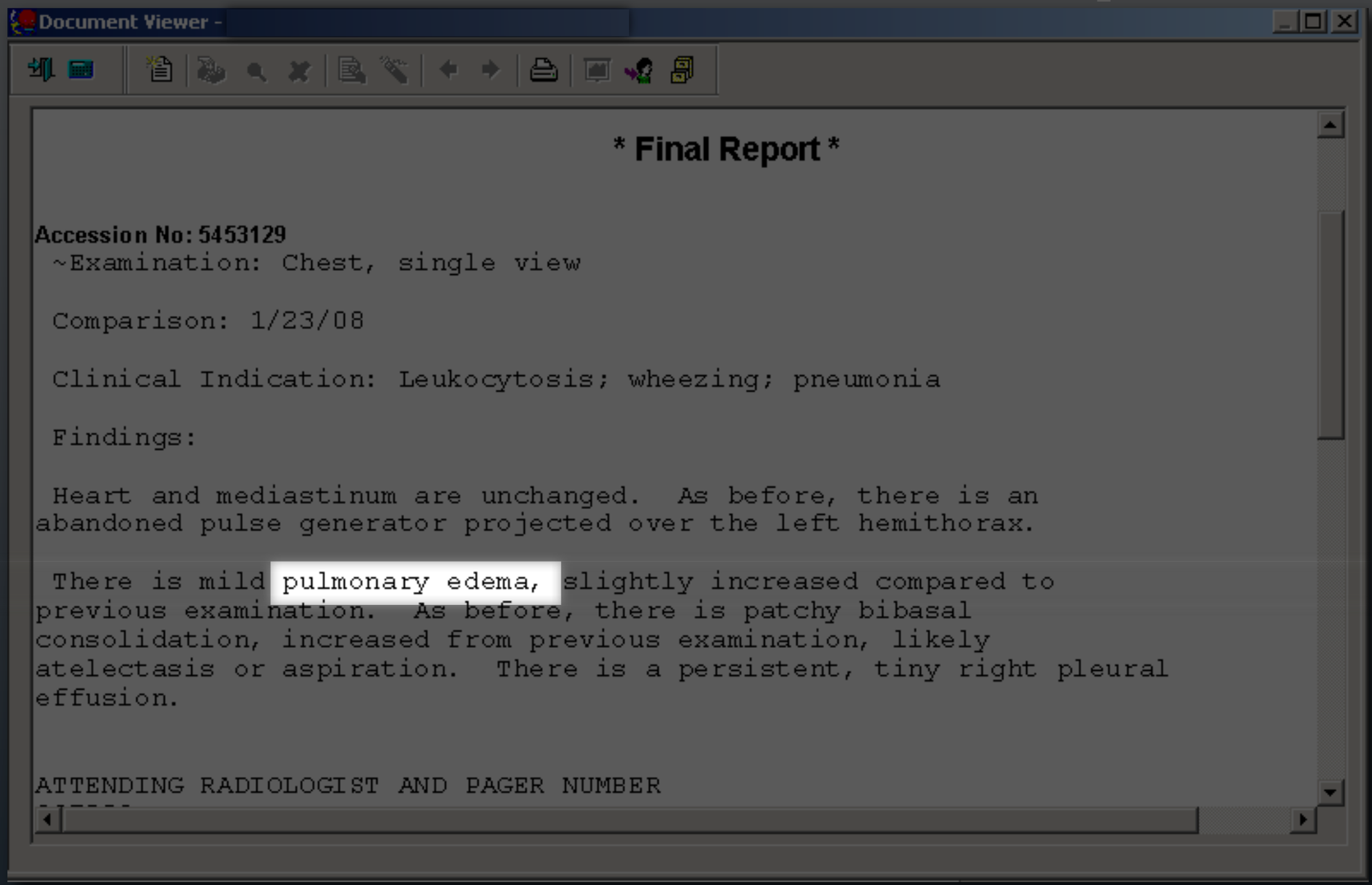
VIRGINIA MASON MEDICAL CENTER
SEATTLE, WA

☐ BAILEY-BOUSHAY HOUSE
SEATTLE, WA

PROGRESS RECORD

DATE AND HOUR	NOTE PROGRESS OF CASE - COMPLICATIONS - CONSULTATIONS - CHANGE IN DIAGNOSIS - CONDITIONS ON DISCHARGE - INSTRUCTIONS TO PATIENT - AND FINAL SUMMARY.
12/17/05	CV - RRR
(Cont)	[illegible]
	Edema [illegible]
10.5 / 38, 263	IMP: 1) GI bleed -
	Stable. Awaiting capsule report.
	OK to feed? GI agreed - ok
179/105/121, 3.7/28/1.3	2) COPD exac
	will ↑ steroids
Ca 9.0	Plan - Adv. diet
	↓ steroids 60 to 40
	- To med floor
	- Mobilize

Free Text Rads Report



Clinical Notes, Pathology Reports

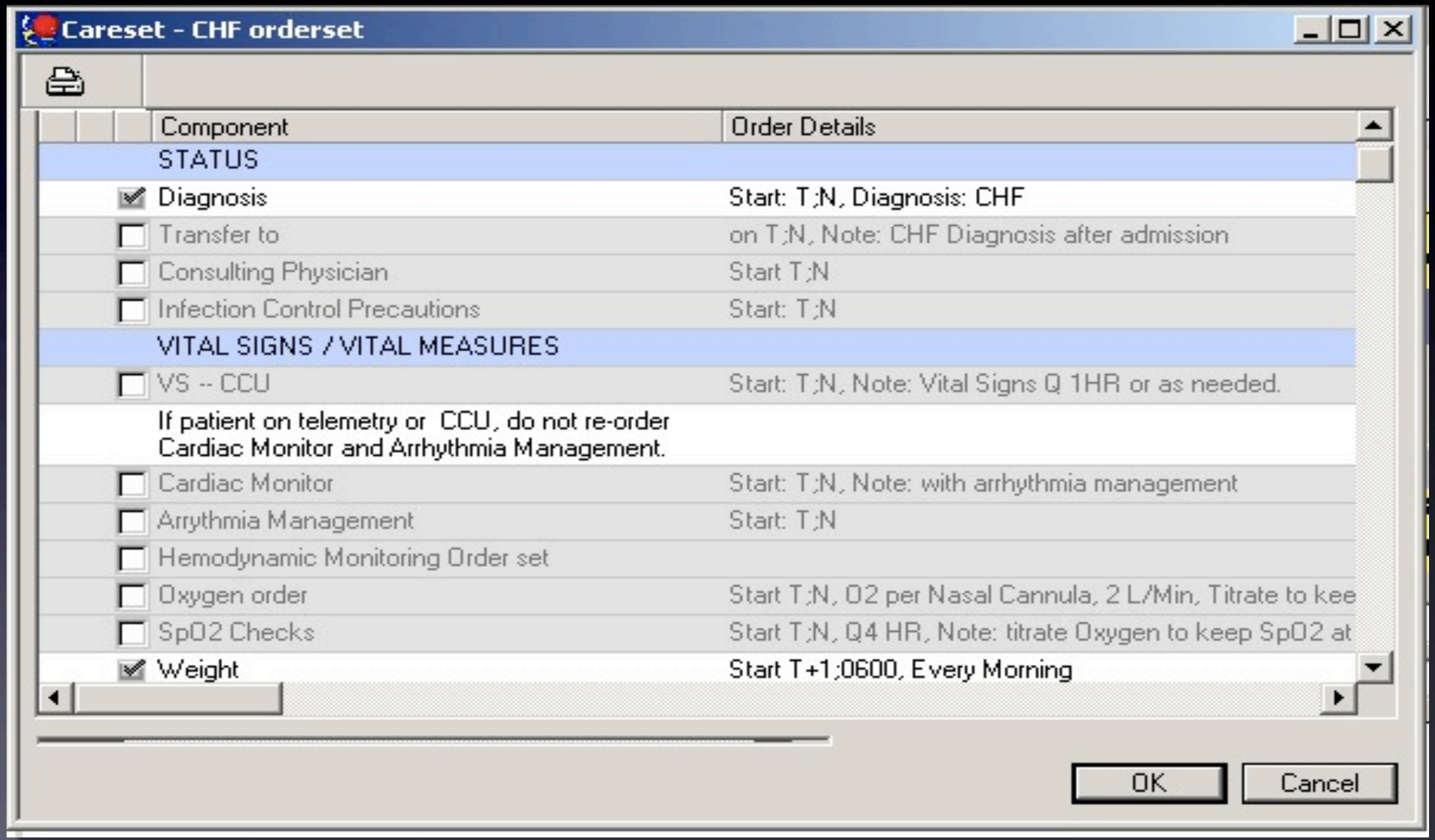
Discrete Data- Meds

MAR Summary 48H

09 August 2009 0700 - 13 August 2009 0659

Time View	08/09/2009 0700 - 0659	08/10/2009 0700 - 0659	08/11/2009 0700 - 0659	08/12/2009 0700 - 0659
Scheduled				
aspirin 325 mg, ec tablet, PO, Daily, NOW, Start: 08/10/09 15:18:00		Not Given: dcd per MD order @1626		
aspirin 325 mg, tab, PO, Daily With Breakfast, NOW, Start: 08/10/09 20:26:00		325 mg @1807 325 mg @2030 Pain Intensity: 8 Pain Location: Head Frontal	325 mg @0800	@0800
docusate 200 mg, cap, PO, Daily, Routine, Start: 08/10/09 14:41:00		200 mg @2100	200 mg @0900	@0900
docusate 100 mg, cap, PO, Q12 HR, Routine, Start: 08/10/09 21:00:00				
lisinopril 10 mg, tab, PO, Daily, NOW, Start: 08/11/09 9:55:00			10 mg @0955	@0900
metoprolol (metoprolol oral tablet) 25 mg, tab, PO, Q12 HR, Routine, Start: 08/10/09 21:00:00		25 mg @1807 25 mg @2100 Systolic Blood Pressure: 143 mmHg Heart Rate: 60 bpm	25 mg @0900 Systolic Blood Pressure: 152 mmHg Heart Rate: 66 bpm 25 mg @2107	@0900 @2100
sodium chloride (saline lock flush-peripheral line) 2 mL, inj, IV, Q12 HR, Routine, Start 08/10/09 9:46:00, for 4 hr, Stop 08/10/09 9:46:00, Note: Flush every 12 hours ...		2 mL @0946		
sodium chloride (saline lock flush-peripheral line) 2 mL, inj, IV, Q12 HR, Routine, Start 08/10/09 9:49:00,		2 mL @0949	Not Given: Not Appropriate at this Time @0900	@0900

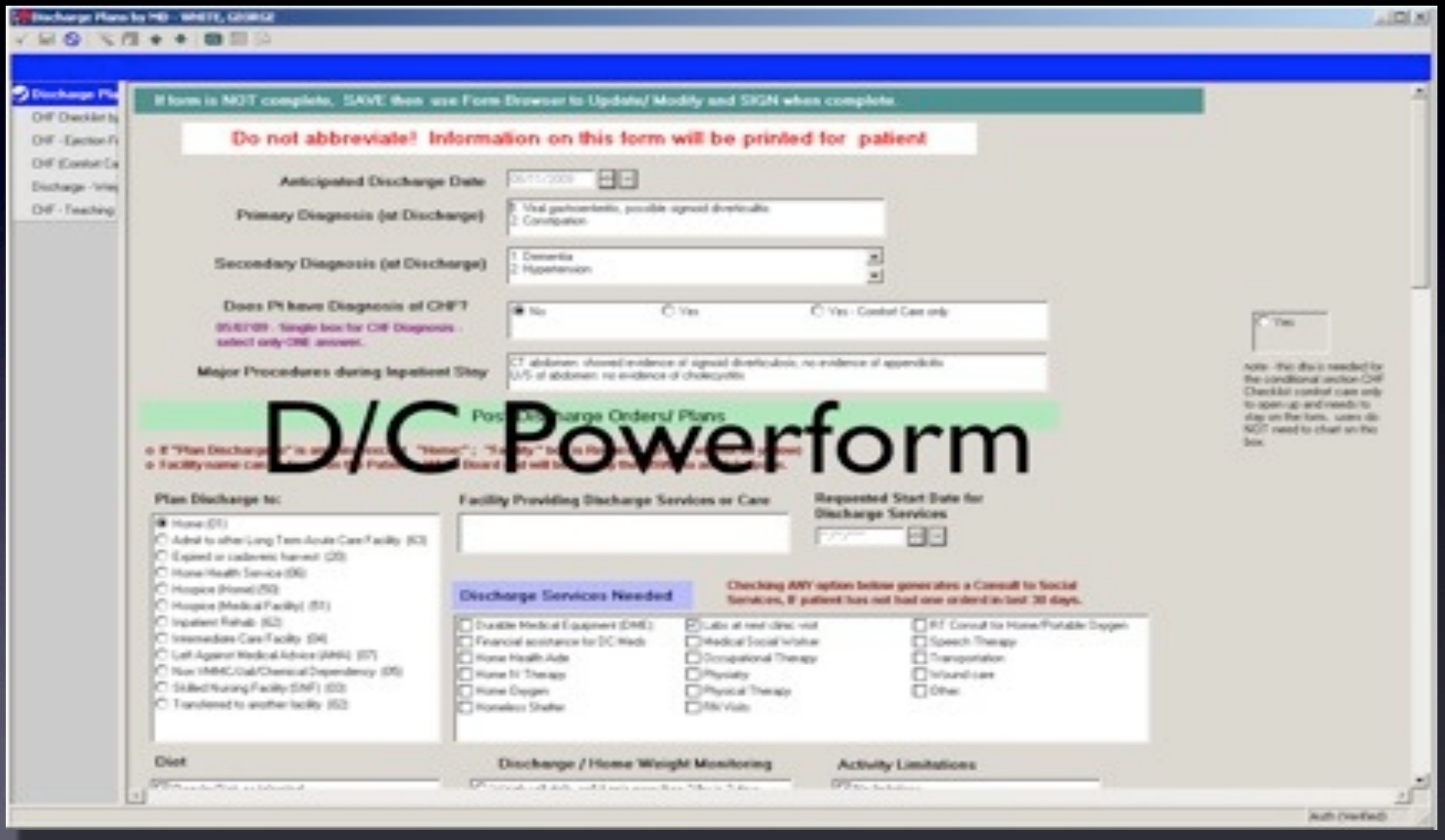
Discrete Data- Orders



Discrete Data- Labs

Lab and Rad Results	10/20/2009 6:10	10/19/2009 9:30	10/19/2009 8:50	10/19/2009 5:05	10/19/2009 5:00	10/18/2009 21:22	10/18/2009 10:00	10/18/2009 6:55	10/18/2009 5:01	10/18/200 4:55
Hemogram										
White Blood Cell Count	6.9 K/cmm				7.7 K/cmm					9.1 K/cmm
Red Blood Cell Count	L 3.52 M/cmm				L 3.32 M/cmm					L 3.08 M/cr
Hemoglobin	L 8.6 g/dL				L 8.0 g/dL					L 7.5 g/dL
Hematocrit	L 27 %				L 25 %		L 23 %			L 23 %
Mean Corpuscular Volume	L 76 fL				L 75 fL					L 76 fL
Mean Corpuscular HGB	L 24 pg				L 24 pg					L 24 pg
Mean Corpuscular HGB Concentrn	L 32 g/dL				L 32 g/dL					L 32 g/dL
RBC Distribution Width	H 19.5 %				H 18.5 %					H 19.0 %
Platelet Count	371 K/cmm				251 K/cmm					162 K/cmm
Reticulocyte Count										
Differential: Percent (Automated)										
Lymphocytes, Percent	26.4 %				19.7 %					
Monocytes, Percent	8.7 %				8.2 %					
Granulocytes, Percent	60.8 %				70.5 %					
Eosinophils, Percent	3.4 %				1.3 %					
Basophils, Percent	0.7 %				0.3 %					
Differential: Absolute Count (Automated)										
Lymphocytes, Absolute Count	1.8 K/cmm				1.5 K/cmm					
Moncytes, Absolute Count	0.6 K/cmm				0.6 K/cmm					
Granulocytes, Absolute Count	4.2 K/cmm				5.4 K/cmm					
Eosinophils, Absolute Count	0.2 K/cmm				0.1 K/cmm					
Basophils, Absolute Count	0.1 K/cmm				0.0 K/cmm					
Differential: Percent (Manual)										
Lymphocytes Percent										L 11 %
Monocytes Percent										L 1 %
Polymorphonuclear Leukocytes Percent										74 %
Bands Percent										H 12 %

Discrete Data- Forms



Discrete Data- Note

PowerNotes

Print 0 minutes ago

Add Forward Dictate Find Term Required

Progress Note | List

- Basic Information
- Subjective
- ✓ Review of Systems
- Health Status
- Objective
- Review / Management
- Impression and Plan

Author: Aaronson MD, Barry A

Basic Information <Hide Structure>

Admit information	Admission Day === / Today's information === / OTHER

Subjective <Show Structure>

Review of Systems <Hide Structure>

Constitutional >>	Negative / Fever / Chills / Sweats / Weakness / Fatigue / Decreased activity / OTHER
Eye >>	Negative / Recent visual problem / Icterus / Discharge+ / Blurring / Double vision / Visual disturbances / OTHER
ENMT >>	Negativ / Decreased hearing+ / Ear pain+ / Nasal congestion / Sore throat / OTHER
Respiratory >>	Negativ / SOB / Cough / Sputum production / Hemoptysis / Wheezing / Cyanosis / Apnea / OTHER
Cardiovascular >>	Negativ / Chest pain+ / Palpitations / Bradycardia / Tachycardia / Peripheral edema / Syncope / OTHER
Breast	Negative / Left / Right / Both / Lump/ mass / Nipple discharge / Engorgement / Pain+ / Redness / OTHER
Gastrointestinal >>	Negative / Nausea / Vomiting / Diarrhea / Constipation / Heartburn / Abdominal pain+ / Hematemesis / OTHER
Genitourinary >>	Negative / Dysuria / Hematuria / Change in urine stream / Urethral discharge / Lesions / OTHER
Gynecologic >>	Negative / Menstrual cycle+ / LMP === / Age at menarche === years / Dysmenorrhea / Hot flashes / Intermenstrual bleeding / OTHER
Hema/Lymph >>	Negative / Bruising tendency / Bleeding tendency / Swollen lymph glands / OTHER
Endocrine >>	Negative / Excessive thirst / Polyuria / Cold intolerance / Heat intolerance / Excessive hunger / OTHER
Immunologic >>	Negative / Immunocompromised / Recurrent fevers / Recurrent infections / Malaise / OTHER
Musculoskeletal >>	Negative / Back pain+ / Neck pain / Joint pain / Muscle pain / Claudication / Decreased ROM / Trauma / OTHER
Integumentary >>	Negative / Rash / Pruritus / Abrasions / Breakdown / Burns / Dryness / Petechiae / Skin lesion / OTHER

Note Details: Aaronson MD, Barry A, 10/20/2009 17:46, Progress Note

Sign | Save | Save & Close | Cancel

Discrete Data

SDU, Fourteen - 9114041014 Opened by Aaronson MD, Barry A

Task Edit View Patient Chart Links Help

Tear Off Attach Suspend Charges Charge Entry Exit Calculator AdHoc md+calc google Patient List Patient Access List Home In-Box Schedule V-Net Clinical Apps Philips iSite

SDU, Fourteen X

List Recent MRN

SDU, Fourteen DOB:12/16/1955 Age:53 years Sex:Female MRN:9114041014 Loc:TestUnit

Allergies: penicillin, atenolol, Contrast Dye, heparin, io... IQHealth: No Fin#:EP200904282 Inpatient Medical: [04/27/2009 17:09 - <No - Discharge date>]

Menu - Hospitalist

Diagnosis & Problems

Print ago

Classification View: Active & Inactive Problems — Change View

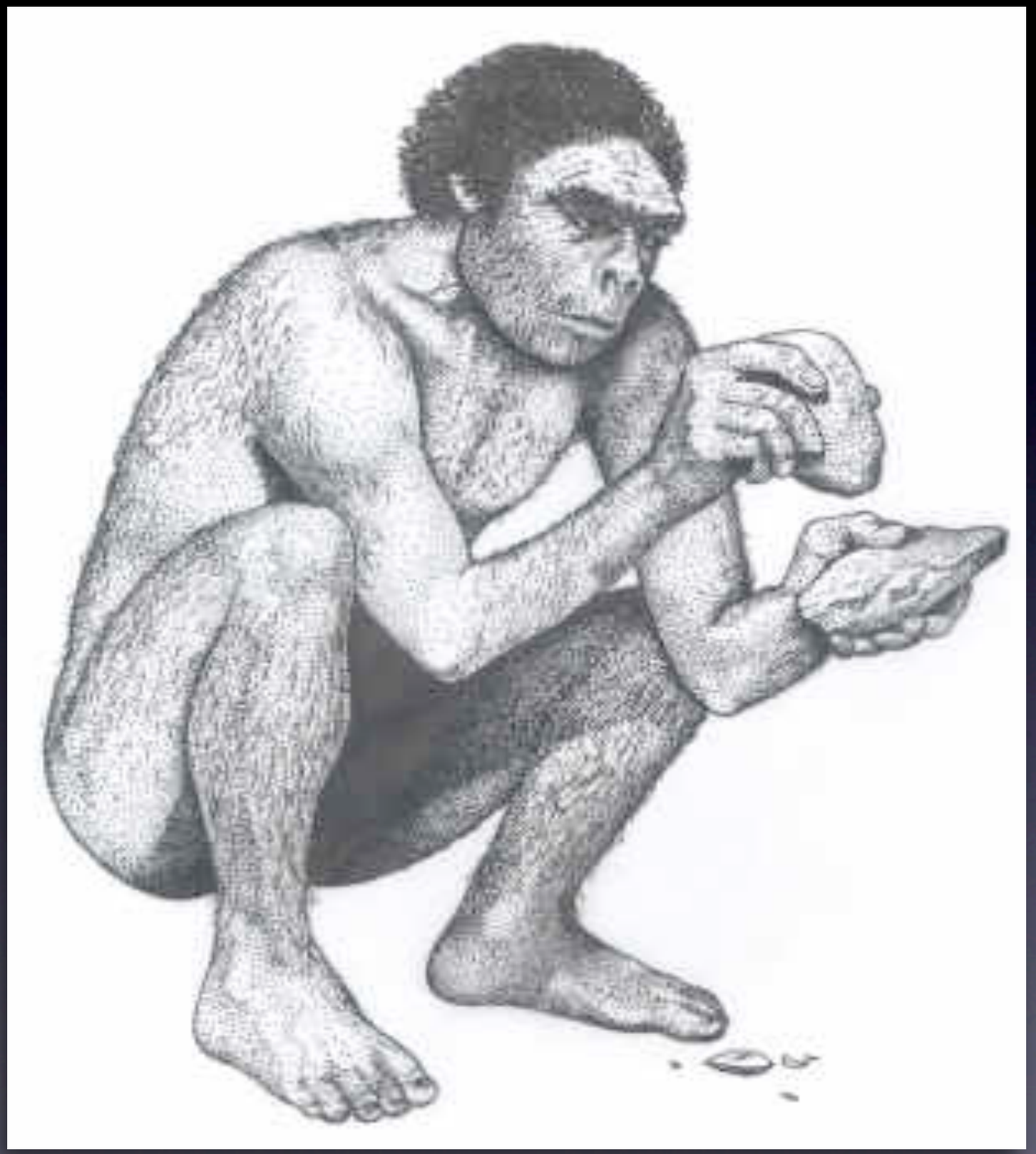
	Name of Problem	Annotated Display	Code		Onset Date	Responsible Provider	Life Cycle Date	Classification
Medical								
	ASTHMA	ASTHMA	493		2005		09/21/2005	Medical
	MALIGNANT NEOPLASM ...	breast cancer bilateral	174.9		About 2009		06/22/2007	Medical
	Intestinal infection due to o...	Intestinal infection d...	008			Test MD, Mary Lou		Medical
	Diabetes mellitus type II	Diabetes mellitus typ...	250.00		2009		12/05/2008	Medical
	Concept - Diabetes	Concept - Diabetes					04/28/2009	Medical
	ACUTE ON CHRONIC SY...	ACUTE ON CHRON...	428.23				01/06/2009	Medical
	HEART FAILURE	HEART FAILURE	428				02/04/2009	Medical
	Obstructive sleep apnea	Obstructive sleep ap...	327.23		2009		02/17/2009	Medical
	ACUTE SYSTOLIC HEAR...	ACUTE SYSTOLIC ...	428.21				03/05/2009	Medical
	Concept - High-Risk Vascu...	Concept - High-Risk ...					04/28/2009	Medical
	DIABETES MELLITUS	DIABETES MELLIT...	250		04/28/2006		04/28/2009	Medical
	ACUTE MYOCARDIAL INF...	ACUTE MYOCARDI...	410		2009		04/28/2009	Medical
	Breast cancer, female	Breast cancer, femal...	174.9		2009		04/28/2009	Medical

Problem List

Critical HIT Components Needed to Ensure Quality

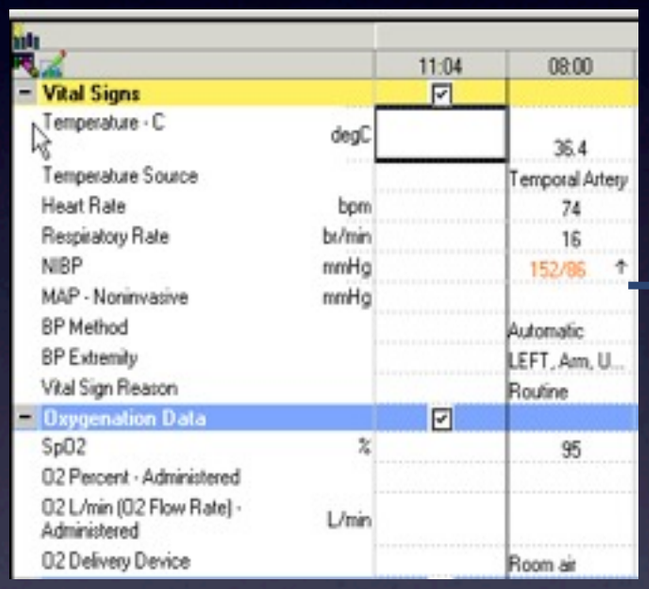
- ✓ Computer System
- ✓ Discrete Data
- ✓ Right Software/Programing Tools
- Realtime Provider Feedback
- Group Situational Awareness

Cerner Command Language- CCL

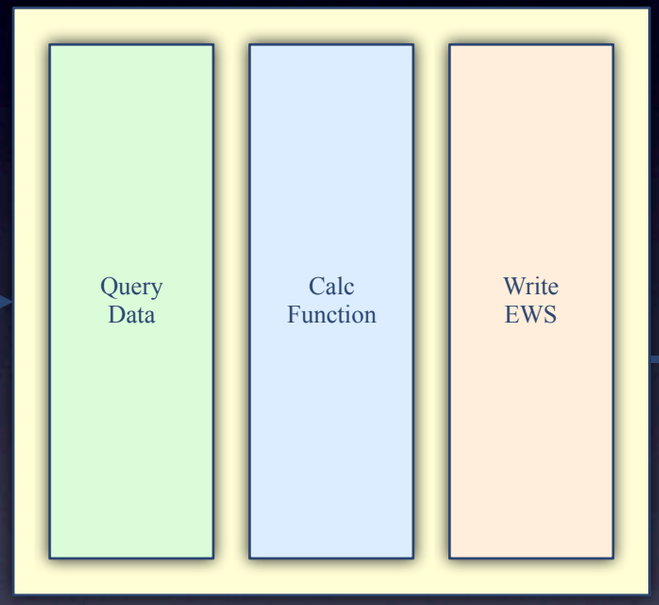


MPages

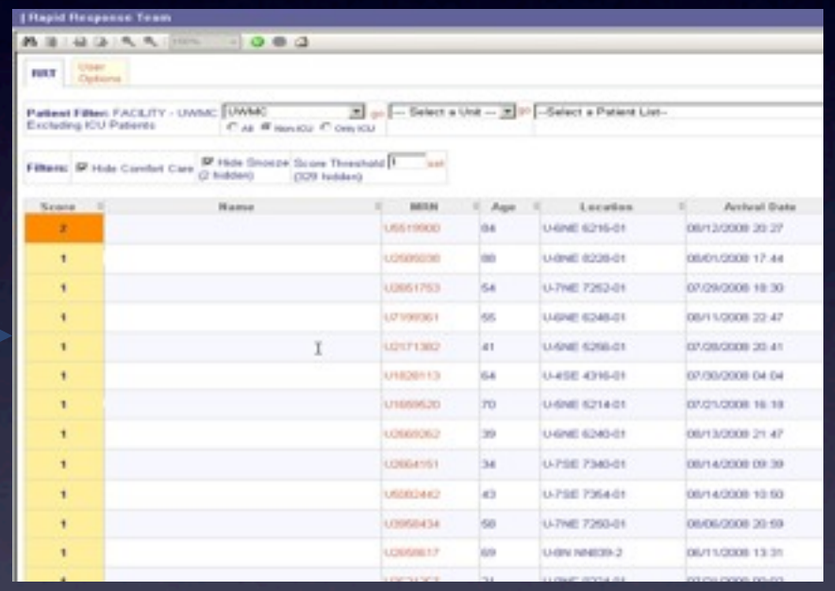
RN Charts Routine Data



CCL Script – runs every 5 minutes



Discern Desktop – CCL Script



Clinical Data

CCL Script

Web Page

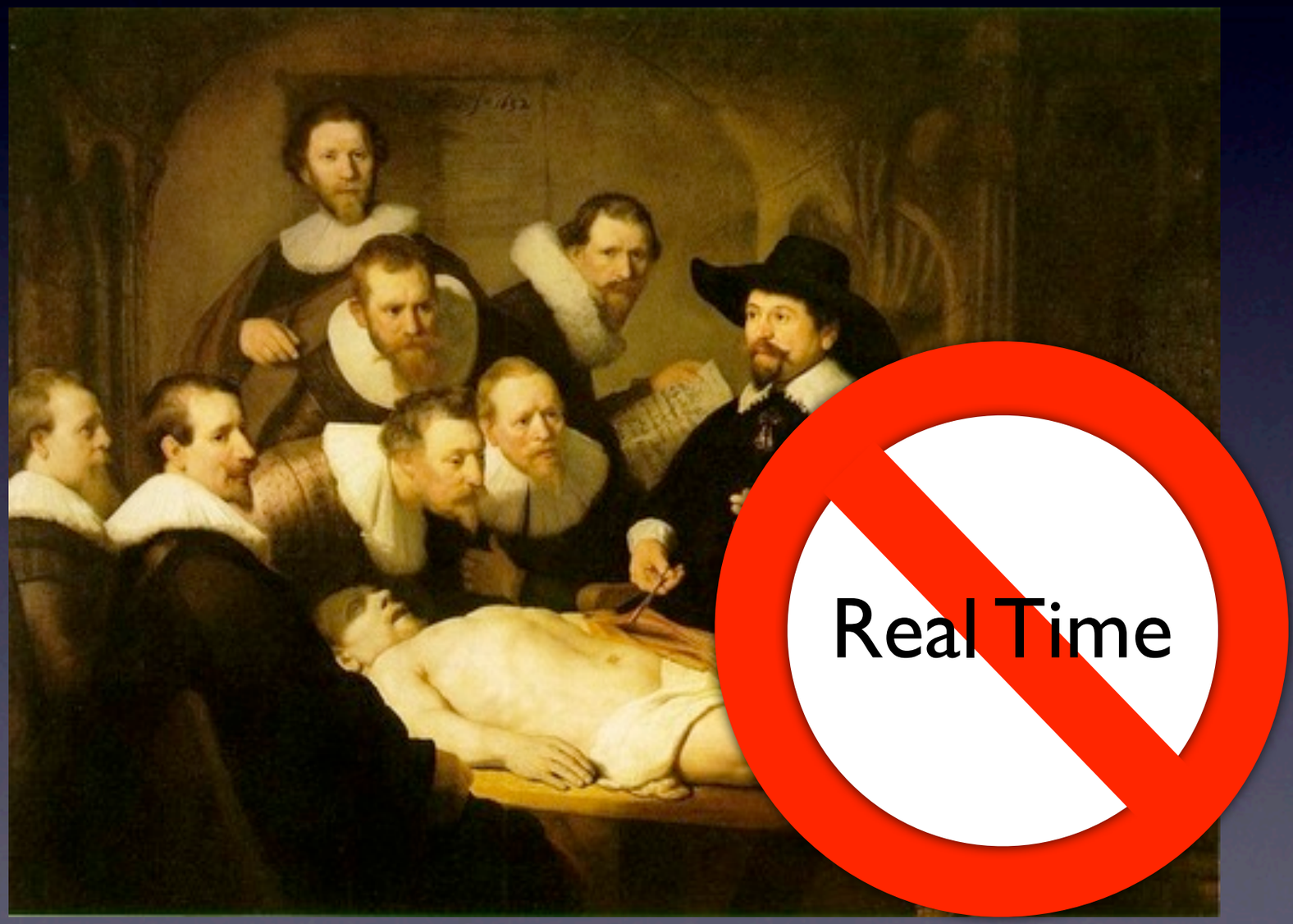

Pimp
My
EMR
Vedant TestStream: Formulary Item: ACE120S (Acetaminophen 120mg Sup), Processing: 6/2500, 4 Failures
MAR Documentation
VEDANT, TEST07151932
acetaminophen
*Performed date / time
*Performed by
No record of last documented administration.
*acetaminophen
*Route:
Reason:
Not Given
Comment
** No Known Allergies **
Outpatient (1/10/2006 7:3

Critical HIT Components Needed to Ensure Quality

- ✓ Computer System
- ✓ Discrete Data
- ✓ Right Software/Programing
- Realtime Provider Feedback aka Clinical Decision Support
- Group Situational Awareness

Retrospective Improvement Efforts

- Conferences
- Journal Clubs
- Section Meetings
- Housestaff Orientations
- M&M



Quality Safety Dashboard

Quality Safety Dashboard

150%

Data Last Updated:09/18/09 10:46:00

ICU Dashboard | RRT Dashboard | User Options

Patient Filter: UNIT - U-5E Excluding ICU Patients

UWMC go | U-5E go | --Select a List-- go

All | Non-ICU | Only ICU

Refreshes q5min

Maximize Table

Patient Info	Encounter Info	Patient Status	DVT Prophy	GI Prophy	Glucose	Oral Care	HOB	Sedation	SBT
	U-5E 5N504-1 09/15/2009 13:45 Glenny, MD, Robb William	-	heparin R	ranitidine	101/140 Yes	4/1/2	Normal	OK	Missed
	U-5E 5N512-1 09/14/2009 05:16 Glenny, MD, Robb William	-	heparin R	No Vent	93/178 Yes	No Vent	No Vent	Low	No Vent
	U-5E 5N516-1 09/17/2009 06:10 Flum, MD, David Reed	-	heparin R	No GI Prophy	95/153 No	4/1/0 R	Normal	OK	Missed
	U-5E 5N518-1 09/17/2009 03:54 Merel, MD, Susan Eva	-	heparin R	No Vent	108/111 No	No Vent	No Vent	No Assessment	No Vent
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	U-5E EE528-1 07/26/2009 19:01 Tonelli, MD, Mark Raymond	-	heparin R	pantoprazole	123/190 No	2/1/2 R	Normal	OK	Missed
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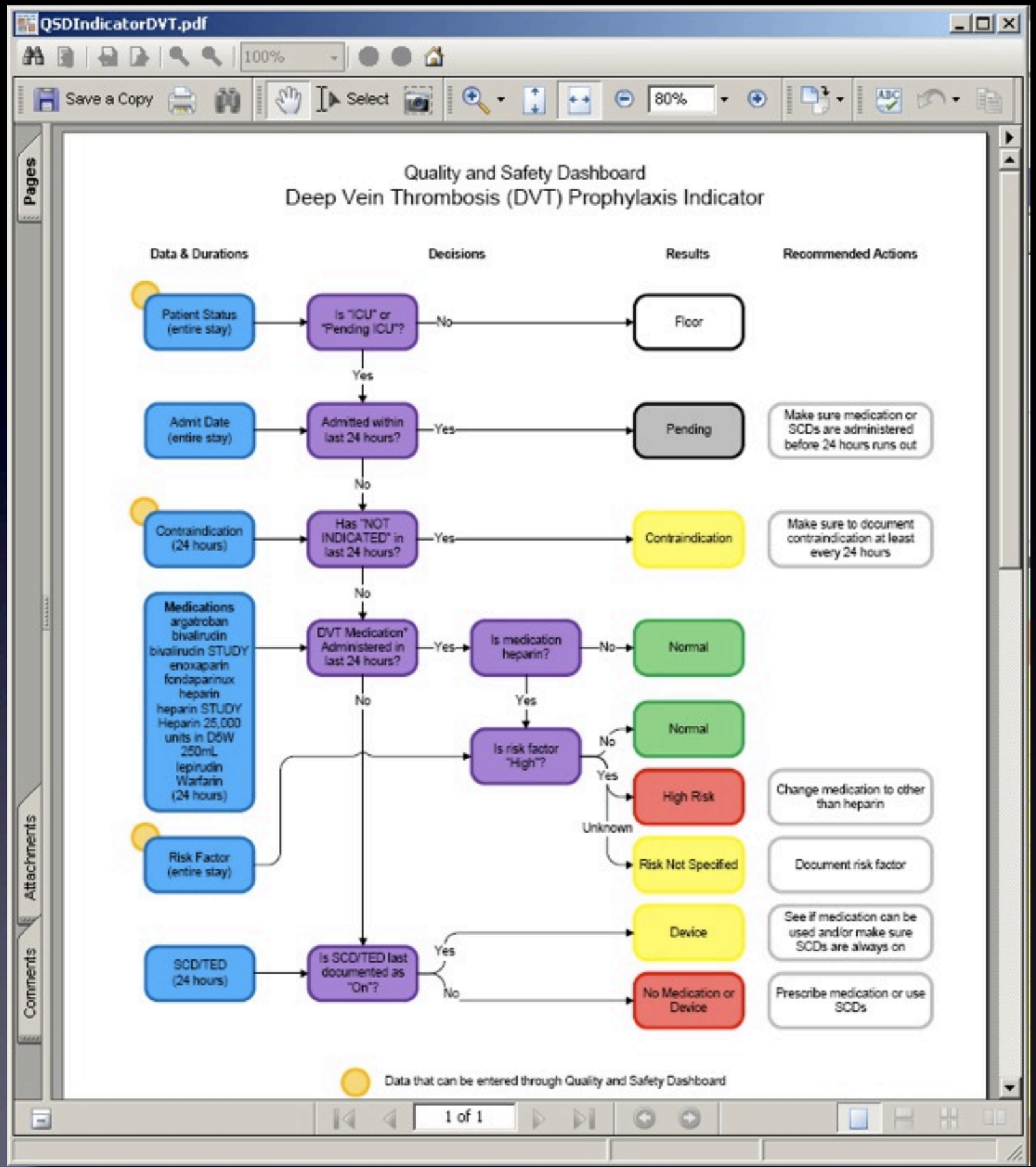
	U-5E EE530-1 09/17/2009 08:50 Flum, MD, David Reed	-	heparin R	No Vent	105/144 No	No Vent	No Vent	No Assessment	No Vent

Clinical Algorithm



Quality Safety Dashboard

Quality Safety Dashboard

150%

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ICU Dashboard | RRT Dashboard | User Options

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All | Non-ICU | Only ICU

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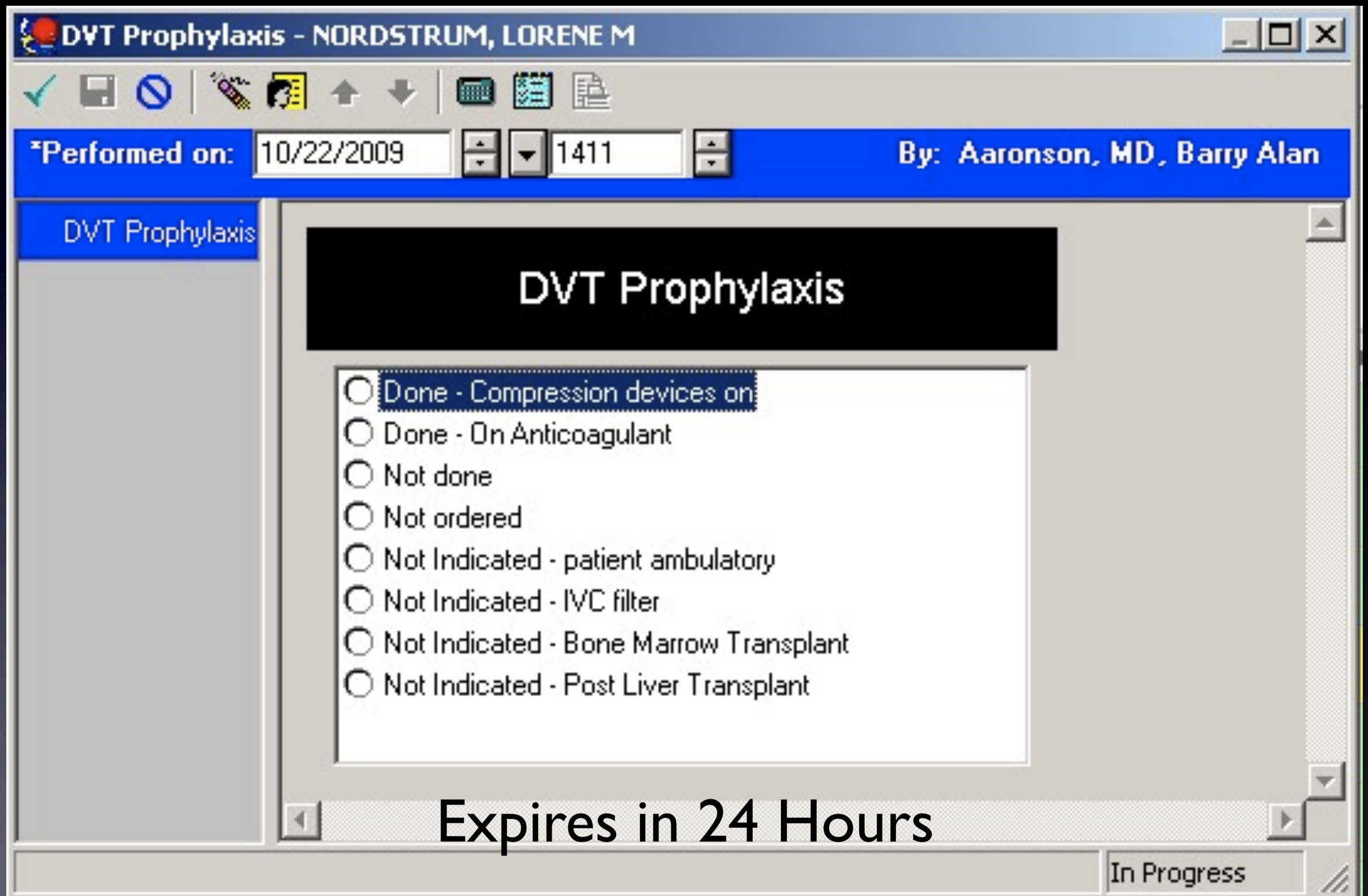
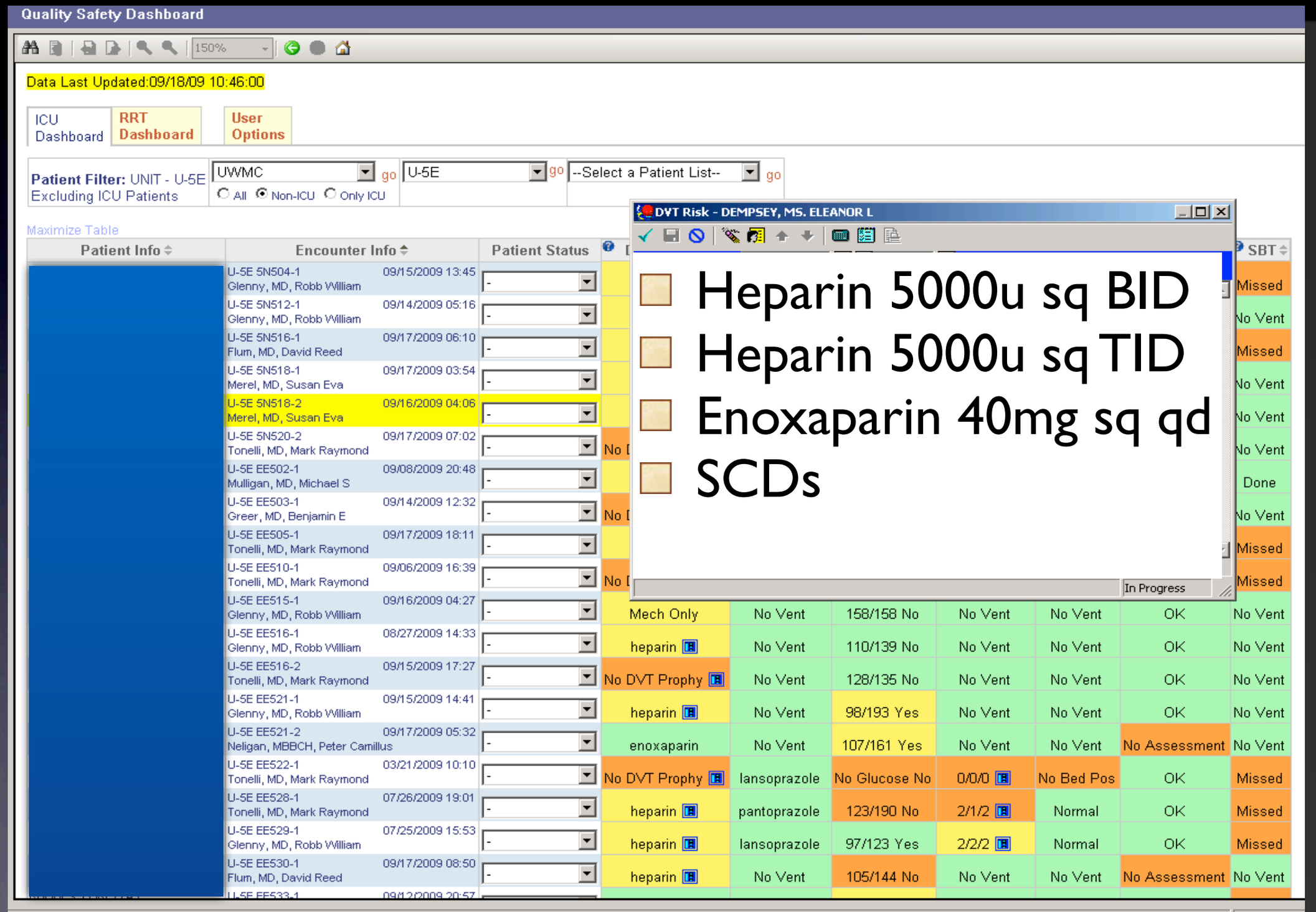
	U-5E EE533-1 09/12/2009 20:57								

Document



Expires in 24 Hours

Write Orders



Critical HIT Components Needed to Ensure Quality

- ✓ Computer System
- ✓ Discrete Data
- ✓ Right Software/Programing
- ✓ Realtime Provider Feedback aka Clinical Decision Support
- Group (Team) Situational Awareness

Alert Fatigue

Discern

Discern Alert

Patient : ZZZTEST, PHS

CHF is on the Diagnosis List
LVEF is <40%
Creat <2.4 mg/dl
No ACE/ARB Ordered

Add ACE/ARB as per CHF Bundle?

- ☐ Lisinopril
- ☐ Losartan

☑ Cancel Previous Order for digoxin

OK

JAMA®

Online article and related content current as of November 19, 2008.

Patient Care, Square-Rigger Sailing, and Safety

Steven J. Henkind; J. Christopher Sinnett

JAMA. 2008;300(14):1691-1693 (doi:10.1001/jama.300.14.1691)

http://jama.ama-assn.org/cgi/content/full/300/14/1691

SITUATIONAL AWARENESS

OR Dashboard

Bed Control

Hospital Dispatch

Harborview Cafe

White Board


ROOM
PATIENT
INC
ON DUTY
DAY RN
NOC RN
PCT
755-1
755-2
756
757-1
757-2
758
759
759
763
764
766
768
ANM/CA
PFC/MH
TELE
IMC
TELE
IMC
TELE
NON-TELE
NON-TELE
IMC
Susan/ Courtney
Shannon
Shannon
Laura
Shannon
Laura
Susan & Courtney
Susan & Courtney
Laura
Alison
Alison
Alison
Alison
Alison
BJ
Alison
Alison
BJ

Quality Safety Dashboard

Quality Safety Dashboard

150%

Data Last Updated:09/18/09 10:46:00

ICU Dashboard | RRT Dashboard | User Options

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UWMC go | U-5E go | --Select a Patient List-- go

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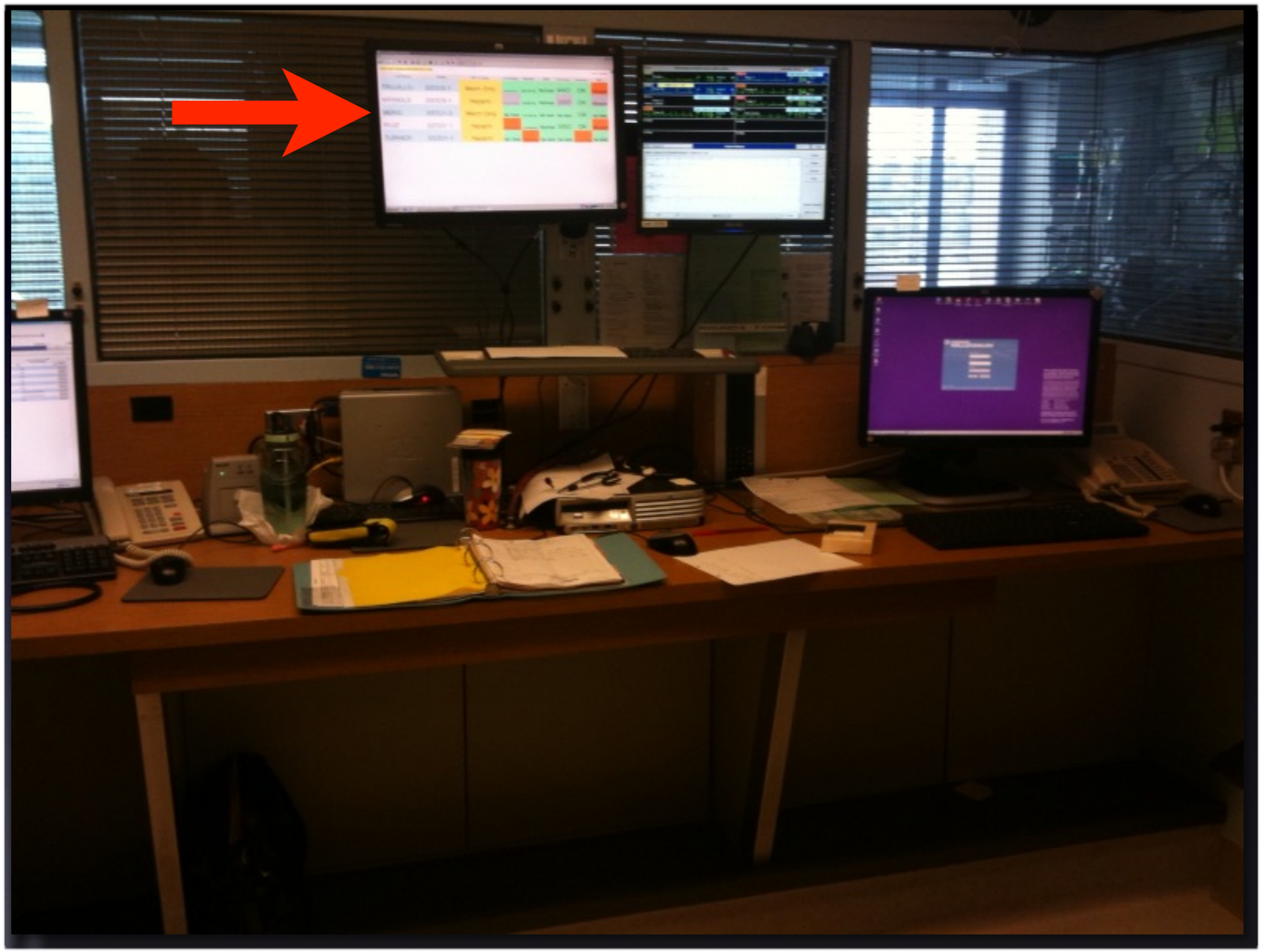
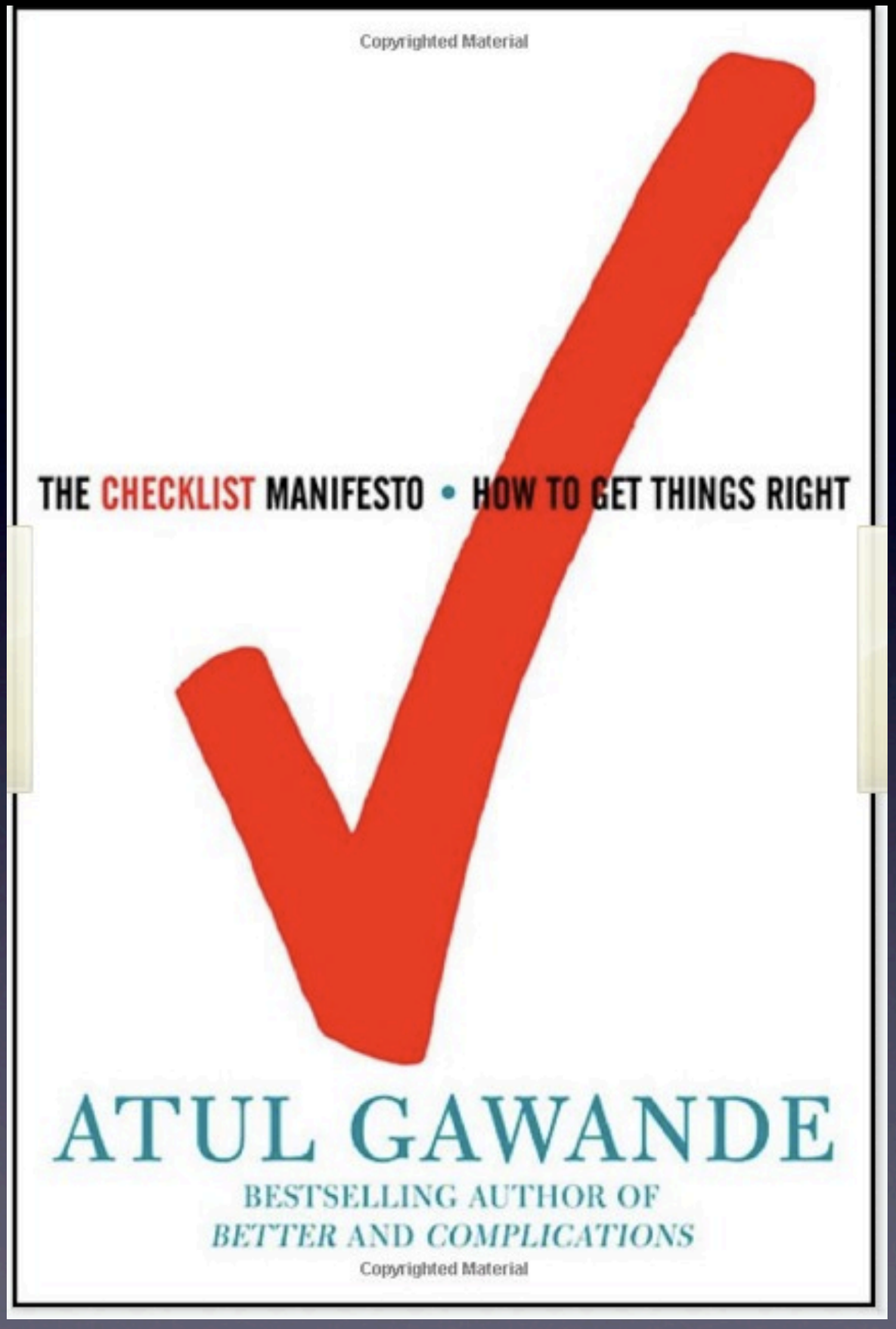
UW ICU



Harborview ICU



The New York Times
nytimes.com

January 22, 2008

PERSONAL HEALTH

A Basic Hospital To-Do List Saves Lives

By JANE E. BRODY

This is a call to arms for everyone who may someday be hospitalized, or who has a relative who may someday be hospitalized — which is to say everyone.

These days, to spend time in the hospital is to be at risk of contracting a hospital-acquired infection. Some of these infections can be life-threatening. But there is a simple way to make that hospital stay safer, devised by Dr. Peter J. Pronovost, a physician-researcher at Johns Hopkins.

The method — a five-item checklist to assure that proper precautions are taken to prevent infection — has been thoroughly tested, first at Johns Hopkins and later in 108 intensive-care units in Michigan, where it succeeded beyond anyone's wildest dreams in saving lives and reducing costs for patients who received the major fluid tube called a central venous catheter.

According to Dr. Pronovost, whose findings in Michigan were published in The New England Journal of Medicine on Dec. 28, 2006, about half of intensive-care patients receive these catheters; about 80,000 a year become infected and 28,000 die, with an economic cost of $2.3 billion.

Five Simple Steps

Using the checklist, in 18 months the average I.C.U. at these diverse hospitals reduced its catheter-related infection rate to zero, from 4 percent. All told, the checklist saved more than 1,500 lives and nearly $200 million. The program itself cost only $500,000.

"Defining, Tracking, and Delivering Excellence in Surgical Care"

SCOAP SURGICAL CARE AND OUTCOMES ASSESSMENT PROGRAM
A PROGRAM OF THE FOUNDATION FOR HEALTH CARE QUALITY

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- Background
- Contact Us
- Media

What is the Foundation? | Hospital Involvement | Supporting Organizations | Advisory Board | Surgical Checklist | For Clinicians | For Data/QI Professionals | For the Public

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SCOAP All Fountation Sites

Surgical Checklist Initiative

♦ **Patients »** What YOU can do to make your surgery safer

"A System for Safer Surgery"

The SCOAP surgical safety checklist is an example of how SCOAP engages healthcare professionals in active change to improve the way healthcare is delivered. Generous support from the Life Sciences Discovery Fund and Aetna helped finance this initiative.

SCOAP
Surgical Checklist Initiative
"A System for Safer Surgery"

Surgical Checklist Initiative Update

Congratulations to Washington Hospitals

In January 2009, a coalition of major healthcare stakeholders in Washington came together (*see logos at the bottom of page*) to create the SCOAP Surgical Checklist Initiative:

SCOAP Surgical Checklist (PDF)

SCOAP Ambulatory Checklist (PDF)

The coalition members set the goal of getting a Surgical Checklist into every OR in Washington State by January 2010, leading to media attention across the state along with a proclamation from the Governor.

According to the Washington State Hospital Association, **100% of Washington State hospitals** have either implemented a standardized surgical checklist or are in the process of doing so. SCOAP is now in the process of verifying stages of implementation.

Landmark New England Journal of Medicine study shows how surgical checklists save lives

The SCOAP Surgical Checklist was adapted for use in the United States by SCOAP and surgeons at the University of Washington who

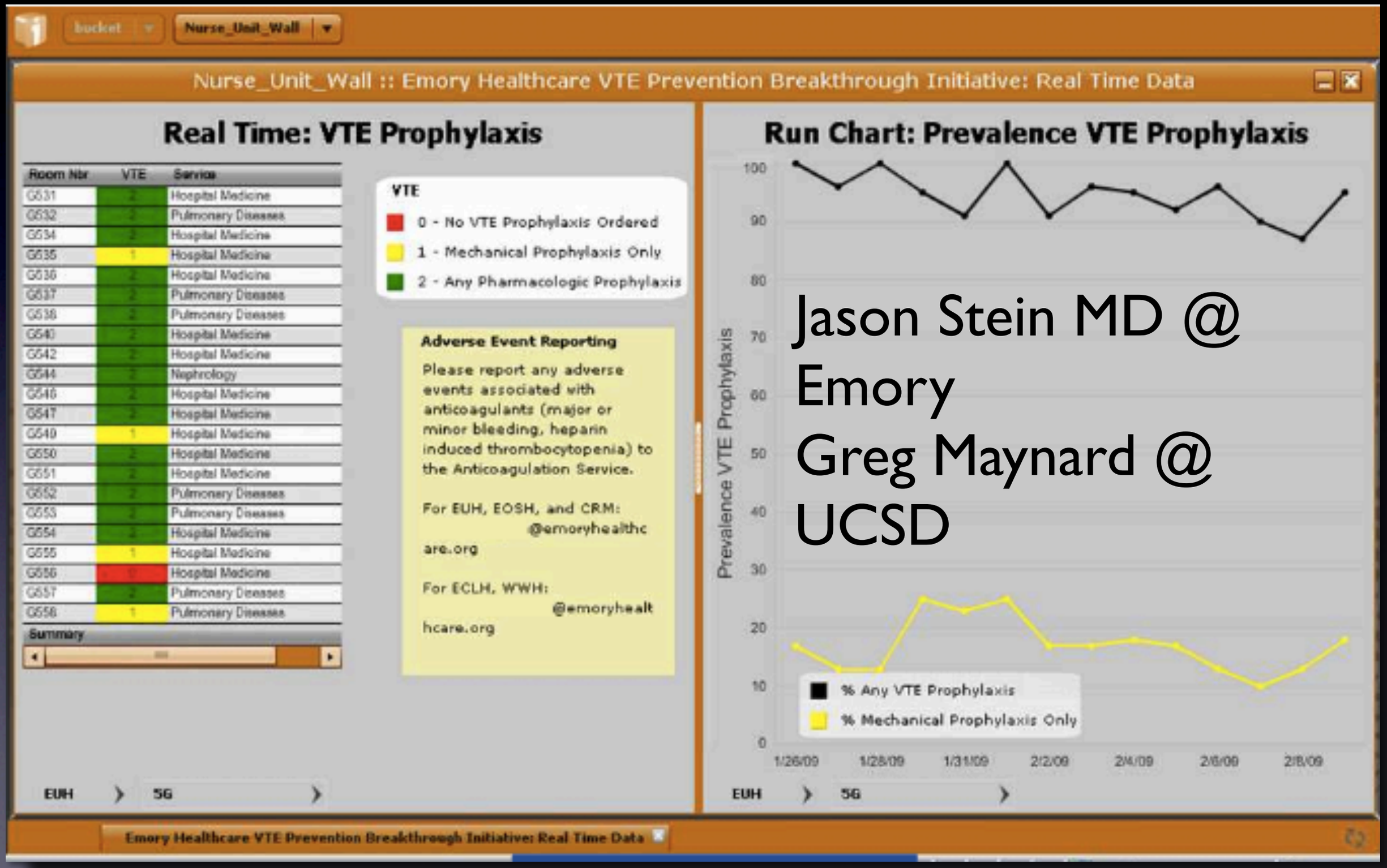
Dashboard Study Design

Measure of Compliance with Quality Parameter

	6 Week Control Period	6 Week Intervention Period
Control Unit	No Dashboard	No Dashboard
Intervention Unit	No Dashboard	Dashboard

Med-Surg Dashboard

Measurevention



Jason Stein MD @ Emory

Greg Maynard @ UCSD

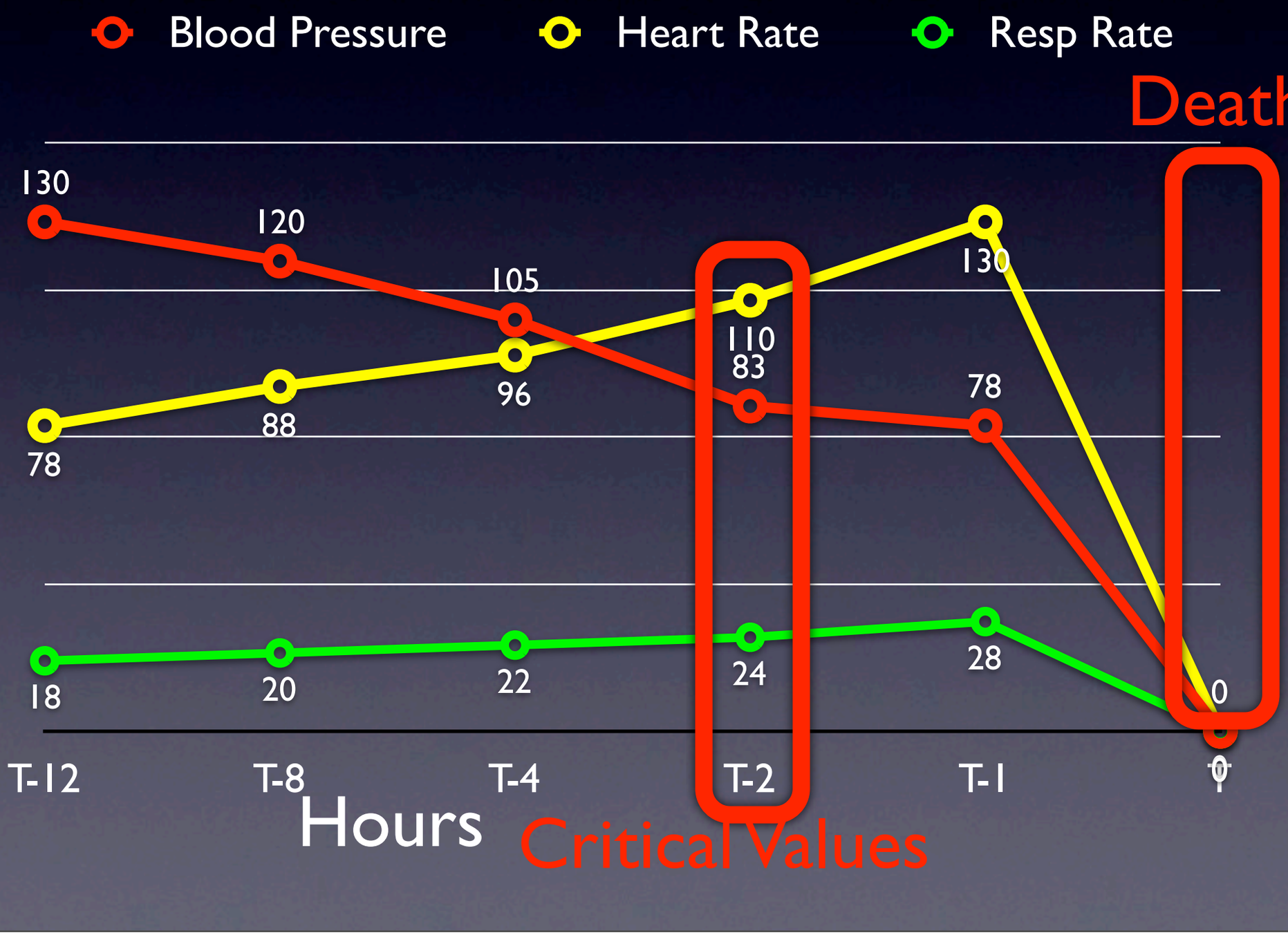
Critical HIT Components Needed to Ensure Quality

- ✓ Computer System
- ✓ Discrete Data
- ✓ Realtime Provider Feedback aka Clinical Decision Support
- ✓ Realtime Provider Feedback aka Clinical Decision Support
- ✓ Group Situational Awareness

Quality

Safety

Preventing Potentially Avoidable Deaths



Institute of Medicine 1999

Reason for Failure?

There are 2 teams of players, one wearing white shirts and one wearing black shirts. Try to count the number of times the team wearing white passes the ball.

Reason for Failure?

There are 2 teams of players, one wearing white shirts and one wearing black shirts. Try to count the number of times the team wearing white passes the ball.

Rapid Response Team

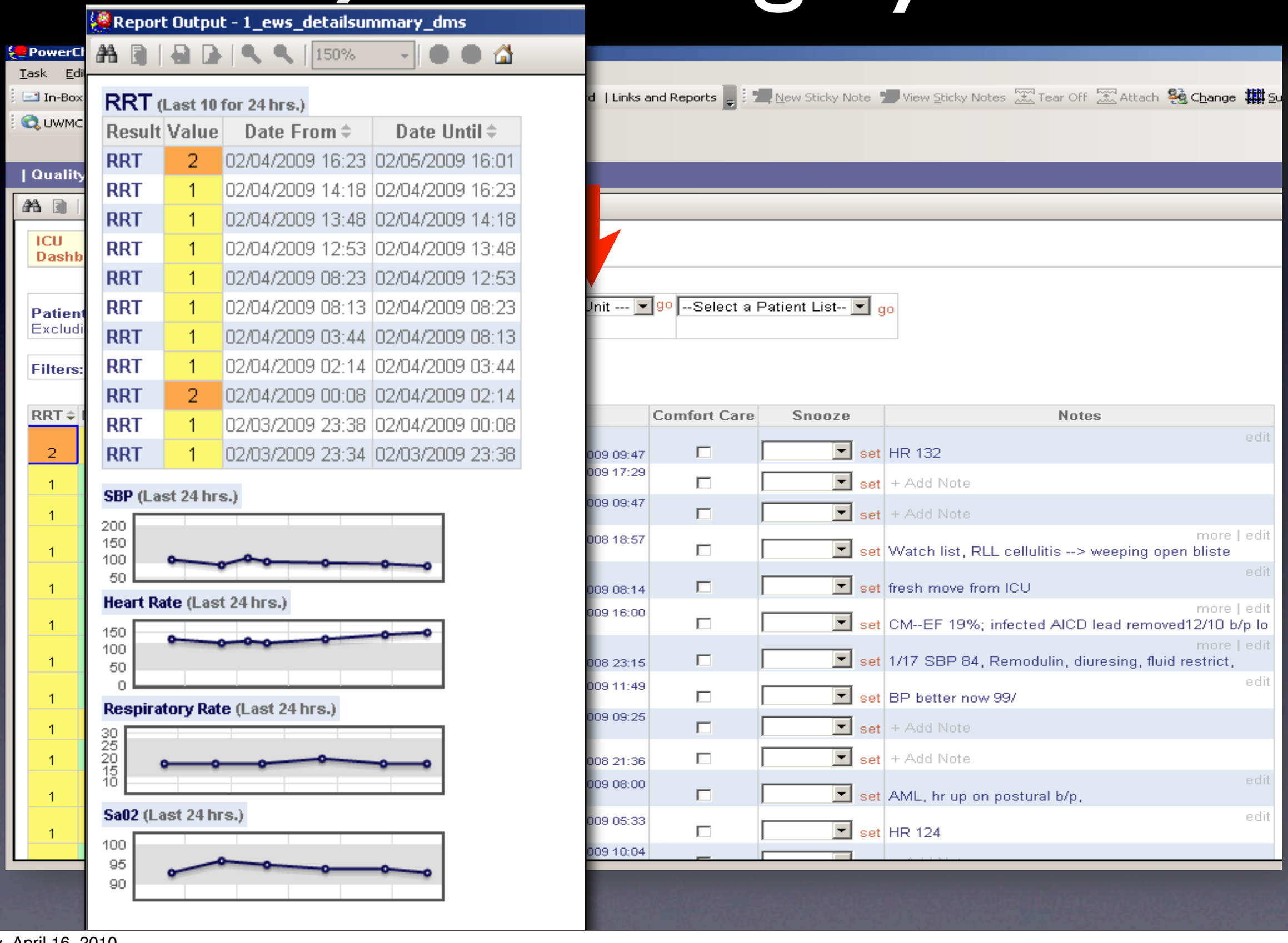
- SBP<90
- HR>130
- RR>24
- SaO2<90%

3,000 Hospitals

Fire Station Model

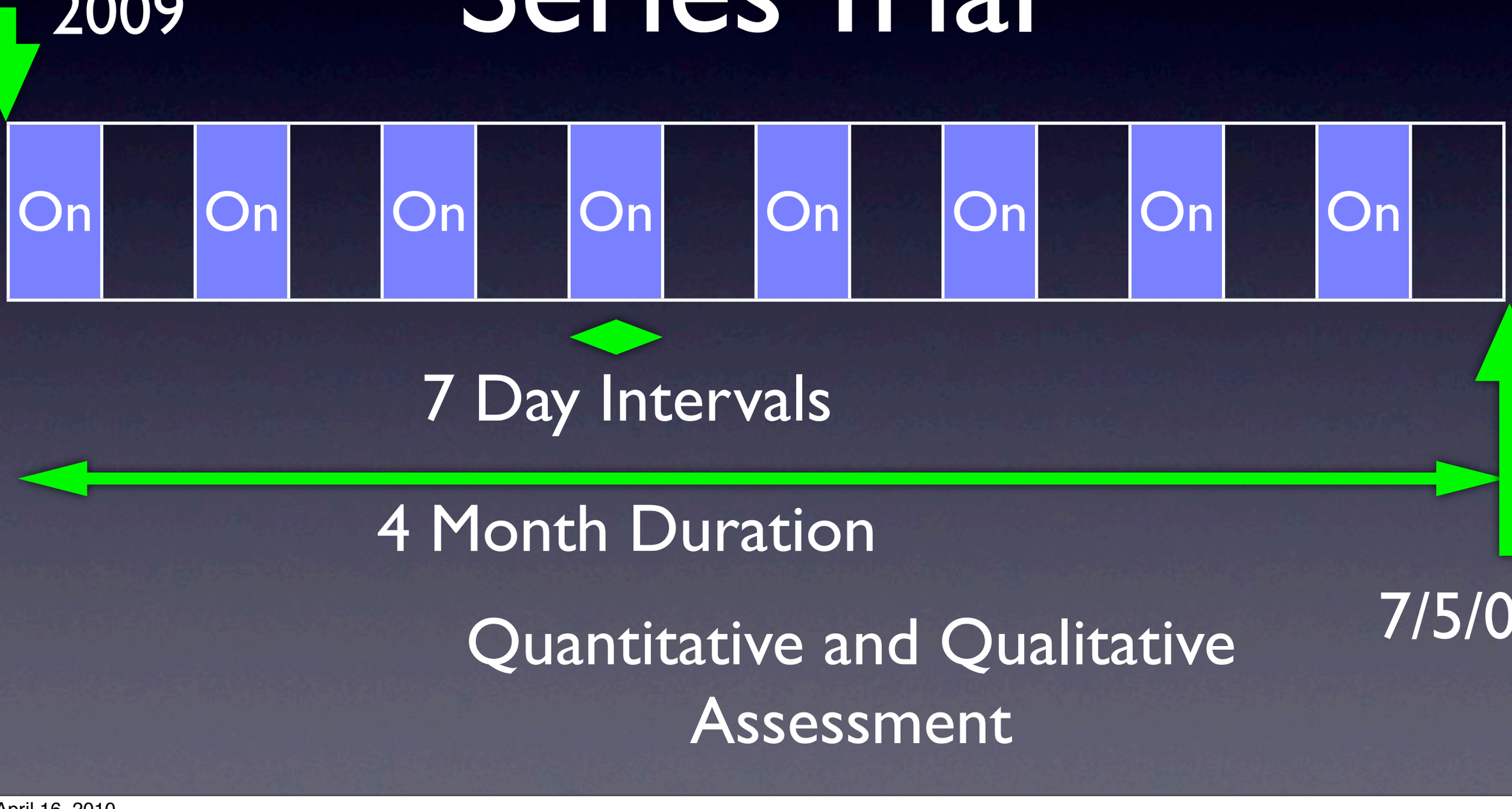
Air Traffic Control Surveillance Model

Early Warning System



Single Blind Randomized Controlled Interrupted Time Series Trial

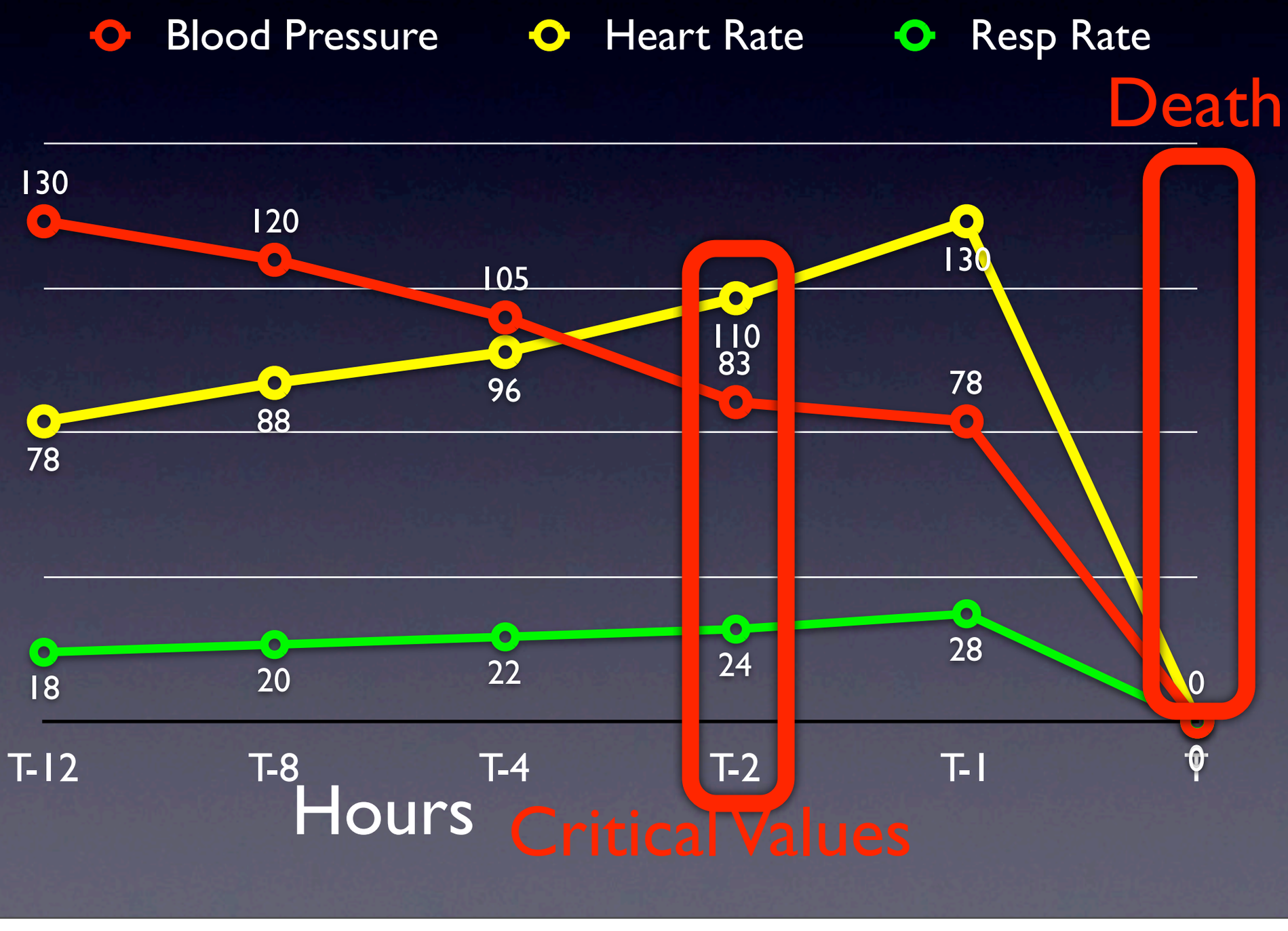
Feb 9, 2009



Clinical Outcomes

- Potentially avoidable death rate
- Cardiopulmonary arrest rate outside ICU
- Unexpected transfer to ICU rate
- RRT Activation Rate

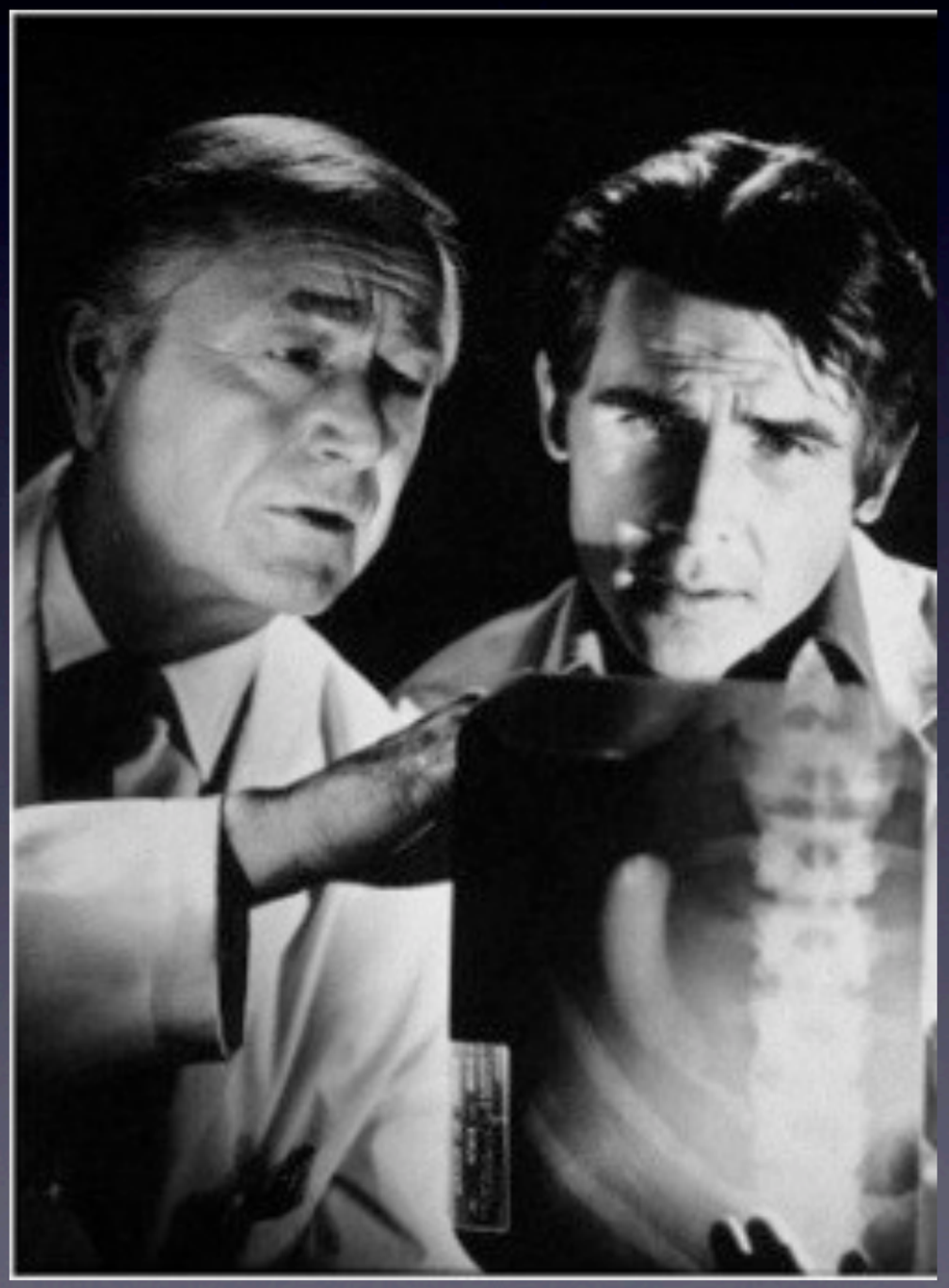
Predicting Trends



iPhone


AT&T
1:25 PM
ORCA
RRT
MEWS
Encounter Info
Notes
2 9 H-2EA EA206-1 03/24/2009 20:05 Luks, MD, Andrew Mark + Add
2 6.53 H-9MB MB940-1 03/04/2009 16:30 Treggiari, MD, Miriam Monica + Add
1 5.34 H-2EA EA204-1 03/23/2009 17:52 Gil Jr, MD, Edward Allen + Add
1 6.03 H-2WA WA254-1 03/23/2009 11:00 Souter, MD, Michael James + Add
1 7.29 H-2WA WA258-1 03/20/2009 19:32 + Add
1 8.91 H-9EA EA905-1 03/20/2009 05:17 Jurkovich, MD, Gregory J + Add
1 6.68 H-9EA EA901-1 03/19/2009 12:40 King, MD, Mary Alice + Add
1 4.58 H-9EA EA907-1 03/16/2009 02:15 Rose-Innes, MB, ChB, Andrew Peter + Add
1 6.3 H-9EB EB913-1 03/14/2009 18:22 McGuire, MD, John Kennedy + Add
1 6.6 H-9EA EA906-1 02/23/2009 23:00 McGuire, MD, John Kennedy + Add
1 2.82 H-2WC WC274-1 03/19/2009 10:10 Souter, MD, Michael James + Add
H-9MB MB938-1 02/22/2009 05:36

Improved Quality Through Enhanced Communications



Use of Multidisciplinary Rounds to Simultaneously Improve Quality Outcomes, Enhance Resident Education, and Shorten Length of Stay

Stephen O'Mahony, MD[1,2], Eric Mazur, MD[1,2], Pamela Charney, MD[1,3], Yun Wang, PhD[4], and Jonathan Fine, MD[1,5]

[1]Department of Medicine, Norwalk Hospital, 24 Stevens Street, Norwalk, CT 06856, USA; [2], Yale University School of Medicine, New Haven, CT, USA; [3], Albert Einstein College of Medicine, Bronx, NY, USA; [4]Center for Outcomes Research, Yale University and Yale New Haven Health, New Haven, CT, USA; [5]Hinds Center for Lung Studies and Health Informatics, Norwalk Hospital, Norwalk, CT, USA.

BACKGROUND: Hospital-based clinicians and educators face a difficult challenge trying to simultaneously improve measurable quality, educate residents in line with ACGME core competencies, while also attending to fiscal concerns such as hospital length of stay (LOS).

OBJECTIVE: The purpose of this study was to determine the effect of multidisciplinary rounds (MDR) on quality core measure performance, resident education, and hospital length of stay.

DESIGN: Pre and post observational study assessing the impact of MDR during its first year of implementation.

SETTING: The Norwalk Hospital is a 328-bed, university-affiliated community teaching hospital in an urban setting with a total of 44 Internal Medicine residents.

METHODS: Joint Commission on Accreditation of proved efficiency, delivery of evidence-based care, and relationships with involved disciplines. Adjusted average LOS decreased 0.5 (95% CI 0.1–0.8) days for patients with a target core measure diagnosis of either CHF, pneumonia, or AMI ($p<.01$) and by 0.6 (95% CI 0.5–0.7) days for all medicine DRGs ($p<.001$).

CONCLUSIONS: Resident-centered MDR is an effective process using no additional resources that simultaneously improves quality of care while enhancing resident education and is associated with shortened length of stay.

KEY WORDS: quality improvement; residency education; health care costs; communication; performance measurement.

DOI: 10.1007/s11606-007-0225-1

 2007;22:1073–1079

Journal of the American Medical Informatics Association Volume 13 Number 3 May / Jun 2006

Review Paper ■

A Systematic Review of the Literature on Multidisciplinary Rounds to Design Information Technology

Ayse P. Gurses, PhD, Yan Xiao, PhD

Abstract Multidisciplinary rounds (MDR) have become important mechanisms for communication and coordination of care. To guide design of tools supporting MDR, we reviewed the literature published from 1990 to 2005 about MDR on information tools used, information needs, impact of information tools, and evaluation measures. Fifty-one papers met inclusion criteria and were included. In addition to patient-centric information tools (e.g., medical chart) and decision-support tools (e.g., clinical pathway), process-oriented tools (e.g., rounding list) were reported to help with information organization and communication. Information tools were shown to improve situation awareness of multidisciplinary care providers, efficiency of MDR, and length of stay. Communication through MDR may be improved by process-oriented information tools that help information organization, communication, and work management, which could be achieved through automatic extraction from clinical information systems, displays and printouts in condensed forms, at-a-glance representations of the care unit, and storing work-process information temporarily.

■ **J Am Med Inform Assoc.** 2006;13:267–276. DOI 10.1197/jamia.M1992.

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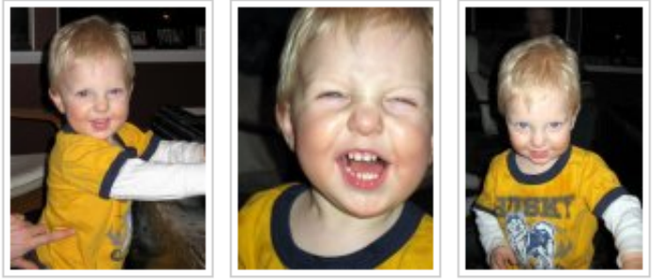
Annalise LiaBraaten



Nieces and Nephews galore!

33 minutes ago · Comment · Like · Share

Marilyn Rosa is happy, almost done with this cold!

48 minutes ago · Comment · Like

John Gennari is content. Nothing like a good house party.

53 minutes ago · Comment · Like

Julie Cotler Pottinger thinks that if you haven't read the Facebook Haggadah you are seriously missing out.

58 minutes ago · Comment · Like

Irene Basloe Saraf at 10:21pm April 2
The Sammy Spider Haggadah or the Facebook Haggadah...it's going to be a tough call at our seder.

Write a comment...

Michelle Duffy Traveling With Kids is now available on Amazon!!! http://www.tinyurl.com/traveling-with-kids. Too cool for school!

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Richard Irving at 10:14pm April 2
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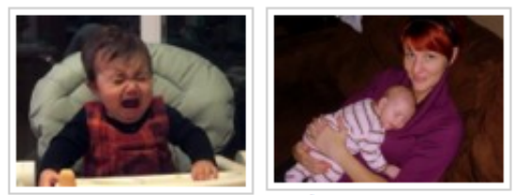
HIGHLIGHTS

Nieces and Nephews galore!
by Annalise LiaBraaten



Annalise LiaBraaten is tagged.

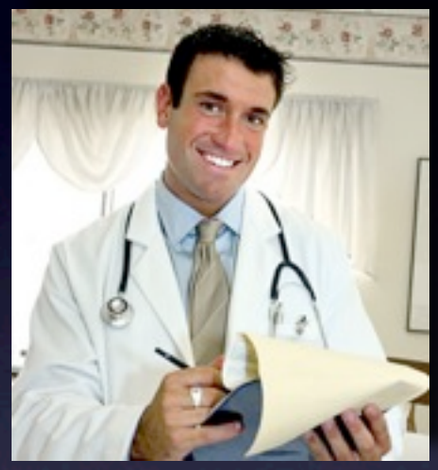
A Wink and a Smile
Amy Summers is a fan.
Become a Fan

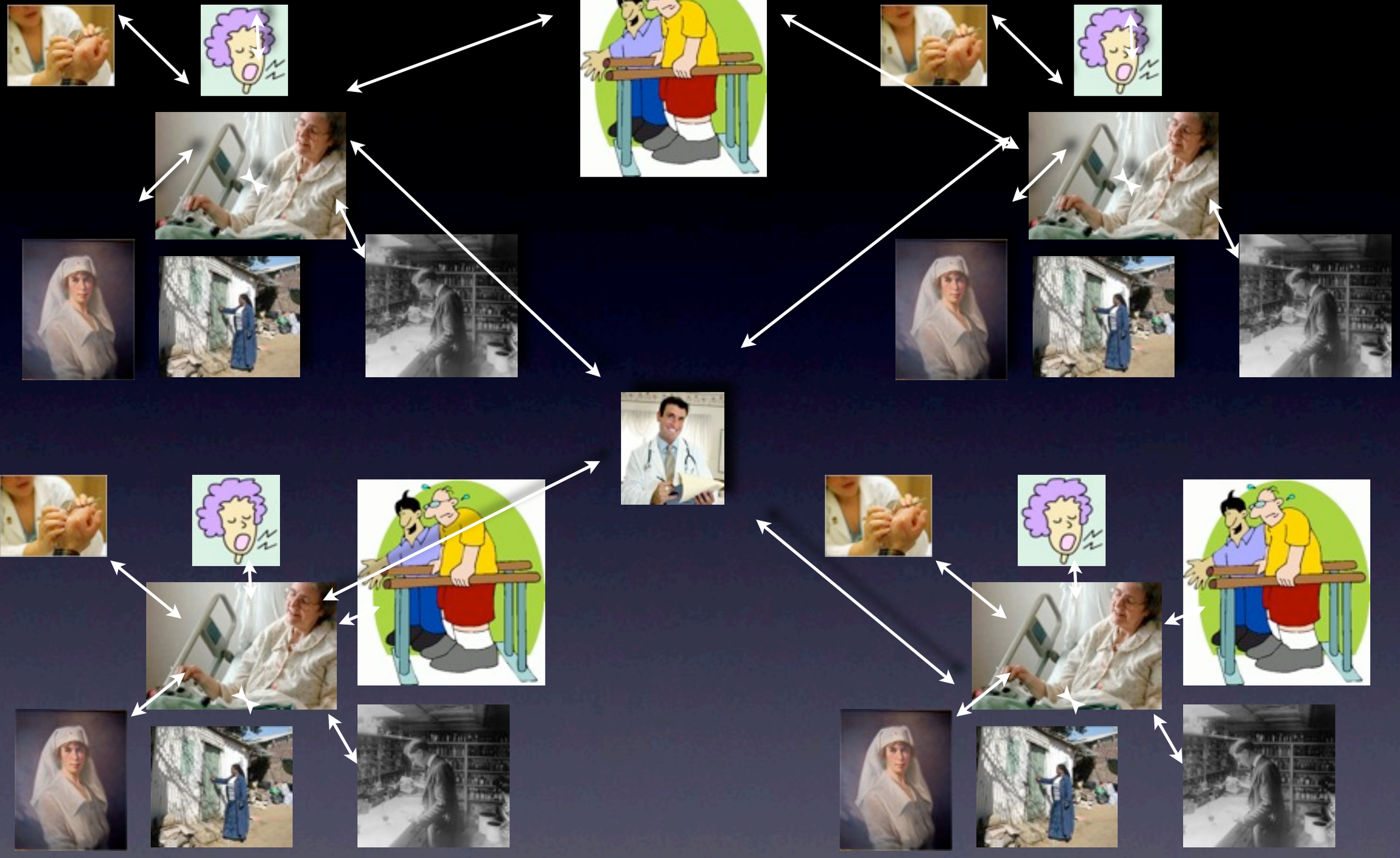
Easter @ OCC
posted by Mark Robison

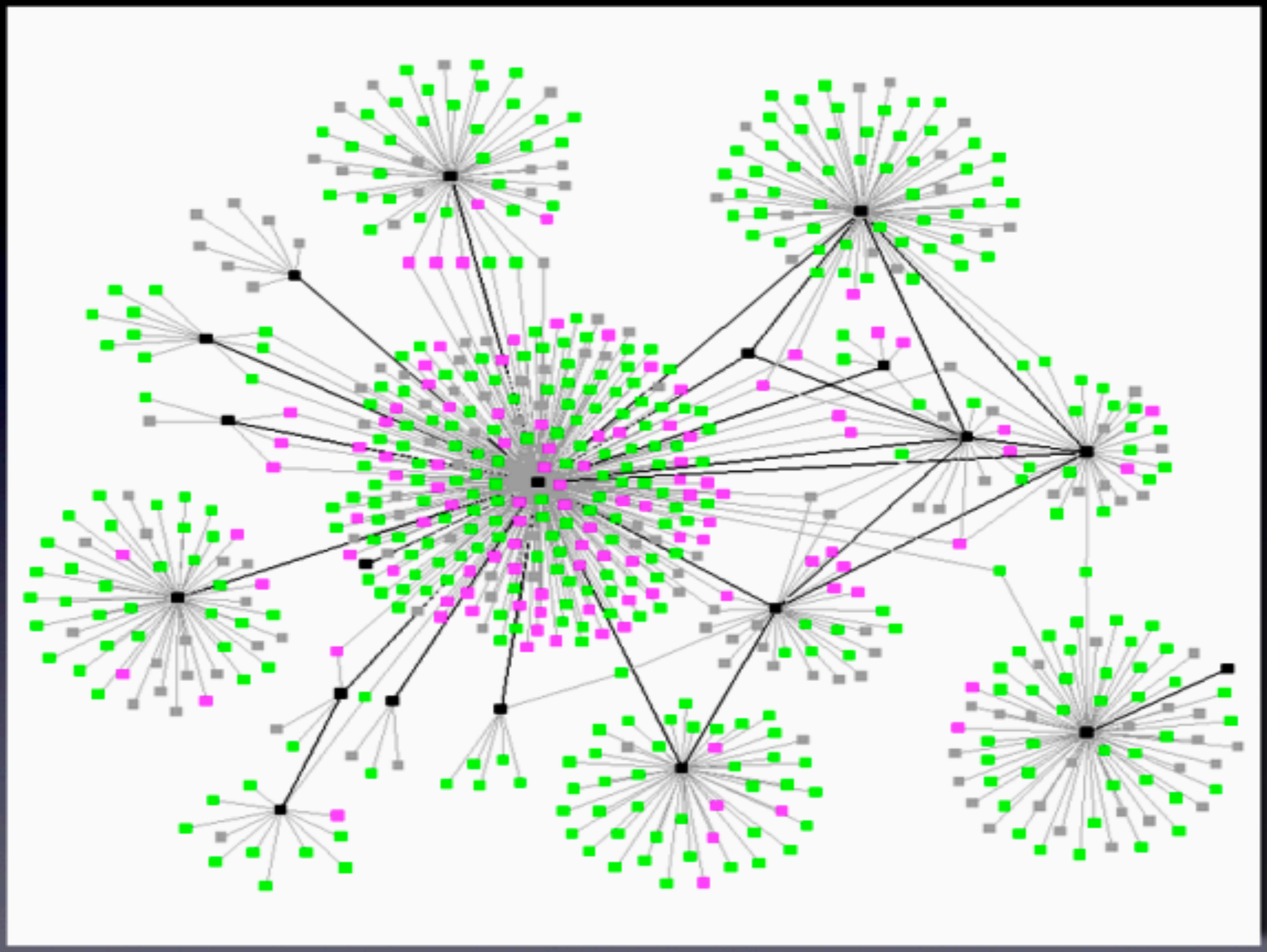
Pandora
Walter H. Curioso is a fan.
Become a Fan

Applications | Online Friends (7) | 6

Display a menu





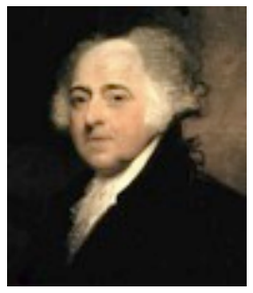


Barry Aaronson's Patients

What are you doing? **Going to see James Madison**

George Washington was just seen by Pam, the Physical Therapist, who said "He's able to throw coins now" (20 minutes ago)

Thomas Jefferson's CBC has been resulted (1 hour ago)



John Adam's has a new CXR report (2 hours ago)

Medical Center News
Noon Conference today is on Pneumonia

Lunch Menu

Parking Rules Updated

Medical News
Digoxin Recall

George Washington

Allergies
Med List
Family Contacts

Providers

Welby

Smith

Pam, the Physical Therapist said "He's able to throw coins now" (20 minutes ago)

George the nurse hung the IV ceftriaxone (1 hours ago)

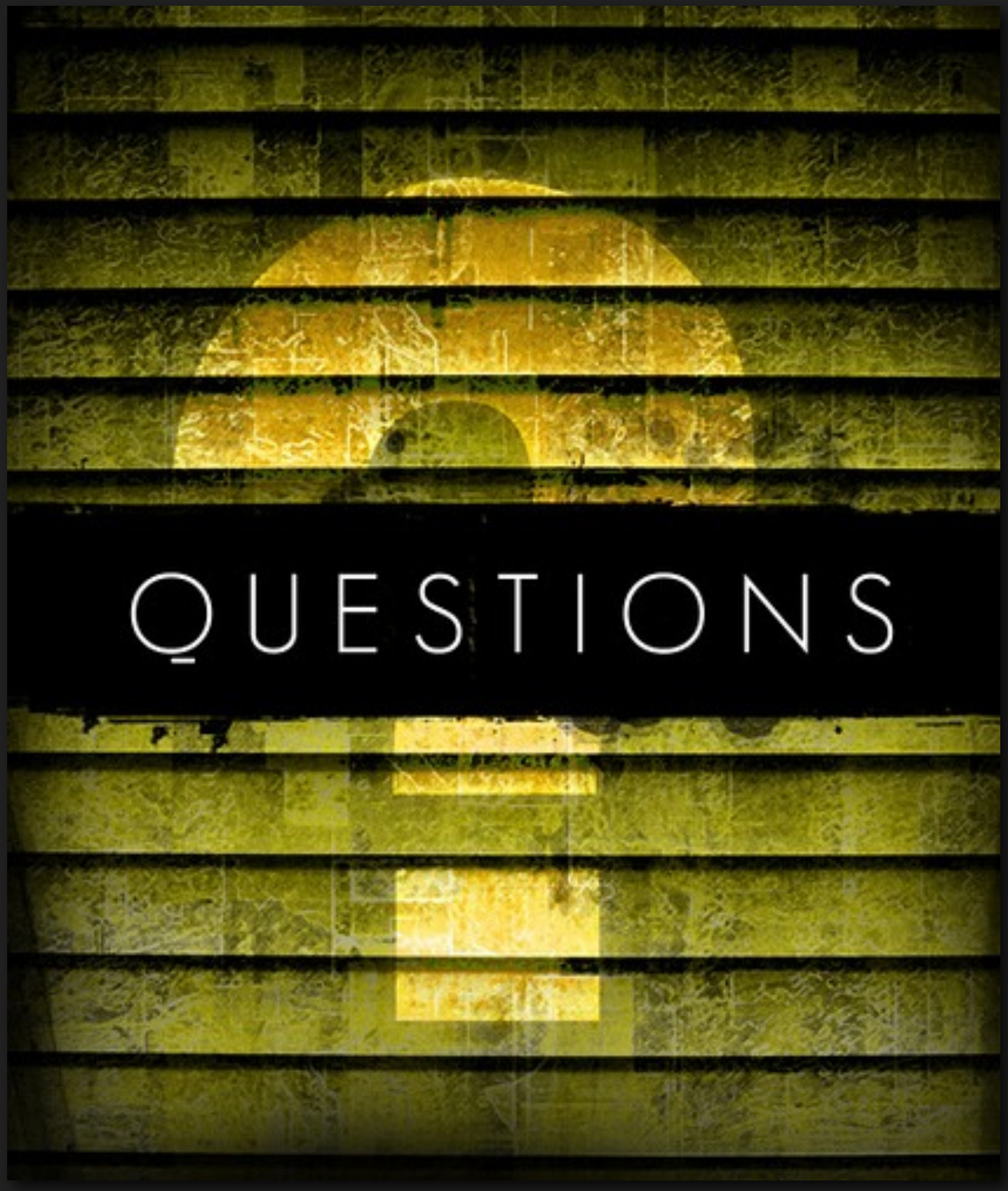
Linda the Physical Therapist will be back later (2 hours ago)

Opportunities for Collaboration

- Interface Design- HTML, Javascript
- Portable Device Software Development
  - Mobile Web Pages
  - Native Apps
- Trending Algorithms/Machine Learning
- Social Network Analysis, Software Design

Acknowledgements

- David Stone
- Matt Schaft
- Derk Adams
- Astrid Schreuder
- Rick Goss
- Tom Payne
- Wendy Giles
- Margaret Neff
- Grant Fletcher


QUESTIONS