



Sigma Theta Tau International  
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Zeta Theta Chapter at Large

# Using Informatics to Evaluate Outcomes of Evidence-Based Nursing Practice

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February 17, 2009

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# Tonight's learning objectives

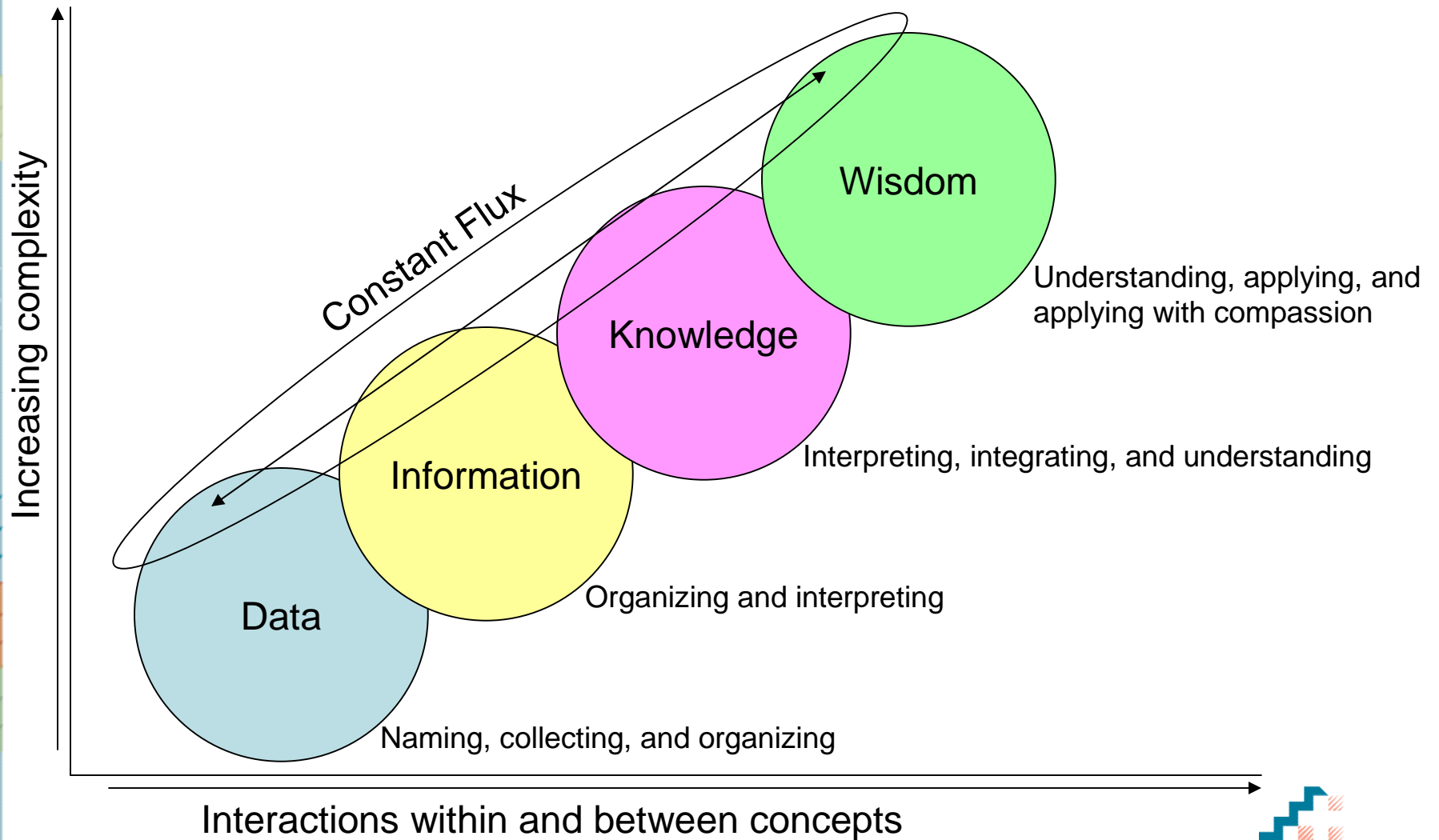
- Describe key elements of informatics and performance analytics as applied to healthcare performance improvement
- Discuss relevant metrics applying to everyday practice of nursing in acute care hospitals, using evidence-based standards
- Identify insightful, actionable analytic tools currently in use for the purpose of driving performance improvement

# What is nursing informatics?

Nursing informatics (NI) is a specialty that integrates nursing science, computer science, and information science to manage and communicate data, information, knowledge and wisdom in nursing practice.

ANA's Nursing Informatics: Scope and Standards of Practice (2008).

# From data to wisdom



from Englehardt & Nelson (2002)

# Functional areas for NI

- Administration, leadership, and management
- Analysis
- Compliance and integrity management
- Consultation
- Coordination, facilitation, and integration
- Development
- Educational and professional development
- Policy development and advocacy
- Research and evaluation

# Nursing informatics competencies

- Garde, Harrison, and Hovenga (2005)
  - Nursing informatics
  - Information technology
  - Organizational and human behavior
  - Clinical and health-related
- Healthcare Leadership Alliance (2005)
  - Leadership
  - Communication and relationship management
  - Professionalism
  - Business knowledge and skills
  - Knowledge of the healthcare environment

# What is performance analytics?

- Discipline dealing with helping organizational leaders transform data and information into knowledge and wisdom
- Heavy emphasis on the software-based aggregation and presentation of data
- Other similar descriptors
  - Decision support
  - Business intelligence

# Buzzwords in performance analytics

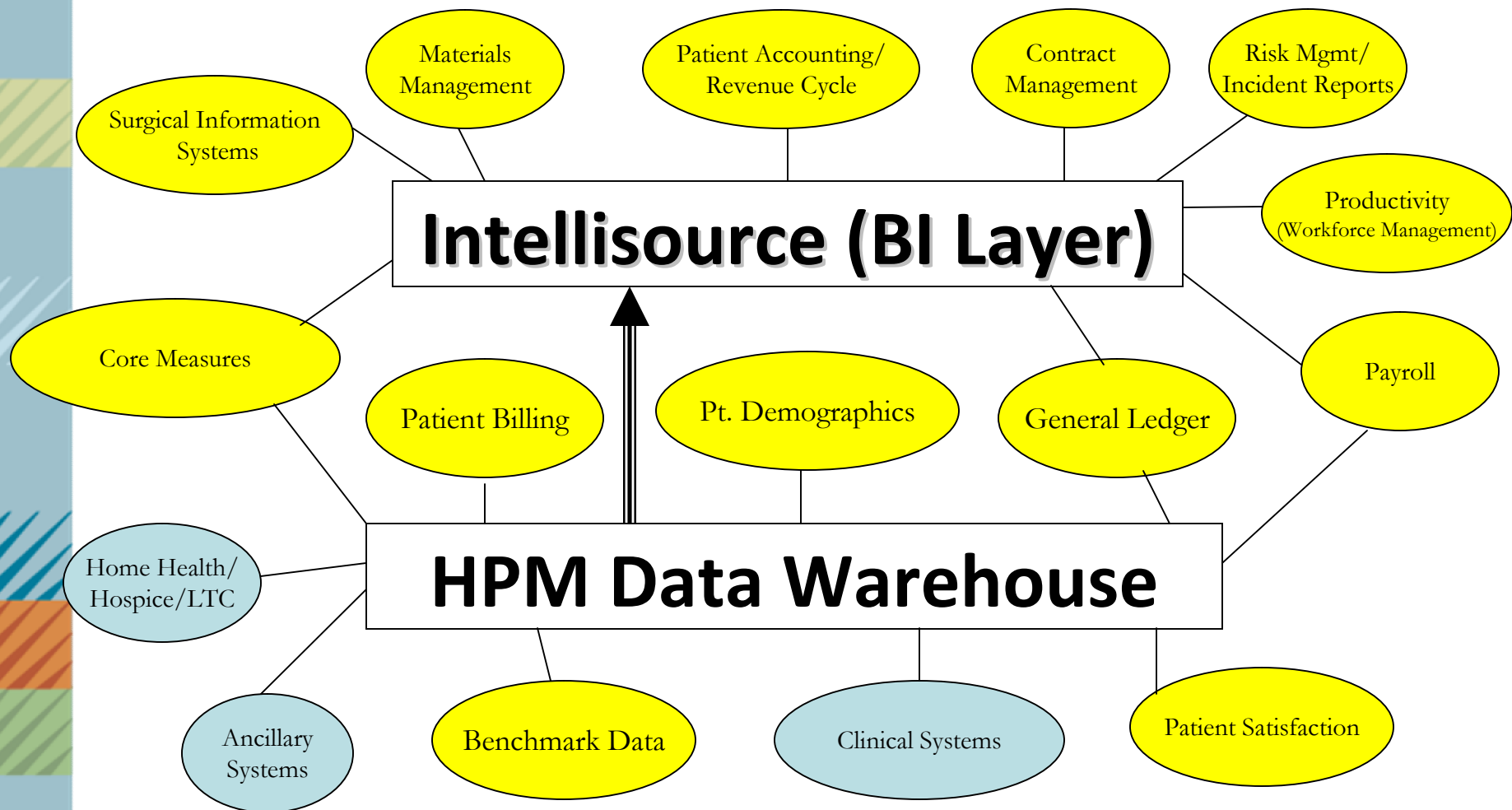
- Data warehouse
- Data mart
- OLAP cube
- Dashboards
- Scorecards
- Interfaces
- Extracts



# The hospital IT landscape

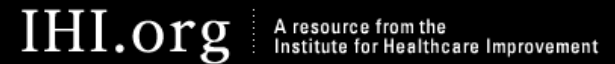


# CHP's performance analytics map



***Data currently being populated in Intellisource or HPM, or both....***

# The clinical performance mandate

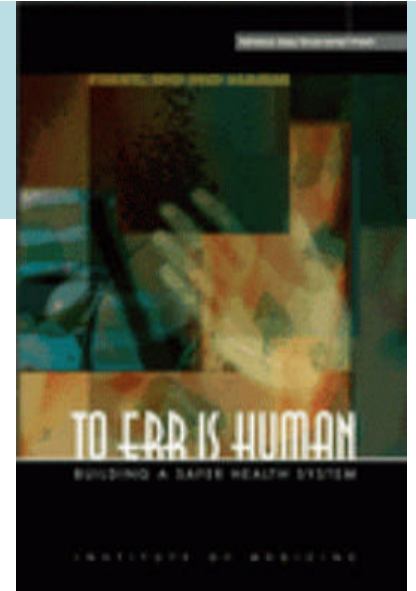


Foundation for Health Care Quality



# To Err Is Human (IOM, 2000)

- Between 44,000 and 98,000 deaths in American hospitals each year due to preventable adverse events
- Complication rate of 5.4% in surgical patients with half of them preventable (1977 to 1990)
- Approximately 50% of cardiac arrests studied could have been prevented (1991)
  - Medication errors and toxic effects
  - Suboptimal response by physicians to clinical signs and symptoms
- 7,000 deaths attributed to medication errors (1993)
- Since 1983 outpatient deaths from med errors increased 8.48 fold and inpatient deaths have increased 2.37 fold
- IOM set minimum goal of 50% reduction in errors over 5 years



# Accreditation and national quality initiatives

- Magnet status (ANCC)
- Beacon award (AACN)
- The Joint Commission (TJC)
- Institute for Healthcare Improvement (IHI)
- Malcolm Baldrige Award
- Others

# Organized reporting initiatives

- Core Measures - TJC accreditation
- Error reporting - required in some states
  - National Quality Forum (NQF)
    - Serious Reportable Events in Healthcare (state by state – some public)
    - Other measures
    - Hospital-associated Infection Data
    - Nurse-Sensitive Care
  - Others
- Centers for Medicare and Medicaid Services (CMS)
  - Deficit Reduction Act – Hospital Quality Improvement
    - Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU)
    - Core measures
    - Hospital acquired conditions (HAC's) as of October 1, 2008
    - Value Based Purchasing concept
  - Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)

# CMS value-based purchasing

- Legislation proposed to withhold portion of inpatient payments to act as an incentive for performance improvement
  - CMS bill: 2% escalating to 5% over a 4-year period
  - Congressman Altmire (PA) bill: 0.5% escalating to 2% over 4 years
- Hospitals will have “opportunity” to earn back withheld dollars based on scores for publicly reported data
  - 70% linked to clinical quality outcomes (Core Measures)
  - 30% linked to results on HCAHPS inpatient satisfaction survey



# CMS hospital acquired conditions

- Foreign object retained after surgery
- Air embolism
- Blood incompatibility
- Stage III and IV pressure ulcers
- Falls and trauma
- Manifestations of poor glycemic control
- Catheter-associated UTI
- Vascular catheter-associated infection
- Surgical site infections
  - CABG - mediastinitis
  - Bariatric surgery
  - Orthopedic procedures
- VTE following total knee & hip replacement



# HCAHPS

## nursing- sensitive items

### Hospital CAHPS®

OMB Control Number: 0938-0981

**SURVEY INSTRUCTIONS:** You should only fill out this survey if you were the patient during the hospital stay named in the cover letter. Do not fill out this survey if you were not the patient. Answer all the questions by filling in the circle to the left of your answer. You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next.

Please answer the questions in this survey about this stay at Hospital of the University of Pennsylvania. Do not include any other hospital stay in your answers.

Please use black or blue ink to fill in the circle completely.

Example: ●

#### YOUR CARE FROM NURSES

1. During this hospital stay, how often did nurses treat you with courtesy and respect?  
☐ Never  
☐ Sometimes  
☐ Usually  
☐ Always
2. During this hospital stay, how often did nurses listen carefully to you?  
☐ Never  
☐ Sometimes  
☐ Usually  
☐ Always
3. During this hospital stay, how often did nurses explain things in a way you could understand?  
☐ Never  
☐ Sometimes  
☐ Usually  
☐ Always
4. During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?  
☐ Never  
☐ Sometimes  
☐ Usually  
☐ Always  
☐ I never pressed the call button

#### THE HOSPITAL ENVIRONMENT

8. During this hospital stay, how often were your room and bathroom kept clean?  
☐ Never  
☐ Sometimes  
☐ Usually  
☐ Always
9. During this hospital stay, how often was the area around your room quiet at night?  
☐ Never  
☐ Sometimes  
☐ Usually  
☐ Always

#### YOUR EXPERIENCES IN THIS HOSPITAL

10. During this hospital stay, did you need help from nurses or other hospital staff in getting to the bathroom or in using a bedpan?  
☐ Yes  
☐ No → If No, Go to Question 12
11. How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?  
☐ Never  
☐ Sometimes  
☐ Usually  
☐ Always
12. During this hospital stay, did you need medicine for pain?  
☐ Yes  
☐ No → If No, Go to Question 15
13. During this hospital stay, how often was your pain well controlled?  
☐ Never  
☐ Sometimes  
☐ Usually  
☐ Always
14. During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?  
☐ Never  
☐ Sometimes  
☐ Usually  
☐ Always

(continued...)

# More HCAHPS

15. During this hospital stay, were you given any medicine that you had not taken before?
- ☐ Yes
  - ☐ No → If No, Go to Question 18
16. Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?
- ☐ Never
  - ☐ Sometimes
  - ☐ Usually
  - ☐ Always
17. Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?
- ☐ Never
  - ☐ Sometimes
  - ☐ Usually
  - ☐ Always

## WHEN YOU LEFT THE HOSPITAL

18. After you left the hospital, did you go directly to your own home, to someone else's home, or to another health facility?
- ☐ Own home
  - ☐ Someone else's home
  - ☐ Another health facility → If Another, Go to Question 21
19. During this hospital stay, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?
- ☐ Yes
  - ☐ No
20. During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?
- ☐ Yes
  - ☐ No

## OVERALL RATING OF HOSPITAL

Please answer the following questions about your stay at the hospital named on the cover. Do not include any other hospital stay in your answers.

21. Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?
- ☐ 0 Worst hospital possible
  - ☐ 1
  - ☐ 2
  - ☐ 3
  - ☐ 4
  - ☐ 5
  - ☐ 6
  - ☐ 7
  - ☐ 8
  - ☐ 9
  - ☐ 10 Best hospital possible

22. Would you recommend this hospital to your friends and family?
- ☐ Definitely no
  - ☐ Probably no
  - ☐ Probably yes
  - ☐ Definitely yes

## ABOUT YOU

23. In general, how would you rate your overall health?
- ☐ Excellent
  - ☐ Very Good
  - ☐ Good
  - ☐ Fair
  - ☐ Poor
24. What is the highest grade or level of school that you have completed?
- ☐ 8th grade or less
  - ☐ Some high school, but did not graduate
  - ☐ High school graduate or GED
  - ☐ Some college or 2-year degree
  - ☐ 4-year college graduate
  - ☐ More than 4-year college degree
25. Are you of Spanish, Hispanic or Latino origin or descent?
- ☐ No, not Spanish/Hispanic/Latino
  - ☐ Yes, Puerto Rican
  - ☐ Yes, Mexican, Mexican American, Chicano
  - ☐ Yes, Cuban
  - ☐ Yes, other Spanish/Hispanic/Latino
26. What is your race? Please choose one or more.
- ☐ White
  - ☐ Black or African American
  - ☐ Asian
  - ☐ Native Hawaiian or other Pacific Islander
  - ☐ American Indian or Alaska Native
27. What language do you mainly speak at home?
- ☐ English
  - ☐ Spanish
  - ☐ Some other language (please print):
- 

## ADDITIONAL QUESTIONS ABOUT YOUR STAY

Now that we have asked you to tell us about what happened during your stay, we want to ask you about how well we met your needs.

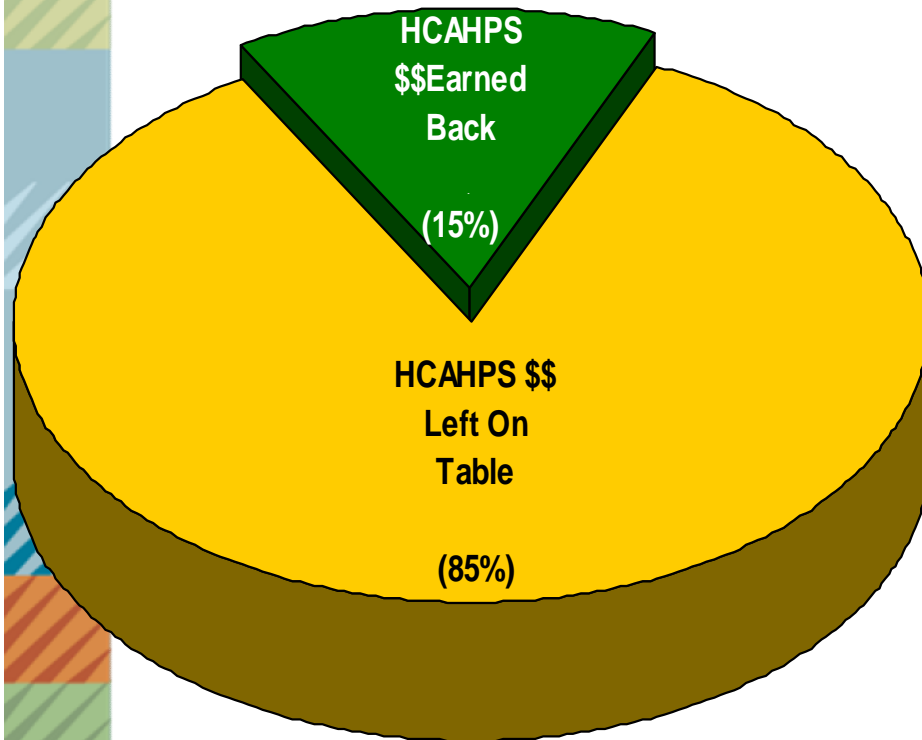
**Hospital Compare** - A quality tool provided by Medicare [Hospital Compare](#)☐ Hide  
InformationSurvey of Patients' Hospital Experiences [ [What is This?](#) ][Back to Top](#)

	<a href="#">Acute Care</a>	<a href="#">Acute Care</a>	<a href="#">Acute Care</a>

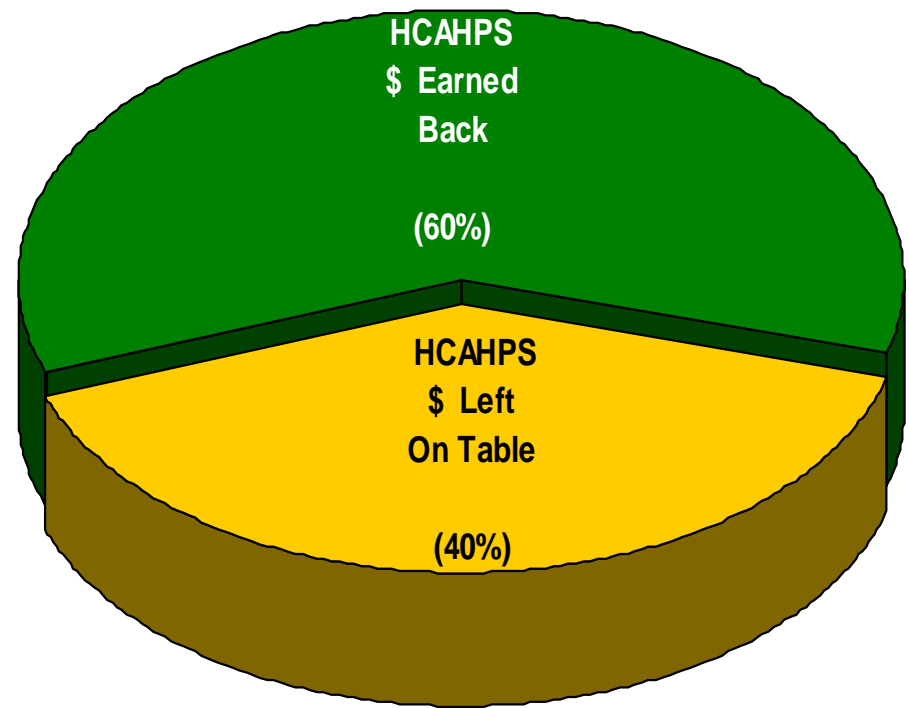
Check the boxes next to the topics for which you would like to view correlating graphs or tables.

<input type="checkbox"/> Select All	<a href="#">Reset Checkboxes</a>	<a href="#">View Graphs</a>	<a href="#">View Tables</a>
<input type="checkbox"/> Percent of patients who reported that their nurses "Always" communicated well.	73%	76%	70%
<input type="checkbox"/> Percent of patients who reported that their doctors "Always" communicated well.	76%	72%	77%
<input type="checkbox"/> Percent of patients who reported that they "Always" received help as soon as they wanted.	66%	64%	63%
<input type="checkbox"/> Percent of patients who reported that their pain was "Always" well controlled.	64%	69%	67%
<input type="checkbox"/> Percent of patients who reported that staff "Always" explained about medicines before giving it to them.	56%	54%	59%
<input type="checkbox"/> Percent of patients who reported that their room and bathroom were "Always" clean.	68%	66%	69%
<input type="checkbox"/> Percent of patients who reported that the area around their room was "Always" quiet at night.	52%	53%	48%
<input type="checkbox"/> Percent of patients at each hospital who reported that YES, they were given information about what to do during their recovery at home.	80%	79%	83%
<input type="checkbox"/> Percent of patients who gave their hospital a rating of 9 or 10 on a scale from 0 (lowest) to 10 (highest).	71%	67%	58%
<input type="checkbox"/> Percent of patients who reported YES, they would definitely recommend the hospital.	74%	73%	66%

# Large health system: Potential reimbursement impact



**At Current Satisfaction Levels**



**At Top Quartile**

# Nursing-centered initiatives


- American Nurses Credentialing Center: Magnet
  - Uses NDNQI for data collection
- American Nurses Association (NDNQI)
- American Association of Critical-Care Nursing: Beacon Award
- NQF: 15 Nurse-Sensitive Care indicators as a part of the “Nursing Care Performance Measures” project
- IHI: Transforming care at the bedside (TCAB)
- At least 40+ measures needed to participate in all of the above


# National Database of Nursing Quality Indicators (NDNQI)<sup>®</sup>

## NDNQI indicators

Many of the NDNQI indicators are National Quality Forum (NQF) endorsed measures and are part of the NQF's Nursing-Sensitive Measure Set.



Patient falls 


Patient falls with injury 


Pressure ulcers:

Community acquired

Hospital acquired


Unit acquired

Staff mix 

Nursing hours per patient day 

RN Surveys:

Job satisfaction


Practice environment scale 


RN education & certification

Pediatric pain assessment cycle


Pediatric IV infiltration rate


Psychiatric patient assault rate


Restraints prevalence 

Nurse turnover 

Nosocomial infections:

Ventilator-assisted pneumonia (VAP) 

Central line associated blood stream infection (CLABSI) 

Catheter associated urinary tract infections (CAUTI) 



# Transforming Care at the Bedside

April 9, 2008

TRANSFORMING CARE AT THE BEDSIDE: All medical and surgical units are transformed and have achieved and sustained unprecedented results.



High leverage changes that resulted in achieving TCAB design targets on the pilot site are spread to all med/surg units

## KEY DESIGN THEMES

**SAFE AND RELIABLE CARE:** Care for moderately sick patients who are hospitalized is safe, reliable, effective and equitable.

**VITALITY AND TEAMWORK:** Within a joyful and supportive environment that nurtures professional formation and career development, effective care teams continually strive for excellence.

**PATIENT-CENTERED CARE:** Truly patient-centered care on medical and surgical units honors the whole person and family, respects individual values and choices, and ensures continuity of care. Patients will say, "They give me exactly the help I want (and need) exactly when I want (and need) it."

**VALUE-ADDED CARE PROCESSES:** All care processes are free of waste and promote continuous flow

## DESIGN TARGETS



[ Specific design targets for reducing harm TBD for each site ]



Voluntary turnover for nurses is an average of 5% or less (per year)



Harm from falls is reduced to 1 (or less) per 10,000 patient days



Codes on med/surg units are reduced to zero



86% of patients are willing to recommend the hospital



Readmissions within 30 days are reduced to 5% or less



Nurses spend 70% of their time in direct patient care

## HIGH LEVERAGE CHANGES

CREATE EARLY DETECTION & RESPONSE SYSTEMS (INCLUDING RRTs)  
PREVENT HIGH HAZARD DRUG ERRORS  
PREVENT PRESSURE ULCERS

DEVELOP HOSPICE & PALLIATIVE CARE PROGRAMS  
PREVENT HARM FROM FALLS  
PREVENT NOSOCOMIAL INFECTIONS

BUILD CAPABILITY OF FRONT-LINE STAFF IN INNOVATION & PROCESS IMPROVEMENT  
IDENTIFY COMPETENCIES & DEVELOP MID-LEVEL MANAGERS & CLINICAL LEADERS TO LEAD TRANSFORMATION

DEVELOP AND IMPLEMENT A FRAMEWORK FOR NURSING PRACTICE BASED ON THE FORCES OF MAGNETISM  
OPTIMIZE COMMUNICATIONS AMONGST CLINICIANS & STAFF  
CREATE TEAMS (INCLUDING PATIENTS) WITH THE AUTHORITY TO ACT AND TRANSFORM CARE

CREATE PATIENT-CENTERED HEALING ENVIRONMENTS  
INVOLVE PATIENTS & FAMILIES ON ALL QI TEAMS  
OPTIMIZE TRANSITIONS TO HOME OR OTHER FACILITY

MULTIDISCIPLINARY ROUNDS INVOLVING PATIENTS & FAMILY MEMBERS (CUSTOMIZING CARE TO PATIENT'S VALUES, PREFERENCES & EXPRESSED NEEDS)

CREATE ACUTE ADAPTABLE BEDS  
ELIMINATE WASTE & IMPROVE WORK FLOW IN ADMISSION PROCESS, MEDICATION ADMINISTRATION, HANDOFFS, ROUTINE CARE & DISCHARGE PROCESS

IMPROVE WORK ENVIRONMENT THROUGH PHYSICAL SPACE DESIGN  
MOVE VALUE-ADDED ACTIVITIES TO THE BEDSIDE

Green = best practices exist on 25 or more med/surg units  
Yellow = best practices exist on 5 med/surg units  
Red = innovation and testing of new ideas are needed

## LEADERSHIP LEVERAGE POINTS

ESTABLISH, OVERSEE AND COMMUNICATE SYSTEM LEVEL AIMS FOR IMPROVEMENT

ALIGN SYSTEM MEASURES, STRATEGY, PROJECTS AND A LEADERSHIP LEARNING SYSTEM

CHANNEL LEADERSHIP ATTENTION TO SYSTEM-LEVEL IMPROVEMENT

GET THE RIGHT TEAM ON THE BUS

MAKE THE CFO A QUALITY CHAMPION

ENGAGE WITH PHYSICIANS

BUILD IMPROVEMENT CAPABILITY

# Other initiatives relating to nursing

## TJC

- Specific core measures
  - Smoking cessation information
  - Discharge instructions for HF
- Most of the National Patient Safety Goals

## IHI

- Global trigger tools
- 5 Million Lives Campaign
- Others





# Commonalities

- Prevalence rates: falls, restraints, pressure ulcers, CA UTI, CA BSI, VAP
- Satisfaction: Staff and patients
- Business of nursing: LOS, Skill mix, NHPPD, voluntary turnover
- Some measures impact reimbursement and publicly reported statistics - on the Hospital Acquired Conditions (HAC) and Serious Reportable Adverse Events in Healthcare lists

# Differences

## Definitions may be different

- Pressure ulcer
  - Grade II or higher
  - Stage 3 or 4
- Falls
  - Falls - number per 1000 patient days
  - falls with injury vs. all falls

Useful for internal tracking

Can cause confusion with external comparisons

# Data Advances in Medicine



- Monitoring
- MD exam
- Nurse observations

THEN



- Radiology
- EKG
- Labs
- Medications
- Monitoring
- MD exam
- Nurse observations

NOW

- Continuous location tracking
- Constant vital signs monitoring
- Transcutaneous monitoring of glucose, ETOH, etc.
- Noninvasive testing
- Exhaled breath analysis
- Testing to maintain wellness
- Increased image utilization
- Genomic data
- Proteomics
- Personalized pharmacy
- Radiology
- EKG
- Labs
- Medications
- Monitoring
- MD exam
- Nurse observations

TOMORROW

# CIO journal says, "Nursing First"


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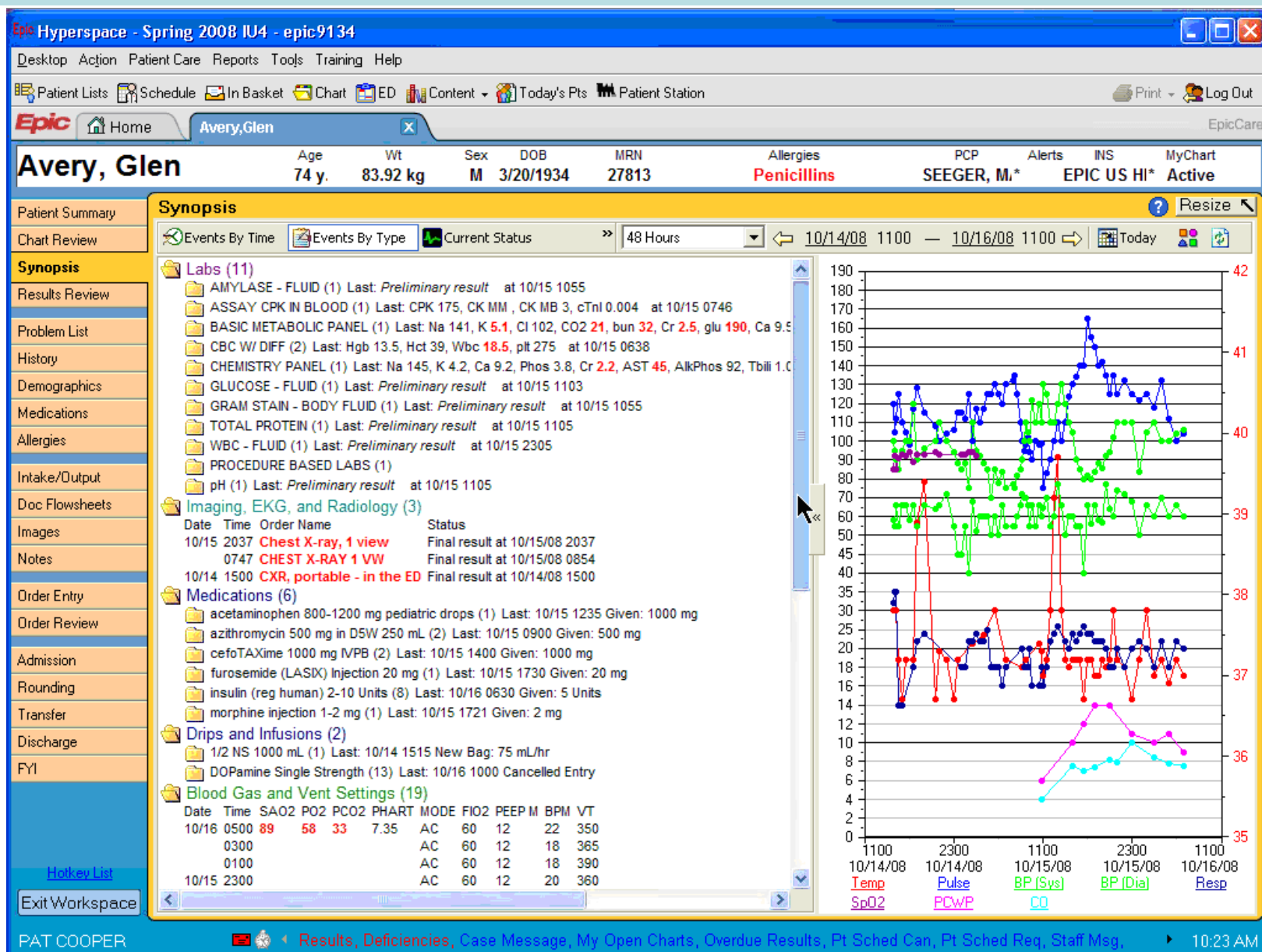
**Current Issue**  
  
November 2008  
**Cover Story**  
**Nursing First**  
by Mark Hagland  
Smart CIOs are partnering with nurse executives for IT implementation success  
**HCI 100 Results**

**Articles/Archives**  
☐ printer friendly format ☒ email page  
Issue Date: November 2008,  
**Nursing First**  
Smart CIOs are partnering with nurse executives for IT implementation success  
by Mark Hagland

  
**NURSING FIRST**  
Methodist Hospital of Southern California's CIO Kara Marx, R.N., M.H.S. (right); Chief Clinical Informatics Officer Jason Aranda, R.N.; and VP and CNO Carolyn Tadeja, R.N.  
Getting things right from the start has been a top priority for the rollout of automated nursing documentation at Methodist Hospital of Southern California. Not only have clinician and IT leaders at the 460-bed standalone community hospital in the Los Angeles suburb of Arcadia committed to careful, step-by-step success in rolling out the nursing documentation component of their EMR; they've obtained and maintained senior executive- and board-level commitment to getting it right the first time. As a result, the rollout of those tools has proceeded smoothly and collaboratively, says Methodist Hospital CIO, Kara Marx, R.N., M.H.S.

**Blog Postings**  
**Guest Blogs: 21**  
**Registered Readers: 624**  
**What's in an Acronym?**  
11/7/2008  
**Even football players aren't safe from security breaches**  
11/6/2008  
**7 Killer Career Self-Assessment Questions**  
11/5/2008  
**17 Killer Interview Questions...**  
11/4/2008

# Comprehensive clinical documentation





# Interfaces from monitors & pumps

**Epic Hyperspace - Spring 2008 IU4 - epic9134**

Desktop Action Patient Care Reports Tools Training Help

In Basket Hospital Chart Patient Lists Nursing Pk Census Itinerary Track Board Grease Board Print Log Out

**Epic** Inpatient Home **Cutler, James** EpicCare

**Cutler, James** MRN 28852 BMI: n/a Age/Sex: 48 y.o. / M Ht: -- Wt: 210 lb (95.255 kg) Allergies Penicillins Attending Cooper, Pat, M.D.\* Isolation Code Sts (None) FULL

**Data Validate** 210 lb (95.255 kg) ? Close X

Pending Data Graph Device Setup

Display Setup

Device: PHILIPS INTELLIVUE 7 (MICU BED:303) [1000109] Insert Column Show/Hide Variables Refresh

Time Interval: 15 Minutes Expand Columns Legend Reset Defaults

		10/16/08				
		0900	0915	0930	0945	1000
PHILIPS INTELLIVUE 7 (MICU BED:303)	BP - Systolic		122	112	138	129
	BP - Diastolic		87	88	85	82
	BP - Mean		99	96	103	98
	SpO2		96	93	96	92
	Resp		21	20	31	22
	Pulse		80	95	73	86
	Temp		36.6	37.5	36.8	36.9
	MAP		99	96	103	98

Device	Variable	Flowsheet Row	Value	Unit	Comment	Time on Device
--------	----------	---------------	-------	------	---------	----------------

Delete Bad Data Clear Now Validate Selected Validate Selected with Comment

Hotkey List Exit Workspace

KIM HARKER Refr Notice, Bed Assigned Notice, BestPractice, CC'd Results, Consult Request, Future/Standing Orders, 10:11 AM

LIC™  
HCARE  
ERS

# Computerized provider order entry (CPOE)

or if temperature is  $\geq 101^{\circ}\text{F}$ .

18. Blood culture x 2 for temperature  $> 101^{\circ}\text{F}$ .

19. Do time circumstances ☐ hours

20. Comments:

*2500 l/hg 80 pc hem*  
*NO bils*  
*hold lepro for now*  
*cancel halobol at all time*

NURSE'S SIGNATURE \_\_\_\_\_ Date/Time \_\_\_\_\_

Epic Hyperspace - Spring 2008 IU4 - epic9134

Epic Cutler, James Desktop Action Patient Care Reports Tools Training Help Print Log Out

**Cutler, James** Age 48 y. Wt 95.26 kg Sex M DOB 4/7/1960 MRN 28852 Allergies Penicillins PCP WALKER, D\* Alerts EPIC US HI\* Active MyChart

**Reconcile Medications for Discharge (Contact Date: 10/16/2008)**

Help 1 Reconcile Medications for Discharge 2 New Orders for discharge 3 Review and Sign

Previous Next

Review all prior to admission medications and current inpatient medications to determine the medications the patient should take after discharge.

One or more inpatient medications needing review were originally ordered as part of a linked order group. Linked order information is shown for reference only. Discharge orders will not be linked.

View by: Reviewed Home Meds/Inpatient Alphabetical Rx Class Prescribe Unsel. Don't Prescribe Unsel. Resume Unsel. Stop Taking Unsel. Next

Medication	Modify	Prescribe	Don't Prescribe	Resume	Stop Taking
1 g, Intravenous, at 100 mL/hr, Q24H, First dose on Thu 10/16/08 at 0915, Until Discontinued					
<b>digoxin (LANOXIN) injection 500 mcg</b> 500 mcg, Intravenous, DAILY, First dose on Thu 10/16/08 at 1015, Until Discontinued	Modify	Prescribe	Don't Prescribe		
<b>diltiazem (CARDIZEM CD) 240 MG ER capsule</b> Resume: (No Reason Specified)	Modify	Resume	Stop Taking		
<b>diltiazem (CARDIZEM CD) ER capsule 240 mg</b> 240 mg, Oral, DAILY, First dose on Thu 10/16/08 at 0915, Until Discontinued	Modify	Prescribe	Don't Prescribe		
<b>DOPamine infusion 3200 mcg/mL</b> 1-20 mcg/kg/min $\times$ 95.3 kg = 1.8-35.7 mL/hr, Intravenous, at 1.8-35.7 mL/hr, CONTINUOUS, Starting Thu 10/16/08 at 1005, Until Discontinued	Modify	Prescribe	Don't Prescribe		
<b>esomeprazole (NEXIUM) 40 MG capsule</b> Resume: (No Reason Specified)	Modify	Resume	Stop Taking		
<b>pantoprazole (PROTONIX) tablet 40 mg</b> 40 mg, Oral, DAILY, First dose on Thu 10/16/08 at 0915, Until Discontinued	Modify	Prescribe	Don't Prescribe		
<b>hydrocodone-acetaminophen (VICODIN) 5-500 MG 1 Tab</b> Oral, Q6H PRN, Starting Thu 10/16/08 at 0922, Until Mon 10/27/08 at 0921	Modify	Prescribe	Don't Prescribe		
<b>levofloxacin (LEVAQUIN) IVPB 750 mg</b> 750 mg, Intravenous, at 150 mL/hr, Q24H, 7 doses, First dose on Fri 10/17/08 at 0800, Last dose on Thu 10/23/08 at 0800	Modify	Prescribe	Don't Prescribe		
<b>levothyroxine (SYNTHROID) 100 MCG tablet</b> Resume: (No Reason Specified)	Modify	Resume	Stop Taking		
<b>levothyroxine (SYNTHROID) tablet 100 mcg</b> 100 mcg, Oral, DAILY, First dose on Thu 10/16/08 at 0915, Until Discontinued	Modify	Prescribe	Don't Prescribe		
<b>morphine injection 2 mg</b> 2 mg, Intravenous, EVERY 4 HOURS PRN, Starting Thu 10/16/08 at 0922, Until Fri	Modify	Prescribe	Don't Prescribe		

Previous Next

**All orders not reviewed**

**Resume on Discharge**

- diltiazem (CARDIZEM CD) 240 MG ER capsule

**Don't Order on Discharge**

- acetaminophen (TYLENOL) tablet 650 mg
- albuterol (PROVENTIL) (2.5 MG/3ML) 0.083% nebulizer solution 2.5 mg
- ceftriaxone (ROCEPHIN) IVPB 1 g
- digoxin (LANOXIN) injection 500 mcg
- diltiazem (CARDIZEM CD) ER capsule 240 mg
- DOPamine infusion 3200 mcg/mL

**Needs review for Discharge**

- esomeprazole (NEXIUM) 40 MG capsule
- hydrocodone-acetaminophen (VICODIN) 5-500 MG 1 Tab
- levofloxacin (LEVAQUIN) IVPB 750 mg
- levothyroxine (SYNTHROID) 100 MCG tablet
- levothyroxine (SYNTHROID) tablet 100 mcg
- morphine injection 2 mg
- morphine injection 2 mg

Cancel

PAT COOPER Results, Deficiencies, Case Message, Future/Standing Orders, My Open Charts, Overdue Results, Pt Sched Can, 10:28 AM

# Link evidence based practice to EHR

Reminder:  
Elderly  
inpatients are at  
risk for decline  
in mobility and  
function during  
hospitalization

Summarizes  
evidence  
pulled from  
research

Includes references where nurses  
can click through to the study

## Phase I (2005)

The screenshot shows a web browser window with the address bar displaying a URL from a .nyu.edu domain. The page title is "Patient Problems > Falls - Risk of > Planning/Implementation > Fall Prevention Education - Patient and Family". The page content includes a "Reminder" section with the text "Consider incorporating patient and family education as part of fall prevention in hospitals." and a "Rationale" section with three paragraphs of text. The "References" section lists four studies, each with a "Class of Evidence" and a "Published" status. The browser window also shows a taskbar at the bottom with various open applications.

Address: <https://www.nyu.edu/reference/content.aspx?item=180175>

Patient Problems > Falls - Risk of > Planning/Implementation > Fall Prevention Education - Patient and Family

Reminder

Consider incorporating patient and family education as part of fall prevention in hospitals.

Rationale

A systematic review by Rutledge et al (2003) of fall prevention and risk assessment in hospitalized patients finds that patient and family education are among the components of a successful fall prevention program.

A randomized controlled trial by Haines et al (2006) finds that in subacute/aged rehabilitation hospital inpatients, a patient education intervention for falls prevention reduces the incidence of falls as compared with no education program.

A nonrandomized prospective study by Yardley et al (2006) shows that adults 61 to 94 years of age understand falls prevention to be primarily involved with hazard reduction, restriction of activity, and use of aids. The study also shows that falls advice is seen as useful but not relevant or appropriate and is regarded as potentially distressing or patronizing.

In a guideline for the prevention of falls and fall injuries in older adults, the Registered Nurses' Association of Ontario (RNAO, 2005) recommends that all patients assessed as high risk for falling receive falls education regarding their risk of falling. This recommendation is described by the RNAO as Level of Evidence IV (ie, evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities).

References

Sent by: Year then by: Class Go Reset

1. Haines TP, Hill KD, Bernell KL, Osborne RH. Patient education to prevent falls in subacute care. Clin Rehabil. 2006;20:970-979. Published
2. Yardley L, Donovan-Hall M, Francis K, Todd C. Older people's views of advice about falls prevention: a qualitative study. Health Educ Res. 2006;21:508-517. Published
3. Registered Nurses' Association of Ontario. Prevention Falls and Fall Injuries in the Older Adult. Nursing Best Practice Guideline. 2005. Published
4. Rutledge D, Donaldson N, Pravikoff D. Update 2003: fall risk assessment and prevention in hospitalized patients. OJCI. 2003;6:1-55. Published



# Link evidence based practice to EHR

## Phase III (2007)

SIEMENS eClinicalWorks - Microsoft Internet Explorer

Address: http://wq0mb-gr02.asp.siemensmedical.com/020540215\_P0P0\_pj004/diLogin.pba

SIEMENS Anthony Tasco, MD

CRUZ, ELSIE V

DOB: 05/01/1976 (31y) | AOUS: ACU110 | Attending: Myers, R, Franklin, J

Diagnosis: (R) M84.800005246 | ACCTA: 280228707 | CRN

Problems: All | Nursing | Case Management | Dietary | Social Service | Homecare/Hospice | WOC Nurse | Wound Care | Orders

Pressure Ulcer

Expected Outcomes	Target Completion	Charting Status	Note	Last Charted
Decreased Pressure Ulcer Size	04/18/2008 23:59	Progressing		04/17/08 18:58
Granulation of Tissue	Discharge	Progressing		04/17/08 18:58
Healing of Skin	Discharge	Progressing		04/17/08 18:58
Normal Skin Integrity	Discharge	Progressing		04/17/08 18:58
Reposition Schedule Maintained	Discharge	Progressing		04/17/08 18:58

Orders: Consult, Enterostomal Therapy test, Social Services test, Dietitian test, Nursing, Wound Healing Monitoring, Nutritional Assessment, Pressure Ulcer Assessment, Patient History Assessment, Education, Position Change, Measure Pressure Ulcer, Education, Pain Management, Pressure Ulcer Care Stage II

Condition/  
problem:  
Pressure  
ulcer

Necessary  
evidence-  
based care  
prompts such  
as wound  
healing  
monitoring

Expected outcomes: Granulation  
of tissue, decreased pressure  
ulcer size

Source: PinnacleHealth presentation, 10/16/08.

# Electronic event reporting



CHP St. Ritas Medical Center  
730 West Market Street, Lima OH 45801

Patient Safety Event ID: YMR2083636 (Anonymous)

Report D/T: 01/10/2009 13:45

Reporter: Anonymous Reporter

Event D/T: 01/10/2009

**Mandatory fields designated by '\*\*'**

## Actual Medication Error

### What

\* Was this an actual or near miss event?

☒ Actual Event ☐ Near Miss/Close Call



Use this section to search for and identify the specific type of event.

\* What happened?

Dose/Unit(s) Omitted



Drug Search Results from Multum Lexicon Database from Cerner Multum, Inc.

*Ordered Drug Name	Number of Doses Omitted	Add
Furosemide	1	

### Additional Event Information

During which care process was this initiated?

Preparing

During which care process did this occur?

Administering

During which care process was this discovered?

Documenting

Patient's weight (Pounds, Ounces, Kilograms):

154 lbs.

5 oz.

OR 070 kg.

Order Type:

Written

Was there a known Drug Allergy?

☐ Yes ☒ No [Clear](#)

Did this Medication Error result in an Adverse Drug Event?

☐ Yes ☒ No [Clear](#)

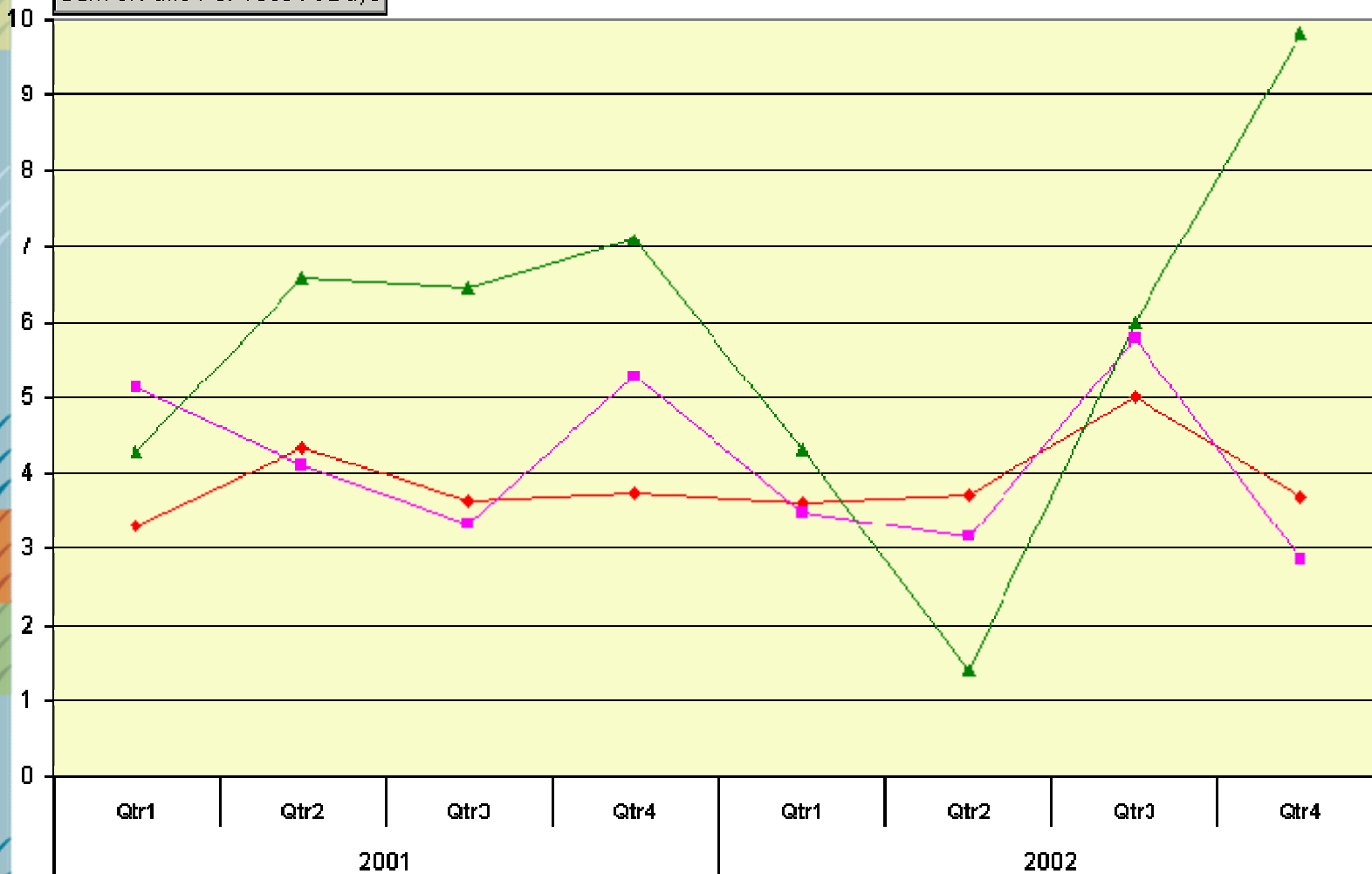
\* Brief Factual Description of the Event/Occurrence: (Free Text):

# Reporting adverse risk events

Entity (All) FALL FALL

Sum of Falls Per 1000 Pt Days

Specialty  
Acute Care  
Psych  
TCU



# Trends in healthcare BI / analytics

- Alerts as action triggers
- Penetration of Lean Six Sigma
- Scorecards and dashboards

# Alerts as action triggers

## Executive Summary Daily Report

Drill 1 of 4: FAC  
 Drill 2 of 4: CEN YEAR; from FAC / A  
 Drill 3 of 4: CEN MONTH; from CEN YEAR / 2009  
 Drill 4 of 4: CEN DATE; from CEN MONTH / 2

\* Active Alert: IP Revenue \*

CEN DATE	OP VISITS	ER VISITS	ADMISSIONS	CENSUS	OP REVENUE	IP REVENUE
2/1/2009	5	138	28	255	336,245	856,948
2/2/2009	373	133	86	272	946,506	1,618,876
2/3/2009	480	136	78	285	1,066,395	1,598,640
2/4/2009	499	127	85	298	1,163,258	2,047,805
2/5/2009	551	155	90	321	1,221,951	2,227,533
2/6/2009	517	134	83	309	1,495,300	1,717,733
2/7/2009	12	130	27	277	345,220	960,973
<b>Total</b>	<b>2,437</b>	<b>953</b>	<b>477</b>	<b>2,017</b>	<b>6,574,877</b>	<b>11,028,507</b>

**Fw: The Operations Scorecard has been updated with financial data. Please click on the link below to view the updated highlight. There will be links to view both PDF and Intellisource versions of the scorecard.** - IBM Lotus N...

File Edit View Create Actions Window Help

1 New Memo 2 Reply 3 Reply To All 4 Forward 5 Delete 6 Follow Up 7 Filter 8 Copy Into New 9 What Show Tools

**David R Yost/Corp/CHP**  
 2008-05-15 09:00 AM

To: Adam Bartel/Corp/CHP@CHP  
 cc:  
 bcc:  
 Subject: Fw: The Operations Scorecard has been updated with financial data. Please click on the link below to view the updated highlight. There will be links to view both PDF and Intellisource versions of the scorecard.

----- Forwarded by David R Yost/Corp/CHP on 05/15/2008 08:57 AM -----

05/15/2008 08:56 AM

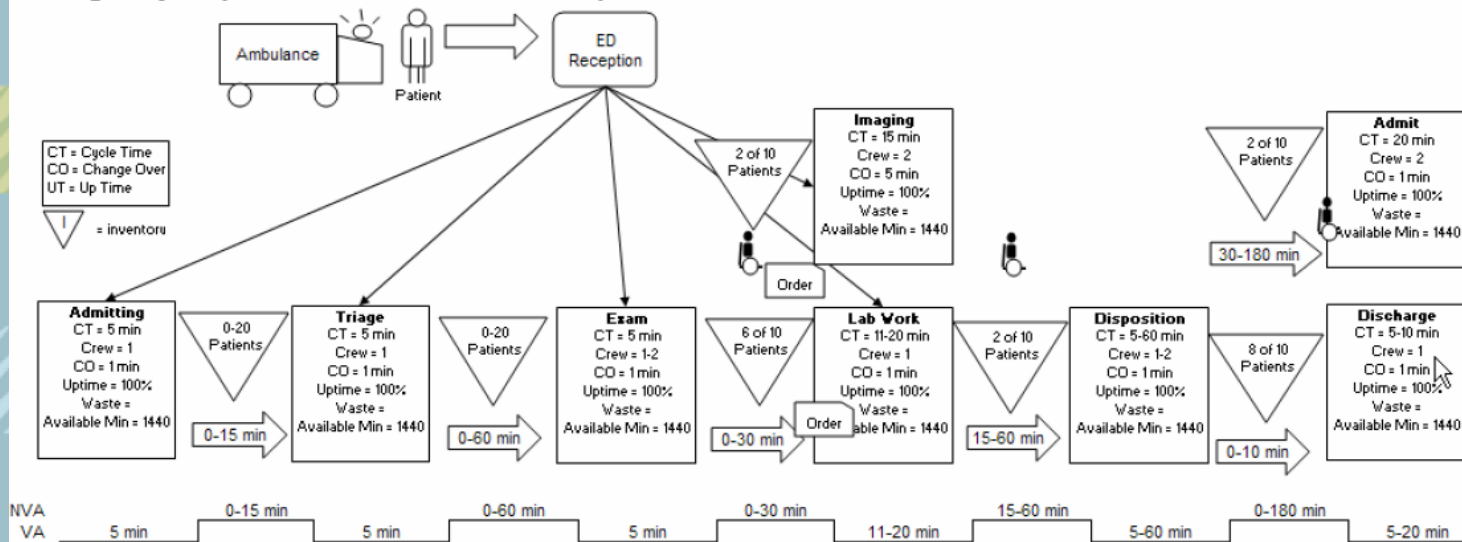
To: <HABartel@health-partners.org>, <Michael.Pazzo@health-partners.org>, <Ed\_Oley@hmis.org>, <Ed\_Ruth@hmis.org>  
 cc:  
 Subject: The Operations Scorecard has been updated with financial data. Please click on the link below to view the

**Entity Description:** CHP Home Office  
**Highlight Name:** [Operations Scorecard - Tier 1 - Hyperion](#)  
**Alert Name:** Operations Scorecard Updated  
**Last Evaluation Date:** May 15, 2008 08:56

I Am Active Office

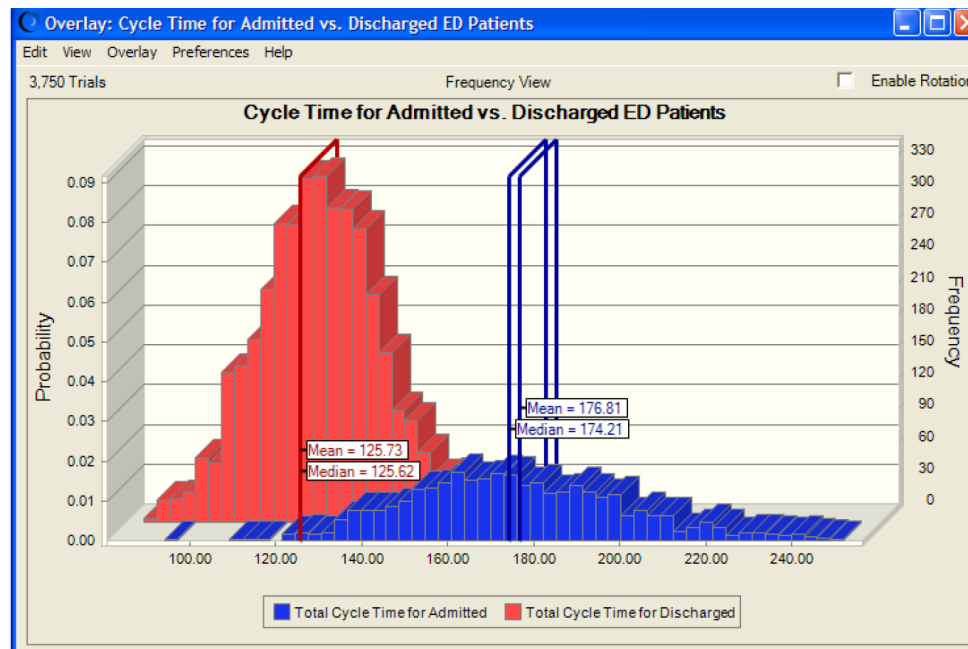
# Lean, Six Sigma, and SPC

## Emergency Department Value Stream Map and Model



Template available through  
[www.qimacros.com](http://www.qimacros.com)

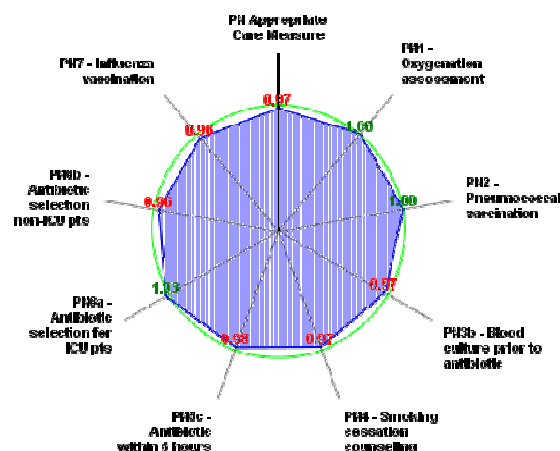
	Min	Mid	Max
NVA	15	180	345
VA	36	74.5	115



# Pneumonia core measure scorecard

CHP Core Measures - Pneumonia - PN 2009

Division:   
 Region:    
 Facility:



Act/Target  
 — Summary Scores  
 — Individual Measures

Measure	Rolling 4 Quarters				2009 YTD	Oct 2008 to Date	Current Target	Act/Target	Jan to Sep 2008
	Q2 2008	Q3 2008	Q4 2008	Q1 2009					
Summary Scores									
<a href="#">PN Appropriate Care Measure</a>	88%	88%	84%	85%	85%	84%	86%	0.97	86%
<a href="#">PN Composite Score</a>	95%	96%	94%	95%	95%	94%	+	+	95%
Individual Measures									
<a href="#">PN1 - Oxygenation assessment</a>	100%	100%	100%	100%	100%	100%	100%	1.00	100%
<a href="#">PN2 - Pneumococcal vaccination</a>	95%	94%	95%	97%	97%	96%	96%	1.00	94%
<a href="#">PN3b - Blood culture prior to antibiotic</a>	95%	97%	95%	92%	92%	95%	97%	0.97	95%
<a href="#">PN4 - Smoking cessation counseling</a>	99%	96%	97%	100%	100%	97%	100%	0.97	97%
<a href="#">PN5c - Antibiotic within 6 hours</a>	95%	95%	95%	95%	95%	95%	98%	0.98	95%
<a href="#">PN6a - Antibiotic selection for ICU pts</a>	63%	65%	81%	100%	100%	82%	80%	1.03	64%
<a href="#">PN6b - Antibiotic selection non-ICU pts</a>	95%	95%	94%	92%	92%	94%	98%	0.96	96%
<a href="#">PN7 - Influenza vaccination</a>	+	+	92%	97%	97%	92%	98%	0.96	92%

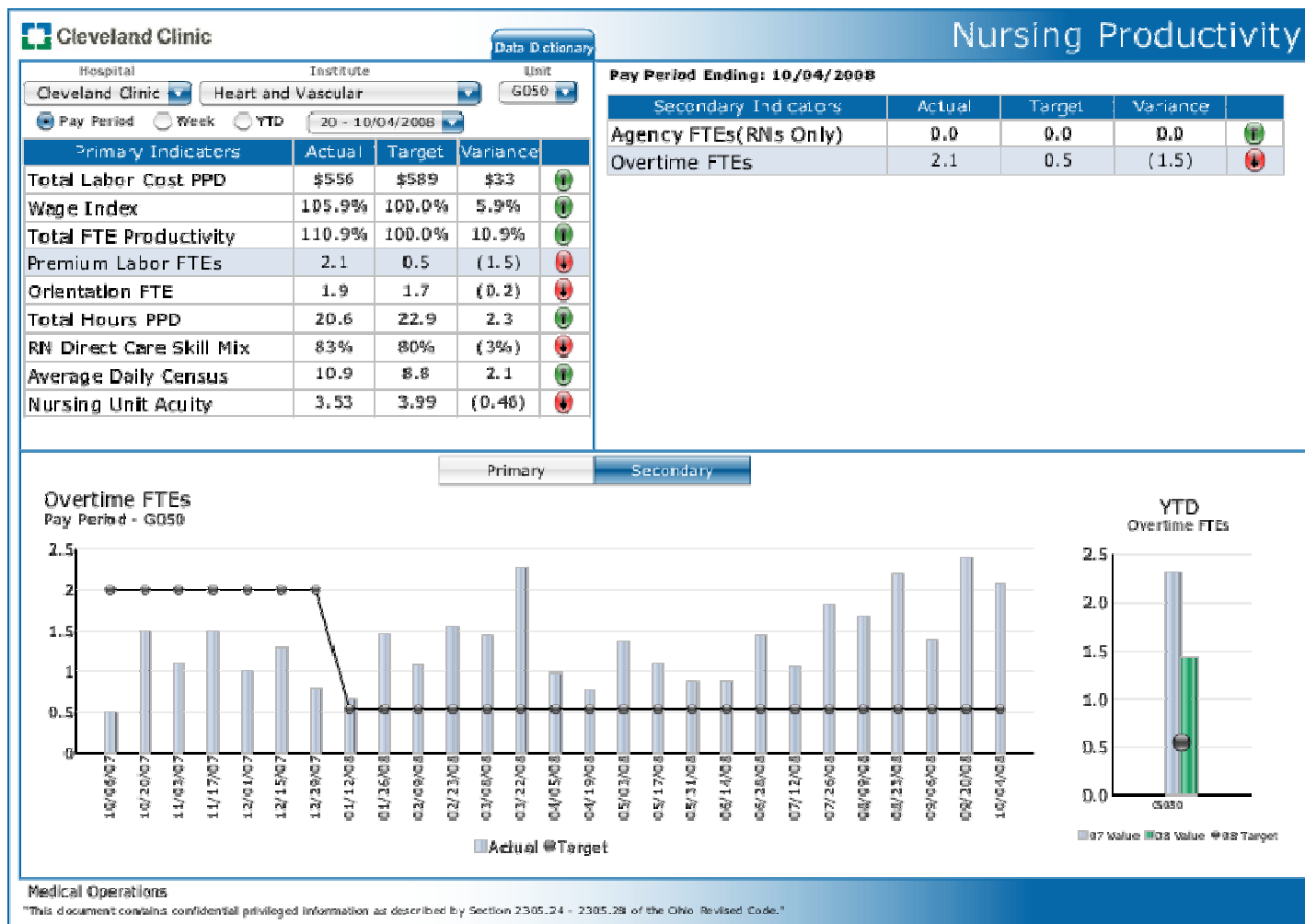
# Nursing dashboard – labor

Cleveland Clinic
Welcome: wadswor

InfoView
Performance Management
Corporate Tiered Dashboard

Nursing Dashboard

Executive Summary
Productivity
Patient Experience
Quality/Patient Safety
Agency/OT Drilldown





# Nursing dashboard – HCAHPS



# Visual examples of dashboard metrics

Performance Analytics  
Powered by Horizon Business Insight™

Logged in as: mchumbley

[Configure dashboard](#) | [Logout](#) | [Help](#)

[Home](#)

[Beta](#)

[Iteration 8](#)

[Performance Metrics](#)

[RCR017](#)

[test](#)

Metric

Edit ? □ □

**FTEs per Occupied Bed**

Achievement  
Actual: **5.81**

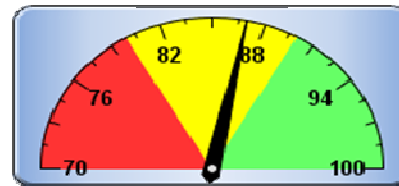


Metric

Edit ? □ □

**Gross Days in Accounts Receivable**

Achievement  
Actual: **86.96%**

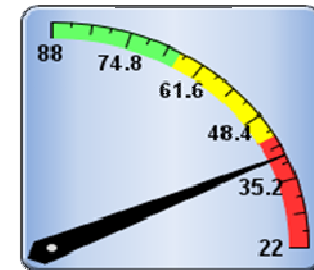


Metric

Edit ? □ □

**PCI within 90 Minutes**

Actual to Top 10%  
Actual: **40**

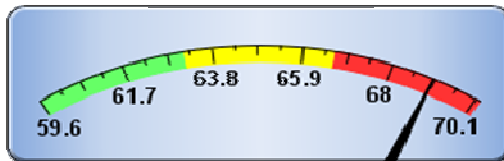


Metric

Edit ? □ □

**Lab Turnaround Time for Stat Tests**

Achievement  
Actual: **69**

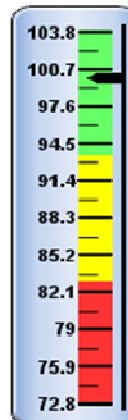


Metric

Edit ? □ □

**Days Cash on Hand**

Achievement  
Actual: **100**

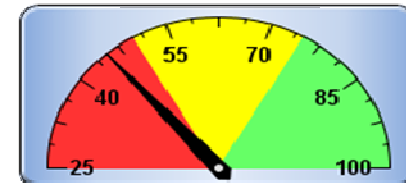


Metric

Edit ? □ □

**PCI within 90 Minutes**

Actual to Top 10%  
Achievement: **45.45%**



# Contact information

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<http://www.linkedin.com/in/dryost>

Slides & references downloadable from

<http://70.47.37.221/sigma.pdf>



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Beacon Award for Critical Care Excellence – Pediatric unit categories and questions audit tool - Are you ready for Beacon?

[https://classic.aacn.org/AACN/ICURecog.nsf/Files/ped/\\$file/Ped.Beacon.Eval.pdf](https://classic.aacn.org/AACN/ICURecog.nsf/Files/ped/$file/Ped.Beacon.Eval.pdf)

Beacon Award progressive care unit categories and questions audit tool: Are you ready for Beacon?

[https://classic.aacn.org/AACN/ICURecog.nsf/Files/PCCNtool/\\$file/pccnAuditTool11-07.pdf](https://classic.aacn.org/AACN/ICURecog.nsf/Files/PCCNtool/$file/pccnAuditTool11-07.pdf)

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