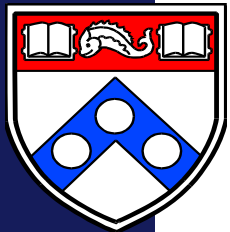


# Preventing Health Care Associated Infections

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**PJ Brennan, MD**  
**Chief Medical Officer**  
**University of Pennsylvania Health System**  
**August 16, 2011**



# INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY

VOLUME 29, SUPPLEMENT 1

OCTOBER 2008

## A COMPENDIUM OF STRATEGIES TO PREVENT HEALTHCARE-ASSOCIATED INFECTIONS IN ACUTE CARE HOSPITALS

S1 **Editorial: Primum Non Nocere** • Nalini Singh, MD, MPH; Patrick J. Brennan, MD; Michael Bell, MD

S3 **Introduction: Improving Patient Safety Through Infection Control: A New Healthcare Imperative** •  
Deborah S. Yokoe, MD, MPH; David Classen, MD, MS

## SHEA/IDSA PRACTICE RECOMMENDATIONS

S12 **Executive Summary: A Compendium of Strategies to Prevent Healthcare-Associated Infections in Acute Care Hospitals** • Deborah S. Yokoe, MD, MPH; Leonard A. Mermel, DO, ScM; Deverick J. Anderson, MD, MPH; Kathleen M. Arias, MS, CIC; Helen Burstin, MD; David P. Calfee, MD, MS; Susan E. Coffin, MD; Erik R. Dubberke, MD; Victoria Fraser, MD; Dale N. Gerding, MD; Frances A. Griffin, RRT, MPA; Peter Gross, MD; Keith S. Kaye, MD; Michael Klompas, MD; Evelyn Lo, MD; Jonas Marschall, MD; Lindsay Nicolle, MD; David A. Pegues, MD; Trish M. Perl, MD; Kelly Podgorny, RN, MS, CPHQ; Sanjay Saint, MD; Cassandra D. Salgado, MD, MS; Robert A. Weinstein, MD; Robert Wise, MD; David Classen, MD, MS

# Gaps in Knowledge?

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x **Pathogenesis**

x **Epidemiology**

x **Prevention Intervention**

x **Study Design**

x **Technology**

- *Infect Control Hosp Epidemiol 2010;31:669-675*

# Penn Medicine — Philadelphia, PA

University of Pennsylvania  
Health System

University of Pennsylvania  
Medical School

Hospital of the University of Pennsylvania  
*#10 US News & World Report/ Magnet*

Pennsylvania Hospital

Penn Presbyterian Medical Center

Home Care & Hospice Services

Good Shepherd Penn Partners

#3 NIH ranking

Faculty — 1,700

Med students — 725

Grad students — 1,689

Residents/ Fellows — 1000

Admissions — 18,000

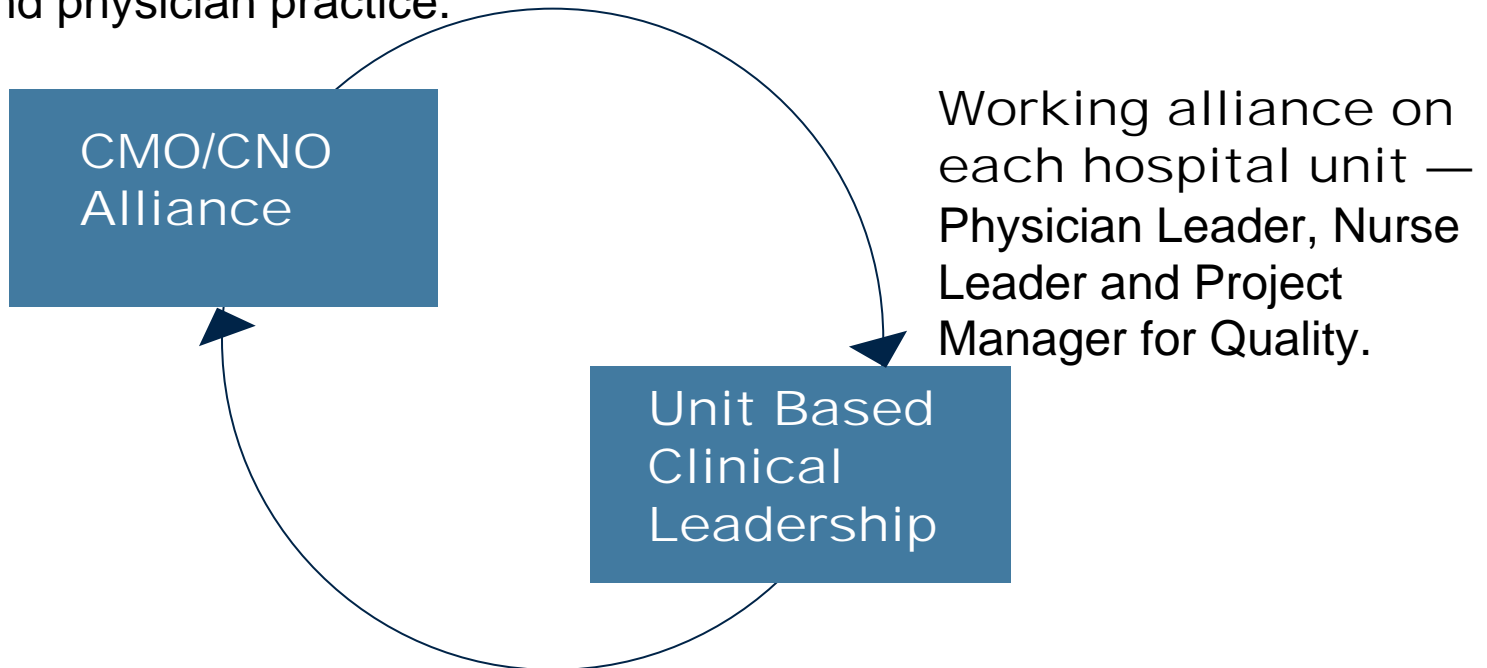
Employees — 450

Adult admissions — 85,000

Employees — 15,000

# This is the story of a physician/ nurse/ quality partnership at the top and on the frontline

Working alliance of the CMOs and CNOs from all three hospitals, homecare, rehab, and physician practice.



# It started with reports of disrespectful behavior, which led to a professionalism self-study

## INCIDENT REPORTS

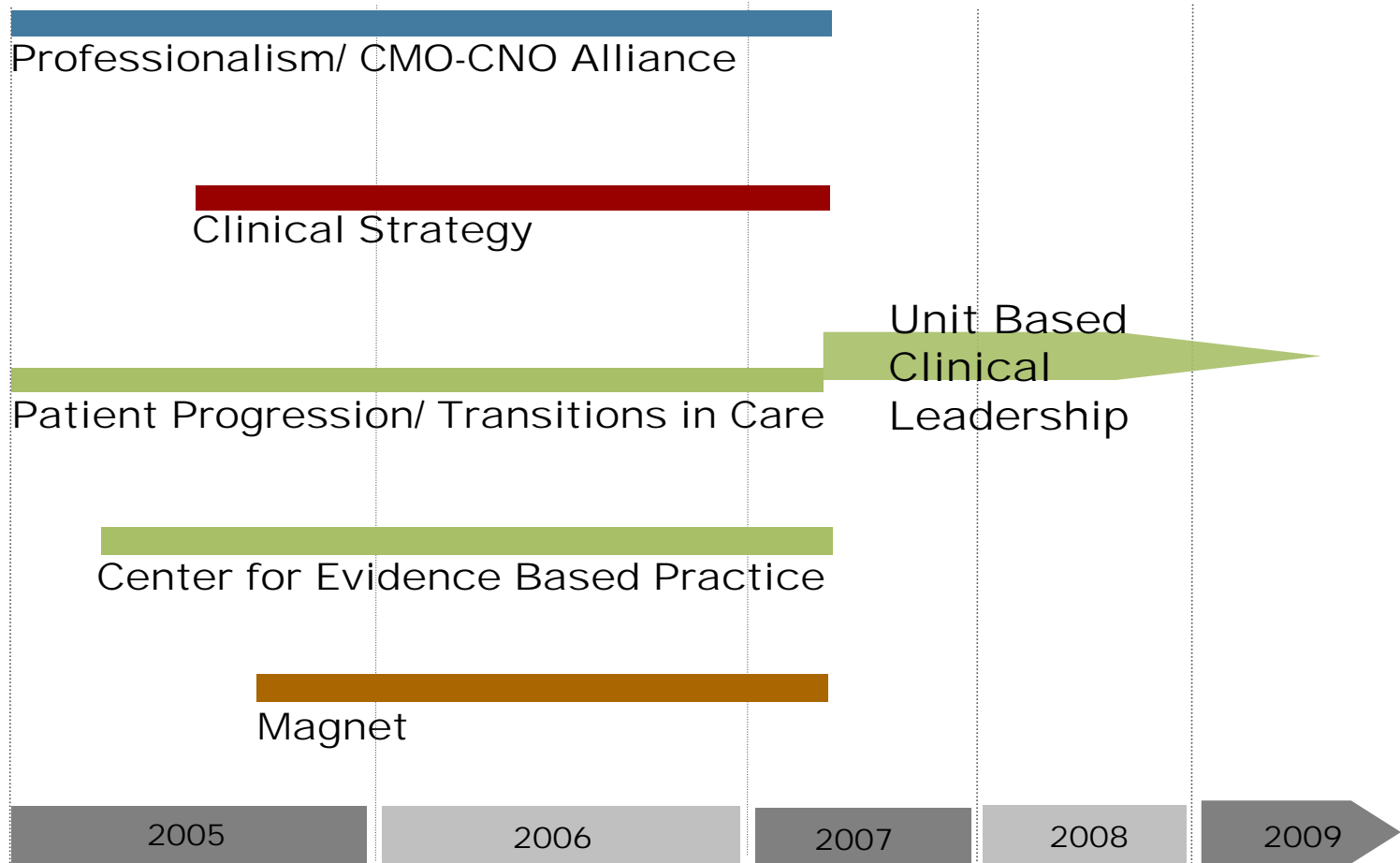
Incident in OR:  
Physician lashes  
out verbally at nurse  
during procedure ...

... disruptive  
argument between  
nurse and house staff ...

We convened focus groups to  
uncover work practices  
that foster professionalism:

- x Nurse/physician partnerships
- x Interdisciplinary rounding
- x House staff orientation, with senior nurses as one of the teachers
- x Daily staff huddles

We began on the blue path, but linked up with the red, green & gold to leverage other people's goals & actions

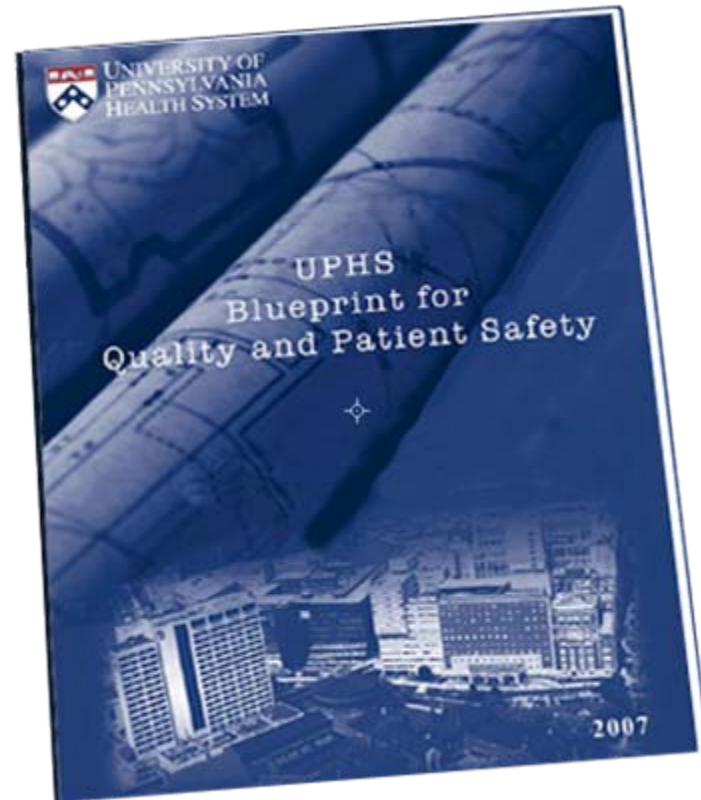


# We needed to bring UPHS' clinical strategy to the bedside

## UPHS Blueprint for Quality and Patient Safety

UPHS' overarching quality goal is to reduce mortality and reduce 30-day re-admissions.

Four Imperatives	Priority Actions
<b>Transitions in care</b>	<ul style="list-style-type: none"><li>▪ Transition planning</li><li>▪ Medication management</li></ul>
<b>Reduce variations in practice</b>	<ul style="list-style-type: none"><li>▪ Reduce hospital-acquired infections</li><li>▪ Reduce medication errors</li></ul>
<b>Coordination of care</b>	<ul style="list-style-type: none"><li>▪ Interdisciplinary rounding</li></ul>
<b>Accountability</b>	<ul style="list-style-type: none"><li>▪ Unit clinical leadership</li></ul>



To bring clinical strategy to the frontline, we established “local leadership” on each hospital unit (more on this later)

### Three-Way Partnership Manages Quality on the Hospital Units



Physician Leader and Nurse Leader are paired at the hospital unit level — with a Project Manager for Quality who brings data and project management skills.

We call these trios “UBCLs,” for “Unit Based Clinical Leadership.”

# Three-way partnership is Penn's "Swiss Army knife" for managing quality on the hospital units

## Three-Way Partnership on the Hospital Units



We call these trios "UBCLs," for "Unit Based Clinical Leadership."

We needed a multi-purpose solution on the units to handle almost any Quality problem.



**//** This isn't a project, it's a way of doing things. You can bolt different strategies onto it. **//**

—UPHS CFO

# We started modestly on purpose so the UBCs could learn to work with each other

13 pilot units in 2007

The job:

- x Weekly operations meeting of the Physician Leader, Nurse Leader, Proj Mgr. for Quality
- x Interdisciplinary rounding
- x Orienting house staff
- x Two improvement projects

2007

2008

2009

# Today we've covered the house and the UBCLs are ready to take on Transitions, a major system-wide initiative

Today it's 34 "official" units — and another dozen who are "operating as."

The job: Today the trios manage Quality on the unit, drawing in others as needed.

UBCLs are ready this year to shoulder Transitions in Care, a major system-wide initiative.

2007

2008

2009

# The UBCLs aren't the answer to "everything"

## UBCLs HAVE THE MOST IMPACT WHEN ...

Interdisciplinary care coordination makes a difference

Physician backup is especially needed

The unit needs the cooperation of another unit or department

Sustaining the gains over time will be difficult

## HERE'S WHY ...

With UBCLs, the team is interdisciplinary from the start

With UBCLs, the nurse leader can count on backup from the physician leader

With UBCLs, there's a leadership team to represent the unit in "negotiations"

With UBCLs, accountability is ongoing

# Today's story about leadership machinery has three parts



# “Choice within a framework” — we developed targets and worked with each hospital unit to pick theirs

UPHS Blueprint for Quality and Patient Safety	
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Coordination of care	<ul style="list-style-type: none"><li>Interdisciplinary rounding</li></ul>
Accountability	<ul style="list-style-type: none"><li>Unit clinical leadership</li></ul>

## Transitions in Care — FY'11 Targets

- Risk stratification — screening tool and daily review of real-time readmissions
- Discharge time out
- Discharge communication
- Med rec on discharge
- HCAHPS medication domain

## Coordination of Care — FY'11 Targets

- Interdisciplinary rounding
- HCAHPS likelihood of recommending

# FY'09 Quality Strategies for UPHS

## UPHS Blueprint for Quality and Patient Safety

Four Imperatives	Priority Actions
1. Transitions in care	<ul style="list-style-type: none"> <li>Transition planning</li> <li>Medication management</li> </ul>
2. Reduce unnecessary variations in practice	<ul style="list-style-type: none"> <li>Reduce hospital-acquired infections</li> <li>Reduce medication errors</li> </ul>
3. Coordination of care	<ul style="list-style-type: none"> <li>Interdisciplinary rounding</li> </ul>
4. Accountability	<ul style="list-style-type: none"> <li>Unit clinical leadership</li> </ul>

Accountability — FY'09 Targets
All Units
Selected Units
<ul style="list-style-type: none"> <li>Timely launch of Unit Clinical Leadership team</li> </ul>

Coordination of Care — FY'09 Targets
All Units
<ul style="list-style-type: none"> <li>“Staff worked together” (Press Ganey)</li> <li>Likelihood of recommendation (HCAHPS)</li> <li>Anticipated discharge by patient (Patient Progression)</li> </ul>

Reduce Variations in Practice — FY'09 Targets
All Units
<ul style="list-style-type: none"> <li>Reduce CR bloodstream infections</li> <li>Reduce urinary tract infections</li> <li>Time to admin of STAT antibiotics</li> <li>Decrease rate of DVTs &amp; PEs</li> <li>Decrease falls with injury</li> <li>Decrease pressure ulcers</li> <li>Adherence to hand hygiene</li> </ul>
Selected Units
<ul style="list-style-type: none"> <li>Ventilator-associated pneumonia</li> <li>SCIP (Surgical Care Improvement Program)</li> <li>Process improvements for high risk patient populations</li> </ul>

Transitions in Care — FY'09 Targets
All Units
<ul style="list-style-type: none"> <li>Increase use of homecare</li> <li>Med reconciliation on admission</li> </ul>
Selected Units
<ul style="list-style-type: none"> <li>HUP only: 25% reduction in preventable readmits for CHF, Diabetes &amp; Anticoagulation for patients from HCHS</li> <li>Increase appropriate use of hospice</li> <li>Core measures — heart failure discharge instructions</li> <li>Unplanned readmission to ICU</li> </ul>

# We're getting out ahead of the budget cycle and negotiating with a united clinical voice

## The old way

First step — set margins for each hospital or other entity. Entities are locked in.

Entities (separately) submit budgets.

Negotiation — across entities and with Finance — occurs after budgets are submitted.

## The new way

Discussion of system-wide quality initiatives before margins are set.

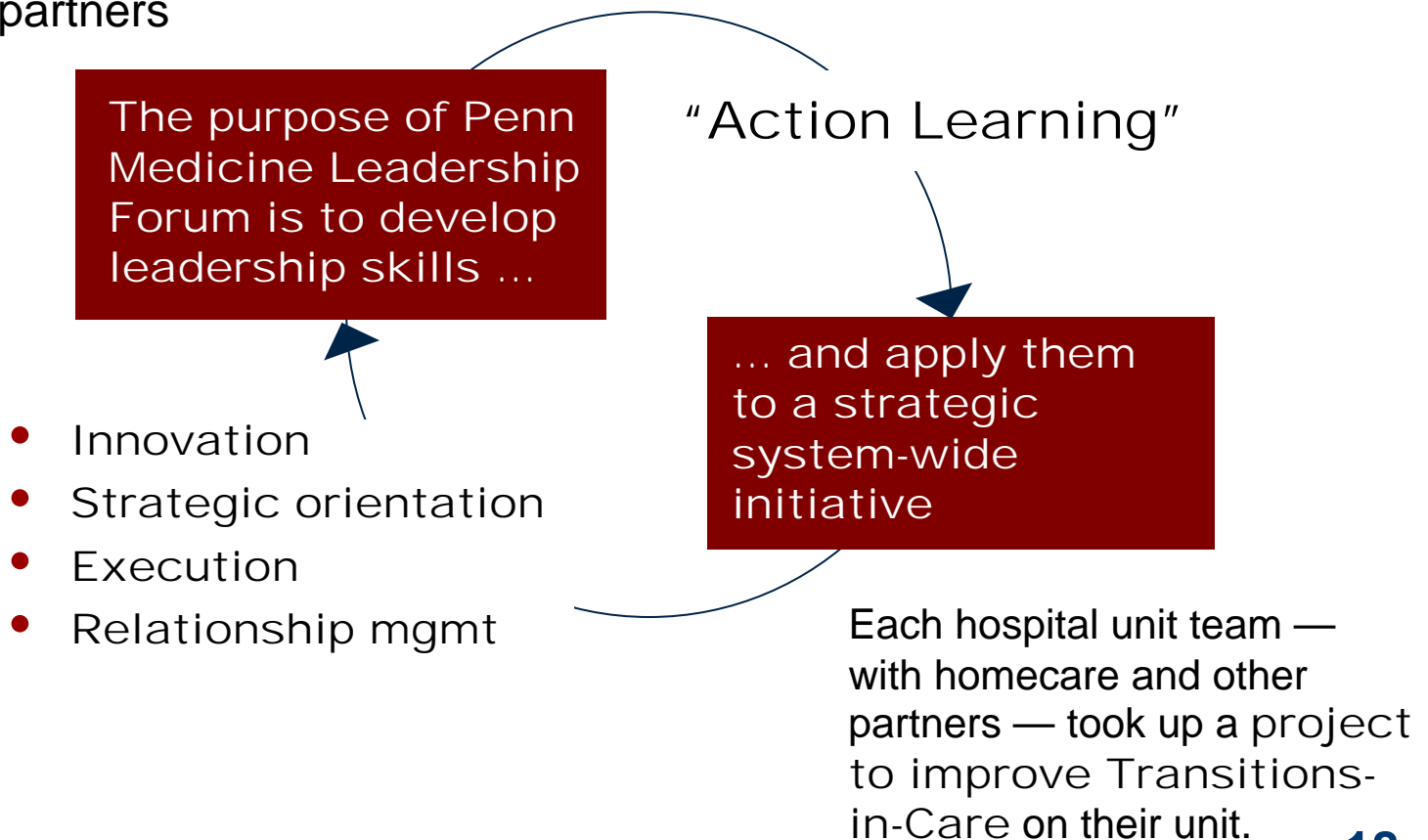
CMOs and CNOs submit a joint budget for system-wide quality initiatives they all agreed on.

Negotiation occurs before budgets are submitted.

We're making our job AND the CFO's job easier.

# We took advantage of Penn's flagship leadership development program

Penn Medicine Leadership Forum is targeted this year to the unit-based leadership teams — along with homecare and other partners



# The leadership skills you'll need may seem counterintuitive

NOT ...	INSTEAD ...
Telling and selling	Listening and amplifying
Pushing people to change	Creating pull for the changes
Trying to “motivate” or “empower” others	Discovering and freeing up energy and passion
Thinking your way to new actions	Acting your way to new thinking

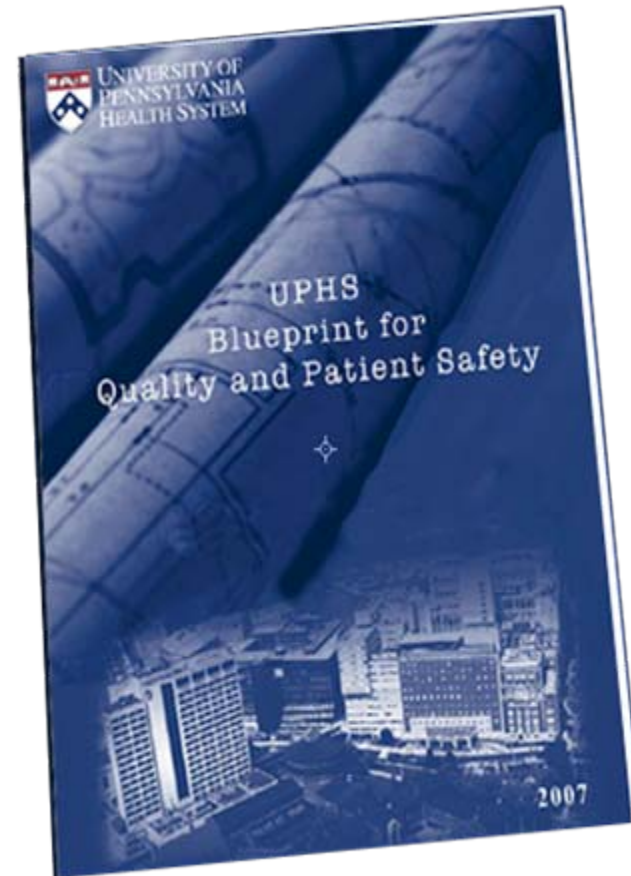
Where we've been ---

# The Four Imperatives of the Blueprint for Quality

## UPHS Blueprint for Quality and Patient Safety

UPHS' overarching quality goal is to reduce mortality and reduce 30-day re-admissions.

Four Imperatives	Priority Actions
<b>Transitions in care</b>	<ul style="list-style-type: none"><li>▪ Transition planning</li><li>▪ Medication management</li></ul>
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<b>Accountability</b>	<ul style="list-style-type: none"><li>▪ Unit clinical leadership</li></ul>



# UPHS: Ahead of the curve on quality

- x **Created the “Blueprint for Quality” in 2007; refined in 2011.**
  - Created imperatives for improving quality of care and patient safety
  - Utilize Unit Based Clinical Leadership Teams (UBCLs) to promote quality across the organization
  - Measuring and rewarding excellence
  
- x **Quality and Patient Satisfaction measures included in Variable Pay for Performance (UPHS management incentive plans).**
  
- x **Quality measures included in existing Independent Blue Cross Pay for Performance (IBC P4P) contract.**

# FY11 HUP quality & safety accomplishments

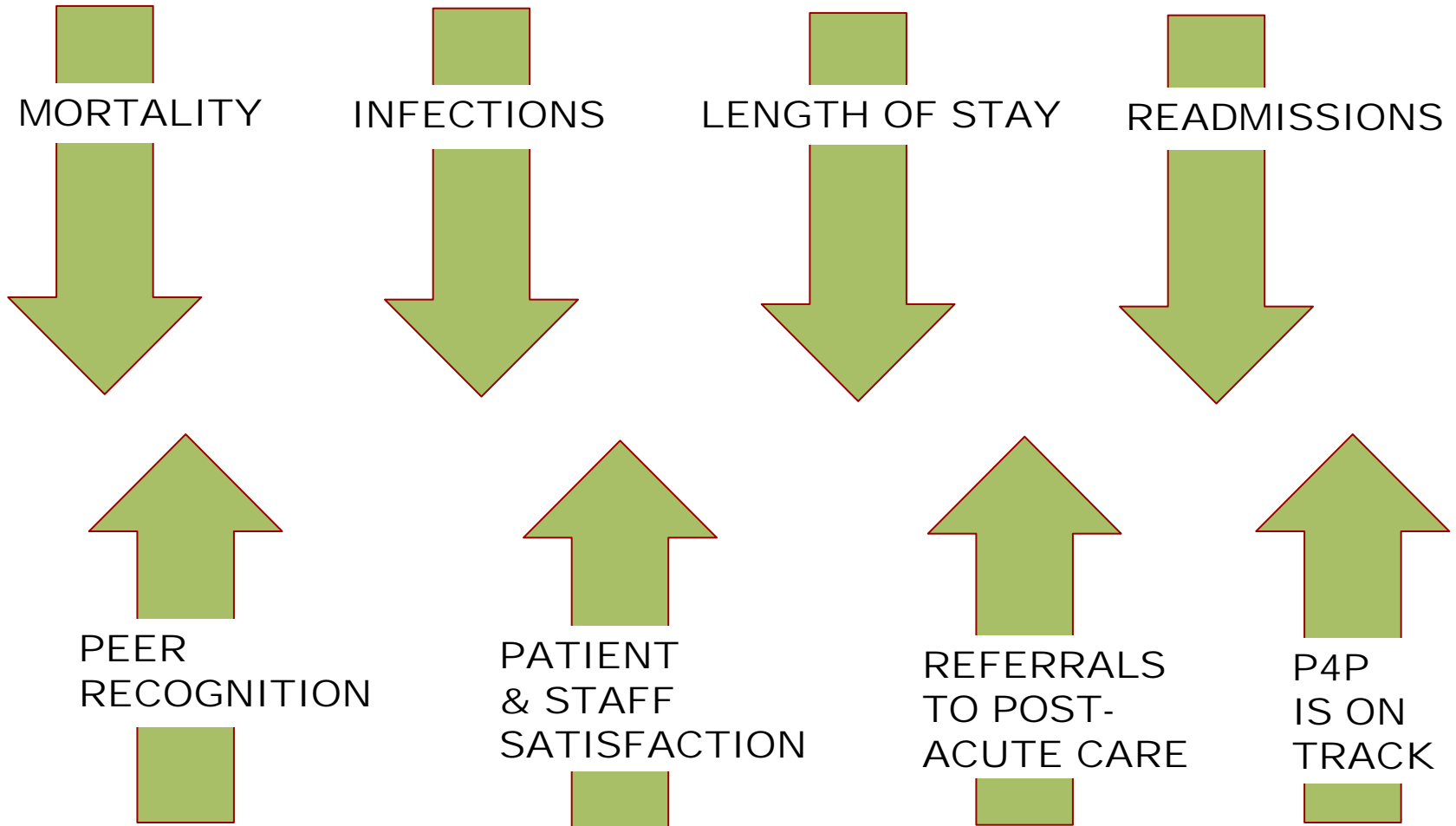
## **Across $\approx$ 40,000 discharges and >1M ambulatory visits:**

- Observed to expected mortality improved by 5%, after 40% reduction from 2007-2010.
  - HUP ranks second in mortality among US News “Honor Roll” hospitals.
- Hospital associated pressure ulcers decreased by 40%.
- Urinary Tract Infections decreased by 30%.
- Blood stream infections: 19 (28 in FY10 & >400 in FY06).
- Ventilator associated pneumonia: 8 (19 in FY10).

Created a UPHS-wide health-care acquired infection (HAI) award to recognize units that have gone a significant period (e.g. 1,000 days) of time without:

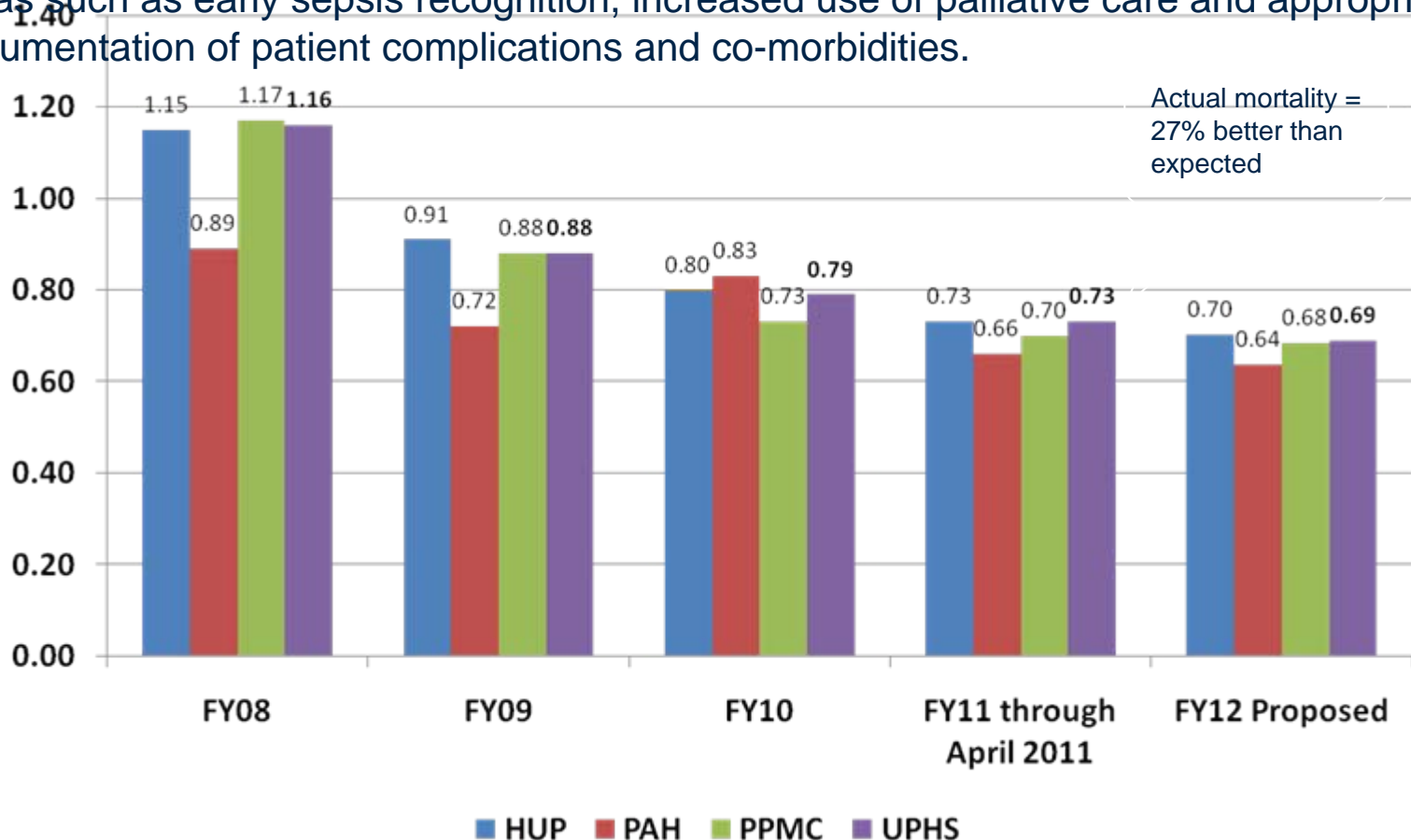
- Central Line Bloodstream Infection (CLABSI)
- Ventilator Associated Pneumonia (VAP)
- Urinary Tract Infection (CA-UTI)

# Quality outcomes at UPHS are moving in the right direction

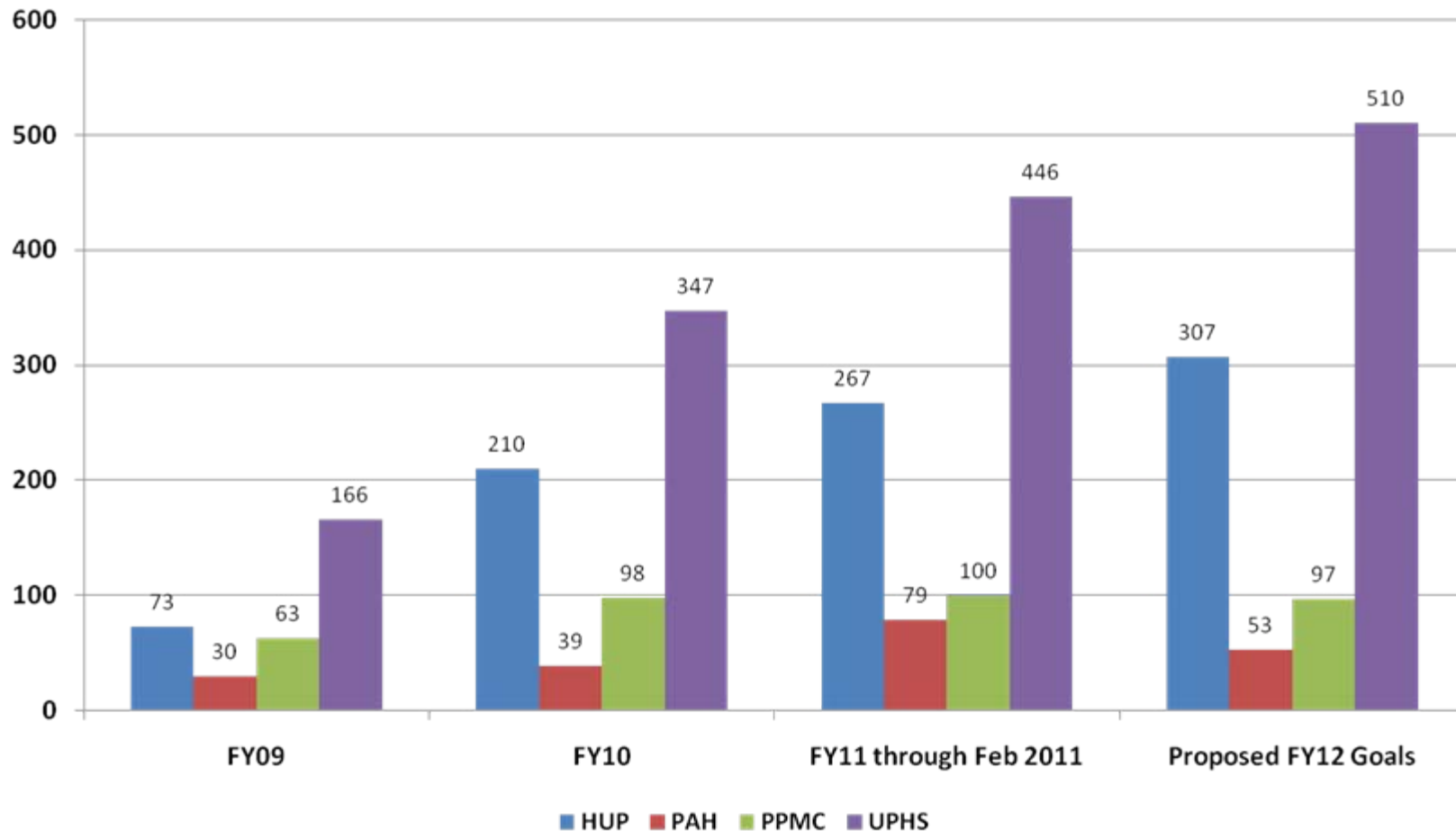


# UHC Observed to Expected Mortality

We measure our mortality improvement by comparing the actual numbers of deaths to the predicted number based on factors such as age, type and severity of illness, co-morbid conditions, etc. Our approach has been multi-dimensional over time focusing on areas such as early sepsis recognition, increased use of palliative care and appropriate documentation of patient complications and co-morbidities.

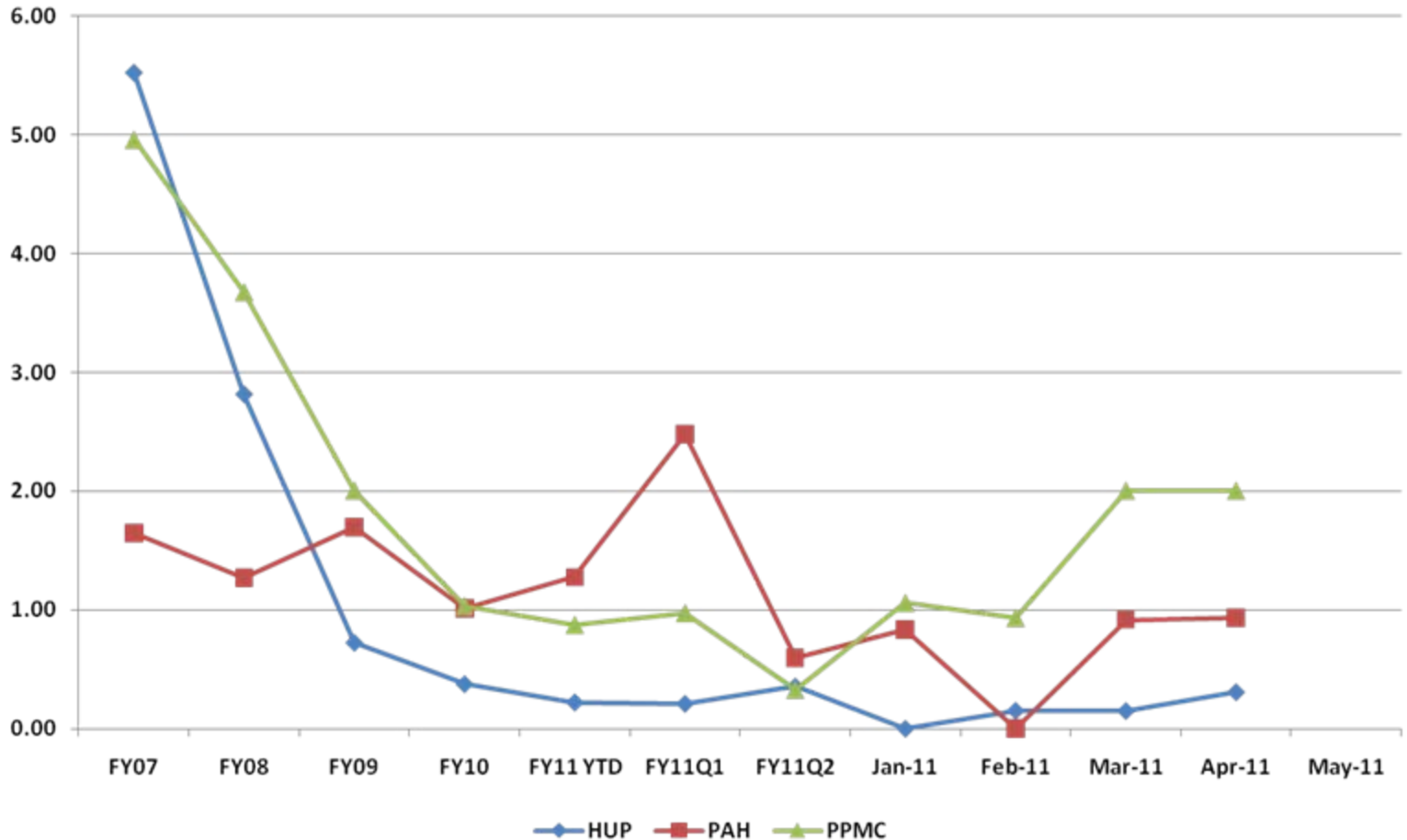


# Translating O/E Improvement to Lives Saved



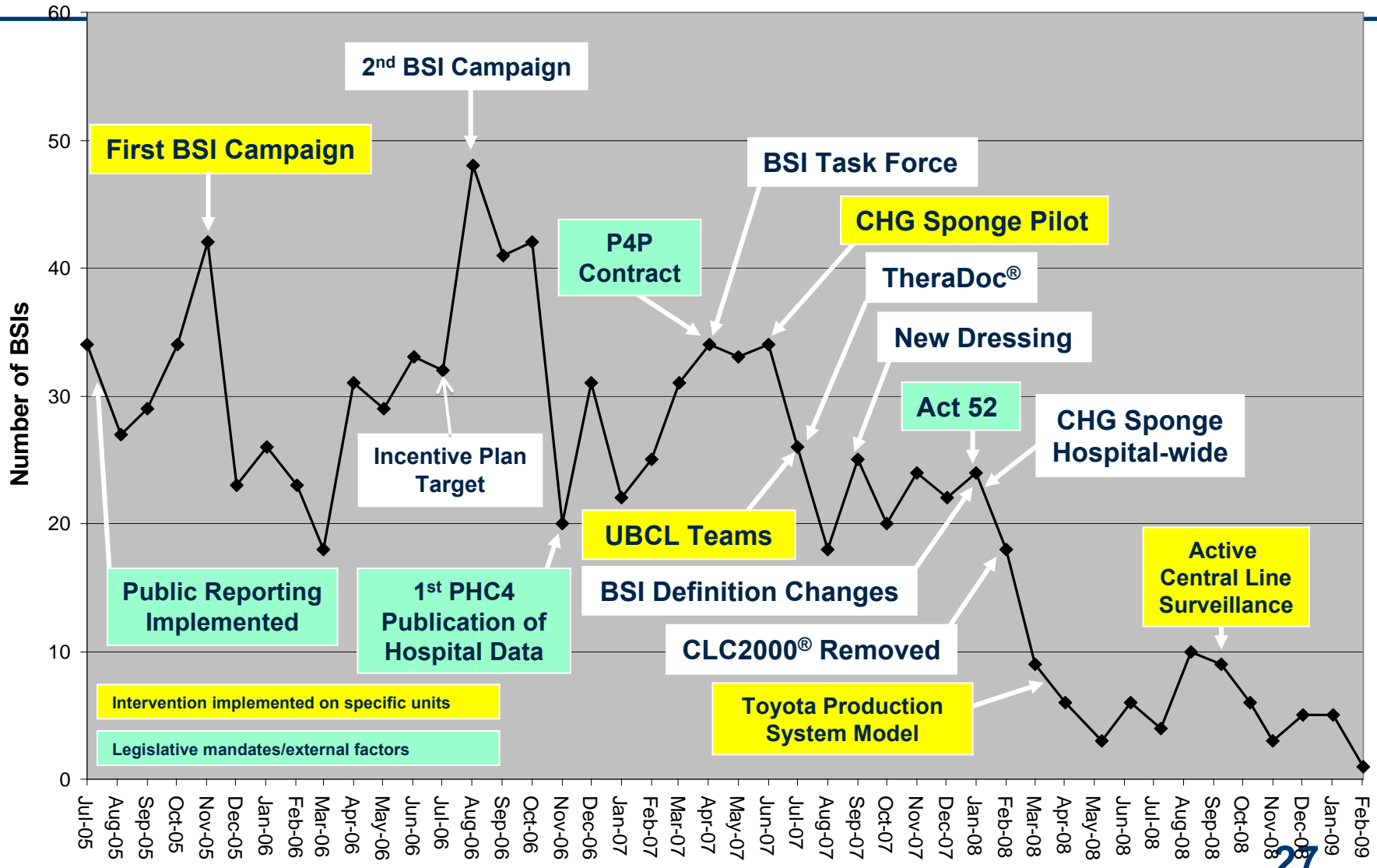
# Central-Line Associated Bloodstream Infections

The improvement in the number of catheter-associated bloodstream infections means that we have prevented >550 infections in patients since FY08 for HUP alone!



Note: Rate per 1,000 catheter days <sup>26</sup>

# Central Line-Associated Bloodstream Infections



# Recognition for Accomplishments

## HAI Recognition Award

- Central Line Bloodstream Infection (CLABSI)
- Ventilator Associated Pneumonia (VAP)
- Urinary Tract Infection (CA-UTI)



# Increasing Visibility/Recognition for Accomplishments

## HAI Recognition Awards as of May 1<sup>st</sup>, 2011

### **Blood Stream Infections - 1,000 Days+ Free**

- **HUP:** Dulles 6 South from 1/17/2008 -
- **HUP:** Ravdin 9 from 3/20/2008 -
- **HUP:** Silverstein 7 from 4/27/2008 -
- **HUP:** Silverstein 10 from 8/2/2008 -
- **PPMC:** 3 East from 10/4/2007 -
- **PAH:** Widener 3 from 2/6/2008 -
- **PAH:** 7 Scheidt from 7/1/2004 -

### **Blood Stream Infections – 500+ Days Free**

- **HUP:** CICU from 11/8/2009 -
- **PPMC:** 4 East from 8/9/2009 -

### **Catheter-Associated Urinary Tract Infections – 500+ Days Free**

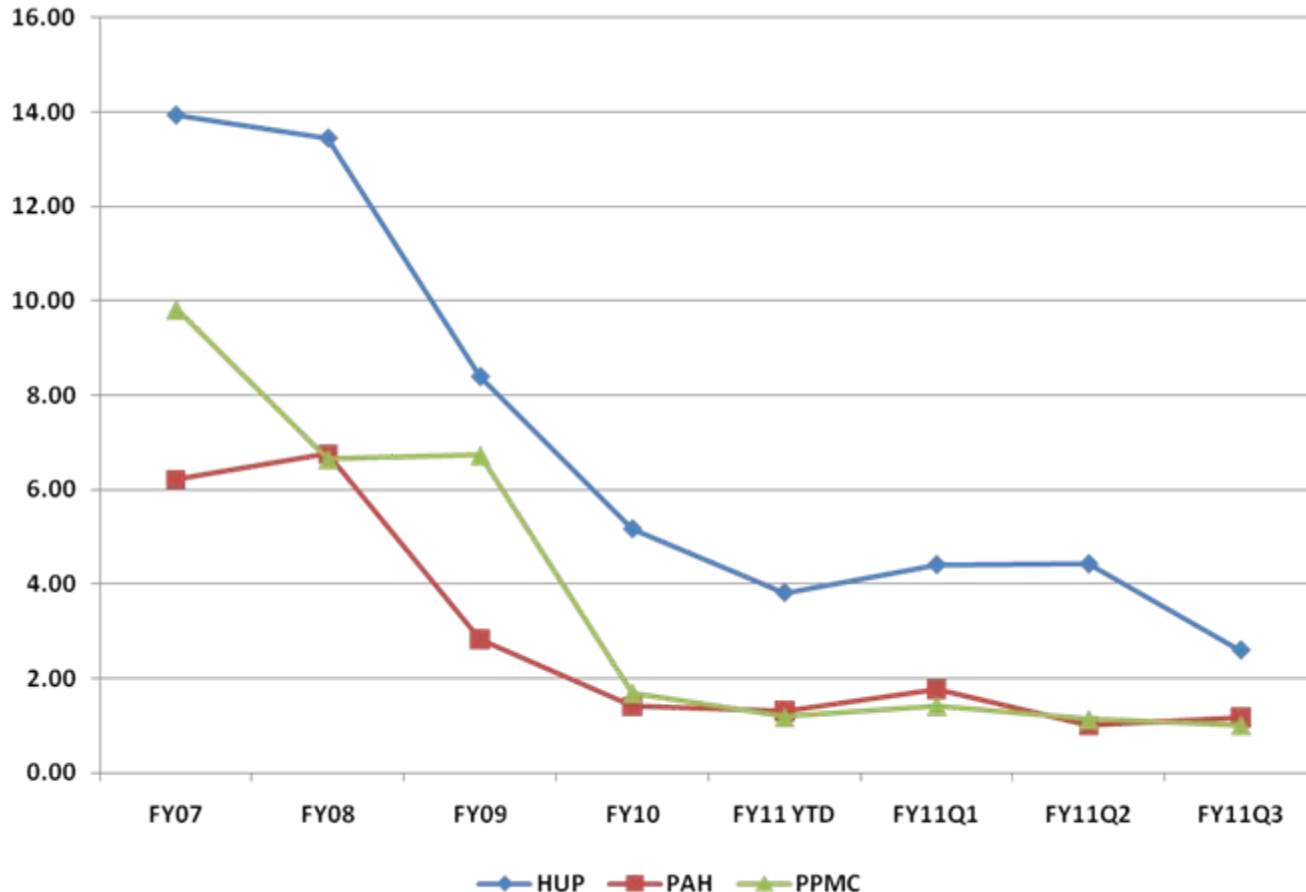
- **PPMC:** 5 South from 7/17/2009 -
- **PAH:** 3 Cathcart from 10/2/2009 -
- **PAH:** 6 Schiedt from 4/28/2009 -

### **Ventilator – Associated Pneumonia – 500+ Days Free**

- **HUP:** CCU from 8/17/2009 -
- **PPMC:** MICU from 9/1/2009 -

# Catheter Associated Urinary Tract Infections

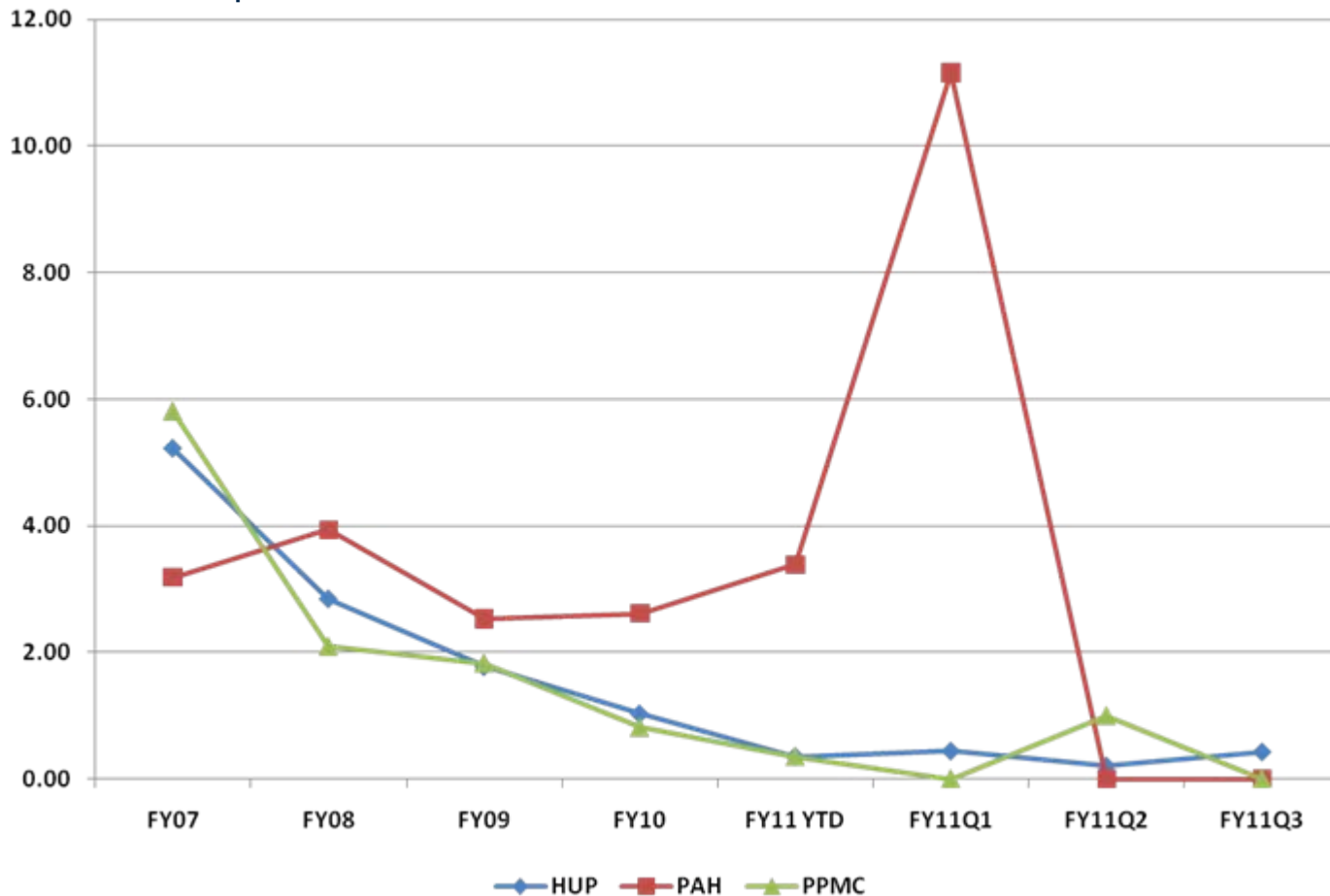
Since FY09 when there was a definition change in what constitutes a catheter associated urinary tract infection, there have been >400 urinary tract infections prevented in patients across UPHS



Note: Rate per 1,000 catheter days

# Ventilator Associated Pneumonia

Based on current year to date data the projection is that 16 patients will experience a ventilator associated pneumonia in FY11



Note: Rate per 1,000 ventilator days

# Heard During Blueprint Update Conversations

## x **On the right path**

- 2007 version correctly anticipated the current environment.
- Need to bring greater value to the care we deliver.

## x **Peers are focused on the same issues**

- Mortality, HAIs, care coordination are on everyone's radar.
- Management and execution will distinguish UPHS.

## x **Need to engage Penn Medicine more deeply**

- Some segments of Penn Medicine are not conversant in the Blueprint.
- We will continue to advance objectives through the unit-based clinical leadership (UBCL) structure.

## x **Goals need to be more audacious**

- Set dates for achievement of targets.
- “Elimination” of harm, rather than “reduction.”

## x **Overarching Goals Blueprint 2011:**

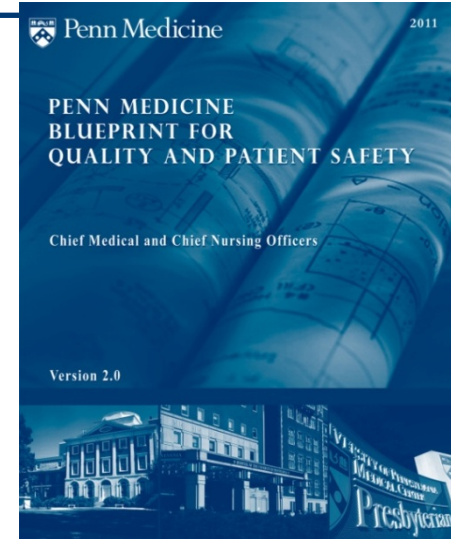
- By July 1, 2014 Penn Medicine will eliminate:
  - Preventable deaths
  - Preventable 30-day readmissions

‘Some is not a number; soon is not a time’

◆ Penn Medicine ◆  
Blueprint for Quality and Patient Safety

*Penn Medicine will eliminate preventable deaths and preventable 30-day readmissions by July 1, 2014*

Imperatives	Priority Actions
Accountability For Perfect Care	<ul style="list-style-type: none"> <li>◆ <b>“Always” events - strive to provide perfect care</b></li> <li>◆ <b>Implement clear lines of accountability that span inpatient and ambulatory environments</b></li> </ul>
Patient And Family Centered Care	<ul style="list-style-type: none"> <li>◆ <b>Provide consistent and thorough communication with families &amp; patient regarding plan of care</b></li> <li>◆ <b>Increase patient and family involvement in UPHS forums that address issues relevant to quality, safety and service excellence</b></li> <li>◆ <b>Enhance patient-provider partnership through better exchange of information</b></li> </ul>
Transitions In Care/Coordination Of Care	<ul style="list-style-type: none"> <li>◆ <b>- Risk Stratification</b></li> <li>◆ <b>- Interdisciplinary rounds</b></li> <li>◆ <b>- Patient and Family Centered Medication Education</b></li> <li>◆ <b>- Post-discharge Communication</b></li> </ul>
Reducing Unnecessary Variations In Care	<ul style="list-style-type: none"> <li>◆ <b>Eliminate variations in care processes where evidence exists</b></li> <li>◆ <b>Balance conformity in practice with needs for personalized care</b></li> <li>◆ <b>Set goals that are positive and proactive</b></li> </ul>
Provider Engagement, Leadership, And Advocacy	<ul style="list-style-type: none"> <li>◆ <b>Strengthen organizational capacity and capability for continuous improvement</b></li> <li>◆ <b>Increase involvement of house staff in quality, safety and service excellence efforts</b></li> </ul>



# 5 Imperatives

# Essential Tools Blueprint Version 2.0

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- **Accountability (from Blueprint 1.0)**
- **Incentives (from Blueprint 1.0)**
- **Education** - UPHS staff and Penn Medicine Trainees
  - Performance Improvement Methods
  - Patient and Family Centered Care
  - Transitions Behaviors
- **Information** – accessibility of data at unit level
  - Unit level real-time dashboarding
  - Clinical decision support
  - Real-time tracking for decision-making

