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Catheter-Associated Urinary Tract Infection (CAUTI): Progress Toward Zero

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#APIC2012



Objectives

- Discuss major payment changes, public reporting and surveillance requirements involving CAUTI.
- Describe how challenges in data collection, interpretation, and documentation of urinary catheter use impacts public reporting and reimbursement regarding hospital-acquired CAUTIs.
- Describe recent trends in rates of CAUTIs, according to administrative data (i.e., claims data), surveillance data, and results from large scale interventions.

The Problem

Catheter-associated urinary tract infection is a **very common, uncomfortable, and often preventable complication** that can lead to life-threatening infections.¹⁻⁴



¹Saint, S. et al. *Am J Medicine*, Oct 15 2000; 109(6):476-480.

²Foxman, B. *Am J Medicine*, 113 Suppl 1A, pp. 5s-13s, 2002.

³Saint et al. *J Am Geriatr Soc*. Dec 1999;47(12):1453-1457.

⁴Meddings et al. *Clinical Infectious Diseases*. Sep 1 2010;51(5):550-560.

The Problem

Catheter-associated urinary tract infection is a **very common, uncomfortable, and often preventable complication** that can lead to life-threatening infections.¹⁻⁴



Hospitals were paid extra per hospitalization to treat hospital-acquired catheter-associated UTI before October 2008.

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⁴Meddings et al. *Clinical Infectious Diseases*. Sep 1 2010;51(5):550-560.

How much extra pay was provided for hospital-acquired CAUTI?

Diagnosis	Hospital Payment
	Prior to Oct 1, 2008
Simple pneumonia & pleurisy	\$6970.34
Pneumonia with hospital-acquired catheter-associated UTI (minor complication/comorbidity)	\$8495.05
Pneumonia with hospital-acquired catheter-associated UTI as pyelonephritis (major complication/comorbidity)	\$10,379.15

Perverse Incentive!

The Policy Strategy: Value-Based Purchasing

Strategy: Pay less or not at all when complications occur.

Goal: Motivate hospitals to prevent complications and save healthcare dollars.

Value-Based Purchasing Policies

Hospital-Acquired Conditions Initiative, October 2008

from the Deficit Reduction Act of 2005: section 5001(c)

- **No extra pay** for hospital-acquired conditions in claims data.
- **Claims data changes:** complication codes, hospital-acquired status

Simple Concept....but Complex Policy

Three diagnosis codes (ICD-9-CM) must each be listed accurately to trigger non-payment for hospital-acquired catheter-associated urinary tract infections:

1. Diagnostic code for Urinary Tract Infection (UTI) and
2. Catheter code 996.64 and
3. UTI diagnosis listed as not present-on-admission (i.e., hospital-acquired).

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3. UTI diagnosis listed as not present-on-admission (i.e., hospital-acquired).

But, if hospitals do not assign accurate diagnosis codes, hospitals receive payment for the UTI **by default**.¹

And, if patients have **other comorbidities** besides UTI that justify the additional payment, no payment change occurs.

¹ Annals of Internal Medicine. 16 June 2009: 877-844.

Value-Based Purchasing Policies

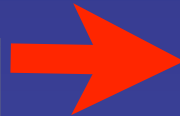
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Claims Data, 2007

Diagnoses (ICD-9-CM)
1. Pneumonia (481.0)
2. Urinary Tract Infection (599.0)
3. Urinary Catheter Associated Inflammation or Infection (996.64)



Claims Data, after October 2008

Diagnoses (ICD-9-CM)	Present-on-Admission?
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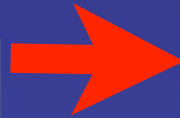
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New use for claims data: compare hospitals by hospital-acquired complication rates for public reporting and financial penalty

Claims Data

Medical Record



“Provider notes”:
Physicians,
Physician Assistants,
Nurse Practitioners.
*Not Nursing Notes

Coder



Claims Data

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Hospital Payment



Hospital Report Cards

- Medicare’s Hospital Compare
- The Leapfrog Group

Value-Based Purchasing Solutions

Affordable Care Act of 2010: sections 3001, 3008

- Publicly report complication rates, 2011
- 2 penalties for complication rates by claims data:

2014: the Hospital Value-Based Purchasing Program will redistribute **1-2%** of Medicare payments.

2015: all Medicare payments will be reduced by **1%** to hospitals with complication rates in the **worst quartile**.

1% for University of Michigan Hospitals = \$2.4 million

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Mandatory Public Reporting

- Hospital-Acquired CAUTI rates for hospitals from **claims data**, reported on *HospitalCompare*, 2011.
- SCIP-Inf-9: Proportion of urinary catheters removed on post-operative days 1 or 2, from **medical record reviews**, reported on *HospitalCompare*, 2011.
- National Healthcare Safety Network CAUTI measures: **surveillance** methodology, mandatory reporting from ICUs since January 2012.
 - Symptomatic CAUTI per 1000 catheter days
 - Urinary catheter days/ patient days



Mandatory Public Reporting

Surgical Care Improvement Project, Infection Process of Care Measure 9 (SCIP-Inf-9):
Urinary catheter removed on Postoperative Day 1 or 2 with day of surgery being zero.



Rate of Postop Catheter removal =
Number of surgical patients whose catheter is removed on POD 1 or 2
All selected surgical patients with a catheter in place post-operatively

SCIP-Inf-9 details

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All **selected** surgical patients *with a catheter in place* post-operatively

- Excluded patients: <18 years old, LOS >120 days or <2 days, clinical trial,
- principal procedure was entirely laparoscopic (identified by ICD-9-CM),
 - had other procedures with general or spinal anesthesia within 3 days (4 if cardiac surgery) during this hospitalization,
 - surgery was urological, gynecological or perineal procedure,
 - patient had suprapubic or intermittent catheterization (IC) preoperatively, or had urethral, suprapubic, or IC prior to the perioperative period,
 - physician/APN/PA documented reason for not removing catheter postop,
 - patient expired peri-operatively,
 - patient did not have catheter post-operatively.

SCIP-Inf-9 measure specifications: www.QualityNet.org

SCIP-Inf-9 details

↑ **Rate of Postop Urinary Catheter removal =**

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Mandatory Public Reporting

Mandatory National Healthcare Safety Network Reporting

- CAUTI rates: symptomatic CAUTI events x 1000
urinary catheter days
- Urinary catheter utilization ratio: urinary catheter days
patient days

Adult and Pediatric ICUs: January 1, 2012
Inpatient Rehabilitation Units: October 1, 2012

Resource Intensive to Collect



Mandatory Public Reporting

Mandatory National Healthcare Safety Network Reporting

↑ CAUTI rates: $\frac{\text{symptomatic CAUTI events}}{\text{urinary catheter days}} \times 1000$ ↓

- Urinary catheter utilization ratio: $\frac{\text{urinary catheter days}}{\text{patient days}}$

But the CAUTI measure may not reflect success of interventions to reduced catheter use...



¹Fakih et al. AJIC. Aug 24, 2011.

Mandatory Public Reporting

Mandatory National Healthcare Safety Network Reporting

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- Urinary catheter utilization ratio: $\frac{\text{urinary catheter days}}{\text{patient days}}$

But the CAUTI measure may not reflect success of interventions to reduced catheter use...

so consider:

Population based outcome measure:¹

$\frac{\text{symptomatic CAUTI events}}{10,000 \text{ patient days}}$



¹Fakih et al. AJIC. Aug 24, 2011.

The Challenge

Elimination of Healthcare-Associated Catheter-associated UTI

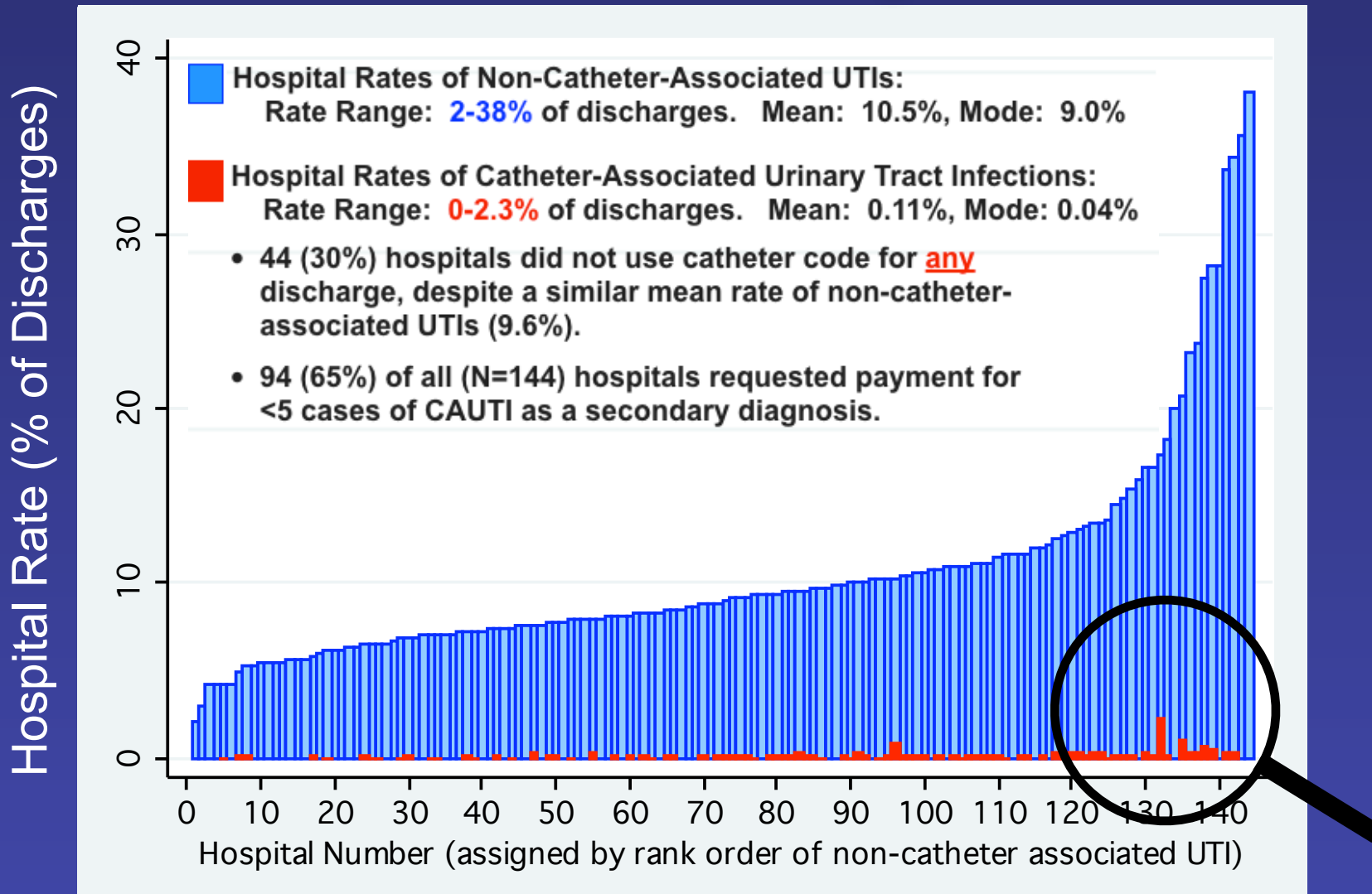
- From common nosocomial infection to a “Never Event”?
- National prevention target:
25% reduction in CAUTI in ICU and ward patients by 2014

Progress Report:
How much progress is being made in
prevention of CAUTI?

*Depends on which measure evaluated,
and by which data source*

How about trends in CAUTI by claims data?

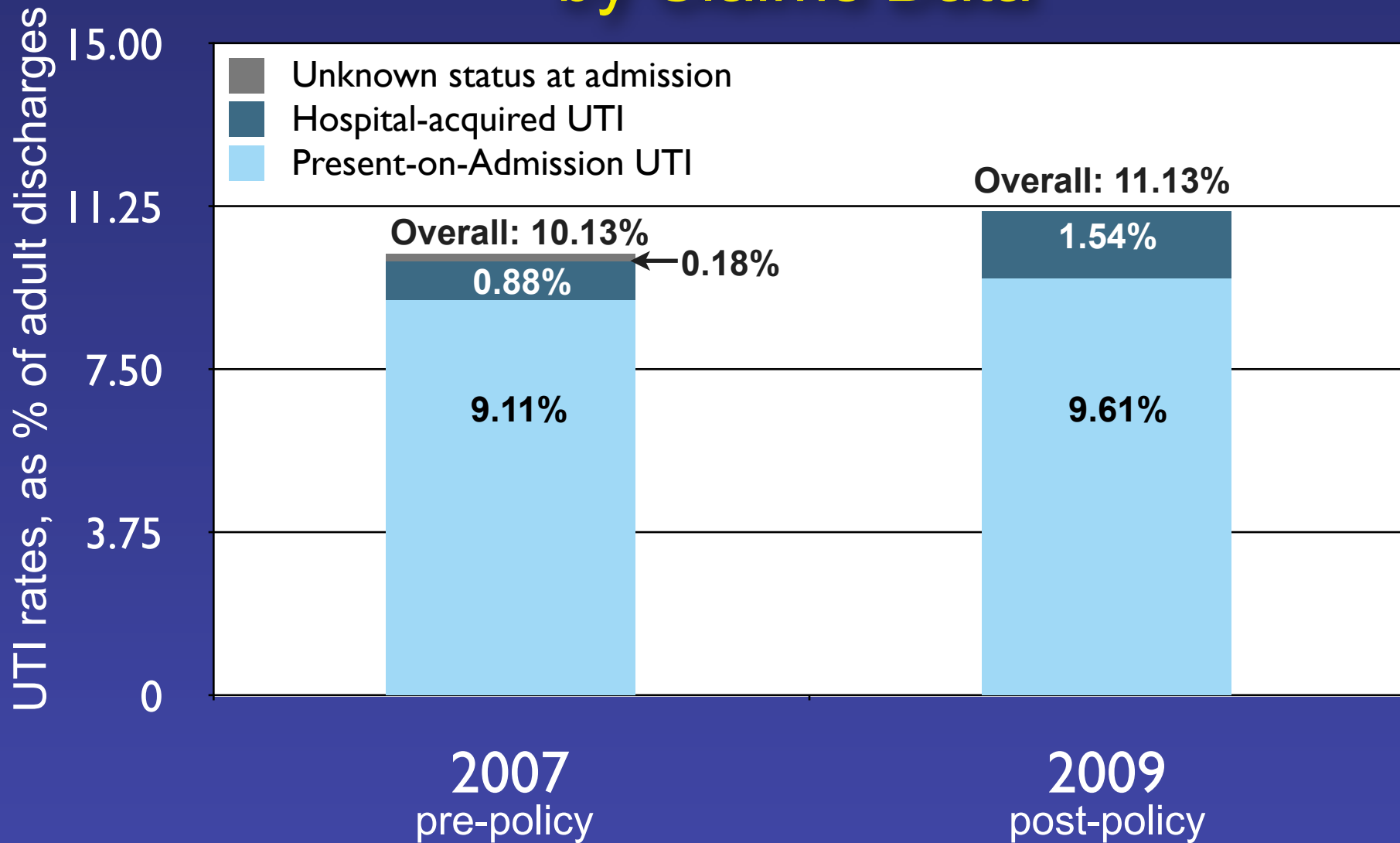
How often do hospitals request payment for Catheter-Associated Urinary Tract Infections?



Datasource: 2007 HCUP SID, Michigan. Adult admission, excluding obstetrics.

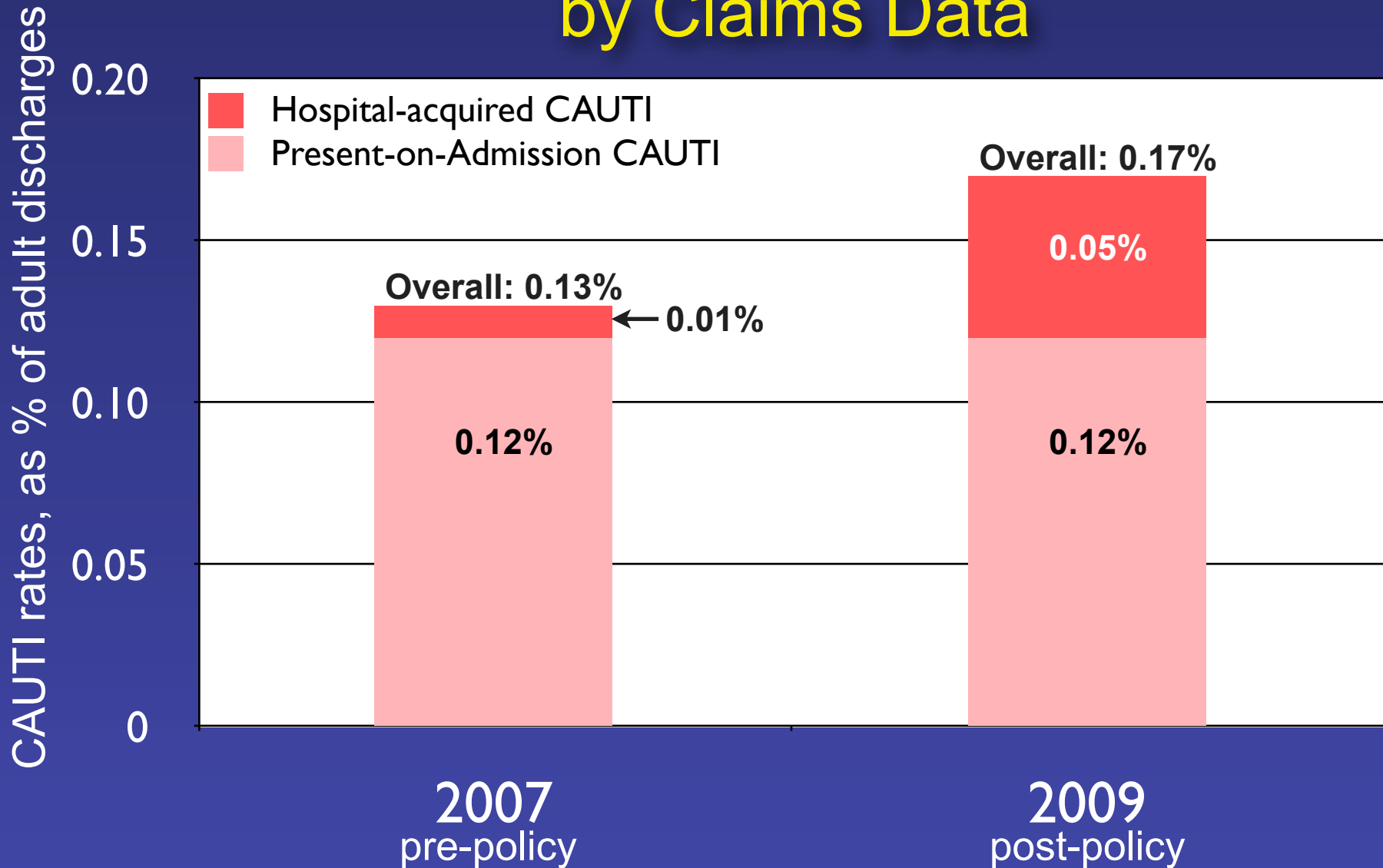
Reference: Meddings, Saint, McMahon. Presented at SGIM and AcademyHealth annual research meetings, 2010.

Trends in Non-Catheter-Associated UTI rates by Claims Data



Data source: Healthcare Cost and Utilization Project, State Inpatient Dataset for California, 2007 and 2009. Adult acute care admissions, excluding rehabilitation and obstetrics.

Trends in Catheter-Associated UTI rates by Claims Data



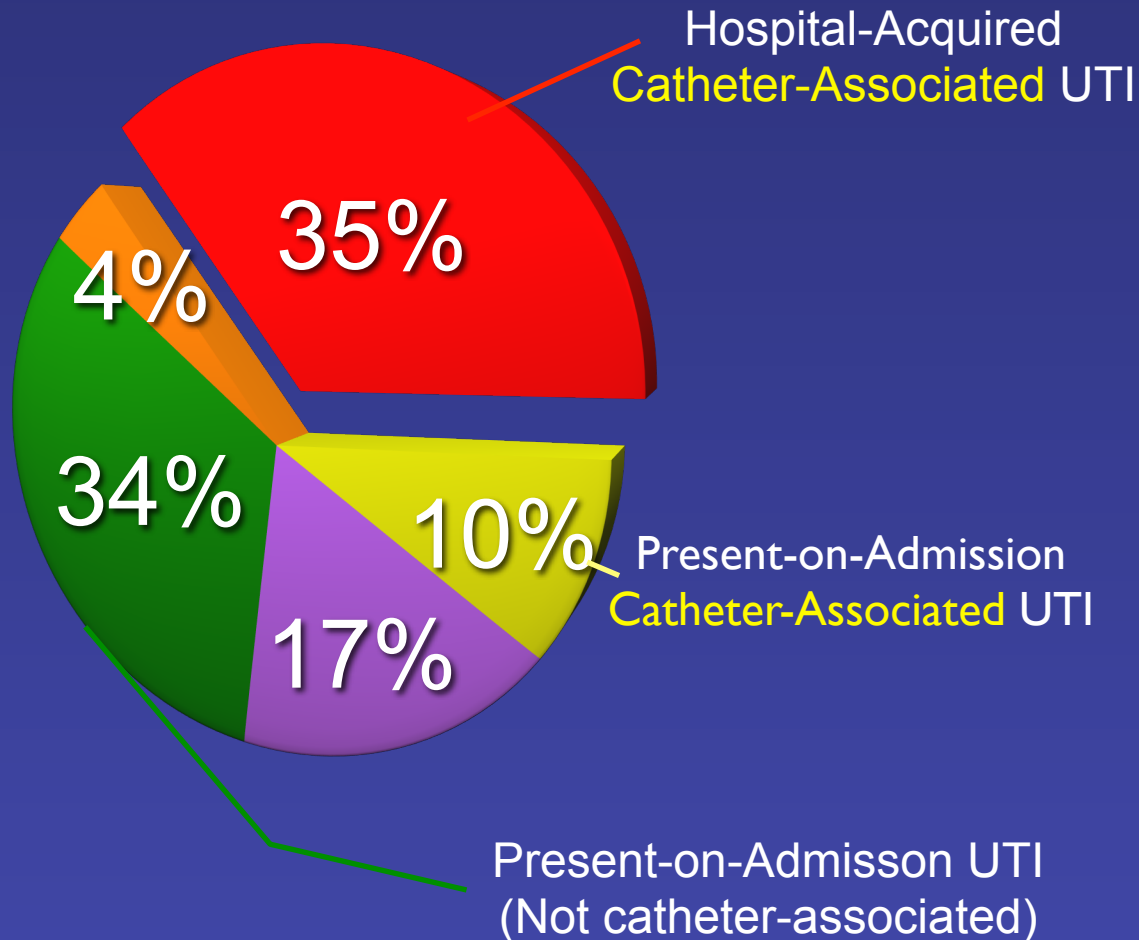
Data source: Healthcare Cost and Utilization Project, State Inpatient Dataset for California, 2007 and 2009. Adult acute care admissions, excluding rehabilitation and obstetrics.

Is lack of use of 996.64 code unique to these hospitals, states? **No**

Data Source	How many hospital-acquired UTIs are catheter-associated?
<p>CDC estimates: 561,667 CAUTI cases annually</p>	<p>66-86% of all hospital-acquired urinary tract infections</p>
<p>Our Academic Medical Center 34,504 discharges for 2007 32 cases CAUTI: 3 hospital-acquired</p>	<p>CA-UTI rate is 1.1% of all UTIs listed as a secondary diagnosis</p>
<p>State of Michigan discharges, from 2007 HCUP SID dataset*</p>	<p>CA-UTI rate is 0.9% of all UTIs listed as a secondary diagnosis</p>
<p>State of California discharges from 2006 HCUP SID dataset*</p>	<p>CA-UTI rate is 1.2% of all UTIs listed as secondary diagnosis</p>
<p>National discharge estimates from 2006 HCUP NIS 2006*</p>	<p>CA-UTI rate is 1% of all UTIs listed as secondary diagnosis</p>

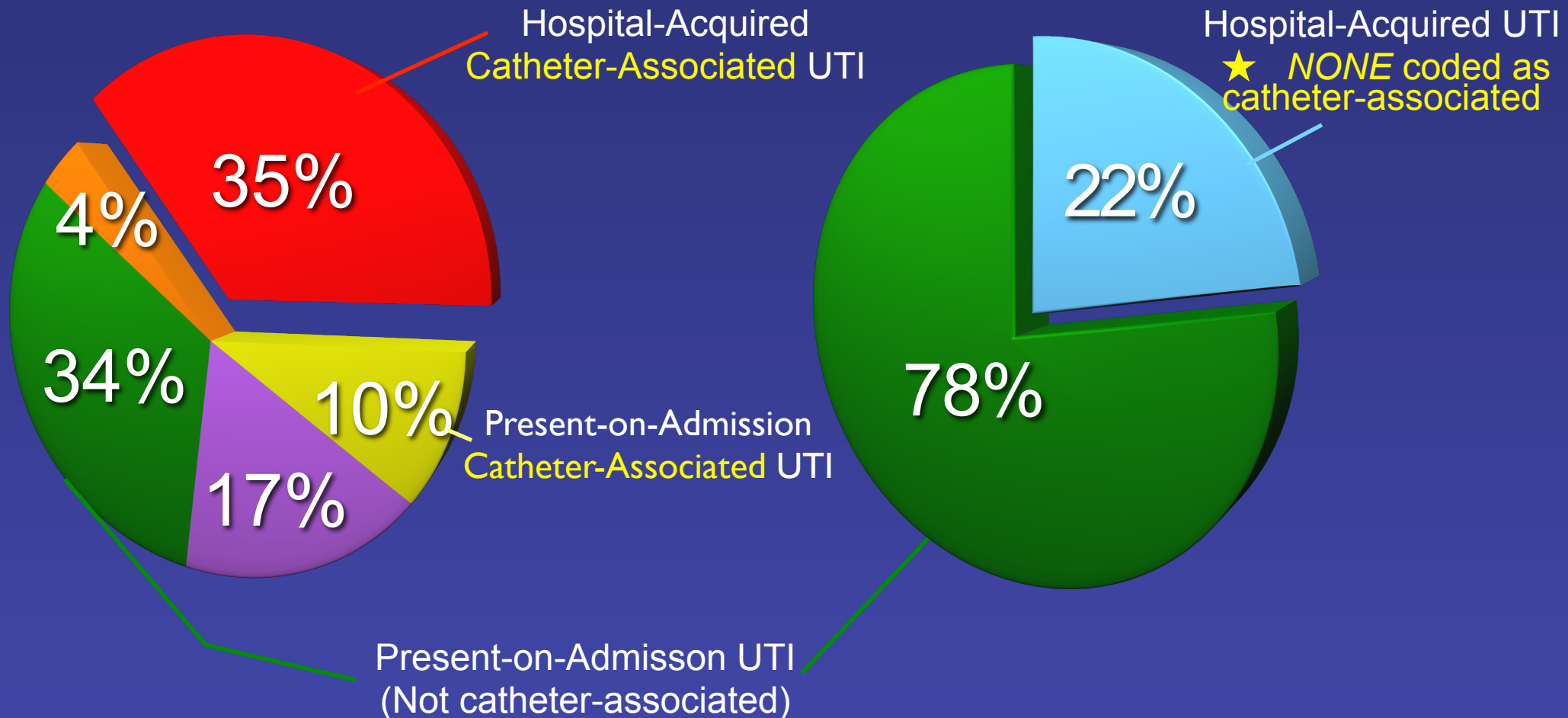
*HCUP = Healthcare Cost and Utilization Project, estimates from HCUPnet query tool

Comparing UTI Categorization by Physician-Abstractor vs. Hospital Coder?



Meddings J, Saint S, McMahon L. Hospital-Acquired Catheter-Associated Urinary Tract Infection: Documentation and Coding Issues May Reduce Financial Impact of Medicare's New Payment Policy. *Infect Control Hosp Epidemiol.* Jun 2010;31(6):627-633

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Why rare use of catheter-code use?

1. Urinary catheter use is often evident only from nursing notes¹ which - unlike physician notes - are not routinely reviewed by hospital coders.
2. Federal regulations mandate hospital coders obtain diagnosis information from only *provider*² notes (physician, physician-assistant, nurse practitioner) - not nursing notes unless verified with provider.

¹Meddings J, et al. Saint S, McMahon L. Infect Control Hosp Epidemiol; in press

²Official Guidelines for Coding and Reporting, effective 1 October 2008. www.cdc.gov/nchs/dataawh/ftpserve/ftp/cd9/ftp/cd9.htm

What is the likely financial impact of not paying extra for hospital-acquired CAUTI cases listed in claims data?

1. How often are UTIs described as CAUTIs?
2. How often does patient have other comorbidities that generate equal pay even with removal of CAUTI as a diagnosis?

What is the likely financial impact of not paying extra for hospital-acquired CAUTI cases listed in claims data?

1. How often are UTIs described as CAUTIs?

Very rarely

2. How often does patient have other comorbidities that generate equal pay even with removal of CAUTI as a diagnosis?

How often do CAUTI patients have other comorbidities ?

Patient Characteristics	All 2007 Michigan Adult Discharges	Patients with secondary diagnosis of Non-catheter-associated UTI	Patients with secondary diagnosis of CAUTI
Number (median) of Secondary Diagnoses	8	12	15
Diabetes	25%	32%	39%
Renal Failure	11%	18%	20%
CHF	10%	20%	26%
Paraplegia	3%	8%	19%
Other Neurologic Disease	8%	15%	22%
Decubitus Ulcer	2%	8%	26%
Secondary Diagnosis other than UTI or CAUTI?		99.6%	100%

Recap

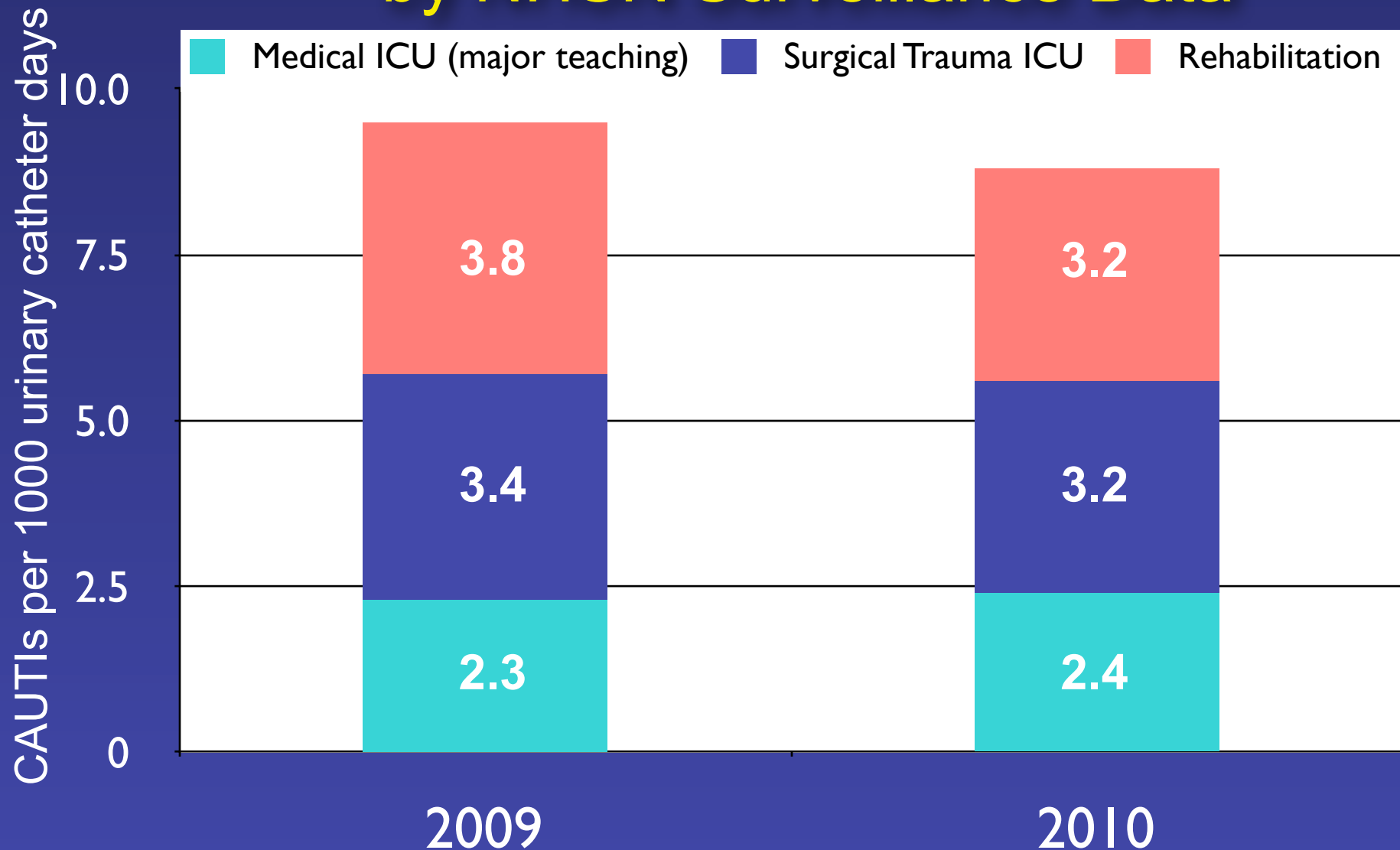
What is the Likely Financial Impact of Not Paying for Hospital-Acquired Catheter-Associated Urinary Tract Infection?

Likely Low, due to:

- Rare use of the catheter code 996.64,
- Other patient comorbidities that would generate extra payment even without CAUTI diagnosis.

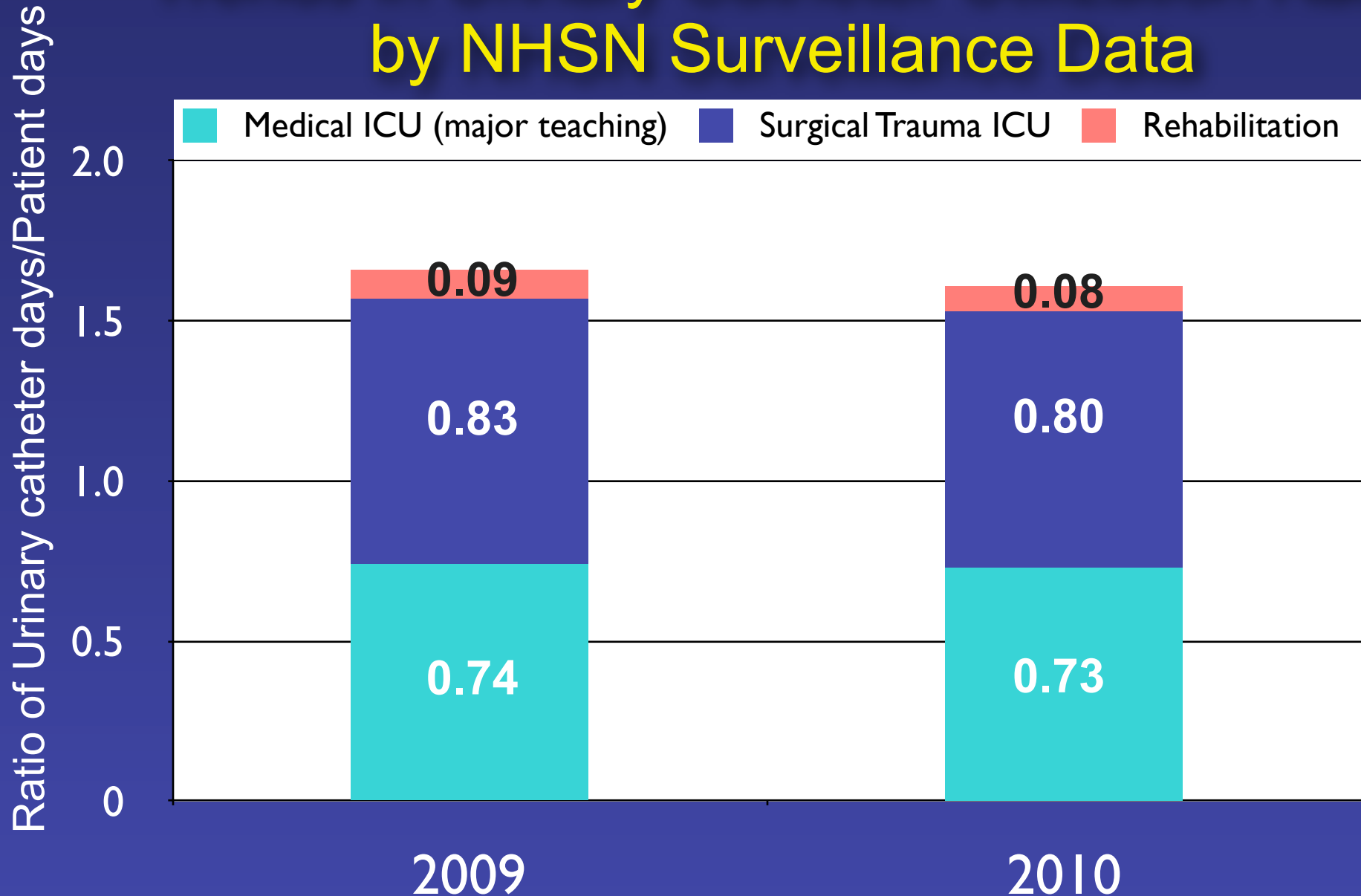
How about trends in CAUTI and catheter use
by surveillance data?

Trends in Catheter-Associated UTI rates by NHSN Surveillance Data



Data source: NHSN Reports from 2009 and 2010 data. Dudeck et al. AJIC (June and December 2011)

Trends in Urinary Catheter Utilization Ratio by NHSN Surveillance Data



Data source: NHSN Reports from 2009 and 2010 data. Dudeck et al. AJIC (June and December 2011)

So little change by claims and surveillance data....but what really is possible?

Michigan Health and Hospital Association Keystone Initiative to Decrease Catheter Use

Use of Bladder Bundles:

Aseptic insertion and proper maintenance is paramount

Bladder ultrasound may avoid indwelling catheterization

Condom or intermittent catheterization in appropriate patients

Do not use the indwelling catheter unless you must!

Early removal of the catheter using reminders or stop-orders appears warranted.

** With a step-by-step for implementing Bladder Bundles*

Saint S, Olmsted RN, Fakhri M, et al. Translating Health Care-Associated Urinary Tract Infection Prevention Research into Practice via the Bladder Bundle. The Joint Commission Journal on Quality and Patient Safety 2009;35:449-55

Michigan Health and Hospital Association Keystone Initiative to Decrease Catheter Use

Use of Champions:

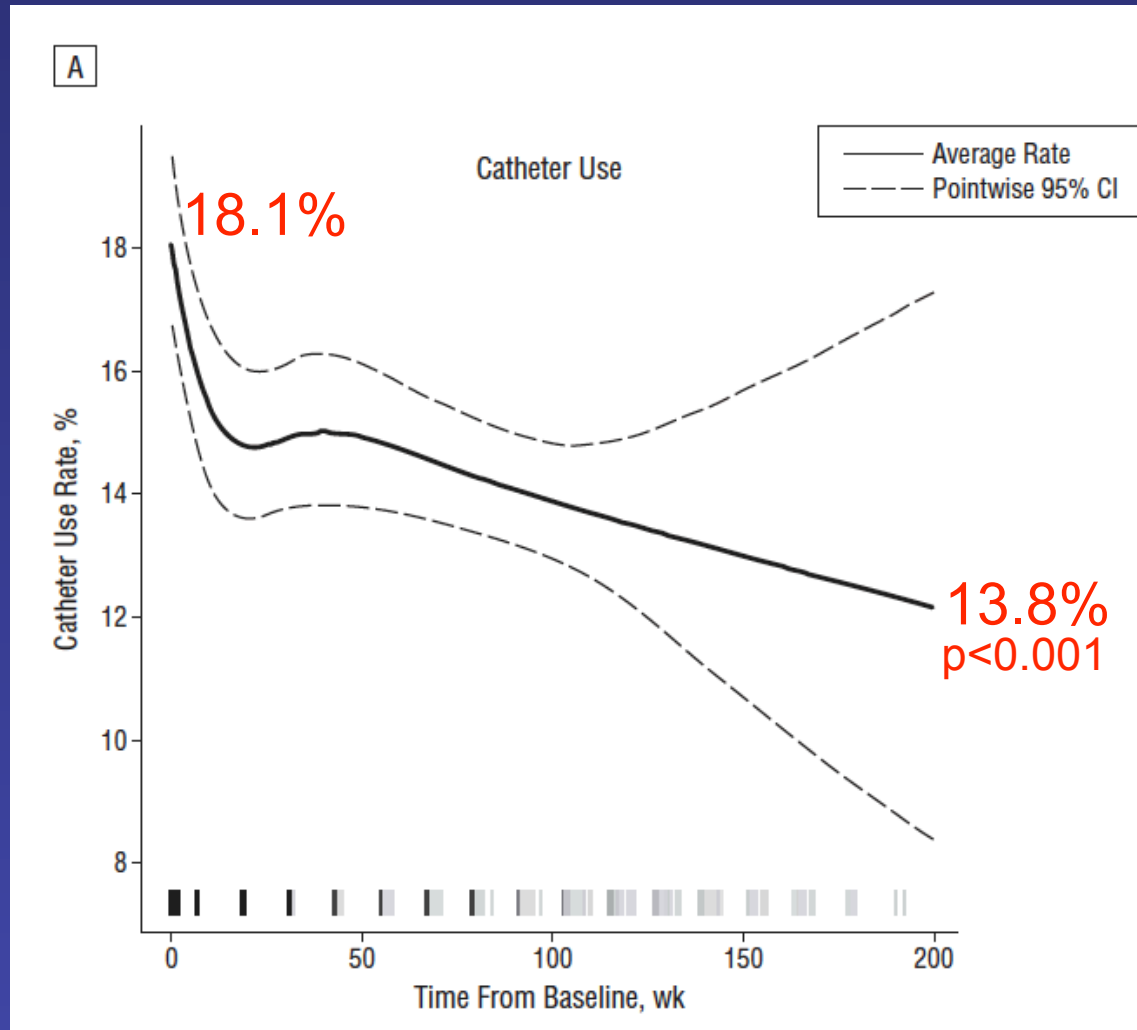
Definition: Advocate who takes ownership of the problem (hospital-acquired CAUTI) and is willing to use his or her position to get a practice implemented by rallying others to help solve the problem.

- Respected by others at the hospital,
- Persuasive,
- Value of **nurse champions**: any staff nurse viewed on the unit as the “go to” RN.



Saint S, Kowalski CP, Forman J, et al. A multicenter qualitative study on preventing hospital-acquired urinary tract infection in US hospitals. *Infect Control Hosp Epidemiol* 2008;29:333-41

Success in Changing Urinary Catheter Use MHA Keystone Initiative for Michigan Hospitals

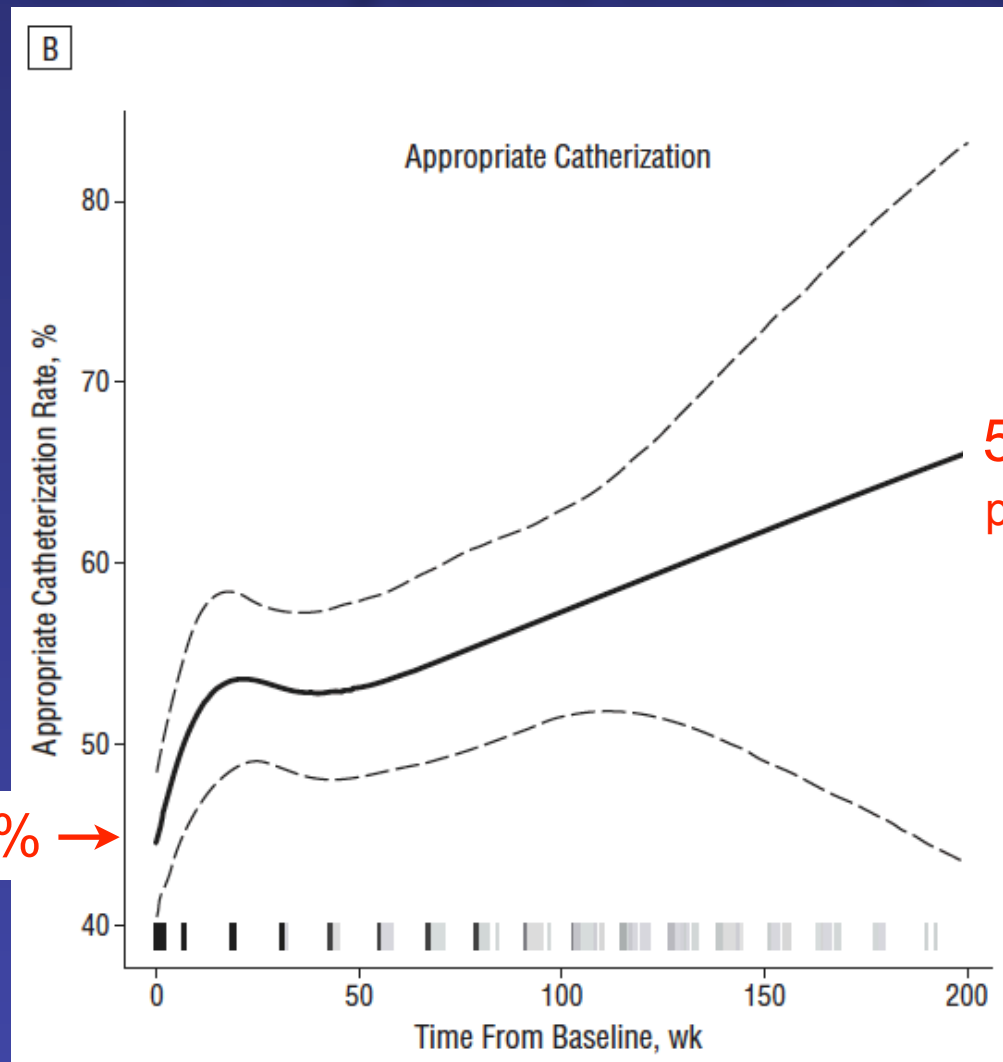


Sustained & significant
reduction in urinary
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Fakh MG, Watson SR, Greene MT, et al. Reducing inappropriate urinary catheter use: a statewide effort. *Arch Intern Med.* Jan 9 2012.

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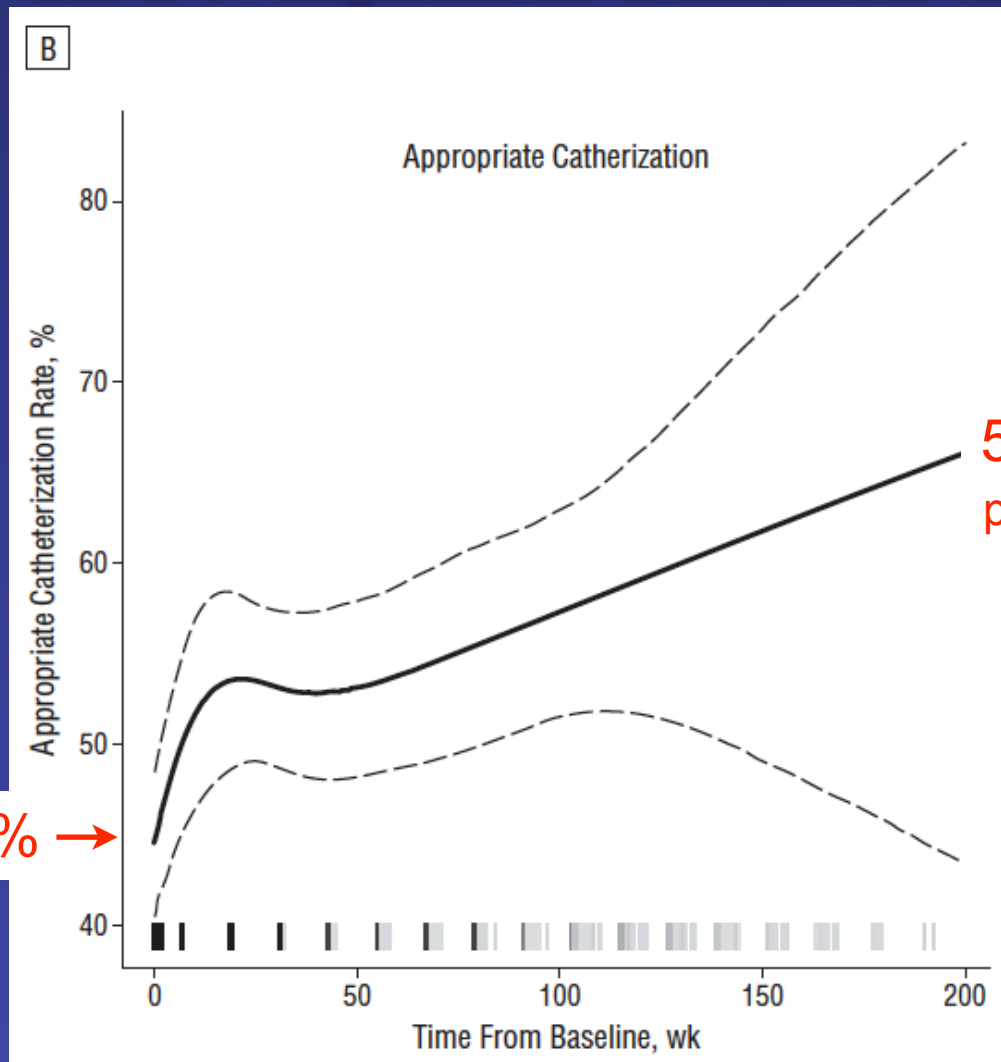


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Success in Changing Urinary Catheter Use

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Sustained & significant improvement in appropriateness of urinary catheter use

No CAUTI outcomes yet.... but what is possible with these interventions?

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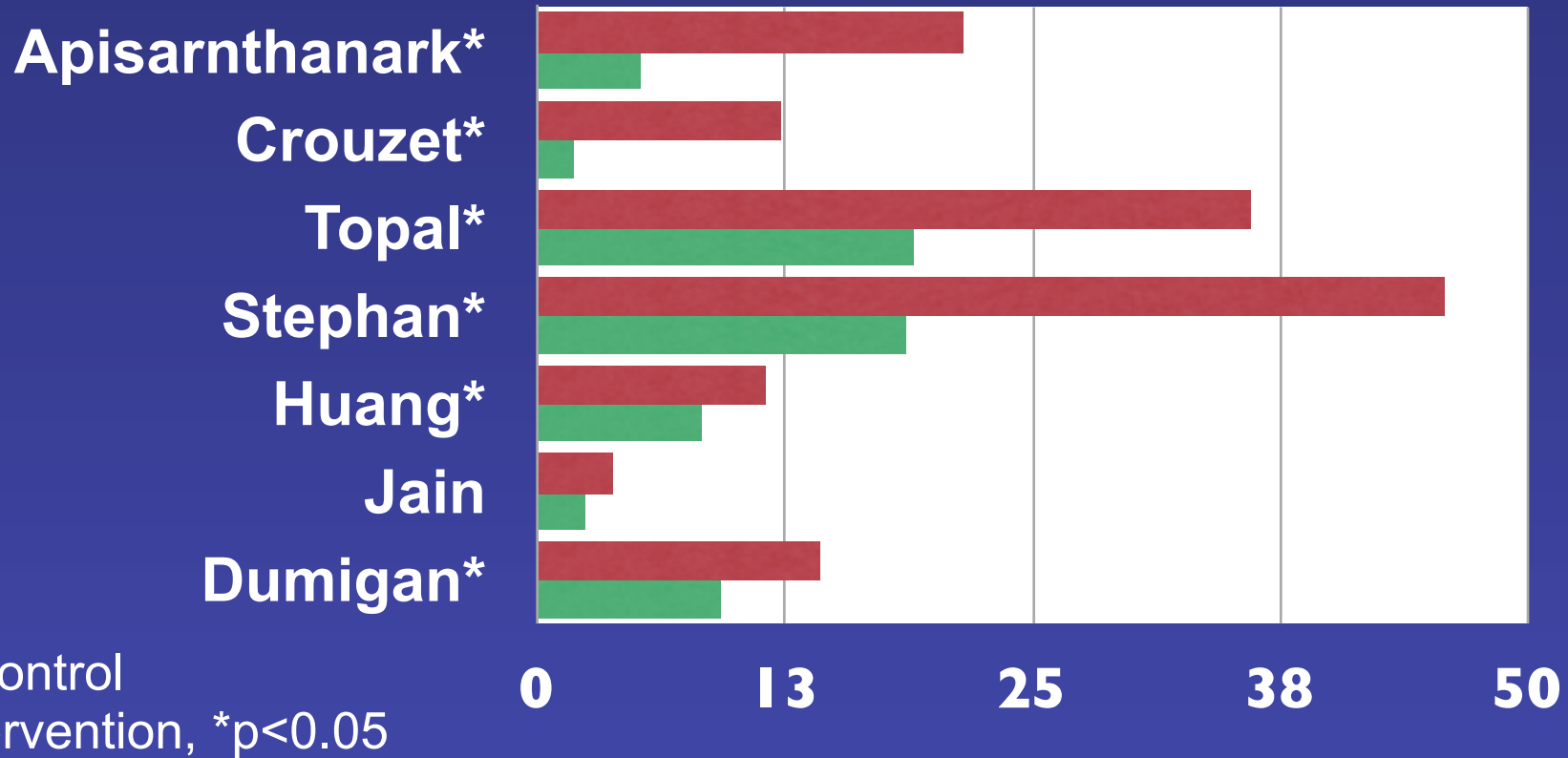
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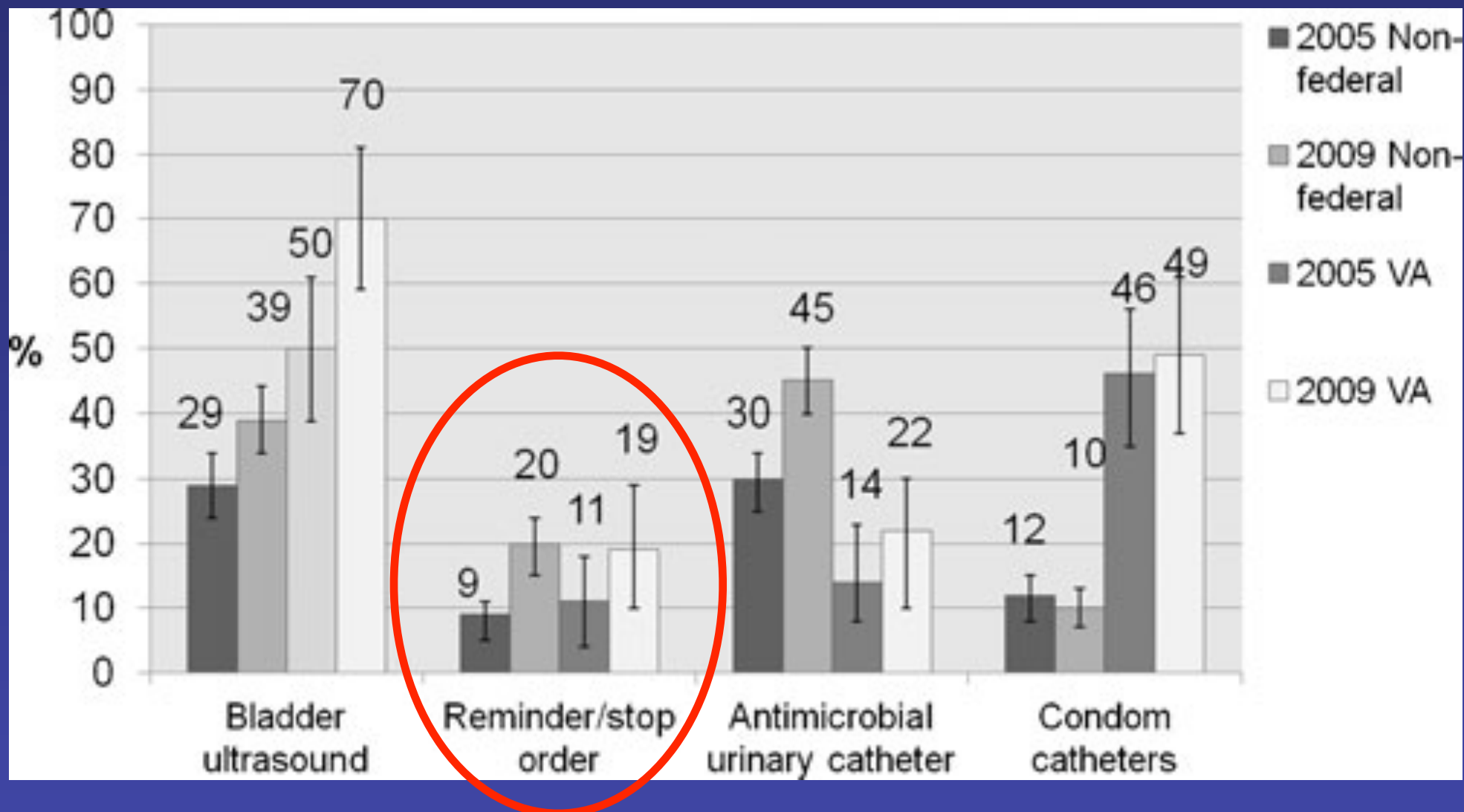
How effective are catheter reminders and stop orders?

Overall, the rate of CAUTI (episodes per 1000 catheter-days) was reduced by **52%** with use of a reminder or stop order (95% CI: 32% to 72% reduction).



Meddings, et al. *Clin Infect Dis*. Sep 1 2010;51(5):550-560.

Snapshot of Hospital Practices to Prevent CAUTI



Krein SL, Kowalski CP, Hofer TP, Saint S. Journal of General Internal Medicine. 2011.

Summary

CAUTI and inappropriate urinary catheter use are common and important challenges to address, with many new health policies involving public reporting and financial penalties intended to motivate improved care.

- Recognizing urinary catheter use and then identifying UTIs as catheter-associated UTIs requires different processes and resources than used to generate claims data...so few CAUTI events are noted in claims data.

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- The NHSN surveillance CAUTI measure may *increase* with significant reductions in catheter use...**so consider CAUTIs per 10,000 patient days.**

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- Yet, claims data is currently the chosen dataset for public reporting and implementing pay changes for CAUTI...**may change in the future?**
- The NHSN surveillance CAUTI measure may *increase* with significant reductions in catheter use...**so consider CAUTIs per 10,000 patient days.**
- Despite limited evidence to date in claims and surveillance data to date, **we can significantly decrease urinary catheter use and CAUTI.**

Thank you!

meddings@umich.edu

www.catheterout.org



Interested in practical strategies to decrease CAUTI, with pearls and pitfalls in implementing a CAUTI prevention program?

Please join me this afternoon at the 3:00 pm “Ask the Expert” session:
Preventing CAUTI: Disrupting the Lifecycle of the Urinary Catheter