

Acute Care Hospital: Introduction and Overview



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Longitudinal Study of HAI Rates Across Key HHS Data Sources



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Baseline Assessment Background

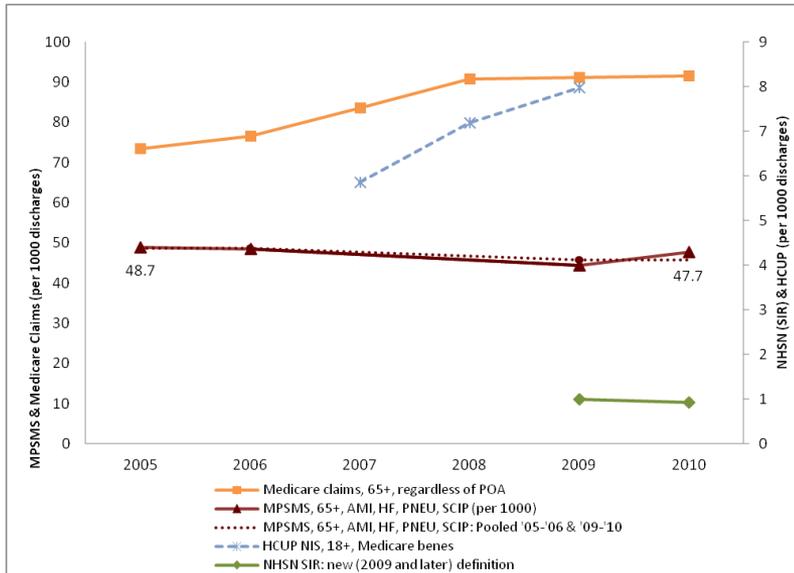
- Part of IMPAQ/RAND's Evaluation of the HHS Action Plan to Prevent HAIs
- Developed Inventory of HHS Data Systems capable of HAI surveillance
- Gathered HAI rates from several HHS data systems: NHSN, MPSMS, HCUP, Medicare claims, ABCs
- Organized and analyzed the data
- Examined rates across data systems and interpreted results in light of prior work and refined our interpretations through discussions with and presentations to data-holding HHS agencies
- Guiding principle: No single data system provides a comprehensive assessment of HAIs in the U.S.
- Presented findings in a report



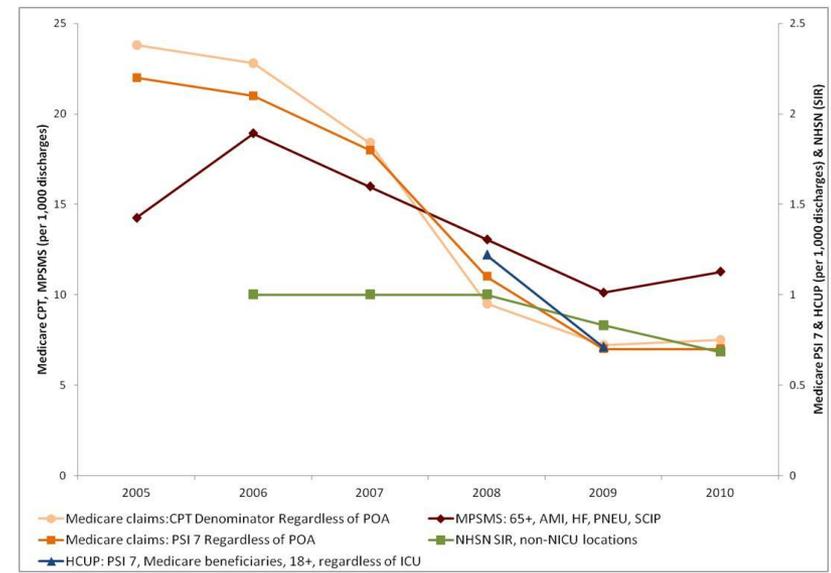


Preview of Results: CAUTI, CLABSI, SSI & MRSA

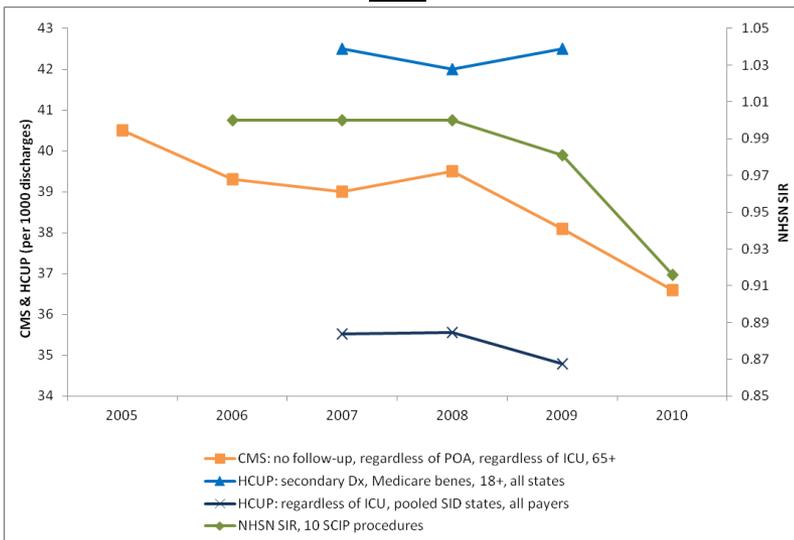
CAUTI



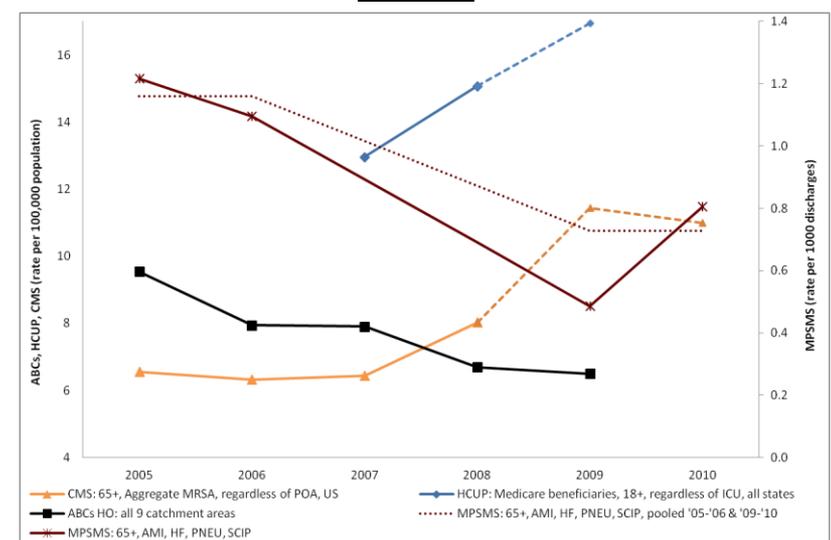
CLABSI



SSI



MRSA



CAUTI Surveillance (1)

	Medicare Claims	HCUP	MPSMS	NHSN†
<i>Denominator</i>				
Inclusion criteria	Major therapeutic (i.e., post-op) or urinary catheter ICD-9 code	1. All non-maternal adult	Indwelling or straight catheter	Indwelling catheter
		2. Major therapeutic (i.e., post-op) or urinary catheter ICD-9 code		
Units	Discharges	Discharges	Discharges	Catheter days
<i>Numerator</i>				
Timing of catheter placement and UTI diagnosis	(not available in claims data)	(not available in claims data)	Diagnosis must occur during inpatient stay and ≥ 1 day following insertion	Catheter must be in place ≤ 48 hours before onset of UTI. There is no min. amt. of time that catheter must be in place
ATB requirement	N/A*	N/A*	Required	None
Lab requirement	N/A*	N/A*	Presumed‡	Required
Other inclusion criteria	112.2 ^a , 595.3 ^b , 590.10 ^a , 595.4 ^b , 590.11 ^a , 595.89 ^b , 590.2 ^a , 595.9 ^b , 590.3, 597.0 ^{ab} , 590.80 ^a , 597.80 ^b , 590.81 ^a , 599.0 ^{ab} , 590.9, 996.64, 595.0 ^{ab}	1. 996.64, excluding: 112.2, 590.10, 590.11, 590.2, 590.3, 590.80, 590.81, 595.0, 597.0, or 599.0	Physician diagnosis of UTI	Fever, urgency, dysuria, or suprapubic tenderness
		2. 996.64, 112.2, 590.10, 590.11, 590.2, 590.80, 590.81, 590.9		

* Not available in claims data.

† 2009 revised definitions.

‡MPSMS does not explicitly require laboratory results, but physician Dx is typically based, at least in part, on laboratory results.

^a Excluded from HCUP numerator 1 but included in the Medicare numerator.

^b Excluded from HCUP numerator 2 but included in the Medicare numerator.



CAUTI Surveillance (2)

112.2	candidiasis urogenital nec ^a	595.3	trigonitis ^b
590.10	ac pyelonephritis nos ^a	595.4	cystitis in oth dis ^b
590.11	ac pyelonephr w med necr ^a	595.89	cystitis nec ^b
590.2	renal/perirenal abscess ^a	595.9	cystitis nos ^b
590.3	pyeloureteritis cystica	597.0	urethral abscess ^{ab}
590.80	pyelonephritis nos ^a	597.80	urethritis nos ^b
590.81	pyelonephrit in oth dis ^a	599.0	urin tract infection nos ^{ab}
590.9	infection of kidney nos	996.64	react-indwell urin cath
595.0	acute cystitis ^{ab}		

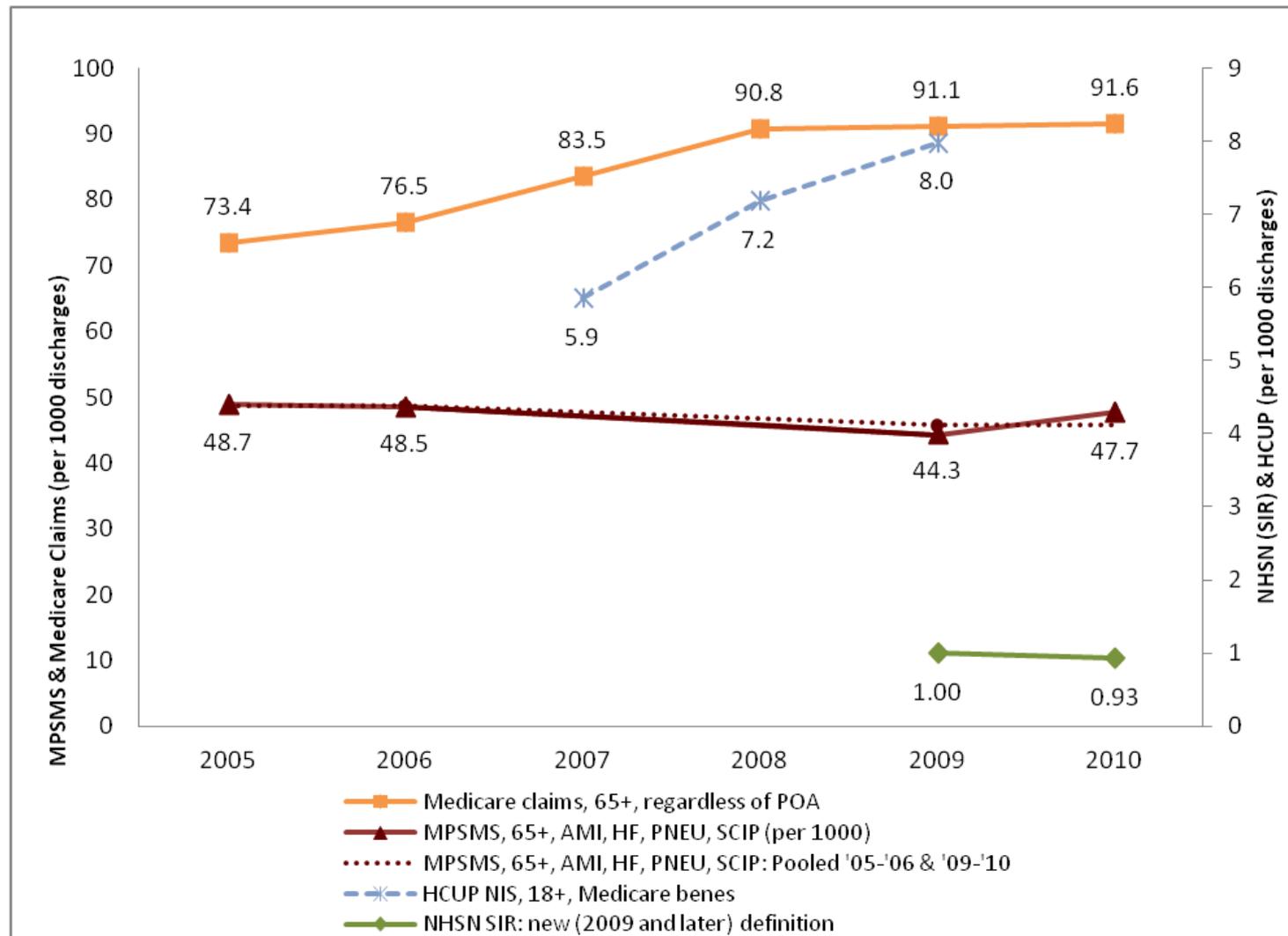
^a Excluded from HCUP numerator 1 but included in the Medicare numerator.

^b Excluded from HCUP numerator 2 but included in the Medicare numerator.





CAUTI Rates from Medicare Claims, HCUP, MPSMS & NHSN Denominator = Patients with a Catheter





CAUTI Summary

Data Source	Overall ^a	Recent ^b
Medicare claims	2005-2010: ↑ (25%)	2009-2010: plateau
HCUP	2007-2009: ↑ (36%)	2008-2009: ↑ (11%)
MPSMS	2005-2010: ↓ (2%)~	2009-2010: ↑ (8%)~
NHSN	2009-2010: ↓ (7%)	

~ No statistically significant changes

^a All available years

^b Most recent year





CLABSI Surveillance (1)

	Medicare Claims	HCUP	MPSMS	NHSN
<i>Denominator</i>				
Inclusion criteria	PSI 7 specs: Adult med/surg discharge w/ LOS \geq 2 days, excluding principal Dx 999.3, 999.31, 996.62, cancer, and immunocompromised state	Adult med/surg discharge w/ LOS \geq 2 days, excluding principal Dx 999.31, cancer, and immunocompromised state	Discharges with central line insertion and no infection on admission	Central line insertion
	CPT specs: Discharges with an associated Part B claim with a CPT code indicating placement, repair, or removal of central line			
Units	Discharges	Discharges	Discharges	Central line days
<i>Numerator</i>				
Time from central line insertion to BSI	Not available in claims data	Not available in claims data	+ cultures drawn \geq 2 days after insertion	line must be in place at the time of or w/in 48 hours before + cultures. No min period of time that line must be in place
Laboratory/ clinical requirements	Labs not available in claims data Secondary ICD-9 diagnosis codes: 996.62, 999.3, 999.31	Labs not available in claims data Secondary ICD-9 diagnosis code: 999.31	+ cultures, no other source of infection	+ cultures, no other source of infection fever, chills, hypothermia, hypotension, symptoms not related to another infection



999.3* infec compl med care nec

999.31 infect due to cent ven cath

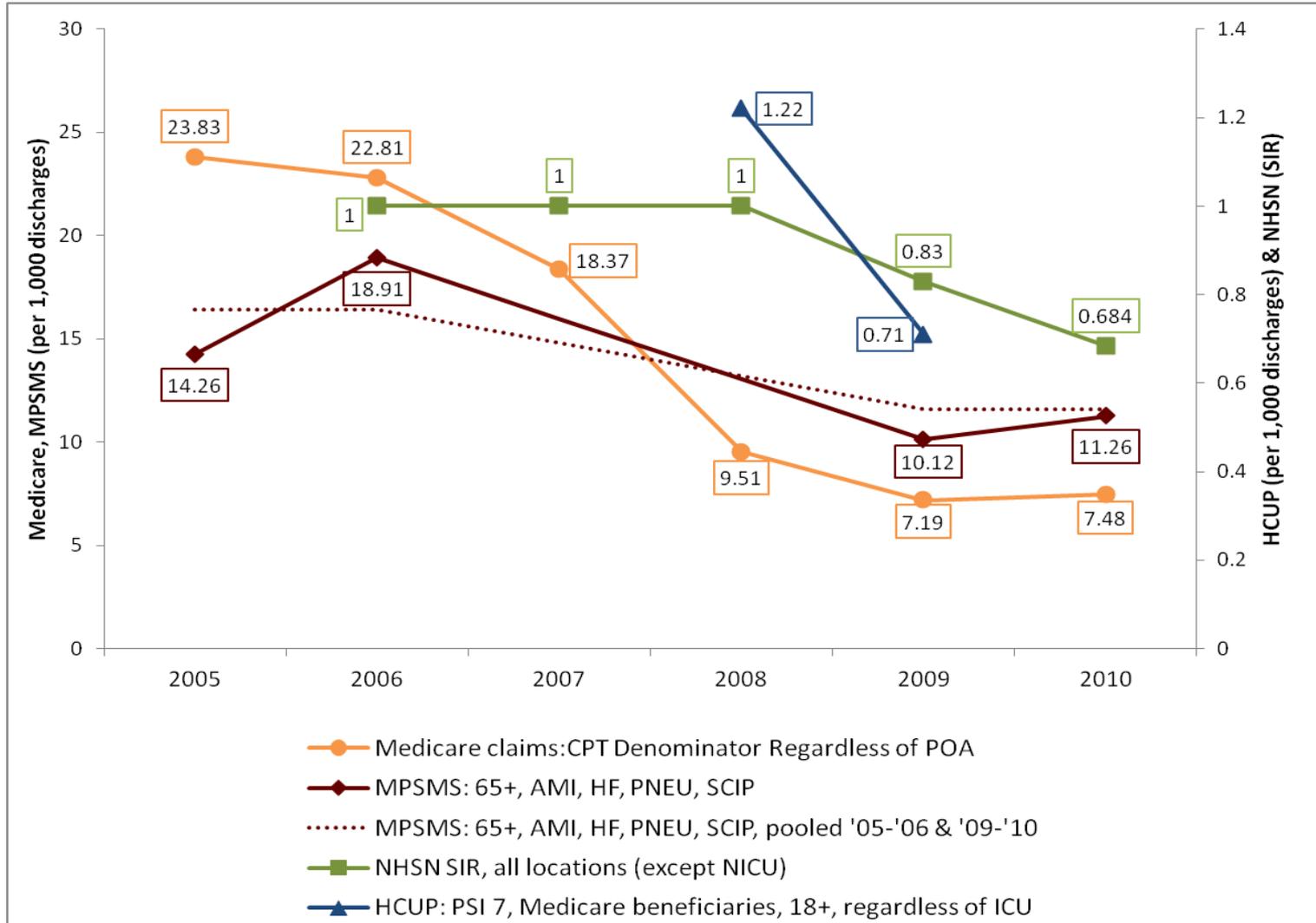
996.62* react-oth vasc dev/graft

* Used in Medicare claims only.





CLABSI: Medicare Claims, HCUP, MPSMS & NHSN





CLABSI Summary

Data Source	Overall ^a	Recent ^b
Medicare claims	2005-2010: ↓ (69%)	2009-2010: ↑ (4%)
HCUP	2008-2009: ↓ (42%)	
MPSMS	2005-2010: ↓ (21%)~	2009-2010: ↑ (11%)~
NHSN	2008-2010: ↓ (17%)	2009-2010: ↓ (18%)

~ No statistically significant changes

^a All available years

^b Most recent year





SSI Surveillance (1)

	Medicare Claims	HCUP	NHSN
<i>Denominator</i>			
Inclusion criteria (i.e., surgical procedures)	-CABG -Periph. vasc. -Colorectal <u>-Craniotomy</u>	<u>-Head and neck</u> -Hysterectomy <u>-Spinal</u>	<u>-Ventricular shunt</u> -Total knee and hip replacement
Units	Discharges	Surgeries	Surgeries
<i>Numerator</i>			
Inclusion criteria	<u>Non-augmented: Codes indicating the following procedure types</u>		Deep incisional SSIs must -Occur w/in 30 days (no implant) or 1 year (w/ implant) -Be related to the operation -Involve deep soft tissues of the incision -Have at least one of: <ul style="list-style-type: none"> •Drainage from incision •+ culture or fever or localized pain/tenderness •Abscess or other evidence of infection •Dx by surgeon or physician
	-Meningitis -Central nervous system abscess -Pericarditis -Endocarditis -Mediastinitis -Cellulitis of various sites -Myositis	-Osteomyelitis -Periostitis -Bone infection -Open wounds -Device reactions -Postoperative infections	
Follow-up period	<u>Augmented*</u> : Non-Augmented numerator codes plus 996.60, 996.69, 997.62	Only non-augmented specification is available from HCUP	30 days (no implant) or 1 year (w/ implant)
	<u>Non-augmented</u> : none <u>Augmented</u> : 30 days (no implant) or 1 year (w/ implant)	None**	

* 996.60: Infect/inflamm reaction to unspec device/implant/graft
 996.69: Infect/inflamm reaction to other internal prosth device/implant/graft
 997.62: Infection of amputation stump

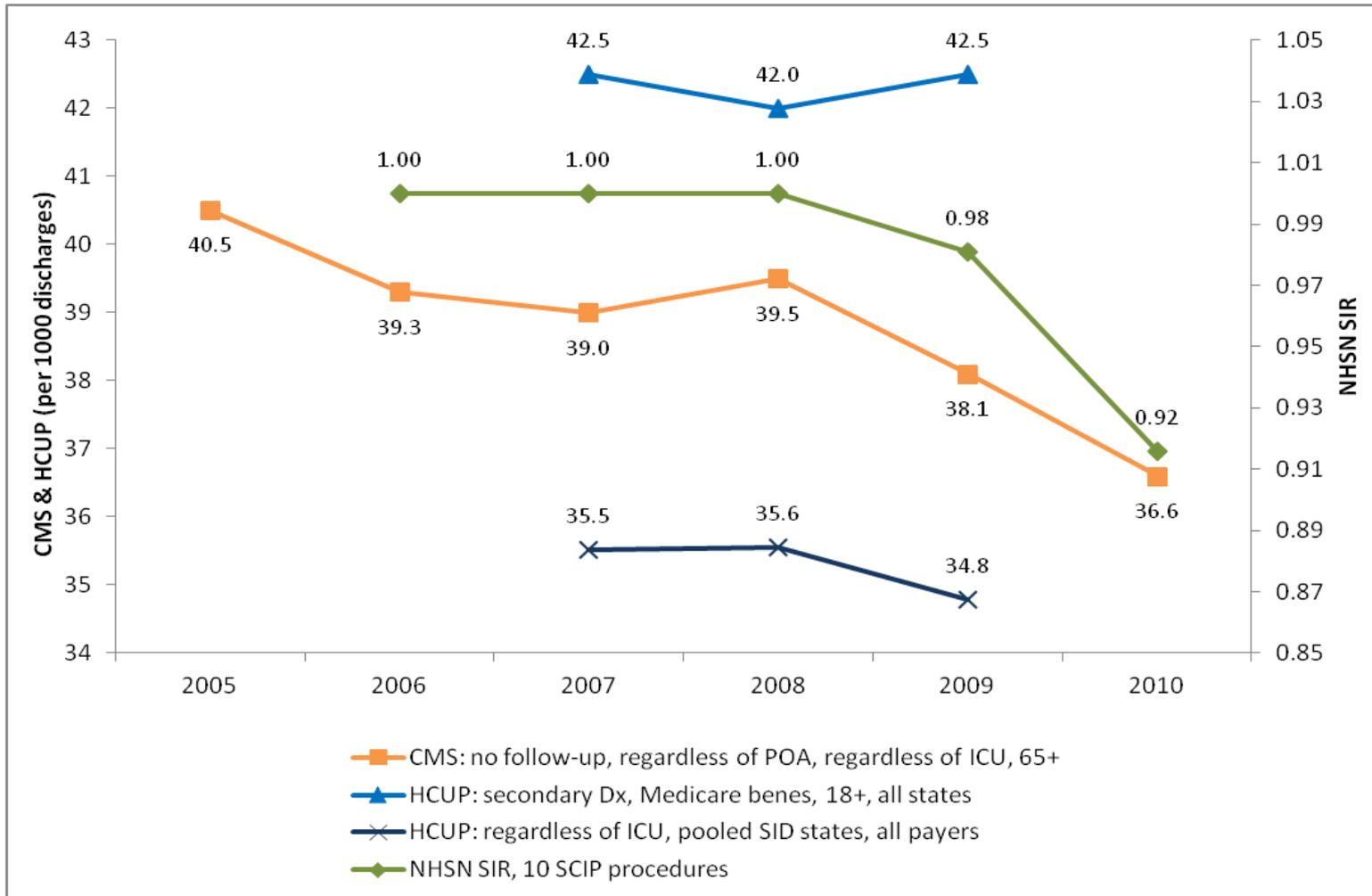
** Follow-up is not feasible using HCUP data, which lack unique patient IDs across claims.



320.0 hemophilus meningitis	422.90 acute myocarditis nos	730.25 osteomyelitis nos-pelvis	890.1 open wnd hip/thigh-compl
320.1 pneumococcal meningitis	422.91 idiopathic myocarditis	730.26 osteomyelitis nos-l/leg	890.2 opn wnd hip/thigh w tend
320.2 streptococcal meningitis	513.1 abscess of mediastinum	730.27 osteomyelitis nos-ankle	891.0 open wnd knee/leg/ankle
320.3 staphylococc meningitis	519.2 mediastinitis	730.28 osteomyelit nos-oth site	891.1 open wnd knee/leg-compl
320.7 mening in oth bact dis	682.1 cellulitis of neck	730.29 osteomyelitis nos-mult	891.2 opn wnd knee/leg w tendn
320.81 anaerobic meningitis	682.2 cellulitis of trunk	730.30 periostitis-unspec	894.0 open wound of leg nec
320.82 mnngits gram-neg bct nec	682.3 cellulitis of arm	730.31 periostitis-shlder	894.1 open wound leg nec-compl
320.89 meningitis oth spcf bact	682.4 cellulitis of hand	730.32 periostitis-up/arm	894.2 opn wnd leg nec w tendon
320.9 bacterial meningitis nos	682.6 cellulitis of leg	730.33 periostitis-forearm	996.60 react-unsp dev*
321.0 cryptococcal meningitis	682.7 cellulitis of foot	730.34 periostitis-hand	996.61 react-cardiac dev/graft
321.1 mening in oth fungal dis	682.9 cellulitis nos	730.35 periostitis-pelvis	996.62 react-oth vasc dev/graft
321.2 mening in oth viral dis	728.0 infective myositis	730.36 periostitis-l/leg	996.63 react-nerv sys dev/graft
321.3 trypanosomiasis meningit	730.00 ac osteomyelitis-unspec	730.37 periostitis-ankle	996.66 react-inter joint prost
321.4 meningit d/t sarcoidosis	730.01 ac osteomyelitis-shlder	730.38 periostitis nec	996.67 react-oth int ortho dev
321.8 mening in oth nonbac dis	730.02 ac osteomyelitis-up/arm	730.39 periostitis-mult	996.69 react-oth int prosth dev*
322.0 nonpyogenic meningitis	730.03 ac osteomyelitis-forearm	730.90 bone infec nos-unsp site	996.71 comp-heart valve prosth
322.1 eosinophilic meningitis	730.04 ac osteomyelitis-hand	730.91 bone infect nos-shlder	996.72 comp-oth cardiac device
322.2 chronic meningitis	730.05 ac osteomyelitis-pelvis	730.92 bone infect nos-up/arm	997.62 inf amp stump*
322.9 meningitis nos	730.06 ac osteomyelitis-l/leg	730.93 bone infect nos-forearm	998.0 postoperative shock
324.0 intracranial abscess	730.07 ac osteomyelitis-ankle	730.94 bone infect nos-hand	998.31 disrupt internal op wound
324.1 intraspinal abscess	730.08 ac osteomyelitis nec	730.95 bone infect nos-pelvis	998.32 disrupt-external op wound
324.9 cns abscess nos	730.09 ac osteomyelitis-mult	730.96 bone infect nos-l/leg	998.51 infected postop seroma
420.90 acute pericarditis nos	730.20 osteomyelitis nos-unspec	730.97 bone infect nos-ankle	998.59 other postop infection
420.91 ac idiopath pericarditis	730.22 osteomyelitis nos-up/arm	730.98 bone infect nos-oth site	998.6 persist postop fistula
420.99 acute pericarditis nec	730.23 osteomyelit nos-forearm	730.99 bone infect nos-mult	999.3 infec compl med care nec**
421.9 ac/subac endocardit nos	730.24 osteomyelitis nos-hand	890.0 open wound of hip/thigh	999.83 Hemolytic transfusion reac incompatibility unsp



SSI: Medicare Claims, HCUP & NHSN





SSI Summary

Data Source	Overall ^a	Recent ^b
Medicare claims	2005-2010: ↓ (9.6%)	2008-2010: ↓ (7.3%)
HCUP NIS	2007-2009: constant~	2009-2010: constant~
HCUP SID	2007-2009: ↓ (2.2%)	2008-2009: ↓ (2.2%)
NHSN	2008-2010: ↓ (8%)	2009-2010: ↓ (6%)

~ No statistically significant changes

^a All available years

^b More recent years, depending on data source





MRSA Surveillance (1)

	Medicare Claims	HCUP	MPSMS	EIP/ABCs
<i>Denominator</i>				
Inclusion criteria	All discharges	Non-maternal discharges	Admissions without documentation of MRSA carrier status or MRSA culture/sensitivity on arrival	Population in 9 catchment areas
Units	Discharges	Discharges	Discharges	Persons
<i>Numerator</i>				
Days to MRSA	Not available in claims data	Not available in claims data	Collected > 2 days post hospital admission	Identified > 2 days post hospital admission*
Other inclusion criteria	Any of: -038.12 (sept) -482.42 (pneu) -041.12 (NOS) -(V09.0 and 038.11) (sept) -(V09.0 and 482.41) (pneu) -(V09.0 and 041.11) (NOS)	One of: -041.12 or 038.12 (NOS or sept) -V09.0 AND (041.11 or 038.11) (NOS or sept) -482.42 (pneu) -(482.41 and V09.0) (pneu) -486 and 041.12 (pneu) -486 and 041.11 and V09.0 (pneu)	MRSA isolated from a normally sterile site	MRSA isolated from a normally sterile site



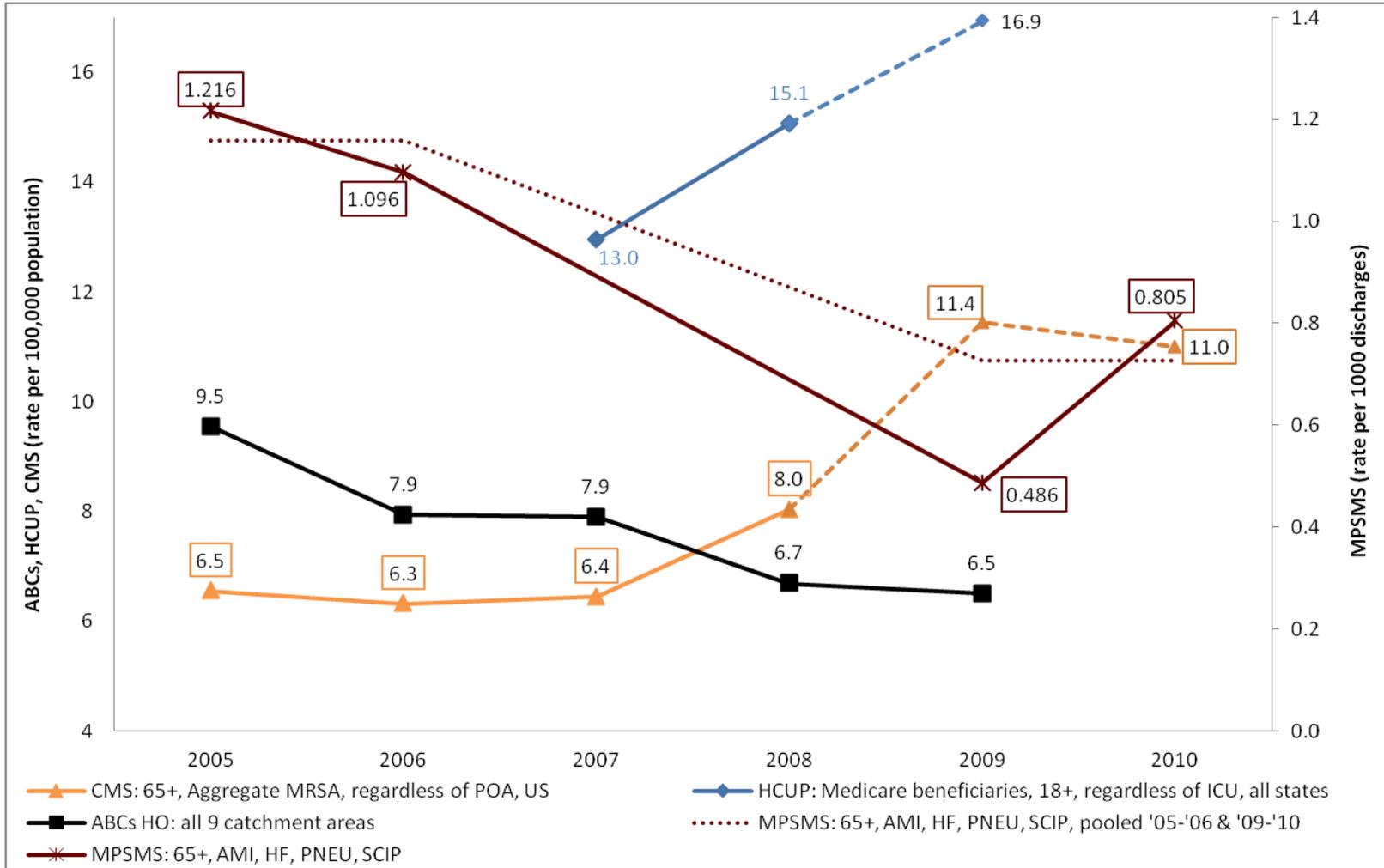
Medicare Claims	HCUP
038.12 mrsa septicemia	038.12* mrsa septicemia
482.42* meth res pneu d/t staph	V09.0 inf mcrg rstn pncllins AND [041.11 mth sus stph aur els/nos OR 038.11 meth susc staph aur sept]
041.12* mrsa elsewhere/nos	041.12* mrsa elsewhere/nos
V09.0 inf mcrg rstn pncllins AND 482.41 meth sus pneum d/t staph	V09.0 inf mcrg rstn pncllins AND 482.41 meth sus pneum d/t staph
V09.0 inf mcrg rstn pncllins AND 041.11 mth sus stph aur els/nos	486 pneumonia, organism nos AND 041.12* mrsa elsewhere/nos
V09.0 inf mcrg rstn pncllins AND 038.11 meth susc staph aur sept	486 pneumonia, organism nos AND V09.0 inf mcrg rstn pncllins AND 041.11 mth sus stph aur els/nos

* Introduced in FY 2009





MRSA: Medicare Claims, HCUP, MPSMS & ABCs





MRSA Summary

Data Source	Overall ^a	Recent ^b
Medicare claims	2005-2008: ↑ (23%)	
HCUP	2007-2008: ↑ (16%)	
MPSMS	2005-2010: ↓ (34%)~	2009-2010: ↑ (66%)~
ABCs	2005-2009: ↓ (32%)	2008-2009: ↓ (7.5%)

~ No statistically significant changes

^a All available years

^b Most recent year



Questions and Answers



Partnership for Patients Hospital Acquired Conditions HAI Local Measurement Strategies



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Agency for Healthcare Research and Quality
(AHRQ)





Partnership for Patients

- Nationwide campaign in US to reduce harm to patients over three years: 2011-2013
 - Launched April 2011 -- 2010 is “baseline” year
- Goals are to reduce:
 - Preventable hospital-acquired conditions by 40%
 - 44% established as overall preventable fraction of HACs
 - Hospital readmissions by 20%
- 2010 baselines measured by Program
 - 145 measured HACs per 1000 discharges (4.75M total)
 - 14.4% (30-day) readmissions





Two Key Elements of PFP Measurement Strategy

- National measurement strategy
 - Establish baselines and assess yearly progress using existing systems from AHRQ/CMS, CDC, and AHRQ
 - Employ sampling and extrapolation
 - >90% of measured HACs from Medicare Patient Safety Monitoring System (MPSMS - chart review method with 21 defined adverse events) that uses IQR charts (800 hospitals)
- Local measurement strategy
 - Rely on CMS-funded Hospital Engagement Networks (HENs) to select their own systems for quality improvement programs
 - Assess individual HEN performance
 - No new Federal data submission mandates





Nine “Targeted” HACs

- Adverse Drug Events (ADE) (from MPSMS)
- Catheter-Associated Urinary Tract Infections (CAUTI) (from MPSMS)
- Central Line-Associated Bloodstream Infections (CLABSI) (from MPSMS)
- Injuries from Falls and Immobility (from MPSMS)
- Obstetric Adverse Events (from Patient Safety Indicators)
- Pressure Ulcers (from MPSMS)
- Surgical Site Infections (from National Healthcare Safety Network – special calculation)
- Venous Thromboembolism (VTE) (from MPSMS)
- Ventilator-Associated Pneumonia (VAP) (from MPSMS)

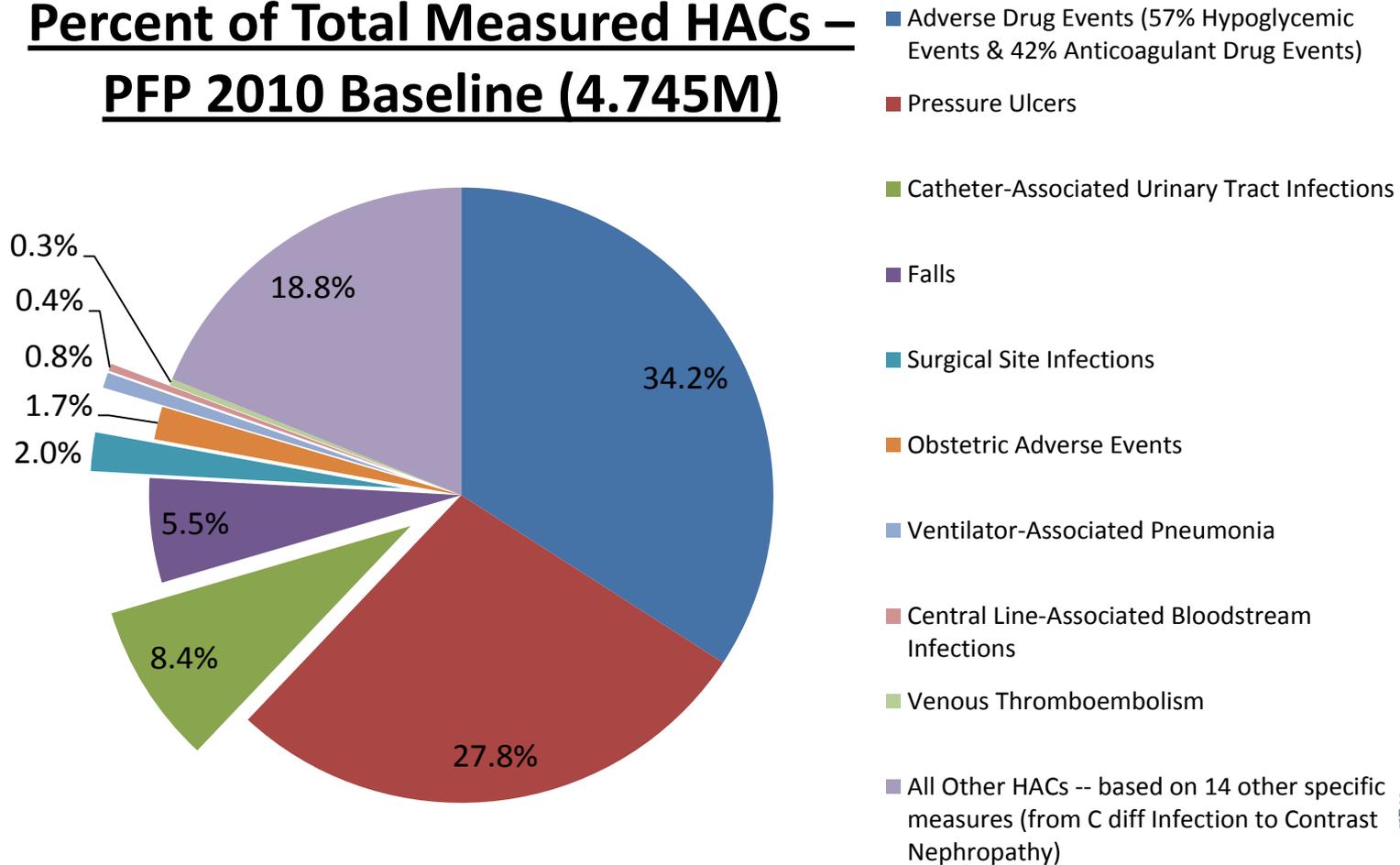
These nine total to about 80 percent of measured 2010 HACs





Four “Targeted” HAI HACs Total 11.6 percent of Measured HACs

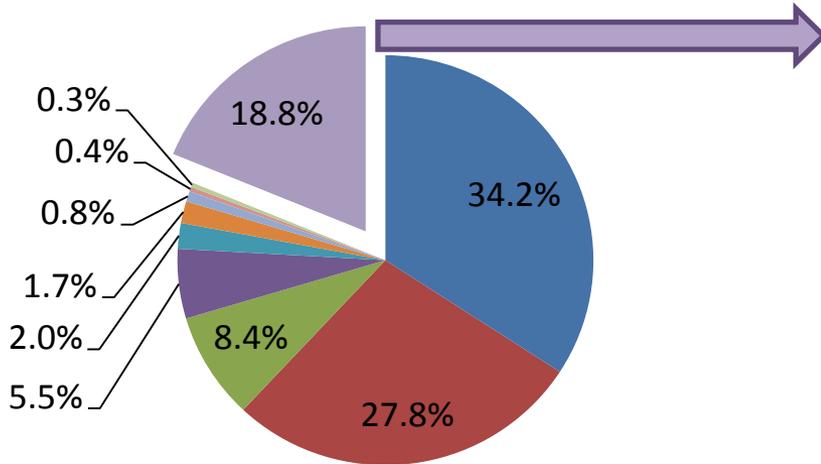
Percent of Total Measured HACs – PFP 2010 Baseline (4.745M)





Four HAIs Measured Among “All-Other” HACs

Percent of Total Measured HACs - PFP 2010 Baseline



- These four HAIs (MRSA, VRE, *C diff*, and Post-op Pneumonia) are 4.5% of the measured HACs.
- The four targeted HAIs (11.6%) combined with these four HAIs total to 16.1% of measured HACs.
- About one-half of the measured HAIs are CAUTIs.

MPSMS	Femoral Artery Puncture for Catheter Angiographic Procedures	76,000
MPSMS	AE associated with Hip Joint Replacements	30,000
MPSMS	AE associated with Knee Joint Replacements	29,000
MPSMS	Contrast Nephropathy Associated with Catheter Angiography	230,000
<u>MPSMS</u>	<u>Hospital-Acquired MRSA</u>	<u>15,000</u>
<u>MPSMS</u>	<u>Hospital-Acquired Vancomycin Resistant Enterococcus (VRE)</u>	<u>13,000</u>
<u>MPSMS</u>	<u>Hospital-Acquired Antibiotic-Associated <i>C diff</i></u>	<u>87,000</u>
MPSMS	Mechanical Complications Associated with Central Venous Catheters	110,000
MPSMS	Postoperative Cardiac Events for Cardiac and Non-cardiac Surgeries	43,000
<u>MPSMS</u>	<u>Postoperative Pneumonia</u>	<u>97,000</u>
PSI	Iatrogenic Pneumothorax (PSI 6)	13,000
PSI	Post-op Hemorrhage or Hematoma (PSI 9)	21,000
PSI	Post-op Respiratory Failure (PSI 11)	50,000
PSI	Accidental Puncture or Laceration (PSI 15)	77,000
<u>MPSMS & PSI</u>	<u>Total All Other HACs (sum of 14 above)</u>	<u>894,000</u>



HAI “Local” Measurement in PFP

- Organized by HENs
 - Nine Targeted HACs only (4 HAIs)
- Seeking consistency within 26+ HENs
- Data compiled by Econometrica in January/February
- Summary information on CAUTI, CLABSI, and SSI follows on three slides
- Information is presently being updated



HEN Measurement of CAUTI

(from Econometrica)

1. Measures Proposed by 10 or More HENs

- **CAUTI rate:** 18 HENs proposing to track some version of a CAUTI rate. Variations:
 - Whether the rates were per 1,000 catheter days (the NHSN and NQF denominator) (7), per 1,000 adult discharges (the CMS measure), or per [unspecified number of] bed days
 - Whether measured specifically for ICUs (the NQF measure) (3)

2. Measures Proposed by 5 to 9 HENs

- **Catheter removal** (7): Most of these HENs proposed to use the CMS measure SCIP 9/NQF #0453, which measures compliance with removal of urinary catheter by day 2 after surgery
- **Catheter utilization** (7): Three HENs will track this using the NHSN utilization ratio, while others will track catheter device days, placement rate, or prevalence of catheter use on the unit
- **Catheter appropriateness** (e.g. prevalence of appropriate catheter use, daily review of necessity for catheter) (5)

3. Measures Proposed by 2 to 4 HENs

- Adherence to a CAUTI prevention bundle (3)





HEN Measurement of CLABSI

(from Econometrica)

1. Measures Proposed by 10 or More HENs:

- **CLABSI rate:** 19 HENs, Variations included:
 - Denominator – Most plan for their rate to be calculated per 1,000 device days, but two plan to calculate rates per 100,000 patient days
 - Hospital-units – Calculations of separate rates for ICUs and high-risk nurseries or not.
 - Risk adjustment – calculation of standardized infection ratios or not.
 - Comparison to an ideal rate of zero CLABSIs – calculating relative improvement rates or not.

2. Measures Proposed by 5 to 9 HENs

- Several HENs plan to measure adherence to a CLABSI bundle (5).

3. Measures Proposed by 2 to 4 HENs

- Number of infections, Days between CLABSI, Adherence to insertion protocol, Appropriate dressing changes, Hand hygiene, Daily review of central line necessity, and Implementation of related training



HEN Measurement of SSI (from Econometrica)

1. Measures Proposed by 10 or More HENs

- **Overall surgical site infection (SSI) rate**
 - Six additional HENs proposed to measure the surgical site infection rate either by type of SSI, or for certain patient subgroups.

2. Measures Proposed by 5 to 9 HENs

- Adherence to SSI prevention bundle (7) – includes “perfect care” for the six SCIP measures, and in one case adherence to the SAFE CUTS roadmap.
- On-time antibiotic (7)
- Antibiotic selection (7)
- Perioperative temperature management (6)
- Antibiotic discontinuation (5)
 - (For the most part, HENs appear to be following the SCIP measure definitions for the last four measures, although some did not specifically state that.)

3. Measures Proposed by 2 to 4 HENs

- Use of a surgical checklist
- SCIP measures for appropriate hair removal and cardiac patients’ post-operative serum glucose.





Take-Home Points

- Partnership for Patients Program has “targeted” 4 HAIs among 9 HACs for focused work to reduce their occurrences
- PFP HENs and affiliated hospitals are measuring HACs (including HAIs) their own ways
- Most HENs report that they are measuring HAC rates (as required), rather than processes only
 - Information is being updated from initial collection
- No mandatory reporting of specific measures, but HENs must provide CMMI with run charts and other data that they are collecting

(Time for discussions in acute-care breakout session this afternoon)

Or email: noel.eldridge@ahrq.hhs.gov, phone: 301-427-1156



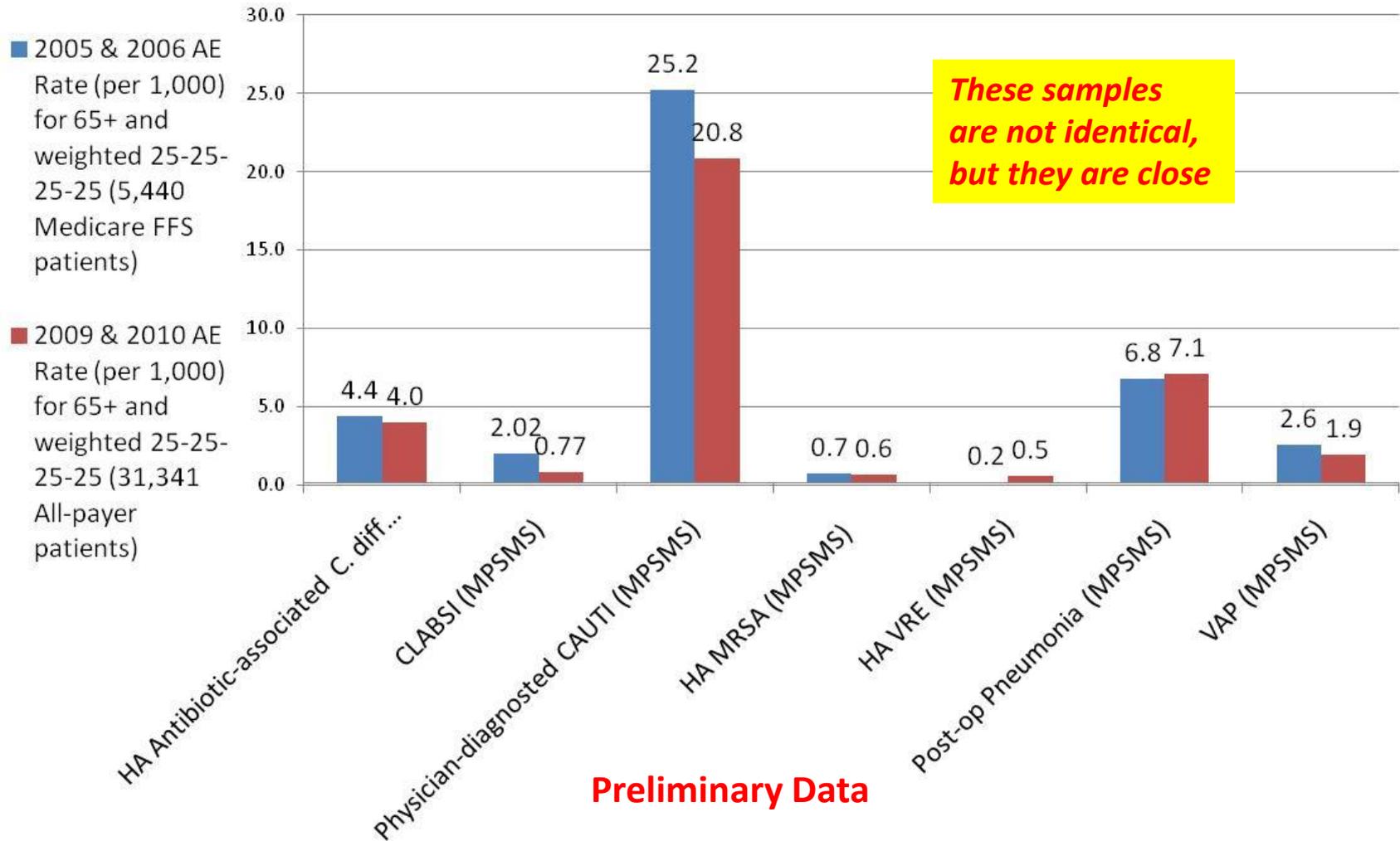


Preliminary Summary Data on HAIs from 2005/2006 & 2009/2010

– *available “4 condition,”
65+ y.o. patients only*



MPSMS (almost “apples to apples”) HAI Data

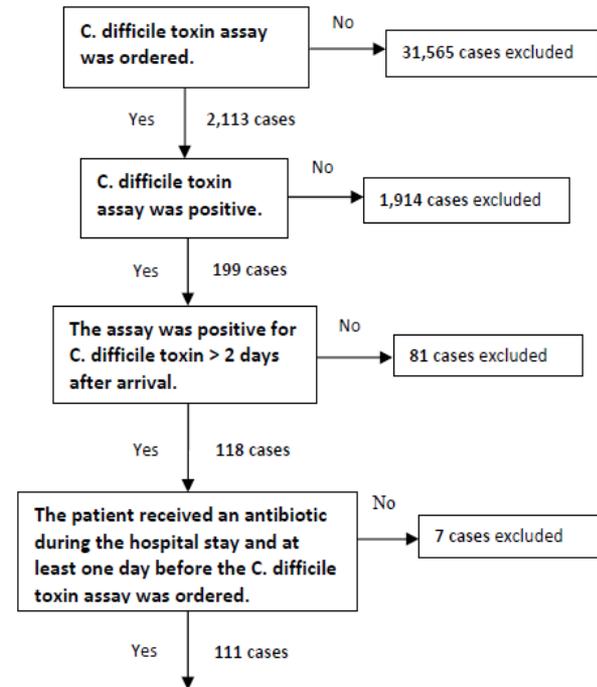




Adverse Drug Event Measure
Hospital Acquired Antibiotic-associated Clostridium difficile (C. difficile)
33,678 Hospital Discharges

(MPSMS
C diff –
sample
flowchart
with raw
2010 data)

Denominator.....
Note:
An antibiotic was administered during the hospital stay to **24,940** patients



111 patients had a Hospital Acquired Antibiotic-associated C. difficile

111/24,940 = 0.40% of patients who received an antibiotic during the hospital stay and had a positive assay for C. difficile toxin at least 2 days after arrival during the hospital stay.





Backup Summary PFP Data

- Summary with goal numbers by HAC and year
- Factors for compensating for 4-condition sample

PFPP Measured Hospital Acquired Conditions: Summary Information on 2010 Baseline and PFPP Goals through 2013

Hospital-Acquired Condition	Measured HACs* (rounded)	Measured HACs per 1,000 Admissions	Percent of Total Measured HACs
Adverse Drug Events**	1,621,000	49	34.2%
Catheter-Associated Urinary Tract Infections**	400,000	12	8.4%
Central Line-Associated Bloodstream Infections**	18,000	0.5	0.4%
Falls**	260,000	8	5.5%
Obstetric Adverse Events***	82,000	3	1.7%
Pressure Ulcers**	1,320,000	40	27.8%
Surgical Site Infections****	96,000	3	2.0%
Ventilator-Associated Pneumonia**	38,000	1.2	0.8%
Venous Thromboembolism**	16,000	0.5	0.3%
All Other HACs -- based on other MPSMS (10) and PSI (4) measures	894,000	27	18.8%
Total*	4,745,000	145	100.0%

If above estimates are used ...

		Reduction in Preventable***** HACs	Reduction in All HACs
2010 Count Baseline would be:	4,745,000 HACs		
2010 Rate Baseline would be:	145 HACs per 1,000		
2011 Count Goal would be:	4,536,220 HACs		
2011 Rate Goal would be:	139 HACs per 1,000	10%	4.4%
2012 Count Goal would be:	4,327,440 HACs		
2012 Rate Goal would be:	132 HACs per 1,000	20%	8.8%
2013 Count Goal would be:	3,909,880 HACs		
2013 Rate Goal would be:	119 HACs per 1,000	40%	17.6%

* Extrapolation Based on 32.75M 18+y.o. admissions in 2010 (HCUP data).

** MPSMS data is based on 1) weighting the sample to include exactly 25% of each of the 4 inpatient groups in the sample (AMI, HF, Pneumonia, SCIP), 2) some double-counts not excluded (e.g., some post-op pneumonias are VAPs too), 3) use of 21 different computed factors to compensate for the four inpatient groups used in sample - this is intended to make the data more representative of the whole 18+y.o. inpatient population. The factors are based on the rates of each MPSMS measure (HACs per 1,000 discharges), as determined from subsets of the 2005-2006 and 2009-2010 MPSMS data, and have been calculated to increase the ability of the "4 group" data to represent the entire patient population - i.e., all inpatients 18 and over, regardless of diagnosis.

*** Data is from Patient Safety Indicators: OB Trauma in Vaginal Delivery with Instrument (PSI 18) and without Instrument (PSI 19).

**** Data is from 12 Surgical Care Improvement Program (SCIP) operations, plus 5 other major procedures. In these calculations, 2010 HCUP NIS data was used to estimate national surgical volume according to the procedures defined in CDC's National Healthcare Safety Network (NHSN). CDC NHSN data includes data for all-age patients, including those less than 18 years old. NHSN data also includes some cases identified via post-discharge surveillance systems.

***** This is based on 44 percent of HACs being preventable, as established from research performed prior to the launch of the Partnership for Patients.



Compensating for IQR Sample (AMI, HF, Pneumonia, SCIP): going from 4 pt groups to estimating for all 18+ pts

MPSMS Measure <i>(use of these 21 factors reduces measured HAC rate from 195.5 per 1,000 for IQR sample to 134.5 per 1000)</i>	Factor	HACs in MPSMS IQR Sample per HACs Among All 18+ Pts
ADE Associated with Digoxin	1.08	0.93
ADE Hospital Acquired Antibiotic Associated C diff	0.81	1.23
ADE Associated with Hypoglycemic Agents	0.77	1.30
ADE Associated with IV Heparin	0.50	2.01
ADE Associated with LMWH and Factor Xa Inhibitor	0.55	1.82
ADE Associated with Warfarin	0.62	1.60
Femoral Artery Puncture for Catheter Angiographic Procedures	0.83	1.20
Hip Joint Replacements	0.28	3.62
Knee Joint Replacements	0.28	3.54
Blood Stream Infections Associated with Central Venous Catheters	0.64	1.55
Catheter Associated Urinary Tract Infections	0.73	1.36
Contrast Nephropathy Associated with Catheter Angiography	0.46	2.17
Hospital Acquired MRSA	0.79	1.26
Hospital Acquired Pressure Ulcers	0.85	1.18
Hospital Acquired Vancomycin Resistant Enterococcus	0.72	1.39
In-hospital Patient Falls	0.84	1.19
Mechanical Complications Associated with Central Venous Catheters	0.76	1.31
Postoperative Cardiac Events for Cardiac and Non-cardiac Surgeries	0.46	2.18
Postoperative Pneumonia	0.45	2.22
Postoperative Venous Thromboembolic Events	0.42	2.39
Ventilator Associated Pneumonia	0.49	2.05

Questions and Answers



CDC National Healthcare Safety Network and External Partners



Dawn M. Sievert, PhD, MS

Epidemiologist

Lead, NHSN Protocol and Public Reporting Team
Surveillance Branch

Division of Healthcare Quality Promotion, NCEZID,
CDC





NHSN and External Partner Input

- Includes individuals in field of infection prevention, healthcare epidemiology, and public health, with surveillance and analytical experience focused on process improvement, public reporting
- Process for evaluating risks and benefits of requested changes
- Monthly teleconference calls and working activities
- Input from NHSN staff – technical and clinical support
- Peer review literature and meeting abstracts highlighting issues with NHSN surveillance definitions, methodology
- Illustrate/provide example of user problems or concerns
- Propose possible solutions
- Outreach to additional experts linked to members, or other partners with access to data/evaluation infrastructure for assessment





Specific Groups and Input (1)

- CSTE HAI Standards Committee
 - Lead by CSTE with CDC participation
 - Deliberate and make decisions about standards:
 - Case definitions, clinical and lab criteria, electronic criteria
 - Validation and risk adjustment
 - Release / re-release of NHSN data
 - Develop and submit CSTE Position Statements:
 - CLABSI reporting position statement submitted
 - Antimicrobial resistance reporting position statement planned





Specific Groups and Input (2)

- HICPAC Surveillance Work Group
 - Revisions to NHSN CLABSI Definition:
 - Mucosal Barrier Injury - LCBI
 - Revisions to NHSN HAI Definitions:
 - Hospital-onset
 - Device minimum dwell time
 - Location attribution
 - Duplicate HAI event
 - Revisions to NHSN Procedure and SSI Definitions:
 - Required reporting variables and specific definitions





Decisions for MBI-LCBI

- Mucosal Barrier Injury (MBI) terminology used in cancer literature
- Appropriately descriptive of scenario targeted for definition
- Extension of NHSN LCBI (Laboratory confirmed bloodstream infection)
- Is a subset of all reported LCBIs as MBI-LCBI
- If patient has LCBI and central line in place then event = CLABSI, for external reporting purposes in 2013





Decisions for MBI-LCBI (2)

- An LCBI caused by organisms of GI origin that occur in a eligible patient population
 - Allogeneic hematopoietic stem cell transplant (SCT) recipients
 - Patients with neutropenia
 - Specific list of eligible gastrointestinal organisms
- Next Steps
 - Definitions developed for MBI-LCBI are currently undergoing field testing in a multi-site pilot surveillance project
 - Planned for manual application in Jan 2013 NHSN release and for CDA submission in Jan 2014





Specific Groups and Input (3)

- VAP Surveillance Definition Work Group
 - Revisions to NHSN VAP Definition:
 - Proposed surveillance for “Ventilator-Associated Events”
 - Define VAE, VAC, IVAC, possible and probable VAP





Decisions for VAE

- VAE for adults ≥ 18 years of age (excludes patients receiving rescue mechanical ventilation therapies)
- Respiratory status component (VAC)
 - Requires minimum duration of mechanical ventilation
 - Attempts to capture a period of worsening oxygenation after a sustained period of stability or improvement
- Infection/inflammation component (IVAC)
 - Attempts to identify events more likely to be related to infection—enhances face validity through use of objective (albeit non-specific) criteria
- Focus here is on criteria that are readily available across the spectrum of mechanically-ventilated patients. Level at which reporting for the purposes of public reporting, inter-facility comparisons would occur.





Decisions for VAE (2)

- Microbiological evidence component (poss/prob VAP)
 - Option elevates the determination to “possible” or “probable” VAP
 - Criteria within this component are more subject to clinician, ICU, and/or hospital-level differences in resources or practices. Intended for internal quality improvement purposes, use in prevention collaboratives, etc.
- Next Steps
 - Submission of Metrics to National Quality Forum
 - Convene Neonatal and Pediatric Working Groups
 - Planned for manual application in Jan 2013 NHSN release





Work in Progress

- Need ongoing collaborative processes to strive for:
 - Credibility among the clinical community
 - Reliability for public reporting
 - Streamlined and available for electronic reporting
- Continuous evaluation of the risks and benefits of change
- Moving in the right direction but still work ahead and challenges to overcome





Thank you!



2012 HAI Data Summit

Questions and Answers



2012 HAI Data Summit

Additional Q & A from Plenary 2

3:40 PM – 4:00 PM

