

QUALITY OF SURGICAL SITE INFECTION REPORTING BY MARYLAND HOSPITALS (2011 DATA)

PRESENTED BY:

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Purpose for the Webinar

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- Review SFY 2014 Healthcare Associated Infection audit findings pertaining to selected categories of Surgical Site Infections
- Share observations and recommendations to support quality improvement among personnel engaged in data reporting functions and systems used by hospitals to detect, report and reconcile data

Abbreviations

AGS	Advanta Government Services, LLC
CABG	Coronary Artery Bypass Graft
CDAD	<i>Clostridium difficile</i> Associated Diarrhea
CLABSI	Central-Line Associated Blood Stream Infection
CDC	Centers for Disease Control & Prevention
DIP	Deep Infection Primary
DOS	Date of Service
GS	Gram Stain
HAI	Healthcare Associated Infection
HSCRC	Health Services Cost Review Commission
ICD-9-CM	Internal Classification of Diseases, 9th Clinical Modification
MHCC	Maryland Health Care Commission
MDRO	Multi-Drug Resistant Organism
NHSN	National Healthcare Safety Network
OS	Organ Space
POA	Present on Admission
SFY	State Fiscal Year
SSI	Surgical Site Infection

Overall HAI Five-Year Audit Plan

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SFY	HAI Focus
2012	CLABSI
2013	CLABSI
2014	SSI
2015	CLABSI, SSI, MDRO, CDAD
2016	CLABSI, SSI, MDRO, CDAD

Typical SFY Annual Audit Cycle

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- 1st Quarter
 - ▣ Analyze data
 - ▣ Develop Data Validation Plan and audit protocol
 - ▣ Develop data collection tools and instructions
- 2nd Quarter
 - ▣ Notify hospitals
 - ▣ Train auditors
 - ▣ Conduct audits & quality control processes

- 3rd Quarter
 - ▣ Analyze data
 - ▣ Complete appeal processes, if appropriate
 - ▣ Report audit findings
 - ▣ Hospitals correct reported data
- 4th Quarter
 - ▣ Prepare and conduct webinar(s)
 - ▣ Issue final report (as appropriate)

Spirit of the HAI Data Validation Audit

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- To review the completeness & accuracy of HAI data collected by the MHCC from non-federally owned Maryland hospitals via the NHSN of the CDC.
- Gain a statewide snapshot of the quality and challenges of SSI reporting in Maryland.
- Provide educational opportunities for hospital personnel involved in reporting activities.
- Promote collaboration, understanding, compliance and support in quality improvement efforts.

SFY 2014 Validation Plan – Step 1

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- Conduct an analysis of SSI data reported to NHSN using HSCRC administrative discharge data for variation detection
 - ▣ First series of data analyses focused on matching cases between HSCRC and NHSN data sources (medical record number, procedure date, procedure code)
 - ▣ As a result of sharing findings with hospitals regarding mismatches between the two data sources, hospitals submitted corrections to MHCC for 2,346 cases
 - ▣ The majority of the corrections involved the data reported to NHSN

SFY 2014 Validation Plan – Step 2

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- After re-running the corrected data in the matching algorithms, 760 cases mismatched on the same or different variables
 - ▣ 456 procedure dates
 - ▣ 213 procedure codes
 - ▣ 80 medical record numbers
 - ▣ 11 procedure dates and procedure codes
- These findings led to narrowing the focus of chart audits for the SFY 2014 Validation Plan on the identification of surgical site infections

SFY 2014 Validation Plan – Step 3

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- 357 surgical site infections were reported to NHSN for procedures performed in 2011
- Focused on DIP and OS for the following NHSN *Operative Procedures*
 - CBGC (CABG with only chest incision)
 - CBGB (CABG with both chest and donor site incisions)
 - HPRO (Specific hip procedures)
 - KPRO (Specific knee procedures)
- Surveillance timeframe was limited to 90 days
- 158 cases met the above criteria
- 123 cases met the above criteria and could be linked to the HSCRC inpatient administrative data at the specific hospital

SFY 2014 Validation Plan – Step 4

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- Identified the sample for chart audits by matching selected ICD-9-CM diagnosis and procedure codes identified in the HSCRC data to the SSI cases reported to NHSN
- Identified 419 cases in the HSCRC data as potential infections that were not reported in the NHSN data as SSIs
- Identified 1 case in the HSCRC data that did not include an infection code but it was reported as an SSI to NHSN

Example of Codes in Algorithms

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- Developed a list of 52 ICD-9-CM codes that identified potential SSIs
 - ▣ Examples of the 10 procedure codes
 - 83.45-Debridement of muscle
 - 84.56-Insertion or replacement of cement spacer
 - 86.22-Excisional debridement of wound, infection, or burn
 - ▣ Examples of the 42 diagnosis codes
 - 513.1-Abscess of mediastinum
 - 996.62 -Infection and inflammatory reaction due to vascular device, graft
 - 999.66-Infection and inflammatory reaction due to internal joint prosthesis
 - 998.32-Disruption or dehiscence of closure of surgical wound

Final Sample

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- 420 cases
- 43 hospitals
 - ▣ 419 cases (potential under reports)
 - SSI not reported
 - One or more ICD-9-CM code relating to a potential SSI
 - ▣ 1 cases reported SSI without an ICD-9-CM code suggesting an SSI (potential over-report)
- **Note – 46 non-Federal acute care hospitals in Maryland**
 - ▣ 1 hospital did not perform any qualifying procedures
 - ▣ 2 hospitals did not have any variant SSI cases detected through the matching algorithms
 - ▣ No chart audits done at 3 hospitals

Data Collection Strategy (continued)

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- Hospitals were notified of case selection, date of audit and auditor
- Auditor Training
- Audit tools
 - ▣ Worksheets with case identification, NHSN procedure code and date, DOS, ICD-9-CM code(s) associated with the DOS
 - ▣ SSI criteria for DIP and OS
 - ▣ Definitions and ICD-9-CM codes for *Operative Procedures*
- Audits were performed on-site
- Case findings were discussed

Data Collection Strategy (concluded)

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- Audit results reviewed by the quality control team
 - ▣ Clarification of guidelines and definitions (trauma, intervening procedure)
- Unresolved discordant findings
 - ▣ Referred to NHSN via collaborative e-mail
- Final Report of hospital findings
 - ▣ SSIs (Numerator)
 - ▣ Procedures (Denominator)
 - ▣ Coding (Potential errors)

Data Sources

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- For sampling
 - ▣ NHSN numerator and denominator data reported by Maryland hospitals to the CDC NHSN
 - ▣ HSCRC administrative inpatient discharge data reported by Maryland hospitals to the HSCRC
- For chart audit validation
 - ▣ Medical records
 - ▣ NHSN 2011 definitions (with the exception of the surveillance timeframe)

Summary Audit Findings (continued)

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- 1 potential over-reported SSI was confirmed as an SSI (hospital coding error)
- 15 of 43 facilities had unreported SSIs
- Identified a total of 28 unreported SSIs
 - ▣ 22 DIP
 - ▣ 6 OS
- Results in 186 or 17% increase in SSIs

Summary Audit Findings (continued)

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# Hospitals	# Charts Reviewed	# Procedures Reported to NHSN 2011 (range)	# SSIs <90 Days Reported by Hospitals (range)	# SSIs <90 Days Unreported by Hospitals (range)	Total SSIs Post- Audit
45		22050 (8-2033)	158 (0-21)		186 (0-24)
43	420	21998 (8-2033)	157 (0-21)	28 (1-5)	185 (0-24)
15	246	9989 (53-2033)	78 (0-21)	28 (1-5)	106 (1-24)

SSI Preliminary Statistics

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- For the 15 hospitals with under-reported SSIs
 - 78 reported SSIs
 - 9,989 reported procedures
- P-value for finding an additional 28 SSIs from the 9,989 reported procedures beyond the 78 reported SSIs
 - .038 ($p \leq .05$) demonstrating statistical significance
 - 35.9% relative percentage change

Administrative Data Audit Findings

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- Majority of cases where SSIs matched between HSCRC and NHSN involved two ICD-9-CM codes
 - ▣ 996.66-Infection joint prosthesis
 - ▣ 998.59-Other postoperative infection
- These same codes were used to detect 93% (26 of 28) unreported SSIs

Incidental Denominator Findings

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- Denominator reporting errors in 32 hospitals
 - ▣ Non-qualifying procedures reported as *Operative Procedures*
 - 2011 without primary closure
 - Inaccurate coding
 - Accurate coding
 - ▣ Qualifying *Operative Procedures* not reported
 - Inaccurate coding
 - Accurate coding
 - Excluded procedures
 - Bilateral procedures

Non-Qualifying Procedures Reported as Qualifying *Operative Procedures*

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- 40 Non-qualifying *Operative Procedures* reported in denominator
 - ▣ 2 Most Common
 - 12-Insertion of cement spacer
 - 5-Without primary wound closure

Examples of Non-Qualifying Procedures Reported as Qualifying Operative Procedures

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❑ Inaccurate Coding

- ❑ Reimplantation left knee-(81.54) Aborted- frozen section > 20 WBC/HPF
 - ❑ I&D exchange of antibiotic spacers (84.59)
 - ❑ Coded **81.54**- Aborted procedure not performed

❑ Accurate Coding

- Reimplantation right hip- Aborted- frozen sections and GS persistent infection
 - ❑ I&D with replacement of fractured antibiotic spacer
 - ❑ Coded correctly **84.56** reported NHSN HPRO

❑ 2011: without Primary Closure

- **Revision of infected left total knee**(00.80) reported NHSN KPRO
 - ❑ Surgeon: skin closure referred to plastic surgeon
 - ❑ Skin grafted two days after surgery

Qualifying Operative Procedures Not Reported

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- 22 qualifying Operative Procedures not reported
 - 9-Knee revision
 - 6-00.84 Revision of total knee replacement, tibial insert (liner)
 - 4-Primary knee
 - 8-Hip revision
 - 1-Primary hip

Examples of Qualifying Operative Procedures Not Reported

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- Inaccurate Coding
 - ▣ ORIF 79.36 left tibial fracture-Expanded
 - ORIF 79.36 with patellar component replacement 00.83
 - Coded 79.36-ORIF only
 - ▣ Arthrotomy 80.05 left total hip-Aborted-joint aspiration/frozen section negative
 - Revision left hip-00.70 Performed
 - Coded 80.05-Aborted not performed
- Share potential coding errors from your final report with the health information management/coding department

Examples of Qualifying Operative Procedures Not Reported

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□ Accurate Coding

- Revision (Remote initial surgery) right knee with primary closure coded 00.82

- Intraoperative cultures positive
- Excluded from denominator- “infected”
- Qualifying Operative Procedure is included despite culture results

□ Bilateral Procedures

- Complete TWO separate Denominator for Procedure forms
- Audit found denominator omissions
 - Procedures performed simultaneously
 - On separate days during same admission



Inaccurate Reporting with Accurate Coding

26

- Procedure aborted
- Coded correctly
- Non-qualifying performed
 - ▣ In denominator
- Qualifying performed
 - ▣ Excluded from denominator
- How
 - ▣ Info extracted from posting?
 - ▣ Inconsistent application of *Operative Procedure* definition?



Coding

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- 46 coding concerns found in 20 hospitals
 - 78% Coded an active infection when documentation only supported history of infection
 - Coding for staged revisions of infected joint prosthesis
 - Newsletter article included in hospital Final Report
 - “Revision of hip replacement with removal of antibiotic spacer”
 - Coding Clinic, Second Quarter 2008, pages 3-4, Effective with discharges: July 7, 2008
 - 22% Procedure related (over and unreported)

Summary of Incidental Denominator Audit Findings

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# Hospitals	# Charts Reviewed	# Procedures Reported to NHSN in 2011 (range)	# Unreported Procedures (range)	# Over Reported Procedures (range)	# Coding Concerns (range)
12	218	8095	22 (1-8)		
10	236	9646		40 (1-15)	
20	322	15303			46 (1-7)

SSI Surveillance (continued)

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- Increased Mandatory HAI Reporting
- Shared responsibility
 - ▣ Patient Safety
 - ▣ Quality Improvement
 - ▣ Data accuracy
 - ▣ Reimbursement



SSI Surveillance (continued)

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□ Leadership

- Support collaborative processes to improve patient safety
- Recognize unique departmental responsibilities
- Accountability



SSI Surveillance (continued)

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- SSI Surveillance: Active, patient-based, prospective
- Real-time and post discharge
 - ▣ Daily cultures, Emergency Department, Admissions, Surgery schedule
 - ▣ Staff and physicians
 - ▣ Post-discharge coding report
 - Screen pertinent codes
 - Timely
 - ▣ Surgeon/Office survey



SSI Surveillance (continued)

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□ Surveillance

- National guidelines
- Population-based
- Objective
- Clinical secondary
- Process/Outcomes improvement



Clinical

- Physician judgment
- Individualized
- Subjective
- Primary
- Therapeutic decision making

- Case question? NHSN mailbox NHSN@cdc.gov please specify SSI in subject line

Denominator Reporting

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- NHSN definition criteria
 - *Operative Procedures*
 - Closure
 - Table in SSI chapter
 - Procedure with ICD-9 code mapping
 - Challenges
 - Infection POA
 - Incisional trauma

Denominator Reporting Closure

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- *Operative Procedure* definition
 - 2011: Primary closure was **required**
 - 2014: Incisional closure is **NO LONGER** a part of the NHSN *Operative Procedure* definition; all otherwise eligible procedures are included, regardless of closure type.

(January 2014 NHSN manual 9-19)

Denominator Reporting Challenges

Infection POA

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- At the request of a facility, a case scenario was collaboratively submitted to NHSN/CDC for review. The facility noted that a POA admission (culture positive during reoperation) and a past history of infection excluded the case from SSI surveillance.
 - ▣ The response to this scenario included clarification of SSI and denominator inclusion when an infection was POA for an SSI event.



Denominator Reporting Challenges

Infection POA NHSN Response

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“In 2011 and it is still true today if a patient has an NHSN operative procedure such as an HPRO and this procedure met the NHSN definition of an operative procedure it will be in the facilities denominator data if this is a procedure they follow in their monthly reporting plan.

In 2011 this meant the procedure did have to have an incision that was **closed primarily** with no wicks or drains extruding from the incision. If this procedure is in the denominator data than subsequent infection that meets surveillance criteria for an SSI it should be attributed to the HPRO. **This is true even if the joint that had the procedure had a history of a prior or infection had a (+) culture result at the time of the procedure.”**

Denominator Reporting Challenges

Infection POA

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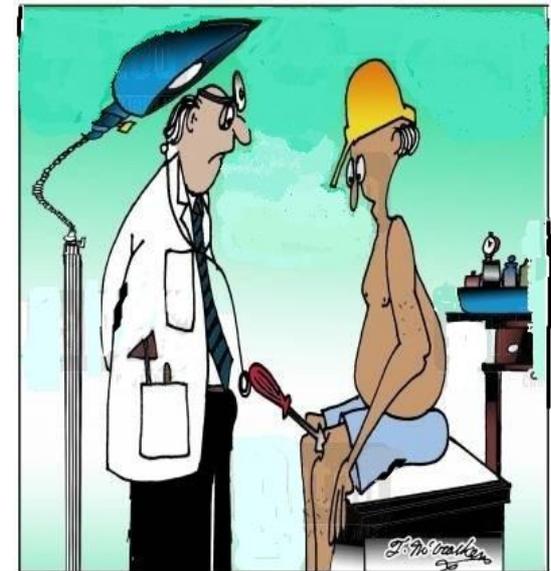
- NHSN/CDC acknowledged
 - HAI POA definition
 - Was often incorrectly applied to SSI events
 - Written definition has evolved to
 - Clarify original intent of HAI/POA
 - POA should not be applied to SSI, VAE, or LabID Events
 - Explicit in definition

Denominator Reporting Challenges

Incisional Trauma

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- 2011
 - ▣ NHSN/CDC: case by case basis
 - ▣ Excluded for audit
- 2014 No exclusions
 - ▣ Accidents/falls
 - ▣ Patients intentional/unintentional actions
 - ▣ Presence of skin conditions
 - ▣ Possible “seeding”



“It’s an old work injury.”

2014 NHSN Denominator Reporting

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- Operative Procedure definition
- Incisional Trauma
- Denominator for Procedures definition
 - Primary and Non-primary Closure
 - moved from *Operative Procedure* definition
 - Diabetes
 - Duration- modified
 - Height
 - Weight
 - HPRO/KPRO specificity



2014 NHSN *Operative Procedure*

Definition

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- Procedures at least one incision
 - ▣ Skin or mucous membrane
 - ▣ Re-operation through an incision that was left open during previous procedure
- OR setting meets regulations
- Exclude: ASA score of 6



2014 NHSN Closure Definition

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- 2014: Closure now included as a denominator data entry
 - Primary
 - Non-Primary
- Primary
 - Wires, wicks, drains, devices
 - “Loosely closed”
 - Any portion of incision is skin level by any manner
- Non-Primary
 - Other than Primary
 - Superficial open
 - Packing
 - Deep tissue may be closed/incision to be closed later date



2014 NHSN Closure Definition

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NOTE: Assign the surgical wound closure that applies when the patient leaves the OR from the principal operative procedure. This instruction should be followed in scenarios where a patient leaves the OR with non-primary closure, but returns to the OR for a subsequent procedure that results in primary closure. (January 2014 9-10 Procedure-associated Module SSI)

Closure

- ❑ Documented in surgical record?
- ❑ Electronic transfer to NHSN?
- ❑ Manual?
- ❑ Surgical services role in data accuracy/entry?



Cardiac Denominator Reporting

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- CBGC
 - ▣ Chest only
 - ▣ Vein harvest attempted/aborted
 - ▣ Vein harvested not used
- CBGB
 - ▣ Chest and peripheral donor site incisions
 - Only if donor vessel used
- CBGB and CBGC
 - ▣ Peripheral donor and mammary vessels are used



Coding

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□ Coding ↔ Documentation



- Patient safety/Outcomes
- Compliance/Leadership
- Revenue cycle



Coding



- IP ~~CODING~~
- Med Records management/Coding experts
- Technological tools
- Provide NHSN Procedure ICD-9 crosswalk
- Create post-discharge coding report
 - ▣ IT & Coding expert capture specific codes
 - ▣ Auto/timely
 - ▣ Accurate



Coding

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- October 2014- NHSN ICD-10-CM Implementation
 - ▣ ICD-10-CM Postponed until October 2015
- Use current ICD-9-CM mapping tool HPRO/KPRO
- 2015 ICD-9-CM mapping
 - ▣ NHSN later this year

Recommendations

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- Leadership support
- Champions in key departments
- Coding experts
 - ▣ Mapping
- Post-discharge coding report with identified ICD-9-CM codes
- Denominator Extraction Process Improvement (PI)
- Surgical Services NHSN SSI Training
 - ▣ PI related to SSI
 - ▣ Documentation
 - ▣ Denominator collection

SSI Scenarios



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- History of infection does not exclude SSI reporting
- Surveillance clock is reset after Qualifying Procedure
- If a qualifying procedure was performed and a subsequent infection meets surveillance criteria for an SSI the infection should be attributed to that qualifying procedure.
- NHSN/CDC proposed addition 2015:
 - ▣ HPRO & KPRO denominator data will include an optional field to note that a procedure was performed on a joint with a prior history of infection

SSI Scenario 1 (continued)

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- LT Hip revision-primary closure-uncomplicated post-op
 - ▣ Med hx: MRSA infections LT hip and osteomyelitis 3years prior
- 30 days: readmit: hip pain, decreased ROM, erythema, warmth
- Day 2: OR for Joint aspiration:
 - ▣ GS: polys and gram + cocci
 - ▣ Cell count RBC: 39K, WBC: 92K-98% neutrophils
- Day 4: Aspirate-no growth
- Day 6: d/c home on antibiotic therapy.
 - ▣ Surgeon dx: LT total hip joint infection

SSI Scenario 1 (concluded)

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- Qualifying Procedure implant < 90 days
- OS/SSI criterion d.
 - Diagnosis of OS/SSI by a surgeon or attending
- JNT criterion 3a/c.
 - Patient had at least 4 s/s with no other cause
 - Joint fluid with organisms and white blood cells seen on gram stain
 - Cellular profile of joint fluid compatible with infection
- OS/JNT

2014 Definitions

DIP & OS/Periprosthetic Joint Infections (PJI)

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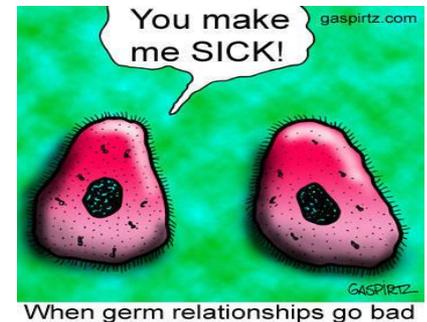
- 2014
- DIP & OS SSI criteria
 - ▣ dx by physician no longer include
- HPRO/KPRO
 - ▣ OS + PJI = NHSN OS event
 - Must meet at least 1 of 3 PJI criteria



Periprosthetic Joint Infections (PJI) (continued)

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- PJI following HPRO and KPRO only
- Joint or bursa infections must meet at least 1 of the following criteria:
 - 1. Two positive periprosthetic (*tissue or fluid*) cultures with identical organisms
 - 2. A sinus tract communicating with the joint
 - 3. Having three of the following minor criteria:



PJI (concluded)

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- 3. Having three of the following minor criteria:
 - a. Elevated serum C-reactive protein (CRP; >100 mg/L) AND erythrocyte sedimentation rate (ESR; >30 mm/hr).
 - b. Elevated synovial fluid white blood cell (WBC; $>10,000$ cells/uL) count OR ++ (or greater) change on leukocyte esterase test strip of synovial fluid.
 - c. Elevated synovial fluid polymorphonuclear neutrophil percentage (PMN% $>90\%$).
 - d. Positive histological analysis of periprosthetic tissue (>5 neutrophils (PMNs) per high power field).
 - e. A single positive periprosthetic (tissue or fluid) culture.



SSI Scenario 2 continued

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- RT TKA-KPRO
 - Med hx: insertion of intrathecal pump in 2008 for chronic pain
- 40 days: ED incisional dehiscence s/p fall onto RT knee. Pre-surgical level of activity without pain prior to fall. VS, CRP, Sed. rate, WBC: WNL Palpable defect, admit for tendon repair
- Day 1: Patellar tendon repair (83.73) replacement of patellar component (**00.83**)
 - No evidence of infection/ Deep cultures obtained
 - Procedure coded 83.73 (omission **00.83** resulted in unreported KPRO)
- Day 3: Deep cultures + CNS- Antibiotics initiated and continued at d/c
- SSI?

SSI Scenario 2 (continued)

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- ❑ NO SSI
- ❑ Audit: Incisional trauma
 - ❑ Case excluded from SSI investigation
- ❑ **2014:** Incisional trauma **does not** exclude case from SSI investigation



"It's an old work injury."

SSI Scenario 2 (continued)

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- 8/28/11: Patellar tendon repair (83.73) replacement of patellar component **(00.83)**
 - coded 83.73- unreported KPRO
- 9/22/11: Readmit: pain, new onset purulent drainage
 - RT knee joint aspirate: GS/cellular profile: unremarkable/ T-38.7, WBC:15K/Antibiotic therapy
- Day 2: T-38.4, WBC:17K Increase pain & purulent drainage, knee: deep sinus tract noted
 - RT knee aspirate culture: no growth
- Day 4: Erythema and warmth at the intrathecal pump site (previously WNL)
- Day 5: I&D RT knee, removal intrathecal pain pump
 - Deep soft tissue inflammation and exudate
 - Cultures deep tissue- RT knee and pump site
- 9/29/11: Knee and pump site cultures: *Pseudomonas aeruginosa*



SSI Scenario 2 (concluded)

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- **<90 days** (audit window and current NHSN implant surveillance window) **Qualifying Operative Procedure performed 8/28/11 not in NHSN**
 - ▣ Notify surgical services and medical records to have coding corrected
 - ▣ Report as a KPRO
- **DIP: Criterion b.**
 - ▣ a deep incision that spontaneously dehisces or is deliberately opened by a surgeon, and is culture positive or not cultured when the patient has at least one of the following signs or symptoms: fever ($>38^{\circ}\text{C}$); localized pain or tenderness.

SSI Scenario 3 (continued)

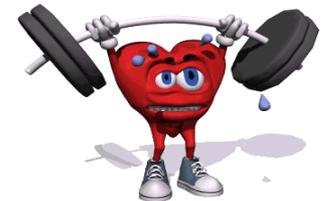
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- 6/16/11 reported CBGB NHSN database
- 8/11/11: Office persistent chest wall erythema, pain, fatigue 2wks Keflex
 - Labs/Echo WNL
- 8/12/11: readmit:
 - Chest incision intact, inflammation, fluctuance, dimpling, and warmth; no drainage
- Day2: CT of chest not performed-scanner down.
 - Pain 8/10, T-max 37.9, WBC 22k
- Day 4: ID recommended I&D
 - procedure not performed
- 8/17/11: improved with antibiotic therapy dc home

SSI Scenario 3 (continued)

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- ❑ 8/17/11: discharged
- ❑ 8/19/11: Office pain and purulent sternal incisional drainage
 - ❑ Readmit probable sternal infection- sternal instability noted- CT: dehiscence of the sternum, changes involving the presternal and retrosternal soft tissues consistent infection and osteomyelitis.
- ❑ Day 2: sternal debridement with wire removal; evidence of infection, extensive debris and globules- Tissue and swabs: culture and pathology/ GS Many polys no organisms
- ❑ Path: retrosternal tissue-exudate, embedded inflammatory cells, bone fragments reflective of osteomyelitis
- ❑ Day 4: tissue and retrosternal cultures: CNS
- ❑ 8/30/11: antibiotic therapy continued at discharge



SSI Scenario 3 (concluded)

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- Implant <90 days
- OS criterion b and c.
 - organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space/an abscess or other evidence of infection involving the organ/space found on direct exam during reoperation, by histopathologic exam, or RAD exam.
- MED criterion 1. & 3.
 - Patient has organisms cultured from mediastinal tissue or fluid obtained during a surgical operation or needle aspiration
 - Patient has at least one of the following s/s with no other recognized cause fever (>38C), chest pain, sternal instability.

And has at least one of the following: purulent discharge from mediastinal area, an organisms cultured from blood or from mediastinal discharge, or mediastinal widening

- OS/MED criteria met



Finale

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We are what we repeatedly do, excellence then is not an act, but a habit.

The Story of Philosophy- Will Durant

Your assistance with the SSI audit and your commitment to reducing HAIs are greatly appreciated.



SFY 2014 MHCC 11-016 HAI Data Quality Review & Chart Audit

Chart Audit Team

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References

Web Links

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- NHSN Guidance
 - ▣ NHSN@cdc.gov please specify topic in subject line (SSI, CLABSI)
- NHSN Overview Chapter 1
 - ▣ http://www.cdc.gov/nhsn/PDFs/pscManual/1PSC_OverviewCurrent.pdf
- Surgical Site Infection (SSI) Event Chapter 9
 - ▣ <http://www.cdc.gov/nhsn/PDFs/pscManual/9pscSSIcurrent.pdf>
- Surveillance definitions Chapter 17
 - ▣ http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf

Resource

SSI Surveillance

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□ Surveillance Techniques

- Some of the options in the following modules require active, patient-based, prospective surveillance of events and their corresponding denominator data by a trained Infection Preventionist (IP). This means that the IP shall seek out infections during a patient's stay by screening a variety of data sources, such as laboratory, pharmacy, admission/discharge/transfer, radiology/imaging, and pathology databases, as well as patient charts, including history and physical exam notes, nurses/physicians notes, temperature charts, etc. **Others may be trained to screen data sources for these infections, but the IP must make the final determination.** Laboratory-based surveillance should not be used alone, unless all possible criteria for identifying an infection are solely determined by laboratory evidence (e.g., LabID event detection in the MDRO/CDI Module). Retrospective chart reviews should be used only when patients are discharged before all information can be gathered. NHSN forms should be used to collect all required data, using the NHSN definitions of each data field. **To minimize the IP's data collection burden, others may be trained to collect the denominator data and process of care data** (e.g., central line insertion and inpatient influenza vaccination information).

Source: CDC/NHSN Patient Safety Manual January 2014, 1-3 (unchanged since 2006)

Resource

Incisional Trauma

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- **Reporting instructions for specific post-operative infection scenarios:** As of 2014, an SSI that otherwise meets the NHSN definitions should be reported to NHSN without regard to post-operative accidents, falls, inappropriate showering or bathing practices, or other occurrences that may or may not be attributable to patients' intentional or unintentional postoperative actions. Also, SSI should also be reported regardless of the presence of certain skin conditions (e.g., dermatitis, blister, impetigo) that occur near an incision, and regardless of the possible occurrence of a "seeding" event from an unrelated procedure (e.g., dental work). This revised instruction concerning various postoperative circumstances is necessary to reduce subjectivity and data collection burden associated with because the previously exempted scenarios.

Source: CDC/NHSN Patient Safety Manual January 2014, 9-17

Resource

POA

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- CDC/NHSN Surveillance Definitions of Healthcare-Associated Infections
Present on admission (POA) Infections
- To standardize the classification of an infection as present on admission (POA) or a healthcare-associated infection (HAI), the following objective surveillance criteria have been adopted by NHSN. **NOTE: This classification should not be applied to SSI, VAE, or LabID Events.**
- If all of the elements used to meet a CDC/NHSN site-specific infection criterion are present during the two calendar days before the day of admission, the first day of admission (day 1) and/or the day after admission (day 2) and are documented in the medical record, the infection is considered POA. Infections that are POA should not be reported as HAIs. Acceptable documentation does not include patient-reported signs and/or symptoms (e.g., patient reporting having a fever prior to arrival to the hospital). Instead, symptoms must be documented in the chart by a healthcare professional during the POA time frame (e.g., nursing home documents fever prior to arrival to the hospital). Physician diagnosis can be accepted as evidence of an infection that is POA only when physician diagnosis is an element of the specific infection definition.

Source: CDC/NHSN *Patient Safety Manual* January 2014, 17-1

Bilateral Procedures

□ **2014**

Bilateral Procedures: For operative procedures that can be performed bilaterally during same trip to operating room (e.g., KPRO, HPRO, BRST), two separate *Denominator for Procedure* forms are completed. To document the duration of the procedures, indicate the procedure/surgery start time to procedure/surgery finish time for each procedure separately or, alternatively, take the total time for both procedures and split it evenly between the two.

Source: CDC/NHSN *Patient Safety Manual* January 2014, 9-2. Instruction unchanged

Resource

Denominator Wound Closure

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□ **2014 Wound closure Denominator for Procedure Definitions:**

- Non-primary Closure is defined as closure that is other than primary and includes surgeries in which the superficial layers are left completely open during the original surgery and therefore cannot be classified as having primary closure. For surgeries with non-primary closure, the deep tissue layers may be closed by some means (with the superficial layers left open), or the deep and superficial layers may both be left completely open. An example of a surgery with non-primary closure would be a laparotomy in which the incision was closed to the level of the deep tissue layers, sometimes called “fascial layers” or “deep fascia,” but the superficial layers are left open. Another example would be an “open abdomen” case in which the abdomen is left completely open after the surgery. If the deep fascial levels of an incision are left open but the skin is closed, this is considered a non-primary closure since the incision was not closed at all tissue levels. Wounds that are “closed secondarily” at some later date, or described as “healing by secondary intention” should also be classified as having non-primary closure. Wounds with non-primary closure may or may not be described as “packed” with gauze or other material, and may or may not be covered with plastic, “wound vacs,” or other synthetic devices or materials.
- **NOTE:** Assign the surgical wound closure that applies when the patient leaves the OR from the principal operative procedure. This instruction should be followed in scenarios where a patient leaves the OR with non-primary closure, but returns to the OR for a subsequent procedure that results in primary closure of the procedure.
- * Primary Closure is defined as closure of all tissue levels during the original surgery, regardless of the presence of wires, wicks, drains, or other devices or objects extruding through the incision. This category includes surgeries where the skin is closed by some means, including incisions that are described as being “loosely closed” at the skin level. Thus, if any portion of the incision is closed at the skin level, by any manner, a designation of primary closure should be assigned to the surgery
- **NOTE:** Assign the surgical wound closure that applies when the patient leaves the OR from the principal operative procedure. This instruction should be followed in scenarios where a patient leaves the OR with non-primary closure, but returns to the OR for a subsequent procedure that results in primary closure of the procedure.

Source: CDC/NHSN *Patient safety Manual* January 2014, *Procedure-associated Module SSI 9-10*

Resource

SSI/OS

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- Because an **organ/space SSI involves any part of the body**, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure, **the criterion for infection at these body sites must be met in addition to the organ/space SSI criteria**. For example, an appendectomy with subsequent subdiaphragmatic abscess would be reported as an organ/space SSI at the intraabdominal specific site (SSI-IAB) when both organ/space SSI and IAB criteria are met. Table 4 list the specific sites that must be used to differentiate organ/space SSI. These criteria are in the Surveillance Definitions for Specific Types of Infections chapter.

REPORTING INSTRUCTIONS

- • If a patient has an infection in the organ/space being operated on, subsequent continuation of this infection type during the remainder of the surveillance period is considered an organ/space SSI, if organ/space SSI and site-specific infection criteria are met.
- • Report mediastinitis following cardiac surgery that is accompanied by osteomyelitis as SSI-MED rather than SSI-BONE.
- • If meningitis (MEN) and a brain abscess (IC) are present together after operation, report as SSI-IC. Similarly, if meningitis and spinal abscess (SA) are present together after an operation, report as SSI-SA.
- • Report CSF shunt infection as SSI-MEN if it occurs within 90 days of placement; if later or after manipulation/access, it is considered CNS-MEN and is not reportable under this module.

Source: *NHSN Patient Safety Manual January 2014; 9-13, 17-41*

Resource

PJI

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- **PJI – Periprosthetic Joint Infection (following HPRO and KPRO only)**
- Joint or bursa infections must meet at least *1* of the following criteria:
 - 1. Two positive periprosthetic (*tissue or fluid*) cultures with identical organisms
 - 2. A sinus tract communicating with the joint
 - 3. Having three of the following minor criteria:
 - a. Elevated serum C-reactive protein (CRP; >100 mg/L) **AND** erythrocyte sedimentation rate (ESR; >30 mm/hr).
 - b. Elevated synovial fluid white blood cell (WBC; >10,000 cells/μL) count **OR** ++ (*or greater*) change on leukocyte esterase test strip of synovial fluid.
 - c. Elevated synovial fluid polymorphonuclear neutrophil percentage (PMN% >90%).
 - d. Positive histological analysis of periprosthetic tissue (>5 neutrophils (PMNs) per high power field).
 - e. A single positive periprosthetic (*tissue or fluid*) culture.

Resource

PJI

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- **COMMENTS (PJI continued)**
- • Identical organisms mean matching at genus and species level but they do not have to have matching antibiograms.
- • A sinus tract is defined as a narrow opening or passageway underneath the skin that can extend in any direction through soft tissue and results in dead space with potential for abscess formation
- • The NHSN definition of PJI is closely adapted from the Musculoskeletal Infection Society's (MSIS's) definition of PJI (*Proceedings of the International Consensus Meeting on Periprosthetic Joint Infection, 2013*). However, the standard laboratory cutoff values in criteria 3a to 3d are provided by NHSN for HPRO and KPRO SSI surveillance purposes only. The NHSN laboratory cutoffs are not intended to guide clinicians in the actual clinical diagnosis and management of acute or chronic PJI. Clinicians should refer to the MSIS consensus definition for clinical use.

Source: CDC/NHSN Patient Safety Manual January 2014, 17-10

Resource

HIC Numbers

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Beginning July 1, 2014, acute care facilities participating in the Hospital IQR Program, must enter the MBN on all event records for Medicare patients; MBN is not required to be entered on NHSN procedure records for Medicare patients at this time. Further, we've provided some additional clarification regarding the MBN below:

- A MBN is also known as a Health Insurance Claim Number (HIC or HICN).
- Not all Medicare Health Maintenance Organization (HMO) plans have a “standard” MBN or HIC number.
- Only enter the beneficiary’s MBN if it is a “standard” or “valid” MBN.
- Do not enter dashes, spaces or special characters.
- All alpha characters must be upper case.
- Length cannot be less than 7 or more than 12 characters.
- Do not use 999999999999 for unknown numbers.

Source: NHSN e-News: Volume 9, Issue1, March 2014

Resources

- **NHSN 02/03/14 Update**
- **ICD-9 Mapping Guidance for facilities following HPRO – hip arthroplasty and/or KPRO – Knee arthroplasty in their monthly surveillance plan (see update note below)**
- **The NHSN Denominator for Procedure form will collect additional detailed information about HPRO and KPRO procedures that are conducted in 2014. Unfortunately, manual chart review or direct entry in the OR data base would be required to correctly specify all of the available HPRO and KPRO fields, due to the lack of specificity of ICD-9-CM codes. Therefore for facilities that don't have this capability, NHSN is providing a mapping to these HPRO and KPRO fields based on ICD-9-CM codes that should be used during 2014; the consequence of this mapping is that some fields will not be used (e.g. Total – Partial Revision; Hemi- Total Revision; Resurfacing – Total Revision and Partial Revision). NHSN will review the available ICD-10-PCS codes for HPRO and KPRO procedures, and provide updated guidance when ICD-9-CM codes are phased out.**
- **IMPORTANT NOTE: Due to a defect that must be corrected in the NHSN system, two ICD-9 codes (00.71 and 00.73) will be rejected at this time if they are entered using the guidance provided below. As a workaround, for procedures with ICD-9 codes of 00.71 and 00.73, you must leave the optional ICD-9 code field BLANK on the procedure data entry screen or in your CSV/CDA import file and only enter the required “type of HPRO” fields (Hemi, Partial Revision).**
 - <http://www.cdc.gov/nhsn/PDFs/ICD-9-Mapping-tool-HPRO-KPRO.pdf>