



# 2013 NHSN Changes: Highlights for California Hospitals

Presented by the HAI Liaison Program  
January 17-18, 2013



# Objectives of Today's Presentation

- Review updates to NHSN for 2013
- Highlight key changes to the Patient Safety Component Manual effective January 1, 2013
- Review changes to
  - HAI criteria
  - Locations and attribution
  - Device-associated infection surveillance
  - MDRO/CDI surveillance
  - SSI surveillance
  - Key changes to infections not mandated by CDPH (as time permits)



# NHSN in 2013

- HAI public reporting, pay for reporting, and pay for performance programs are part of a larger trend toward more transparency and accountability in healthcare
- CDC's NHSN has emerged as the primary surveillance system used by CDPH, other state health departments, and CMS for HAI reporting mandates
- For NHSN, the main opportunities and challenges are to meet the rising expectations for HAI reporting in ways that maximize benefits for patient care and public health while mitigating risks for unintended, adverse consequences



[www.cdc.gov/NHSN](http://www.cdc.gov/NHSN) - Training Course, Oct 2-4, 2012



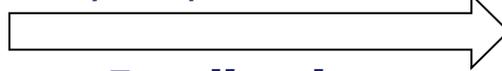
# HAI Surveillance in the Current U.S. Environment and the Implications for NHSN

## **NHSN at Launch - 2005** ~ 300 hospitals

1. Purely voluntary and confidential system
2. Healthcare facilities initially enrolled had all participated in legacy CDC system(s)
3. Primary motivation for facilities is internal quality of care improvement
4. Expectation that facilities are motivated to submit data to CDC that are high quality and complete

## **Environment**

- Public reporting
- Pay for reporting
- Pay for performance



## **Implications**

- Changes in NHSN's purposes, infrastructure, & operations.
- New scrutiny of HAI case criteria and reporting requirements
- Increasing emphasis on data validation
- Pressure to simplify HAI definitions and data requirements, and move to electronic HAI detection & reporting

## **NHSN at Age 7 - 2012** > 4900 hospitals

1. Predominantly mandatory and public reporting system
2. Vast majority of healthcare facilities enrolled had not participated in legacy CDC system(s)
3. Primary motivation for facilities is compliance with reporting requirements
4. Uncertainties about quality and completeness of data submitted to CDC

# Effective January 1, 2013

- Updated rules, surveillance criteria, and definitions for 2013
  - Previous protocols and forms are obsolete
  - All chapters of the NHSN Patient Safety Component Manual have been updated (dated January 2013)
- HAI surveillance beginning January 1 must be done according to new 2013 protocols
  - Data should be collected on new forms
  - Surveillance forms need to be held until 2/16/13 when updated data entry capability becomes available



- New Annual Survey should be completed in January 2013
  - Print new survey from NHSN “forms” page
  - Do not enter survey data until after 2/16/13



# Additions to NHSN

- New chapters and all existing protocols updated in Patient Safety Manual
- New definition of teaching hospital in instructions for completing Monthly Reporting Plan and Annual Survey (Chapter 3)
- Reformatted surveillance definitions with updated site-specific HAI criteria (Chapter 17)



# Location Mapping

- New guidance for defining (or redefining) patient care locations
  - Step 1: Determine the acuity level for the location
  - Step 2: Determine the type of service for the location
- 80/20 rule still applies EXCEPT for medical/surgical ICUs and wards
  - If more than 60% medical patients, define as a medical location instead of med/surg
  - If more than 60% surgical, define as a surgical location

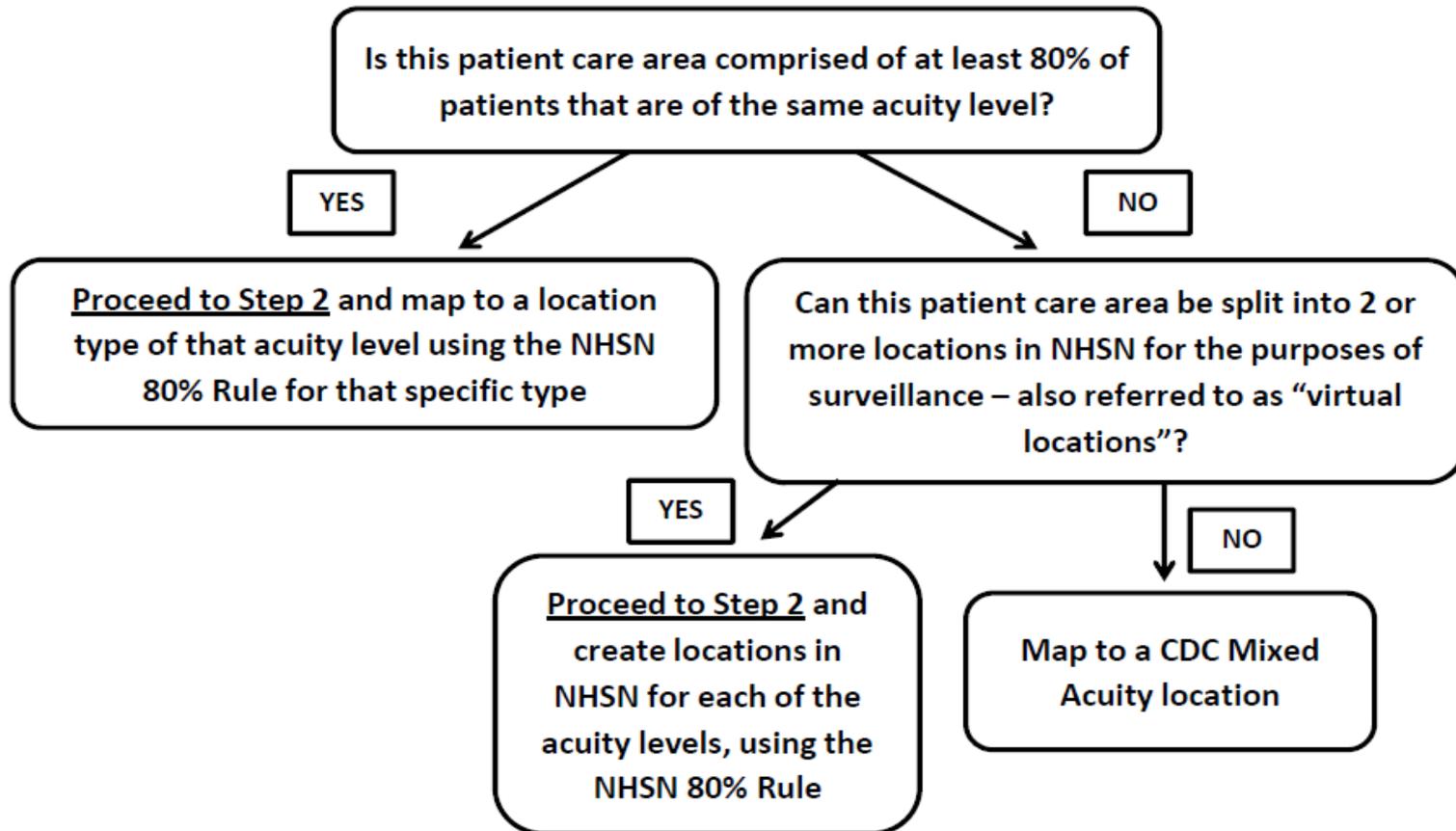


NHSN Patient Safety Manual, Chapter 15:  
Instructions for Mapping Patient Locations in NHSN



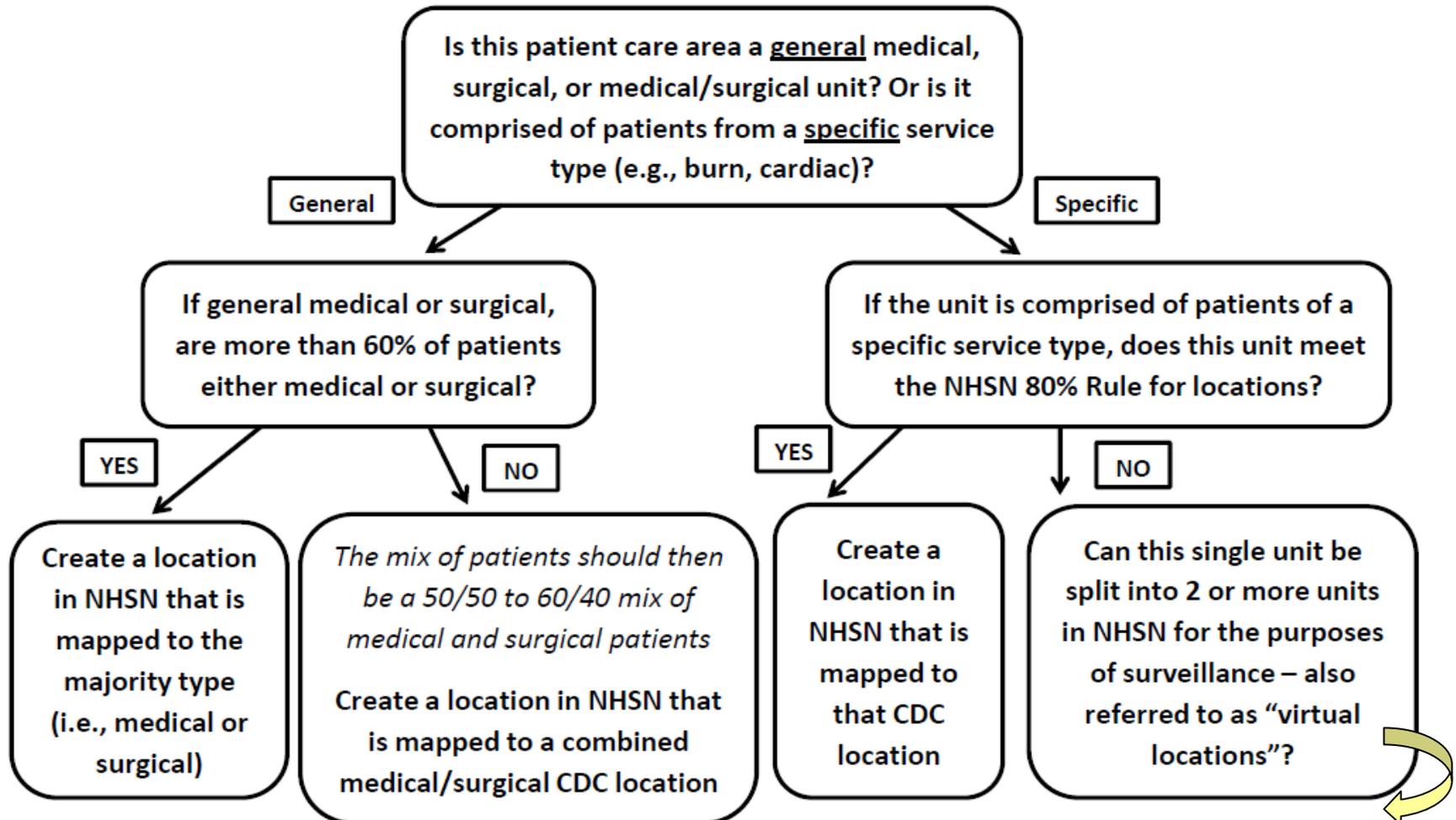
# Decision Tree

## Step 1: Acuity Level



# Decision Tree

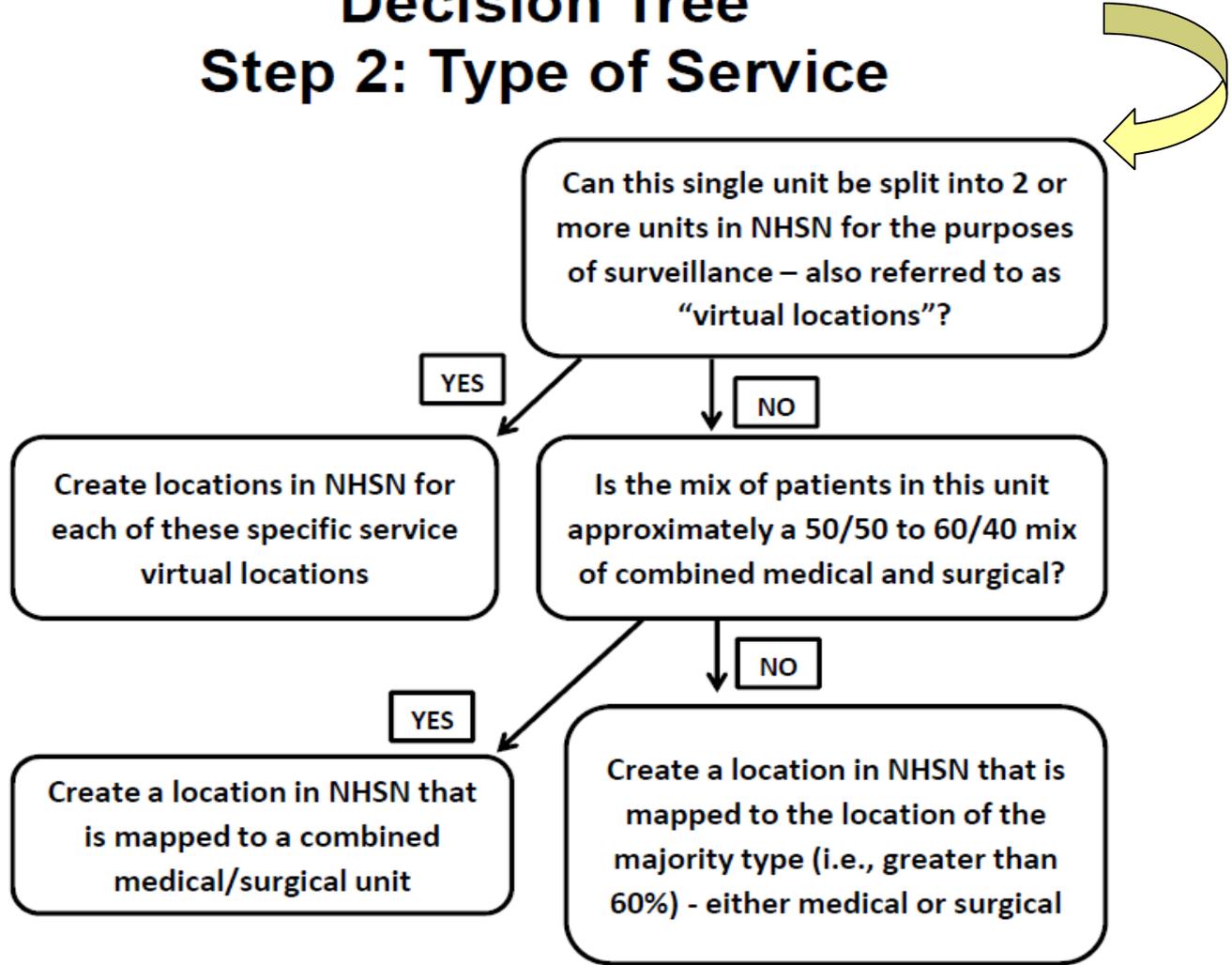
## Step 2: Type of Service



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# Decision Tree

## Step 2: Type of Service



Reassess location designations whenever there is a major change in patient types admitted to a location or new locations are added.

# Inpatient vs. Outpatient (No Change)

## NHSN Inpatient

- A patient whose date of admission to the healthcare facility and the date of discharge are different calendar days

## NHSN Outpatient

- A patient whose date of admission to the healthcare facility and the date of discharge are the same day



## Defining an HAI (New)

- Considered an HAI if **all elements** of the definition criterion are first present together **on or after the 3rd hospital day\*** (Admission=day 1)
  - Considered an HAI if an element of the infection criterion is present during the first 2 hospital days as long as it is also present on or after day 3
  - All elements used to meet the infection criterion must occur within a timeframe that does not exceed a gap of 1 calendar day between elements
  - Applied to CLABSI, SSI, CAUTI, and other site-specific infections; excludes LabID surveillance for CDI/MDROs



NHSN Patient Safety Manual, Chapter 2:  
Identifying Healthcare-associated Infections in NHSN



## Device-Associated HAI (New)

- Must meet the HAI definition
- Considered “device-associated” only if **device was in place for >2 calendar days** when all elements of the definition criterion are first present together
- An HAI occurring on the day of device discontinuation or the following day is considered device-associated if the device had been in place >2 calendar days



NHSN Patient Safety Manual, Chapter 2:  
Identifying Healthcare-associated Infections in NHSN



## Date of Event (New)

- Must meet the HAI definition
- Date of event is the date when the **last element used to meet the infection criterion** are first present together
- Synonyms: infection date, date of infection

Note: For VAE only, different rules apply for “date of onset”



NHSN Patient Safety Manual, Chapter 2:  
Identifying Healthcare-associated Infections in NHSN



## Transfer Rule (Revised)

Revised to reflect **2-day** versus 48-hour time frame

- If all elements of an HAI are present **within 2 calendar days of transfer** from one inpatient location to another in the same facility (i.e., on the day of transfer or the next day), the HAI is attributed to the transferring location
- Similarly applies to transfer from one facility to another
  - Receiving facilities should share information about such device-associated HAIs with the transferring facility to enable reporting

Remember, 2-day transfer rules are not applicable to CDI/MDRO LabID or SSI surveillance



# Investigating a Possible HAI

- Refer to the surveillance definitions and rules
- Ask yourself questions in this order
  1. Is it an HAI? If not, stop
  2. If an HAI, which site-specific criterion is met?
  3. Is this a device-associated HAI?
  4. Attributable to what location/facility/procedure?

# CLABSI Surveillance



# CLABSI Surveillance (changes)

- Date of Event is now the date that the **last element** used to meet the laboratory-confirmed BSI criterion occurred
    - previously was date of first symptom or blood culture collection whichever came first
  - Criterion elements must occur within a timeframe that does not exceed a gap of 1 calendar day
  - To meet CLABSI definition, the central line must be
    - in place for >2 days before all elements of laboratory-confirmed BSI criterion were first present together
- AND**
- in place on day of the event or the day before (insertion=day 1)



# CLABSI in NICU (Changes)

- In NICU, to be considered a CLABSI
    - must meet criterion for LCBI
    - central line or umbilical catheter must be
      - in place for >2 calendar days (insertion/placement=day 1)
- AND**
- in place on the date of event or the day before



## CLABSI Surveillance (Changes)

- Location of CLABSI attribution is the location of patient on the date of event
  - defined as the **date that the last element used to meet the BSI criterion occurred** (previously the date of first element)
- All references to 48 hours have been changed to **2 calendar days**
  - Transfer rule: If all elements of CLABSI are present within 2 calendar days of transfer from one location to another, CLABSI is attributed to the transferring location



## CLABSI Surveillance (Clarifications)

- If admitted or transferred into a facility with a central line in place (e.g., tunneled or implanted central line), **day of first access** is considered Day 1 (**Clarification**)
- CLABSIs cannot be attributed to non-bedded locations
  - e.g. Operating Room, Emergency Department
  - Must instead be attributed to next inpatient location



## Mucosal Barrier Injury BSI (New CLABSI Type)

- Resulted from need for more specific BSI definition in oncology patients
  - Misclassification of BSI resulting from translocation of intestinal organisms inflates CLABSI rates
- Pertain only to patients who are post allogeneic hematopoietic stem cell transplant or severely neutropenic (*definitions provided in protocol*)
- Please review 3 new criteria as applicable to your facility
  - Table 3: MBI-LCBI Eligible Enterobacteriaceae
  - Table 4: Examples Illustrating MBI-LCBI Criteria for Neutropenia



# CLABSI Due to Common Skin Commensals

- Two positive blood cultures still needed to meet LCBI criterion 2
- Change to timeframe for determining infection due to common commensals
- Blood cultures must be collected within 2 days
  - Day of 1st collection is now Day 1
  - Example: blood cultures collected on Monday and Tuesday would be within the required timeframe, but those collected on Monday and Wednesday are too far apart to meet criteria



# Determining CLABSI vs. Secondary BSI

- Extensive clarifications
- Provides specific scenarios to consider when determining if a BSI is primary or secondary to another site and therefore not included in CLABSI data



\*Updated Slide

# Appendix 1. Secondary Bloodstream Infection (BSI) Guide

What is the meaning of the statement “not related to infection at another site” in relation to a positive blood culture?

- **Possible Scenarios and Guidance:**

1. Blood and site-specific specimen cultures match for at least one organism:  
In a patient suspected of having an infection, blood and a site-specific specimen are collected for culture and both are positive for at least one matching organism. If the site-specific culture is an element used to meet the infection site criterion, then the BSI is considered secondary to that site-specific infection.

## EXAMPLE

## CLABSI Surveillance (Deleted)

- Hemodialysis Reliable Outflow (HeRO) catheter not considered a central line

# CDI/MDRO Surveillance



# MDRO/CDI Surveillance

- No significant changes to surveillance
- CDI assay will now be assigned based on events within the same setting only
  - CDI LabID Event type will be determined by a review of previously-entered CDI LabID Events from **inpatient locations only**
- Risk adjustment method developed
  - New analysis to calculate MRSA BSI SIR and CDI SIR



# SSI Surveillance



## SSI Surveillance (Deletions)

- Implant information no longer required for Procedure denominator data
  - NHSN Procedure Category determines whether surveillance will be for 30 or 90 days
  - Note, you must still maintain space in CSV file where "implant" field was documented
- *"Appears to be related to the operative procedure"* was deleted from SSI definitions

# SSI Surveillance Terms (Changes)

## OLD Terminology

- Endoscope
- Radiographic evidence of infection
- Other evidence of infection found on direct exam, during surgery, or by diagnostic tests

## NEW Terminology

- **Scope**
- **Imaging testing** evidence of infection
- Other evidence of infection found on direct exam, **during invasive procedure**, or by diagnostic tests

## Primary Closure (Revised)

- “Primary Closure” now includes procedures where device remains extruding through the closed incision
- Primary closure defined as closure of all tissue levels
  - regardless of the presence of wires, wicks, drains, or other devices or objects extruding through the incision
- If skin edges are not fully approximated for entire length of incision, not considered primarily closed and therefore not considered an NHSN operative procedure
  - Procedure not included in SSI surveillance
  - Subsequent infection not considered an SSI but may meet criteria of skin/soft tissue or other HAI



## SSI Surveillance Period (Revised)

- Post-operative monitoring period now determined by NHSN Procedure Category
- 14 procedure types require 90-day monitoring period

BRST	CRAN	HPRO	RFUSN
CARD	FUSN	KPRO	VSHN
CBGB	FX	PACE	
CBGC	HER	PVBY	

- All other procedures require 30-day monitoring period regardless of presence of an implant
- For all NHSN procedures, superficial SSI are monitored for 30 days only

# Organ/space SSI Following Dirty Procedure (Clarification)

- If patient
  - Has operation on day 1 or 2 of hospitalization and
  - infection is found during operation (wound class "dirty) and
  - the surgical incision was closed primarilysubsequent continuation of that infection type during the SSI surveillance period is considered a organ/space SSI if criteria are met
- Rationale: Risk of a continuing infection is considered to be minimal when a surgeon elects to close a wound primarily

## Example

- On 8/1, patient presents to ED with acute abdomen and is admitted to the OR on the same day for colon resection (COLO). Peritoneal abscess noted at time of surgery. Incision is closed primarily with a JP drain in an adjacent stab wound.
- Even on antibiotics, patient continues to have low-grade fevers, abdominal pain, and purulent drainage via JP drain. Patient returned to OR on 8/6 for exploration and new abscesses were found.
- This is reported as an SSI-IAB.

# Surgical Procedure Data Fields (clarifications)

- In wound classification definitions, “genital tract” includes female and male reproductive tracts
  - Procedures that involve entry into the genital tract are never considered “clean”
  - Usually clean-contaminated (unless noted as contaminated/dirty during operation)
- HYST and VHYS descriptions updated
  - Abdominal vs. vaginal hysterectomy distinguished by the route of uterine removal, not the surgical approach
- CPT codes list updated for capture of procedure types
  - To be used ONLY for outpatient surgery

# Reporting Instruction: Labor



- Length of time from beginning of active labor as an inpatient to delivery of the infant, expressed in hours (if  $\leq 30$  min, round down;  $>30$  min, round up; if none, enter 0)
- Check for documentation in chart
- May be defined by your hospital's policies and procedures but should reflect the onset of regular contractions or induction that leads to delivery during this admission

*\*Updated  
Slide*

## SSI – Event Details

### Detected: Required.

Check the box to indicate when/how the SSI was identified.

- A** SSI was identified before the patient was discharged from the facility following the operation
- P** SSI was identified only as part of post-discharge surveillance, including ED visit without readmission. If readmitted, use RF or RO as appropriate.
- RF** SSI was identified due to patient readmission to the facility where the operation was performed.
- RO** SSI was identified due to patient admission to a facility other than where the operation was performed.

*Detected:	<input type="checkbox"/> A (During admission)	<input type="checkbox"/> P (Post-discharge surveillance)	<input type="checkbox"/> RF (Readmission to facility where procedure performed)
	<input type="checkbox"/> RO (Readmission to facility other than where procedure was performed)		
*Secondary Bloodstream Infection: Yes	No	**Died: Yes	No
		SSI Contributed to Death: Yes	No
Discharge Date:	*Pathogens Identified: Yes No *If Yes, specify on pages 2-3.		

## Deep Incisional SSI Definition (Clarification)

Infection occurs within 30 or 90 days after the NHSN operative procedure according to the list in table 3 (NHSN chapter 9)

and

involves deep soft tissues of the incision (e.g., fascial and muscle layers)

and

Patient has at least one of the following:

- a. Purulent drainage from the deep incision
- b. A deep incision that spontaneously dehisces or is deliberately opened by a surgeon and is culture-positive or not cultured

and

patient has at least one of the following signs or symptoms: fever ( $>38^{\circ}$  C): localized pain or tenderness. A culture-negative finding does not meet this criterion.

- c. an abscess or other evidence of infection involving the deep incision is found on direct examination, during an invasive procedure, or by histopathologic examination or imaging test.
- d. Diagnosis of a deep incisional SSI by a surgeon or attending physician.

Rearranged: sentence split,  
definition unchanged

# SSI Following Multiple Procedures

If >1 operative procedure is done through a single incision and SSI occurs

- First attempt to determine the procedure thought to be associated with the infection
- If it is not clear, use the NHSN Principal Operative Selection List



# Table 5. NHSN Principal Operative Procedure Category Selection Lists

Priority	Code	Abdominal Op
1	LTP	Liver transplant
2	COLO	Colon surgery
3	BILI	Bile duct, liver or pancreatic surgery
4	SB	Small bowel surgery
5	REC	Rectal surgery
6	KTP	Kidney transplant
7	GAST	Gastric surgery
8	AAA	Abdominal aortic aneurysm repair
9	HYST	Abdominal hysterectomy
10	CSEC	Cesarean section
11	XLAP	Laparotomy
12	APPY	Appendix surgery
13	HER	Hemiorrhaphy
14	NEPH	Kidney surgery
15	VHYS	Vaginal Hysterectomy
16	SPLE	Spleen surgery
17	CHOL	Gall bladder surgery
18	OVRY	Ovarian surgery

Procedure categories are ordered based on SSI risk

Priority 1, LTP, at highest risk for SSI

**Change:** COLO is now higher risk than SB

# Highlights of NHSN Changes for Infections NOT Required by CA Reporting Mandates



# CAUTI Surveillance

## Notes:

- California has no mandate for reporting CAUTI
- CMS requires surveillance and reporting of CAUTI from ICU locations
- Reducing CAUTI incidence (and sustaining prevention) has been shown to result in overall reductions of MDRO infections



# CAUTI Surveillance

- Indwelling urinary catheter must be
  - **in place for > 2 days before all elements of the UTI criterion were first present together** (insertion=day 1)
- AND
- **In place on the day of the event or the day before**
- **Criterion elements** must occur within a timeframe that **does not exceed a gap of 1 calendar day**
  - Examples:
    - Fever on 1st day and positive urine culture on 3rd day meets the timeframe (one calendar day between elements)
    - Fever on 1st day and positive urine culture on 4<sup>th</sup> does not meet criteria (2 calendar days between elements)

## CAUTI Location Attribution

- Location of attribution is the location of patient on the date of event, which is now defined as the **date that the last element used to meet the UTI criterion occurred** (previously the date of first element)
- If **all elements of UTI are present within 2 calendar days of transfer** from one location to another, the UTI is attributed to the transferring location
- Exception to Transfer Rule: Added guidance that **UTIs cannot be attributed to non-bedded locations**, e.g. Operating Room, Emergency Department, so must instead be attributed to next inpatient location

# CAUTI Surveillance Resources

- For ABUTI, link is provided to a complete list of uropathogens (Table 1)
- All flow diagrams updated to reflect current UTI definitions.

NHSN Patient Safety Manual Chapter 7: CAUTI Protocol  
Chapter 3: Monthly Reporting Plan  
Chapter 16: Key Terms



# VAP/VAE Surveillance

Note:

Although California has no mandate for reporting VAP/VAE, hospitals are required to have VAP/VAE CDC prevention strategies in place

SB 739, Chapter 526, Sec. 1288.9b



## NHSN Moving from VAP to VAE

- In 2013, in-plan surveillance conducted for mechanically-ventilated patients  $\geq 18$  years will use the **Ventilator-Associated Event (VAE)** criteria and monitor under that protocol.
- In 2013, in-plan surveillance for **ventilator-associated pneumonia (VAP)** using the PNEU criteria will be **restricted to patients <18 years old only**



# VAE Surveillance

- Patient must be mechanically ventilated  $>2$  calendar days
- Patient must have  $\geq 2$  calendar days of stability or improvement of oxygenation followed by  $\geq 2$  calendar days of worsening oxygenation
- Earliest date of VAE event is ventilation day 3 (first day of worsening oxygenation).
- First possible day that IVAC criteria can be fulfilled is mechanical ventilation day 4

# VAE Calculator

VAE Calculator

## Ventilator Associated Event Calculator

Beta Ver. 0.48 Sept. 25, 2012

A Ventilator Associated Condition (VAC) was found on day 09/15/2012. Click on the Go To IVAC button to move to the next part of the protocol or click on the "Explain" button to see how this determination was made.

MV Day	Date	Min. PEEP (cmH <sub>2</sub> O)	Min. FiO <sub>2</sub> (30 - 100)	VAE
7	09/12/2012	5	45	
8	09/13/2012	5	45	
9	09/14/2012	5	45	
10	09/15/2012	8	55	VAC
11	09/16/2012	8	55	
12	09/17/2012	8	45	
13	09/18/2012	6	50	
14	09/19/2012	5	50	
15	09/20/2012	5	50	
16	09/21/2012	5	40	

Legend: VAE Window VAE Date Qualifying Antimicrobial Day (QAD) Cumulative QAD

# VAE Surveillance

- Event Date defines the VAE window period
  - 2 days before, day of & 2 days after Event Date - 5 days
  - May be shorter if worsening occurs early in the course of ventilation
- All other criteria for IVAC (Possible VAP/ Probable VAP) must be identified within the VAE window period.
- The “VAE Clock” starts over again when
  - patient begins a new episode of mechanical ventilation
  - new event period starts (i.e., 14 days have elapsed since previous VAE Event Date)
  - patient comes off of an excluded therapy (such as HFV or ECMO) and goes back on conventional mode of ventilation



# VAP/VAE Location of Attribution

- The location of patient on the date of event, which is now defined as the **date that the last element used to meet the VAP criterion occurred** (previously the date of first element)



## Transfer Rule VAP/VAE

- Changed to state that if all elements of VAP are **present within 2 calendar days of transfer** from one location to another, the VAP is attributed to the transferring **location**. Examples are provided
- Exception to Transfer Rule:
  - Added guidance that VAPs **cannot be attributed to non-bedded locations**, e.g. Operating Room, Emergency Department, so must instead be attributed to next inpatient location



## Who is Eligible for VAE Surveillance?

- $\geq 18$  years of age
- Inpatients of acute care hospitals, long term acute care (LTAC) hospitals, inpatient rehab facilities

## Who is NOT Eligible for VAE Surveillance?

- Children are not eligible
- Inpatients of facilities other than acute care hospitals, LTAC hospitals, and inpatient rehab facilities
- Patients on high frequency ventilation or extracorporeal life support

# Preparing for VAE Surveillance

- Read the surveillance protocol  
[http://www.cdc.gov/nhsn/psc\\_da-vae.html](http://www.cdc.gov/nhsn/psc_da-vae.html)
- Identify surveillance partners in the ICU or other units in which VAE surveillance may take place
  - Respiratory Therapy
  - Critical Care
- If hospital lab reports Gram stain or culture results in a semi-quantitative way, find out from the lab what quantitative ranges correspond to the semi-quantitative scale (for Possible/Probable VAP)
- Develop a plan for organizing the data elements needed to identify VAEs

# Summary

- Many updates to NHSN for 2013
- We were not able to include all updates in this presentation
- You need to
  - Read the Patient Safety Component Manual (all new chapters dated January 2013)
  - Read the NHSN Newsletters from Dec 2012 and Jan 2013
  - Review materials from the NHSN Training Course, October 2-4, 2012
  - **Incorporate changes and new rules/definitions into your ongoing HAI surveillance and reporting**



# Questions?

Contact your designated CDPH HAI Program Liaison IP  
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Or email [nhsn@cdc.gov](mailto:nhsn@cdc.gov)

For data-related questions, you may also email  
HAI\_Data@cdph.ca.gov

