

Welcome to *California*



# 2015 Surgical Site Infection Validation

Webinar  
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# Objectives

1. Review the CDPH three year validation plan
2. Briefly discuss historical validation results
3. Review SSI denominator data effecting Standardized Infection Ratio (SIR) risk adjustment
4. Describe 2015 SSI validation process

# Validation of California Hospital HAI Data

Three-year validation plan, approved/endorsed by the CDPH HAI Advisory Committee

- Year 1 – 2013: Ensure hospitals performing core surveillance practices
- Year 2 – 2014: Help hospitals assess and improve case-finding
- Year 3 – 2015: Help hospitals evaluate and improve SSI surveillance, including some denominator data elements

## 2013 Validation By Attestation

- Each hospital was asked to attest to 6 surveillance / review best practices
  1. All positive blood cultures are reviewed for CLABSI
  2. All inpatient locations are correctly mapped in NHSN
  3. All positive *C. difficile* and MRSA/VRE blood cultures are reported correctly, including same day admissions
  4. Multiple surveillance methods are used for SSI case finding, recognizing lab-based surveillance can miss up to 50% SSI
  5. All 29 reportable surgeries performed by hospital are reported
  6. CDPH-provided QA/QC reports are reviewed for accuracy
- 297 hospitals participated; indicated in public report

## 2014 Validation of Case-finding

- Assessed completeness of identifying and reporting CLABSI, MRSA BSI, VRE BSI, CDI, SSI (Colon)
  - Larger volume hospitals received site visit by HAI Program Liaison IP
  - Smaller volume hospitals performed a self-directed process and submitted findings via online tool
- HAI Liaison IPs repeating process to re-assess hospitals with low case-finding sensitivity for CLABSI and LabID
- Process revealed identification of SSI can be improved by use of administrative/ICD codes applied in the post-operative period
- 345 hospitals participated

## 2015 SSI Validation

- Assess completeness of identifying and reporting SSI (Colon, hysterectomy, hip prosthesis, C-section)
- Assess accuracy of reported data used for SSI risk adjustment (wound class, procedure duration, diabetes, BMI)
- All hospitals are expected to participate
  - Perform a self-directed review process
  - Submit findings via online tool by December 4, 2015
  - Correct SSI data for all of 2015 based on validation findings by January 31, 2016
- Participation/non-participation will be indicated in annual public report

# Results of SSI Validation, 2014

## 234 Larger Volume Hospitals

$$\frac{204 \text{ Colon SSI Reported}}{295 \text{ Total Colon SSI}} = 69\%$$

## 111 Smaller Volume Hospitals

$$\frac{39 \text{ Colon SSI Reported}}{48 \text{ Total Colon SSI}} = 81\%$$

# Common Reasons for Missed SSI, 2014

- Hospital did not know why SSI missed
- Surveillance relied on microbiology results and no positive culture available
- Surveillance review did not include evaluation of progress notes for documented signs and symptoms of infection
- Surveillance did not include use of post-op ICD-9 diagnosis “flag” codes to identify possible SSI for further review
  - Common ICD post-op “flag” codes among missed colon SSI
    - **567.22** Peritoneal abscess – 29% of missed SSI
    - **998.59** Other postoperative infection - 38% of missed SSI

# Results of SSI Validation Pilot, 47 Hospitals, 2013

Results	Colon	Abdominal Hysterectomy
Case finding sensitivity using traditional methods	50%	68%
Case finding sensitivity using <u>Flag Codes</u> for Identifying <u>Deep Incisional &amp; Organ Space</u> SSI	88%	78%
Positive Predictive Value of Finding an SSI if a Record is "Flagged"	<b>38%</b>	<b>50%</b>

**1 COLO SSI case found for every 2-3 records reviewed**

**1 HYST SSI case found for every 2 records reviewed**

## SSI Validation Pilot, 47 Hospitals, 2013 - continued

- Also revealed errors in denominator data reported to NHSN
  - Wound classification (COLO) – 68% accurate
  - Duration of procedure (COLO & HYST) – 85% accurate
- Denominator data affect risk adjustment
- Errors in reporting denominator data can cause the hospital's SSI SIR to look higher than it actually is

# Review: SSI Standardized Infection Ratio (SIR)

- SSI SIR is a summary measure
  - Replaced stratified rate comparisons for SSI
- Adjusts for differences in infection risk by
  - Type of procedure
  - Associated risk factors of each patient undergoing a procedure in your hospital
- SIR compares the number of SSI reported by your hospital with the “predicted” number of SSI derived from NHSN referent data (2006-2008)

# Review: Interpreting SSI SIR

- Value of **1.0** = number of SSI observed in your hospital is the same as the predicted number of SSI for your hospital as derived from NHSN national referent data
  - Less than 1.0 = fewer SSI than predicted
  - Greater than 1.0 = more SSI than predicted

$$\text{SSI SIR} = \frac{\text{Observed SSI}}{\text{Predicted SSI}}$$

Example:

If your hospital has identified 4 SSI per 100 Hip prosthesis procedures and national data predicted 2.5 SSI:

$$\text{SIR} = \frac{4}{2.5} = 1.6$$

# Review: Risk Adjustment for the SSI SIR

- Risk models were developed for each NHSN operative procedure
  - Adjust for the specific factors found to increase SSI risk for that procedure

# NHSN Risk Factors for Complex A/R SSI



NHSN Operative Procedure <sup>‡</sup>	Risk Factor(s) – Complex A/R SSIs <sup>^</sup>	15
AAA	duration, wound class	
APPY	emergency, gender, hospital bed size*, wound class	
AVSD	age	
BILI	asa, duration, hospital bed size*	
BRST	asa, duration, hospital bed size*	
CBGB/C	age, asa, duration, gender, medical school affiliation*, age-gender (interaction)	
CARD	age, duration, emergency	
CHOL	age, asa, duration, hospital bed size*	
COLO	age, asa, duration, endoscope, medical school affiliation*, hospital bed size*, wound class	
CRAN	age, duration, hospital bed size*	
CSEC	age, anesthesia, asa, BMI, duration, labor, hospital bed size*, wound class	
FUSN	approach, asa, diabetes, duration, medical school affiliation*, spinal level	
FX	age, duration, hospital bed size*	
GAST	age, duration	
HER	age, asa, duration, gender, hospital bed size*	
HPRO	age, anesthesia, asa, duration, total/partial/revision, medical school affiliation*, hospital bed size*, trauma	
HYST	age, asa, duration, hospital bed size*	
KPRO	age, asa, duration, gender, revision, medical school affiliation*, hospital bed size*, trauma	
KTP	asa, duration	
LAM	asa, duration, medical school affiliation*, hospital bed size*	
LTP	age, duration	
NECK	duration	
PVBY	age, asa, duration, medical school affiliation*	
REC	duration, gender, hospital bed size*	
RFUSN	duration	
SB	duration, hospital bed size*	
THOR	duration	
VHYS	age, duration, medical school affiliation*	
VSHN	age, medical school affiliation*, hospital bed size*, wound class	
XLAP	duration	

\*These risk factors originate from the Patient Safety Annual Facility Survey.

<sup>^</sup>Includes only inpatient procedures and deep incisional and organ/space SSIs identified during admission or readmission to the facility, as defined in the NHSN Manual.

# Complex A/R Risk Adjustment for Select Surgical Procedures

NHSN Operative Procedure	Risk Factors
COLO	Age, anesthesia, asa, <b>duration</b> , endoscope, medical school affiliation*, hospital bed size*, <b>wound class</b>
HYST	Age, anesthesia, asa, <b>duration</b> , endoscope, hospital bed size
CSEC	Age, anesthesia, asa, <b>BMI</b> , duration, emergency, labor, wound class
HPRO	Age, anesthesia, asa, <b>duration</b> , total/partial/revision, hospital bed size*, trauma

\* Obtained from Annual Survey

## Review: Risk Adjustment for the SSI SIR - continued

- Every patient undergoing a procedure in your hospital has a calculated SSI risk
- The expected (predicted) number of SSI is the sum of your hospital's patient risk probabilities

## Example – Patient-level COLO SSI Risk

Patient #	Patient ID	Procedure ID	Date of Birth	Procedure Date	Duration of Procedure - hr	Duration of Procedure - min	Wound Class	Risk using Complex AR Model
1	TEST1319	14725591	7/23/1943	1/1/2014	2	10	CC	<b>0.0214</b>
2	TEST1320	14725592	8/3/1924	1/7/2014	2	20	CC	<b>0.0191</b>
3	TEST1339	14725611	2/4/1944	1/11/2014	2	40	CO	<b>0.0390</b>
4	TEST1322	14725594	8/23/1945	1/17/2014	4	30	D	<b>0.0408</b>
5	TEST1323	14725595	9/1/1955	1/23/2014	6	40	D	<b>0.0698</b>
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
100	TEST2918	14743673	3/19/1968	12/21/2014	1	40	CC	<b>0.027</b>
<b>TOTAL (PREDICTED)</b>								<b>2.7094</b>

SSI risk probability is calculated for each surgical patient based on denominator data entered

All patient risk probabilities are added up to calculate the predicted # of SSI

IF hospital observed 3 SSI out of these 100 COLO procedures:

$$\text{SIR} = \frac{\text{Hospital Observed SSI}}{\text{Predicted SSI}}$$

$$\text{SIR} = \frac{3}{2.71}$$

$$\text{SIR} = 1.10$$



## Surgical Site Infection Data Validation

Overview, Instructions,  
and Validation Forms

September 2015

California Department of Public Health  
Healthcare-Associated Infections Program



## 2015 SSI Validation Workbook

Contains:

- Instructions to prepare for validation and perform validation
- 4 procedure-specific validation forms
- Optional denominator data validation form
- "Review of Findings" section to record and calculate validation results

# 2015 SSI Validation Process

- Requires review of a maximum of 40 patient records from the first two quarters of 2015 (likely fewer)
- Four procedure types will be validated
  - Colon surgery
  - Abdominal hysterectomy
  - Cesarean section
  - Hip prosthesis
- Post-operative ICD diagnosis “flag” codes will be used to identify records for review

# ICD-9 Diagnosis Flag Code Descriptions

ICD-9 Code	ICD-9 Description
<b>567.21</b>	Peritonitis (acute) generalized
<b>567.22</b>	Peritoneal abscess
<b>567.29</b>	Other suppurative peritonitis
<b>567.38</b>	Other retroperitoneal abscess
<b>569.5</b>	Abscess of intestine
<b>569.61</b>	Infection of colostomy or enterostomy
<b>569.81</b>	Fistula of intestine, excluding rectum and anus
<b>682.2</b>	Cellulitis and abscess of trunk
<b>998.31</b>	Disruption of internal operation (surgical) wound
<b>998.32</b>	Disruption of external operation (surgical) wound
<b>998.51</b>	Infected postoperative seroma
<b>998.59</b>	Other postoperative infection
<b>998.6</b>	Persistent postoperative fistula
<b>996.6</b>	Infection and inflammatory reaction due to unspecified device, implant, and graft
<b>996.66</b>	Infection and inflammatory reaction due to internal joint prosthesis
<b>996.67</b>	Infection and inflammatory reaction due to other internal orthopedic device, implant, and graft
<b>996.69</b>	Infection and inflammatory reaction due to other internal prosthetic device, implant, and graft

# ICD-10 Diagnosis Flag Code Descriptions

ICD-10 Code	ICD-10 Description
<b>K63.0</b>	Abscess of intestine
<b>K63.2</b>	Fistula of intestine
<b>K65.0</b>	Generalized (acute) peritonitis
<b>K65.1</b>	Peritoneal abscess
<b>K68.19</b>	Other retroperitoneal abscess
<b>K94.02</b>	Colostomy infection
<b>K94.12</b>	Enterostomy infection
<b>L03.319</b>	Cellulitis of trunk, unspecified
<b>T81.31XA</b>	Disruption of external operation (surgical) wound, not elsewhere classified, initial encounter
<b>T81.32XA</b>	Disruption of internal operation (surgical) wound, not elsewhere classified, initial encounter
<b>T81.4XXA</b>	Infection following a procedure, initial encounter
<b>T81.83XA</b>	Persistent post-procedural fistula, initial encounter
<b>T84.50XA</b>	Infection and inflammatory reaction due to unspecified internal joint prosthesis, initial encounter
<b>T84.60XA</b>	Infection and inflammatory reaction due to internal fixation device of unspecified site, initial encounter
<b>T84.7XXA</b>	Infection and inflammatory reaction due to other internal orthopedic prosthetic devices, implants and grafts, initial encounter
<b>T85.79XA</b>	Infection and inflammatory reaction due to other internal prosthetic devices, implants and grafts, initial encounter

## 2015 SSI Validation Process - continued

- All flagged records will be reviewed for SSI criteria
- Procedure-specific denominator data elements will be also be reviewed

Surgical Procedure	Denominator data element(s) to review
Colon Surgery	Surgical duration, wound class
Abdominal hysterectomy	BMI
Cesarean section	BMI, diabetes
Hip prosthesis	Surgical duration, diabetes

# Submitting SSI Validation Results to CDPH

- Data from the Review of Findings section will be submitted to CDPH HAI program via an online form
- Hospital participation/non-participation in 2015 SSI validation will be noted in the annual public report

# Timeline – 2015 SSI Validation

<b>Date</b>	<b>Event</b>
<b>September 30</b>	Validation begins; Ongoing support from HAI Program
<b>October 26</b>	Online form available to submit validation results
<b>December 4</b>	Deadline to submit results and attest to participation
<b>December–January</b>	Hospitals expected to correct SSI data for all of 2015 based on validation findings
<b>January 2016</b>	CDPH review of validation results and follow up as necessary
<b>Fall 2016</b>	Annual Hospital HAI Report published by CDPH

# Preparing for Validation – Step 1

- Identify all patients who had the following four inpatient procedures for the first two quarters 2015 (Jan 1-June 30)
- Perform a look back using hospital billing data to ensure every procedure with an NHSN-defined surgical procedure code has been identified and reported to NHSN

**NHSN defined ICD-9 Procedure Codes**

Colon Surgery	Abdominal Hysterectomy	Cesarean Section	Hip Prosthesis
17.31, 17.32, 17.33, 17.34, 17.35, 17.36, 17.39, 45.03, 45.26, 45.41, 45.49, 45.52, 45.71, 45.72, 45.73, 45.74, 45.75, 45.76, 45.79, 45.81, 45.82, 45.83, 45.92, 45.93, 45.94, 45.95, 46.03, 46.04, 46.10, 46.11, 46.13, 46.14, 46.43, 46.52, 46.75, 46.76, 46.94	68.31, 68.39, 68.41, 68.49, 68.61, 68.69	74.0, 74.1, 74.2, 74.4, 74.91, 74.99	00.70, 00.71, 00.72, 00.73, 00.85, 00.86, 00.87, 81.51, 81.52, 81.53



**Important: Identify and report to NHSN any missed procedures that you discovered from your billing list before going to the next step**

## Preparing for Validation – Step 2

- For each surgical patient identified in Step 1 (i.e. had one of the four targeted procedures in Q1-Q2), use hospital billing data to identify the subset of patients who, in the post-operative period, had one or more ICD diagnosis “flag” codes
  - These “flag” codes identify patients that MIGHT have an SSI and identify the charts you will review for SSI validation

**ICD-9 Diagnosis “Flag” Codes by Surgery Type**

<b>Colon Surgery</b>	<b>Abdominal Hysterectomy</b>	<b>Cesarean Section</b>	<b>Hip Prosthesis</b>
567.21, 567.22, 567.29, 567.38, 569.5, 569.61, 569.81, 682.2, 998.31, 998.32, 998.51, 998.59, 998.6	567.21, 567.22, 567.29, 682.2, 998.31, 998.32, 998.51, 998.59	567.21, 567.22, 567.29, 682.2, 998.31, 998.32, 998.51, 998.59	996.60, 996.66, 996.67, 996.69, 998.51, 998.59

## Preparing for Validation – Step 2 - continued

- Your billing department or medical records office will need to query billing data to look for these “flag” codes during the index surgical admission and any admission up to:
  - **40 days** after surgery for colon, abdominal hysterectomy, and cesarean section.
    - Includes a review up to 8.09.15 if a surgery was performed on the final day of the second quarter, i.e., 6.30.15
  - **100 days** after surgery for hip prosthesis
    - Includes a review up to 10.08.15 if a surgery was performed on the final day of the second quarter, i.e., 6.30.15

## Preparing for Validation – Step 3

- Produce four separate lists of ICD “flagged” procedures, one for each procedure type (COLO, HYST, CSEC, HPRO)
- Include the following information sorted by patient name or medical record number
  - Patient name and/or medical record number
  - The ICD code(s) flagging the record
  - Original procedure date
  - Discharge date of the original procedure
  - Date of readmission, if applicable

## Preparing for Validation – Step 4

- Use NHSN to generate four separate SSI Event line list reports (one for each procedure type) for the first two quarters of 2015 (Jan 1-June 30)

# Performing Validation – Step 1

- Refer to the “flagged” COLO procedure list
  - If the number of flagged procedures is **>0 and ≤10**, number all flagged procedures 1 through 10 (or fewer)
  - If the number of flagged procedure is **>10**, divide the total by 10 and select every  $n^{\text{th}}$  chart for review; number 1 through 10
- Repeat process for each of the other 3 flagged procedure lists – HYST, CSEC, HPRO
- If the total number of records flagged for review (across all 4 procedures types) is <20, or as desired, complete the optional Denominator Data Supplemental Validation form

## Performing Validation – Step 2

- Record the following data

	Total number of procedures in first two quarters of 2015	Number of procedures identified through ICD “flag” codes	Number of procedures reviewed during validation
<b>COLO</b>			
<b>HYST</b>			
<b>CSEC</b>			
<b>HPRO</b>			

- You will be reporting these summary data in the “Review of Findings” section at the end of the workbook

## Performing Validation – Step 3

- Record each flagged patient record (numbered 1-10 in STEP 2) on the corresponding SSI validation form, filling in applicable information
  - Date of surgery
  - Discharge date
  - ICD diagnosis code that “flagged” the record
  - Re-admission date (if applicable)

**Colon SSI Validation - Form 1**

*When review is complete, please make all necessary corrections to your data in NHSN*

ICD Flag List No.	Date of Surgery (MM/DD)	Discharge date of index surgery (MM/DD)	Indicate which post-op ICD code(s) "flagged" this patient record	re-admitted within NHSN specified number of days of index surgery	Was NHSN SSI criteria met?		Was SSI reported to NHSN?	SSI was <b>Reported Correctly</b>  (SSI met criteria & reported to NHSN)	If NO SSI reported, complete this section:		Surgical Duration			Wound Class		
					Yes  Indicate: Superficial, Deep, Organ/Space	Yes  Indicate: NHSN Event#			Event <b>did not meet NHSN criteria</b> :  (SSI met criteria & should have been reported)	SSI was <b>MISSED</b>  (SSI met criteria & should have been reported)	Duration as reported to NHSN	Duration from validation medical record review	Durations <b>agree</b> (Discrepancy < 10 min.)	Wound class as reported to NHSN	Wound class from validation medical record review	Wound classes <b>agree</b>
COLO 1				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 2				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 3				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 4				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 5				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 6				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 7				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 8				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 9				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 10				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
<b>COLO Total:</b>								A:	B:	C:		D:		E:		

## Performing Validation – Step 4

- Review each patient medical record to verify your decision to report or not report an SSI to NHSN
- Answer the following questions on the validation review forms 1-4
  - Were NHSN SSI criteria met?
    - If yes, indicate superficial, deep, or organ space
  - Was SSI reported to NHSN?
    - If yes, indicate NHSN Event #
  - Was an SSI reported correctly? (i.e. met NHSN SSI criteria and was reported as an SSI prior to validation)

## Performing Validation – Step 4 (continued)

- For those records where NO SSI was reported to NHSN, indicate whether
    - Event did not meet NHSN criteria
- OR**
- SSI was MISSED (i.e. Did meet SSI criteria but was not reported in NHSN)

## Performing Validation – Step 4 (continued)

- After completing the SSI review, validate select denominator data elements
- For each record you are validating, refer to your reported NHSN procedure record and the patient's medical record
- For each data element, indicate if data had been reported accurately (as defined for validation purposes below)

<b>Data Element:</b>	<b>Accurate if:</b>
Duration	<10 minutes discrepancy
Wound class	Wound classes agree
BMI	<1.0 BMI unit discrepancy
Diabetes	Diabetes agree

**Colon SSI Validation - Form 1**

*When review is complete, please make all necessary corrections to your data in NHSN*

ICD Flag List No.	Date of Surgery (MM/DD)	Discharge date of index surgery (MM/DD)	Indicate which post-op ICD code(s) "flagged" this patient record	re-admitted within NHSN specified number of days of index surgery	Was NHSN SSI criteria met?		Was SSI reported to NHSN?	SSI was <b>Reported Correctly</b>  (SSI met criteria & reported to NHSN)	If NO SSI reported, complete this section:		Surgical Duration			Wound Class			
					Yes Indicate: Superficial, Deep, Organ/Space	Yes Indicate: NHSN Event #			Event <b>did not meet NHSN criteria:</b>	SSI was <b>MISSED</b>  (SSI met criteria & should have been reported)	Duration as reported to NHSN	Duration from validation medical record review	Durations <b>agree</b> (Discrepancy < 10 min.)	Wound class as reported to NHSN	Wound class from validation medical record review	Wound classes <b>agree</b>	
COLO 1	1-6	2-10	569.5	<input type="checkbox"/>	<input checked="" type="checkbox"/> Organ Sp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> No Micro	6'40"	6'40"	<input checked="" type="checkbox"/>	CC	D	<input type="checkbox"/>		
COLO 2	2-1	2-7	569.81	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1'40"	1'40"	<input checked="" type="checkbox"/>	CC	CO	<input type="checkbox"/>		
COLO 3	2-28	3-6	569.5	<input type="checkbox"/>	<input checked="" type="checkbox"/> Deep	<input checked="" type="checkbox"/> 123456	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2'20"	2'45"	<input type="checkbox"/>	CO	CO	<input checked="" type="checkbox"/>		
COLO 4	4-1	4-15	567.29	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Organ Sp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> No Lab	1'40"	1'40"	<input checked="" type="checkbox"/>	D	D	<input checked="" type="checkbox"/>		
COLO 5	4-5	4-15	569.5	<input type="checkbox"/>	<input checked="" type="checkbox"/> Organ Sp	<input checked="" type="checkbox"/> 23457	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1'45"	2'45"	<input type="checkbox"/>	CC	CO	<input type="checkbox"/>		
COLO 6				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
COLO 7				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
COLO 8				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
COLO 9				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
COLO 10				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
<b>COLO Total:</b>								A: 2	B: 1	C: 2				D: 3	E: 2		

**Abdominal Hysterectomy SSI Validation - Form 2**

When review is complete, please make all necessary corrections to your data in NHSN

ICD Flag List No.	Date of Surgery (MM/DD)	Discharge date of index surgery (MM/DD)	Indicate which post-op ICD code(s) "flagged" this patient record	re-admitted within NHSN specified number of days of index surgery	Was NHSN SSI criteria met?  Yes Indicate: Superficial, Deep, Organ/Space	Was SSI reported to NHSN?  Yes Indicate: NHSN Event #	SSI was <b>Reported Correctly</b>  (SSI met criteria & reported to NHSN)	If NO SSI reported, complete this section:		BMI		
								Event <b>did not meet NHSN criteria</b> :  ✓	SSI was <b>MISSED</b>  (SSI met criteria & should have been reported)  ✓ Reason?	BMI as reported to NHSN (to the nearest tenth XX.X)	BMI from validation medical record review (to the nearest tenth XX.X)	BMI agree (Discrepancy < 1.0 unit)
HYST 1	1-1	1-7	998.51	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> organ sp	<input checked="" type="checkbox"/> 234564	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32.1	32.1	<input checked="" type="checkbox"/>
HYST 2	2-4	3-10	567.22	<input type="checkbox"/>	<input checked="" type="checkbox"/> organ sp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> No micro	26.4	16.4	<input type="checkbox"/>
HYST 3	2-8	3-5	998.32	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	34.1	34.1	<input checked="" type="checkbox"/>
HYST 4	3-1	3-6	682.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> organ sp	<input checked="" type="checkbox"/> 235712	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24.1	42.1	<input type="checkbox"/>
HYST 5	4-6	4-30	567.22	<input type="checkbox"/>	<input checked="" type="checkbox"/> Organ Sp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> unknown	35.4	35.4	<input checked="" type="checkbox"/>
HYST 6				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>
HYST 7				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>
HYST 8				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>
HYST 9				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>
HYST 10				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>
<b>HYST Total:</b>							A: 2	B: 1	C: 2	D: 3		

**Cesarean Section SSI Validation - Form 3**

*When review is complete, please make all necessary corrections to your data in NHSN*

ICD Flag List No.	Date of Surgery (MM/DD)	Discharge date of index surgery (MM/DD)	Indicate which post-op ICD code(s) "flagged" this patient record	re-admitted within NHSN specified number of days of index surgery	Was NHSN SSI criteria met?  Yes Indicate: Superficial, Deep, Organ/Space	Was SSI reported to NHSN?  Yes Indicate: NHSN Event #	SSI was <b>Reported Correctly</b>  (SSI met criteria & reported to NHSN)	If NO SSI reported, complete this section:		BMI			Diabetes		
								Event <b>did not meet NHSN criteria</b> :  ✓ Reason?	SSI was <b>MISSED</b>  (SSI met criteria & should have been reported)	BMI as reported to NHSN (to the nearest tenth XX.X)	BMI from validation medical record review (to the nearest tenth XX.X)	BMI <b>agree</b> (Discrepancy < 1 unit)	Diabetes as reported to NHSN	Diabetes from validation medical record review	Diabetes <b>agree</b>
CSEC 1	1-6	1-8	998.32	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	47.4	47.4	<input checked="" type="checkbox"/>	N	Y	<input type="checkbox"/>
CSEC 2	1-10	1-18	682.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Deep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> No Micro	30.4	34.0	<input type="checkbox"/>	Y	Y	<input checked="" type="checkbox"/>
CSEC 3	4-7	4-10	998.59	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Deep	<input checked="" type="checkbox"/> 246571	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32.1	32.1	<input checked="" type="checkbox"/>	N	N	<input checked="" type="checkbox"/>
CSEC 4				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
CSEC 5				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
CSEC 6				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
CSEC 7				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
CSEC 8				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
CSEC 9				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
CSEC 10				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
<b>CSEC Total:</b>							A:	B:	C:			D: 2			E: 2

**Hip Prosthesis SSI Validation - Form 4**

*When review is complete, please make all necessary corrections to your data in NHSN*

ICD Flag List No.	Date of Surgery (MM/DD)	Discharge date of index surgery (MM/DD)	Indicate which post-op ICD code(s) "flagged" this patient record	re-admitted within NHSN specified number of days of index surgery	Was NHSN SSI criteria met?  Yes Indicate: Superficial, Deep, Organ/Space	Was SSI reported to NHSN?  Yes Indicate: NHSN Event #	SSI was <b>Reported Correctly</b>  (SSI met criteria & reported to NHSN)	If NO SSI reported, complete this section:		Surgical Duration			Diabetes		
								Event <b>did not meet NHSN criteria</b> :  √	SSI was <b>MISSED</b>  (SSI met criteria & should have been reported)  √ Reason?	Duration as reported to NHSN	Duration from validation medical record review	Durations <b>agree</b> (Discrepancy < 10 min.)	Diabetes as reported to NHSN	Diabetes from validation medical record review	Diabetes <b>agree</b>
HPRO 1	1-8	1-15	998.59	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Super	<input checked="" type="checkbox"/> 661244	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2'10"	2'10"	<input checked="" type="checkbox"/>	N	Y	<input type="checkbox"/>
HPRO 2	2-6	2-28	996.66	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Organ sp	<input checked="" type="checkbox"/> 661250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1'45'	2'45'	<input type="checkbox"/>	Y	Y	<input checked="" type="checkbox"/>
HPRO 3				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
HPRO 4				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
HPRO 5				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
HPRO 6				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
HPRO 7				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
HPRO 8				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
HPRO 9				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
HPRO 10				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
<b>HPRO Total:</b>							A: 2	B: 0	C: 0			D: 1			E: 1

**\*OPTIONAL\***

## Denominator Data Supplemental Validation Form

*When review is complete, please make all necessary corrections to your data in NHSN*

If you have validated less than 20 total records, or if you desire, you may complete this **optional** validation form.

Instructions

1. Use the lists of procedures produced in STEP 1 of "Preparing for Validation."
2. Randomly select up to 10 procedures.
3. Look up and record all four denominator data elements as reported to NHSN.
4. Look up and record corresponding data from medical records.
5. Indicate where data agree.
6. Total the number validated procedures and the number that agree for each data element.
7. Report totals in "Review of Findings."

Procedure Type/No.	Surgical Duration			Wound class			BMI			Diabetes				
	Duration as reported to NHSN	Duration from validation medical record review	Durations <b>agree</b> (Discrepancy < 10 min.)	Wound class as reported to NHSN	Wound class from validation medical record review	Wound classes <b>agree</b>	BMI as reported to NHSN	BMI from validation medical record review	BMI <b>agree</b> (Discrepancy < 1.0 BMI unit)	Diabetes as reported to NHSN	Diabetes from validation medical record review	Diabetes <b>agree</b>		
1			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
2			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
3			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
4			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
5			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
6			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
7			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
8			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
9			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
10			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		
<b>Total:</b>	N:			D:			E:			D:			E:	

# Body Mass Index (BMI) Validation

- BMI is automatically calculated by NSHN from reported height and weight data
- Should represent the most recent BMI (i.e. the one at time of surgery)
- If hospital records don't have most recent BMI calculated, you can calculate it at:

[https://www.nhlbi.nih.gov/health/educational/lose\\_wt/BMI/bmicalc.htm](https://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmicalc.htm)

or calculate it by hand:

$$\text{BMI} = \frac{\text{weight}(kg)}{\text{height}(m)^2}$$

$$\text{BMI} = \left( \frac{\text{weight}(lb)}{\text{height}(in)^2} \right) \times 703$$



# Performing Validation – Step 5

- Total each column on validation forms



SSI Data Validation, 2015

## Colon SSI Validation - Form 1

*When review is complete, please make all necessary corrections to your data in NHSN*

ICD Flag List No.	Date of Surgery (MM/DD)	Discharge date of index surgery (MM/DD)	Indicate which post-op ICD code(s) "flagged" this patient record	re-admitted within NHSN specified number of days of index surgery	Was NHSN SSI criteria met?		Was SSI reported to NHSN?	SSI was <b>Reported Correctly</b>  (SSI met criteria & reported to NHSN)	If NO SSI reported, complete this section:		Surgical Duration			Wound Class		
					Yes	Indicate: Superficial, Deep, Organ/Space			Yes	Indicate: NHSN Event#	Event did not meet NHSN criteria:	SSI was <b>MISSED</b>  (SSI met criteria & should have been reported)	Duration as reported to NHSN	Duration from validation medical record review	Durations <b>agree</b> (Discrepancy < 10 min.)	Wound class as reported to NHSN
COLO 1				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 2				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 3				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 4				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 5				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 6				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 7				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 8				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 9				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
COLO 10				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
<b>COLO Total:</b>								A:	B:	C:		D:		E:		



# Performing Validation – Step 6

- Populate “Review of SSI Case-finding” tables with corresponding totals (A, B, C) from validation forms



SSI Data Validation, 2015

Colon SSI Validation - Form 1  
When review is complete, please make all necessary corrections to your data in NHSN

ICD File List No.	Date of Surgery (MM/DD/YY)	Type of Surgery	Indicate which post-op SSI criteria triggered this patient record	Indicate which post-op SSI criteria triggered this patient record	Was NHSN SSI criteria met?	Was SSI reported to NHSN?	If NO SSI reported, complete this section		Surgical Duration	Wound Class	
							SSI was Reported Correctly	SSI was MISSED			
COLO 1											
COLO 2											
COLO 3											
COLO 4											
COLO 5											
COLO 6											
COLO 7											
COLO 8											
COLO 9											
COLO 10											
<b>COLO Total:</b>							A	B	C		

10

## Review of SSI case-finding

Fill in table using totals from forms 1-4. (To avoid confusion; work across, one form at a time.)  
In the bottom row, total the numbers for all four procedures in columns A, B and C.  
Calculate case-finding percentages with the formulas given. Round to nearest whole number.

Procedure type	No. of SSIs REPORTED CORRECTLY to NHSN prior to validation	No. where NO SSI reported & event did NOT meet NHSN criteria	No. of MISSED SSIs identified during validation	Total SSIs reviewed during validation that meet NHSN criteria	Case-finding Percentage (“Sensitivity”)
	A	B	C	Sum: A+C = T	(A/T) x 100%
Example:	3	5	1	3+1 = 4	3/4 x 100% = 75%
<b>COLO (Form 1)</b>	A	B	C	T	
HYST (Form 2)	A	B	C	T	
CSEC (Form 3)	A	B	C	T	
HPRO (Form 4)	A	B	C	T	
<b>Total</b>	A	B	C	T	

Note: If no procedures meet SSI criteria (A+C = 0), Case-finding Percentage is not applicable. Simply indicate “N/A” in this field.



# Performing Validation – Step 6 (continued)

- Populate “Review of surgical denominator” table with corresponding totals (D, E) from validation forms



SSI Data Validation, 2015

**Colon SSI Validation - Form 1**

When review is complete, please make all necessary corrections to your data in NHSN

**Review of surgical denominator data elements**

Report the number of procedures reviewed during validation (N) for each procedure type. This should match the number provided in the “Review of Validation Process” table on page 14. Use the totals from Forms 1-4, as well as the Optional Form (if applicable) to fill in the indicated cells (marked D & E). Cells marked N/A are not applicable; write nothing in these. Calculate the percentage of surgical procedures with accurately reported denominator data using formulas below.

Procedure	No. of procedures reviewed during validation	Duration		Wound class		BMI		Diabetes	
		No. where durations agree  (Discrepancy <10 min.)	Percent with accurate duration  $D/N \times 100\%$	No. where wound class agree	Percent with accurate wound class  $E/N \times 100\%$	No. where BMI agree  (Discrepancy <1 unit)	Percent with accurate BMI  $D/N \times 100\%$	No. where diabetes agree	Percent with accurate diabetes  $E/N \times 100\%$
<b>Example:</b>	9	7	$7/9 \times 100\% = 78\%$	8	$8/9 \times 100\% = 89\%$	N/A	N/A	N/A	N/A
<b>COLO (Form 1)</b>	N	D		E		N/A	N/A	N/A	N/A
<b>HYST (Form 2)</b>	N	N/A	N/A	N/A	N/A	D		N/A	N/A
<b>CSEC (Form 3)</b>	N	N/A	N/A	N/A	N/A	D		E	
<b>HPRO (Form 4)</b>	N	D		N/A	N/A	N/A	N/A	E	
<b>Optional Form</b>	N	D		E		D		E	

ICD Flag List No.	Date of Surgery (MM/DD)	The type of date of index surgery (MM/DD)	Indicate whether on ICD code(s) "flagged" this patient record	The admission date (MM/DD) specify number of days of index surgery	Was NHSN SSI criteria met?		Was SSI reported to NHSN?		SSI was Reported Correctly		If NO SSI reported, complete this section:		Surgical Duration			Wound Class			
					Yes	No	Yes	No	Event did not meet NHSN criteria	SSI was MISSED	Event did not meet NHSN criteria	Reason?	Duration as reported to NHSN	Duration from validation tool (audit, audit review)	Duration same (Discrepancy < 10 min.)	Wound class as reported to NHSN	Wound class from validation tool (audit, audit review)	Wound class same	
COLO.1																			
COLO.2																			
COLO.3																			
COLO.4																			
COLO.5																			
COLO.6																			
COLO.7																			
COLO.8																			
COLO.9																			
COLO.10																			
<b>COLO Total:</b>					A.	B.	C.												

10



## Performing Validation – Step 6

- Perform indicated calculations in “Review of SSI case-finding” table

### Review of SSI case-finding

Fill in table using totals from forms 1-4. (To avoid confusion; work across, one form at a time.)

In the bottom row, total the numbers for all four procedures in columns A, B and C.

Calculate case-finding percentages with the formulas given. Round to nearest whole number.

Procedure type	No. of SSIs REPORTED CORRECTLY to NHSN prior to validation A	No. where NO SSI reported & event did NOT meet NHSN criteria B	No. of MISSED SSIs identified during validation C	Total SSIs reviewed during validation that meet NHSN criteria Sum: A+C = T	Case-finding Percentage (“Sensitivity”) (A/T) x 100%
Example:	3 A	5 B	1 C	3+1 = 4 T	3/4 x 100% = 75%
COLO (Form 1)	A	B	C	T	
HYST (Form 2)	A	B	C	T	
CSEC (Form 3)	A	B	C	T	
HPRO (Form 4)	A	B	C	T	
<b>Total</b>	A	B	C	T	

Note: If no procedure meet SSI criteria (A+C = 0). Case-finding Percentage is not applicable. Simply indicate “N/A” in this field.

# Performing Validation – Step 6

- Perform indicated calculations in “Review of surgical denominator data elements” table

## Review of surgical denominator data elements

Report the number of procedures reviewed during validation (N) for each procedure type. This should match the number provided in the “Review of Validation Process” table on page 14. Use the totals from Forms 1-4, as well as the Optional Form (if applicable) to fill in the indicated cells (marked D & E). Cells marked N/A are not applicable; write nothing in these. Calculate the percentage of surgical procedures with accurately reported denominator data using formulas below.

Procedure	No. of procedures reviewed during validation	Duration		Wound class		BMI		Diabetes	
		No. where durations agree (Discrepancy <10 min.)	Percent with accurate duration	No. where wound class agree	Percent with accurate wound class	No. where BMI agree (Discrepancy <1 unit)	Percent with accurate BMI	No. where diabetes agree	Percent with accurate diabetes
	N	D	$D/N \times 100\%$	E	$E/N \times 100\%$	D	$D/N \times 100\%$	E	$E/N \times 100\%$
Example :	9	7	$7/9 \times 100\% = 78\%$	8	$8/9 \times 100\% = 89\%$	N/A	N/A	N/A	N/A
COLO (Form 1)	N					N/A	N/A	N/A	N/A
HYST (Form 2)	N	N/A	N/A	N/A	N/A			N/A	N/A
CSEC (Form 3)	N	N/A	N/A	N/A	N/A				
HPRO (Form 4)	N			N/A	N/A	N/A	N/A		
Optional Form	N	D		E		D		E	

# Submitting Validation Results to CDPH

- Submit your results from “Review of Findings” section of the SSI validation workbook to CDPH via online form
  - Form will be available October 26, 2015
  - Deadline for submission is **December 4, 2015**

# Next Steps To Complete 2015 SSI Validation

## For SSI Case-finding

- Enter missed SSI into NHSN
- Incorporate the use of diagnosis flag codes into routine SSI surveillance practices
- If your hospital did not achieve 100% case-finding for a particular procedure type, evaluate your surveillance processes
- Review any remaining flagged procedures for SSI

# Next Steps To Complete 2015 SSI Validation

## For SSI Denominator Data

- Make corrections to procedure denominator record in NHSN
- If your hospital did not achieve 100% accuracy for a particular denominator data element, investigate the source of error
  - Review additional procedures using the optional Denominator Data Supplemental Validation form

# 2015 SSI Validation Summary

- 2015 validation is a self-directed process using a validation workbook
- Objectives
  - Continue to assess and improve SSI surveillance activities for better case-finding
  - Assess accuracy of and make corrections to surgical denominator data elements reported to NHSN and used for risk-adjustment
  - Apply what is learned from validation to make sustained improvements in SSI surveillance and reporting
- CDPH HAI Program SSI Validation Team is available for guidance and support

# Questions?

For more information, please contact  
[HAIProgram@cdph.ca.gov](mailto:HAIProgram@cdph.ca.gov)

