NOTES FROM MONTHLY SHARP NHSN USERS' CONFERENCE CALL
March 28, 2012

Thank you to those who were able to join our monthly NHSN users' conference call. If you were unable to participate on this call, we hope that you will be able to participate next month. Any healthcare facility is welcome to participate in these calls, whether they are sharing NHSN data with us or not. These conference calls are voluntary. Registration and name/facility identification are **not** required to participate.

Our monthly conference calls will be held on the 4th Wednesday each month at 10:00 a.m.

Call-in number: 877-336-1831
Passcode: 9103755
Webinar: http://breeze.mdch.train.org/mdchsharp/

Suggestions for agenda items and discussion during the conference calls are always welcome! Please contact Judy at weberj4@michigan.gov to add items to the agenda.

HIGHLIGHTS OF MARCH 2012 CONFERENCE CALL

Welcome & Previous Meeting Minutes
Judy welcomed participants on the call; and SHARP staff on the call introduced themselves. Judy reminded participants that the conference call agenda and call-in information are posted on the MDCH SHARP website at www.michigan.gov/hai. There is also a link on the website to view notes from previous conference calls.

Reports Update
Allison announced that she is currently working on the 2010-2011 Annual Report, covering data from October 2010 through September 2011. She is working on updating the report, and adding more tables and graphs. Upon completion, she will begin working on the corresponding Annual Individual Reports. The reports can be found on the SHARP HAI website in the HAI Surveillance and Prevention Plans & Reports box.

Updates and Reminders

SSI Events
All SSI events are attributable to the month in which the surgical procedure was performed. For example, if a patient had colon surgery in February and symptoms of a SSI infection occur in March, the event is attributable to the month of February since that is when the surgical procedure was performed.

The CMS requirement for reporting of SSIs is only for INPATIENT procedures. Acute care hospitals have the option of also monitoring outpatient procedures but it is not required.

Surgical procedures involving implants are required to be followed for one year. Note, however, that if no infection has occurred within 30 days of the implant procedure, acute care hospitals can fill in the "Report No Event" box for that patient. If, during the remainder of that year's follow-up period, a SSI event does occur, the event can be added to NHSN at that time for that particular patient. In doing so, the "Report No Event" box will automatically be unchecked for that patient. Completing SSI follow-ups will eliminate many of the "Incompletes" that are highlighted when you initially sign onto NHSN.

Reporting "No Events" for a surgical procedure can be done under "Event", "Procedure" or "Summary Data" on the navigation bar of NHSN, or on the home page. Click on "incomplete" and look for the file "Missing PA Events". This will bring up a list of the patients whose follow-up has not been completed. Patients undergoing procedures without an implant can be finalized 30 days after their surgical procedure. The best way to do this is to wait until the end of the following month and then go back and complete the "Report No Events" for every surgical patient who had no infection event reported during the previous 30 day period. This also eliminates the need to keep track of the 30-day period for each patient.

NHSN sent an email to acute care facilities on March 7th indicating that changes have been made to how laparoscopic hysterectomies are coded. Guidance on this has also been included in the 1st quarter 2012 publication of Coding Clinic which has been provided to medical records coding professionals. CDC is encouraging Infection Preventionists to work with their coding professionals to make applicable coding changes to laparoscopic abdominal hysterectomies that have occurred in their facility since January 1, 2012. The coding changes relate to surgical technique or approach used for the detachment of these structures. A copy of this email from CDC is attached to these minutes.

NHSN Version 6.6 Changes/New NHSN Versions Coming

Version 6.6 of NHSN was released in early February. NHSN Administrators should be sure to read about all the changes that might apply to their facility. A copy of link to the Version 6.6 changes is attached to these minutes. A patch for version 6.6 is coming in April, and in August 2012, NHSN Version 7.0 is expected to be released.

Dialysis Facilities – CCN Number

Dialysis facilities that enrolled in NHSN before mid-February 2012 should go back and make sure that their CCN (CMS Certification Number) has been entered in NHSN. This can be checked by going to "Facility" on the NHSN navigation bar, and then click on "Facility Information". Without the CCN information, data from NHSN cannot be shared with CMS.

Long-Term Care Hospital and Rehab Reporting

As a reminder, long-term care hospitals (LTACs) and inpatient rehab facilities (IRFs) are required to begin reporting HAIs from all inpatient locations in October 2012. LTACs will be required to report CLABSIs and CAUTIs, and rehab facilities will be required to report CAUTIs only. Every licensed LTAC and IRF should enroll as an individual facility with a unique NHSN orgID. LTACs and IRFs can begin to enroll now by contacting the NHSN Help Desk at nhsn@cdc.gov.

LTAC Train-the Trainer Conference – Baltimore, May 1 and 2, 2012

CMS is offering this training to LTACS that are interested in onsite training. For additional information regarding attendance at this training, contact Judy in the SHARP Unit. (Judy just learned that conference registration has closed for this event.)

Reminder: Name & Address Changes
Please remember to make changes in NHSN Administrator names, phone numbers, email addresses, hospital addresses, etc… under "Facility" and "Facility Information" on the navigation bar of NHSN. Changes should also be emailed to Judy in the SHARP Unit. It is important to keep this information updated in order to ensure receipt of important emails and documents from CDC and the SHARP Unit.

CMS Validation Studies – Donna Modras (MPRO)
Donna was unable to participate on the call today. We hope to have her provide an update on the CMS validation studies during our April conference call.

Sample Individual Hospital NHSN Report – Allison
Allison walked through a sample individual hospital report and explained the various graphs and information provided. She also responded to questions from participants on the call. If you have any suggestions, questions, or comments regarding the individual hospital reports, please contact Allison. She would like feedback before completing the next set of reports.

CAUTI, CLABSI and SSI Case Studies – Joe
Joe walked through a number of NHSN case studies and provided responses to questions about the case studies. These case studies should help IPs in determining whether a given situation is reportable within NHSN or not. The responses and explanations of the case studies are attached to these minutes.

Next Conference Call – Wednesday, April 25, 2012
Please email Judy, Allison, or Joe with suggestions for the next conference call agenda. The call-in phone number and passcode are posted on the MDCH SHARP HAI website at www.michigan.gov/hai. Thanks to everyone who participated on the call today!

Update on how to code NHSN HYST and VHYS when a laparoscopic approach is used

Email from CDC: Sent Wednesday, March 7, 2012

The guidance we provided in June 2011, which was revised in December 2011, about reporting laparoscopic hysterectomy based on route of uterine removal is rescinded and the new guidance below is effective immediately. This information will be provided to medical records coding professionals in the upcoming publication of Coding Clinic, First Quarter 2012. We have obtained approval to provide an excerpt of the guidance (below) to NHSN users in advance given that surveillance of surgical site infection following abdominal hysterectomy is required for hospitals participating in the Centers for Medicare and Medicaid's Hospital Inpatient Quality Reporting Program.

We ask that you work with your medical records department to identify and reclassify any abdominal hysterectomy procedures performed since January 1, 2012, using the new guidance and correct any data entered into NHSN. We apologize for the confusion around coding of these operative procedures and we very much appreciate your efforts to make the corrections.

An important factor in assigning the correct ICD-9-CM hysterectomy procedure code is to determine what structures were detached and how they were detached based on the medical record documentation. The focus should be on the surgical technique or approach used for the detachment of those structures. Code assignment should not be based on the location of where the structures were physically removed from the patient's body.

A total laparoscopic abdominal hysterectomy (TLH) involves detachment of the entire uterus and cervix from the surrounding supporting structures via the laparoscopic technique. The uterus is then removed through the vagina or abdomen. It may include bivalving, coring, or morcellating the excised tissues, as required. The procedure concludes with suturing of the vaginal cuff, removal of instruments and closure of the incisions.

The fact that the uterus is removed through the vagina does not indicate that the procedure performed was a laparoscopically assisted vaginal hysterectomy. For ICD-9-CM coding purposes, the key is that the structures were detached from surrounding structures or tissues laparoscopically via the abdomen. A laparoscopically assisted vaginal hysterectomy involves use of the laparoscope to guide the procedure and visualize structures in addition to detaching the uterine body from the surrounding upper supporting structures, (such as the infundibular pelvic and round ligaments) while the vaginal portion of the procedure involves an incision being made within the vagina to detach the cervix and uterus from the remaining supporting structures. The uterus is then removed through the vagina. The procedure concludes with the top part of the vagina being sutured, removal of instruments and closure of the incisions.

The NHSN Team

NHSN v6.6 (Feb. 2012) Release Notes and Application Changes
PATIENT SAFETY COMPONENT

Change	Description
Use of No Events flags in analysis output	For months in which no events have been entered for a given event type, and the relevant No Events checkbox has not been activated in the NHSN application, rate table and SIR output options will not include the month. This change affects data entered from January 2012 forward, and includes SIR data being shared with CMS as part of the Inpatient Quality Reporting Program. Facilities participating in the Program must indicate that they have no CLABSI, CAUTI, or SSI events to report for a month using the appropriate checkbox.
Device-Associated Module changes for NICUs	For Device-Associated Module surveillance in neonatal critical care locations: • Central line and umbilical catheter day counts have been combined on the NICU summary data form, as well as in the CLABSI rate tables for NICU locations. • CLABSI form in NICU locations has been changed to ask for presence of "central line, including umbilical catheter" • Urinary catheter day counts added to NICU summary data form (for off-plan reporting only)
Changes to CLIP form	Several updates have been made to the CLIP form, including: • Reorganization and updated choices for occupation of inserter • New question for contraindications to chlorhexidine • New question for whether or not the attempted central line insertion was successful The new variables are available for addition to the "Line Listing – All CLIP Events" output option using the modification screen.
New values for location of SSI detection	SSIs detected on readmission must now be reported as "RF" – readmission to facility in which the original procedure was performed – or "RO" – readmission to a facility other than the one in which the original procedure was performed. When analyzing your SSI data using the standardized infection ratio (SIR), please note that the "Complex A/R" SIRs will <u>not</u> include those SSIs identified as "RO".
Change to NEC definition	The CDC/NHSN HAI definition for necrotizing enterocolitis (NEC) has been updated. Please refer to the December 2011 NHSN Newsletter at http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_Dec_2011.pdf for more information.
Updated DA rates	Annual update of Device-Associated Module rates in NHSN Analysis. Rate tables have been updated to use national comparative rates from 2010 as published in the December 2011 issue of AJIC (Am J Infect Control 2011;39:798-816). The annual report is also available from: http://www.cdc.gov/nhsn/dataStat.html. CLABSI SIRs continue to use a baseline of 2006-08 national data, and CAUTI SIRs continue to use a baseline of 2009 national data.

Changes to procedure denominator form	The following changes have been made to the denominator for procedure form: • Procedure code is now editable in the NHSN application. • Estimated blood loss and non-autologous transplant fields have been removed from the denominator for procedure form and the NHSN application.
Changes to .csv Procedure Import Files	If you import procedure data using a .csv file, please note that the file specifications have been updated in order to accommodate changes applied in NHSN version 6.6, which includes: • Removal of estimated blood loss and non-autologous transplant. NOTE: for your import file, these columns must remain as placeholders; any values imported in these columns will be ignored upon import. • Addition of optional Medicare Beneficiary Number. NOTE: if your facility plans to optionally import the patient's Medicare Beneficiary Number with each procedure, you will need to update your import file in order to include these data in the correct position. The updated file specifications are available at: http://www.cdc.gov/nhsn/PDFs/ImportingProcedureData_current.pdf.
Changes to CLABSI and CAUTI SIR reports	The CLABSI and CAUTI SIRs will now include those months where denominator data were entered, but 0 device days were reported. In addition, a table has been added to these SIR output options so that facilities and groups can identify which months and locations 0 device days were reported.
Addition of No Events/Procedures variables	Variables for Report No Procedures and Report No SSI Events for a given month have been added to NHSN analysis datasets. To view these variables, use the Export Analysis Dataset button on the modification screen for the Line Listing – Patient Safety Plans output option (navigate to Advanced→Plan-Level Data→CDC Defined Output in the analysis treeview).
ICD-9-CM updates	The annual update of ICD-9-CM codes have been incorporated into NHSN version 6.6. For details regarding this update, please see Chapter 9 of the Patient Safety Component Manual at http://www.cdc.gov/nhsn/PDFs/pscManual/9pscSSIcurrent.pdf.
Addition of Medicare Beneficiary Number	Medicare Beneficiary Number has been added to the demographic information section of event and procedure forms. This is an optional field for data collection.
Antimicrobial Use updates	The Antimicrobial Use (AU) option has additional functionality in this release: • Analysis output options (rate tables and line lists) available for AU • Define rights template updated to allow Groups to request access to AU data from member facilities Data for the AU option can only be reported electronically through NHSN's Clinical Document Architecture (CDA) import function. Please contact nhsncda@cdc.gov with questions about CDA or the AU option.
Changes for LTACs and rehabilitation hospitals	New facility surveys and new locations have been added for facilities enrolled as HOSP-LTACs (note – LTACs are referred to as "long term care hospitals" by CMS) and HOSP-REHABs (note – rehabilitation hospitals are referred to as "inpatient rehabilitation facilities by CMS).

Dialysis Event Forms	The Dialysis Event form includes two new data collection fields: transient patient and buttonhole cannulation. Access placement date has been modified to require only month and year. The Denominators for Outpatient Dialysis form also collections information about the number of fistula patients who undergo buttonhole cannulation, permitting users to calculate rates of buttonhole cannulation. The new forms, as well as the new tables of instructions are all available on the Dialysis Event Homepage at http://www.cdc.gov/nhsn/psc_da_de.html.
Dialysis Event Protocol	The Dialysis Event Protocol has been revised and expanded to clarify how dialysis event data are collected and reported. All Dialysis Event reporters should read the revised Protocol. The Dialysis Event Protocol is available at http://www.cdc.gov/nhsn/PDFs/pscManual/8pscDialysisEventcurrent.pdf.

Highlighted NHSN January 2012 Patient Safety Component (PSC) Manual Updates

The following January 2012 changes to the NHSN manual are highlighted for you because they may impact the way that you collect or report data to NHSN. Although other changes not highlighted here have been made to the manual, they generally represent wording changes not deemed to significantly impact the collection or reporting of NHSN data. Changes indicated in an event chapter also appear in the Tables of Instructions &/or Key Terms chapters as appropriate and are not repeated here in those chapter's highlights. You may choose to print this summary and to file it with your NHSN surveillance documents for future reference.

The NHSN Team

January 2012 Page No.	Section/Data Field	New Text
All Device-Associated Event (Infections) Chapters		
		For all device-associated events (infections), additional instructions were included explaining that although post-discharge surveillance is not required for these types of infections, any that are identified and that occur within 48 hours of discharge must be reported.
		For all device-associated events (infections) and MDRO/CDI events, additional instructions were included explaining that before any denominator data collection can be changed from a manual to an electronic method, the data must be validated against the manual method and found to be within 5% (+/-) for a minimum three month period.
Chapter 4: CLABSI Event		
4-1	Primary Bloodstream Infection definition	Inclusion of Secondary Bloodstream Infection Guide as an appendix to chapter.
4-3	Central Line definition	Addition of Hemodialysis Reliable Outflow (HeRO) dialysis catheter as possible central line.
4-7	Denominator data	Removal of requirement for counting umbilical line catheters separately as a denominator for NICU locations.
Chapter 5: CLIP Adherence Monitoring		
5-1 thru 5-2	Numerator and denominator data	Addition of requirement that CLIP form be completed for all CLIP attempts, including unsuccessful attempts.
Chapter 7: CAUTI Event		
7-2	Indwelling catheter definition	Addition of guidance that urinary catheters that are irrigated are not considered closed systems and therefore not included in CAUTI surveillance.
7-5 thru 7-6	Table1 and figures	Addition to all SUTI criteria so that they read "…at time of specimen collection or onset of signs or symptoms…" to identify that the presence of catheter is related to both of these elements.
7-9 thru 7-13	Figures	Slight reorganization of the UTI flowcharts to be more informative and easier to interpret and

		associate with catheter use.
7-13	Figure 5	Addition of previously omitted symptom "dysuria" to Figure 5 flowchart for ABUTI for patient ≤ 1 year of age.
7-7	Table 1 Comments	Addition of Reporting Instruction: Laboratory cultures reported as "mixed flora" represent at least 2 species of organisms. Therefore an additional organism recovered from the same culture, would represent > 2 species of microorganisms. Such a specimen cannot be used to meet the UTI criteria.
Chapter 8: Dialysis Event		
		Dialysis Event (DE) protocol has been removed from PSC Manual and included in new DE Manual. Also removed from Tables of Instructions and Key Terms chapters.
Chapter 9: SSI Event		
9-2 thru 9-6	Table 1	Addition of Current Procedural Terminology (CPT) code mapping to several NHSN Operative Procedure Categories.
9-3 thru 9-6	Table 1	Addition of ICD-9-CM codes 35.06 and 35.08 to the category CARD, 43.82 to GAST, and 02.21 and 02.22 to VSHN in Table 1. These were the October, 2011 updates about which you were previously notified.
9-5	Table 1	Descriptions for abdominal hysterectomy (HYST) and vaginal hysterectomy (VHYS) categories have been clarified.
9-7 thru 9-8	Implant definition	Addition of further guidance on SSI surveillance in procedures involving an implant: Implant: A nonhuman-derived object, material, or tissue that is placed in a patient during an operative procedure. Examples include: porcine or synthetic heart valves, mechanical heart, metal rods, mesh, sternal wires, screws, cements, internal staples, hemoclips, and other devices. Non-absorbable sutures are excluded because Infection Preventionists may not easily identify and/or differentiate the soluble nature of suture material used. For surveillance purposes, this object is considered an implant until it or the area/structures contiguous with the implant are manipulated for diagnostic or therapeutic purposes. If infection develops after such manipulation, do not attribute it to the operation in which the implant was inserted; instead attribute it to the latter procedure. If the latter procedure is an NHSN operative procedure, subsequent infection can be considered SSI if it meets criteria. If the latter procedure is not an NHSN operative procedure, subsequent infection cannot be considered an SSI but may meet criteria for other HAI and be reported as such.
9-11	Numerator Data	Additional instruction: If no SSI events are identified during the surveillance month, check the Report No Events field in the Missing PA Events tab of the Incomplete/Missing List of the NHSN reporting application.

9-13	Denominator Data Notes	Additional: if more than one laparoscopic incision becomes infected, report only 1 SSI.
9-13	Denominator Data Notes	Additional instruction: Do not include in the procedural denominators, procedures during which the patient expired in the operating theatre.
Chapter 14:Tables of Instructions		
Various chapter 14 pages	Medicare #	Optional field for patient's medicare number added to instructions for all forms with patient identifiable information. Also, "Other" has been added as a gender choice.
14-20	Pathogen identified	Additional reporting instruction: If the event reported is an ABUTI, then pathogen #1 must be a uropathogen.
14-34	MDRO Infection Surveillance	Additional reporting instruction for the field MDRO Infection Surveillance: NOTE: For an SSI, the location of attribution is the post-op location, so if- 1. The event occurs in a different calendar month from the surgical procedure AND 2. Your facility is performing Infection Surveillance for the organism causing the SSI in the post-op location for the month reported in the Date of Event, Then please answer "Yes" to this question.
14-35	Detected	Additional reporting instructions for documenting how the SSI was detected: Check P if SSI was identified during post-discharge surveillance. Include as P those SSI identified in the Emergency Department but not readmitted to the facility. Check RF if SSI was identified due to patient readmission to the facility where the operation was performed. Check RO if SSI was identified due to readmission to facility other than where the operation was performed.
14-37	General anesthesia	Addition of definition.
14-37	Endoscope	Addition of robotic assistance and guidance of hand assistance or conversion to open approach.
14-38	Non-autologous transplant	Deleted; no longer required as of 1/1/12.
14-38	CSEC: Duration of labor	Additional guidance added.
14-38	CSEC: Estimated blood loss	Deleted; no longer required as of 1/1/12.
Chapter 15 Locations		
		Locations listed have been limited to those utilized in the Patient Safety Component.
		LTAC locations have been removed from SCA locations. These locations are now only available for use by Long-Term Acute Care Facilities and the chapter reflects this change.

Chapter 16 Key Terms		
16-1	ASA class	Added guidance that organ donor = class 5.
16-6 thru 16-8	NICU levels	Updated to with information from the cited reference.
16-11	Wound class	Addition of note that it should be assigned by someone involved in the surgical procedure.
Chapter 17: CDC/NHSN Surveillance Definitions of Healthcare-Associated Infection and Criteria for Specific Types of Infections in the Acute Care Setting		
17-1 thru 17-5		Summary table of definition changes updated.
17-1		Additional reporting instructions: In those situations where a patient meets criteria for more than one specific site of infection within a major infection site category, (e.g., meets criteria for both SKIN and ST within the SST category), report only the more “serious” specific site of infection (, e.g., ST).

MDCH SHARP NHSN Case Studies Part 2

Presented February 22nd 2012

These questions and answers are part of a series of case studies developed by Marc-Oliver Wright, MT(ASCP), MS, CIC from NorthShore University Health System (MWright@northshore.org). A total of 10 case studies will be published in the June 2012 issue of the *American Journal of Infection Control*.

If you have questions about these case studies, the questions, or answers, please contact Joe Coyle (CoyleJ@michigan.gov). For questions, comments, or suggestions regarding the NHSN user calls coordinated by the SHARP unit, please contact Judy Weber (WeberJ4@michigan.gov) or Allison Gibson (GibsonA4@michigan.gov).

Case Study 1

A 27-year-old man is admitted on 8/22 from another hospital with alcohol-induced pancreatitis. Admission abdominal CT showed severe pancreatitis with peripancreatic inflammatory changes. Patient is ventilator-dependent requiring a tracheostomy and has vascular catheters in place in the right subclavian and right internal jugular (IJ) veins.

On 9/3, an ultrasound-guided aspiration of pancreatic fluid revealed few polymorphonuclear cells and a negative bacterial culture.

On 9/11, a repeat abdominal CT revealed unchanged pancreatitis but interval development of multi-loculated fluid collections in the abdomen.

On 9/14, patient is taken to the OR for pancreatic debridement and placement of drains. Later that evening, patient had a temperature spike to 102° F. The right IJ line was discontinued and the catheter tip and blood specimens x 2 were sent for culture.

On 9/16, culture results were reported as follows:

- Pancreatic fluid = no growth
- Catheter tip = <15 CFU/ml of *Enterococcus* species
- Blood cultures = 2 for 2 positive for *Enterococcus faecalis*.
- No other sites of suspected infection were identified.

Case Study 1 Question 1: Does this patient have a healthcare-associated infection (HAI)?

a) Yes, a CLABSI because the blood and catheter tip cultures grew the same organisms

b) No, these organisms are contaminants

c) Yes, an intra-abdominal (IAB) infection with secondary bloodstream infection with *Enterococcus* species

d) Yes, a CLABSI because the blood cultures are positive for a pathogen (*E. faecalis*), there is no evidence of infection at another site, and the patient had a central line in place

Case Study 1 Answer 1: d

There is no evidence that the pancreatitis was infectious in origin, therefore the bloodstream is considered the primary infection site and the findings meet laboratory-confirmed BSI criterion 1. Further, the IJ and subclavian lines are considered to be central lines because they terminate at or near the heart or in a great vessel, and were in place within 48 hours before the onset of infection (taken to be the date of the temperature spike and the date the blood samples were obtained for culture), thus meeting the definition of central line-associated. Catheter tip cultures are not part of the BSI surveillance criteria and therefore are not used to determine whether a BSI was present.

Case Study 1 Question 2: In further revising the scenario, let's say that the patient was afebrile on 9/14 (i.e., has no temperature spike). Does this finding change your assessment of the blood culture results?

a) Yes
b) No

Case Study 1 Answer 2: b

No, signs and symptoms are not part of criterion 1 for laboratory-confirmed BSI with a recognized pathogen. Therefore the presence or absence of fever does not change the CLABSI determination.

Case Study 1 Question 3: Finally, let's revise the scenario such that the IJ and subclavian lines are removed on 9/9. Then on 9/13 a femoral catheter is placed. If the pancreatic fluid, catheter tip, and blood collected on 9/14 have the results shown in the initial scenario above on 9/16, what HAI(s) would be reported?

a) CLABSI with *E. faecalis* associated with the use of the femoral line

b) CLABSI with *E. faecalis* associated with the use of the IJ and subclavian lines

c) BSI with *E. faecalis*; not central line-associated because a femoral line is not considered a central line

d) BSI with *E. faecalis*; not central line-associated because the line was not in place for at least 48 hours before the blood specimen was collected for culture.

Case Study 1 Answer 3: a

Since the pancreatic fluid culture was negative and the blood cultures were positive, there is no primary infection site, other than the blood. The IJ, subclavian, and femoral catheters are all considered central lines because they terminate at or near the heart or in one of the great vessels. However, since the IJ and subclavian lines had been discontinued for more than 48 hours before the onset of infection (taken to be the date of the temperature spike and the date the blood samples were obtained for culture, 9/14), positive blood culture results cannot be associated with the use of those central lines. Instead, since the femoral central line was in place at the time of the blood sample collection, the positive results are associated with its use. There is no minimum amount of time that a central line must be in place in order for a subsequent BSI to be considered a CLABSI.

Case Study 2

A 35-year-old man is involved in a multi-vehicular accident and sustains multiple internal and external traumatic injuries. On 12/5 in the emergency department, a triple lumen subclavian line and Foley catheter are placed and the stabilized patient is transferred to the intensive care unit.

On 12/8, the patient spikes a temperature to 101°F and is "pan" cultured, including blood cultures x 2.

On 12/10, the subclavian line is discontinued and the catheter tip is sent for culture. Later that afternoon, the blood culture results from 12/8 are reported as *Staphylococcus hominis* in both sets with identical susceptibility profiles. The physician notes: "Positive blood culture = contaminant; no antibiotics required." All other specimens cultured are negative.

On 12/12, catheter tip results are reported as *Staphylococcus epidermidis*.

Case Study 2 Question 1: Does this patient have a healthcare-associated infection (HAI)?

a) No, because the ID consulting physician stated that the blood culture results were contaminants and did not treat the patient with antibiotics

b) No, because the blood cultures grew only common skin contaminant organisms

c) Yes, a CLABSI because the patient had a central line in place, had a fever, and there were 2 positive blood cultures with common skin contaminant organisms, with the same antibiotic susceptibilities, collected within two days of each other

d) Yes, a CLABSI because both the blood and catheter tip cultures grew *coagulase-negative staphylococci*

Case Study 2 Answer 1: c

S. hominis, a skin colonizing organism, grew in both sets of blood cultures which were drawn within 2 days of each other, isolates from both sets of culture had matching antibiotic susceptibilities, and the patient is symptomatic (fever), without evidence of infection at another site. This meets criterion 2 for a laboratory-confirmed bloodstream infection (LCBI). The fact that the line tip grows another skin colonizing organism aids in the clinical diagnosis, but is irrelevant for surveillance purposes, as is the physician's note. This BSI is associated with the use of the subclavian line, which is a central line because it terminates at or near the heart or in one of the great vessels.

Case Study 2 Question 2: What if additionally the patient has suprapubic tenderness and the urine culture obtained on 12/8 grows >100,000 CFU/ml of *Escherichia coli*. What HAI(s) would be reported?

a) Both a CLABSI with *S. hominis* & a symptomatic urinary tract infection (SUTI) with E. coli
b) SUTI with secondary BSI with *S. hominis* and *E. coli*
c) SUTI with *E. coli*
d) No HAI

Case Study 2 Answer 2: a

The case meets SUTI criterion 1a. However, because the organism from the blood cultures is not the same as that found in the urine, the BSI cannot be secondary to the UTI. Fever is a non-specific symptom of infection and could be attributed to the UTI or BSI or both. However, even without fever, the patient meets the SUTI 1a criterion due to the finding of suprapubic tenderness.

Case Study 2 Question 3: In further revising the scenario, the subclavian line tip culture instead grows *Staphylococcus hominis*. Does this finding change your HAI assessment?

a) Yes
b) No

Case Study 2 Answer 3: b

No, catheter tip culture results are not part of the surveillance criteria for BSI. A CLABSI is reported based on the presence of the central line, the absence of infection at another site with the same organism as was growing in the blood, presence of fever, and 2 blood cultures positive for the same common skin contaminant organism.

Case Study 3

A 49 year old woman is admitted postoperatively on 6/29 following an exploratory laparotomy and right hemicolectomy. Medical history is positive for insulin dependent diabetes mellitus and asthma.

On 6/30 the patient's abdominal incision is clean but slightly moist. She is afebrile, her breath sounds are diminished bilaterally, and no bowel sounds are present on auscultation. She has ambulated once in the hallway and is taking ice chips by mouth.

On 7/2 the patient's abdominal incision is slightly red and warm to the touch. Staples are intact. Her temperature has ranged between 37.2°C and 37.6°C and her lungs are clear bilaterally. She is ambulating with assistance. Bowel sounds are present in the 2 upper abdominal quadrants only. She continues to take only ice chips by mouth.

On 7/3 the patient's abdominal incision is more reddened, swollen and hot to touch. She complains of incisional pain. Her temperature has spiked at 38.4°C. Bowel sounds are now present in all 4 quadrants of the abdomen. Her lungs remain clear and her white blood cell count is 15,000/cmm. A peripherally inserted central catheter (PICC) is placed in her right upper arm. She is empirically started on ampicillin.

On 7/4 the patient's incision has dehisced to the fascia. A wound vacuum is placed to the incision. No wound cultures are sent.

On 7/9 the patient continues to run intermittent fevers. The PICC site is clean and dry without redness. She denies suprapubic tenderness or costovertebral angle pain. 2 sets of blood cultures are collected and sent to the laboratory along with a straight-catheter urine culture.

On 7/11 one of two blood cultures are positive for *Bacteroides uniformis.*

Case Study 3 Question 1: Does this patient have an HAI?

a) No. Because no culture was taken, this patient does not meet criteria of an HAI. The organism in the blood culture is a common skin contaminant and therefore because only one of the blood culture bottles is positive, this is not a BSI. She has no SSI because the wound was not cultured.

b) Yes, this patient has a CLABSI as she meets the Laboratory-confirmed Bloodstream Infection (LCBI) criterion 1-recognized pathogen cultured from one or more blood cultures when a central line is present. She has no SSI because the wound was not cultured.

c) Yes this patient has a superficial incisional primary (SIP) SSI

d) Yes, this patient meets criterion "b" of deep incisional primary (DIP) SSI. The bloodstream infection is secondary to the SSI.

Case Study 3 Answer 1: d
This patient meets criteria "b" of DIP SSI: The infection occurred within 30 days of the operative procedure; appears related to the operative procedure; involves deep soft tissue (e.g. fascial and muscle layers of the incision); the deep incision spontaneously dehisced and was not cultured; and the patient has fever and localized pain. Since the blood culture is positive for an organism that is common to the gastrointestinal tract, and no culture was taken from the wound, the BSI is considered secondary to the SSI. CLABSI must not be related to an infection at another site.

Case Study 3 Question 2: What is the date of SSI?

a) 7/2
b) 7/3
c) 7/4
d) 7/11

Case Study 3 Answer 2: a
HAIs are attributed to the date that the first clinical evidence occurred or the date the specimen used to make or confirm the diagnosis was first detected. This patient's first symptom used to meet the criteria of SSI was the redness of the wound on 7/2.

Case Study 3 Question 3: Which month will the SSI be attributed to?

a) June
b) July

Case Study 3 Answer 3: a
SSIs are attributed to the operative procedure with which they are associated. This patient's procedure was performed in June, although the date of the event (SSI) was not until July. This SSI will be included in the June SSI rates.

Case Study 3 Question 4: In adding to the scenario, the wound dehisces further, beyond the fascia and a fluid collection is aseptically drained and sent for culture where it grows *Bacteroides uniformis.* Does the patient have an HAI?

a) Yes this patient has a superficial incisional primary (SIP) SSI
b) Yes, this patient has an intra-abdominal infection (IAB) organ/space SSI (SSI-IAB)
c) Yes, this patient has a deep incisional primary (DIP) SSI
d) Yes, this has both a DIP SSI and an IAB-SSI

Case Study 3 Answer 4: c
While the patient does have an abscess in the abdomen, because the infection involved the deep incisional layers as well as the organ/space, this is viewed as a complication of the incision. A reporting instruction in the NHSN SSI protocol states that *"Occasionally an organ/space infection drains through the incision. Such infection generally does not involve reoperation and is considered a complication of the incision. Therefore, classify it as a deep incisional SSI."*

Case Study 4

A 64 year-old man who is status-post orthotopic heart transplant 16 years ago is admitted on 2/1 for an elective percutaneous endoscopic gastrostomy (PEG) tube placement. Medical history is significant for respiratory failure due to H1N1 influenza pneumonia resulting in a tracheostomy and ventilator dependency, end-stage renal disease on hemodialysis three times/week, and hypertension. He was transferred from the ventilator unit of a long-term acute care facility (LTAC). A left internal jugular (IJ) tunneled catheter was in place for dialysis and a condom catheter was present, draining clear amber urine.

On 2/2 patient was taken to the Operating Room for elective placement of a PEG feeding tube and tolerated the procedure well. He was transferred to the Surgical ICU due to his ventilator requirement. Temperature range: 37.2°C - 37.6°C. Lungs clear bilaterally. PEG site oozing serosanguinous drainage. Call received from the LTAC facility that a stool specimen collected for abdominal pain and diarrhea prior to transfer was reported as positive for *C.difficile.* Metronidazole started.

On 2/4 the patient remains in the SICU due to lack of a bed at the LTAC facility. At 2300, the patient has a temperature of 38.3°C. PEG site is clean and dry. No evidence of inflammation or drainage at the left IJ tunneled catheter site. Lungs clear bilaterally. Blood, urine and sputum cultures are sent.

On 2/5 in the AM, the urinalysis is reported as 3+ leukocyte esterase, WBC- too numerous to count and moderate bacteria. Patient continues with fever to 38°C. Co-trimoxazole is initiated. Patient receives hemodialysis.

On 2/6, the urine culture from 2/4 is reported as positive for 60,000 CFU/ml gram–negative bacilli which are subsequently identified as *Providencia stuartii*. Blood and sputum cultures are negative. Plans to send the patient back to the LTAC facility are cancelled due to increasing watery stools and complaints of abdominal pain with an increase in peripheral WBC from 11,000 to 25,000. CT of the abdomen suggestive of colitis. Continues with temperatures of 38°C.

On 2/9 the patient is moved to the intermediate care unit. Late that evening, he has a temperature spike to 38.8°C. Blood cultures are repeated.

On 2/10 the blood culture from 2/9 is reported as positive for gram-negative bacilli, which are subsequently identified as *Providencia stuartii*.

Case Study 4 Question 1: Does this patient have an HAI associated with the SICU?

a) Yes, this patient meets criterion 2b of symptomatic UTI with *Providencia stuartii*, and the bacteremia is secondary to the UTI.

b) No, the patient does not have an HAI associated with the SICU. The *C. difficile* infection was present on admission and his positive urine culture had <100,000 CFU/ml of an organism without the necessary clinical symptoms for a UTI. The positive blood culture is related to the intermediate care unit.

c) Yes, this patient meets criterion 2b of symptomatic UTI with *Providencia stuartii* and also has a CLABSI with *Providencia stuartii* since the BSI occurred 5 days after the UTI.

Case Study 4 Answer 1: a

This patient meets criterion 2b of SUTI. He did not have an indwelling urinary catheter at the time of specimen collection nor within 48 hours prior to specimen collection. He had a fever of 38.3*C, a positive urinalysis with leukocyte esterase, pyuria, and a urine culture positive for *Providencia stuartii* with 60,000 CFU/ml. The *C. difficile* infection was present on admission. The bacteremia is associated with the SICU as it occurred within 48 hours of transfer, but is secondary to the UTI.

Case Study 4 Question 2: Does the patient have a CAUTI?

a) No, the patient wasn't catheterized
b) Yes, this is a CAUTI
c) No, there were no symptoms present so the patient does not have a CAUTI

Case Study 4 Answer 2: a

Although this patient meets the criteria for a UTI, it is not a CAUTI because no indwelling catheter was present in the 48 hours before infection. An indwelling catheter is defined as "a drainage tube that is inserted into the urinary bladder through the urethra…". A condom catheter does not meet this definition.

Case Study 4 Question 3: What if we altered the scenario and set the patient's maximum temperature on 2/4 as 38.0*C. Does the patient have an HAI?

a) Yes, the patient meets criterion 2b of symptomatic UTI (SUTI) with *Providencia stuartii* and the bacteremia secondary to the UTI
b) Yes, this is an asymptomatic bacteremic UTI (ABUTI)
c) Yes, this is a CLABSI with *Providencia stuartii*
d) No, the patient was never symptomatic

Case Study 4 Answer 3: c

Symptoms are required to meet criterion 2b of SUTI, and include fever which is defined as >38C or >100.4F. The patient's temperature never surpassed 38*C. The left IJ was inserted on 2/2 and was in place within the 48 hours prior to culture. *Providencia stuartii* is not a common skin commensal organism, therefore BSI criterion 1, which does not require the presence or absence of symptoms is met, making this a healthcare-associated CLABSI. Asymptomatic bacteriuria was removed from the NHSN specific infection types in Spring 2009. NHSN criteria are not met for an asymptomatic bacteremic urinary tract infection (ABUTI) because the patient lacks sufficient quantity of organisms in the urine specimen (must be >100,000 CFU/ml).