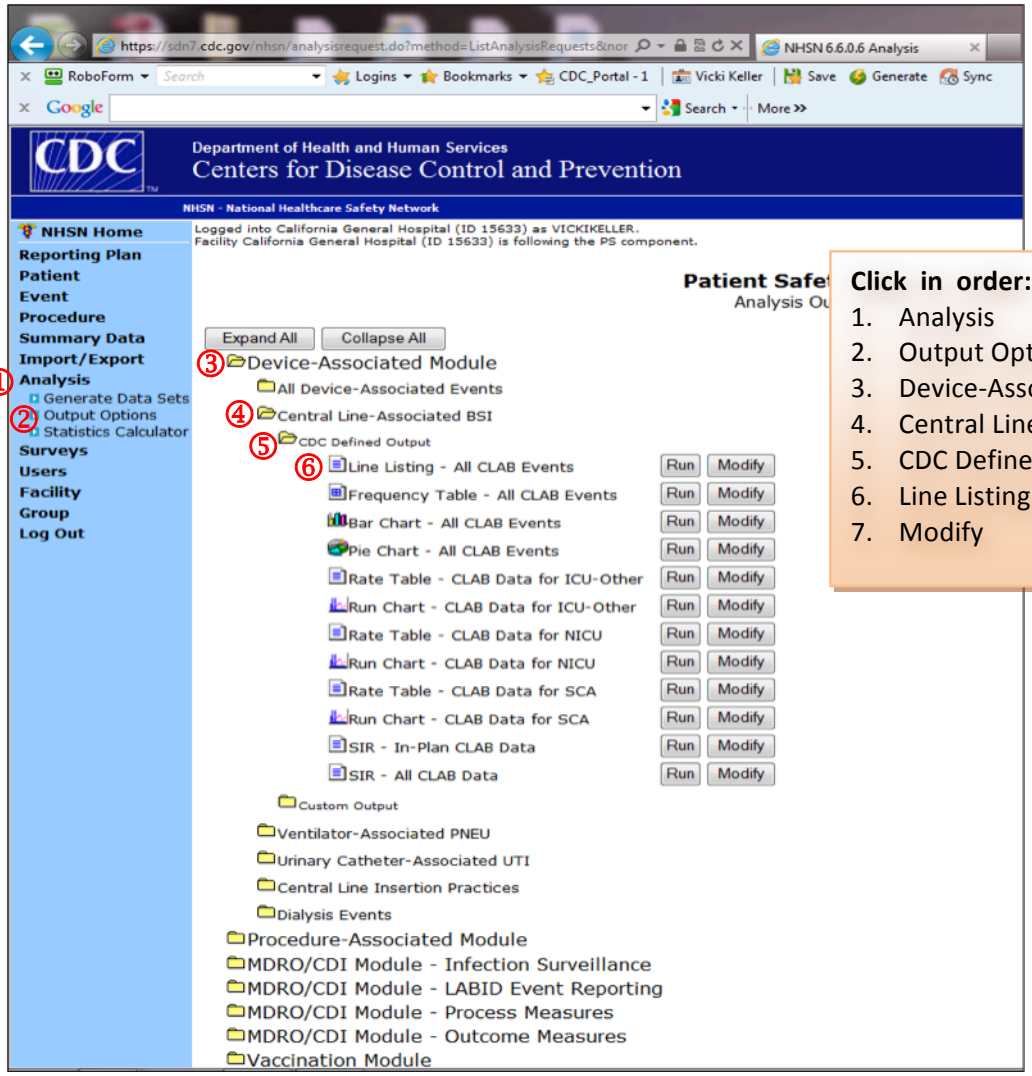
Using NHSN Analysis Features for Prevention: CLIP

Monitoring central-line insertion practices (CLIP) is an important process measure for surveillance. CLIP is a frequently reported type of data entered into NHSN by California hospitals, yet many hospitals are not familiar with how to use CLIP data in their efforts to prevent CLABSI. The purpose of this guide is to introduce hospitals to some practical applications of CLIP data for assessing CLABSI and to challenge them to explore new infection prevention strategies through expanded use of NHSN's Analysis functions.

Evaluating CLABSIs Using CLIP Data

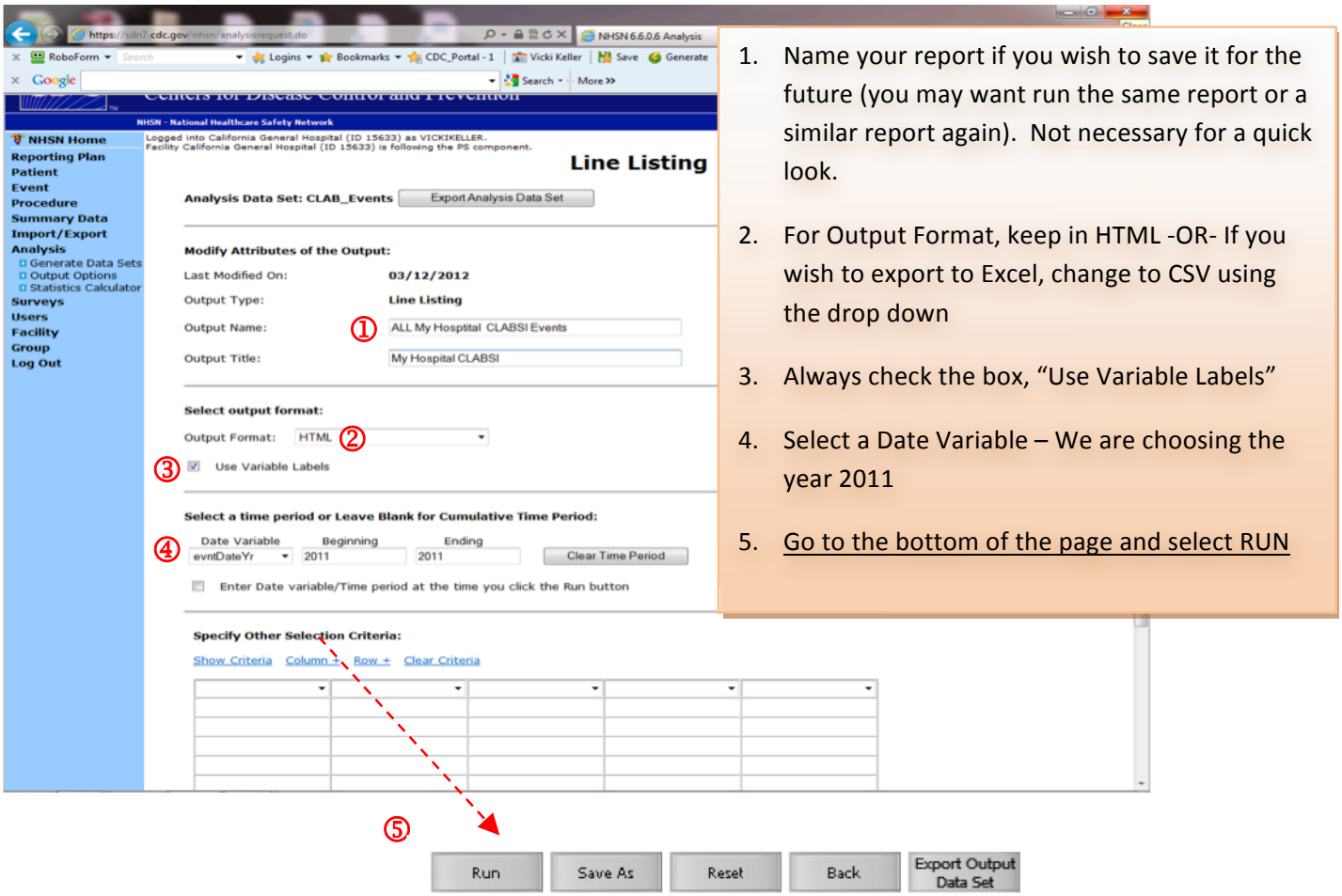
1) Generate a data set prior to running reports in Analysis to be sure all data are up to date

2) Run a line list of your CLABSI (in this example, we will use 2011 data): Click Analysis → Output Options→ Device Associated Events →Central Line Associated BSI →CDC Defined Output→ Line Listing-All CLAB Events→ Modify



Click in order:
1. Analysis
2. Output Options
3. Device-Associated Module
4. Central Line-Associated BSI
5. CDC Defined Output
6. Line Listing – All CLAB Events
7. Modify

3) When you click Modify, the Line Listing screen will appear

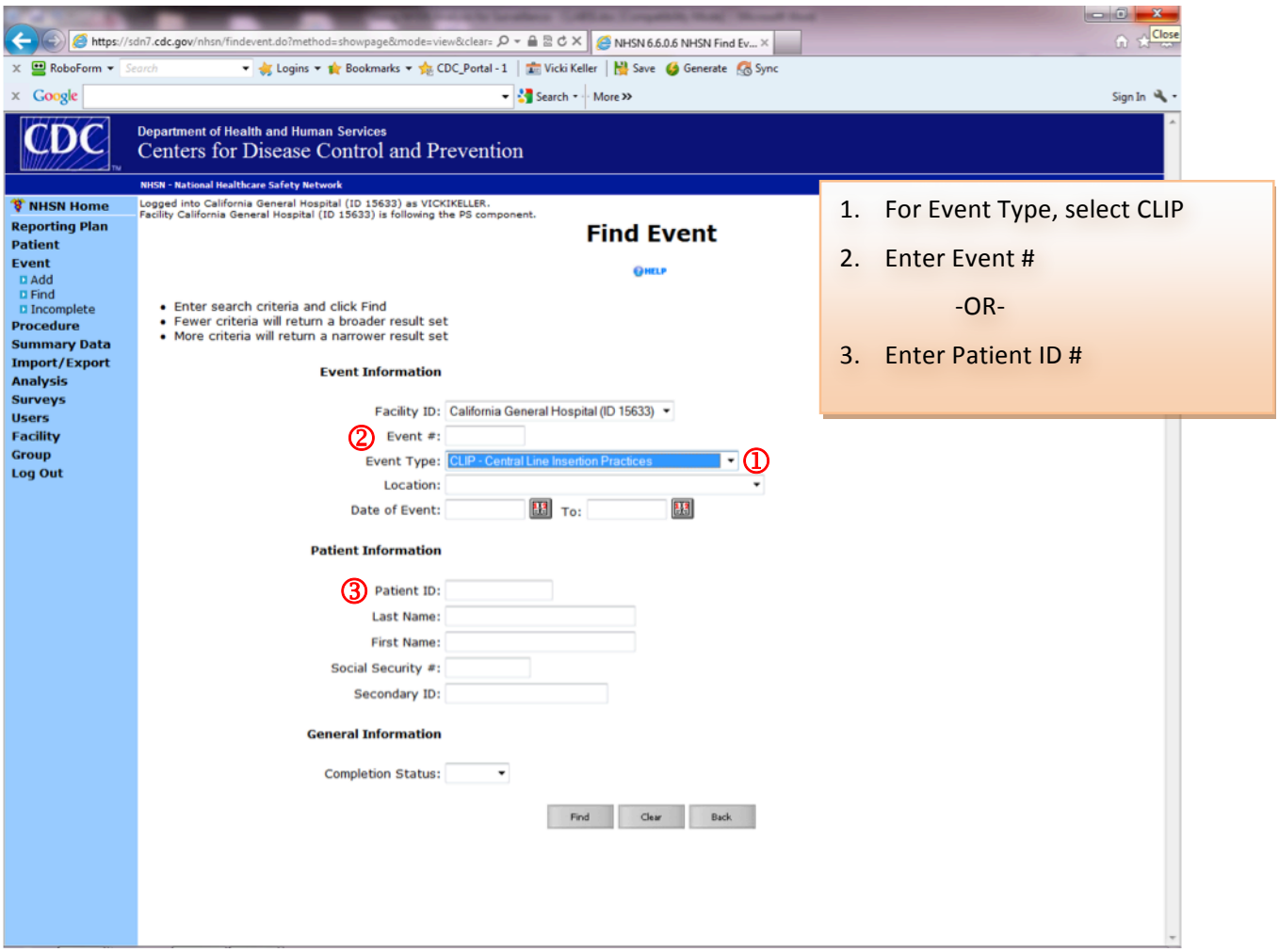


4) A CLABSI line list is shown below. Our example hospital had 12 CLABSI during 2011. For this example, we are going to look at the 5 CLABSI in the unit name "1MICU. (You may wish to print this line list.)

orgID	patID	dob	gender	admitDate	eventID	eventDate	eventType	spcEvent	location
15633	1	12/03/2009	M	.	4817681	02/15/2011	BSI	LCBI	3 SICU
15633	100008	04/10/2011	F	04/10/2011	5692782	04/15/2011	BSI	LCBI	8586 NICU
15633	123123	12/21/1944	F	11/02/2011	6319325	11/22/2011	BSI	LCBI	Z-MED/SURG
15633	12347	11/01/1960	F	01/01/2011	4096450	01/04/2011	BSI	LCBI	Z-ICU
15633	312345	01/30/1945	M	08/22/2011	6463058	08/26/2011	BSI	LCBI	1 MICU
15633	321432	11/01/1945	F	08/08/2011	6463059	08/08/2011	BSI	LCBI	1 MICU
15633	321654	01/31/1944	F	04/03/2011	6463066	04/06/2011	BSI	LCBI	1 MICU
15633	332145	12/22/1957	F	03/10/2011	6463068	03/15/2011	BSI	LCBI	1 MICU
15633	3453456	03/23/2011	M	12/02/2011	6319327	12/19/2011	BSI	LCBI	BMT
15633	3453457	12/25/1944	F	11/15/2011	6319329	12/25/2011	BSI	LCBI	1 MICU
15633	567567	09/19/1956	M	10/01/2011	6319306	10/15/2011	BSI	LCBI	Z-MED/SURG
15633	Z-TEST006	01/01/1980	M	05/25/2011	4817025	06/01/2011	BSI	LCBI	DLB

Focusing on the 5 CLABSI in 1 MICU, now we are going look up the associated CLIP records by Patient ID or Event ID.

5) In the blue navigation bar, click: Event→ Find. The Find Event screen will appear. In Event Type, use the drop down to select "CLIP." For the first CLABSI that will be evaluated, enter the Patient ID number or Event Number in the appropriate field.



6) When the CLIP Event record is found, check to see if all clinical practice elements were followed during the insertion of the central line. This is an important evaluation that should be done for each CLABSI. It can help you understand why a CLABSI may have occurred.

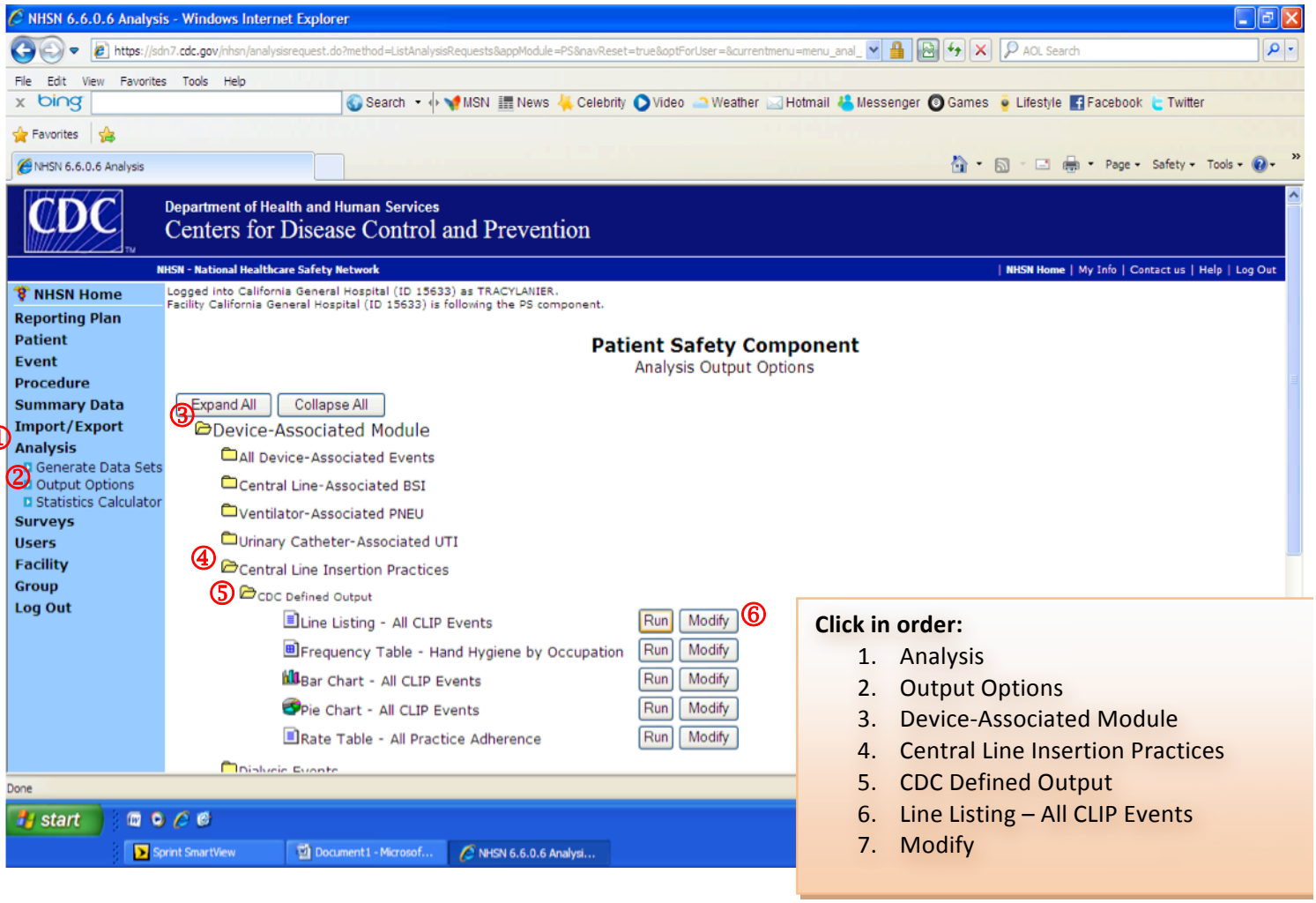
(Remember, for unit-based analysis, another important method to understand why CLABSI may occur is overuse of central iines or not getting lines out as soon as possible. See "March Madness Week 1: CLABSI," to learn to evaluate each of your hospital unit's central line device utilization ratio or DUR.)

Exploring Use of Femoral Lines with CLIP Data

Central lines inserted in a femoral access site raises the risk for CLABSI. The central line bundle recommends avoiding femoral sites when other alternatives are possible. CLIP data can be used to monitor your hospital units' use of femoral lines. This section will further explore how to modify NHSN reports to create custom reports to assist with your CLABSI prevention efforts.

1) Generate a data set prior to running NHSN Analysis reports to be sure all data are up to date. (NOTE: You not need to generate a new data set if you have not entered data since the last data set was generated.

2) Run a line list of your CLIP Events: Click Analysis→Output Options→ Device Associated Events →Central Line Insertion Practices →CDC Defined Output→ Line Listing-All CLIP Events→ Modify



Click in order:

1. Analysis
2. Output Options
3. Device-Associated Module
4. Central Line Insertion Practices
5. CDC Defined Output
6. Line Listing – All CLIP Events
7. Modify

3) When you click Modify, the Line Listing screen will appear. To filter your CLIP data you can modify which variables and data are to be included (or excluded) from your report:

NHSN - National Healthcare Safety Network

NHSN Home
Reporting Plan
Patient
Event
Procedure
Summary Data
Import/Export
Analysis
Generate Data Sets
Output Options
Statistics Calculator
Surveys
Users
Facility
Group
Log Out

Logged into California General Hospital (ID 15633) as LYNNJANSSEN.
Facility California General Hospital (ID 15633) is following the PS component.

Line Listing

Analysis Data Set: CLIP_Events Export Analysis Data Set

Modify Attributes of the Output:

Last Modified On: **03/26/2012**

Output Type: **Line Listing**

Output Name: ① Line Listing - All CLIP Events

Output Title: Line Listing for All Central Line Insertion Pra

Select output format:

② Output Format: HTML

③ Use Variable Labels

Select a time period or Leave Blank for Cumulative Time Period:

Date Variable ④ InsDateYr | Beginning 2011 | Ending 2011 | Clear Time Period

Enter Date variable/Time period at the time you click the Run button

Specify Other Selection Criteria:

Show Criteria Column + Row + Clear Criteria

insertSite ⑤ | ⑥

Just like you did with the CLABSI line list:

1. Name your CLIP line list report if you wish to save it for the future
2. For Output Format, leave in HTML unless you wish to export to Excel.
3. Always check the box, "Use Variable Labels"
4. Select a Date Variable – We are choosing the year 2011

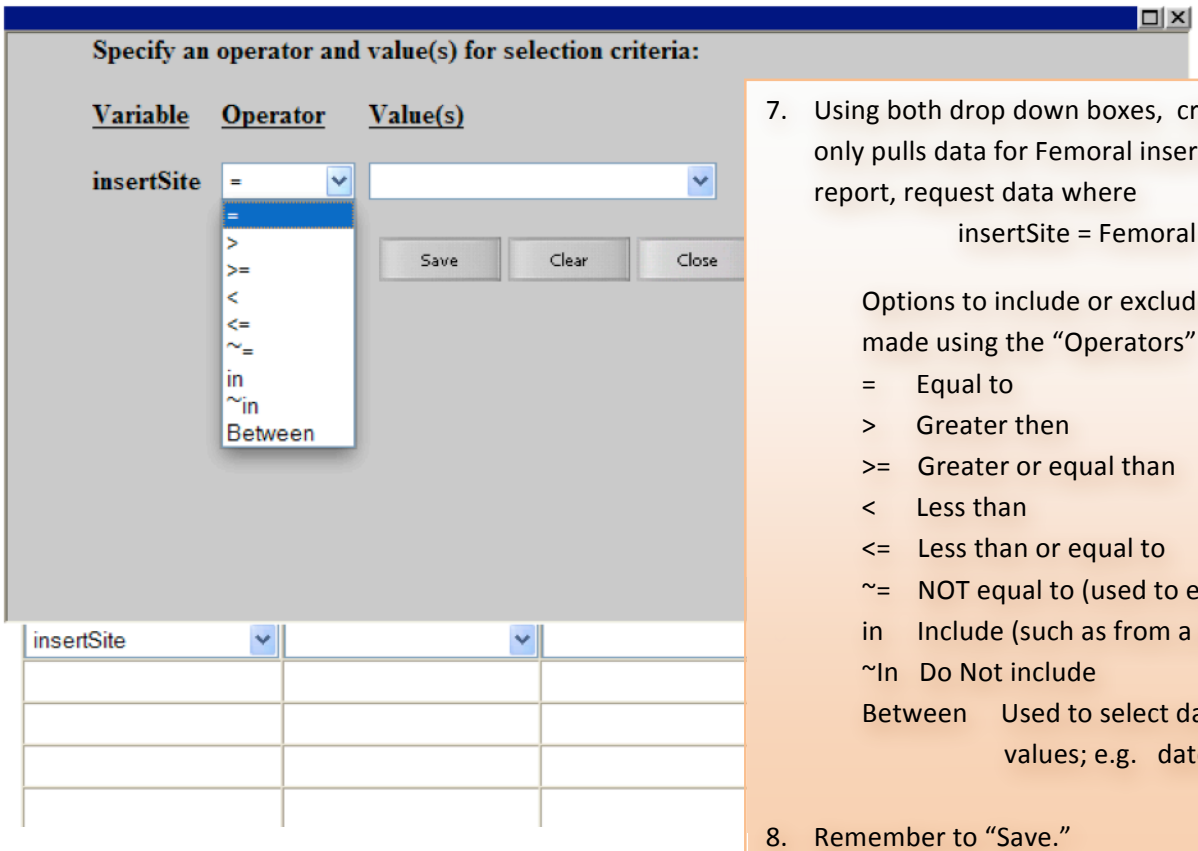
The table "Specify Other Selection Criteria" allows you to filter what you want to include or not include in your reports. You can

- request only certain data variables
- limit each data variable to specific responses

5. In the 1st box in the top row, use the drop down menu. Select the variable "insertSite"

6. After insertSite appears, click on the empty box right below to limit your choice of insertion site

The following screen will appear.



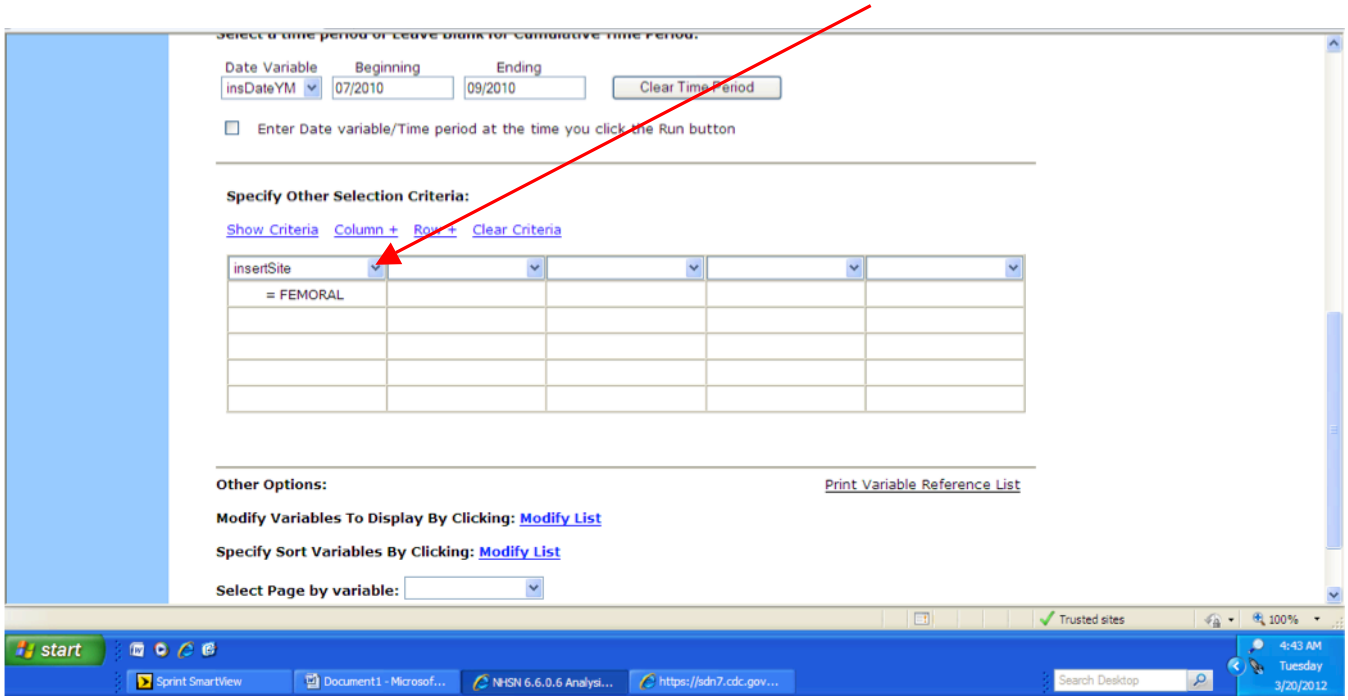
7. Using both drop down boxes, create a report that only pulls data for Femoral insertion site. For this report, request data where

   insertSite = Femoral

   Options to include or exclude data can be made using the "Operators"

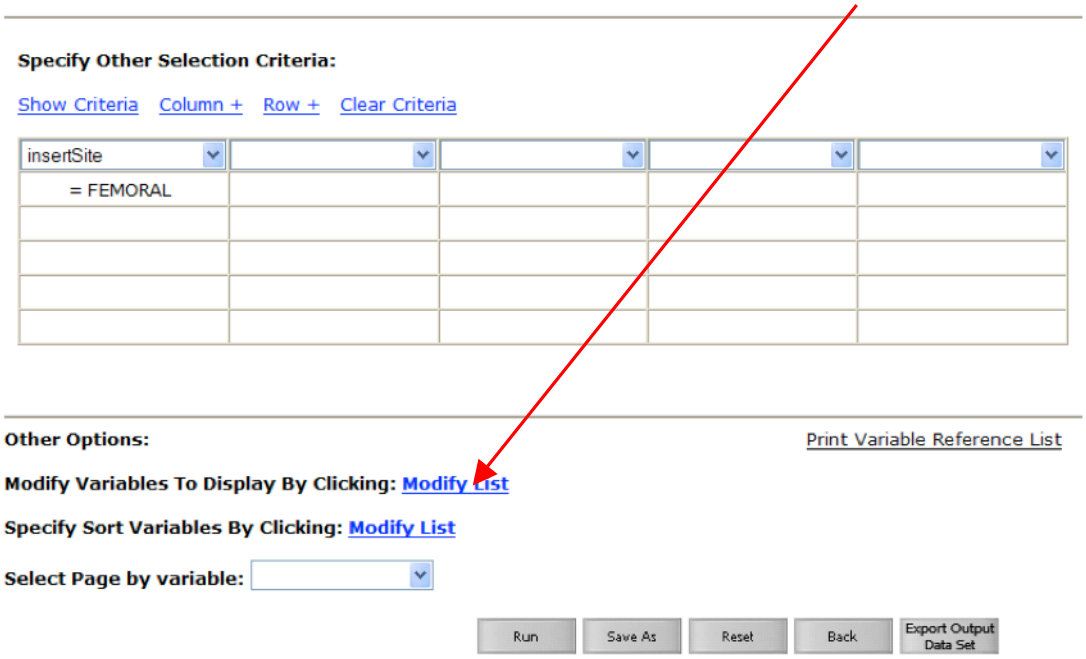
   = Equal to
   > Greater then
   >= Greater or equal than
   < Less than
   <= Less than or equal to
   ~= NOT equal to (used to exclude data)
   in Include (such as from a list)
   ~In Do Not include
   Between Used to select data between 2 values; e.g. dates, numbers, etc.

8. Remember to "Save."

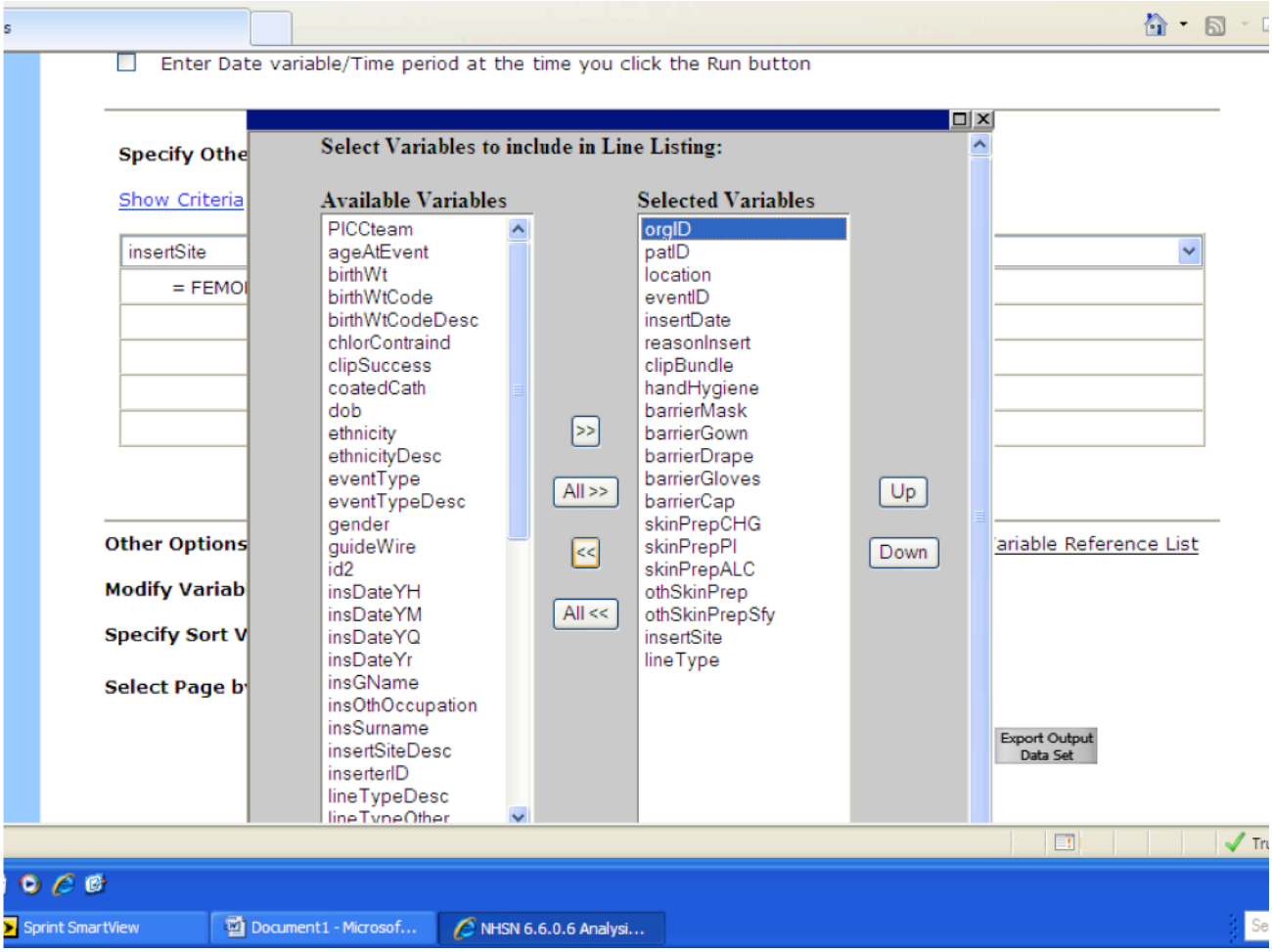


The gray box will close and you will have selected your inclusion criteria: insertion site limited to femoral.

4) You can select which variables to **show** in your report. Click on "Modify Variables to Display," Modify List".



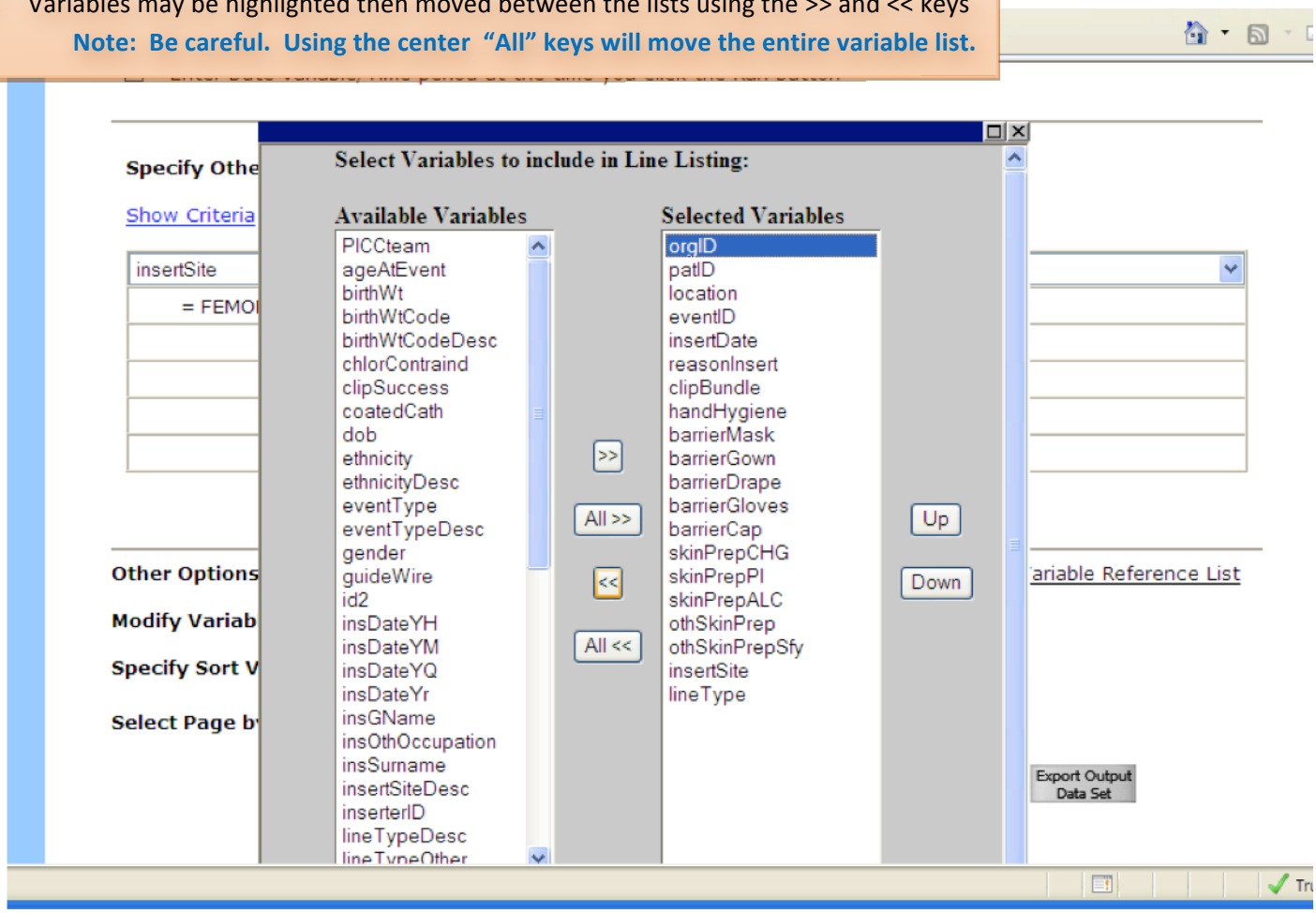
The screen appears as below. "Selected Variables" are the variables CDC built into this "canned" report. You don't have to use all variables, and you can include other variables that CDC did not include.



To Modify Variables:

- **"Available Variables"** lists all CLIP-related variables available in NHSN for analysis
- **"Selected Variables"** are those variables chosen by NHSN for the typical CLIP report. They are listed in the order they will appear of the line listing (as column headers).
- Variables may be highlighted then moved between the lists using the >> and << keys

Note: Be careful. Using the center "All" keys will move the entire variable list.



To create what will appear in the Femoral line report, some variables should be changed.

- Some variables, pre-selected by CDC, do not need to be included in this Femoral report. Move from "Selected Variables" to "Available Variables:"

  orgID, handHygiene, barrierDrape, skinPrepALC, barrierMask, barrierGloves, othSkinPrep barrierGown, barrierCap, skinPrepPI,

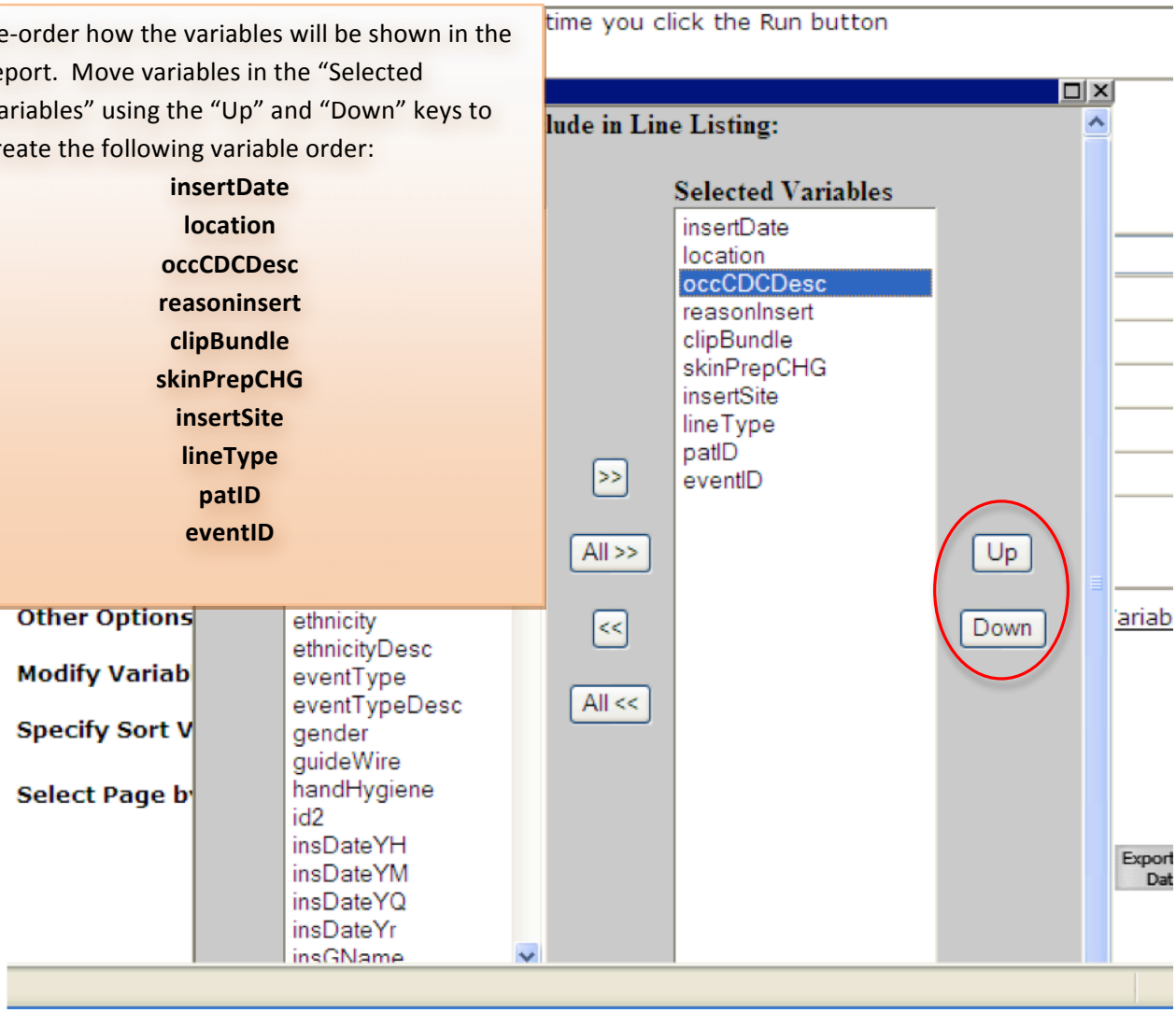
- A variable should be added to the report. Move from "Available Variables" to "Selected Variables:":

  occCDCDesc

Your list of Femoral site central lines is ready to run when it has the modified “Selected Variables” as below.

1. Re-order how the variables will be shown in the report. Move variables in the “Selected Variables” using the “Up” and “Down” keys to create the following variable order:

insertDate
location
occCDCDesc
reasoninsert
clipBundle
skinPrepCHG
insertSite
lineType
patID
eventID



2. After your variables are placed in order, scroll down and click “Save.”

3. Scroll to the bottom of the page and press “Run”. The report will show the variables you have chosen as the column headings (in same order as listed).

This report will indicate in order: **date of insertion, location, occupation of the inserter, reason for line, CLIP bundle adherence, skin prep, insertion site (to verify as Femoral), type of line, patient and Event ID.**

If you have entered the name of the inserter, you can add it to your report in the same manner (Add variable “insSurname”).

5) Review your Line list of Femoral insertions. Evaluate each to determine if no alternate insertions sites were possible, as well as check whether any of the Femoral line insertions subsequently resulted in a CLABSI.

https://sdn7.cdc.gov/?method=runFromView&NHSNSessionID=6976 - NHSN Output - CLIP Teleclass Femo - Wind...

File Edit View Favorites Tools Help

National Healthcare Safety Network

CLIP Teleclass Femoral Line Insertion Report

As of: March 20, 2012 at 7:42 AM

Date Range: CLIP_EVENTS insDateYM 2010M07 to 2010M09

Insertion Date	Location	CDC Occupation Description	Reason for Insertion	CLIP Bundle	Skin Prep: Chlorohexidine gluconate?	Insertion Site	CL Cath Type	Patient ID	Event ID
07/13/2010	Z-ICU	IVT - IVT Team Staff	REPLACE	Y	Y	FEMORAL	NONTUNN	123456	6097407
07/21/2010	1 SICU	FEL - Fellow	NEWIND	N	Y	FEMORAL	NONTUNN	125439	3494535
07/22/2010	M/SICU	PHY - Attending Physician	REPLACE	Y	Y	FEMORAL	NONTUNN	235435	6106798
07/05/2010	Z-ICU	PHY - Attending Physician	NEWIND	N	Y	FEMORAL	DINONTUNN	274958	6106454
09/19/2010	1 MICU	RES - Intern/Resident	SUSPECT	Y	Y	FEMORAL	NONTUNN	324232	6187718
09/04/2010	Z-ICU	PHY - Attending Physician	NEWIND	Y	Y	FEMORAL	NONTUNN	325222	6187715
09/02/2010	ICU EAST	PHY - Attending Physician	NEWIND	N	N	FEMORAL	NONTUNN	434756	6186446
09/18/2010	Z-ICU	PHY - Attending Physician	NEWIND	Y	Y	FEMORAL	NONTUNN	465455	6186514
07/08/2010	M/SICU	PHY - Attending Physician	SUSPECT	Y	Y	FEMORAL	NONTUNN	648593	6106757
07/30/2010	ICU EAST	PHY - Attending Physician	NEWIND	Y	Y	FEMORAL	DITUNN	676343	6106320
07/22/2010	ICU EAST	PHY - Attending Physician	NEWIND	Y	Y	FEMORAL	NONTUNN	848354	6106483

To look for patterns and trends, you may also make quick changes to this report to sort the data. Use the "Specify Sort Variables" function to order data for specific variables.

- Example: For the variable "location", you can sort by date of infection for each location.

For best results, do not sort by more than 1 or 2 variables at a time!

Specify Other Selection Crite

Show Criteria Column + Row

insertSite	
= FEMORAL	

Other Options:

Modify Variables To Display By Clicking: Modify List

Specify Sort Variables By Clicking: Modify List

Select Page by variable:

Run | Save As | Reset | Back | Export Output Data Set

National Healthcare Safety Network
CLIP Teleclass Femoral Line Insertion Report

As of: March 20, 2012 at 7:48 AM
Date Range: CLIP_EVENTS insDateYM 2010M07 to 2010M09

Insertion Date	Location	CDC Occupation Description	Reason for Insertion	CLIP Bundle	Skin Prep: Chlorohexidine gluconate?	Insertion Site	CL Cath Type	Patient ID	Event ID
09/19/2010	1 MICU	RES - Intern/Resident	SUSPECT	Y	Y	FEMORAL	NONTUNN	324232	6187718
07/21/2010	1 SICU	FEL - Fellow	NEWIND	N	Y	FEMORAL	NONTUNN	125439	3494535
07/09/2010	ICU EAST	OMS - Other Medical Staff	REPLACE	N	Y	FEMORAL	NONTUNN	978654	6106755
09/02/2010	ICU EAST	PHY - Attending Physician	NEWIND	N	N	FEMORAL	NONTUNN	434756	6186446
07/30/2010	ICU EAST	PHY - Attending Physician	NEWIND	Y	Y	FEMORAL	DITUNN	676343	6106320
07/22/2010	ICU EAST	PHY - Attending Physician	NEWIND	Y	Y	FEMORAL	NONTUNN	848354	6106483
07/22/2010	M/SICU	PHY - Attending Physician	REPLACE	Y	Y	FEMORAL	NONTUNN	235435	6106798
07/08/2010	M/SICU	PHY - Attending Physician	SUSPECT	Y	Y	FEMORAL	NONTUNN	648593	6106757
07/13/2010	Z-ICU	IVT - IVT Team Staff	REPLACE	Y	Y	FEMORAL	NONTUNN	123456	6097407
07/05/2010	Z-ICU	PHY - Attending Physician	NEWIND	N	Y	FEMORAL	DINONTUNN	274958	6106454
09/04/2010	Z-ICU	PHY - Attending Physician	NEWIND	Y	Y	FEMORAL	NONTUNN	325222	6187715
09/18/2010	Z-ICU	PHY - Attending Physician	NEWIND	Y	Y	FEMORAL	NONTUNN	465455	6186514

Sorted by location occCDCDesc
Data contained in this report were last generated on March 8, 2012 at 7:25 PM.
Adherence to CLIP bundle is met if handHygiene, all 5 barriers, prepDry, and skinPrepCHG are YES. Exception: For infants less than 2 months old, YES to any listed skin prep agent is allowed.

Using the sort function can help you review the line list. In our example above, we see that

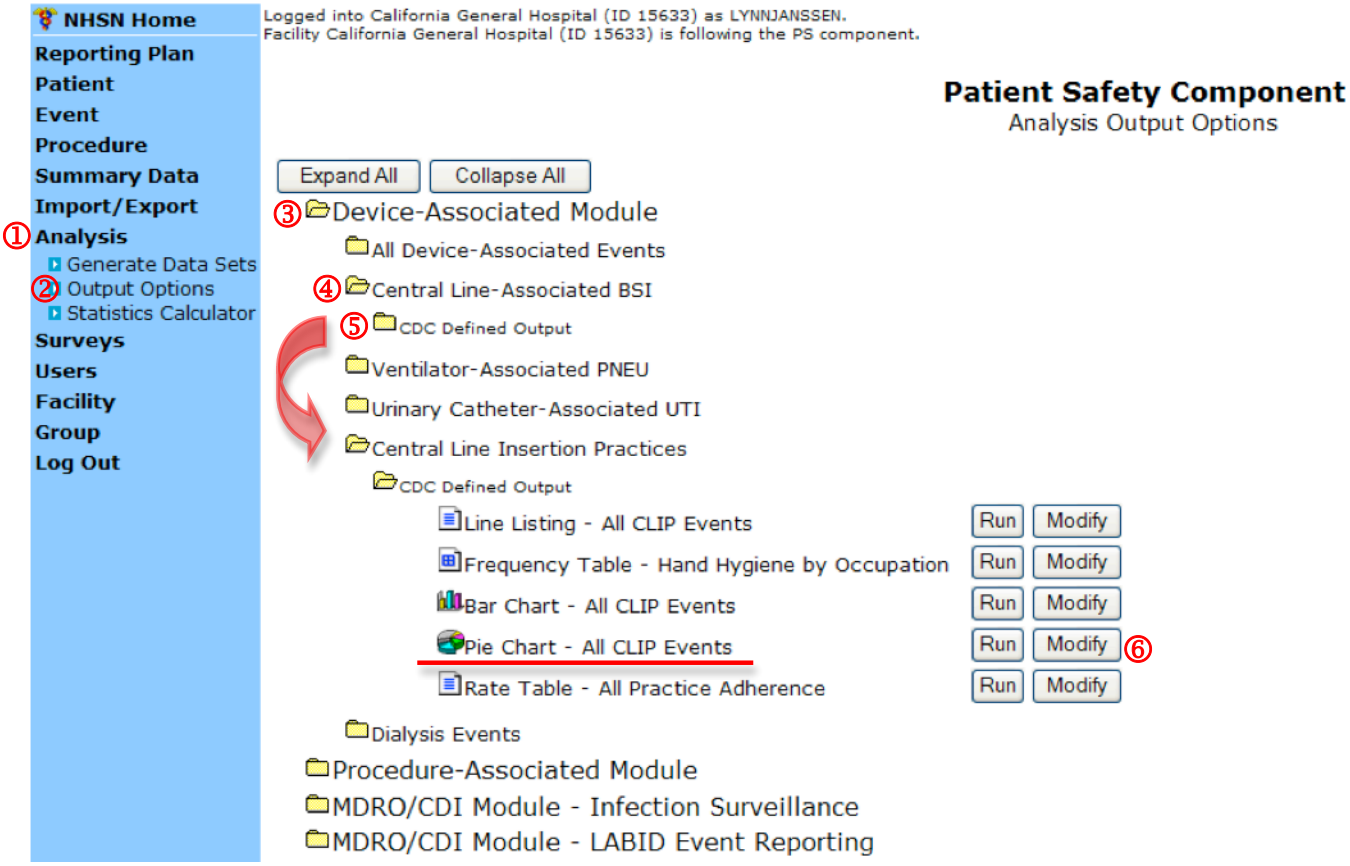
- femoral lines were inserted in ICU East and Z-ICU
- femoral insertions were primarily done by attending physicians.

The data indicate that you may want to assess indications for femoral line use on these units, and consider collaborating with other departments (Medical Staff, Quality) to review the cases with the physicians to determine if there were alternative central line insertion site choices.

Graphical Display of Line Insertion Site Data

Central line insertion site monitoring can also be used as a process measure included in your hospital's surveillance plan. You can review the distribution of central line insertion sites, and over time, monitor for decreases (or increases) in the use of femoral lines.

1) A good way to display the breakdown of central line insertion sites is to produce a Pie Chart for each location. Follow the steps as below.



2) After you click modify, the Pie Chart screen will appear. Make the following modifications.

NHSN - National Healthcare Safety Network

Logged into California General Hospital (ID 15633) as LYNNJANSSEN.
Facility California General Hospital (ID 15633) is following the PS component.

Pie Chart

Analysis Data Set: CLIP_Events Export Analysis Data Set

Modify Attributes of the Output:

Last Modified On: **03/27/2012**

Output Type: **Pie Chart**

Output Name: Pie Chart - All CLIP Events

Output Title: Pie Chart for All Central Line Insertion Practices Events

Change name if you plan to save this report for future use.

Select output format:

☑ Use Variable Labels

Select a time period or Leave Blank for Cumulative Time Period:

Date Variable	Beginning	Ending
insDateYr	2011	2011

Clear Time Period

☐ Enter Date variable/Time period at the time you click the Run button

Specify Other Selection Criteria:

Show Criteria Column + Row + Clear Criteria

Other Options: Print Variable Reference List

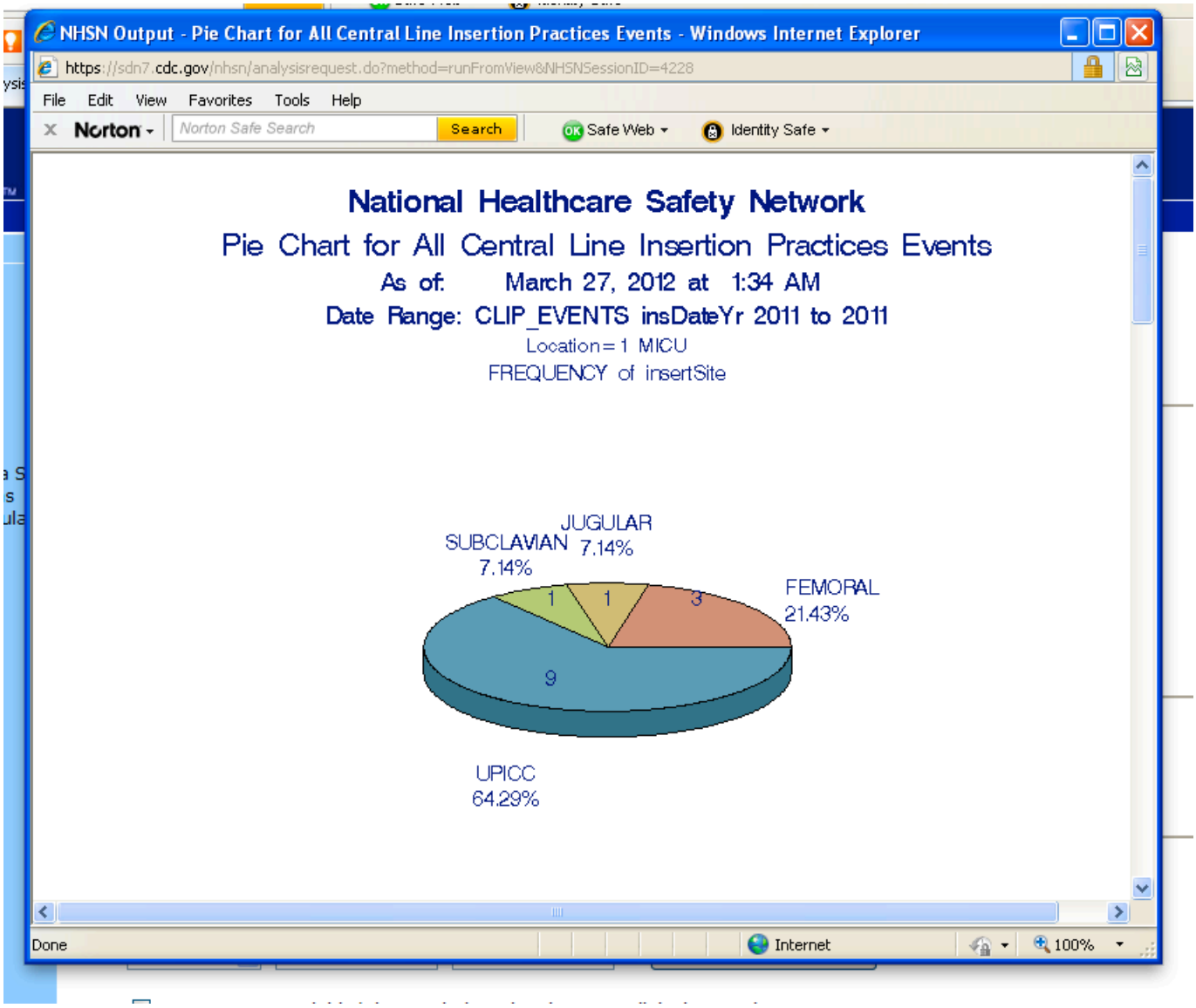
Select Variables to include:

Chart Variable:	Stratification Variable:	Page by:
insertSite		location

Number of pies across a page = 1
Number of pies down a page = 1
Placement of the Percent = Outside
Placement of the Slice Label = Outside
Placement of the Value = Inside

Run Save As Reset Back

3) After you click run, a Pie chart showing the distribution of central lines by insertion site will be produced for each location monitored for CLIP within your hospital. Use data to assess the percentage of femoral line use compared to percentage of the other insertion sites, which are at lower risk for CLABSI.



In this example, femoral line use represents 21% of all lines inserted. Incorporate these data into your CLABSI prevention efforts. Can you decrease the percentage of femoral line use?

You have spent a considerable amount of time entering CLIP data into NHSN .

We encourage you to **USE the CLIP data** in your CLABSI prevention efforts!