NHSN Infection Infection Rate Extracted to Combine with Antibiotic Use Data

Description: These instructions will demonstrate how to calculate *C. difficile* infection (CDI) rates for a specific hospital location. This information can be useful to monitor how antibiotic use may be impacting CDI rates for a unit. Trending CDI rates over time alongside antibiotic use can also be used to provide feedback to specific hospital units.

For this example, we will determine monthly CDI rates for a specific hospital surgical ward.

$$\frac{hospital\ onset\ CDI\ events}{patient\ days}\ x\ 1000$$
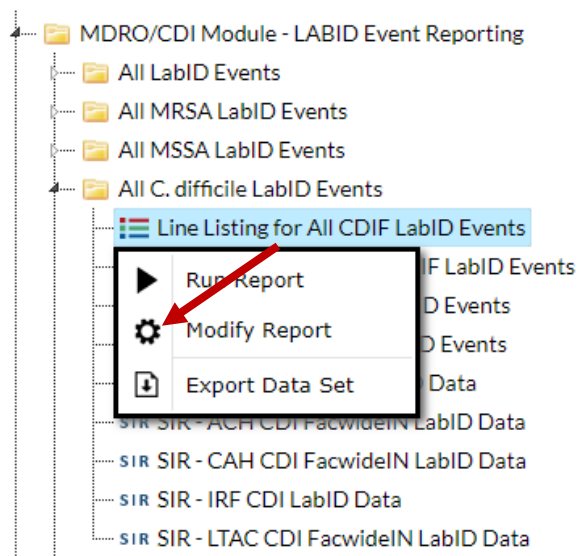
Data Sources:

1. NHSN Modules -- Both the numerator and denominator can be obtained from HAI NHSN module.

Numerator—Hospital onset CDI events for a specific hospital location
Modifying the Report:

Within the NHSN Reporting portal, click Analysis > Reports > MDRO/CDI Module – LABID Event Reporting > All C. difficile Lab ID Events > Line Listing for All CDIF LabID Events

1. Select Modify Report:

2. Select xls as format for export:

3. On the Time Period tab, select the date variable of specDateYM and enter the desired range of months:

4. On the Filters tab, select Add rule. Choose locLabel from the menu and select the specific hospital location of interest:

5. Select Export and open the file in Excel™. To avoid losing data as you work, save the file to your computer and change the file type from CSV to an Excel document type of your choosing (e.g., ".xlsx").

Denominator—Patient-days for a specific hospital location
Modifying the Report:
Within the NHSN Reporting portal, click Analysis > Reports > Advanced > Summary-level Data > Line Listing – All Summary Data

1. Select Modify Report

2. Select xls as format for export:

3. On the Time Period tab, select the date variable summaryYM and enter the desired range of months:

4. On the Filters tab, add locLabel and select the location of interest

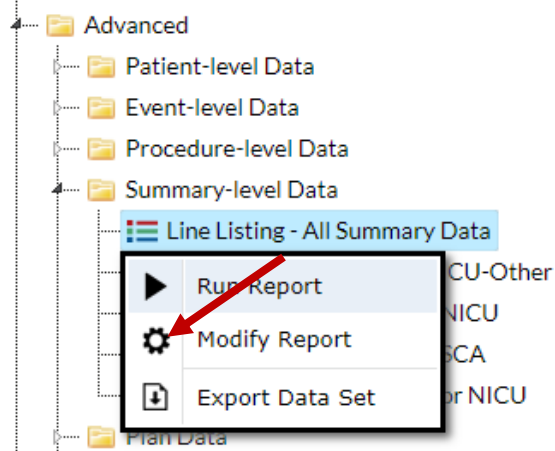5. On the Display Options tab under Line Listing Options, select eventType

6. Select Export and open the file in Excel™. To avoid losing data as you work, save the file to your computer and change the file type from CSV to an Excel document type of your choosing (e.g., ".xlsx").

Manipulating Data in Excel:

7. Set up a spreadsheet with the following headings:

	A	B	C	D	E	F
1	Month-Year	location	number HO CDI events	patient-days	HO CDI events/1000 patient-days	
2	Jan-22	SURG - SURG				
3	Feb-22	SURG - SURG				
4	Mar-22	SURG - SURG				
5	Apr-22	SURG - SURG				
6	May-22	SURG - SURG				
7	Jun-22	SURG - SURG				
8	Jul-22	SURG - SURG				
9	Aug-22	SURG - SURG				
10	Sep-22	SURG - SURG				
11	Oct-22	SURG - SURG				
12	Nov-22	SURG - SURG				
13	Dec-22	SURG - SURG				
14						

8. Working with the NHSN export for CDI events, sort the data by specimenDate column and count the number HO events (from onset column) occurring during each month. In this example, there were 5 HO CDI events in the SURG unit in 2022. Update the rows in your spreadsheet with the count for each month.

E	F	G	H	I	L	M	N	O	P	Q
location	outpatien	prevPos	onset	cdiAssay	specimenSource	specimenDate	FWCDIF_f	FWCDIF_admPrevCOCount		
SURG - SURG	N	N	HO	INCIDENT	STOOL	2/10/2022	1	0		
SURG - SURG	N	N	HO	INCIDENT	STOOL	4/2/2022	1	0		
SURG - SURG	N	N	HO	INCIDENT	STOOL	6/3/2022	1	0		
SURG - SURG	N	N	HO	INCIDENT	STOOL	6/10/2022	1	0		
SURG - SURG	N	N	HO	INCIDENT	STOOL	9/15/2022	1	0		
SURG - SURG	N	N	CO-HCFA	INCIDENT	STOOL	11/20/2022	0	0		
SURG - SURG	N	Y	CO	INCIDENT	STOOL	12/18/2022	0	1		

9. In the NHSN export for patient days, make sure the data are sorted by eventtype. For each event type, there will be 12 rows, one for each month. The patient-days for the unit for each month can be found in the numpatdays column. Copy these into your spreadsheet for patient-days for each month.

	A	B	C	D	E	F	G	H
1	location	orgid	summaryYM	summarytype	loccdc	eventtype	numpatdays	numddays
2	SURG - SURG	16195	Jan-22	ICU	IN:ACUTE:CC:S	CAU	450	372
3	SURG - SURG	16195	Feb-22	ICU	IN:ACUTE:CC:S	CAU	382	328
4	SURG - SURG	16195	Mar-22	ICU	IN:ACUTE:CC:S	CAU	423	327
5	SURG - SURG	16195	Apr-22	ICU	IN:ACUTE:CC:S	CAU	401	310
6	SURG - SURG	16195	May-22	ICU	IN:ACUTE:CC:S	CAU	402	265
7	SURG - SURG	16195	Jun-22	ICU	IN:ACUTE:CC:S	CAU	393	316
8	SURG - SURG	16195	Jul-22	ICU	IN:ACUTE:CC:S	CAU	449	377
9	SURG - SURG	16195	Aug-22	ICU	IN:ACUTE:CC:S	CAU	438	323
10	SURG - SURG	16195	Sep-22	ICU	IN:ACUTE:CC:S	CAU	429	316
11	SURG - SURG	16195	Oct-22	ICU	IN:ACUTE:CC:S	CAU	461	327
12	SURG - SURG	16195	Nov-22	ICU	IN:ACUTE:CC:S	CAU	443	326
13	SURG - SURG	16195	Dec-22	ICU	IN:ACUTE:CC:S	CAU	432	313
14	SURG - SURG	16195	Jan-22	ICU	IN:ACUTE:CC:S	CLAB	456	376
15	SURG - SURG	16195	Feb-22	ICU	IN:ACUTE:CC:S	CLAB	386	288
16	SURG - SURG	16195	Mar-22	ICU	IN:ACUTE:CC:S	CLAB	423	216
17	SURG - SURG	16195	Apr-22	ICU	IN:ACUTE:CC:S	CLAB	410	211
18	SURG - SURG	16195	May-22	ICU	IN:ACUTE:CC:S	CLAB	403	173
19	SURG - SURG	16195	Jun-22	ICU	IN:ACUTE:CC:S	CLAB	387	237
20	SURG - SURG	16195	Jul-22	ICU	IN:ACUTE:CC:S	CLAB	445	291
21	SURG - SURG	16195	Aug-22	ICU	IN:ACUTE:CC:S	CLAB	423	226

10. After entering the HO CDI events and patient-days in your spreadsheet (column D and E below), enter an equation to calculate CDI events per 1000 patient days (column F below).

	A	B	C	D	E	F
1	Month-Year	location	number HO CDI events	patient-days	HO CDI events/1000 patient-days	
2	Jan-22	SURG - SURG	0	450	0.00	
3	Feb-22	SURG - SURG	1	382	2.62	
4	Mar-22	SURG - SURG	0	423	0.00	
5	Apr-22	SURG - SURG	1	401	2.49	
6	May-22	SURG - SURG	0	402	0.00	
7	Jun-22	SURG - SURG	2	440	4.55	
8	Jul-22	SURG - SURG	0	449	0.00	
9	Aug-22	SURG - SURG	0	438	0.00	
10	Sep-22	SURG - SURG	1	429	2.33	
11	Oct-22	SURG - SURG	0	461	0.00	
12	Nov-22	SURG - SURG	0	443	0.00	
13	Dec-22	SURG - SURG	0	432	0.00	
14						