# 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:

odify "Line Listing for All CDIF LabID Events"									
3 Show descriptive	variable names <u>(Pri</u>	nt List)			Analysis Data Set: LabID_				
Title/Format	Time Period	Filters	Display Variables	Sort Variables	Display Options				
Title:		nte.							
Line Listing - Al	I CDIF LabID Ever	nts							
Format:		_							
html	pdf		xls	rtf -					
₩									

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

Iodify "Line Listing for All CDIF LabID Events"										
Show descriptive variable names (Print List) Analysis Data Set: LabID_Ev										
Title/Format	Time Period	Filters	Display Variables	Sort Variables	Display Options					
Time Period:										
Date Variable	Begi	nning	Ending							
specDateYM	✓ 01/	/2022	12/2022	Clear Time	Period					
🗆 Enter Date	variable/Time pe	riod at the t	ime you click the Run b	utton						

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

Modify "Line Listing for All CDIF LabID Events"										
Show descriptive variable names (Print List) Analysis Data Set: LabID_Events Type: Line Listing Last Generated: June 21, 2023 1:32 F										
Title/Format Time Period Filters	Display Variables	Sort Variables	Display Options							
Additional Filters: 🛛 Show 🔭	Clear									
AND OR					Add group					
AND OR					Add rule					
spcOrgType	♥ equal ♥	CDIF - C. difficile	~		Delete					
locLabel	♥ equal ♥	SURG - SURG	V		Delete					

5. Select Export and open the file in Excel<sup>TM</sup>. 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:

Show descriptive variable names (Print List)     Analysis Data Set: PSSummary											
Title/Format	Time Period	Filters	Display Variables	Sort Variables	Display Options						
Title: Line Listing for Format:	All Summary Data	3	xis O	rtf							

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

Modify "Line Listing - All Summary Data"										
Show descriptiv	ve variable names <u>(Pri</u>	Analysis Data Set: PSSu	mmary Type: Line Listing							
Title/Format	Time Period	Filters	Display Variables	Sort Variables	Display Options					
Time Period: Date Variable summaryYN	Beginning	Endin	18 2022 C	lear Time Period	I					
🗆 Enter Dat	e variable/Time pe									

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

N	Modify "Line Listing - All Summary Data"												
	Show descriptive	e variable names <u>(Pr</u>	int List)		Analysis Data Set: PSSum	mary Type: Line Listing	Last Generated: June 21, 2023 1:33 PM						
	Title/Format	Time Period	Filters	Display Variables	Sort Variables	Display Options							
	Additional Filte	ers: 🛛 Show	ж	Clear									
	AND OR							Add group					
	AND OF	٤						Add rule					
		bel	✓ equal	✓ SURG - SURG	3	~		Delete					

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

Modify "Line Listing - All Summary Data"										
Show descriptiv	e variable names <u>(Pri</u>	Analysis Data Set: PSSummary	Type: Line Listing							
Title/Format	Time Period	Filters	Display Variables	Sort Variables	Display Options					
Line Listing Op	Line Listing Options:									
Page by variable: eventType										

6. Select Export and open the file in Excel<sup>™</sup>. 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:

	А	В	с	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	н	1	L	M	N	0	Р	Q
location	outpatien	n prevPos	onset	cdiAssay	specimenSource	specimenDate	FWCDIF_f	FWCDIF_a	dmPrevCC	Count
SURG - SURG	N	N	но	INCIDENT	STOOL	2/10/2022	1	0		
SURG - SURG	N	N	но	INCIDENT	STOOL	4/2/2022	1	0		
SURG - SURG	N	N	но	INCIDENT	STOOL	6/3/2022	1	0		
SURG - SURG	N	N	но	INCIDENT	STOOL	6/10/2022	1	0		
SURG - SURG	N	N	но	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.

	А	В	С	D	E	F	G	Н
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).

	Α	В	С	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						