Exercise 1:

Infection Rates

*Screenshots are with Excel 2010 version, PC except where otherwise specified.

Activity 1: Create a table

1. Label column A: "ICU name"

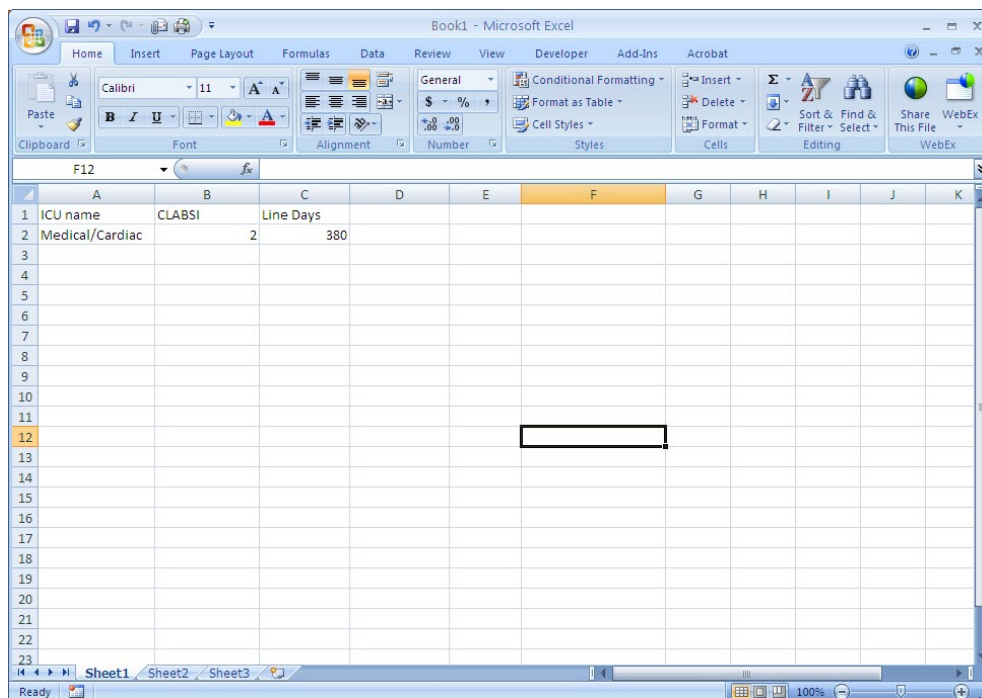   Label column B: "CLABSI"

   Label column C: "Line Days"

   *Enter what is inside the quotes, not the quotation marks themselves

2. Enter the following information into the appropriate columns and rows:

   - Medical Cardiac: 2 CLABSIs, 380 line days

   - Medical: 1 CLABSI, 257 line days

   - Medical/Surgical: 3 CLABSIs, 627 line days

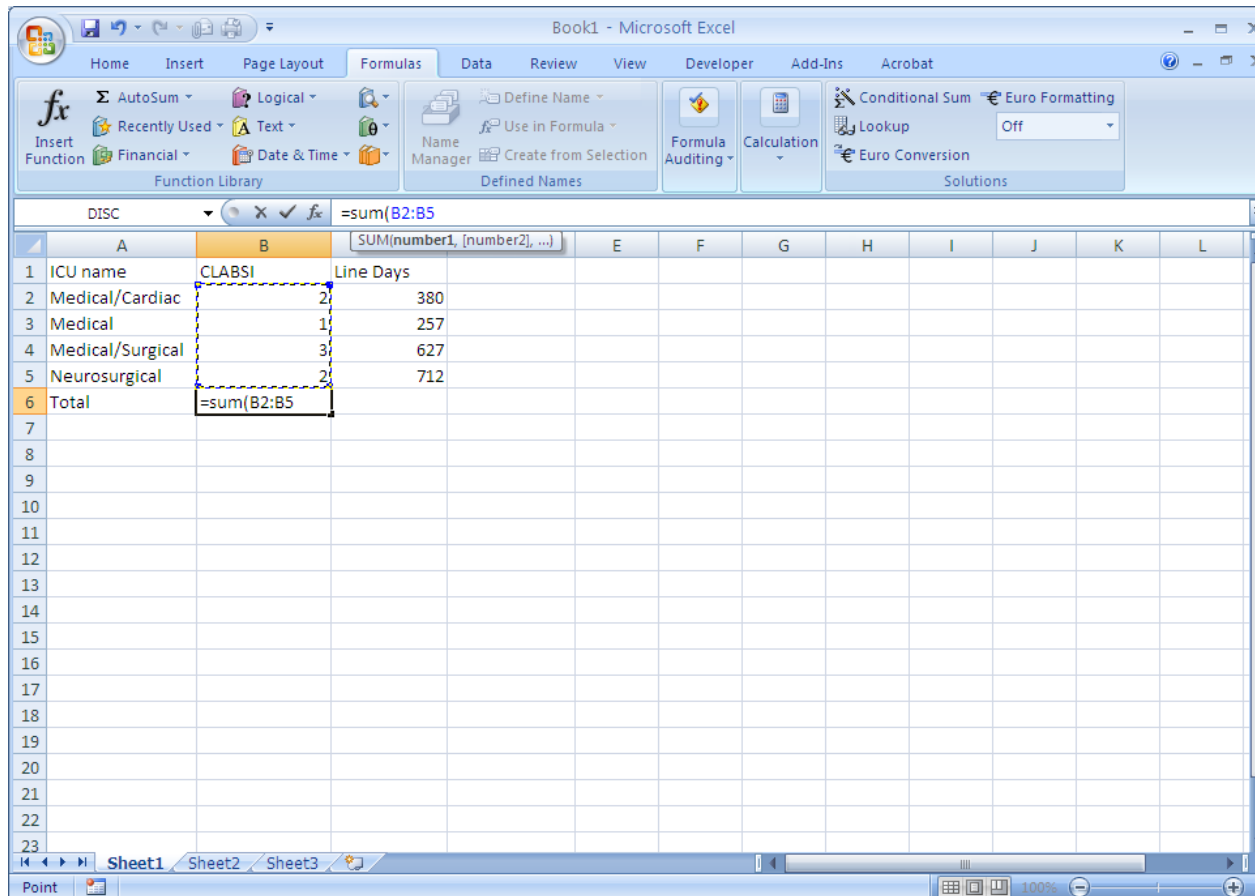   - Neurosurgical: 2 CLABSIs, 712 line days

HINT:

Exercise 1:

Infection Rates

Activity 2: Add a 'Total' row and sum the CLABSI (column B) and Line Days column (column C)

In the cell where you want to type a formula for the total:
1. Type "=sum("   *Enter what is inside the quotes, not the quotation marks themselves*
2. And then you need to designate which cells to sum or total, either by
   a. Highlighting the cells you wish to total
   b. *OR* you can type the starting cell label to the finishing cell label, separated by a colon, and surrounded by parentheses --e.g. (B2:B5)
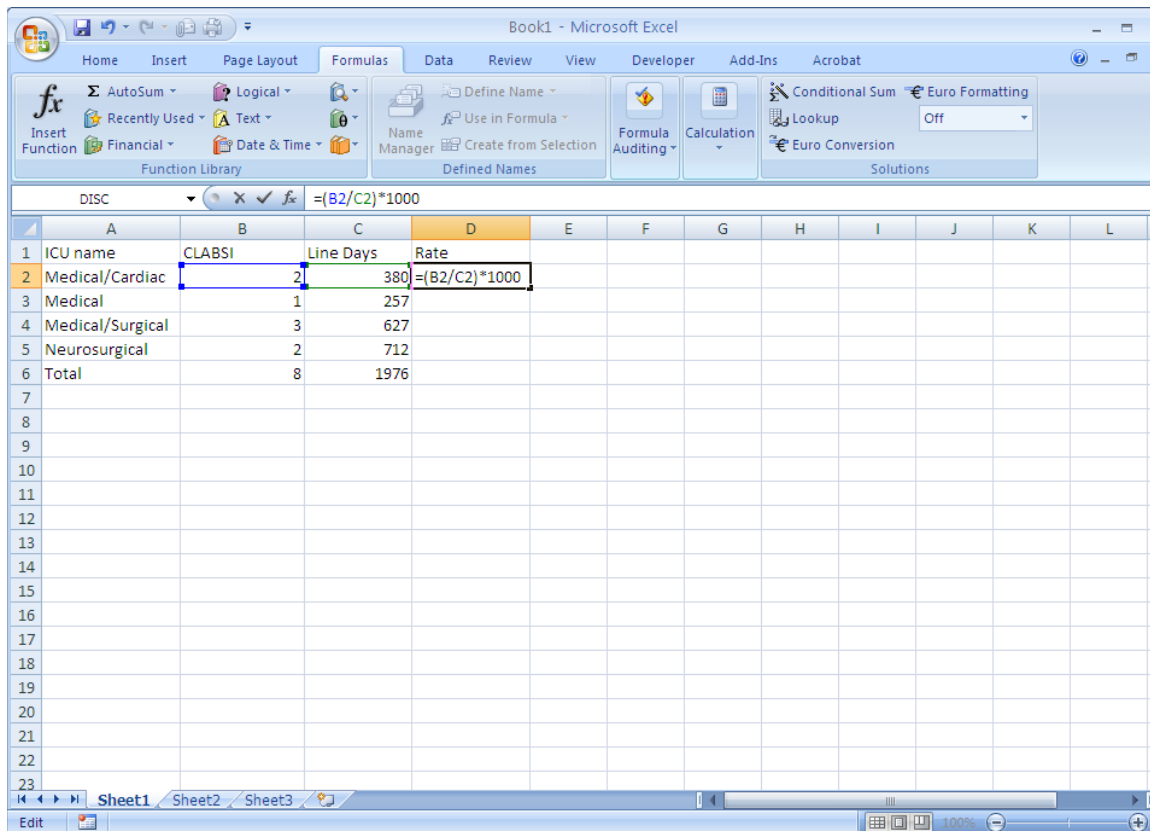3. Press "Enter"

HINT:

Exercise 1:

Infection Rates

Activity 3: Add a column for the rate and create a formula to calculate the CLABSI rate (CLABSI/line days) X 1000 for each ICU

In the cell where you want to type a formula for the rate:
1. Type "=("   *Enter what is inside the quotes, not the quotation marks themselves*
2. And then you need to designate which cell to use for your numerator:
   a. highlighting the cell with the CLABSI count
   b. OR you can type the cell label for the CLABSI count (e.g., B2)
3. Then type "/"
4. And then you need to designate which cell to use for your denominator:
   a. highlighting the cell with the line day count
   b. OR you can type the cell label for the line day count (e.g., C2)
5. Then type ")*1000"
6. Press Enter

HINT:

Exercise 1:

Infection Rates

Activity 4: Add a column for the NHSN benchmark data and enter the following formation:

- Medical Cardiac: 2.0

- Medical: 2.6

- Medical/Surgical: 1.5

- Neurosurgical: 2.5

HINT:

|	A	B	C	D	E
1	ICU name	CLABSI	Line Days	Rate	NHSN rate
2	Medical/Cardiac	2	380	5.263157895	2
3	Medical	1	257	3.891050584	2.6
4	Medical/Surgical	3	627	4.784688995	1.5
5	Neurosurgical	2	712	2.808988764	2.5
6	Total	8	1976	4.048582996	

Exercise 1:

Infection Rates

OPTIONAL Activity 5: Graph the infection rates

1. Highlight the column with the rate data (Column D)

2. Along the top menu options, choose "Insert" then "Column graph"- if you have multiple options, choose first option – under 2D

** HINT: Excel version 2016 and Mac version Excel 2017 (similar):*
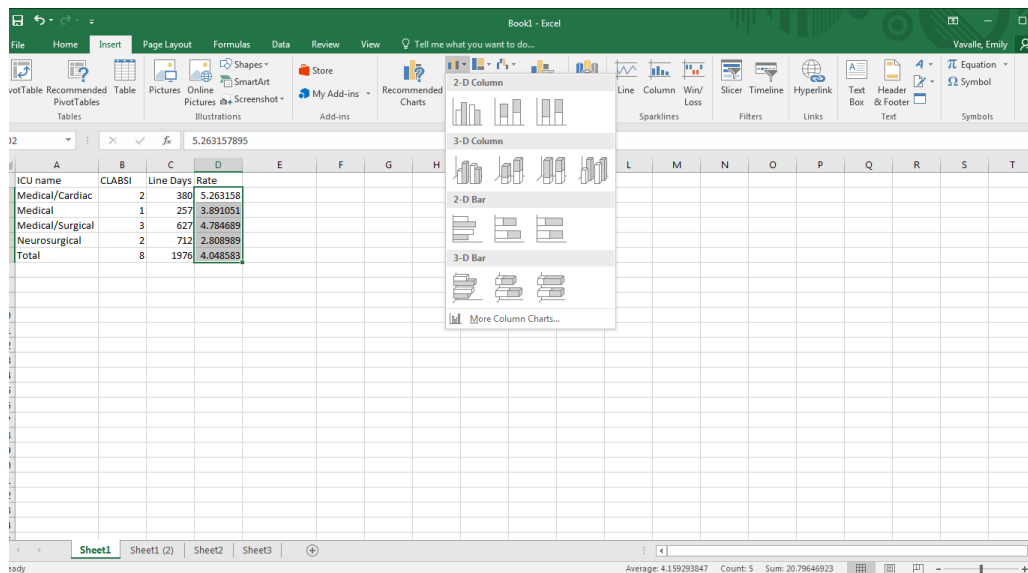
3. Right click on the x-axis labels, and choose "select data"

*HINT: Mac version Excel 2017: Click on Chart/graph, then choose tab Chart Design and then 'Select Data' Button
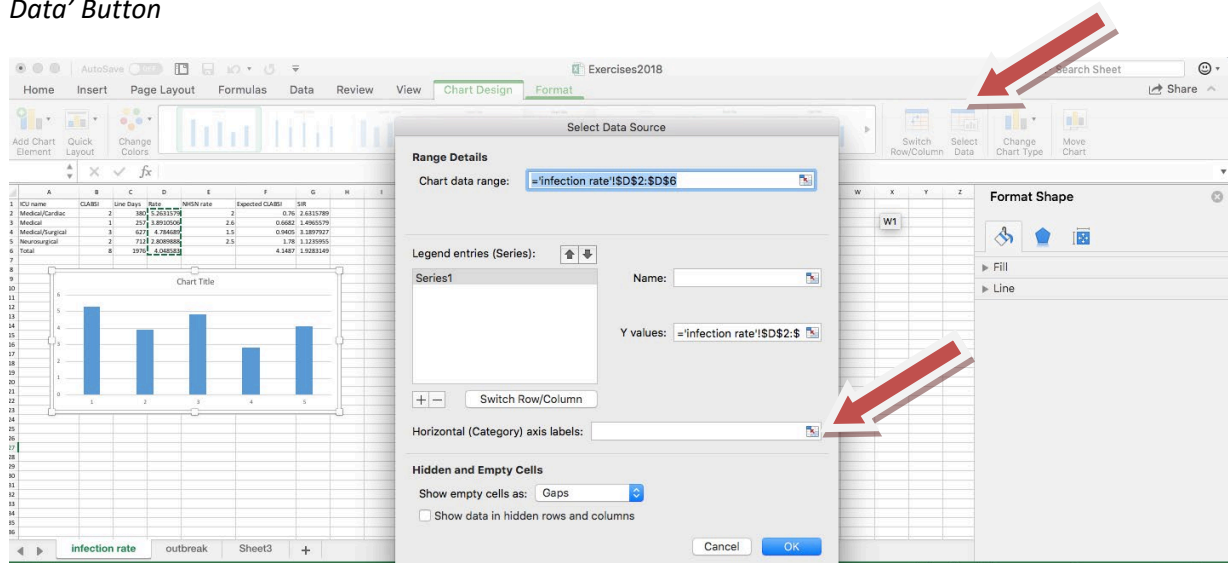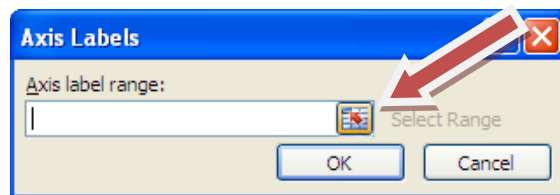
4. Under "horizontal (category) axis labels, click the "edit" button or (*Mac version Excel 2017: button to right side of white box – see above screen shot*)
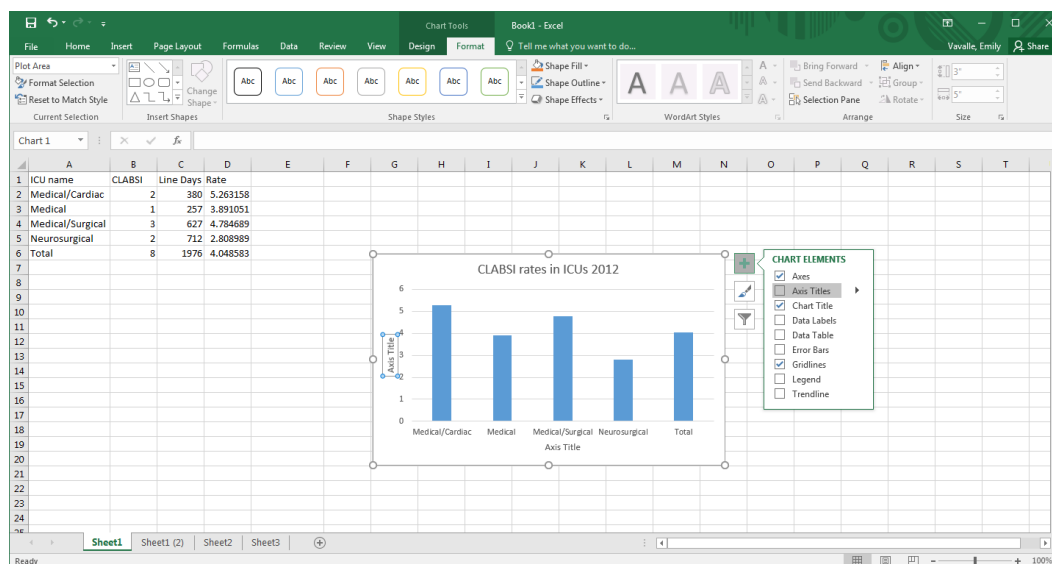
HINT:
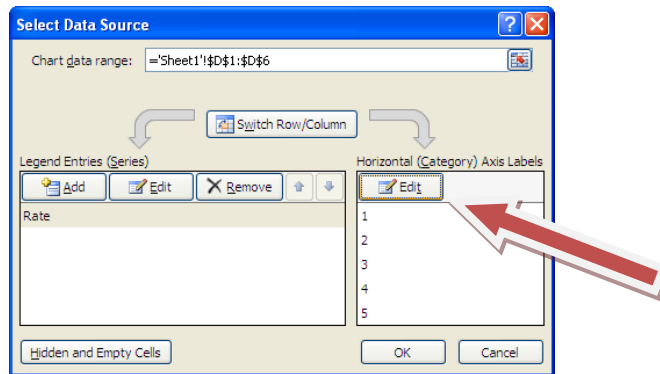
5. Click on the icon, next to the white box for the "axis label range"

6. Then highlight the names of the ICUs (column A) on the Excel table you created and press Enter, then click OK and OK again.

7. Click on the label above the graph and type an informative title.

8. Click on the y-axis, then use the top menu – Chart tools "Layout" choice to select axis titles – then select "Vertical Axis" then "Rotated Title" – now you can add an informative label for your y-axis (rate date description)
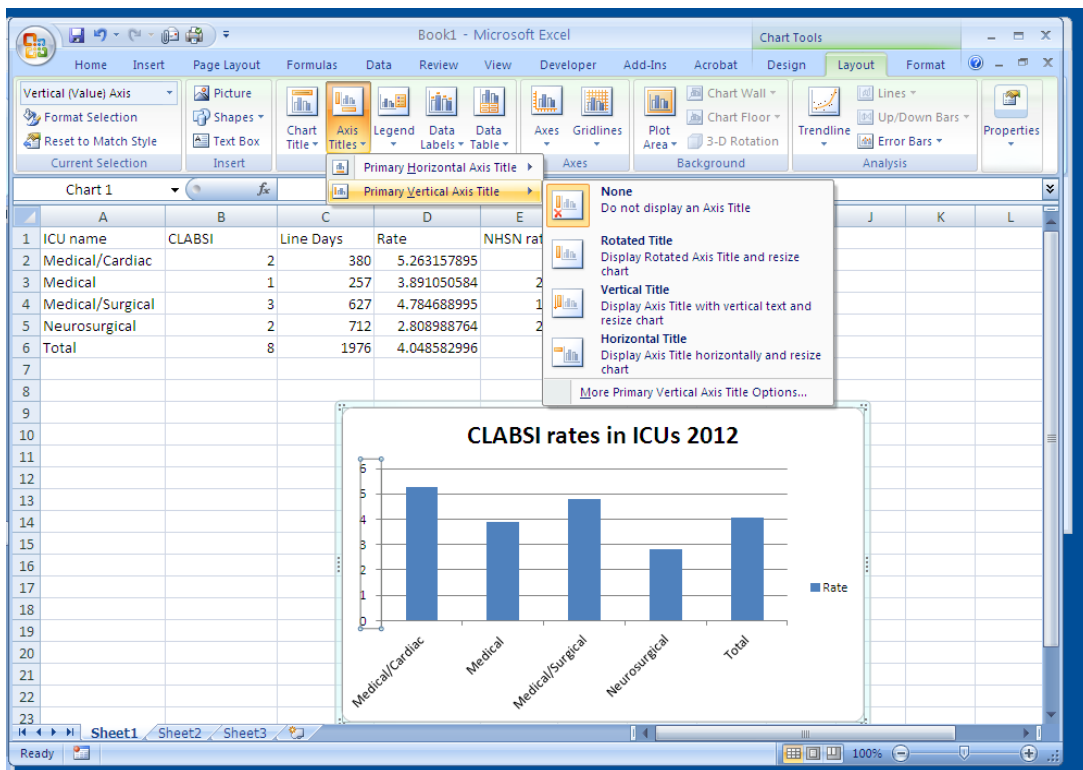
*HINT: Excel version 2016: click on chart/graph body itself, then use Chart elements **+** sign to select axis titles and add informative label for y axis*

HINT: Mac version, Excel 2017: This is found in the Chart Design tab, upper left corner button for Add Chart Element:
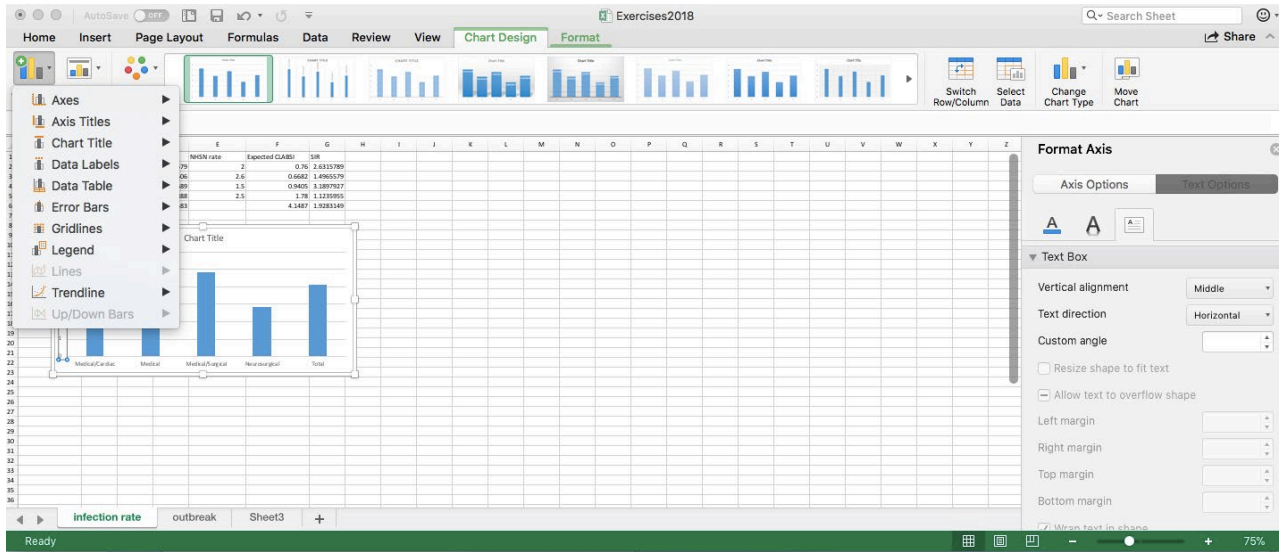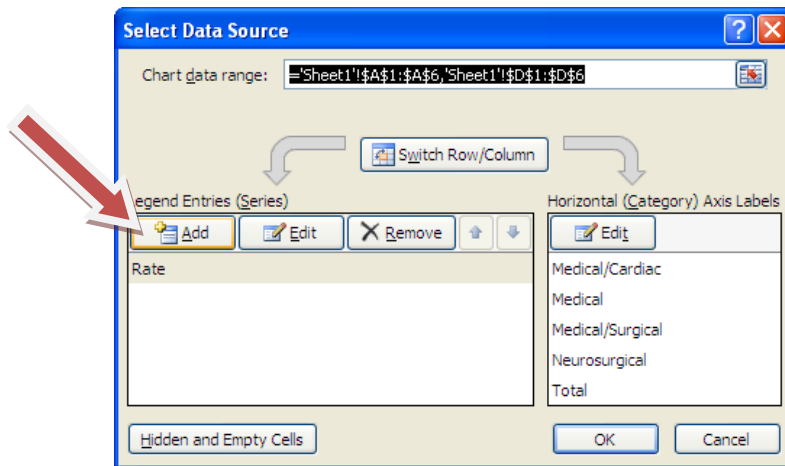

HINT: Excel version 2010:
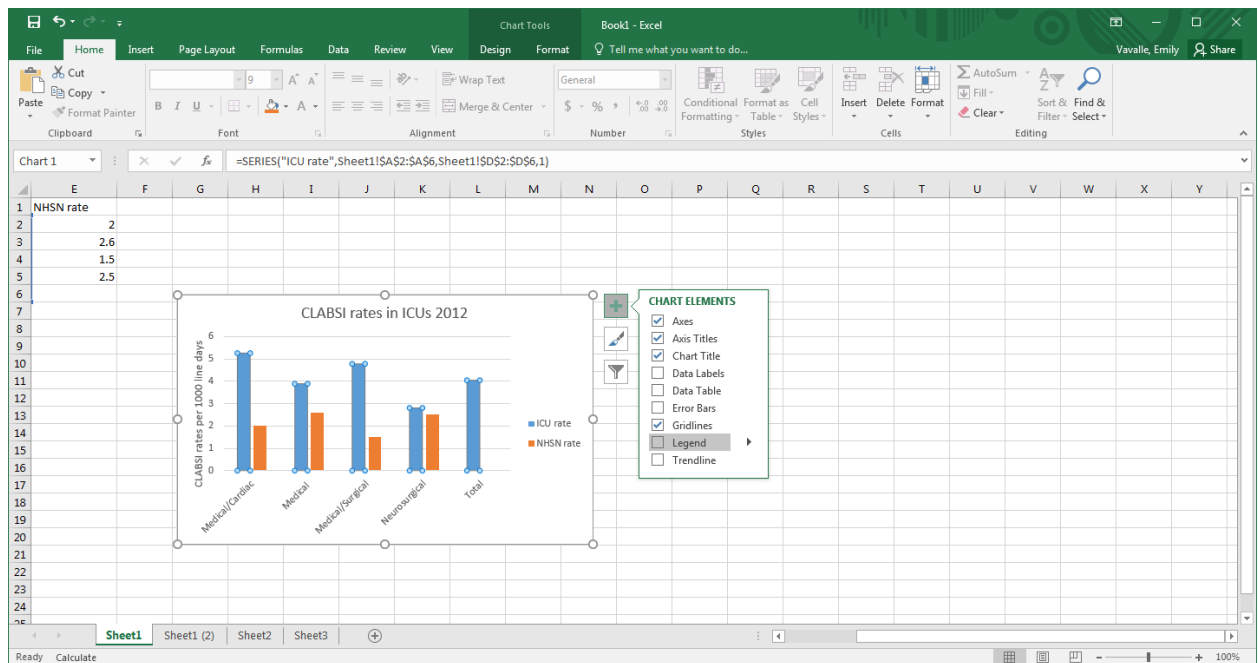
Exercise 1:

Infection Rates

OPTIONAL Activity 6: Add NHSN benchmark to graph

1. Right click the body of the graph and choose "select data"

2. Under the Legend Entries (Series) – choose the "Add" button

3. Under "Series Name" - type an informative name (e.g., NHSN benchmark means)

4. Under "Series Values" click the icon beside the white box and select the cells in your table containing the NHSN rates, press Enter, then click OK and OK again.

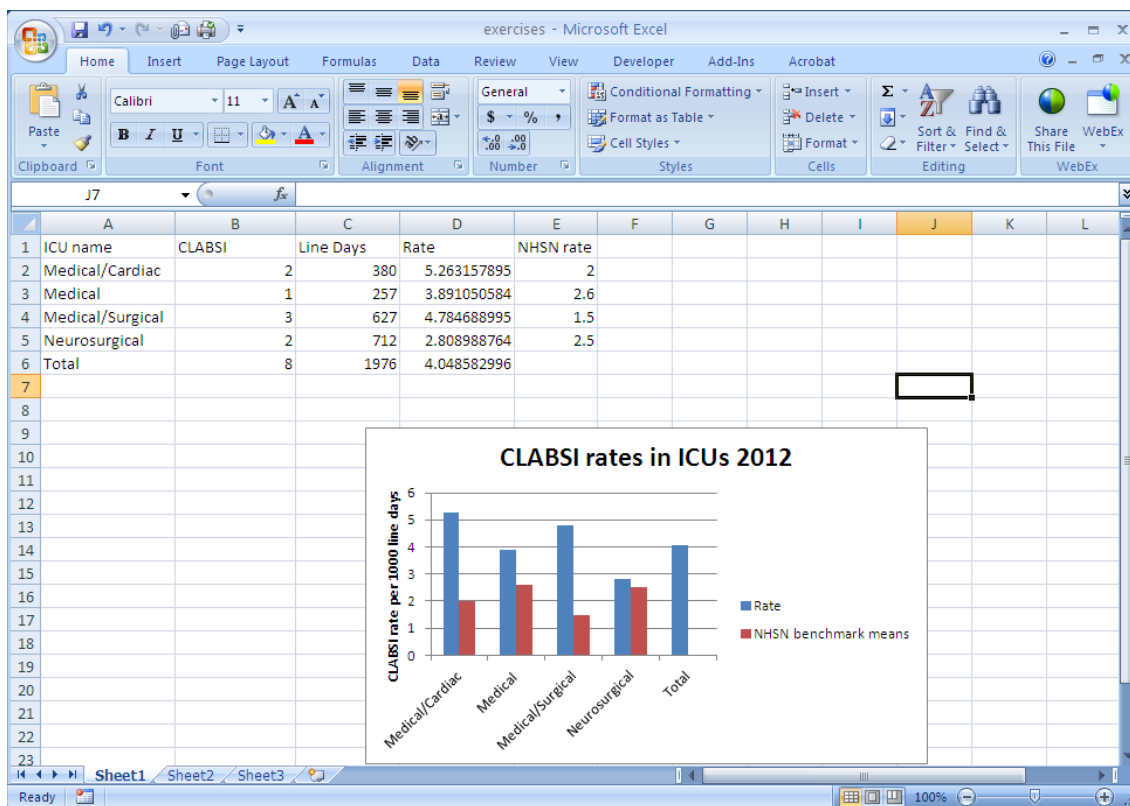   *HINT: Excel version 2016: click on chart/graph body, then use Chart elements + sign to select legend.*

HINT: Mac version, Excel 2017: This is found in the Chart Design tab, upper left corner button for Add Chart Element:
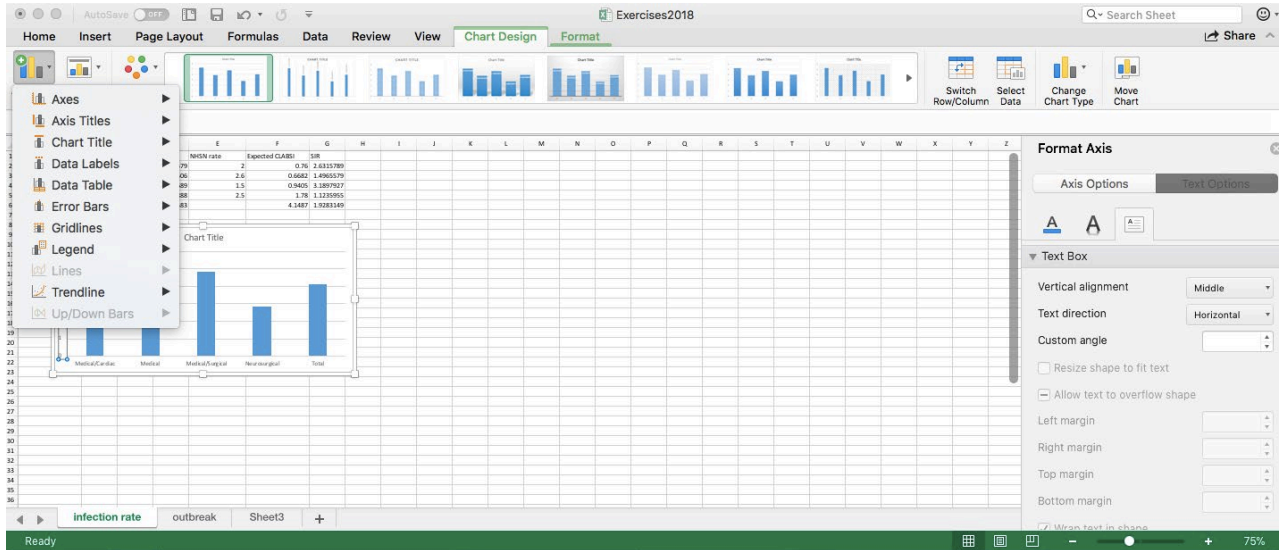

HINT: Excel version 2010:

Exercise 1:

Infection Rates

OPTIONAL Activity 7: Calculate SIRs

1. Add a column for the expected or predicted number of infections

2. In the expected column,

    a. Type the formula "=("   *Enter what is inside the quotes, not the quotation marks themselves*

    b. Then the cell label for the central line days

    c. Then "*"

    d. Then the cell label for the NHSN rate and ")"

    e. Then "/1000"

    f. Press "Enter"
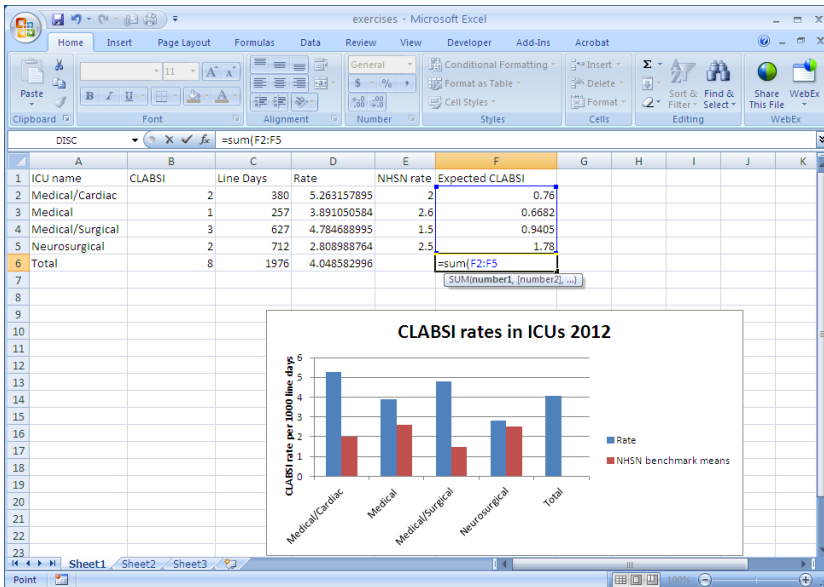
       HINT:
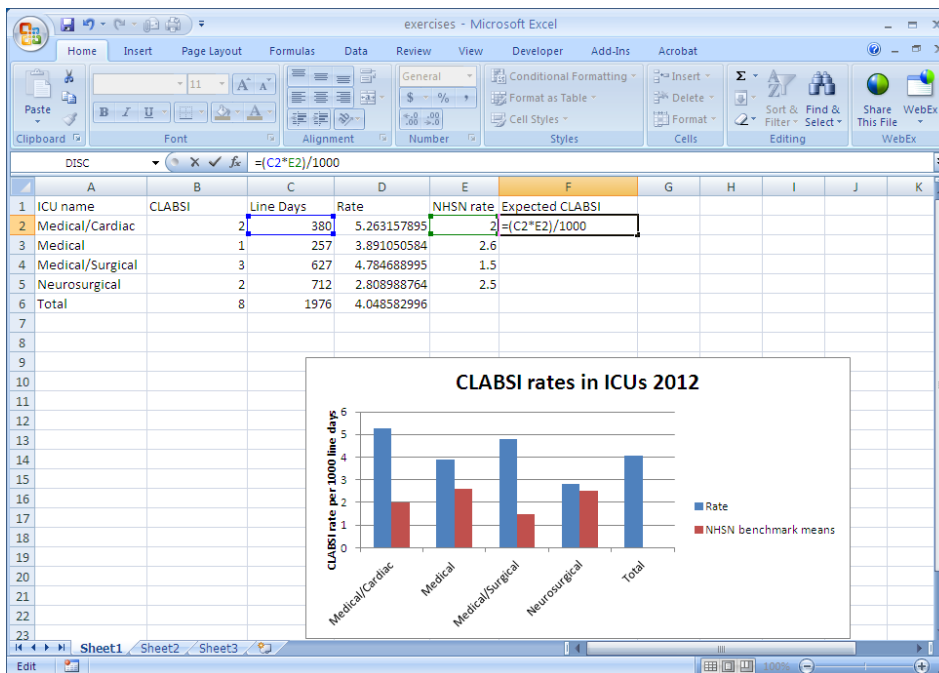
3. Then, total the Expected CLABSI

    a. Type "=sum("
    b. and then you need to designate which cells to sum or total, either by
        i. Highlighting the cells you wish to total

ii. *OR* you can type the starting cell label to the finishing cell label, separated by a colon, and surrounded by parentheses --e.g. (F2:F5)
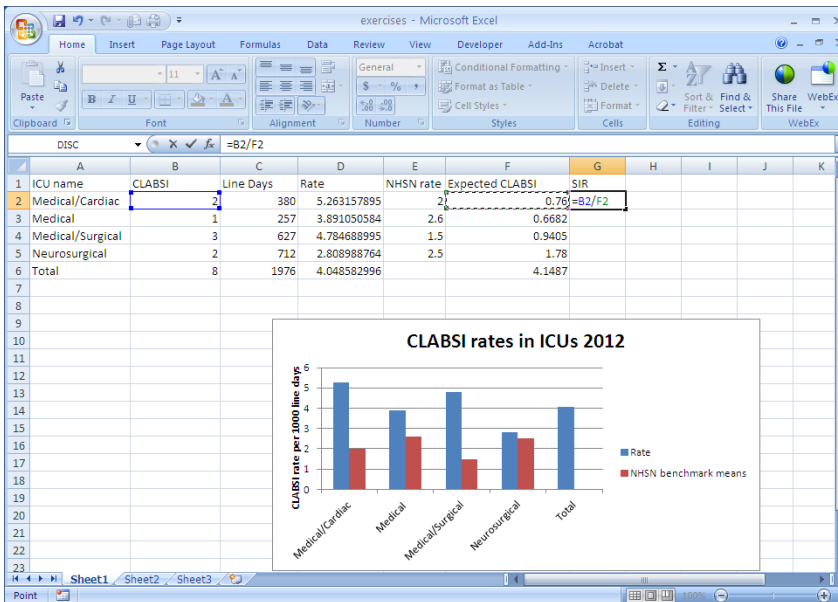
c. Press "Enter"

4. Create a column for SIR

5. Type in the formula

   a. Type "="

   b. Then the cell label for CLABSI and "/"

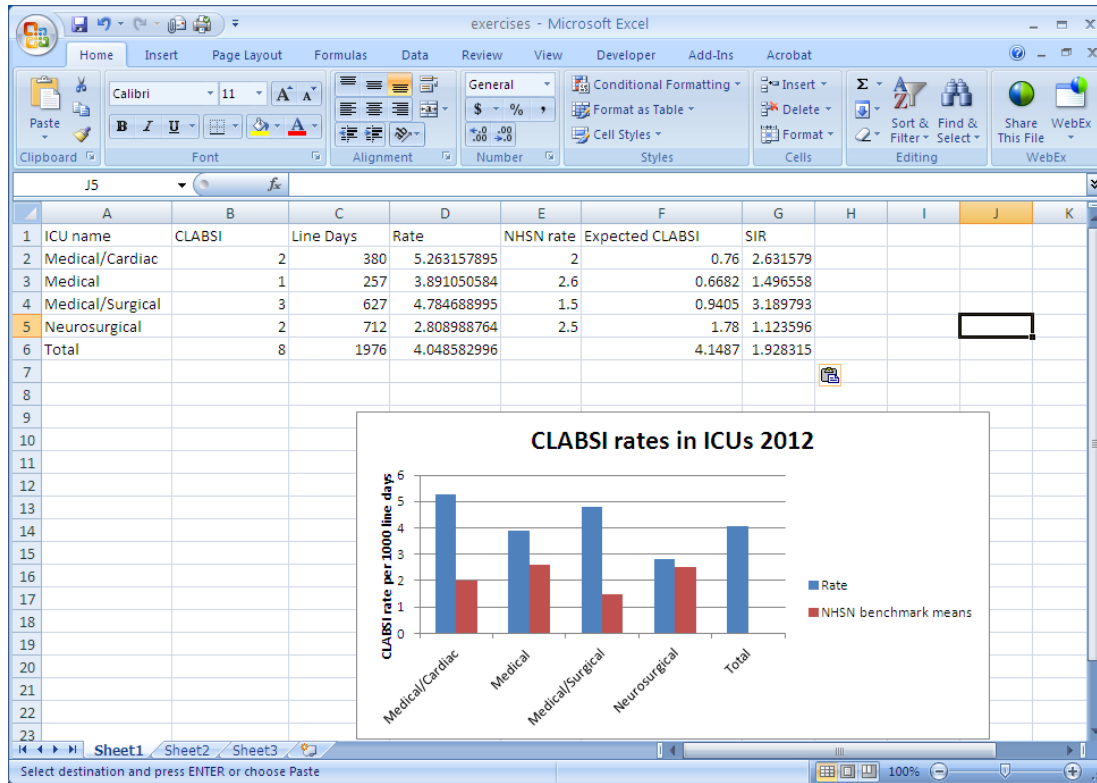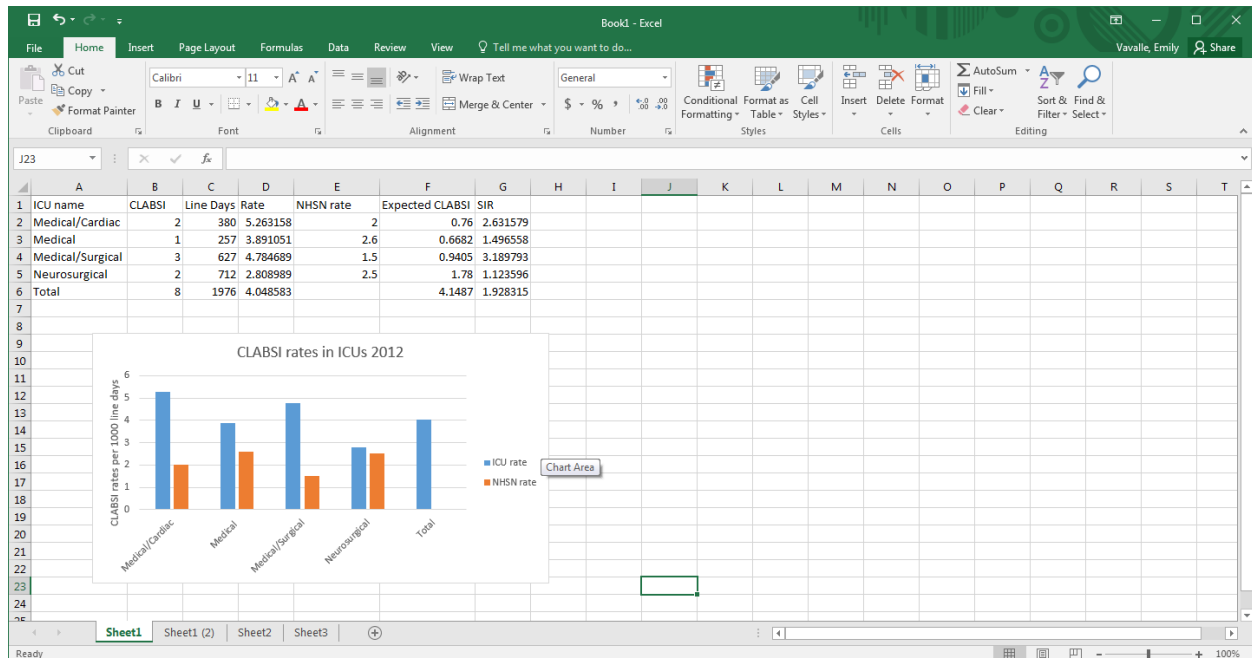   c. Then the cell label for Expected CLABSI

   d. Press "Enter"

HINT:

Exercise 1:

Infection Rates FINAL (with all optional items)

Excel Version 2010:

Excel Version 2016:

**BONUS Question: For the medical ICU, were there more or fewer CLABSIs than expected?

Exercise 2:

Outbreak Investigation

Screenshots are with Excel 2010 version, PC except where otherwise specified.

Activity 1: Create a line-listing for your outbreak cases and format cells

While conducting your routine HAI surveillance, you discover that on 12/12/2012 a baby in the Neonatal ICU had a bloodstream infection with MRSA. Your department recommends conducting MRSA surveillance screens on all babies in the same shared space. Three days later, the results of that surveillance screening return and 4 additional babies are found to be colonized with MRSA.

1. Label column A: Admission Date

   Label column B: Date of positive MRSA

   Label column C: Patient Name

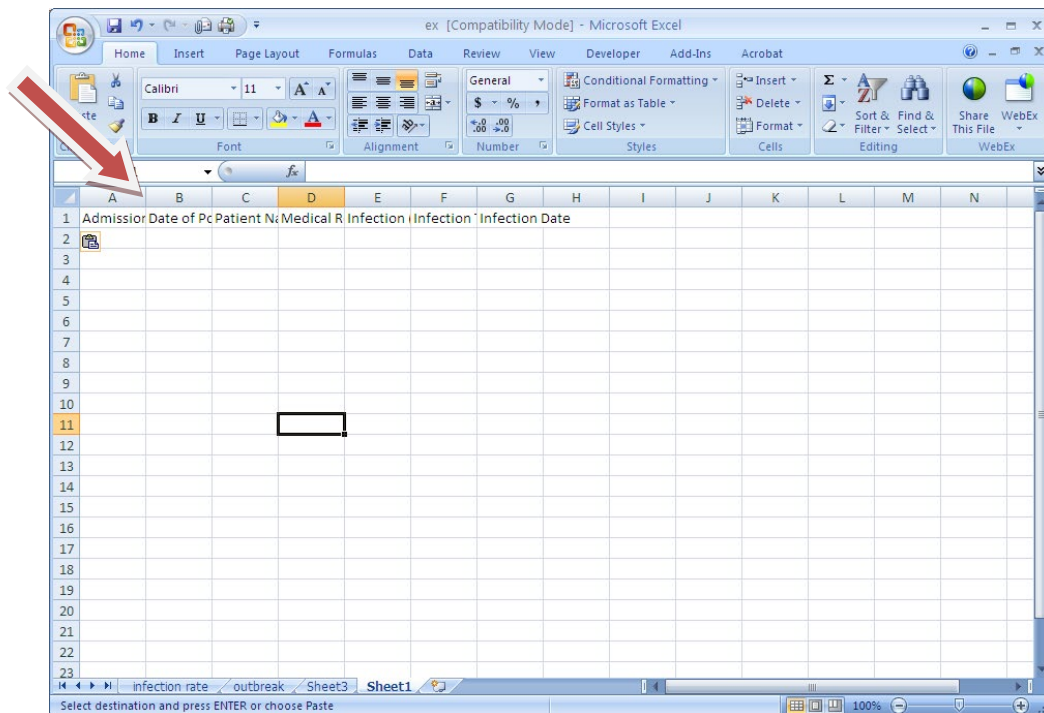   Label column D: Medical Record Number

   Label Column E: Infection (Y/N)

   Label Column F: Infection Type

   Label Column G: Infection Date

2. Resize the columns so the labels are visible.

   a. Hover with your cursor on the line between the A and B columns

b. When your cursor changes to a vertical line with an intersecting line with arrows at both ends, then double click and the column will automatically resize to accommodate the longest length of data in that column (You may need to resize as you enter more data).

3. Format the columns that will include dates (Column A: Admission Date, Column B: Date of Positive MRSA, Column G: Infection Date)

   a. Highlight the column you wish to format

   b. Right click and select format cells
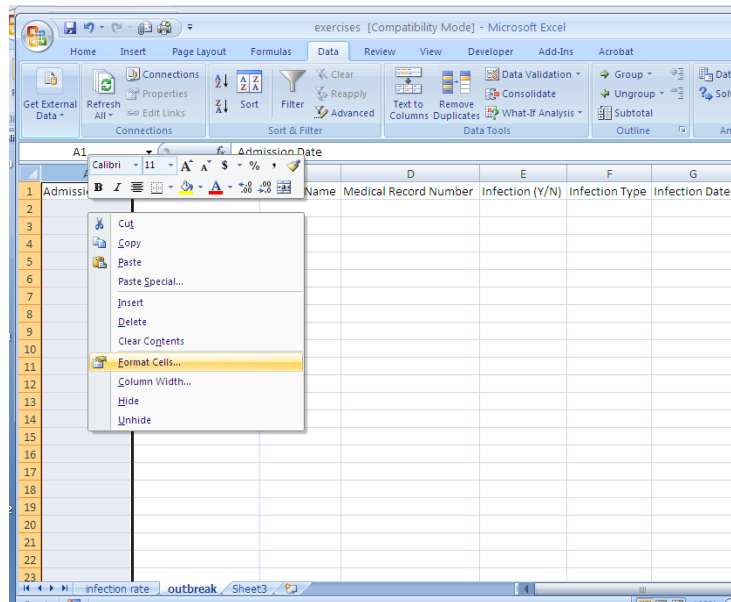
   c. Under the "Number" tab, select "Date" and enter "OK"
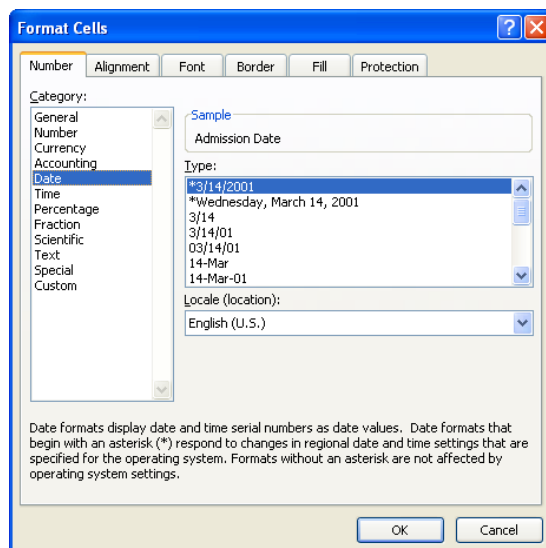
   d. Repeat steps a-c for each date column.

3. Enter the following information into the appropriate columns and rows of the line-listing:

   • Baby Apple, MRN 123, BSI on 12/12/12, admitted 11/2/12

14

- Baby Banana, MRN 234, colonized – detected on 12/17/12, admitted 11/18/12

- Baby Orange, MRN 345, colonized – detected on 12/17/12, admitted 12/5/12

- Baby Cherry, MRN 456, colonized – detected on 12/17/12, admitted 11/26/12

- Baby Kiwi, MRN 567, colonized – detected on 12/17/12, admitted 12/5/12

HINT:

	A	B	C	D	E	F	G	H
1	Admission Date	Date of Positive MRSA	Patient Name	Medical Record Number	Infection (Y/N)	Infection Type	Infection Date	Discharge Date
2	11/2/2012	12/12/2012	Baby Apple	123	Y	BSI		12/12/2012
3	11/18/2012	12/17/2012	Baby Banana	234	N			
4	12/5/2012	12/17/2012	Baby Orange	345	N			
5	11/26/2012	12/17/2012	Baby Cherry	456	N			
6	12/5/2012	12/17/2012	Baby Kiwi	567	N			

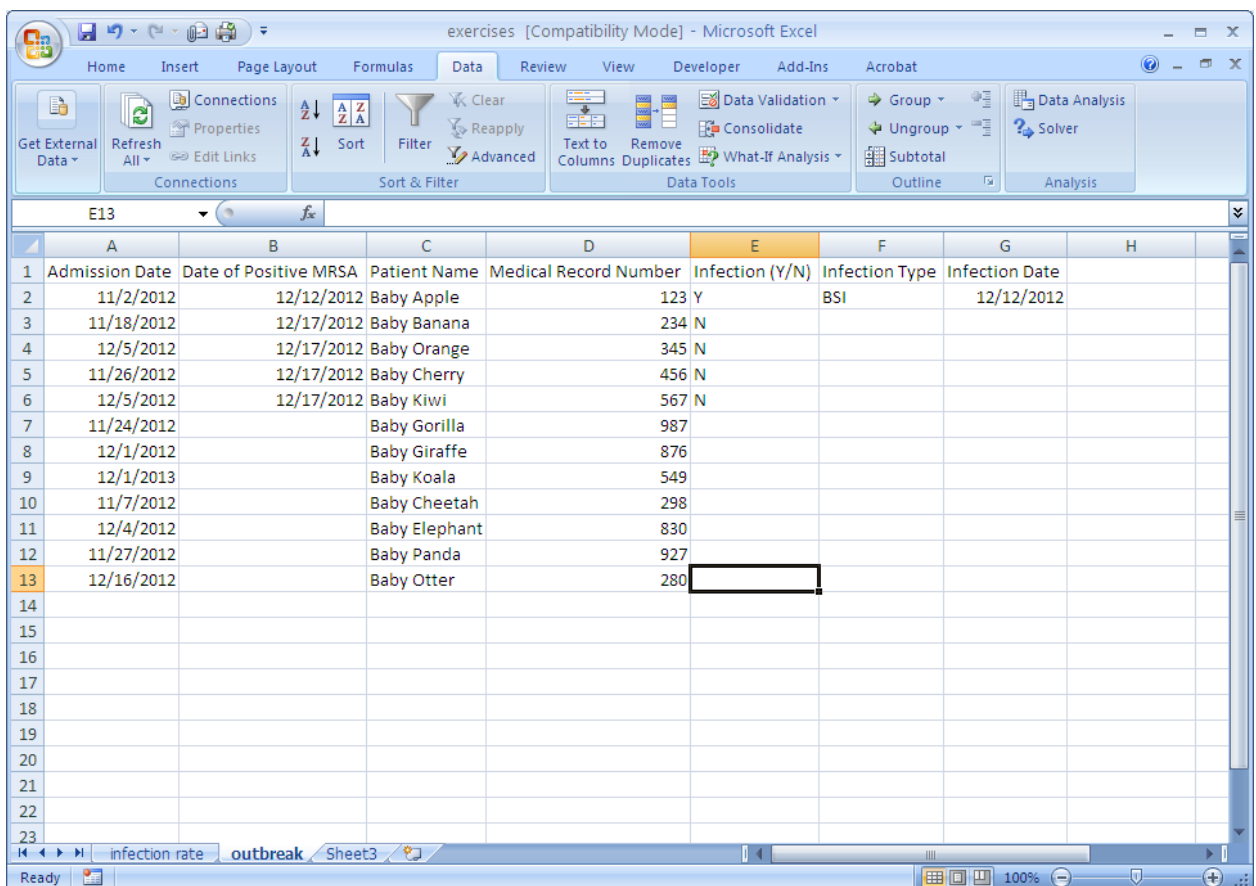**Exercise 2:**

Outbreak Investigation

Activity 2: Add to your line-listing of outbreak cases and copy and paste repeat data.

The following week on 12/19/12 the entire unit was screened for MRSA and 7 additional babies were found to be colonized with MRSA.

1. Add the following data to your line-listing

   - Baby Gorilla, MRN 987, admitted 11/24/12

   - Baby Giraffe, MRN 876, admitted 12/1/12

   - Baby Koala, MRN 549, admitted 12/1/12

   - Baby Cheetah, MRN 298, admitted 11/7/12

   - Baby Elephant, MRN 830, admitted 12/4/12

   - Baby Panda, MRN 927, admitted 11/27/12
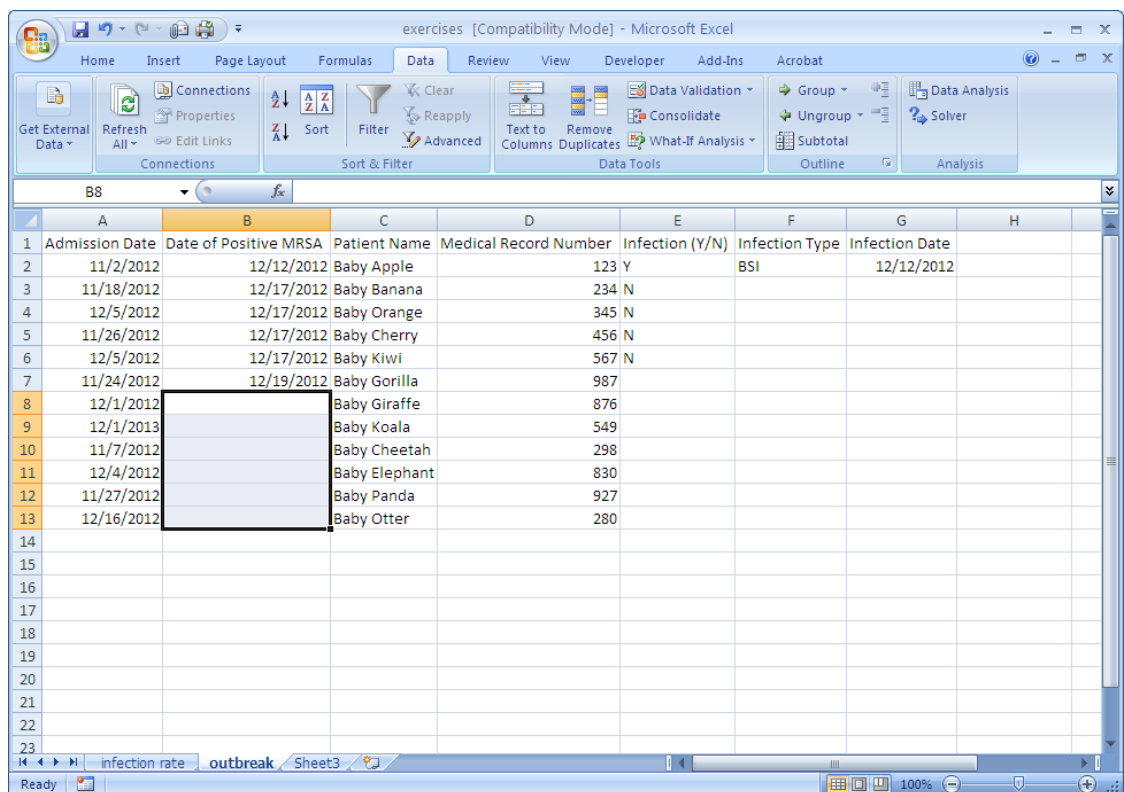
   - Baby Otter, MRN 280, admitted 12/16/12

HINT:

2. Copy and paste duplicate information:

- In the column: Date of positive MRSA, add 12/19/12 in the row for Baby Gorilla.

- Right click that cell and select "Copy"
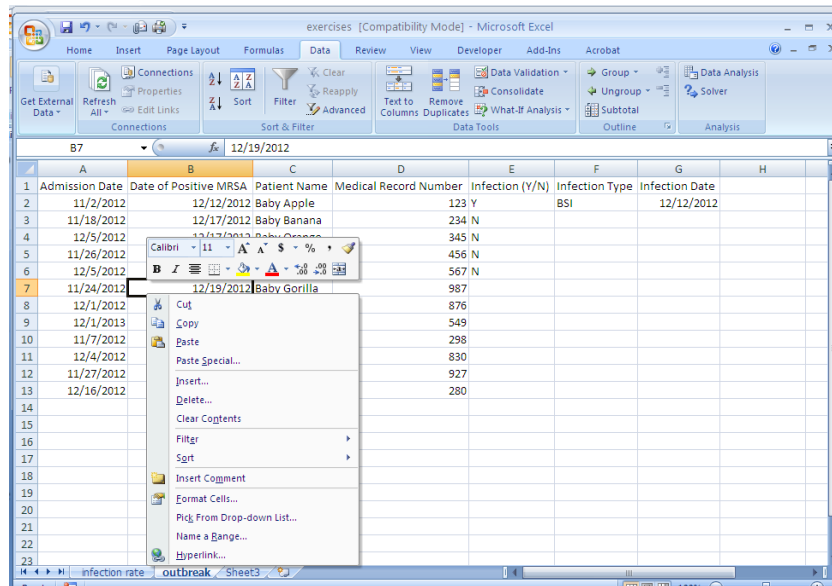
- Highlight the remaining cells which have the same positive date, right click and select paste.
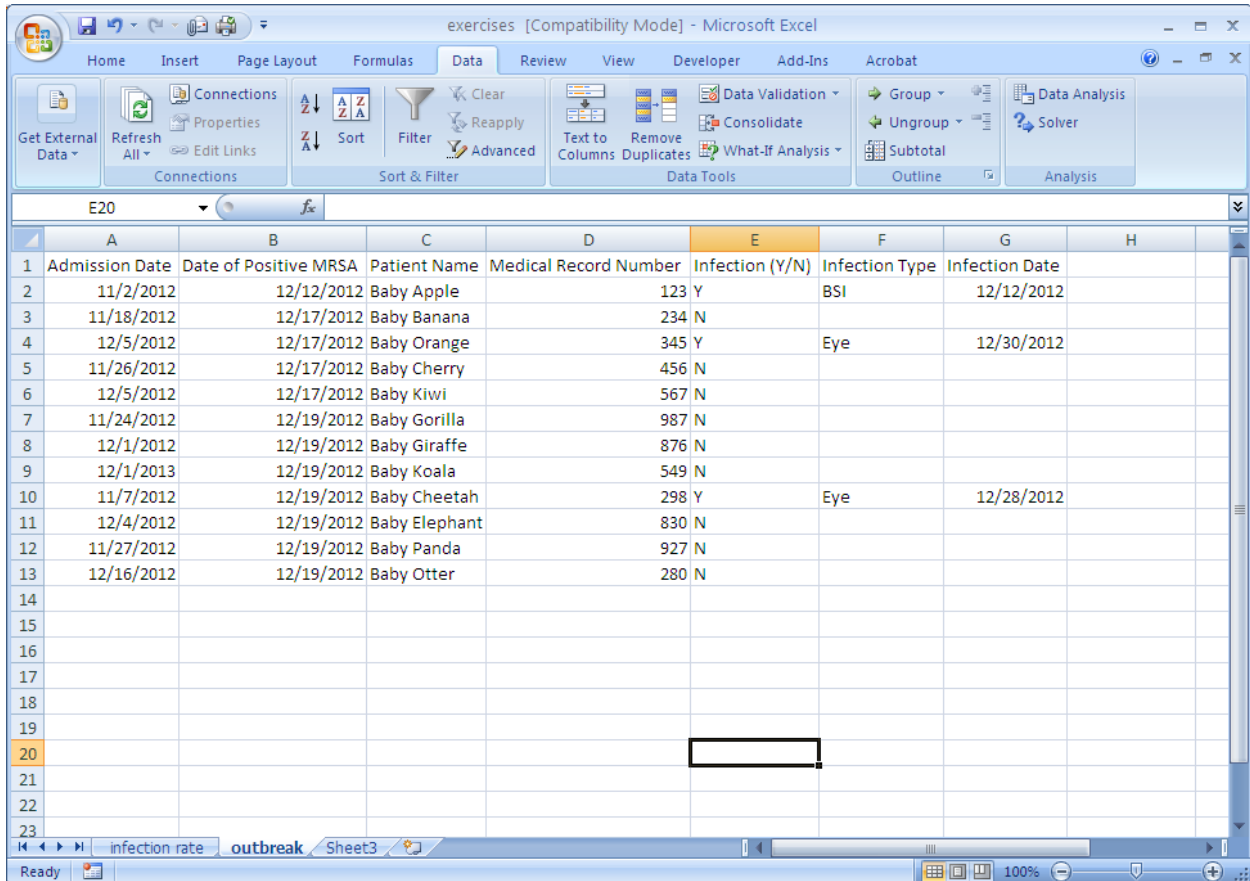
3. Copy and paste duplicate information:

- In the column: Infection (Y/N), add "N" in the row for Baby Gorilla.

- Right click that cell and select "Copy"

- Highlight the remaining cells which also have "N" for infection, right click and select paste.

Exercise 2:

Outbreak Investigation

Activity 3: Add to your line-listing of outbreak cases and practice sorting.

During your continued surveillance for HAIs, you discover that Baby Cheetah and Baby Orange have eye infections with MRSA (12/28/12 – Baby Cheetah, and 12/30/12, Baby Orange).

1. For Baby Cheetah and Baby Orange, change column E "Infection (Y/N)" to Y

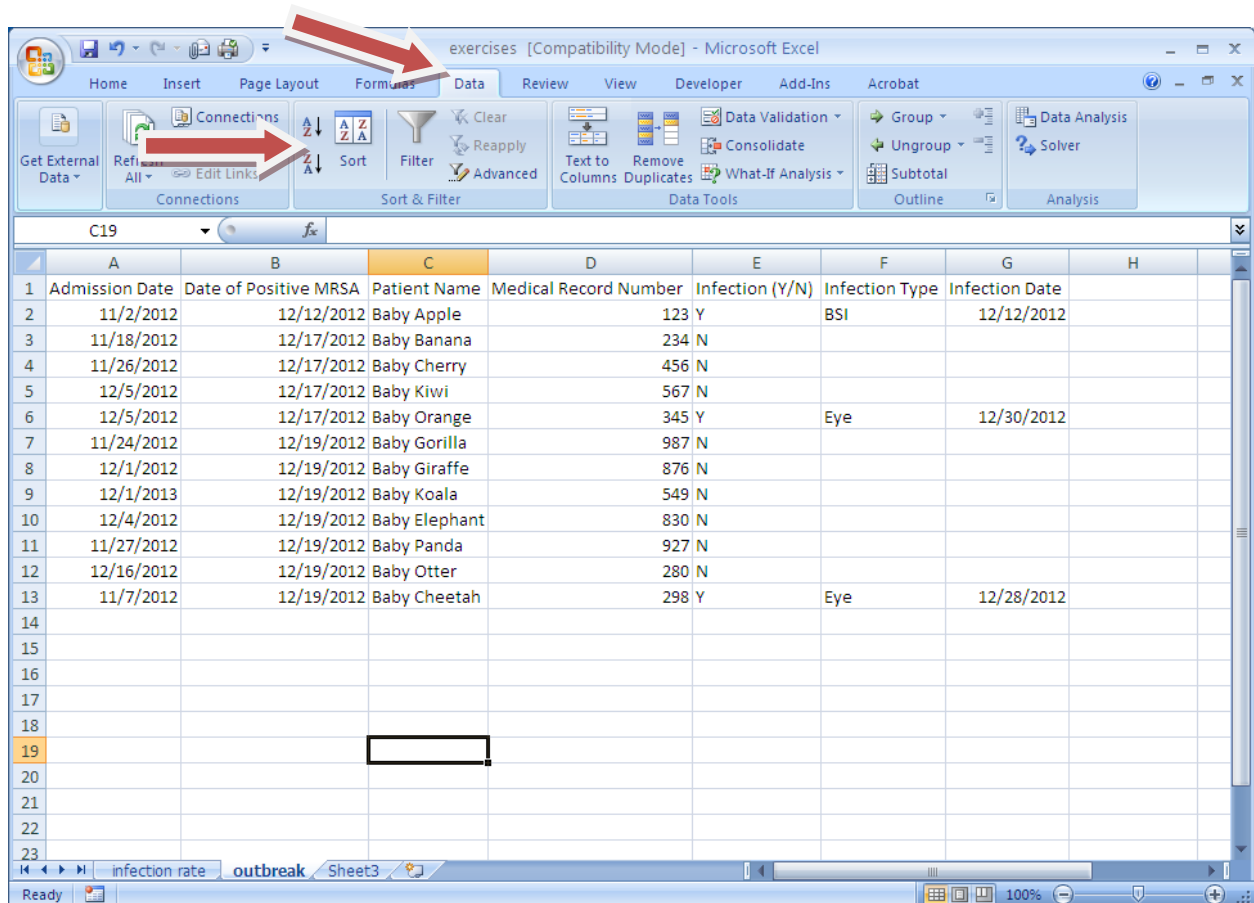2. For Baby Cheetah and Baby Orange, add Eye to Column F "Infection Type" and the Infection Dates to Column G.


3. To group the infected MRSA cases together, sort your data by Column E "Infection (Y/N)"

   a. Click in the upper left corner box – between the A and 1 cell labels so that the whole sheet is highlighted.
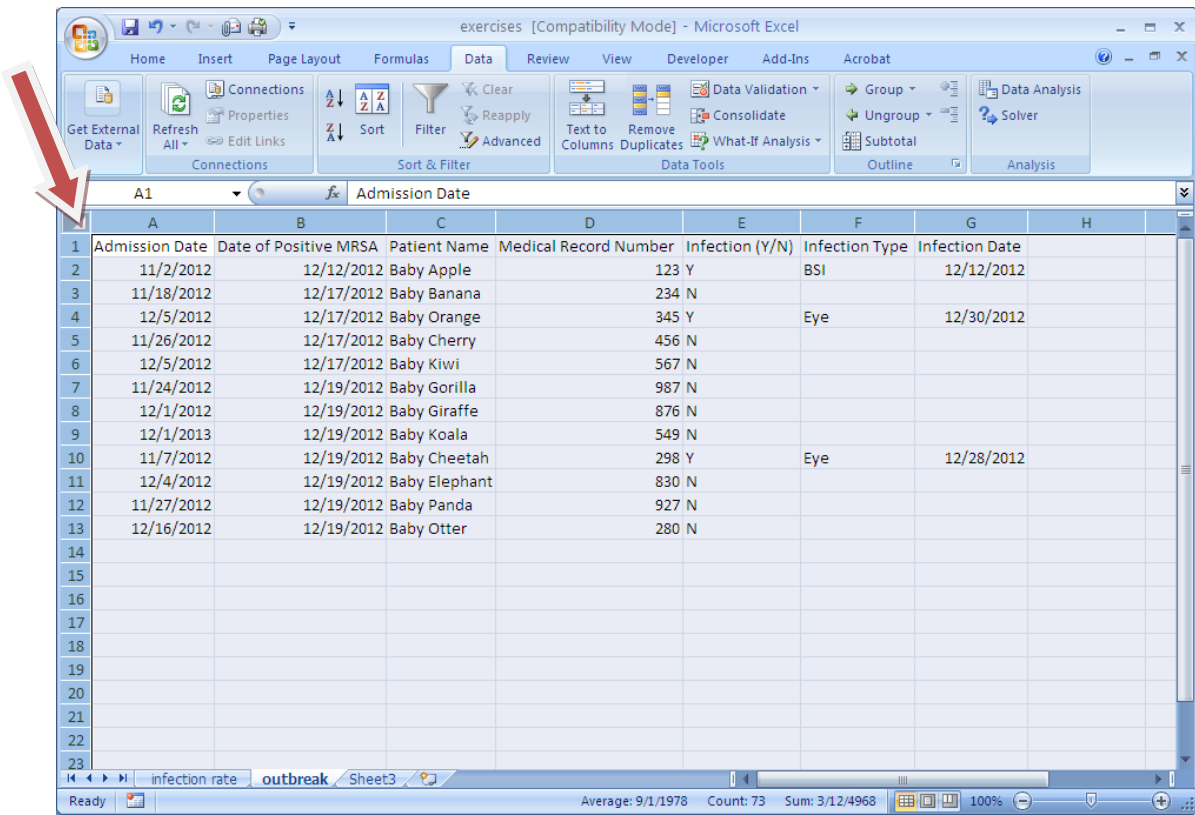
b. Under the "Data" tab at the top, choose the "Sort" icon

i. Make sure the box "My data has headers" is checked -- in the upper right corner of the pop-up Sort box.

ii. Then choose sort by Infection(Y/N)
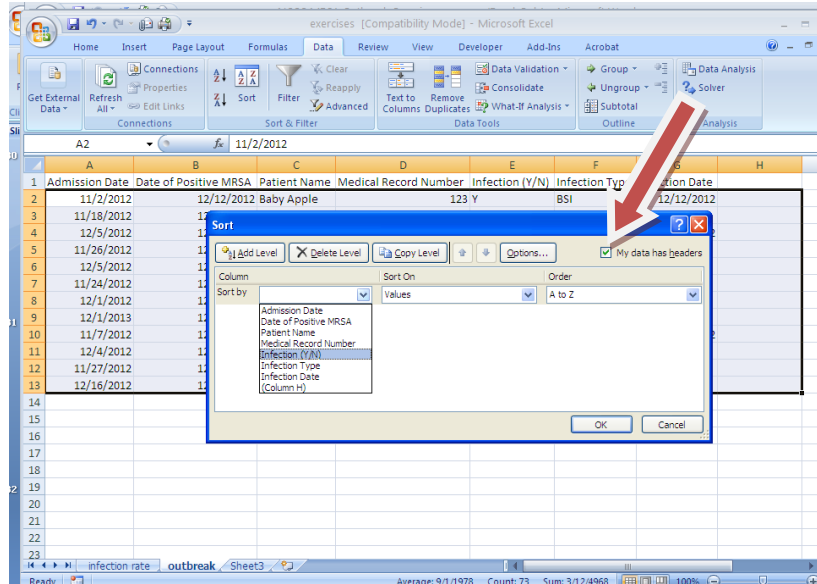
iii. Now you can see the 3 MRSA infections grouped together at the bottom of the line-listing.

HINT:

4. To re-sort by Date of Positive MRSA, click in the upper left corner box – between the A and 1 cell labels so that the whole sheet is highlighted.

    a. Under the "Data" tab at the top, choose the "Sort" icon

    b. Make sure the box "My data has headers" is checked -- in the upper right corner of the pop-up Sort box.

    c. Then choose sort by "Date of Positive MRSA"
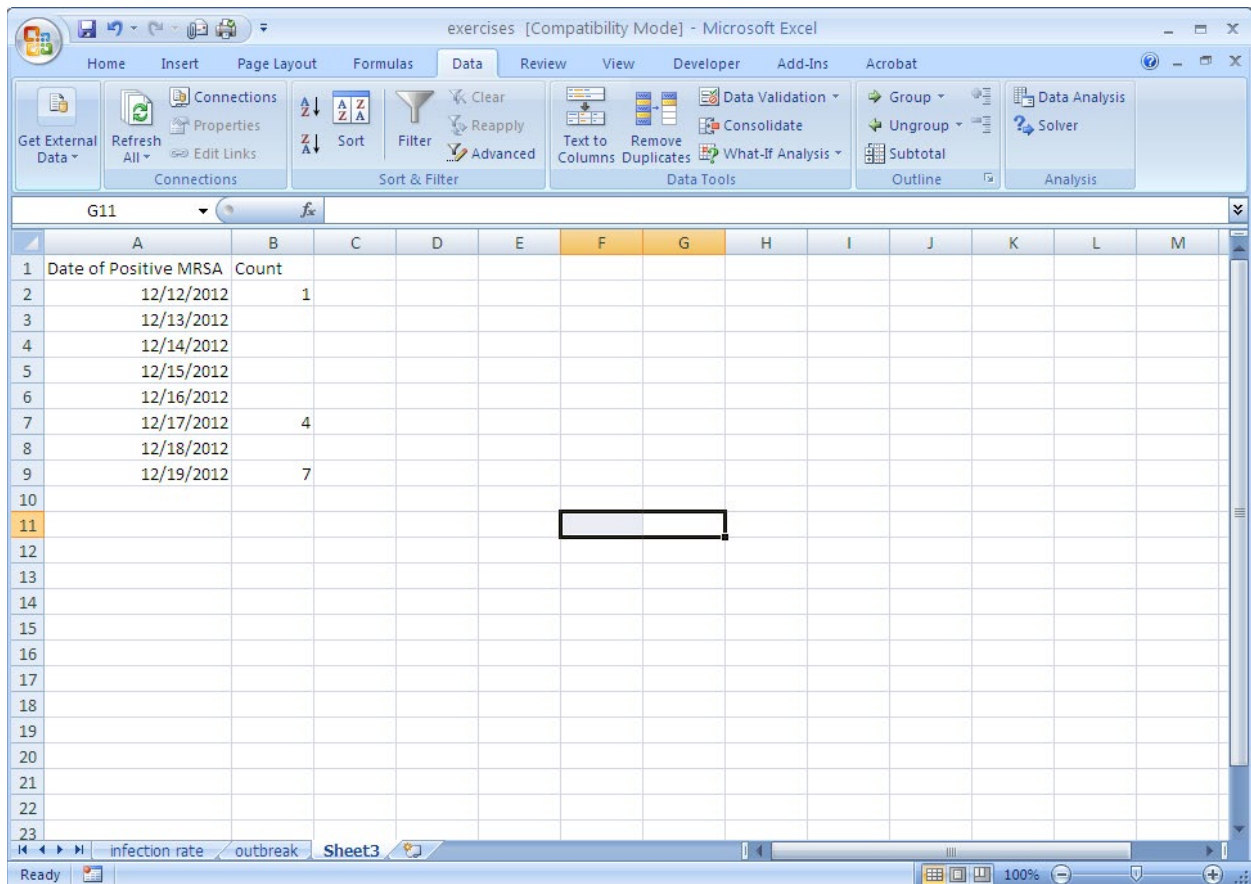
Exercise 2:

Outbreak Investigation

OPTIONAL Activity 4: Create a frequency table of cases to prepare for outbreak epi curve graphing.

1. On a blank sheet in Excel, make a new table with

    a. Column 1: Date of Positive MRSA

    b. Column 2: Count of Positives

2. In column 1, type in each date from 12/12/2012 until 12/19/12

3. Use the data in your line-listing to count the number of cases associated with each date, and transfer those counts in the appropriate cell in your frequency table.

    HINT:

Exercise 2:

Outbreak Investigation

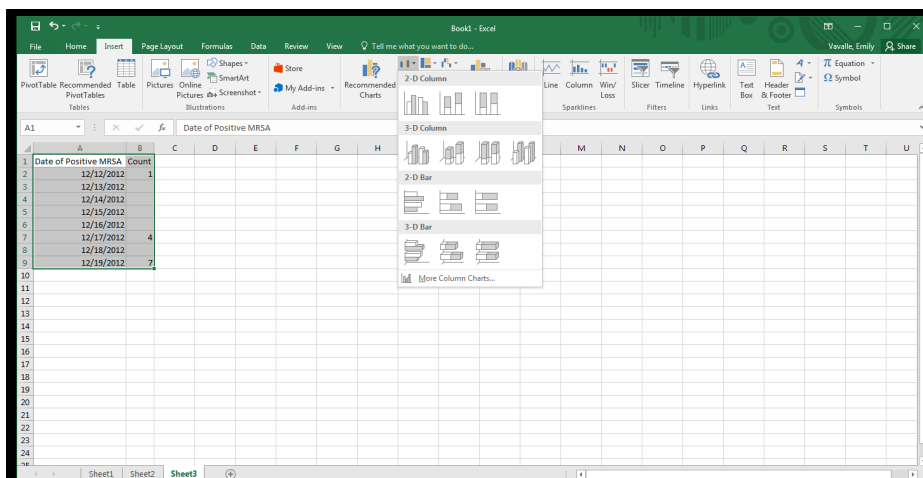OPTIONAL Activity 5: Create an outbreak epi curve.

1. Highlight columns A and B with your Dates of Positive MRSA and count data.

2. Along the top menu options, choose "Insert" then "Column graph"- if you have multiple options, choose first option – under 2D.

Excel version 2010:
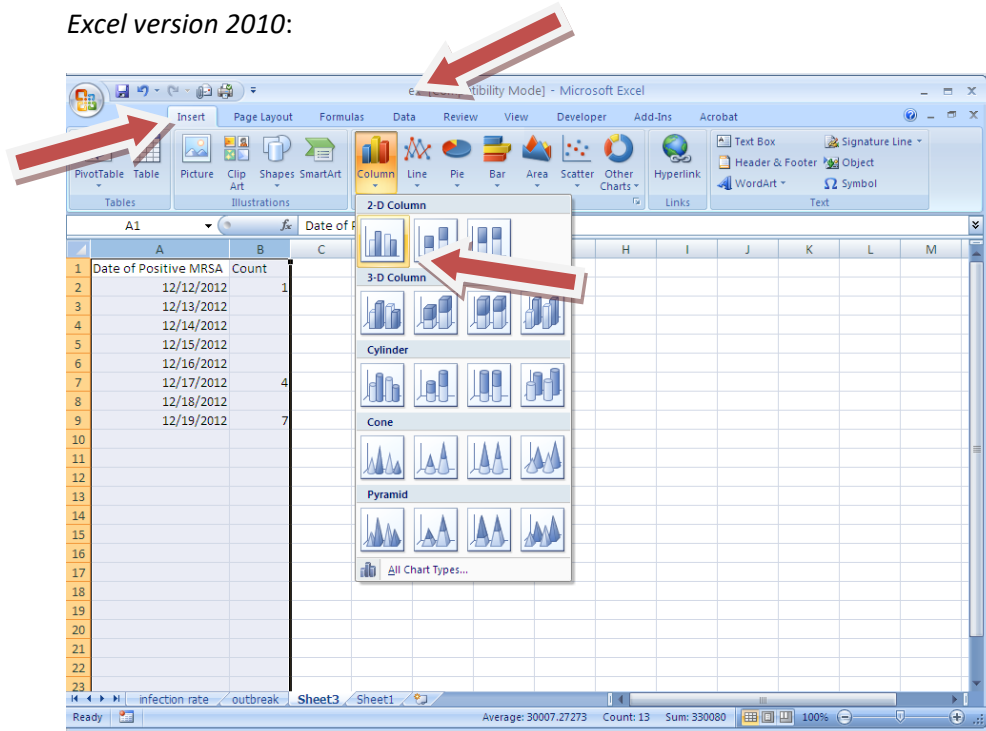
Excel version 2016 and Mac version Excel 2017 (similar):

3. Click on the label above the graph and type an informative title.

4. Click on the y-axis, then use the top menu – Chart tools "Layout" choice to select axis titles – then select "Vertical Axis" then "Rotated Title" – now you can add an informative label for your y-axis (e.g., "MRSA colonizations/infections")

HINT: *Excel version 2010*
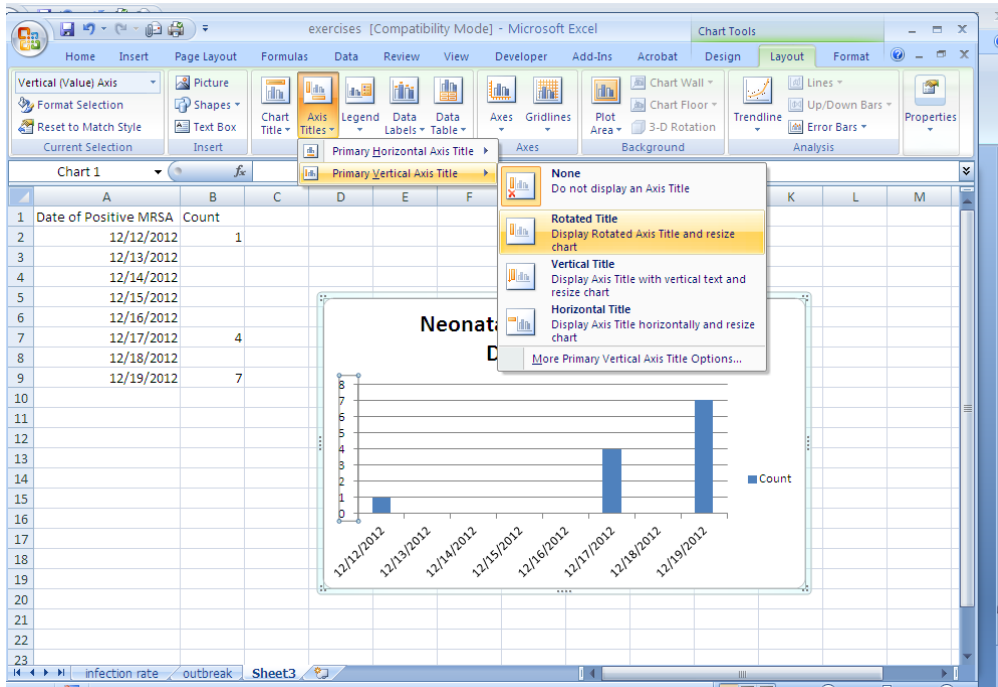
Excel version 2016: click on chart/graph body itself, then use Chart elements + sign to select axis titles and add informative label for y axis
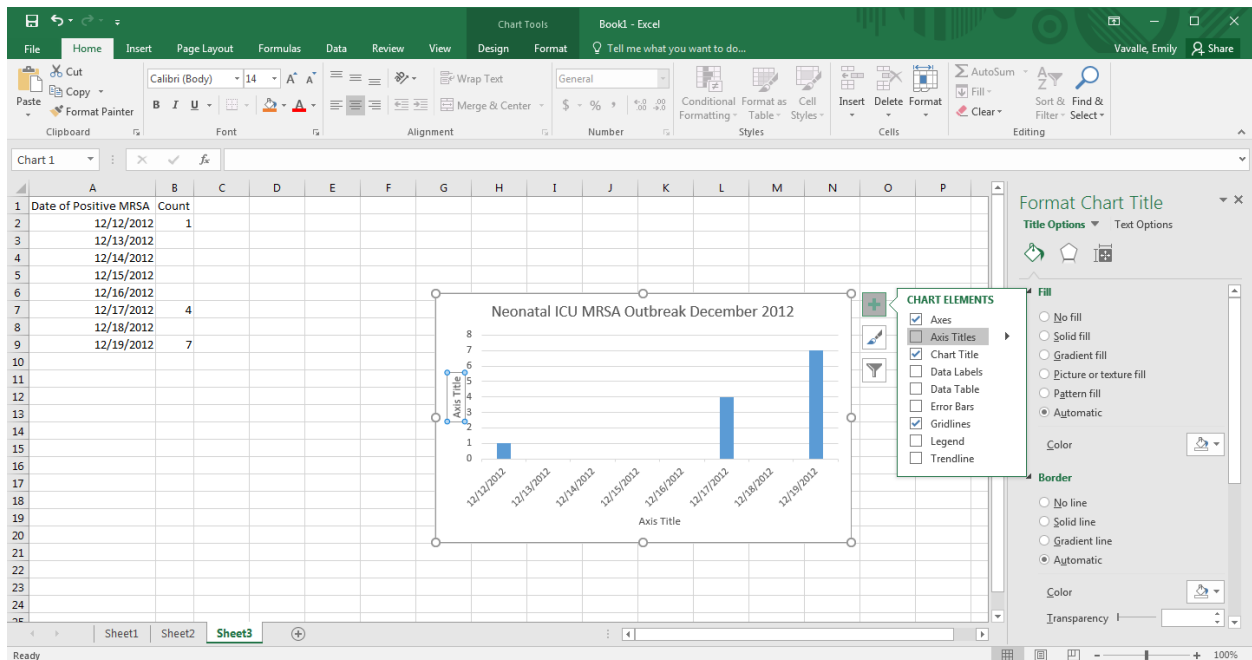
Mac Excel version 2017: This is found in the Chart Design tab, upper left corner button for Add Chart Element:

Exercise 2:

Outbreak Investigation

FINAL (with all optional items)

Excel version 2010:

	A	B	C	D	E	F	G
1	Admission Date	Date of Positive MRSA	Patient Name	Medical Record Number	Infection (Y/N)	Infection Type	Infection Date
2	11/2/2012	12/12/2012	Baby Apple	123	Y	BSI	12/12/2012
3	11/18/2012	12/17/2012	Baby Banana	234	N		
4	11/26/2012	12/17/2012	Baby Cherry	456	N		
5	12/5/2012	12/17/2012	Baby Kiwi	567	N		
6	12/5/2012	12/17/2012	Baby Orange	345	Y	Eye	12/30/2012
7	11/24/2012	12/19/2012	Baby Gorilla	987	N		
8	12/1/2012	12/19/2012	Baby Giraffe	876	N		
9	12/1/2013	12/19/2012	Baby Koala	549	N		
10	12/4/2012	12/19/2012	Baby Elephant	830	N		
11	11/27/2012	12/19/2012	Baby Panda	927	N		
12	12/16/2012	12/19/2012	Baby Otter	280	N		
13	11/7/2012	12/19/2012	Baby Cheetah	298	Y	Eye	12/28/2012

Excel version 2016:

	A	B	C	D	E	F	G
1	Admission Date	Date of Positive MRSA	Patient Name	Medical Record Number	Infection (Y/N)	Infection Type	Infection Date
2	11/2/2012	12/12/2012	Baby Apple	123	Y	BSI	12/12/2012
3	11/18/2012	12/17/2012	Baby Banana	234	N		
4	11/26/2012	12/17/2012	Baby Cherry	456	N		
5	12/5/2012	12/17/2012	Baby Kiwi	567	N		
6	12/5/2012	12/17/2012	Baby Orange	345	Y	Eye	12/30/2012
7	11/24/2012	12/19/2012	Baby Gorilla	987	N		
8	12/1/2012	12/19/2012	Baby Giraffe	876	N		
9	12/1/2012	12/19/2012	Baby Koala	549	N		
10	12/4/2012	12/19/2012	Baby Elephant	830	N		
11	11/27/2012	12/19/2012	Baby Panda	927	N		
12	12/16/2012	12/19/2012	Baby Otter	280	N		
13	11/7/2012	12/19/2012	Baby Cheetah	298	Y	Eye	12/28/2012

Excel version 2010:

Excel version 2016: