Antimicrobial-Specific Days of Therapy (DOT) per 1000 Days Present

Description: These instructions will demonstrate how to modify the Antimicrobial Use Line List Report to calculate antimicrobial-specific DOT per 1000 days present. These instructions will build on the information contained in this Quick Reference Guide for using the AU Line List, but will provide different instructions for modifying the report. These instructions will be based on using the report titled "Line Listing – All Submitted AU Data for FACWIDEIN".
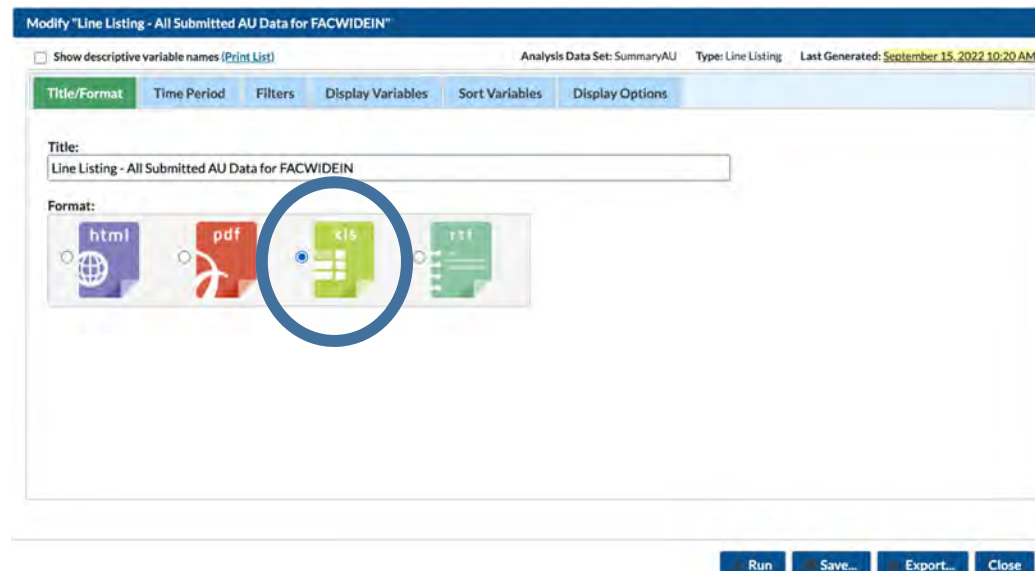
The equation ultimately used in this example should look like the following:

$$\frac{Number\ of\ Antimicrobial\ Days}{Number\ of\ Days\ Present} \times 1000$$

For this example, you will be determining the DOT of cefepime per 1000 days present for the Step Down unit. You would like the data on a monthly basis for all of calendar year 2021.

Modifying the Report

1. Since you will need to further modify the report after extracting the data from NHSN, select the xls file format on the first modification screen.

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

3. For this export, add location to the display variables tab. To do this, highlight the variable on the left side of the window and click the "selected >" button to move the variables to the right column.

4. (Optional) There are a number of default variables that do not pertain to the DOT calculation. These variables can be removed in a similar fashion to step 3 by selecting the unwanted variables on the right side of the window and click the "< selected" button to move the variables to the left column.

5. In order to pull data for a specific unit and antimicrobial, additional filters need to be applied. Under the Filters tab, change the current location filter to the unit of interest; for this example, we will be choosing the Step Down unit.

6. In order to pull antimicrobial-specific data, a new filter will need to be added. This can be done by clicking the "Add rule" button. For this example, we want to set this rule to "drugingredient".

7. Once the new rule is set to "drugingredient", a couple new boxes will appear. Leave the middle box as "equal" and change the final box to the antimicrobial of interest. In this example, we will be choosing cefepime.

8. The last report modification we will want to make is under the "Display Options" tab. Change this variable to the "location" option.

9. Run the query and an XLS file will download to your computer. (Tip: look in the downloads folder or the top/bottom banners of your browser)

10. 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

11. In the newly saved Excel document, you will now need to start manipulating the data. Start by adding a new column header to indicate where you will be calculating DOT; this is in Column H in this example.

12. After creating this new header in Column H, you will want to enter an equation that allows Excel to calculate the DOT per 1000 days present for you. The equation will have the antimicrobial days (Column C) as the numerator and the number of days present (Column D) as the denominator; the quotient of this equation will be multiplied by 1000 to standardize the value per 1000 days present.

13. To enter this equation into Excel, first select the cell immediately underneath the new header you created in Column H. In this cell type an equal sign & parenthesis "=(" in order to start the equation. You may then either type or click the corresponding cell under Column C. Once this is done, enter a forward slash "/" and then either type or

click the corresponding cell under Column D. Close the first part of this equation by entering a closing parenthesis ")". Add an asterisk "*" to indicate multiplication, and enter the number 1000. The final equation should look like the screenshot below.

14. Once the equation is entered, hit the Enter key and the cefepime DOT per 1000 days present should be calculated. To repeat this for the remaining months, click, hold, and drag the bottom right corner of the cell containing the newly calculated DOT to the last row of data; in this example that is cell H24. Alternatively, you can double click the bottom right corner of the cell and it will repeat the calculation for the remaining rows.

15. In order to round up the DOT to a whole number, click the cell next to the first DOT calculation and then find the "ROUNDUP" equation under the Formulas tab (Formulas > Math & Trig > ROUNDUP). You may rename this column to Rounded DOT.

16. In the new ROUNDUP function window that appears, type or click the cell of interest as the "Number". In this case, it is cell H13. For the number of digits, enter the number "0" to indicate you want to round up to the nearest whole number. Once this is done hit "OK". To apply this to the remainder of the rows, click, hold, and drag the bottom right corner of the cell to the last row of data; in this example, that is cell H24. Alternatively, you can double click the bottom right corner of the cell and it will repeat the calculation for the remaining rows.

    a. TIP: Steps 14-16 can be combined into one equation by stacking the formulas. The final equation in this example would be "=ROUNDUP(C13/D13*1000,0)"

    b. TIP: If there are excess zeros in your values, this can be adjusted by highlighting the values and clicking the "Decrease Decimal" button in Excel.

Data Visualization

17. To begin work with visualizing these data, start by inserting a PivotChart. Simply place your cursor in any cell within your spreadsheet data and select Insert > PivotChart.
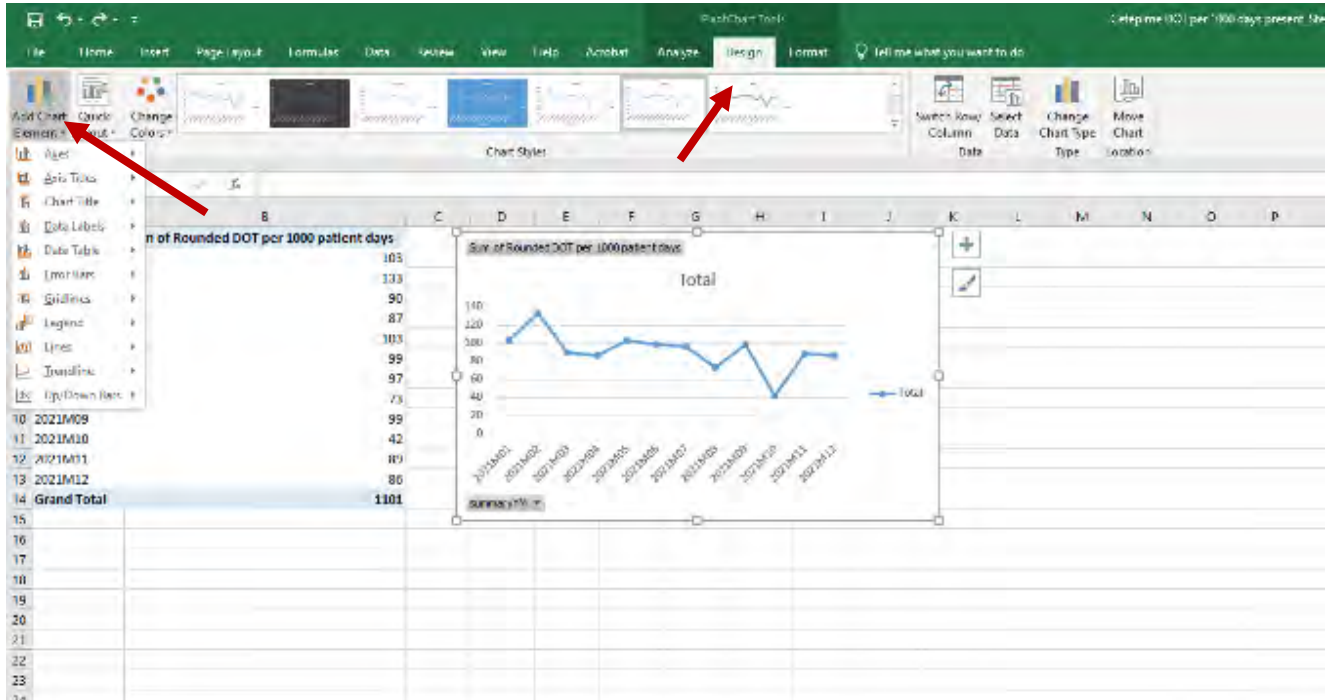
Example: Show monthly cefepime DOTs over span of one year

Using the PivotChart parameters highlighted below, a chart will be created in your new spreadsheet. To produce a line graph from this chart, click any cell in the chart and then click Insert > Insert Line or Area Chart > Line Chart with Markers

The chart elements (e.g., X/Y axis titles, legend, etc.) may be updated to better reflect the data presented. This can be done by clicking on the new graph and then under "PivotChart Tools" > Design > Add Chart Element. Alternatively, you can select the green plus sign to the right of the graph and quickly add any chart elements missing.

A completed graph may look something like the following. This type of graph could also be used to add a time point in the year when a particular intervention was implemented in order to demonstrate a potential impact on cefepime DOTs. Using the Insert > Shapes tool, this could be done with the addition of an arrow or solid line.

TIP: If you would rather see these data in a bar graph format, simply right click the inside of the graph and select "Change Chart Type". This will pull up a new window that will allow you to select a new graph format.