## Antimicrobial-Specific Average Length of Therapy

Description: These instructions will demonstrate how to calculate average length of therapy for a particular antimicrobial. These instructions will build on the information contained in this <u>Quick Reference Guide</u> for using the AU Line List and Antimicrobial-Specific Days of Therapy (DOT) per 1000 Days Present, but will provide different instructions for manipulating the data. These instructions will be based on using the report titled "Line Listing – All Submitted AU Data for FACWIDEIN".

Determining average length of therapy for a specific antimicrobial will be an estimate that incorporates data from NHSN as well as local data. The equation ultimately used will look like this:

Days of Therapy of Specific Antimicrobial Number of Admissions that Received Specific Antimicrobial

BEFORE YOU GET STARTED: Calculating average length of therapy will require acquiring your own data (i.e., NOT from NSHN) regarding number of admissions per month receiving the antimicrobial of interest. This can be done by working with your local data and/or informatics analyst, if available.

For this example, you will be determining the average length of therapy of cefepime for the Step Down unit. You would like the data on a monthly basis for all of calendar year 2021.

## Manipulating the Data

 Part of the data needed to calculate average length of therapy can be obtained through NHSN. Follow the steps in the Quick Reference Guide for Antimicrobial-Specific DOTs per 1000 Days Present until you get your exported data into Excel. This exported data should look something like the following:

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- 2. The other portion of data needed to calculate average length of therapy for a specific antimicrobial will be outside of what NHSN is able to provide. This includes the total number of admissions per month receiving the antimicrobial of interest. For the purpose of demonstration, these data have been incorporated into the Excel document mentioned in Step 1.
  - a. Of note, the number of admissions in this calculation is not the <u>total</u> number of admissions for each month; it is specifically the <u>portion</u> of those admissions that ultimately received at least one dose of the antimicrobial of interest.

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- 3. You will now need to start manipulating the data. Start by adding a new column header to indicate where you will be calculating average length of therapy; this is in Column I in this example.
- 4. After creating this new header in Column I, you will want to enter an equation that allows Excel to calculate the average length of cefepime therapy for you. The equation will have the cefepime days of therapy (Column C) as the numerator and the number of admissions that received cefepime (Column H) as the denominator.
- 5. To enter this equation into Excel, first select the cell immediately underneath the new header you created in Column I. In this cell type an equal sign "=" 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 H. The final equation should look like the screenshot below.

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- 6. Once the equation is entered, hit the Enter key and the cefepime average length of therapy for the Step Down unit 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 average length of therapy to the last row of data; in this example, that is cell I24. Alternatively, you can double click the bottom right corner of the cell and it will repeat the calculation for the remaining rows. If you would like to round to the nearest tenth, use the "Decrease Decimal" button shown below.
  - a. TIP: If you need to round up to the nearest whole number, follow the instructions outlined in the Quick Reference Guide for Antimicrobial-Specific DOTs per 1000 Days Present.

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Click & Drag

## **Data Visualization**

7. 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 average length of therapy over span of one year

Using the PivotChart parameters highlighted below, a chart will be created in your new spreadsheet. To produce a bar graph from this chart, click any cell in the chart and then click Insert > Insert Column or Bar Chart > Clustered Bar Chart



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 after adding data labels and updating the title & Y-axis. If you would rather see these data in a line chart 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. This example is also covered in the Quick Reference Guide for Antimicrobial-Specific DOTs per 1000 Days Present.

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