

Targeted Admissions Denominator (Diagnosis Code and Antibiotic Use)

Description- These instructions will demonstrate how to calculate the targeted admissions in two ways: (1) with a specific diagnosis code, (2) for a targeted antibiotic. Calculating the targeted admissions will require acquiring your own data (i.e., not data from NHSN) regarding the number of admissions with the diagnosis code of interest and a separate report with the number of admissions receiving your antibiotic(s) of interest. This report can be obtained by working with your local IT and/or informatics analyst.

For this example, you will be determining the targeted admissions who were admitted for 1st quarter 2022 with diagnosis code J44.1, or Chronic obstructive pulmonary disease w (acute) exacerbation and the targeted admissions who received azithromycin for 1st quarter 2022. Then, we will show you how to combine those two spreadsheets to see the number of admissions with diagnosis code J44.1 that received azithromycin in 1st quarter 2022.

The data obtained in this metric will provide a denominator to use in future projects.

Manipulating the Data to Get Targeted Admissions by Diagnosis Code

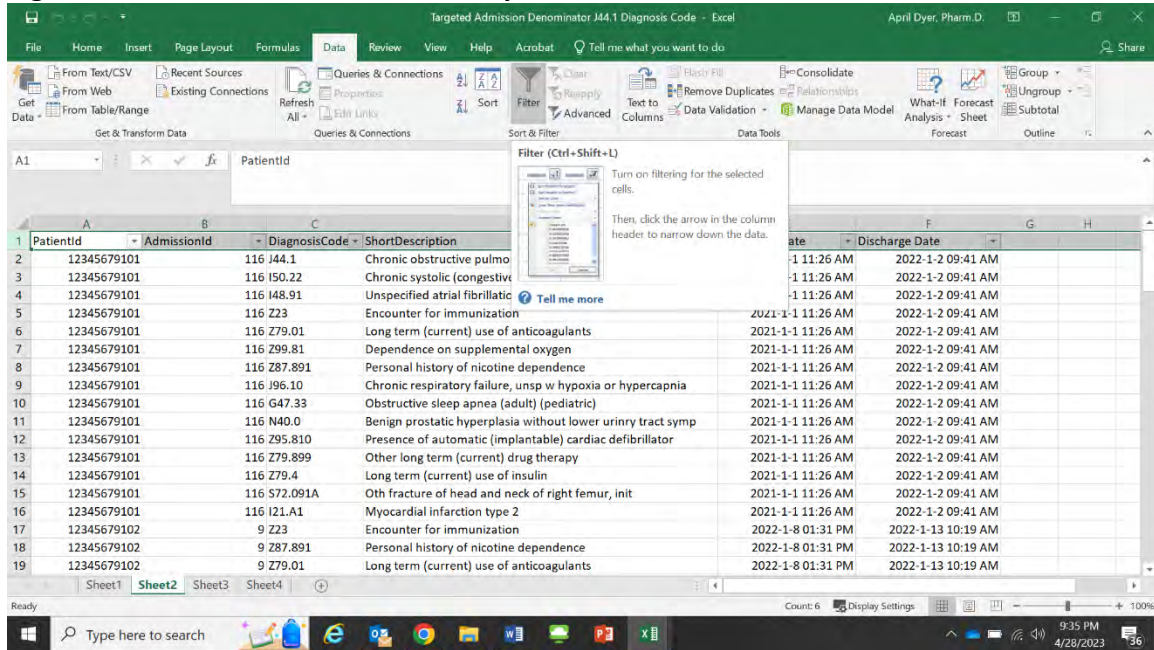
1. Request a report from your internal IT group for all patient admissions or encounters from the first quarter of 2022 with their diagnosis codes. The example report we are using contains patient ID, Admission ID, diagnosis code, short description of the diagnosis code, patient admission date, and patient discharge date for all admissions during the time period.

Figure 1. Example Report with Diagnosis Codes for All Patient Admissions

PatientID	AdmissionID	DiagnosisCode	ShortDescription	Admission Date	Discharge Date
12345679101	116 J44.1	Chronic obstructive pulmonary disease w (acute) exacerbation	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 I50.22	Chronic systolic (congestive) heart failure	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 I48.91	Unspecified atrial fibrillation	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 Z23	Encounter for immunization	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 Z79.01	Long term (current) use of anticoagulants	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 Z99.81	Dependence on supplemental oxygen	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 Z87.891	Personal history of nicotine dependence	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 J96.10	Chronic respiratory failure, unsp w hypoxia or hypercapnia	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 G47.33	Obstructive sleep apnea (adult) (pediatric)	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 N40.0	Benign prostatic hyperplasia without lower urinary tract symp	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 Z95.810	Presence of automatic (implantable) cardiac defibrillator	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 Z79.899	Other long term (current) drug therapy	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 Z79.4	Long term (current) use of insulin	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 S72.091A	Oth fracture of head and neck of right femur, init	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679101	116 I21.A1	Myocardial infarction type 2	2021-1-1 11:26 AM	2022-1-2 09:41 AM	
12345679102	9 Z23	Encounter for immunization	2022-1-8 01:31 PM	2022-1-13 10:19 AM	
12345679102	9 Z87.891	Personal history of nicotine dependence	2022-1-8 01:31 PM	2022-1-13 10:19 AM	
12345679102	9 Z79.01	Long term (current) use of anticoagulants	2022-1-8 01:31 PM	2022-1-13 10:19 AM	

- Once you have the initial, report add filters to the top row. Highlight the top row of the excel sheet and go to Data → Select Filters.

Figure 2. How to Add Filters to Your Spreadsheet



- Filter the data in the diagnosis code column to contain only the diagnosis code J44.1. You will do this by clicking on the downward arrow that is to the right of the Diagnosis Code heading in cell D1 → Uncheck the Box next to Select All → Check the box next to Diagnosis Code J44.1 → Select “OK”. HINT: If you have a large spreadsheet with lots of diagnosis codes, you can use the search box to look for the diagnosis code of interest. Now, you will have a list of targeted admissions with a diagnosis code of J44.1 in first quarter 2022. CMS provides ICD-9 and ICD-10 code lists on their [website](#).

Figure 3. How to Filter Diagnosis Codes Step 1: Unselecting All Codes

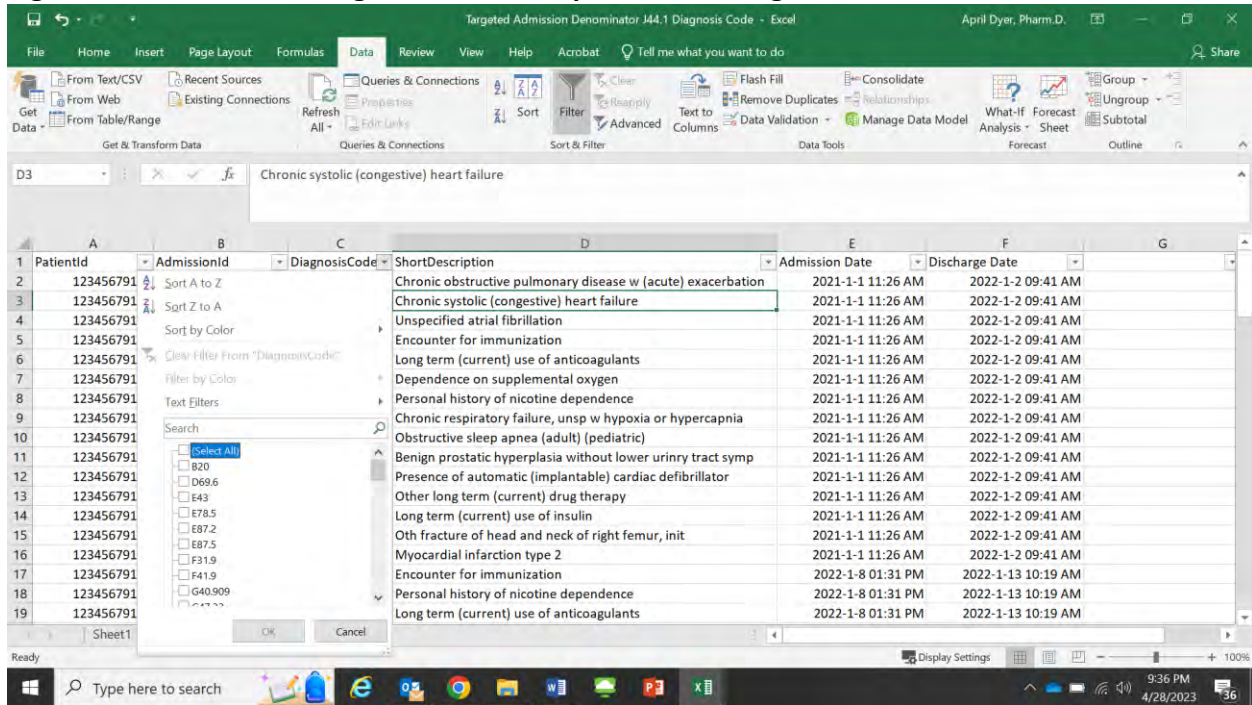


Figure 4. How to Filter Diagnosis Codes Step 2: Selecting Desired Code(s)

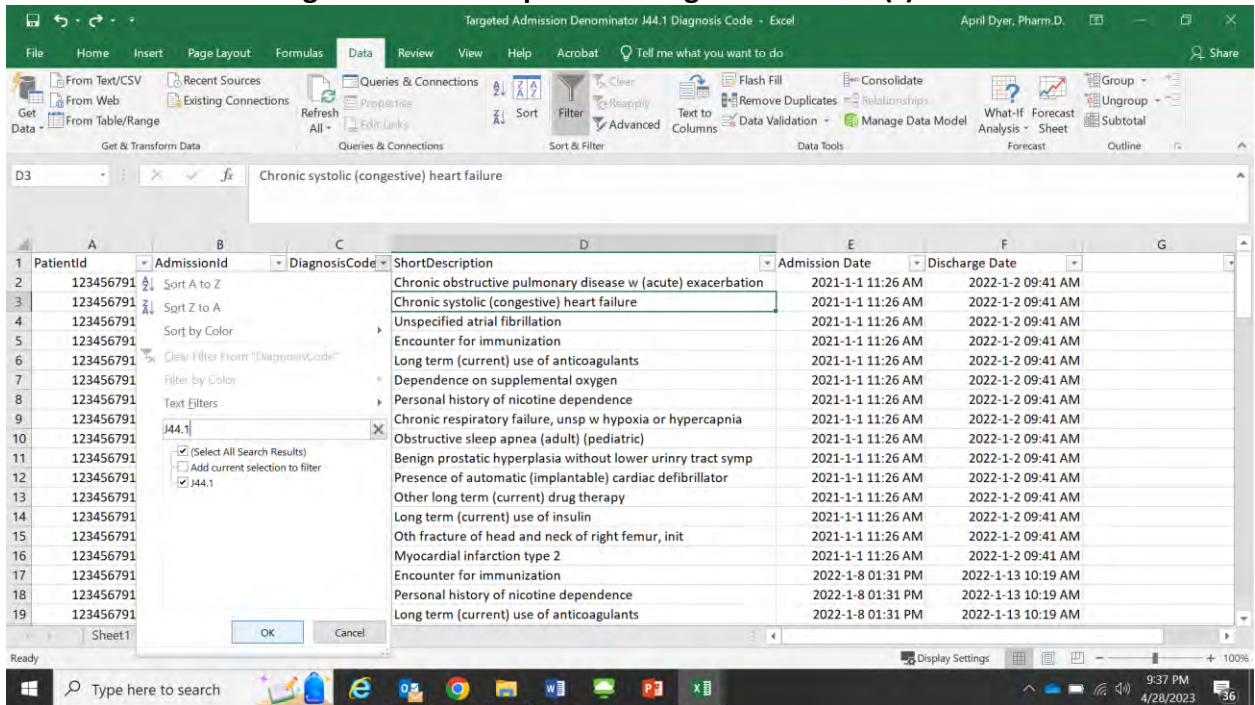


Figure 5. Filtering by Diagnosis Codes: Final List after Filtering

Targeted Admission Denominator: J44.1 Diagnosis Code - Excel

Chronic systolic (congestive) heart failure

PatientId	AdmissionId	DiagnosisCode	ShortDescription	Admission Date	Discharge Date
12345679101	116	J44.1	Chronic obstructive pulmonary disease w (acute) exacerbation	2021-1-1 11:26 AM	2022-1-2 09:41 AM
12345679103	27	J44.1	Chronic obstructive pulmonary disease w (acute) exacerbation	2022-1-22 08:31 PM	2022-1-28 09:57 AM
12345679108	23	J44.1	Chronic obstructive pulmonary disease w (acute) exacerbation	2022-3-8 02:37 PM	2022-3-16 09:08 AM
12345679108	24	J44.1	Chronic obstructive pulmonary disease w (acute) exacerbation	2022-3-18 04:37 PM	2022-3-27 09:01 AM

Manipulating the Data to Get Targeted Admissions by Drug

Request a report from your internal IT group for all patient admissions from the first quarter of 2022 who received azithromycin. The example report we are using contains patient ID, Admission ID, agent name, patient admission date, and patient discharge date for all admissions during the time period. It is important that this report focuses on patient encounters or admissions for the given time period, since a patient may be admitted and receive azithromycin multiple times during the time period.

Figure 6. Targeted Admissions Denominator Spreadsheet for Patients Receiving Azithromycin in Quarter 1 of 2022

PatientId	AdmissionId	Agent Name	Admission Date	Discharge Date
12345679101	116	Azithromycin	2021-1-1 11:26 AM	2022-1-2 09:41 AM
12345679104	14	Azithromycin	2022-1-23 02:09 PM	2022-1-26 10:01 AM
12345679105	12	Azithromycin	2022-2-14 04:57 PM	2022-2-21 06:27 AM
12345679108	23	Azithromycin	2022-3-8 02:37 PM	2022-3-16 09:08 AM
12345679108	24	Azithromycin	2022-3-18 04:37 PM	2022-3-27 09:01 AM

Combining These Two Reports to See Targeted Admissions who are also on the Targeted Agent

Now, let's suppose that you wanted to drill down even further and combine these two targeted admissions to find the patients who received azithromycin and had a diagnosis code of J44.1. You could do this with some minor manipulation in Excel.

1. First, copy the spreadsheet for patients with a diagnosis code of J44.1 into separate sheets or spreadsheets. Select the data of interest → Right click with the mouse → Select Copy → Go to cell A1 of the new spreadsheet or sheet → Use the Ctrl +V function to paste your data into the new location.

Figure 7. Copying Targeted Admissions Denominator Spreadsheet for Admission Code J44.1

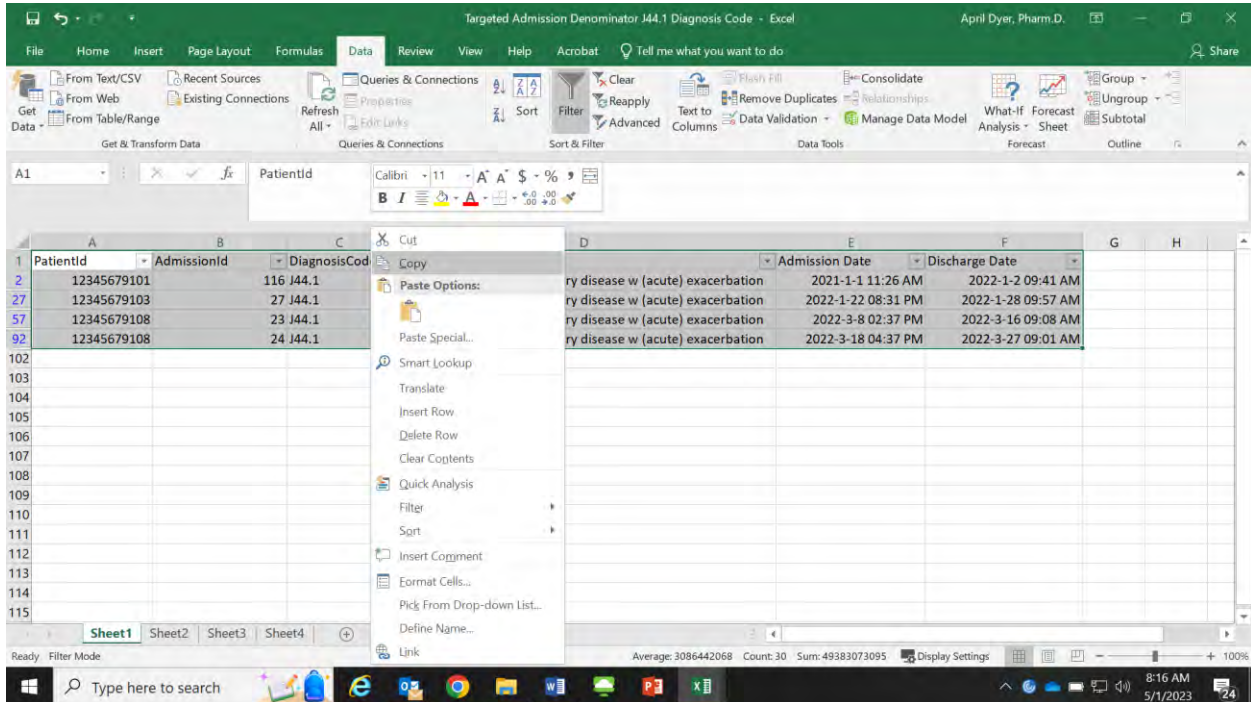
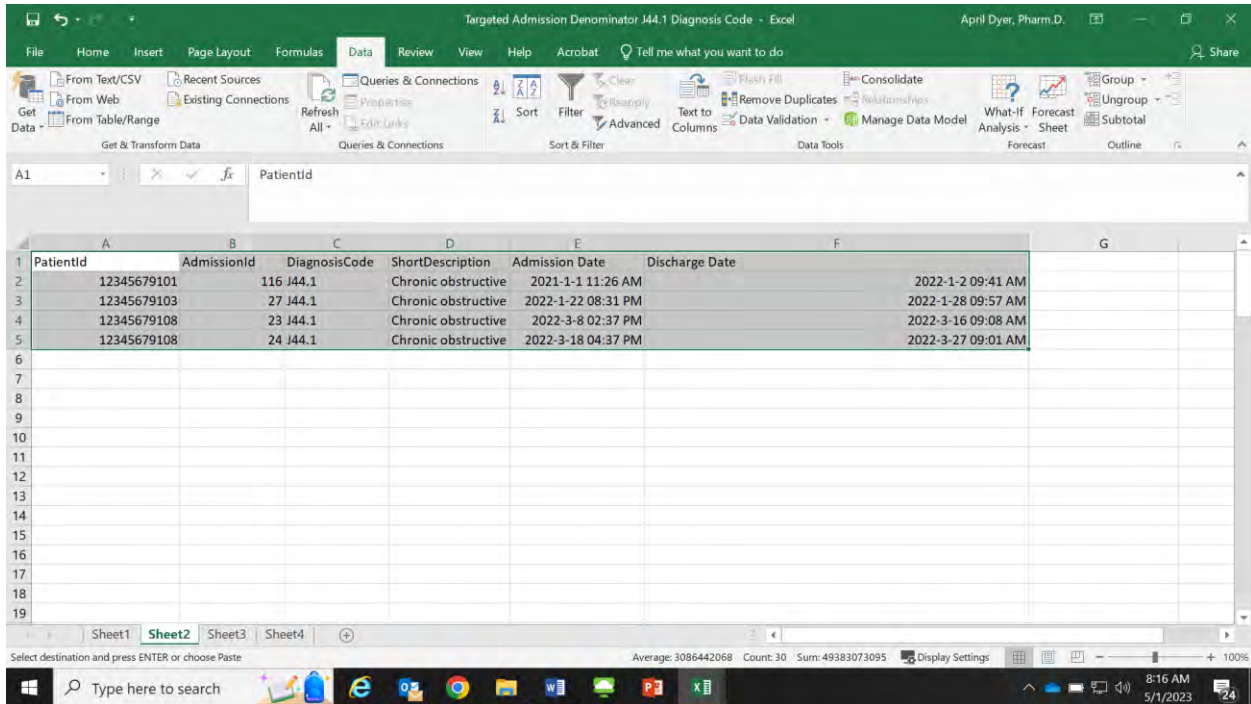


Figure 8. Pasting Targeted Admissions Denominator Spreadsheet for Admission Code J44.1 into a New Sheet



- Next, create a unique identifier for the patient admissions in each example spreadsheet. Patients may be admitted multiple times during quarter one, so you need both the patient ID and admission ID to properly identify unique admissions in the spreadsheet. For this reason, we will need to create a code that combines PatientId and AdmissionId to identify unique admissions.

Add a column in Column A of each spreadsheet that will contain a combined number for column A PatientID and column B AdmissionId. To create additional column, select Column A and right click with the mouse → select “insert”, then Excel will add a column to the left of column A. In the new column A, add a title of PatientIdAdmissionId, then use the formula =B2&C2 in cell A2. This will combine the two numbers in columns B and C to a unique identifier that combines both patient ID and admission ID. Copy this formula into the remaining cells. Complete these steps for both spreadsheets.

Figure 9. Inserting a New Column A to Targeted Admissions Denominator Spreadsheet for Admission Code J44.1

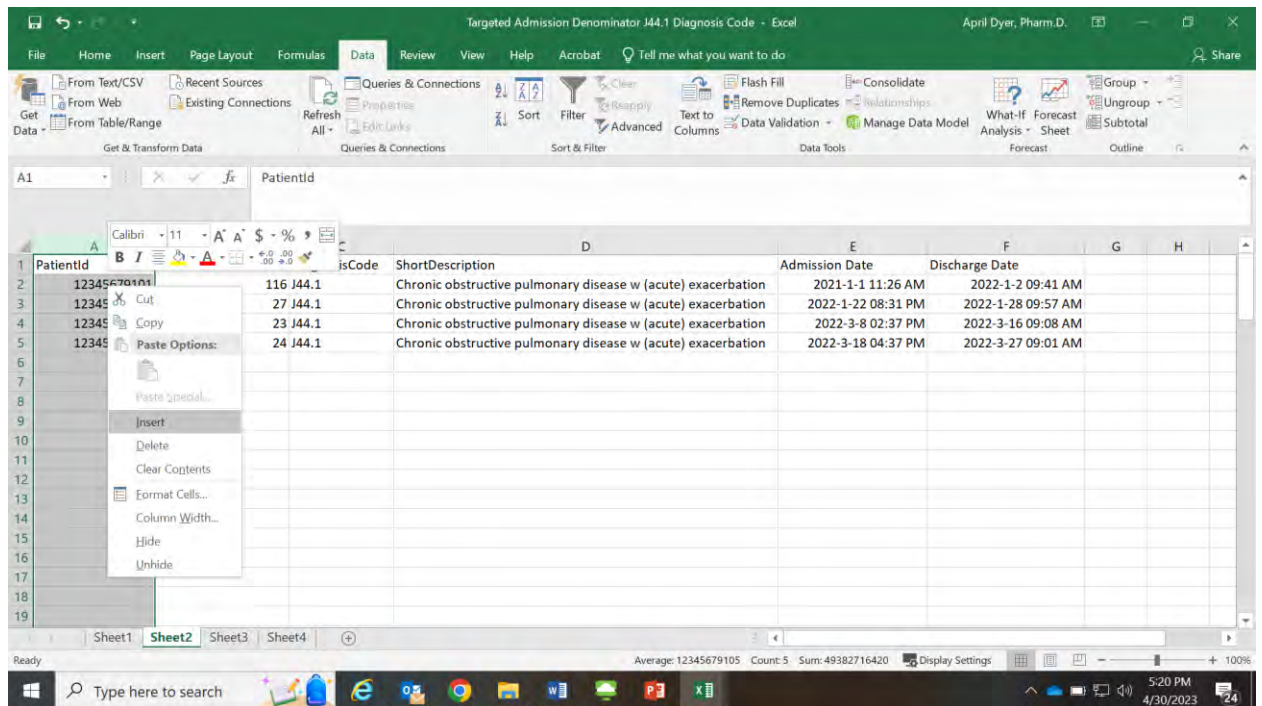


Figure 10. Creating a Unique Identifier by Combining Patient ID and Admission ID for Targeted Admissions Denominator Spreadsheet for Admission Code J44.1

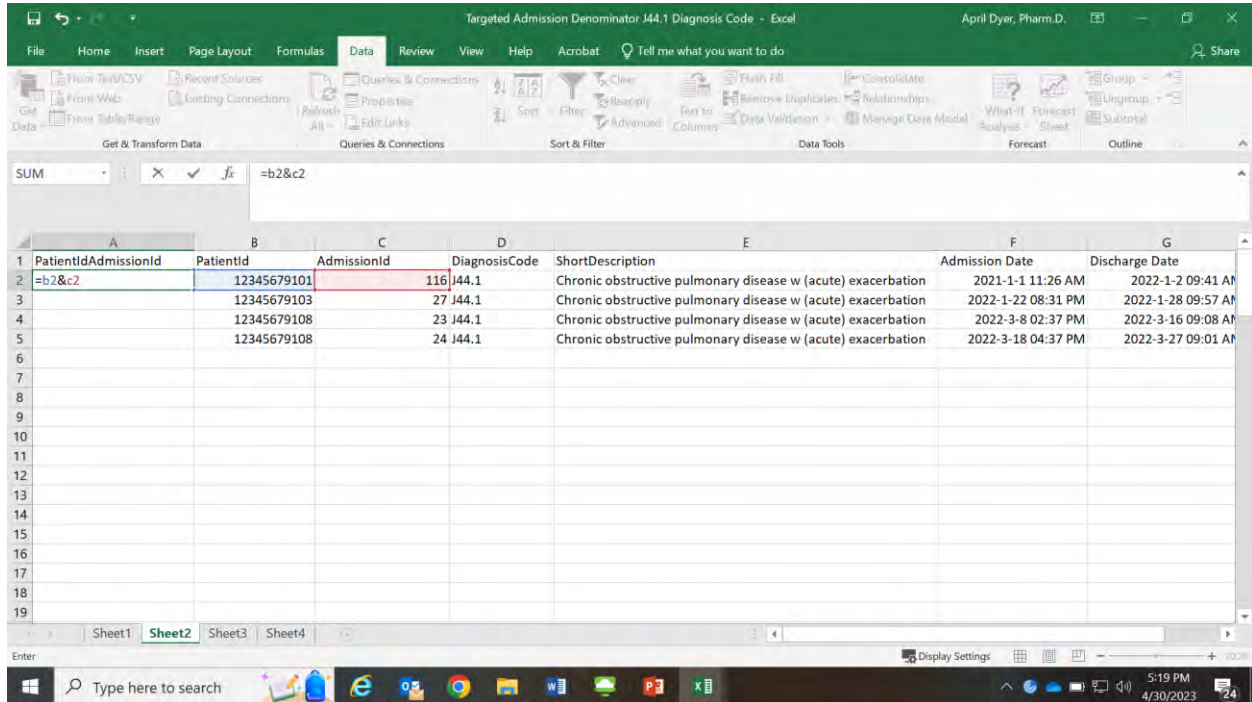
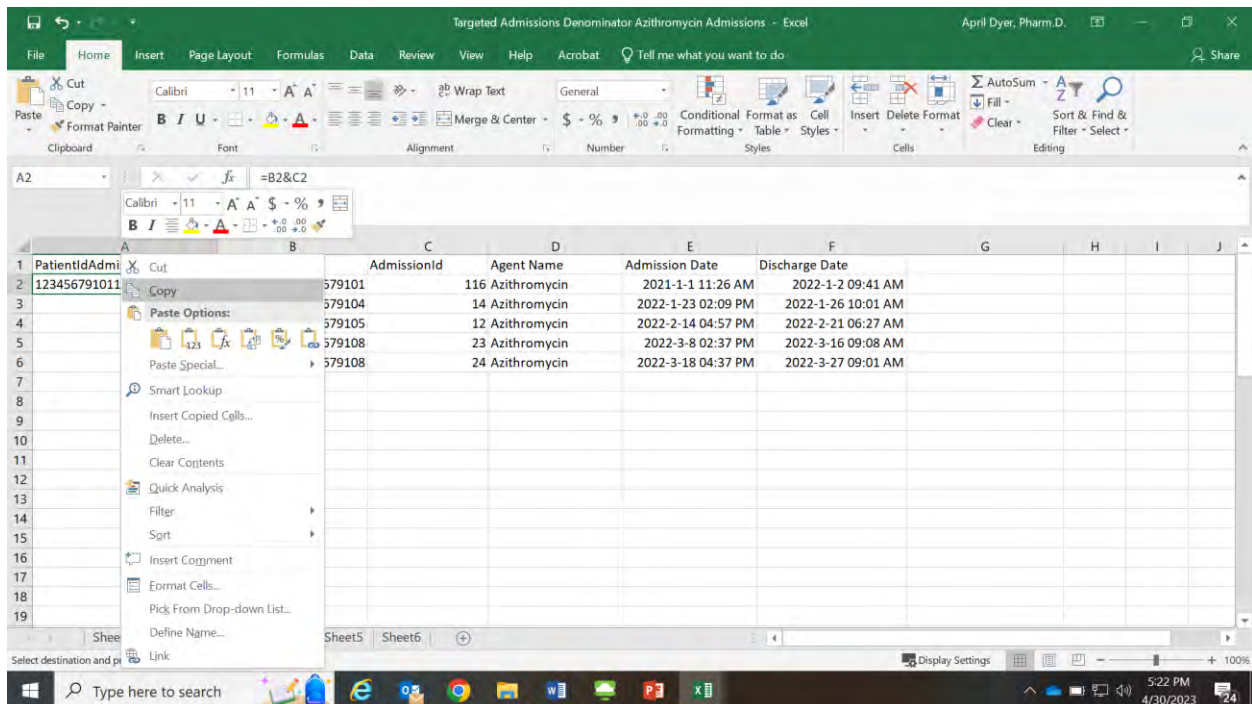


Figure 11. Copying and Pasting the Formula for the Unique Identifier Created by Combining Patient ID and Admission ID for Targeted Admissions Denominator Spreadsheet for Admission Code J44.1



In order to use the next function, VLOOKUP, you will need to rearrange some of the columns in your spreadsheets. For each spreadsheet, you will need PatientIdAdmissionId in Column A and either the Diagnosis Code or Agent Name in Column B. To achieve this, cut and paste each column into its correct location before moving to the next step.

Figure 12. Rearranging the Targeted Admissions Denominator Spreadsheet for Azithromycin to Place the Agent Name in Column B Step 1: Cutting Agent Name Column

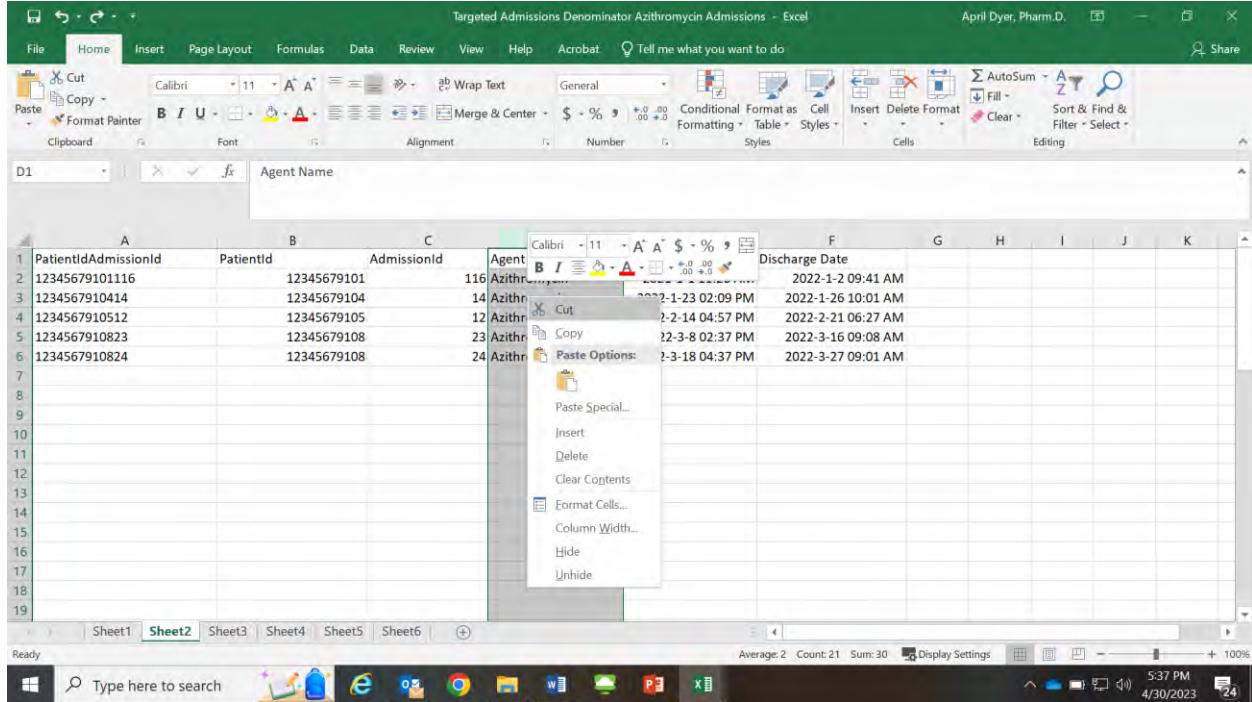
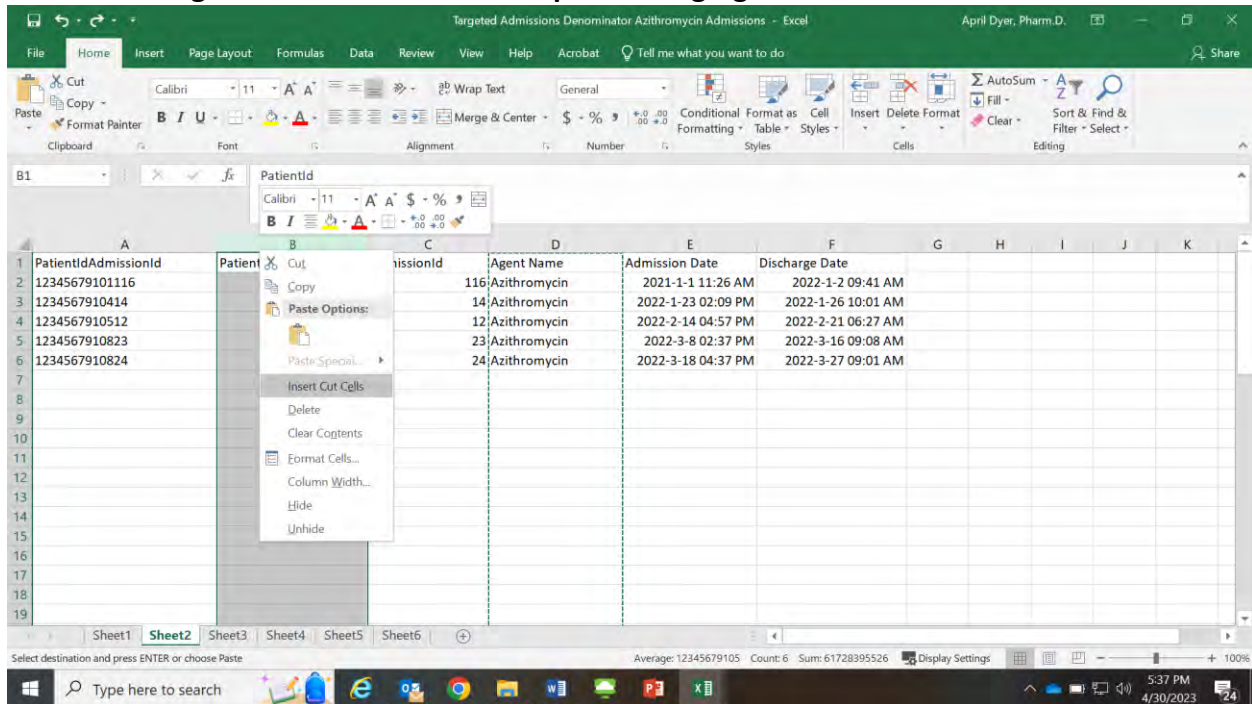


Figure 13. Rearranging the Targeted Admissions Denominator Spreadsheet for Azithromycin to Place the Agent Name in Column B Step 2: Pasting Agent Name Column



Repeat for the other spreadsheet.

Figure 14. Rearranging the Targeted Admissions Denominator Spreadsheet for Diagnosis Code J44.1 to Place the Agent Name in Column B Step 1: Cutting Agent Name Column

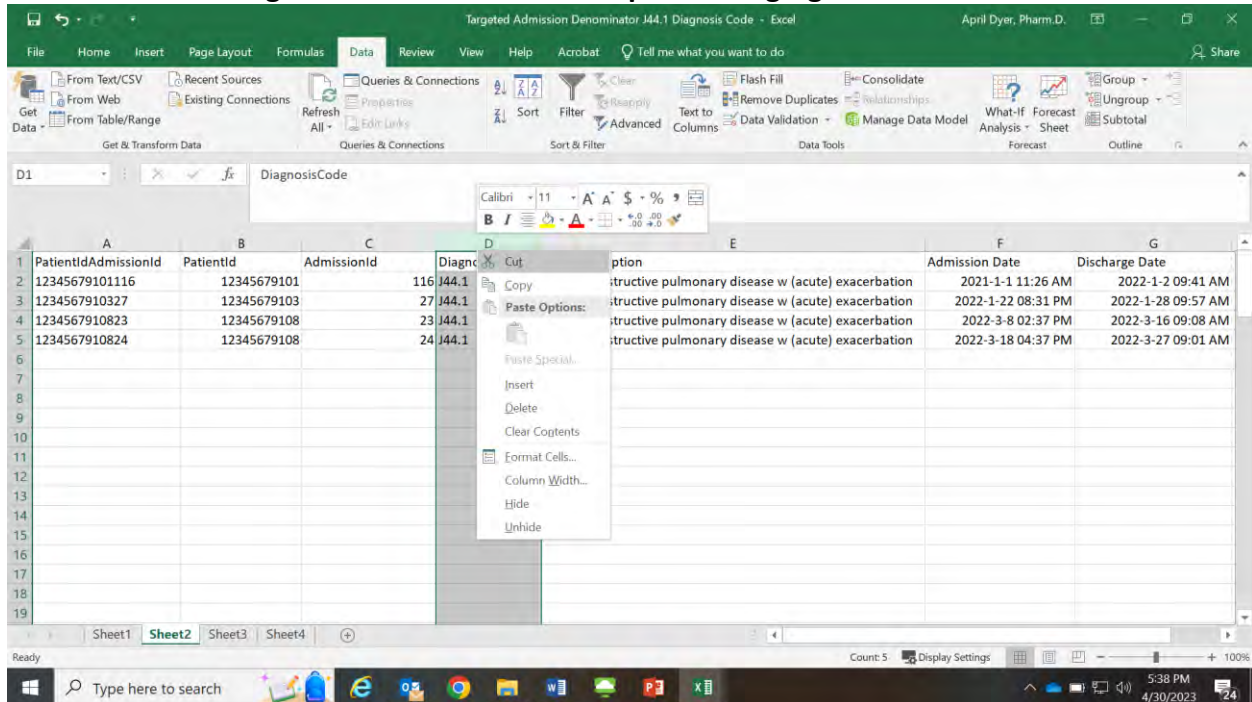
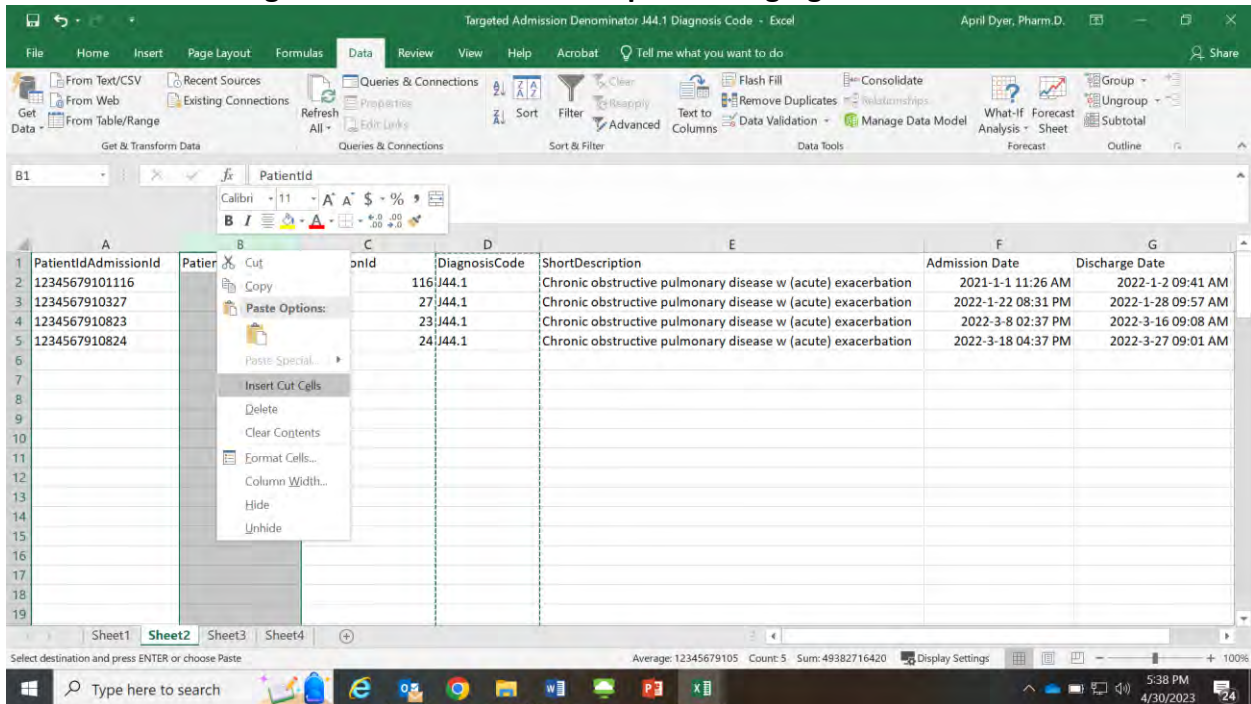


Figure 15. Rearranging the Targeted Admissions Denominator Spreadsheet for Diagnosis Code J44.1 to Place the Agent Name in Column B Step 2: Pasting Agent Name Column



Insert a column in one of the spreadsheets so that you can combine the data. For this example, we are inserting a column for Agent Name in the Diagnosis Code spreadsheet. To do this, right click on Column C → Select Insert → Title the new column C: “Agent Name”

Figure 16. Inserting a New Column C in Spreadsheet with Targeted Admissions Denominator J44.1 to add the Agent Name

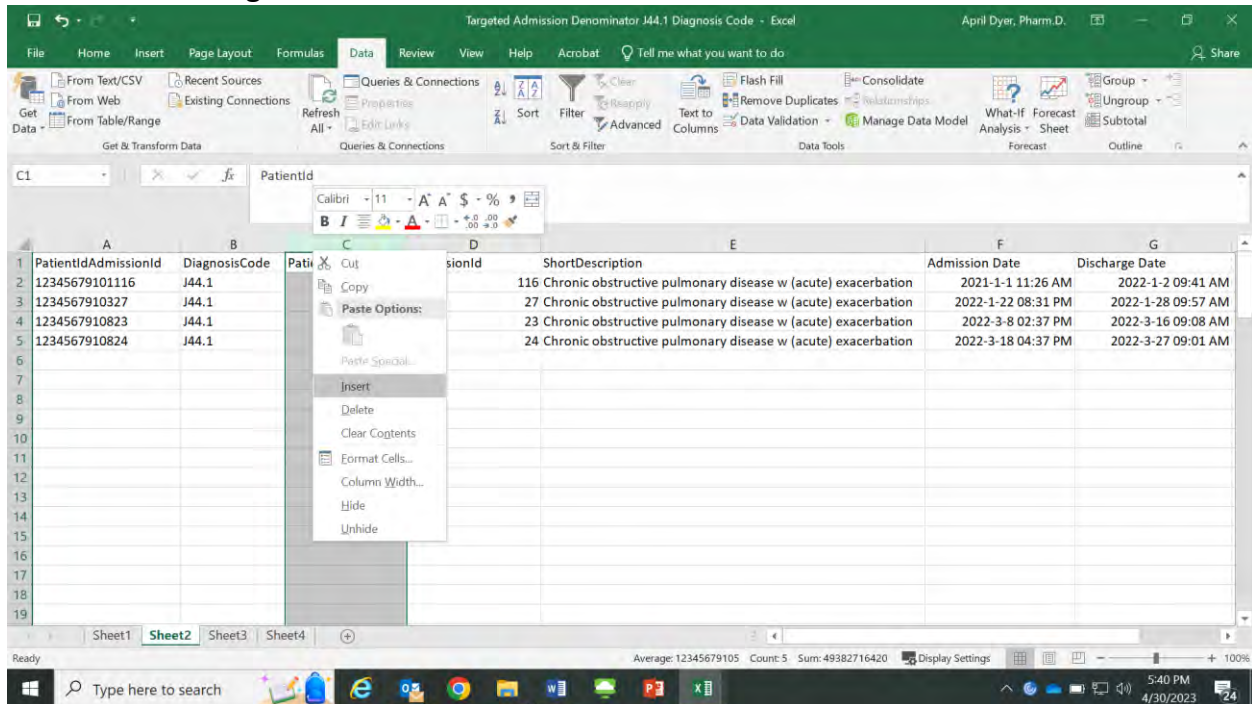
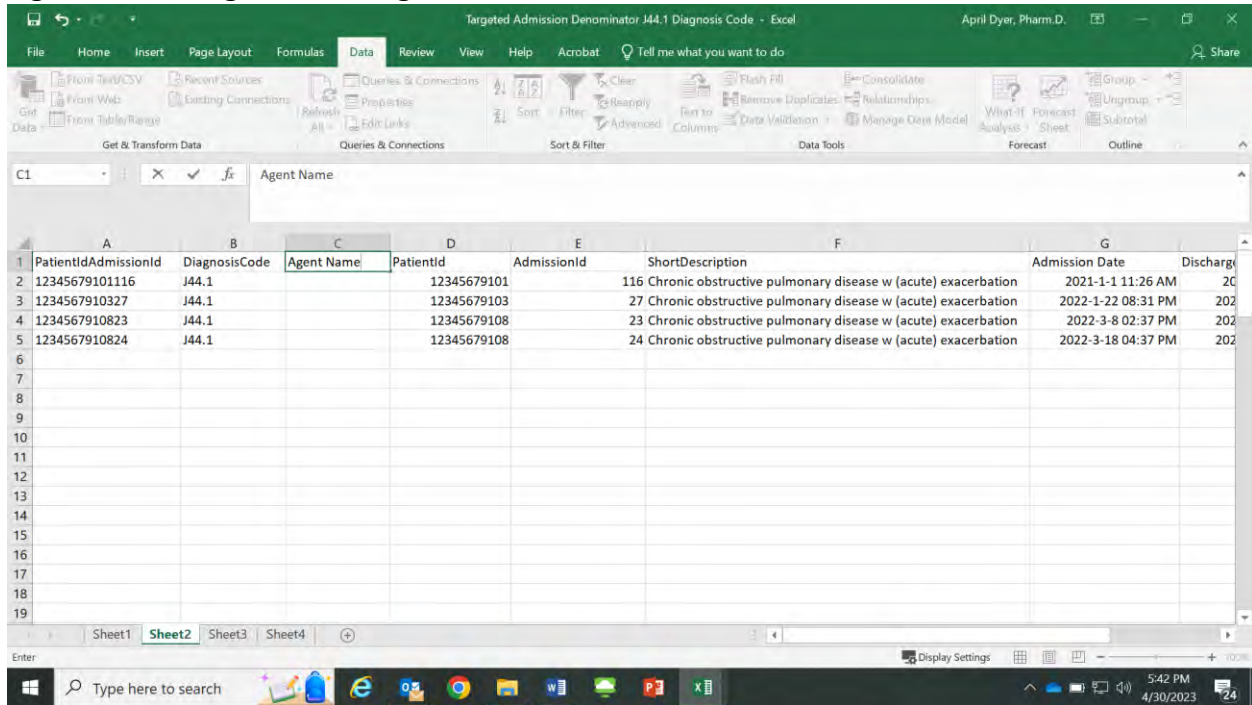


Figure 17. Adding the Title “Agent Name” to the New Column C



In Column C2, enter the following function: “=VLOOKUP(A2,” → Then, select columns A and B in the Agent Name spreadsheet → then, finish the formula by typing “,2,FALSE)” → Enter.

Figure 18. Entering the VLOOKUP formula in Column C of the Targeted Admissions Denominator for J44.1 Spreadsheet and Selecting the New Columns A and B in the Targeted Admissions Denominator for Patients Receiving Azithromycin as Part of the Formula

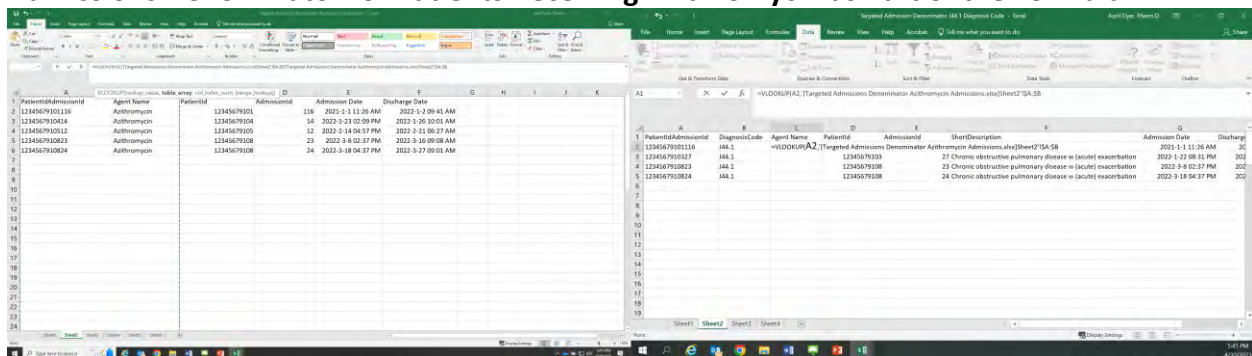
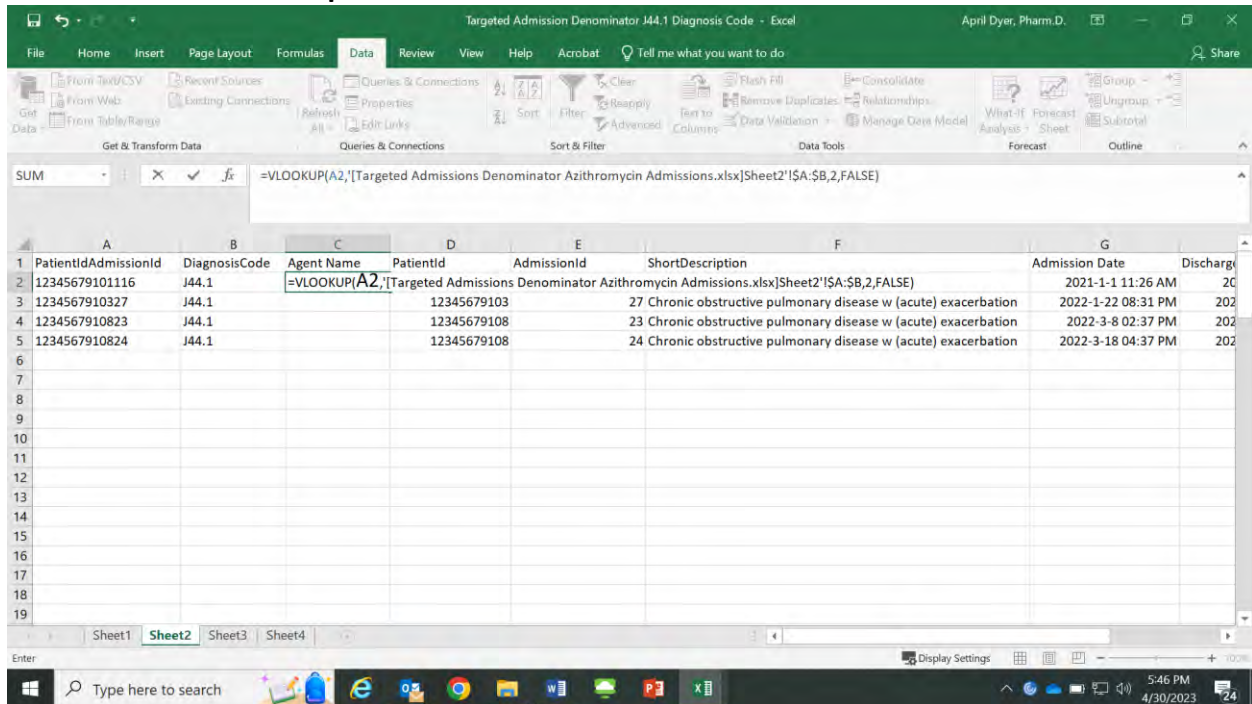


Figure 19. Completing entry of the VLOOKUP Formula in Column C of the Targeted Admissions Denominator for J44.1 Spreadsheet



Next, copy and paste the function into the remaining cells. Right click on Cell C2 → Copy → Select cells below and Paste using the “Fx” icon to paste the function into the cells below.

Figure 20. Copying the VLOOKUP Formula in Cell C2 to the Remaining Cells of Column C of the Targeted Admissions Denominator for J44.1 Spreadsheet

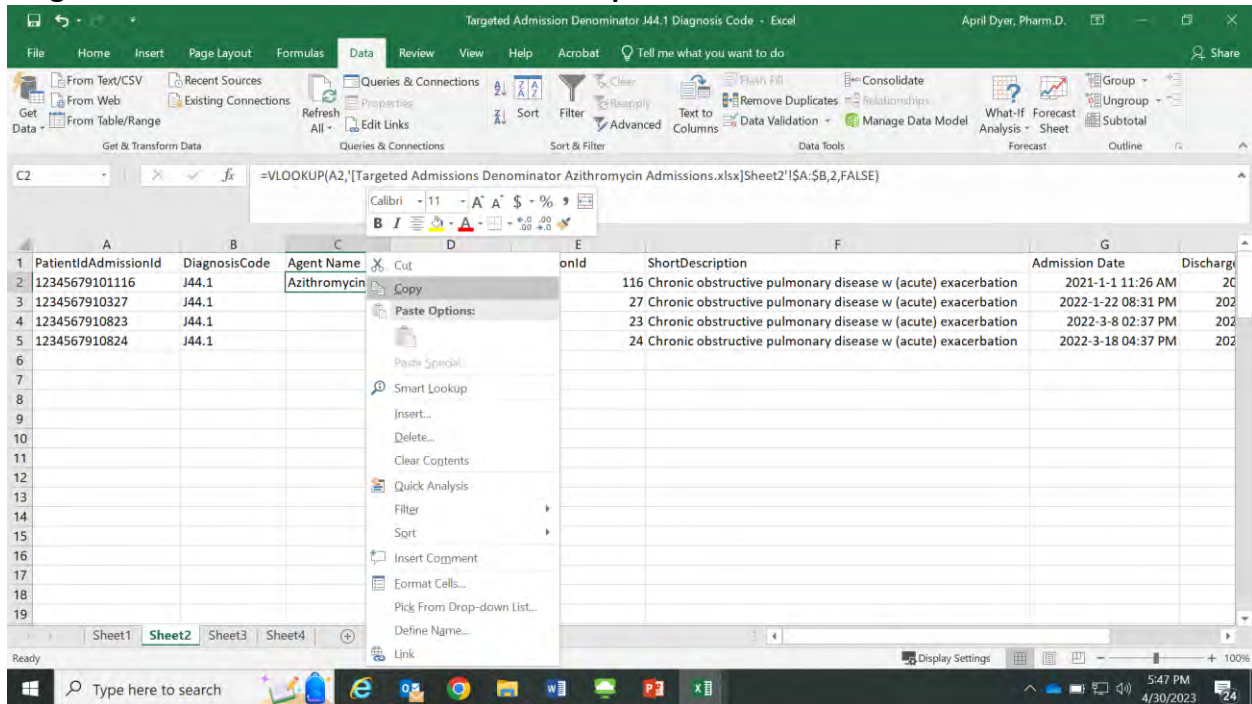
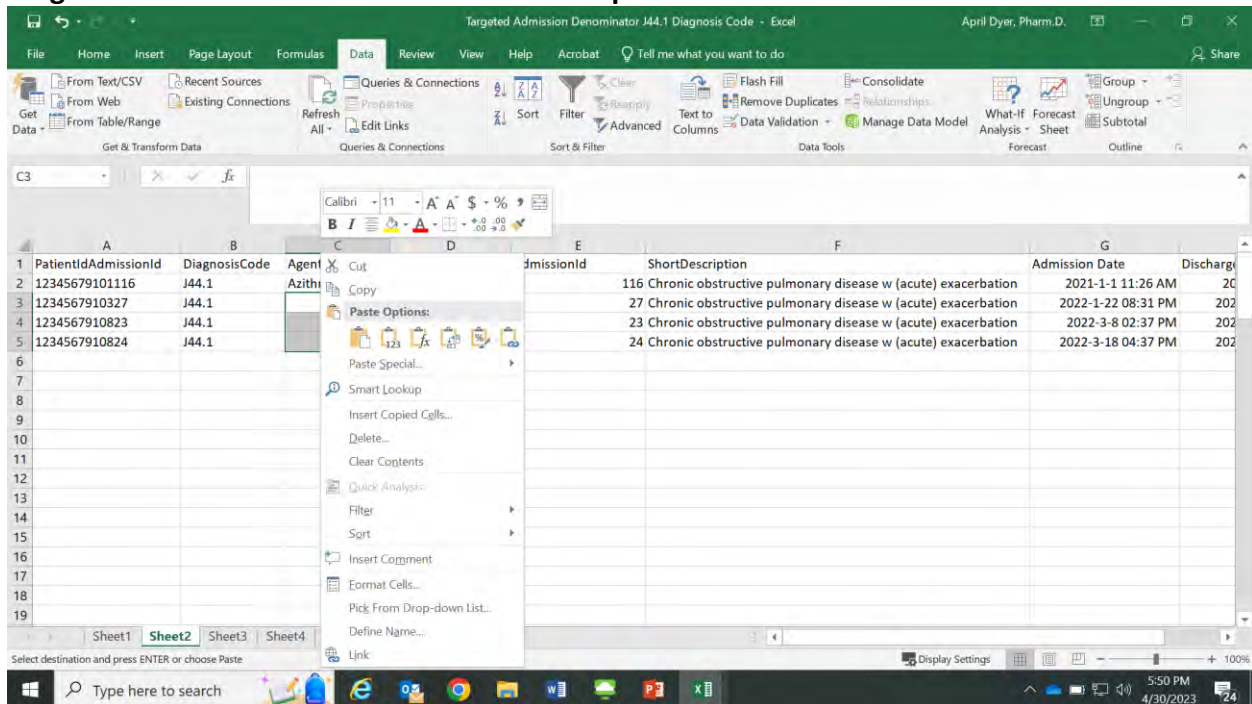


Figure 21. Pasting the VLOOKUP Formula in Cell C2 to the Remaining Cells of Column C of the Targeted Admissions Denominator for J44.1 Spreadsheet



If the patient received azithromycin, it will populate in Column C by using the VLOOKUP function. If they did not receive the drug, #N/A will populate in the cell.

Figure 22. Results from Adding VLOOKUP Formula to Column C of the Targeted Admissions Denominator for J44.1 Spreadsheet

	A	B	C	D	E	F	G	H
1	PatientIdAdmissionId	DiagnosisCode	Agent Name	PatientId	AdmissionId	ShortDescription	Admission Date	Discharge Date
2	12345679101116	J44.1	Azithromycin	12345679101	116	Chronic obstructive pulmonary disease w (acute) exacerbation	2021-1-1 11:26 AM	2021-1-1 11:26 AM
3	1234567910327	J44.1	#N/A	12345679103	27	Chronic obstructive pulmonary disease w (acute) exacerbation	2022-1-22 08:31 PM	2022-1-22 08:31 PM
4	1234567910823	J44.1	Azithromycin	12345679108	23	Chronic obstructive pulmonary disease w (acute) exacerbation	2022-3-8 02:37 PM	2022-3-8 02:37 PM
5	1234567910824	J44.1	Azithromycin	12345679108	24	Chronic obstructive pulmonary disease w (acute) exacerbation	2022-3-18 04:37 PM	2022-3-18 04:37 PM

To find the admissions who received azithromycin with a diagnosis code of J44.1, you can filter the results in Column C. Select Row 1 → Click Filter to turn on filters.

Figure 23. Adding Filters to Row 1 of the Targeted Admissions Denominator for J44.1 Spreadsheet

	A	B	C	D	E	F	G	H
1	PatientIdAdmissionId	DiagnosisCode	Agent Name	PatientId	AdmissionId	ShortDescription	Admission Date	Discharge Date
2	12345679101116	J44.1	Azithromycin	12345679101	116	Chronic obstructive pulmonary disease w (acute) exacerbation	2021-1-1 11:26 AM	2021-1-1 11:26 AM
3	1234567910327	J44.1	#N/A	12345679103	27	Chronic obstructive pulmonary disease w (acute) exacerbation	2022-1-22 08:31 PM	2022-1-22 08:31 PM
4	1234567910823	J44.1	Azithromycin	12345679108	23	Chronic obstructive pulmonary disease w (acute) exacerbation	2022-3-8 02:37 PM	2022-3-8 02:37 PM
5	1234567910824	J44.1	Azithromycin	12345679108	24	Chronic obstructive pulmonary disease w (acute) exacerbation	2022-3-18 04:37 PM	2022-3-18 04:37 PM

To filter to the patient who only received azithromycin, right click on the arrow beside of cell C1 Agent Name → Uncheck the box beside “Select All” → Check the box beside of “Azithromycin” → Select “OK”

Figure 24. Adding Filters to Row 1 of the Targeted Admissions Denominator for J44.1 Spreadsheet

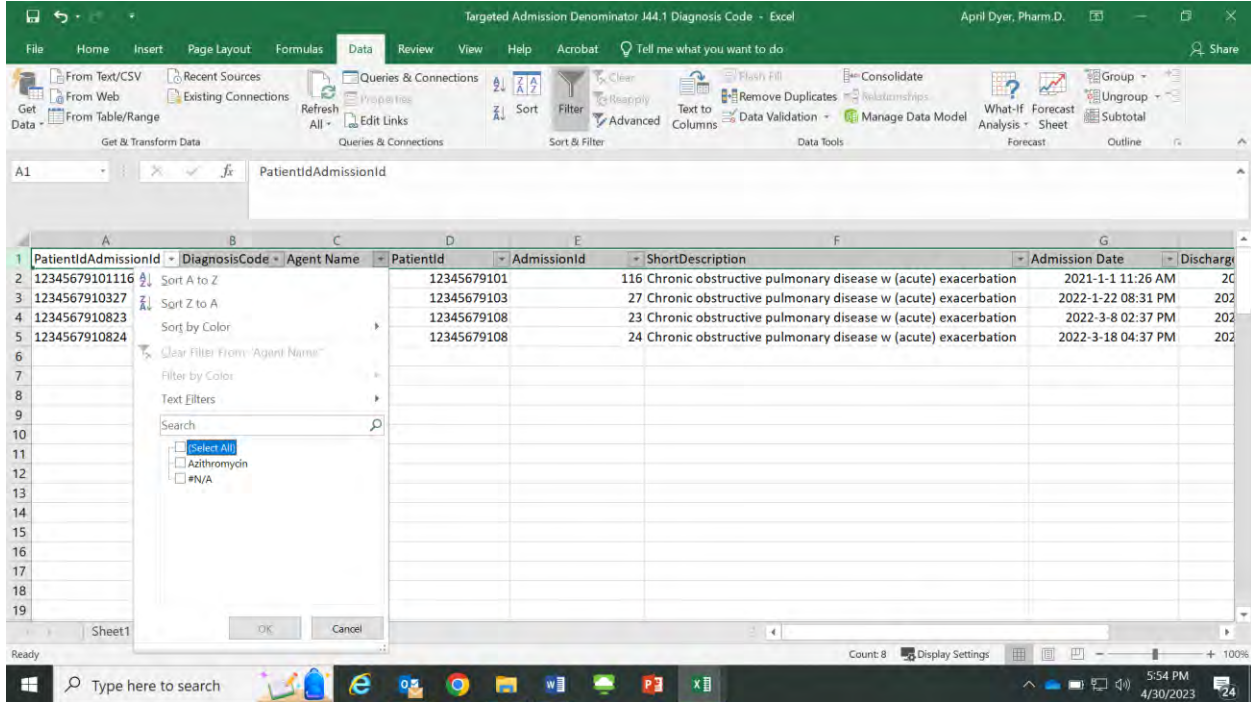
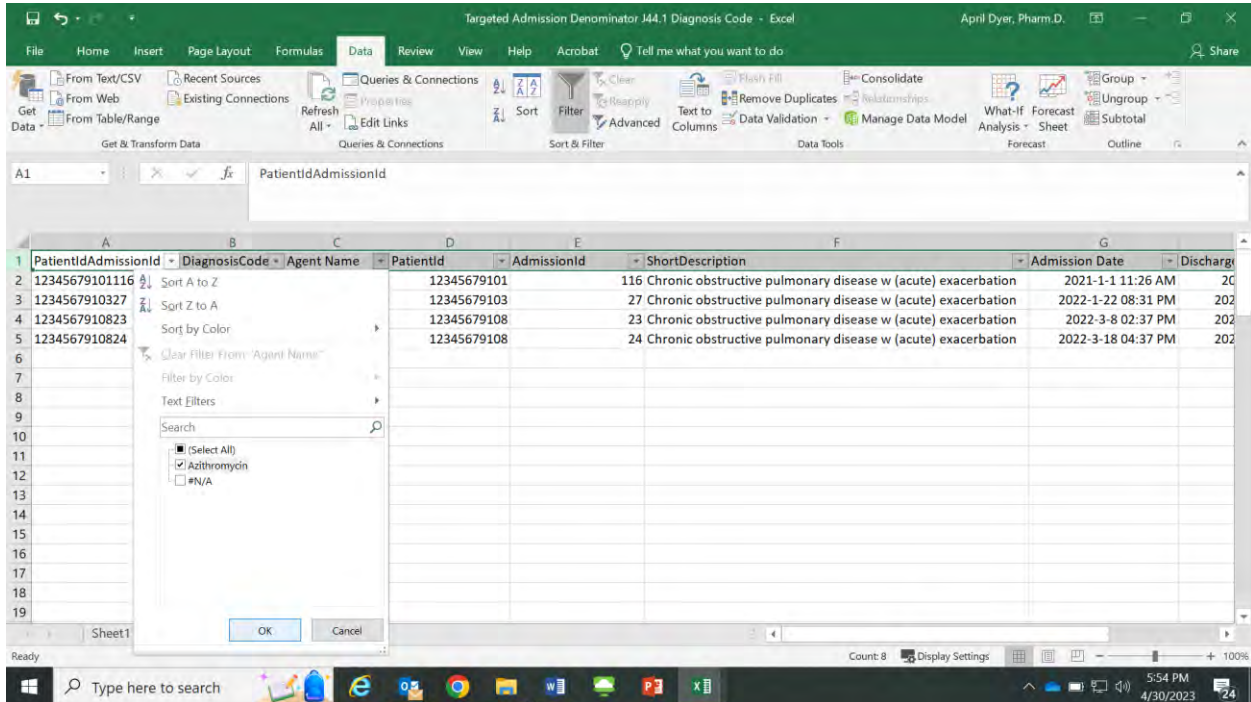
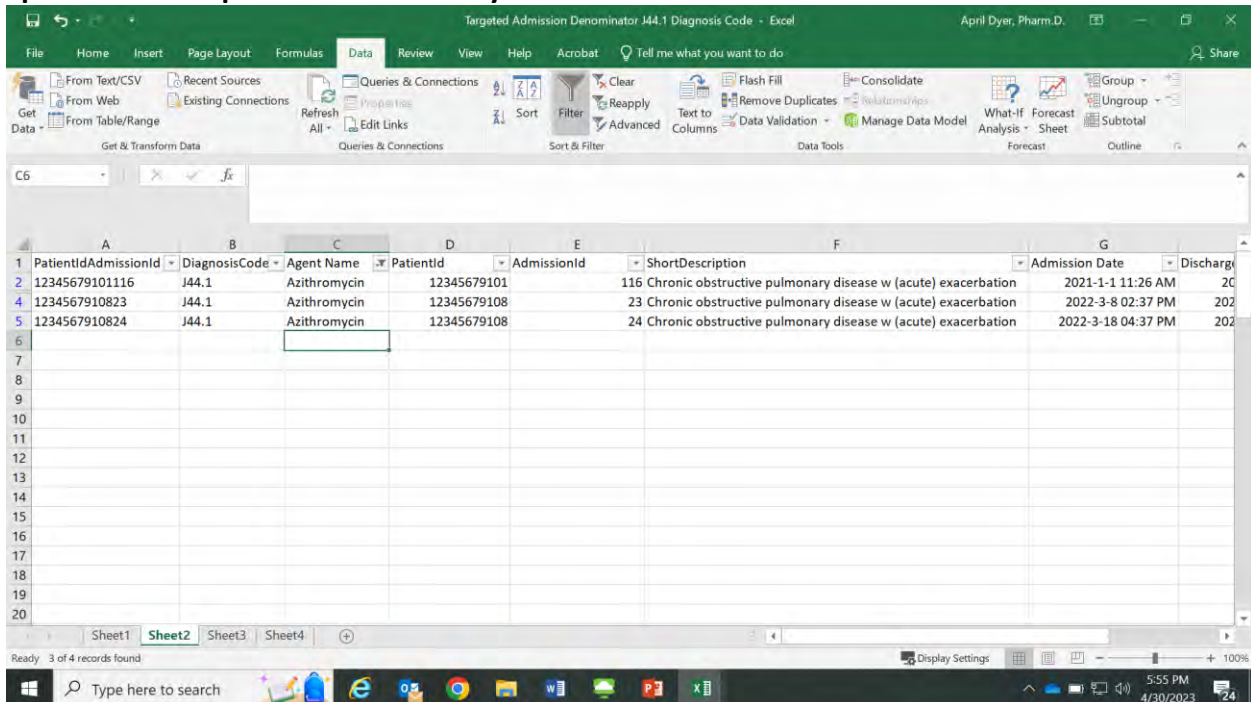


Figure 25. How to Filter Diagnosis Codes for Targeted Admissions Denominator for J44.1 Spreadsheet Step 1: Unselecting All Codes



As you can see by the filtered results, 3 patients received azithromycin with a diagnosis code of J44.1.

Figure 26. Filtering Diagnosis Codes for Targeted Admissions Denominator for J44.1 Spreadsheet Step 2: Select Azithromycin



This is your final spreadsheet that contains the targeted admissions for patients who received azithromycin with a diagnosis code of J44.1 in the first quarter.