

### How to Calculate Antimicrobial Defined Daily Doses (DDDs) and DDDs per 1000 Patient Days

Requirements to calculate DDDs and DDD/1000 Patient Days (for hospitals that do not have automated reports of this data):

- A report of your antimicrobial usage for the time period and ward/hospital unit you want to analyze
- Patient days for the time period of the ward/hospital unit you want to analyze
- MSH + UHN ASP WHO Antimicrobial DDD Quick Reference List, or access to the WHO DDD website ([www.whocc.no](http://www.whocc.no))
- An Excel spreadsheet
- Possibly a calculator

#### Step 1: Obtain a usage report of antimicrobials for the time period and hospital ward/unit that you would like to determine DDDs for.

The ideal usage report tells you what antimicrobials were administered to the patient, but since not all hospitals can obtain this data, the next best report would be on antimicrobials that were dispensed during the given time period. If you don't have a report that automatically calculates DDDs for you, then the ideal report is in Excel format, or can be exported to Excel, so that you can utilize the calculation functions.

The important components of this report to have are:

- Date range you are analyzing
- Ward/unit
- Name of antimicrobial (see "Antimicrobial inclusion/exclusion list for reporting costs and usage")
- Strength of antimicrobial (mg, g, MU, mg/mL, etc)
- Dosage form of antimicrobial
- Quantity of antimicrobial that was used (administered or dispensed)
- \* Cost of the antimicrobial that was used: this is not necessary for calculating DDDs, but depending on how your system runs reports, you may want to have the cost included in the usage report so that you have all the information in one place

We will be going through the steps using an example report run on Cerner PowerVision® (the pharmacy system at Mount Sinai Hospital). On the next page, there is an example of a report run on antimicrobial usage (antimicrobials dispensed) for January 2012 in the ICU (exported to an Excel file). Reports will look different from different pharmacy systems.

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	A	B	C	D	E	F	G
1	Disp Year	Disp Month	Person Nurse Unit - Disp	Product Desc	Dose Quantity Unit	Net Qty Charged	Charge (Price)
2	2012	JAN	ICU	amikacin 250 mg/mL Inj 2 mL Vial - DOCUMENT (2 Vials)	Pkg	1	
3	2012	JAN	ICU	ampicillin 1 g Inj Vial	g	38	
4	2012	JAN	ICU	ampicillin 1 g Inj Vial - DOCUMENT (1 Vial)	Vial	8	
5	2012	JAN	ICU	ampicillin 2 g Inj Vial	g	52	
6	2012	JAN	ICU	azithromycin 250 mg Tab	Tab	30	
7	2012	JAN	ICU	azithromycin 500 mg Inj Vial	mg	4000	
8	2012	JAN	ICU	casprofungin 50 mg Inj Vial	mg	0	
9	2012	JAN	ICU	casprofungin 70 mg Inj Vial	mg	70	
10	2012	JAN	ICU	ceFAZolin 1 g Inj Vial - DOCUMENT (1 Vial)	Vial	1	
11	2012	JAN	ICU	ceFAZolin 10 g Inj Vial	g	76	
12	2012	JAN	ICU	cefTRIAxone 10 g Inj Vial	g	47	
13	2012	JAN	ICU	ceftazidime 1 g Inj Vial	g	10	
14	2012	JAN	ICU	ceftazidime 6 g Inj Vial	g	70	
15	2012	JAN	ICU	ciprofloxacin 400 mg/200 mL Inj Bag	Bag	85	
16	2012	JAN	ICU	ciprofloxacin 400 mg/200 mL Inj Bag - DOCUMENT (2 Bags)	Pkg	4	
17	2012	JAN	ICU	ciprofloxacin 500 mg Tab	Tab	2	
18	2012	JAN	ICU	clindamycin 150 mg/mL Inj 4 mL Vial - DOCUMENT (2 Vials)	Pkg	2	
19	2012	JAN	ICU	clindamycin 150 mg/mL Inj 60 mL Vial	mL	134	
20	2012	JAN	ICU	cloxacillin 2 g Inj Vial	g	54	
21	2012	JAN	ICU	ertapenem 1,000 mg Inj Vial	mg	14000	
22	2012	JAN	ICU	erythromycin 1,000 mg Inj Vial	mg	2000	
23	2012	JAN	ICU	fluconazole 100 mg Tab	Tab	13	
24	2012	JAN	ICU	fluconazole 200 mg/100 mL Inj Vial	mL	2000	
25	2012	JAN	ICU	fluconazole 50 mg Tab	Tab	2	
26	2012	JAN	ICU	gentamicin 40 mg/mL Inj 2 mL Vial - DOCUMENT (4 Vials)	Pkg	2	
27	2012	JAN	ICU	gentamicin 40 mg/mL Inj 20 mL Vial	mL	54.75	
28	2012	JAN	ICU	meropenem 1,000 mg Inj Vial	mg	135000	
29	2012	JAN	ICU	meropenem 500 mg Inj Vial	mg	7000	
30	2012	JAN	ICU	metroNIDAZOLE 250 mg Tab	Tab	86	
31	2012	JAN	ICU	metroNIDAZOLE 250 mg Tab - DOCUMENT (4 Tabs)	Pkg	2	
32	2012	JAN	ICU	metroNIDAZOLE 500 mg/100 mL Inj Bag	mL	1900	
33	2012	JAN	ICU	moxifloxacin 400 mg/250 mL Inj Bag	Bag	8	
34	2012	JAN	ICU	nitrofurantoin (MACROBID) 100 mg Cap	Cap	3	
35	2012	JAN	ICU	nitrofurantoin (MACROBID) 100 mg Cap - DOCUMENT (2 Caps)	Pkg	1	
36	2012	JAN	ICU	nystatin 100,000 unit/mL Susp	mL	395	
37	2012	JAN	ICU	oseltamivir 75 mg Cap	Cap	2	
38	2012	JAN	ICU	penicillin G sodium 5 MU Inj Vial	mL	864	
39	2012	JAN	ICU	penicillin V potassium 300 mg Tab	Tab	0	

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**Step 2: Convert all antimicrobial usage to grams (or million units (MU) where applicable)**

WHO DDDs for antimicrobials are either in grams or million units. Your report may already have the usage in grams/MU in which case you can ignore this step.

In this example, the quantity of antimicrobial that was dispensed in January is denoted “Net Qty (Quantity) Charged” in column F. The units for this amount are found in column E. In this example, with a few exceptions, the usage is not in grams or MU. Therefore, line by line, the antimicrobial usage must be converted to grams or MU.

Let’s walk through this step using the example report on the previous page. Use the document called “WHO Antimicrobial DDD Quick Reference List” to find out which antimicrobials are converted to grams and which are converted to MU, as well as tips for the conversions. Here are a few examples of how the conversion to grams/MU is calculated:

1. Row 2: amikacin 250 mg/mL Inj 2 mL Vial - DOCUMENTED (2 Vials)
  - At Mount Sinai Hospital, products that have DOCUMENTED as part of the description are ones that are kept in our Documented system, which is used to fill drug orders after the pharmacy has closed for the evening (some hospitals call this a night cupboard)
  - Looking at columns E and F, this tells us that 1 package of amikacin was taken from the Documented system in January
  - The product description tells us that 1 package of Amikacin contains 2 vials
  - Each vial is 2 mL and it’s strength is 250 mg/mL so the total vial contains 250 mg/mL x 2 mL = 500 mg (0.5 g)
  - Since there were 2 vials dispensed, this equates to 0.5 g x 2 = 1 g.
2. Row 3: ampicillin 1 g Inj Vial
  - Looking at columns E and F, this tells us that 38 g of this ampicillin product were dispensed in January. Since it’s already in grams, we don’t have to do anything more with this column.
3. Row 6: azithromycin 250 mg Tab
  - Looking at columns E and F tells us that 30 tablets of this product were dispensed in January
  - We want to convert 30 tablets to grams
  - Since each tablet is 250 mg, the conversion to grams will be: 250 mg x 30 = 7500 mg which equals 7.5 g.
4. Row 7: azithromycin 500 mg Inj Vial
  - Looking at columns E and F, this tells us that 4000 mg of this azithromycin product was dispensed in January
  - We want to convert 4000 mg to grams, therefore, this should be changed on the spreadsheet to 4 g
5. Row 8: caspofungin 50 mg Inj Vial
  - The amount dispensed of this product is 0 mg. It likely was entered into the system, but then unused and therefore returned by our technicians. You can delete this row.

You can try converting the rest to grams/MU on your own. On the next page is the original example with the amount dispensed converted to grams or MU (million units).

Microsoft Excel - ICU Antimicrobial Use and Costs Jan 2012.xls

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	A	B	C	D	E	F	G	H
	Disp Year	Disp Month	Person Nurse Unit - Disp	Product Desc	Dose Quantity Unit	Net Qty Charged	Charge (Price)	
2	2012	JAN	ICU	amikacin 250 mg/mL Inj 2 mL Vial - DOCUMENTED (2 Vials)	g	1		
3	2012	JAN	ICU	ampicillin 1 g Inj Vial	g	38		
4	2012	JAN	ICU	ampicillin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	8		
5	2012	JAN	ICU	ampicillin 2 g Inj Vial	g	52		
6	2012	JAN	ICU	azithromycin 250 mg Tab	g	7.5		
7	2012	JAN	ICU	azithromycin 500 mg Inj Vial	g	4		
8	2012	JAN	ICU	caspofungin 50 mg Inj Vial	g	0		
9	2012	JAN	ICU	caspofungin 70 mg Inj Vial	g	0.07		
10	2012	JAN	ICU	ceFAZolin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	1		
11	2012	JAN	ICU	ceFAZolin 10 g Inj Vial	g	76		
12	2012	JAN	ICU	ceTRIAXone 10 g Inj Vial	g	47		
13	2012	JAN	ICU	ceftazidime 1 g Inj Vial	g	10		
14	2012	JAN	ICU	ceftazidime 6 g Inj Vial	g	70		
15	2012	JAN	ICU	ciprofloxacin 400 mg/200 mL Inj Bag	g	34		
16	2012	JAN	ICU	ciprofloxacin 400 mg/200 mL Inj Bag - DOCUMENTED (2 Bags)	g	3.2		
17	2012	JAN	ICU	ciprofloxacin 500 mg Tab	g	1		
18	2012	JAN	ICU	clindamycin 150 mg/mL Inj 4 mL Vial - DOCUMENTED (2 Vials)	g	2.4		
19	2012	JAN	ICU	clindamycin 150 mg/mL Inj 60 mL Vial	g	20.1		
20	2012	JAN	ICU	cloxacillin 2 g Inj Vial	g	54		
21	2012	JAN	ICU	ertapenem 1,000 mg Inj Vial	g	14		
22	2012	JAN	ICU	erythromycin 1,000 mg Inj Vial	g	2		
23	2012	JAN	ICU	fluconazole 100 mg Tab	g	1.3		
24	2012	JAN	ICU	fluconazole 200 mg/100 mL Inj Vial	g	4		
25	2012	JAN	ICU	fluconazole 50 mg Tab	g	0.1		
26	2012	JAN	ICU	gentamicin 40 mg/mL Inj 2 mL Vial - DOCUMENTED (4 Vials)	g	0.64		
27	2012	JAN	ICU	gentamicin 40 mg/mL Inj 20 mL Vial	g	2.19		
28	2012	JAN	ICU	meropenem 1,000 mg Inj Vial	g	135		
29	2012	JAN	ICU	meropenem 500 mg Inj Vial	g	7		
30	2012	JAN	ICU	metronIDAZOLE 250 mg Tab	g	21.5		
31	2012	JAN	ICU	metronIDAZOLE 250 mg Tab - DOCUMENTED (4 Tabs)	g	2		
32	2012	JAN	ICU	metronIDAZOLE 500 mg/100 mL Inj Bag	g	9.5		
33	2012	JAN	ICU	moxifloxacin 400 mg/250 mL Inj Bag	g	3.2		
34	2012	JAN	ICU	nitrofurantoin (MACROBID) 100 mg Cap	g	0.3		
35	2012	JAN	ICU	nitrofurantoin (MACROBID) 100 mg Cap - DOCUMENTED (2 Caps)	g	0.2		
36	2012	JAN	ICU	nystatin 100,000 unit/mL Susp	MU	39.5		
37	2012	JAN	ICU	oseltamivir 75 mg Cap	g	0.15		
38	2012	JAN	ICU	penicillin G sodium 5 MU Inj Vial	g	269.568		
39	2012	JAN	ICU	penicillin V potassium 300 mg Tab	g	0		

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### Step 3: Add a column to your worksheet called WHO DDD

Also, add a WHO DDD unit column – see example below.

Fill in the 2 columns with the WHO DDD and WHO DDD unit that correspond to the antimicrobial on that row. Use the document called “WHO Antimicrobial DDD Quick Reference List” to do this.

Here is the example with the WHO DDD and WHO DDD Unit columns filled out:

	A	B	C	D	E	F	G	H	I	J
	Disp Year	Disp Month	Nurse Unit	Product Desc	Dose Quantity Unit	Net Qty Charged	Charge (Price)	WHO DDD	WHO DDD Unit	
1	2012	JAN	ICU	amikacin 250 mg/mL Inj 2 mL Vial - DOCUMENTED (2 Vials)	g	1		1	g	
2	2012	JAN	ICU	ampicillin 1 g Inj Vial	g	38		2	g	
3	2012	JAN	ICU	ampicillin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	8		2	g	
4	2012	JAN	ICU	ampicillin 2 g Inj Vial	g	52		2	g	
5	2012	JAN	ICU	azithromycin 250 mg Tab	g	7.5		0.3	g	
6	2012	JAN	ICU	azithromycin 500 mg Inj Vial	g	4		0.5	g	
7	2012	JAN	ICU	caspofungin 50 mg Inj Vial	g	0		0.05	g	
8	2012	JAN	ICU	caspofungin 70 mg Inj Vial	g	0.07		0.05	g	
9	2012	JAN	ICU	ceFAZolin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	1		3	g	
10	2012	JAN	ICU	ceFAZolin 10 g Inj Vial	g	76		3	g	
11	2012	JAN	ICU	ceftRAXone 10 g Inj Vial	g	47		2	g	
12	2012	JAN	ICU	ceftazidime 1 g Inj Vial	g	10		4	g	
13	2012	JAN	ICU	ceftazidime 6 g Inj Vial	g	70		4	g	
14	2012	JAN	ICU	ciprofloxacin 400 mg/200 mL Inj Bag	g	34		0.5	g	
15	2012	JAN	ICU	ciprofloxacin 400 mg/200 mL Inj Bag - DOCUMENTED (2 Bags)	g	3.2		0.5	g	
16	2012	JAN	ICU	ciprofloxacin 500 mg Tab	g	1		1	g	
17	2012	JAN	ICU	clindamycin 150 mg/mL Inj 4 mL Vial - DOCUMENTED (2 Vials)	g	2.4		1.8	g	
18	2012	JAN	ICU	clindamycin 150 mg/mL Inj 60 mL Vial	g	20.1		1.8	g	
19	2012	JAN	ICU	cloxacillin 2 g Inj Vial	g	54		2	g	
20	2012	JAN	ICU	ertapenem 1,000 mg Inj Vial	g	14		1	g	
21	2012	JAN	ICU	erythromycin 1,000 mg Inj Vial	g	2		1	g	
22	2012	JAN	ICU	fluconazole 100 mg Tab	g	1.3		0.2	g	
23	2012	JAN	ICU	fluconazole 200 mg/100 mL Inj Vial	g	4		0.2	g	
24	2012	JAN	ICU	fluconazole 50 mg Tab	g	0.1		0.2	g	
25	2012	JAN	ICU	gentamicin 40 mg/mL Inj 2 mL Vial - DOCUMENTED (4 Vials)	g	0.64		0.24	g	
26	2012	JAN	ICU	gentamicin 40 mg/mL Inj 20 mL Vial	g	2.19		0.24	g	
27	2012	JAN	ICU	meropenem 1,000 mg Inj Vial	g	135		2	g	
28	2012	JAN	ICU	meropenem 500 mg Inj Vial	g	7		2	g	
29	2012	JAN	ICU	metroNIDAZOLE 250 mg Tab	g	21.5		2	g	
30	2012	JAN	ICU	metroNIDAZOLE 250 mg Tab - DOCUMENTED (4 Tabs)	g	2		2	g	
31	2012	JAN	ICU	metroNIDAZOLE 500 mg/100 mL Inj Bag	g	9.5		1.5	g	
32	2012	JAN	ICU	moxifloxacin 400 mg/250 mL Inj Bag	g	3.2		0.4	g	
33	2012	JAN	ICU	nitrofurantoin (MACROBID) 100 mg Cap	g	0.3		0.2	g	
34	2012	JAN	ICU	nitrofurantoin (MACROBID) 100 mg Cap - DOCUMENTED (2 Caps)	g	0.2		0.2	g	
35	2012	JAN	ICU	nystatin 100,000 unit/mL Susp	MU	39.5		1.5	MU	
36	2012	JAN	ICU	oseltamivir 75 mg Cap	g	0.15		0.15	g	
37	2012	JAN	ICU	penicillin G sodium 5 MU Inj Vial	g	269,568		3.6	g	
38	2012	JAN	ICU	penicillin V potassium 300 mg Tab	g	0		2	g	

#### Step 4: Calculate DDDs

- Create a column called DDD and one called DDD/1000 Patient Days (see example below)
- We want to take the quantity that was dispensed (or administered) in grams or MU and divide it by the WHO DDD
- To do this, you can utilize the Excel math functions: in row 2 in the new DDD column (cell J2), type this equation: =F2/H2 and press enter.
- To get the rest of the DDDs, click on the bottom right corner of this cell and pull all the way down to the last row of your antimicrobial data.
- Finally, format the cells to 1 decimal place. To do this, highlight the cells you want to format to 1 decimal place, go to "Format" at the top of your screen, then choose "Cells", then in the "Number" tab, choose "number" and change the decimal places to 1 and click OK.

Here is the example with the DDD column filled in:

	A	B	C	D	E	F	G	H	I	J	K
	Year	Month	Nurse Unit	Product Desc	Dose Unit	Qty Charged	Charge (Price)	WHO DDD	WHO DDD unit	DDD	DDD/1000 Patient Days
2	2012	JAN	ICU	amikacin 250 mg/mL Inj 2 mL Vial - DOCUMENTED (2 Vials)	g	1		1	g	1.0	
3	2012	JAN	ICU	ampicillin 1 g Inj Vial	g	38		2	g	19.0	
4	2012	JAN	ICU	ampicillin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	8		2	g	4.0	
5	2012	JAN	ICU	ampicillin 2 g Inj Vial	g	52		2	g	26.0	
6	2012	JAN	ICU	azithromycin 250 mg Tab	g	7.5		0.3	g	25.0	
7	2012	JAN	ICU	azithromycin 500 mg Inj Vial	g	4		0.5	g	8.0	
8	2012	JAN	ICU	caspofungin 70 mg Inj Vial	g	0.07		0.05	g	1.4	
9	2012	JAN	ICU	ceFAZolin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	1		3	g	0.3	
10	2012	JAN	ICU	ceFAZolin 10 g Inj Vial	g	76		3	g	25.3	
11	2012	JAN	ICU	ceftRIAXone 10 g Inj Vial	g	47		2	g	23.5	
12	2012	JAN	ICU	ceftazidime 1 g Inj Vial	g	10		4	g	2.5	
13	2012	JAN	ICU	ceftazidime 6 g Inj Vial	g	70		4	g	17.5	
14	2012	JAN	ICU	ciprofloxacin 400 mg/200 mL Inj Bag	g	34		0.5	g	68.0	
15	2012	JAN	ICU	ciprofloxacin 400 mg/200 mL Inj Bag - DOCUMENTED (2 Bags)	g	3.2		0.5	g	6.4	
16	2012	JAN	ICU	ciprofloxacin 500 mg Tab	g	1		1	g	1.0	
17	2012	JAN	ICU	clindamycin 150 mg/mL Inj 4 mL Vial - DOCUMENTED (2 Vials)	g	2.4		1.8	g	1.3	
18	2012	JAN	ICU	clindamycin 150 mg/mL Inj 60 mL Vial	g	20.1		1.8	g	11.2	
19	2012	JAN	ICU	cloxacillin 2 g Inj Vial	g	54		2	g	27.0	
20	2012	JAN	ICU	ertapenem 1,000 mg Inj Vial	g	14		1	g	14.0	
21	2012	JAN	ICU	erythromycin 1,000 mg Inj Vial	g	2		1	g	2.0	
22	2012	JAN	ICU	fluconazole 100 mg Tab	g	1.3		1	g	1.3	
23	2012	JAN	ICU	fluconazole 200 mg/100 mL Inj Vial	g	4		0.2	g	20.0	
24	2012	JAN	ICU	fluconazole 50 mg Tab	g	0.1		0.2	g	0.5	
25	2012	JAN	ICU	gentamicin 40 mg/mL Inj 2 mL Vial - DOCUMENTED (4 Vials)	g	0.64		0.24	g	2.7	
26	2012	JAN	ICU	gentamicin 40 mg/mL Inj 20 mL Vial	g	2.19		0.24	g	9.1	
27	2012	JAN	ICU	meropenem 1,000 mg Inj Vial	g	135		2	g	67.5	
28	2012	JAN	ICU	meropenem 500 mg Inj Vial	g	7		2	g	3.5	
29	2012	JAN	ICU	metronIDAZOLE 250 mg Tab	g	21.5		2	g	10.8	
30	2012	JAN	ICU	metronIDAZOLE 250 mg Tab - DOCUMENTED (4 Tabs)	g	2		2	g	1.0	
31	2012	JAN	ICU	metronIDAZOLE 500 mg/100 mL Inj Bag	g	9.5		1.5	g	6.3	
32	2012	JAN	ICU	moxifloxacin 400 mg/250 mL Inj Bag	g	3.2		0.4	g	8.0	
33	2012	JAN	ICU	nitrofurantoin (MACROBID) 100 mg Cap	g	0.3		0.2	g	1.5	
34	2012	JAN	ICU	nitrofurantoin (MACROBID) 100 mg Cap - DOCUMENTED (2 Caps)	g	0.2		0.2	g	1.0	
35	2012	JAN	ICU	nystatin 100,000 unit/mL Susp	MU	39.5		1.5	MU	26.3	
36	2012	JAN	ICU	oseltamivir 75 mg Cap	g	0.15		0.15	g	1.0	
37	2012	JAN	ICU	penicillin G sodium 5 MU Inj Vial	g	269.568		3.6	g	74.9	

### Step 5: Calculate DDD/1000 patient days

- To do this calculation, you will need to find out the patient days for your ICU (or other hospital ward that you are analyzing) for the time period of the data
- The calculation that will be done is: DDD divided by patient days multiplied by 1000 i.e.  $(\text{DDD}/\text{patient days}) * 1000$

For the example, this is how DDD/1000 patient days are calculated:

- For January 2012 in the ICU at Mount Sinai Hospital the patient days were 428
- We will enter this equation into cell K2:  $=J2/428*1000$  and press enter
- Click on the bottom right of the corner of cell K2 and drag down to the end of the antimicrobial rows to fill in the rest of the cells
- The cells of column K are then formatted to 1 decimal place

Year	Month	Nurse Unit	Product Desc	Dose Unit	Qty Charged	Charge (Price)	WHO DDD	WHO DDD unit	DDD	DDD/1000 Patient Days
2012	JAN	ICU	amikacin 250 mg/mL Inj 2 mL Vial - DOCUMENTED (2 Vials)	g	1		1	g	1.0	2.3
2012	JAN	ICU	ampicillin 1 g Inj Vial	g	38		2	g	19.0	44.4
2012	JAN	ICU	ampicillin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	8		2	g	4.0	9.3
2012	JAN	ICU	ampicillin 2 g Inj Vial	g	52		2	g	26.0	60.7
2012	JAN	ICU	azithromycin 250 mg Tab	g	7.5		0.3	g	25.0	58.4
2012	JAN	ICU	azithromycin 500 mg Inj Vial	g	4		0.5	g	8.0	18.7
2012	JAN	ICU	casprofungin 70 mg Inj Vial	g	0.07		0.05	g	1.4	3.3
2012	JAN	ICU	ceFAZolin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	1		3	g	0.3	0.8
2012	JAN	ICU	ceFAZolin 10 g Inj Vial	g	76		3	g	25.3	59.2
2012	JAN	ICU	ceFTRIAXone 10 g Inj Vial	g	47		2	g	23.5	54.9
2012	JAN	ICU	ceftazidime 1 g Inj Vial	g	10		4	g	2.5	5.8
2012	JAN	ICU	ceftazidime 6 g Inj Vial	g	70		4	g	17.5	40.9
2012	JAN	ICU	ciprofloxacin 400 mg/200 mL Inj Bag	g	34		0.5	g	68.0	158.9
2012	JAN	ICU	ciprofloxacin 400 mg/200 mL Inj Bag - DOCUMENTED (2 Bags)	g	3.2		0.5	g	5.4	15.0
2012	JAN	ICU	ciprofloxacin 500 mg Tab	g	1		1	g	1.0	2.3
2012	JAN	ICU	clindamycin 150 mg/mL Inj 4 mL Vial - DOCUMENTED (2 Vials)	g	2.4		1.8	g	1.3	3.1
2012	JAN	ICU	clindamycin 150 mg/mL Inj 60 mL Vial	g	20.1		1.8	g	11.2	26.1
2012	JAN	ICU	cloxacillin 2 g Inj Vial	g	54		2	g	27.0	63.1
2012	JAN	ICU	ertapenem 1,000 mg Inj Vial	g	14		1	g	14.0	32.7
2012	JAN	ICU	erythromycin 1,000 mg Inj Vial	g	2		1	g	2.0	4.7
2012	JAN	ICU	fluconazole 100 mg Tab	g	1.3		1	g	1.3	3.0
2012	JAN	ICU	fluconazole 200 mg/100 mL Inj Vial	g	4		0.2	g	20.0	46.7
2012	JAN	ICU	fluconazole 50 mg Tab	g	0.1		0.2	g	0.5	1.2
2012	JAN	ICU	gentamicin 40 mg/mL Inj 2 mL Vial - DOCUMENTED (4 Vials)	g	0.64		0.24	g	2.7	6.2
2012	JAN	ICU	gentamicin 40 mg/mL Inj 20 mL Vial	g	2.19		0.24	g	9.1	21.3
2012	JAN	ICU	meropenem 1,000 mg Inj Vial	g	135		2	g	87.5	157.7
2012	JAN	ICU	meropenem 500 mg Inj Vial	g	7		2	g	3.5	8.2
2012	JAN	ICU	metronidazole 250 mg Tab	g	21.5		2	g	10.8	25.1
2012	JAN	ICU	metronidazole 250 mg Tab - DOCUMENTED (4 Tabs)	g	2		2	g	1.0	2.3
2012	JAN	ICU	metronidazole 500 mg/100 mL Inj Bag	g	9.5		1.5	g	6.3	14.8
2012	JAN	ICU	moxifloxacin 400 mg/250 mL Inj Bag	g	3.2		0.4	g	8.0	18.7
2012	JAN	ICU	nitrofurantoin (MACROBID) 100 mg Cap	g	0.3		0.2	g	1.5	3.5
2012	JAN	ICU	nitrofurantoin (MACROBID) 100 mg Cap - DOCUMENTED (2 Caps)	g	0.2		0.2	g	1.0	2.3
2012	JAN	ICU	nystatin 100,000 unit/mL Susp	MU	39.5		1.5	MU	26.3	61.5
2012	JAN	ICU	oseltamivir 75 mg Cap	g	0.15		0.15	g	1.0	2.3
2012	JAN	ICU	penicillin G sodium 5 MU Inj Vial	g	269.568		3.6	g	74.9	175.0

**Step 6: Categorize and sort the antimicrobials into antibacterials, antifungals and antivirals**

- Create a column between column C and D and call it “Antimicrobial Type”
- In this column, put in the following letters to categorize each antimicrobial: B = antibacterial, F = antifungal, V = antiviral
- Then, sort the rows so that all the antibacterials are together, all the antifungals are together and all the antivirals are together. To do this, click on the cell of column D to highlight the whole column, then go to “Data” at the top of your screen and choose “Filter”, then choose “AutoFilter”. See example below for how to choose this option.

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Sort... 100%

Filter AutoFilter

Show All Advanced Filter...

	A	B	C	D	E	F	G	H	I	J	K	L
	Year	Month	Nurse Unit	Antimicrobial Type	Product Desc	Dose Unit	Qty Charged	Charge (Price)	WHO DDD	WHO DDD unit	DDD	DDD/100
1	2012	JAN	ICU	b	amikacin 250 mg/mL Inj 2 mL Vial - DOCUMENTED (2 Vials)	g	1		1	g	1.0	
2	2012	JAN	ICU	b	ampicillin 1 g Inj Vial	g	38		2	g	19.0	
3	2012	JAN	ICU	b	ampicillin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	8		2	g	4.0	
4	2012	JAN	ICU	b	ampicillin 2 g Inj Vial	g	52		2	g	26.0	
5	2012	JAN	ICU	b	azithromycin 250 mg Tab	g	7.5		0.3	g	25.0	
6	2012	JAN	ICU	b	azithromycin 500 mg Inj Vial	g	4		0.5	g	8.0	
7	2012	JAN	ICU	f	caspofungin 70 mg Inj Vial	g	0.07		0.05	g	1.4	
8	2012	JAN	ICU	b	ceFAZolin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	1		3	g	0.3	
9	2012	JAN	ICU	b	ceFAZolin 10 g Inj Vial	g	76		3	g	25.3	
10	2012	JAN	ICU	b	cefTRIAXone 10 g Inj Vial	g	47		2	g	23.5	
11	2012	JAN	ICU	b	ceftazidime 1 g Inj Vial	g	10		4	g	2.5	
12	2012	JAN	ICU	b	ceftazidime 6 g Inj Vial	g	70		4	g	17.5	
13	2012	JAN	ICU	b	ciprofloxacin 400 mg/200 mL Inj Bag	g	34		0.5	g	68.0	
14	2012	JAN	ICU	b	ciprofloxacin 400 mg/200 mL Inj Bag - DOCUMENTED (2 Bags)	g	3.2		0.5	g	6.4	
15	2012	JAN	ICU	b	ciprofloxacin 500 mg Tab	g	1		1	g	1.0	
16	2012	JAN	ICU	b	clindamycin 150 mg/mL Inj 4 mL Vial - DOCUMENTED (2 Vials)	g	2.4		1.8	g	1.3	
17	2012	JAN	ICU	b	clindamycin 150 mg/mL Inj 60 mL Vial	g	20.1		1.8	g	11.2	
18	2012	JAN	ICU	b	cloxacillin 2 g Inj Vial	g	54		2	g	27.0	
19	2012	JAN	ICU	b	ertapenem 1,000 mg Inj Vial	g	14		1	g	14.0	
20	2012	JAN	ICU	b	erythromycin 1,000 mg Inj Vial	g	2		1	g	2.0	
21	2012	JAN	ICU	f	fluconazole 100 mg Tab	g	1.3		1	g	1.3	
22	2012	JAN	ICU	f	fluconazole 200 mg/100 mL Inj Vial	g	4		0.2	g	20.0	
23	2012	JAN	ICU	f	fluconazole 50 mg Tab	g	0.1		0.2	g	0.5	
24	2012	JAN	ICU	b	gentamicin 40 mg/mL Inj 2 mL Vial - DOCUMENTED (4 Vials)	g	0.64		0.24	g	2.7	
25	2012	JAN	ICU	b	gentamicin 40 mg/mL Inj 20 mL Vial	g	2.19		0.24	g	9.1	
26	2012	JAN	ICU	b	meropenem 1,000 mg Inj Vial	g	135		2	g	67.5	
27	2012	JAN	ICU	b	meropenem 500 mg Inj Vial	g	7		2	g	3.5	
28	2012	JAN	ICU	b	metronIDAZOLE 250 mg Tab	g	21.5		2	g	10.8	
29	2012	JAN	ICU	b	metronIDAZOLE 250 mg Tab - DOCUMENTED (4 Tabs)	g	2		2	g	1.0	
30	2012	JAN	ICU	b	metronIDAZOLE 500 mg/100 mL Inj Bag	g	9.5		1.5	g	6.3	
31	2012	JAN	ICU	b	moxifloxacin 400 mg/250 mL Inj Bag	g	3.2		0.4	g	8.0	
32	2012	JAN	ICU	b	nitrofurantoin (MACROBID) 100 mg Cap	g	0.3		0.2	g	1.5	
33	2012	JAN	ICU	b	nitrofurantoin (MACROBID) 100 mg Cap - DOCUMENTED (2 Caps)	g	0.2		0.2	g	1.0	
34	2012	JAN	ICU	b	nitrofurantoin (MACROBID) 100 mg Cap - DOCUMENTED (2 Caps)	g	0.2		0.2	g	1.0	
35	2012	JAN	ICU	b	nitrofurantoin (MACROBID) 100 mg Cap - DOCUMENTED (2 Caps)	g	0.2		0.2	g	1.0	

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- A new arrow will appear by the heading "Antimicrobial Type". Click on this arrow and choose either "sort ascending" or "sort descending". All the groups of antimicrobials will now be together:

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	A	B	C	D	E	F	G	H	I	J	K	
	Year	Month	Nurse Unit	Antimicrobial Type	Product Desc	Dose Unit	Qty Charged	Charge (Price)	WHO DDD	WHO DDD unit	DDD	DDD/100
1	2012	JAN	ICU	v	oseltamivir 75 mg Cap	g	0.15		0.15	g	1.0	
2	2012	JAN	ICU	v	valacyclovir 500 mg Tab	g	8		3	g	2.7	
3	2012	JAN	ICU	v	valganciclovir 450 mg Tab	g	6.3		0.9	g	7.0	
4	2012	JAN	ICU	f	casprofungin 70 mg Inj Vial	g	0.07		0.05	g	1.4	
5	2012	JAN	ICU	f	fluconazole 100 mg Tab	g	1.3		1	g	1.3	
6	2012	JAN	ICU	f	fluconazole 200 mg/100 mL Inj Vial	g	4		0.2	g	20.0	
7	2012	JAN	ICU	f	fluconazole 50 mg Tab	g	0.1		0.2	g	0.5	
8	2012	JAN	ICU	f	nystatin 100,000 unit/mL Susp	MU	39.5		1.5	MU	26.3	
9	2012	JAN	ICU	f	posaconazole 40 mg/mL Susp	g	22.8		0.8	g	28.5	
10	2012	JAN	ICU	f	voriconazole 200 mg Inj Vial	g	0.6		0.4	g	1.5	
11	2012	JAN	ICU	f	voriconazole 200 mg Tab	g	0.8		0.4	g	2.0	
12	2012	JAN	ICU	b	amoxicillin 250 mg/mL Inj 2 mL Vial - DOCUMENTED (2 Vials)	g	1		1	g	1.0	
13	2012	JAN	ICU	b	ampicillin 1 g Inj Vial	g	38		2	g	19.0	
14	2012	JAN	ICU	b	ampicillin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	8		2	g	4.0	
15	2012	JAN	ICU	b	ampicillin 2 g Inj Vial	g	52		2	g	26.0	
16	2012	JAN	ICU	b	azithromycin 250 mg Tab	g	7.5		0.3	g	25.0	
17	2012	JAN	ICU	b	azithromycin 500 mg Inj Vial	g	4		0.5	g	8.0	
18	2012	JAN	ICU	b	cefazolin 1 g Inj Vial - DOCUMENTED (1 Vial)	g	1		3	g	0.3	
19	2012	JAN	ICU	b	cefazolin 10 g Inj Vial	g	76		3	g	25.3	
20	2012	JAN	ICU	b	ceftriaxone 10 g Inj Vial	g	47		2	g	23.5	
21	2012	JAN	ICU	b	ceftazidime 1 g Inj Vial	g	10		4	g	2.5	
22	2012	JAN	ICU	b	ceftazidime 6 g Inj Vial	g	70		4	g	17.5	
23	2012	JAN	ICU	b	ciprofloxacin 400 mg/200 mL Inj Bag	g	34		0.5	g	68.0	
24	2012	JAN	ICU	b	ciprofloxacin 400 mg/200 mL Inj Bag - DOCUMENTED (2 Bags)	g	3.2		0.5	g	6.4	
25	2012	JAN	ICU	b	ciprofloxacin 500 mg Tab	g	1		1	g	1.0	
26	2012	JAN	ICU	b	clindamycin 150 mg/mL Inj 4 mL Vial - DOCUMENTED (2 Vials)	g	2.4		1.8	g	1.3	
27	2012	JAN	ICU	b	clindamycin 150 mg/mL Inj 60 mL Vial	g	20.1		1.8	g	11.2	
28	2012	JAN	ICU	b	cloxacillin 2 g Inj Vial	g	54		2	g	27.0	
29	2012	JAN	ICU	b	ertapenem 1,000 mg Inj Vial	g	14		1	g	14.0	
30	2012	JAN	ICU	b	erythromycin 1,000 mg Inj Vial	g	2		1	g	2.0	
31	2012	JAN	ICU	b	gentamicin 40 mg/mL Inj 2 mL Vial - DOCUMENTED (4 Vials)	g	0.64		0.24	g	2.7	
32	2012	JAN	ICU	b	gentamicin 40 mg/mL Inj 20 mL Vial	g	2.19		0.24	g	9.1	
33	2012	JAN	ICU	b	meropenem 1,000 mg Inj Vial	g	135		2	g	67.5	
34	2012	JAN	ICU	b	meropenem 500 mg Inj Vial	g	7		2	g	3.5	

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**Step 7: Calculate the total costs and usage by all antimicrobials and by antibacterial, antifungal and antiviral groups**

- Insert new lines under the last antimicrobial in each of the antiviral, antifungal and antibacterials sections. This will be used for your summations.
- Calculate the total cost and usage (both DDDs and DDDs/1000 patient days) by type of antimicrobial: antibacterials, antifungals and antivirals.
- At the bottom of your page, calculate the total cost and usage for all the antimicrobials combined. See the example below for the final product (note that not all the antimicrobials are shown to allow you to see the bottom of the page)

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	E	F	G	H	I	J	K	L
	Product Desc	Dose Unit	Qty Charged	Charge (Price)	WHO DDD	WHO DDD unit	DDD	DDD/1000 Patient Days
1								
2	oseltamivir 75 mg Cap	g	0.15		0.15	g	1.0	2.3
3	valacyclovir 500 mg Tab	g	8		3	g	2.7	6.2
4	valganciclovir 450 mg Tab	g	6.3		0.9	g	7.0	16.4
5	<b>Antiviral Totals</b>			<b>339.14</b>			<b>10.7</b>	<b>24.9</b>
6								
7	casprofungin 70 mg Inj Vial	g	0.07		0.05	g	1.4	3.3
8	fluconazole 100 mg Tab	g	1.3		1	g	1.3	3.0
9	fluconazole 200 mg/100 mL Inj Vial	g	4		0.2	g	20.0	46.7
10	fluconazole 50 mg Tab	g	0.1		0.2	g	0.5	1.2
11	nystatin 100,000 unit/mL Susp	MU	39.5		1.5	MU	26.3	61.5
12	posaconazole 40 mg/mL Susp	g	22.8		0.8	g	28.5	66.6
13	voriconazole 200 mg Inj Vial	g	0.6		0.4	g	1.5	3.5
14	voriconazole 200 mg Tab	g	0.8		0.4	g	2.0	4.7
15	<b>Antifungal Totals</b>			<b>4463.51</b>			<b>81.5</b>	<b>190.5</b>
16								
17	amikacin 250 mg/mL Inj 2 mL Vial - DOCUMENT (2 Vials)	g	1		1	g	1.0	2.3
18	ampicillin 1 g Inj Vial	g	38		2	g	19.0	44.4
19	ampicillin 1 g Inj Vial - DOCUMENT (1 Vial)	g	8		2	g	4.0	9.3
20	ampicillin 2 g Inj Vial	g	52		2	g	26.0	60.7
21	azithromycin 250 mg Tab	g	7.5		0.3	g	25.0	58.4
22	azithromycin 500 mg Inj Vial	g	4		0.5	g	8.0	18.7
23	ceFAZolin 1 g Inj Vial - DOCUMENT (1 Vial)	g	1		3	g	0.3	0.8
24	ceFAZolin 10 g Inj Vial	g	76		3	g	25.3	59.2
25	cefTRIAXone 10 g Inj Vial	g	47		2	g	23.5	54.9
26	vancomycin 10 g Inj Vial	g	53.25		2	g	26.6	62.2
27	vancomycin 50 mg/mL Oral Soln (MSH)	g	0.25		2	g	0.1	0.3
28	vancomycin 500 mg Inj Vial - DOCUMENT (4 Vials)	g	2		2	g	1.0	2.3
29	<b>Antibacterial Totals</b>			<b>10999.68</b>			<b>582.4</b>	<b>1360.7</b>
30	<b>All Antimicrobial Totals</b>			<b>15802.33</b>			<b>674.6</b>	<b>1576.1</b>
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