

Performance Measure 73: State/Territory Quality Assessment

The numbers needed for the Performance Measure 73 EHB entries have been calculated, but you may want to do some quality assessment to better understand your equipment data. For each individual equipment item, what is the percent of patient care units that carry that item? Which equipment items are most often carried by patient care units? Which items are least often carried? What is the average percent of equipment items carried by patient care units?

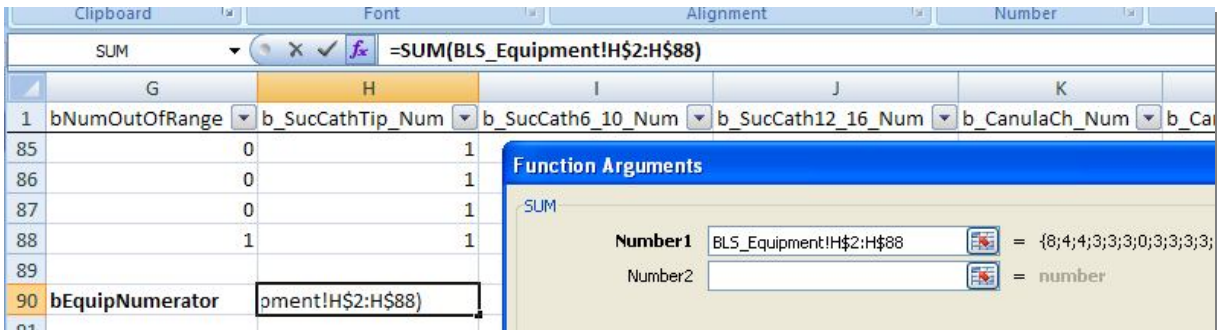
I. Quality Assessment: Analyze individual Pediatric Equipment

BLS Equipment

1. The cleaning and analyses for the Performance Measure 73 EHB entries should be completed prior to doing this analysis because the following steps build upon that cleaning and analysis.
2. Go to the *BLS_Equipment* tab of your dataset. Clear all filters so that all data are showing.
3. For each BLS equipment item, calculate the number of BLS patient care units that carry that item. In the second blank row after the last data record, type **bEquipNumerator** in the cell in the *bNumOutOfRange* column. Make sure to leave a blank row between the data and your calculations; this is to distinguish between the two when applying filters.
 - a. Click in the cell to the right of the cell where you just typed **bEquipNumerator**. This should be in the *b_SucCathTip_Num* column. Click on the *fx* button. Use the SUM function with the following argument:

Number1: the range of all values in the *b_SucCathTip_Num* column. We need to use datasheet references and dollar signs in front of the row references in this function so that these formulas will still be valid when we copy these cells to a new datasheet later. In the example in the picture below, the *b_SucCathTip_Num* column is column **H**, and the data begins in row **2** and ends in row **88**, so the range in the function is **BLS_Equipment!H\$2:H\$88**. Copy this range exactly for your data, changing only the "H" (in both places) and the "88" as appropriate for your dataset.

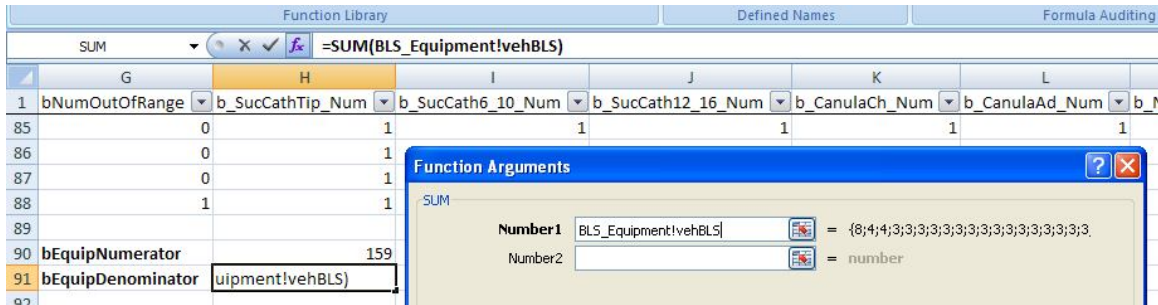
Click *OK*



- b. Copy this formula horizontally across all of the BLS equipment item columns (*b_SucCathTip_Num* through *b_PedTape_Num*).

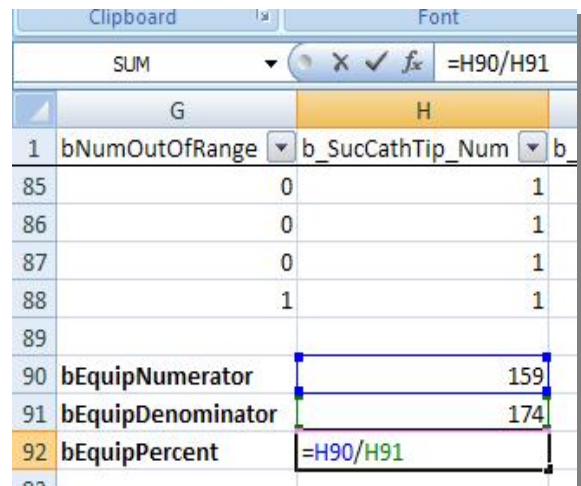
4. For each BLS equipment item, calculate the number of BLS patient care units that *should* carry that item. This is simply the total number of BLS vehicles in the State/Territory. In the cell below the cell labeled **bEquipNumerator**, type **bEquipDenominator**.
 - a. Click in the cell to the right of the cell where you just typed **bEquipDenominator**. This should be in the **b_SucCathTip_Num** column. Click on the *fx* button. Use the SUM function with the following argument:

Number1: **BLS_Equipment!vehBLS**
 Click *OK*

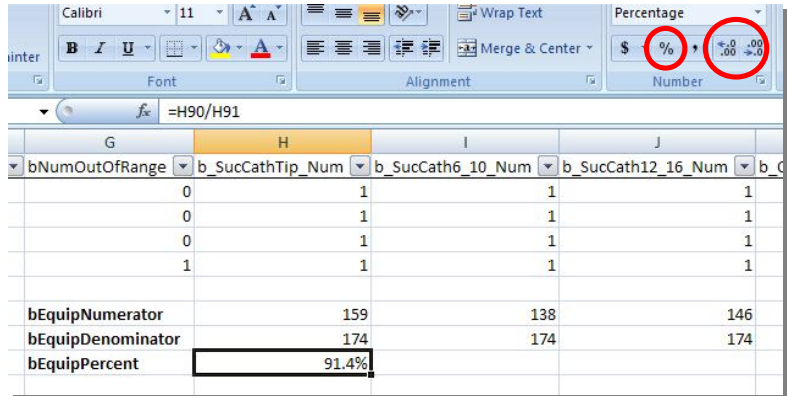


- b. Copy this formula horizontally across all of the equipment item columns (**b_SucCathTip_Num** through **b_PedTape_Num**). When you copy this formula, make sure the value stays the same across all columns since this value is simply the total number of BLS vehicles in the State/Territory and does not vary by equipment item.
5. For each BLS equipment item, calculate the percent of BLS patient care units that carry that equipment item. In the cell below the cell labeled **bEquipDenominator**, type **bEquipPercent**.

- a. In the cell to the right of **bEquipPercent**, type =
- b. Click on the cell with the value we calculated for **bEquipNumerator**
- c. Type /
- d. Click on the cell with the value we calculated **bEquipDenominator**. Then press *Enter*. **Note: Use cell references (not the actual values) to calculate the percentage so that it will automatically update if you update any of the data per follow-up.**



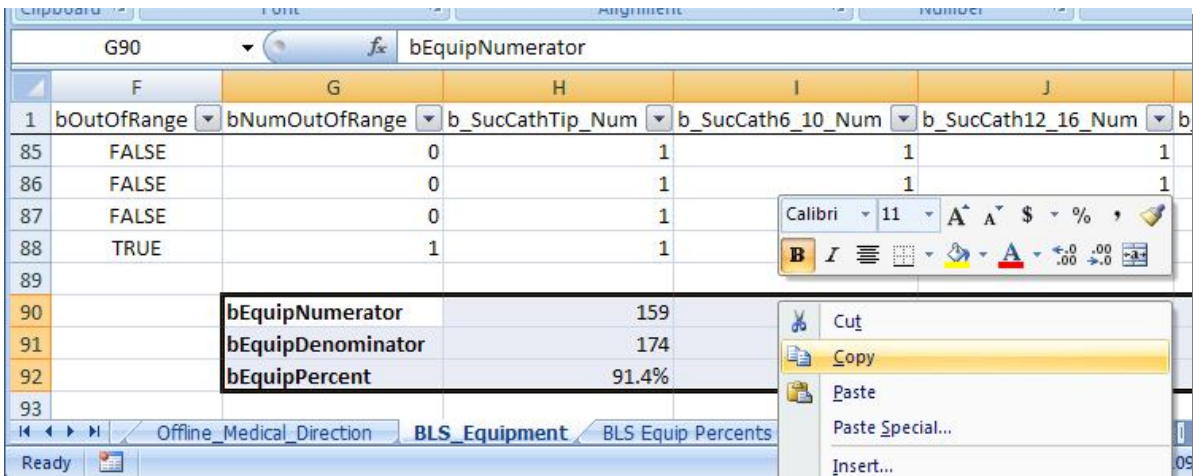
- e. Click on the cell you just calculated and then click the % symbol on the *Home* tab. Click on the Increase Decimal or Decrease Decimal symbols next to the % symbol to give a more or less precise percentage.



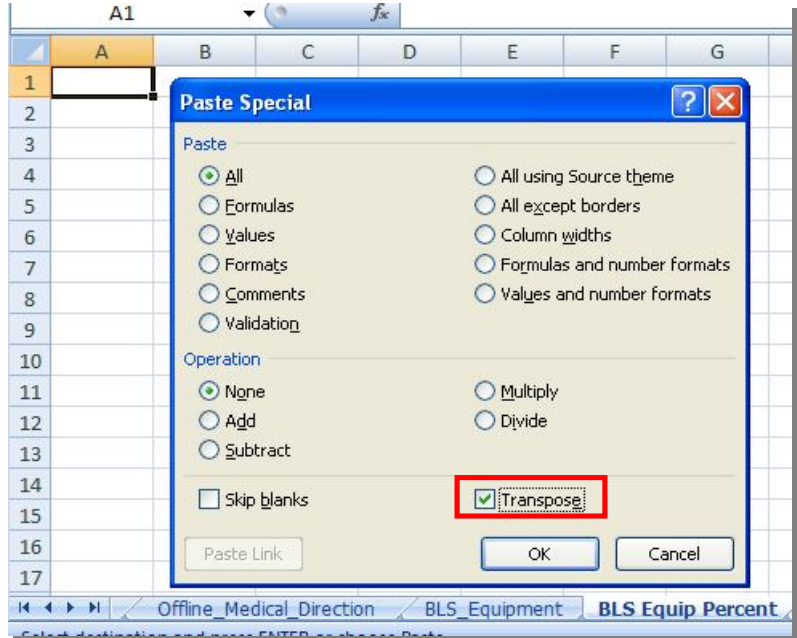
- f. Copy this formula horizontally across all of the equipment item columns (*b_SucCathTip_Num* through *b_PedTape_Num*). These values are the percent of BLS patient care units that carry each equipment item.

6. It is easier to view, sort, analyze, and create charts from data when it is presented in a vertical format. These equipment percentages are currently in a horizontal format, so the following steps will move this data to a new tab and change it to a vertical format.

Insert a new worksheet (tab) called *BLS Equip Percents*. Return to the *BLS_Equipment* tab. Select the three rows of data you just created including the row labels, **bEquipNumerator**, **bEquipDenominator**, and **bEquipPercent**. Right-click, select *Copy*.



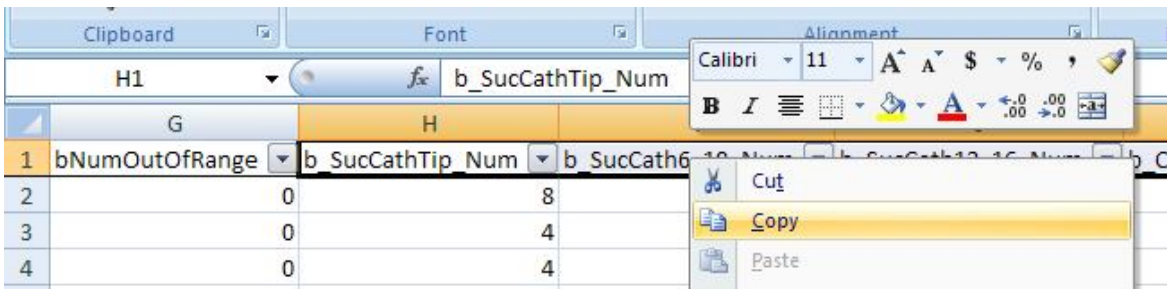
- Go to the *BLS Equip Percents* tab. Click on the top left cell, A1. Right-click, select *Paste Special...* Check the box next to *Transpose* in the Paste Special box. Click *OK*.



- Insert a new column to the left of these three columns and call it *BLSEquipment*.

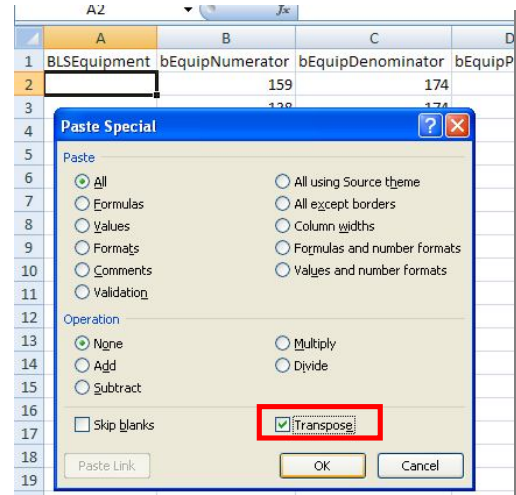
	A	B	C	D
1	BLSEquipment	bEquipNumerator	bEquipDenominator	bEquipPercent
2		159	174	91.4%
3		138	174	79.3%
4		146	174	83.9%
5		147	174	84.5%
6		172	174	98.9%
7		166	174	95.4%
8		174	174	100.0%
9		172	174	99.0%

- Return to the *BLS_Equipment* tab. In the first row only, select the range of cells *b_SucCathTip_Num* through *b_PedTape_Num*. Right-click, select *Copy*.

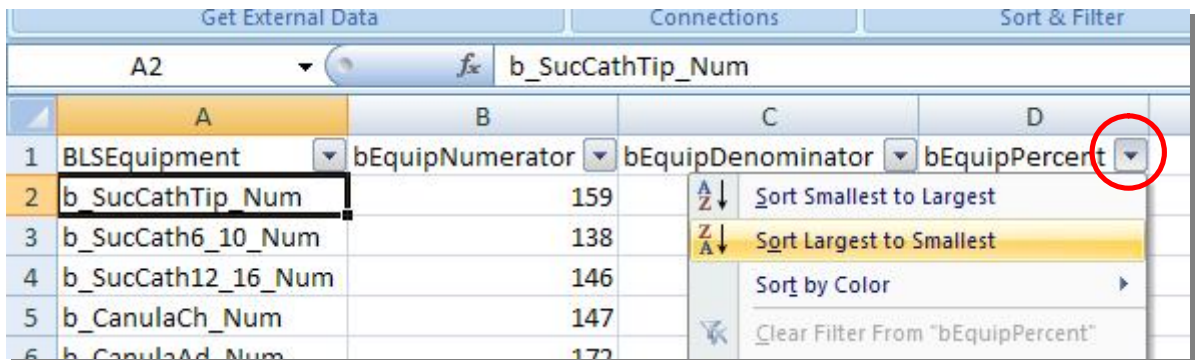


- Go to the *BLS Equip Percents* tab. Click on the cell below the cell labeled **BLSEquipment**. Right-click, select *Paste Special...*. Check the box next to *Transpose* in the Paste Special box. Click *OK*.

This now displays each BLS equipment item and the percent of BLS patient care units that carry each item. You may consider deleting the **bEquipNumerator** and **bEquipDenominator** columns if you feel that they are not helpful or unnecessary.



- Select any cell in these four columns of data. Then go to the Data tab and turn on Filters. Then use the filter for **bEquipPercent** to sort the equipment items according to the percentage of patient care units that carry each item. Select *Sort Largest to Smallest* to list the most frequently carried items at the top.

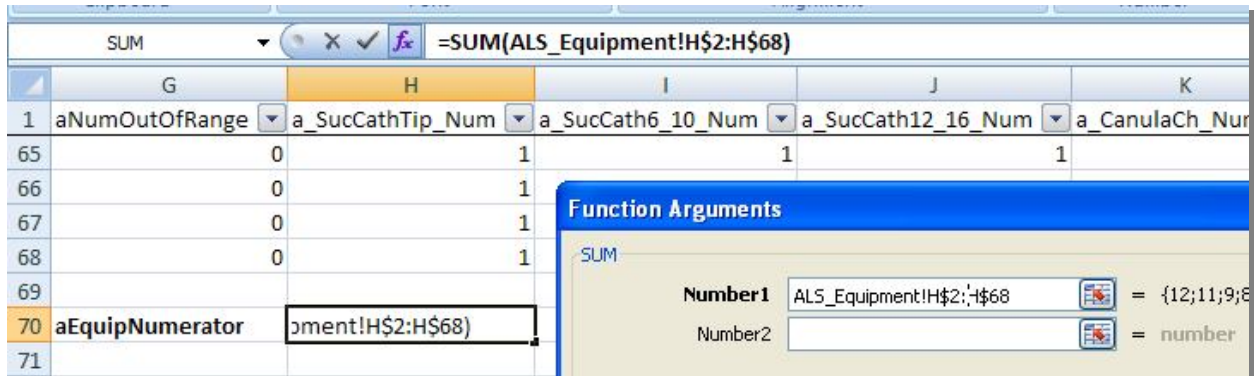


ALS Equipment

12. The cleaning and analyses for the Performance Measure 73 EHB entries should be completed prior to doing this analysis because the following steps build upon that cleaning and analysis.
13. Go to the *ALS_Equipment* tab of your dataset. Clear all filters so that all data are showing.
14. For each ALS equipment item, calculate the number of ALS patient care units that carry that item. In the second blank row after the last data record, type **aEquipNumerator** in the cell in the *aNumOutOfRange* column. Make sure to leave a blank row between the data and your calculations; this is to distinguish between the two when applying filters.
 - a. Click in the cell to the right of the cell where you just typed **aEquipNumerator**. This should be in the *a_SucCathTip_Num* column. Click on the *fx* button. Use the SUM function with the following argument:

Number1: the range of all values in the *a_SucCathTip_Num* column. We need to use datasheet references and dollar signs in front of the row references in this function so that these formulas will still be valid when we copy these cells to a new datasheet later. In the example in the picture below, the *a_SucCathTip_Num* column is column **H**, and the data begins in row **2** and ends in row **68**, so the range in the function is **ALS_Equipment!H\$2:H\$68**. Copy this range exactly for your data, changing only the "H" (in both places) and the "68" as appropriate for your dataset.

Click *OK*



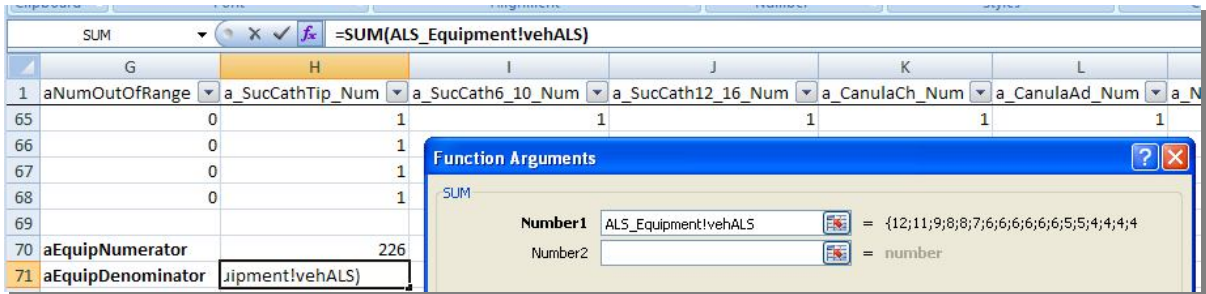
- b. Copy this formula horizontally across all of the ALS equipment item columns (*a_SucCathTip_Num* through *a_ETTube8_Num*).

15. For each ALS equipment item, calculate the number of ALS patient care units that *should* carry that item. This is simply the total number of ALS vehicles in the State/Territory. In the cell below the cell labeled **aEquipNumerator**, type **aEquipDenominator**.

- a. Click in the cell to the right of the cell where you just typed **aEquipDenominator**. This should be in the *a_SucCathTip_Num* column. Click on the *fx* button. Use the SUM function with the following argument:

Number1: **ALS_Equipment!vehALS**

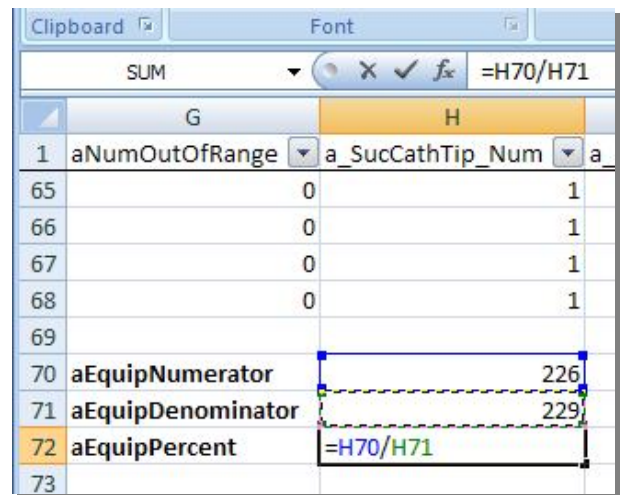
Click *OK*



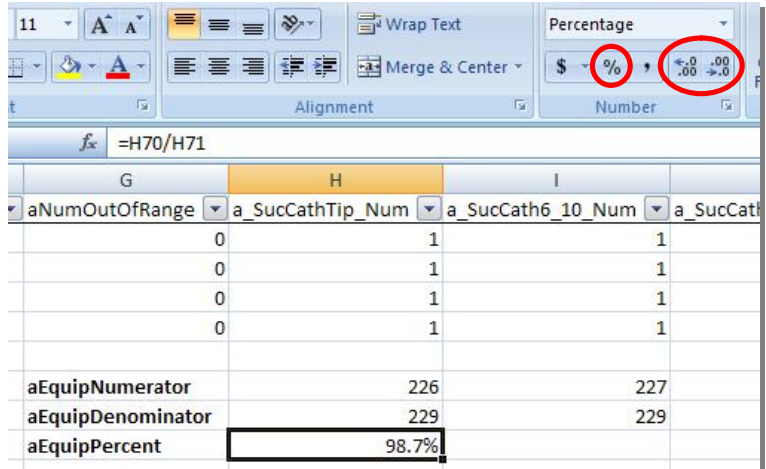
- b. Copy this formula horizontally across all of the equipment item columns (*a_SucCathTip_Num* through *a_ETTube8_Num*). When you copy this formula, make sure the value stays the same across all columns since this value is simply the total number of ALS vehicles in the State/Territory and does not vary by equipment item.

16. For each ALS equipment item, calculate the percent of ALS patient care units that carry that equipment item. In the cell below the cell labeled **aEquipDenominator**, type **aEquipPercent**.

- a. In the cell to the right of **aEquipPercent**, type =
- b. Click on the cell with the value we calculated for **aEquipNumerator**
- c. Type /
- d. Click on the cell with the value we calculated **aEquipDenominator**. Then press *Enter*. **Note: Use cell references (not the actual values) to calculate the percentage so that it will automatically update if you update any of the data per follow-up.**



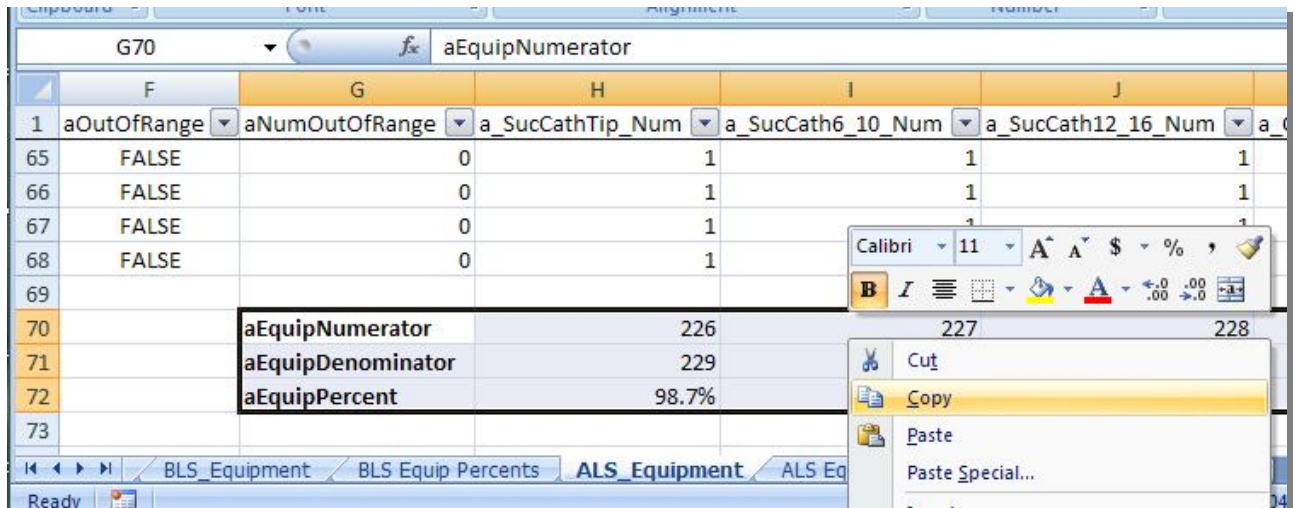
- e. Click on the cell you just calculated and then click the % symbol on the *Home* tab. Click on the Increase Decimal or Decrease Decimal symbols next to the % symbol to give a more or less precise percentage.



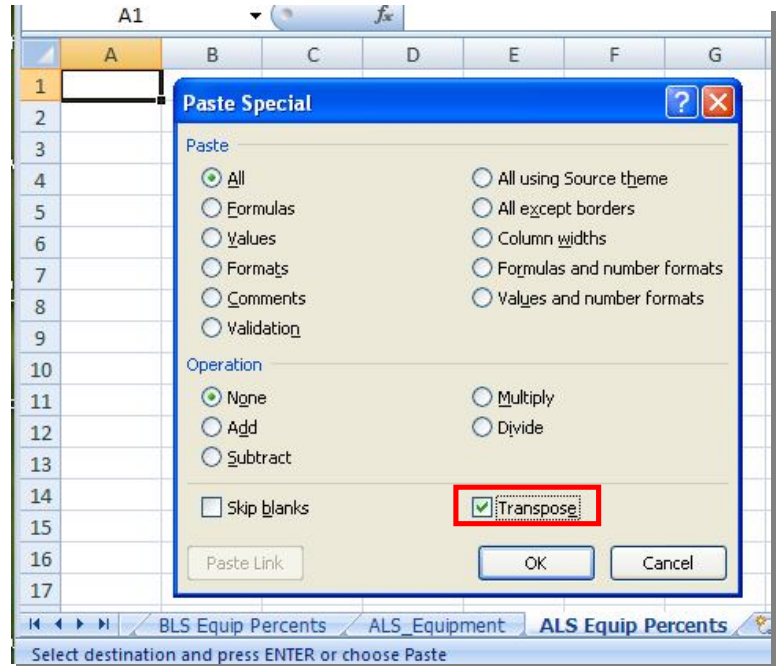
- f. Copy this formula horizontally across all of the equipment item columns (*a_SucCathTip_Num* through *a_ETTube8_Num*). These values are the percent of ALS patient care units that carry each equipment item.

17. It is easier to view, sort, analyze, and create charts from data when it is presented in a vertical format. These equipment percentages are currently in a horizontal format, so the following steps will move this data to a new tab and change it to a vertical format.

Insert a new worksheet (tab) called *ALS Equip Percents*. Return to the *ALS_Equipment* tab. Select the three rows of data you just created including the row labels, **aEquipNumerator**, **aEquipDenominator**, and **aEquipPercent**. Right-click, select *Copy*.



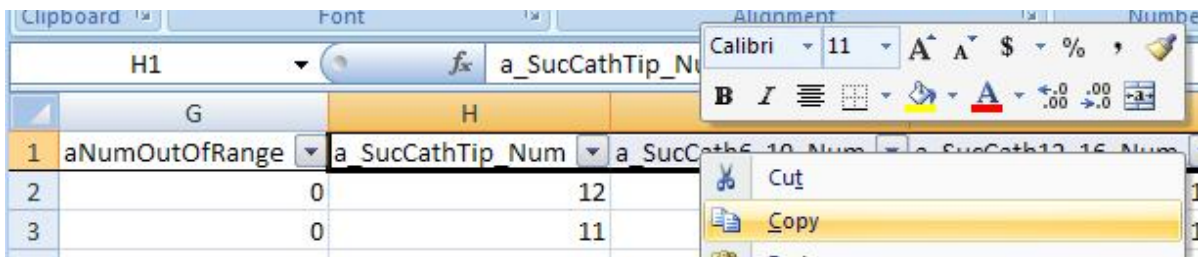
18. Go to the *ALS Equip Percents* tab. Click on the top left cell, A1. Right-click, select *Paste Special...* Check the box next to *Transpose* in the Paste Special box. Click *OK*.



19. Insert a new column to the left of these three columns and call it *ALSEquipment*.

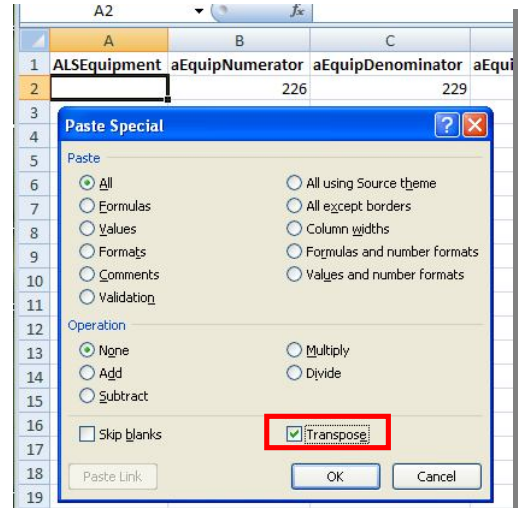
	A	B	C	D
1	ALSEquipment	aEquipNumerator	aEquipDenominator	aEquipPercent
2		226	229	98.7%
3		227	229	99.1%
4		228	229	99.6%
5		151	229	65.9%
6		229	229	100.0%
7		226	229	98.7%
8		229	229	100.0%
9		229	229	100.0%

20. Return to the *ALS_Equipment* tab. In the first row only, select the range of cells *a_SucCathTip_Num* through *a_ETTube8_Num*. Right-click, select *Copy*.

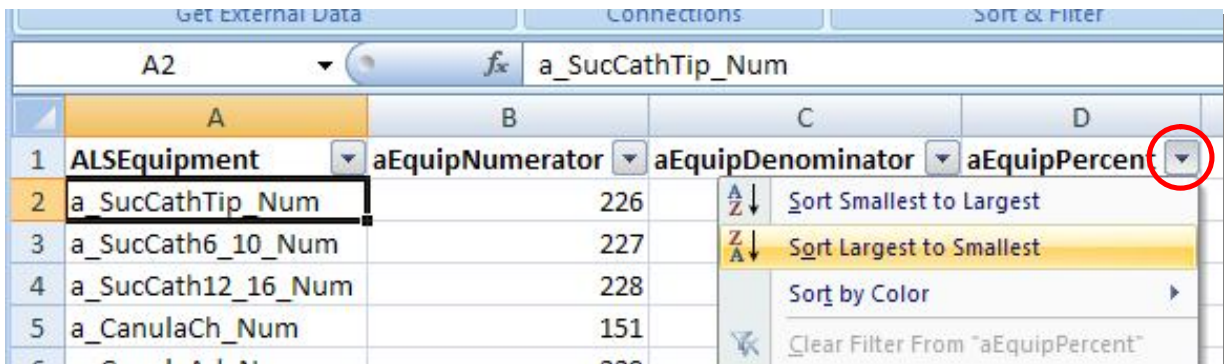


21. Go to the *ALS Equip Percents* tab. Click on the cell below the cell labeled *ALSEquipment*. Right-click, select *Paste Special...* Check the box next to *Transpose* in the Paste Special box. Click *OK*.

This now displays each ALS equipment item and the percent of ALS patient care units that carry each item. You may consider deleting the *aEquipNumerator* and *aEquipDenominator* columns if you feel that they are not helpful or unnecessary.



22. Select any cell in these four columns of data. Then go to the Data tab and turn on Filters. Then use the filter for *aEquipPercent* to sort the equipment items according to the percentage of patient care units that carry each item. Select *Sort Largest to Smallest* to list the most frequently carried items at the top.

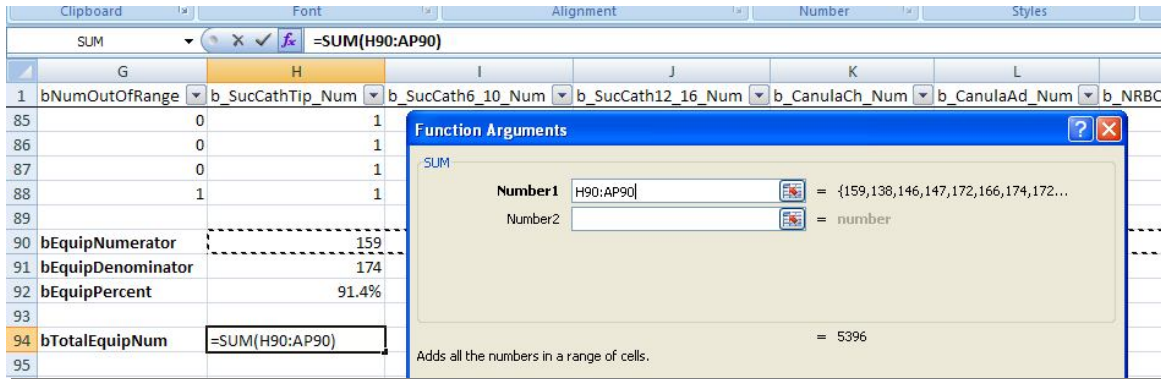


II. Quality Assessment: The Average Percent of Equipment Items Carried by Patient Care Units

BLS Equipment

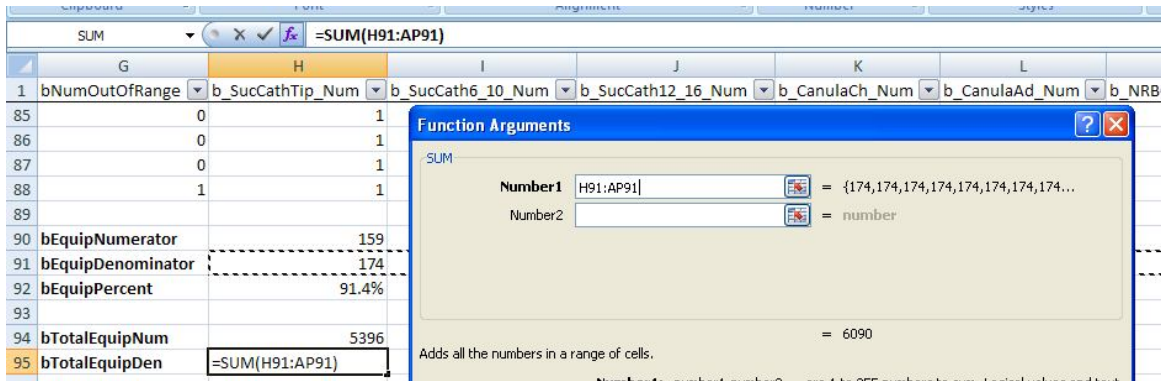
1. The cleaning and analysis for the Performance Measure 73 EHB entries and Part I of the Extra Analyses should be completed prior to doing this analysis because the following steps build upon that cleaning and analysis.
2. Go to the *BLS_Equipment* tab of your dataset. Clear all filters so that all data are showing.
3. In the second blank row below the cell labeled **bEquipPercent**, type **bTotalEquipNum**. This is the total number of BLS equipment items carried by all of the State/Territory's BLS patient care units combined.
 - a. Click in the cell to the right of the cell where you just typed **bTotalEquipNum**. Click on the *fx* button. Use the SUM function with the following arguments:

Number1: the selection of all values in the row labeled **bEquipNumerator** which you calculated in step 3 of Part I above. (Columns *b_SucCathTip_Num* through *b_PedTape_Num*.)



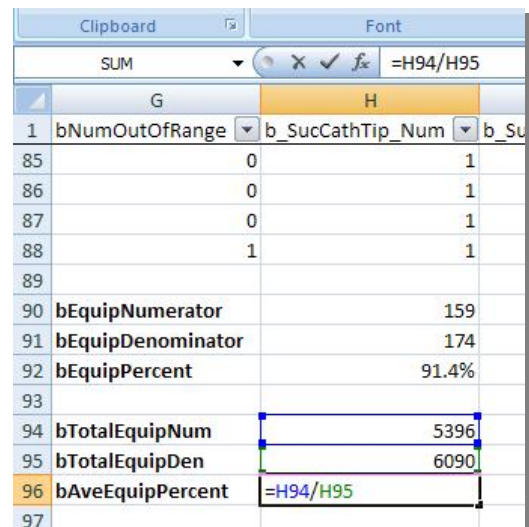
4. In the cell below the cell labeled **bTotalEquipNum**, type **bTotalEquipDen**. This is the total number of BLS equipment items that would be carried by all of the State/Territory's BLS patient care units combined if every BLS patient care unit carried every BLS equipment item.
 - a. In the cell to the right of the cell where you just typed **bTotalEquipDen**, use the SUM function with the following arguments:

Number1: the selection of all values in the row labeled **bEquipmentDenominator** which you calculated in step 4 of Part I above. (Columns **b_SucCathTip_Num** through **b_PedTape_Num**.)

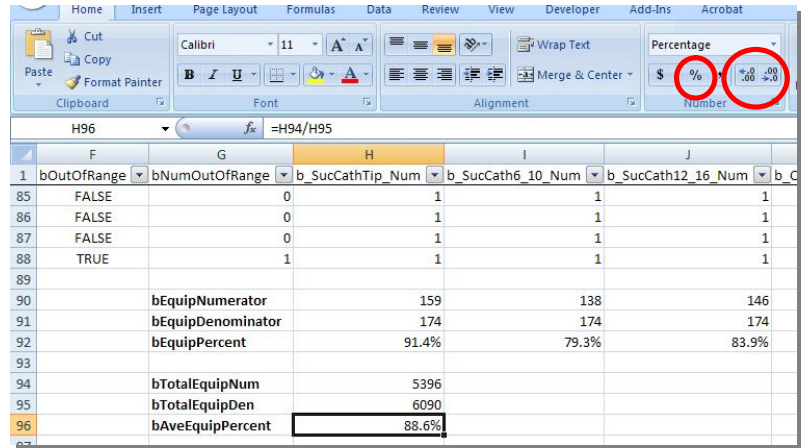


5. Calculate the average percent of BLS equipment items carried by BLS patient care units. In the cell below the cell labeled **bTotalEquipDen**, type **bAveEquipPercent**.

- a. In the cell to the right of **bAveEquipPercent**, type =
- b. Click on the cell with the value we calculated for **bTotalEquipNum**
- c. Type /
- d. Click on the cell with the value we calculated **bTotalEquipDen**. Then press *Enter*. *Note: Use cell references (not the actual values) to calculate the percentage so that it will automatically update if you update any of the data per follow-up.*



- e. Click on the cell you just calculated and then click the % symbol on the *Home* tab. Click on the Increase Decimal or Decrease Decimal symbols next to the % symbol to give a more or less precise percentage.



- f. This value is the average percent of BLS equipment items carried by BLS patient care units in the State/Territory, based on the information reported from those who completed the survey.

CAUTION: This value only tells you an average. It does NOT indicate how many patient care units carry most, or all, equipment items. It also does NOT indicate which equipment items patient care units do or do not carry.

For example, the value 88.6% from the student dataset (see previous picture) indicates that, on average, BLS patient care units carry about 31 out of 35 BLS equipment items. However, some BLS patient care units may carry all 35 BLS equipment items, and some may carry only 20 BLS equipment items, or some other number of items between 0 and 35. Also, the actual set of equipment carried by each BLS patient care unit may vary considerably, even if the number is similar.

Some examples of ways to use this statistic:

“On average, BLS patient care units in our state carry 89% of the EMSC Program’s recommended BLS equipment items.”

“BLS patient care units in our state carry an average of 89% of the BLS equipment items as recommended by the EMSC Program.”

“On average, our state’s BLS patient care units carry 31 out of 35 of the BLS equipment items as recommended by the EMSC Program.”

ALS Equipment

6. The cleaning and analysis for the Performance Measure 73 EHB entries and Part I of the Extra Analyses should be completed prior to doing this analysis because the following steps build upon that cleaning and analysis.
7. Go to the *ALS_Equipment* tab of your dataset. Clear all filters so that all data are showing.
8. In the second blank row below the cell labeled **aEquipPercent**, type **aTotalEquipNum**. This is the total number of ALS equipment items carried by all of the State/Territory's ALS patient care units combined.
 - a. Click in the cell to the right of the cell where you just typed **aTotalEquipNum**. Click on the *fx* button. Use the SUM function with the following arguments:

Number1: the selection of all values in the row labeled **aEquipNumerator** which you calculated in step 3 of Part I above. (Columns *a_SucCathTip_Num* through *a_ETTube8_Num*.)

The screenshot shows an Excel spreadsheet with the following data:

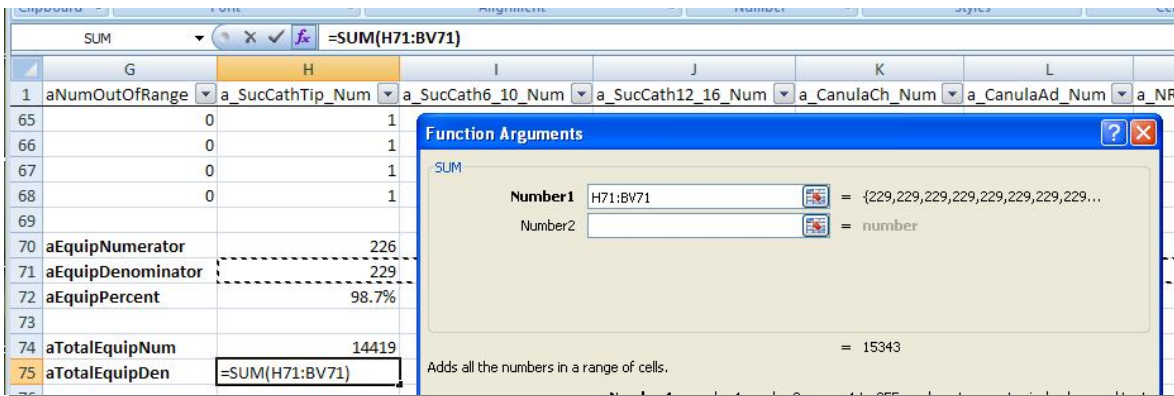
	G	H	I	J	K	L
1	aNumOutOfRange	a_SucCathTip_Num	a_SucCath6_10_Num	a_SucCath12_16_Num	a_CanulaCh_Num	a_CanulaAd_Num
65		0	1			
66		0	1			
67		0	1			
68		0	1			
69						
70	aEquipNumerator		226			
71	aEquipDenominator		229			
72	aEquipPercent		98.7%			
73						
74	aTotalEquipNum		=SUM(H70:BV70)			
75						

The 'Function Arguments' dialog box for the SUM function is open, showing:

- Function: SUM
- Number1: H70:BV70 = {226,227,228,151,229,226,229,229...}
- Number2: = number
- Result: = 14419
- Description: Adds all the numbers in a range of cells.

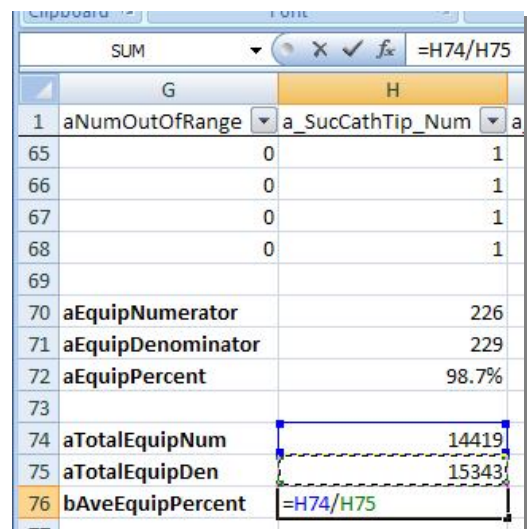
9. In the cell below the cell labeled **aTotalEquipNum**, type **aTotalEquipDen**. This is the total number of ALS equipment items that would be carried by all of the State/Territory's ALS patient care units combined if every ALS patient care unit carried every ALS equipment item.
 - a. In the cell to the right of the cell where you just typed **aTotalEquipDen**, use the SUM function with the following arguments:

Number1: the selection of all values in the row labeled **aEquipDenominator** which you calculated in step 4 of Part I above. (Columns **a_SucCathTip_Num** through **a_ETTube8_Num**.)

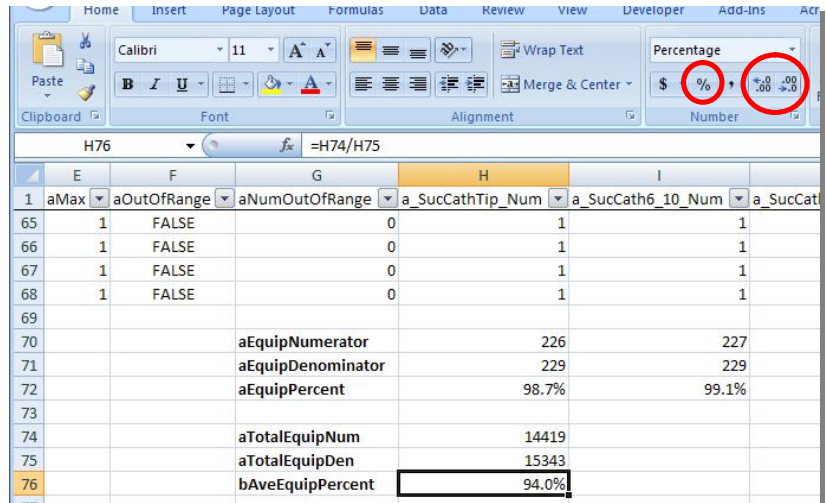


10. Calculate the average percent of ALS equipment items carried by ALS patient care units. In the cell below the cell labeled **aTotalEquipDen**, type **aAveEquipPercent**.

- a. In the cell to the right of **aAveEquipPercent**, type =
- b. Click on the cell with the value we calculated for **aTotalEquipNum**
- c. Type /
- d. Click on the cell with the value we calculated **aTotalEquipDen**. Then press *Enter*. **Note: Use cell references (not the actual values) to calculate the percentage so that it will automatically update if you update any of the data per follow-up.**



- e. Click on the cell you just calculated and then click the % symbol on the Home tab. Click on the Increase Decimal or Decrease Decimal symbols next to the % symbol to give a more or less precise percentage.



	E	F	G	H	I	
1	aMax	aOutOfRange	aNumOutOfRange	a_SucCathTip_Num	a_SucCath6_10_Num	a_SucCath
65	1	FALSE	0	1	1	
66	1	FALSE	0	1	1	
67	1	FALSE	0	1	1	
68	1	FALSE	0	1	1	
69						
70			aEquipNumerator	226	227	
71			aEquipDenominator	229	229	
72			aEquipPercent	98.7%	99.1%	
73						
74			aTotalEquipNum	14419		
75			aTotalEquipDen	15343		
76			bAveEquipPercent	94.0%		

- f. This value is the average percent of ALS equipment items carried by ALS patient care units in the State/Territory, based on the information reported from those who completed the survey.

CAUTION: This value only tells you an average. It does NOT indicate how many patient care units carry most, or all, equipment items. It also does NOT indicate which equipment items patient care units do or do not carry.

For example, the value 94.0% from the student dataset (see previous picture) indicates that, on average, ALS patient care units carry about 63 out of 67 ALS equipment items. However, some ALS patient care units may carry all 67 ALS equipment items, and some may carry only 45 ALS equipment items, or some other number of items between 0 and 67. Also, the actual set of equipment carried by each ALS patient care unit may vary considerably, even if the number is similar.

Some examples of ways to use this statistic:

“On average, ALS patient care units in our state carry 94% of the EMSC Program’s recommended ALS equipment items.”

“ALS patient care units in our state carry an average of 94% of the ALS equipment items as recommended by the EMSC Program.”

“On average, our state’s ALS patient care units carry 63 out of 67 of the ALS equipment items as recommended by the EMSC Program.”