

Introducing Microsoft Excel's[®] Pivot Table Feature

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If you've ever entered a claim in a medical billing software package, you know that it takes lots of information from a variety of sources to file a clean claim. Most practice management systems store all of that information but of necessity only offer a limited number of canned reports. If you can either download those reports to Microsoft Excel[®] or link Excel directly to the billing software, Excel offers a powerful feature called Pivot Tables that allow users to sort, filter, and manipulate the data in a variety of ways. This article will use sample data to demonstrate how to create a basic Pivot Table in Excel 2007.

[Here is a link to a sample data set](#) that could have been downloaded from a medical billing software package. Download the spreadsheet with the data and click on the Sheet 1 tab to start the Pivot Table on a blank sheet.

Create a Pivot Table

Put your cursor in cell A10 and click **Pivot Table**

from the **Insert** Tab

In the menu that appears, make sure the radio

button **Select a table or range** is

selected and then either select

the data range by clicking on the

box with the red arrow or

entering the data range as shown

in Figure 2.

Figure 1

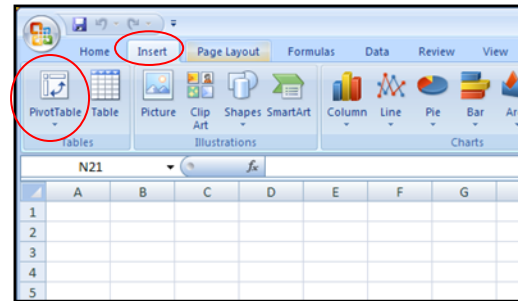


Figure 2

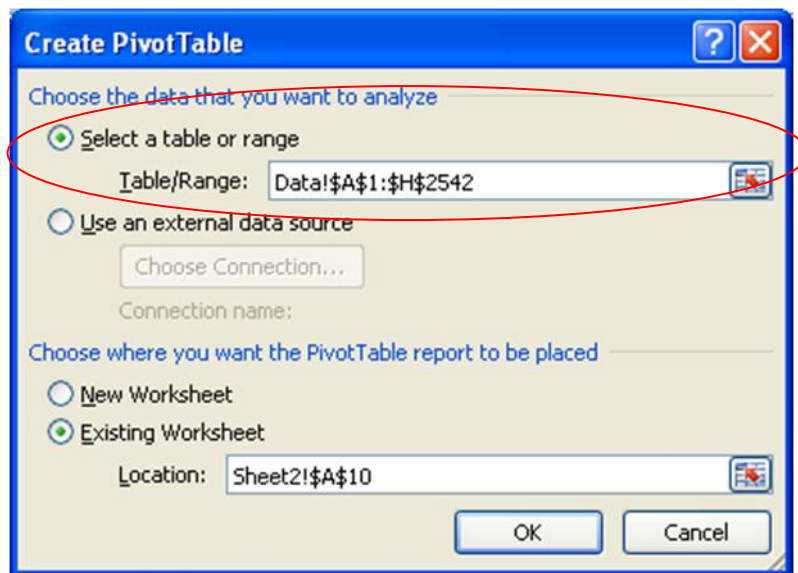
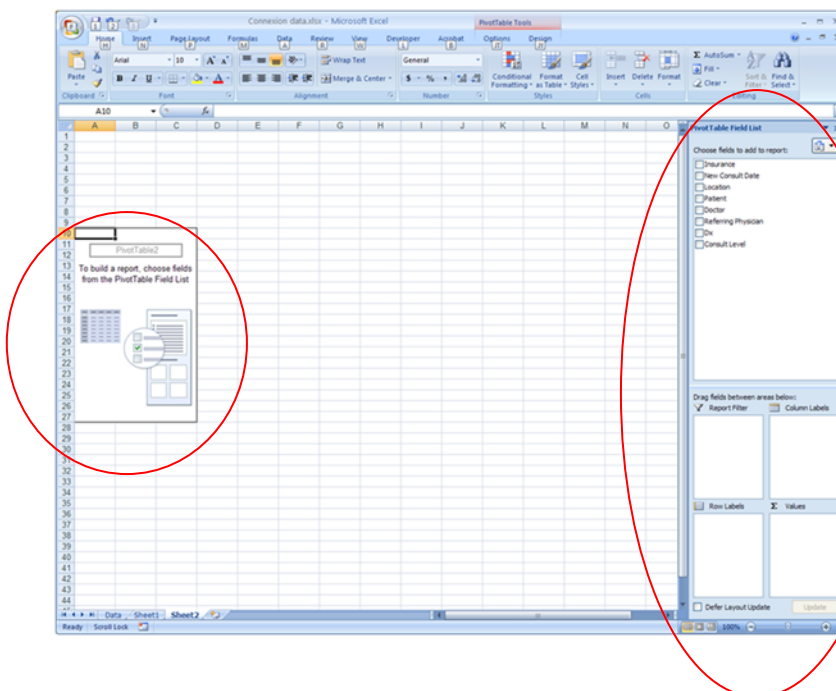


Figure 3



From this box you can also **Choose** where you want the **Pivot Table** report to be placed, either in a **New Worksheet** or an **Existing Worksheet**. Your screen should look similar to Figure 3.

The left circle shows where the Pivot Table will be placed. The right circle shows the **Pivot Table Field List** with areas for **Report Filter**, **Column Labels**, **Row Labels**, and **Values**. All of the columns in the original data are listed as fields to be added to one of these four areas.

At this point you have created a Pivot Table with eight fields. Since the sample data is for new consults, start by counting the number of new consults. Drag the patient field from the **Field List** to the **Values** area, as shown in Figure 4. Since Patient is a text field, Excel assumes that you want to count the number of patients, which is correct. Select the drop down arrow next to **Count of Patients** and choose **Value Field Settings**. The **Value Field Settings** box allows you to create a **Custom Name** for the field, choose how to summarize the data (Sum, Count, Average, etc.) and the **Number Format** box allows you to format the result (General, Number, Currency, etc.). Format Count of Patients as a Number with 0 decimal places and check the box to use a comma to separate thousands. Click OK twice to proceed. Count of Patients should be 2,541 patients.

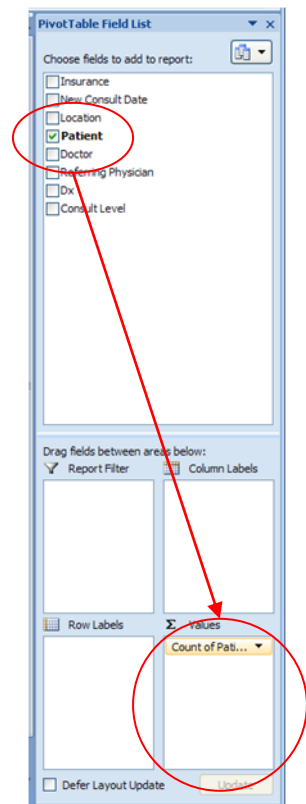


Figure 5

The next step is to use the Pivot Table to analyze the 2,541 new consults. Drag the Insurance field from the **Field List** to the **Row Labels** area. Your Pivot Table should look like Figure 5.

Excel has quickly and easily told you that 1,360 of your 2,541 patients have Commercial Insurance. You can further analyze

Insurance	Count of Patient
Commercial	1,360
Medicare	1,181
Grand Total	2,541

the new consults by dragging the Location field from the **Field List** to the **Column Labels** area.

Figure 6

Now it's easy to see the insurance companies broken out by the five regions the sample clinic operates in.

The Central region clearly has the most patients and the Central region also has nearly as many Medicare patients as Commercial patients. The East region has less than 10% as many new consults as the Central

Count of Patient	Central	East	North	South	West	Grand Total
Commercial	563	57	228	391	121	1,360
Medicare	521	45	186	331	98	1,181
Grand Total	1,084	102	414	722	219	2,541

region has. Your Pivot Table should like Figure 6. Note that if you can't see the **Pivot Table Field List** or the **Pivot Table Tools** on the toolbar, click on a cell inside the Pivot Table it back. You can show or hide the **Field List** by clicking the **Field List** button shown in Figure 7.

Figure 7



With the basic Pivot Table set up, it's easy to move different fields between rows and columns. With the Pivot Table still set up as in Figure 6, drag Location from **Column Labels** back up to the **Pivot Table Field List**, drag Insurance from **Row Labels** to the

Figure 8

Count of Patient	Commercial	Medicare	Grand Total
Dr. George	229	199	428
Dr. Johann	261	223	484
Dr. Ludwig	399	347	746
Dr. Peter	309	228	537
Dr. Wolfgang	162	184	346
Grand Total	1,360	1,181	2,541

Column Labels area, and drag Doctor from the **Pivot Table Field List** to the **Row Labels** area.

Your Pivot Table should look like Figure 8.

Which of the five clinic physicians saw more Medicare than Commercial insurance consults?

What do the five physicians have in common?

Grouping Data

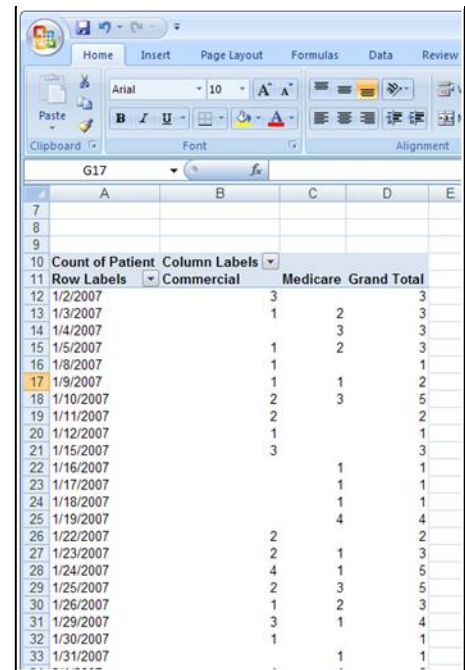
The ability to move data fields from rows to columns and back is very helpful when analyzing medical practice data.

Most fields in the example work well this way, but the New Consult Date field is different. Drag the Doctor field from the **Row Labels** area back to the **Pivot Table Field List** and put the New Consult Date field in its place. Your Pivot

Table should look like Figure 9. Excel provides a **Group**

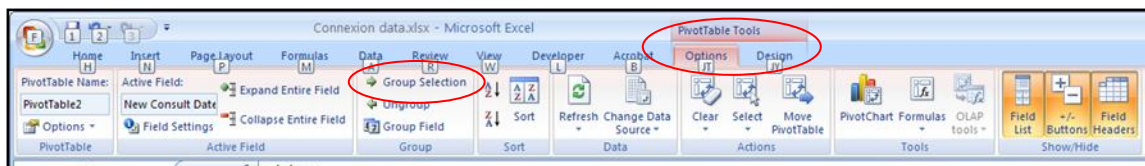
Selection feature under the **Pivot Table Tools Options Menu**. Remember that the **Pivot Table Tools Options Menu** is only visible if a cell in the Pivot Table is selected. Choose any of the dates in Column A and click **Group Selection** as shown in Figure 10.

Figure 9



Count of Patient	Commercial	Medicare	Grand Total
1/2/2007	3		3
1/3/2007	1	2	3
1/4/2007		3	3
1/5/2007	1	2	3
1/8/2007	1		1
1/9/2007	1	1	2
1/10/2007	2	3	5
1/11/2007	2		2
1/12/2007	1		1
1/15/2007	3		3
1/16/2007		1	1
1/17/2007		1	1
1/18/2007		1	1
1/19/2007		4	4
1/22/2007	2		2
1/23/2007	2	1	3
1/24/2007	4	1	5
1/25/2007	2	3	5
1/26/2007	1	2	3
1/29/2007	3	1	4
1/30/2007	1		1
1/31/2007		1	1

Figure 10



Excel will allow you to group date fields by seconds, minutes, hours, days, months, quarters, and/or years.

The selection box that appears allows multiple selections.

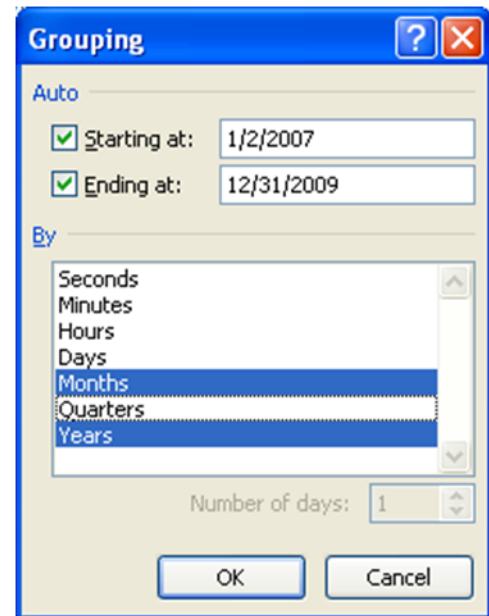
An example of the selection box is shown in Figure 11.

Select both months and years and click OK. The top of

Figure 12

10	Count of Patient	Column Labels		
11	Row Labels	Commercial	Medicare	Grand Total
12	2007			
13	Jan	43	39	82
14	Feb	33	28	61
15	Mar	37	27	64
16	Apr	40	36	76
17	May	28	31	59
18	Jun	38	33	71
19	Jul	43	39	82
20	Aug	44	27	71
21	Sep	29	37	66
22	Oct	44	40	84
23	Nov	43	26	69
24	Dec	35	30	65

Figure 11

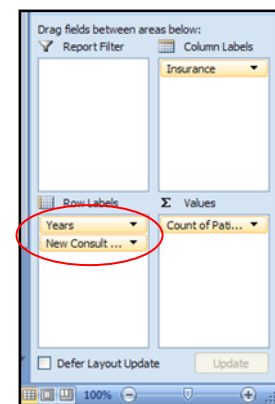


your Pivot Table should look similar to Figure 12. Note how quickly and

easily Excel grouped the dates by month and year.

Notice how Excel changed the **Row Labels** area in Figure 13. Now instead of only having a New Consult Date field, Excel has added a Years field as well. The New Consult Date field holds the months in this example and the Years field tracks the years. To continue the example, drag both the New Consult Date field and the Years field to the **Report Filter** area directly above the **Row Labels** area.

Figure 13



Filtering Data

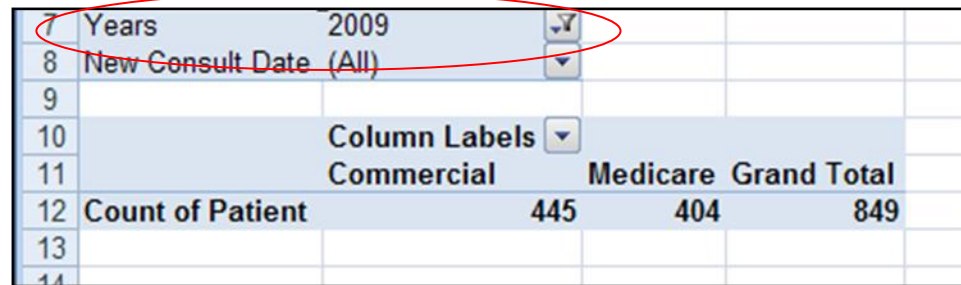
Once the data is organized in a Pivot Table, the next step is often to filter the data to focus on specific questions. Excel puts fields in the **Report Filter** area directly above the Pivot Table to give easy access for filtering the data. To continue the previous example, Click the drop-down arrow next to Years

and select 2009

from the drop-down menu that appears.

Also note the box at

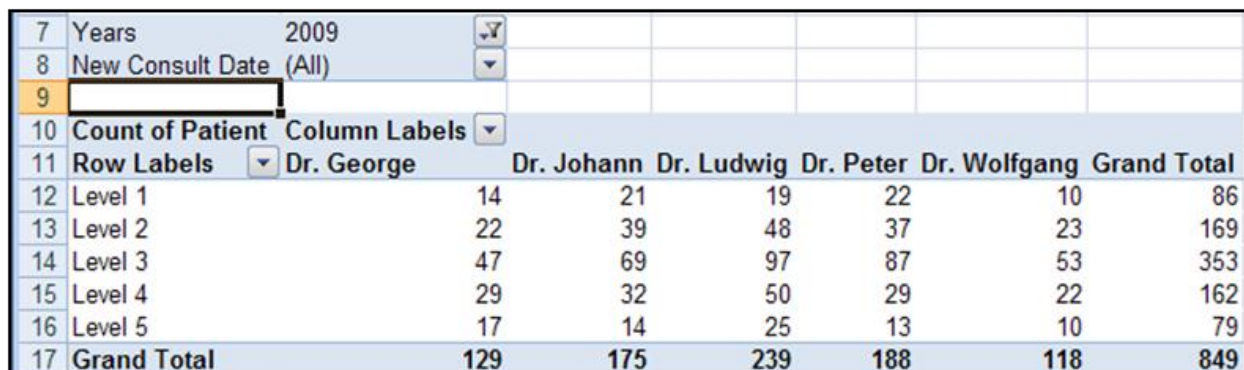
Figure 14



7	Years	2009				
8	New Consult Date	(All)				
9						
10		Column Labels				
11		Commercial	Medicare	Grand Total		
12	Count of Patient	445	404	849		
13						
14						

the bottom of the drop-down menu titled **Select Multiple Items**. Rather than just selecting 2009, as we'll do in this example, Excel allows users to select multiple items from a list by checking this box. Select 2009 from the drop-down menu and click OK. Note how the drop-down arrow has changed in Figure 14. The drop-down arrow next to Years has a filter to indicate that the field is filtered, while New Consult Date still has a drop-down arrow to indicate that none of the months have been filtered in this example. Also note that Excel shows 2009 next to Years and (All) next to New Consult Date to indicate what filter has been applied. To continue the filtering example, drag Consult Level to the **Row Labels** area and replace Insurance with Doctor in the **Column Labels** area, again by dragging and dropping the respective fields. Your Pivot Table should look like Figure 15.

Figure 15

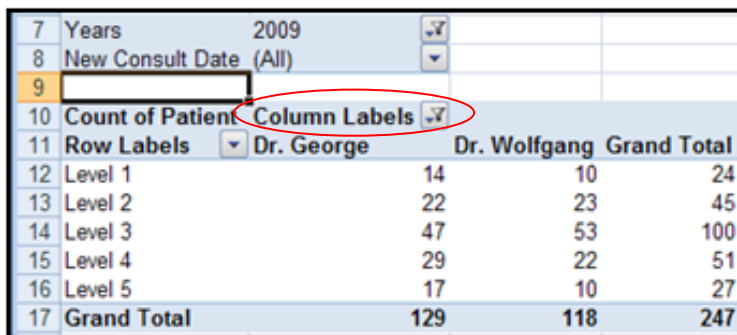


7	Years	2009					
8	New Consult Date	(All)					
9							
10	Count of Patient	Column Labels					
11	Row Labels	Dr. George	Dr. Johann	Dr. Ludwig	Dr. Peter	Dr. Wolfgang	Grand Total
12	Level 1	14	21	19	22	10	86
13	Level 2	22	39	48	37	23	169
14	Level 3	47	69	97	87	53	353
15	Level 4	29	32	50	29	22	162
16	Level 5	17	14	25	13	10	79
17	Grand Total	129	175	239	188	118	849

Assume that you want to compare the Consult Level billed by two similar physicians, Dr. George and Dr. Wolfgang. An easy way to only show those two physicians is to click the drop-down arrow next to Column Labels (circled in Figure 16) to filter the physicians shown in the column. First uncheck the (Select All) box to clear all of the physicians, then check the boxes next to Dr. George and Dr. Wolfgang and click OK. The result should look like Figure 16.

Again notice that the drop-down arrow next to **Column Labels** has changed to a filter to show

Figure 16



7	Years	2009		
8	New Consult Date	(All)		
9				
10	Count of Patient	Column Labels		
11	Row Labels	Dr. George	Dr. Wolfgang	Grand Total
12	Level 1	14	10	24
13	Level 2	22	23	45
14	Level 3	47	53	100
15	Level 4	29	22	51
16	Level 5	17	10	27
17	Grand Total	129	118	247

that the field is being filtered. The

analysis in Figure 16 clearly shows

that compared to Dr. Wolfgang, in

2009 Dr. George billed many more

level 4 and level 5 consults. Change

the years filter to look at 2007 and 2008 to quickly and easily determine if this pattern has been

consistent over time. Finally, notice that Excel allows multiple filters at once. In Figure 16 both

Years and Doctor have been filtered.

Sorting Data

Pivot Tables are easy to sort, either by the text in the rows or columns or by the values displayed.

To continue the example, first remove the filters from both Years and Doctor. Drag Consult

Level and Doctor back to the **Field List**. Drag Referring Physician to the **Row Labels** area and

drag Years from the **Report Filter** area to the **Column Labels** area. Your Pivot Table should

look like Figure 17.

Figure 17

Excel is currently sorting the data by the name of the referring physician. It would be helpful to quickly find the referring physician with the most referrals. To do that, click anywhere in the Grand Total column in the Pivot Table and click the **Descending Sort** button circled in Figure 18.

8	New Consult Date (All)				
9					
10	Count of Patient	Column Labels			
11	Row Labels	2007	2008	2009	Grand Total
12	Dr. Aluminum	45	52	49	146
13	Dr. Antimony	48	54	40	142
14	Dr. Argon	41	42	55	138
15	Dr. Bismuth	41	37	46	124
16	Dr. Carbon	52	30	39	121
17	Dr. Copper	50	45	47	142
18	Dr. Flourine	51	32	43	126
19	Dr. Helium	51	44	44	139
20	Dr. Iodine	53	43	44	140
21	Dr. Iron	38	39	41	118
22	Dr. Krypton	36	48	38	122
23	Dr. Lithium	42	39	47	128
24	Dr. Magnesium	45	48	41	134
25	Dr. Neon	49	44	57	150
26	Dr. Nickel	48	58	51	157
27	Dr. Oxygen	36	42	40	118
28	Dr. Platinum	48	51	52	151
29	Dr. Silicon	45	45	42	132
30	Dr. Sodium	31	49	33	113
31	Grand Total	850	842	849	2,541

You'll see that Dr. Nickel referred the most patients during the three year period from 2007 to

Figure 18

7									
8	New Consult Date (All)								
9									
10	Count of Patient	Column Labels							
11	Row Labels	2007	2008	2009	Grand Total				
12	Dr. Nickel	48	58	51	157				
13	Dr. Platinum	48	51	52	151				
14	Dr. Neon	49	44	57	150				
15	Dr. Aluminum	45	52	49	146				
16	Dr. Antimony	48	54	40	142				
17	Dr. Copper	50	45	47	142				
18	Dr. Iodine	53	43	44	140				
19	Dr. Helium	51	44	44	139				
20	Dr. Argon	41	42	55	138				
21	Dr. Magnesium	45	48	41	134				
22	Dr. Silicon	45	45	42	132				
23	Dr. Lithium	42	39	47	128				
24	Dr. Flourine	51	32	43	126				
25	Dr. Bismuth	41	37	46	124				
26	Dr. Krypton	36	48	38	122				
27	Dr. Carbon	52	30	39	121				
28	Dr. Oxygen	36	42	40	118				
29	Dr. Iron	38	39	41	118				
30	Dr. Sodium	31	49	33	113				
31	Grand Total	850	842	849	2,541				

2009. Excel can also sort by individual columns. Click on any cell in the 2009 column and click the Descending Sort button again. You'll see a different physician referred the most patients in both 2009 and in 2007. What do the 19 referring physicians have in common?

Conclusion

Excel's Pivot Tables are a very powerful tool to analyze a large amount of data. The sample data used in the examples has 8 columns and 2,541 rows, but Pivot Tables can easily group, filter and sort the data into meaningful reports. Most practice management software has functionality to at least download reports to Excel, if not link directly to Excel. Practices and practice administrators would be well served by becoming familiar with Pivot Tables.