

Tutorial: Create an Excel Dashboard

This page walks through building an Excel dashboard with data from CommCare. Similar to how Excel helps people build spreadsheets, CommCare enables anyone to build a free customized mobile app - no IT background required. After collecting data with your CommCare app (don't yet have an account? [Sign up for a free trial here.](#)) you can download your data and load it in Excel to create dashboards.

Excel Dashboards require a CommCare Software Plan

This feature (Excel Dashboards) is only available to CommCare users with a **Standard Plan** or higher. For more details, please proceed to [CommCare Software Plan page](#).

Note: Mac users - Excel dashboard integrations are primarily designed for PCs. Mac users should consider data extraction methods such as the [data export tool](#), [manual exports](#), or the [daily saved export](#).

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Overview

This tutorial will walk you through how to use Microsoft Excel to build a simple dashboard using CommCareHQ data exports. By the end of the tutorial you will be able to create a dashboard that:

1. Requires upfront work by an administrator just once, and then is easy to maintain going forward
2. Refreshes automatically from CommCareHQ when you reopen the report (or set time based refresh).
3. Allows users to filter the dashboard for information relevant to them without detailed knowledge of how Excel tables work.
4. Enables an administrator to quickly make new reports and send to end users.

The intended audience for this page is a CommCare administrator who is familiar with CommCareHQ and has some experience in Excel. The end result will contain the following:

**** [Download the Example Dashboard](#) ****

A graphical dashboard

Individual pages with data:

Count of District	sape_town	capricorn	johannesburg	khomas	west_coast	Grand Total
May	2	0	1	3	0	5
Jun	2	0	0	3	0	5
Jul	4	0	1	1	3	14
Aug	1	0	2	2	2	8
Sep	2	0	1	0	0	4
Grand Total	11	0	4	7	5	27

User defir

Getting Started

Excel Version: This tutorial was written for **Microsoft Excel 2010** . Most of the functionality described is also available in earlier versions of Excel though may be called different names.

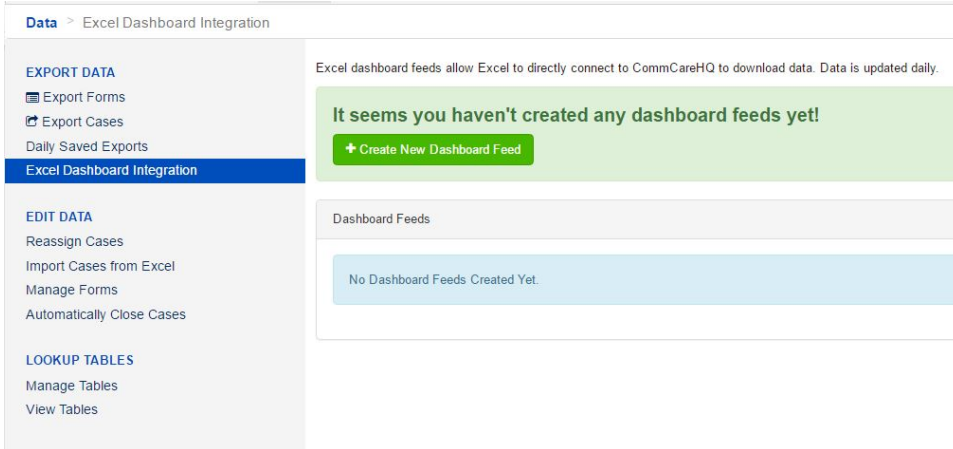
Data Files:

[CommCare Dashboard.xlsx](#): The Dashboard file. Open this to see the final product.

[Raw Data.csv](#): The raw data downloaded from CommCare for reference.

Step 1: Create Custom Export in HQ for the project

1. Proceed to the Data section of CommCareHQ.
2. Select Excel Dashboard on the left-hand side.



3. See [this Data Export Overview page](#) for details on creating the data export:
 - a. Name your export
 - b. Choose **Automatically convert dates for Excel**
 - c. Be sure to rename your Display columns to how you want them to display in your reports.
4. Save the export

Case Type pregnancy

Export Name pregnancy: 2017-02-15

Automatically convert dates and links for Excel

Create a Daily Saved Export

Step 2: Copy the Web Address of your saved export

We will use the Excel Dashboard Integration report that we created to populate the dashboard. Follow these steps to configure your Excel sheet to pull the latest data from the report:

1. In the main **Exports** section you will see your saved daily export.
2. Click **Update Data** button to generate the first report. You may need to refresh the page to confirm that the update is complete.
3. Select the **Copy Dashboard Feed Link** button.
4. Select the **Copy Dashboard Feed Link** button again to copy the URL. This will copy the URL of the export file so you can paste into Excel in the next step.
 - a. Alternatively, you could simply highlight the URL to copy it.

pregnancy: 2017-03-23

Update Data

No data is available yet.
Please click 'update data' if the automatic scheduler hasn't picked up the changes in a while.

Edit Columns Copy Edit Filters

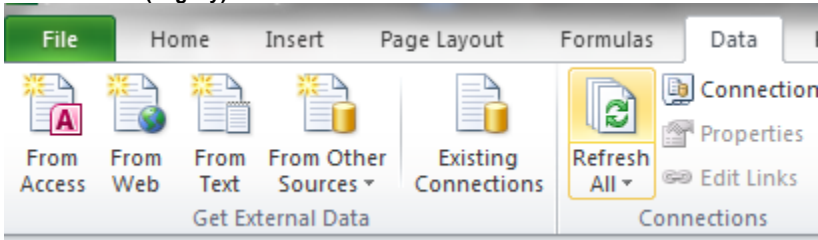
Dashboard Feeds


Name	Edit Columns	Edit Filters
<p>pregnancy: 2017-02-15</p> <p>Size: 6.1 KB Last Updated: a second ago</p> <p>Update Data</p> <p>Copy Dashboard Feed Link http://www.commcarehq.org/a/testclark05/data/export/custom/dailysaved/download/9b3a99f74009371d44a53ba791fe0520/</p>	Edit Columns	Edit Filters

Step 3: Create the Excel Connection to your export

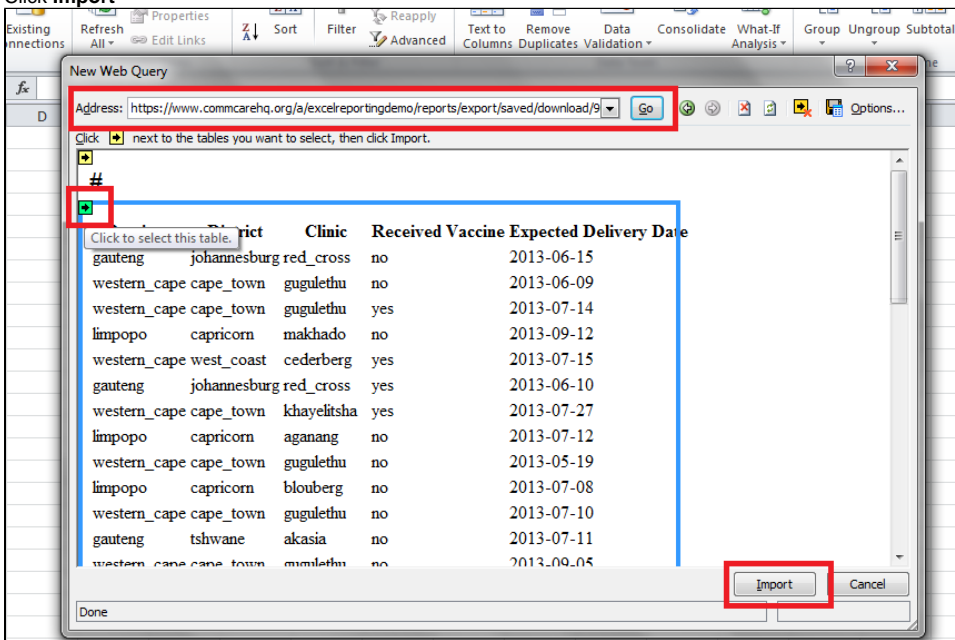
The next step is to create the file that will hold the reports.

1. In Excel, Create a New File.
2. You will have a blank Excel file now.
3. Go to a blank tab in your workbook. Rename that sheet "**Raw Data**".
4. Select the **top-left cell (A1)**.
5. Now we will pull in the data from the Excel file
6. Choose the **Data** menu
7. Choose **From Web** in the "Get External Data" section (**NOTE:** If you are getting issues when trying to import data to the web, you may want to use **From Web (Legacy)** instead of the standard **From Web**. Please see *Alternative Web Data Access Method for Step 3*, below)



8. Be sure you have **Copy link address** from step 2 above so it is on your clipboard.
9. The "New Web Query" window appears.
10. In the "Address" bar at the top, **Paste** the link you address you copied in Step 2 above. It should be something like "<https://www.commcarehq.org/a/excelreportingdemo/reports/export/saved/download/96c41fd6fb9be6119ad32467254cbc9a/>"
11. Click **Go**
12. The "Windows Security" window appears. Type your **CommCareHQ username and password**.
13. The export will be displayed to you in the Web Query Window
14. Click the second **Yellow Arrow**  above the table of data (not the very top one). This will select all the CommCare data in the export.

15. Click **Import**

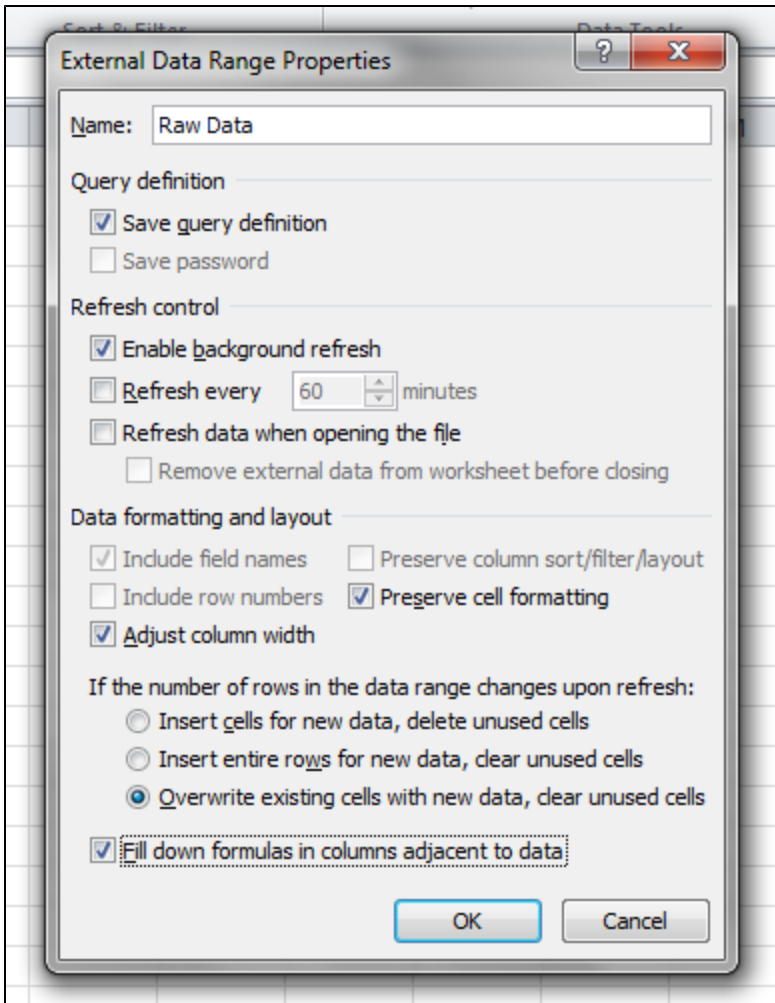


16. The "Import Data" window appears.

17. Click **Properties**

18. The "External Data Range" window appears

- In the top of the window, **name your export** "Raw Data"
- Choose **Save query definition**
- Choose **Enable background refresh**
- Choose **Preserve Cell Formatting**
- Choose **Adjust column width**
- Choose **Overwrite existing cells with new data, clear unused cells**
- Choose **Fill down formulas in columns adjacent to data**
- Click **OK**



19. Click **OK** again

20. The data is pasted into the empty worksheet

Get External Data		Connections		Sort & Filter		
A1		fx				
	A	B	C	D	E	F
1	Province	District	Clinic	Received Vaccine	Expected Delivery Date	
2	gauteng	johannesburg	red_cross	no	6/15/2013	
3	western_cape	cape_town	gugulethu	no	6/9/2013	
4	western_cape	cape_town	gugulethu	yes	7/14/2013	
5	limpopo	capricorn	makhado	no	9/12/2013	
6	western_cape	west_coast	cederberg	yes	7/15/2013	
7	gauteng	johannesburg	red_cross	yes	6/10/2013	
8	western_cape	cape_town	khayelitsha	yes	7/27/2013	
9	limpopo	capricorn	aganang	no	7/12/2013	
10	western_cape	cape_town	gugulethu	no	5/19/2013	
11	limpopo	capricorn	blouberg	no	7/8/2013	
12	western_cape	cape_town	gugulethu	no	7/10/2013	
13	gauteng	tshwane	akasia	no	7/11/2013	
14	western_cape	cape_town	gugulethu	no	9/5/2013	
15	gauteng	tshwane	atteridgeville	yes	5/31/2013	
16	western_cape	west_coast	cederberg	yes	7/28/2013	
17	gauteng	johannesburg	red_cross	yes	9/23/2013	
18	gauteng	johannesburg	red_cross	yes	7/18/2013	
19	gauteng	johannesburg	red_cross	no	8/18/2013	
20	western_cape	cape_town	gugulethu	yes	5/31/2013	

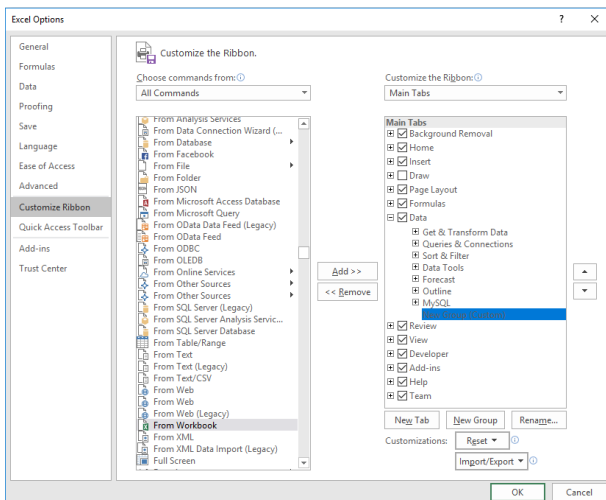
Alternative Web Data Access Method for Step 3

Some users experience errors when attempting to import data using the standard "From Web" functionality. Specifically, you may encounter a persistent error similar to:

Details: "The credentials provided cannot be used for the Web source. Please update the credential type through a refresh or in the Data Source Settings dialog to continue. (Source at <https://www.commcarehq.org/>.)"

If you are encountering this error, please make sure Microsoft Office and your OS are up to date, and that your computer has been restarted since performing these updates. If, after updating everything, you still encounter this error, you may find more success using a legacy version of the From Web tool. The following instructions allow to access the tool in Excel 2016:

1. Navigate to **File -> Options** to open the options window.
2. Click **Customize Ribbon** in the pane on the left.
3. In the dropdown under **Choose commands from:** select **All Commands**
4. Find **From Web (Legacy)** in the scrolling menu on the left.
5. In the right-hand menu, select the **Data**
6. Click **New Group** to create a custom group. **Rename** it if you want.
7. Select the group you just created and click **Add >>**



After following the above steps, you should now have access to **From Web (Legacy)** in the **Data** ribbon. Now, whenever you want to import data from the web, instead of clicking **From Web** in step 7, you will select **From Web (Legacy)**.

Step 4: Name your raw data for easy reference later

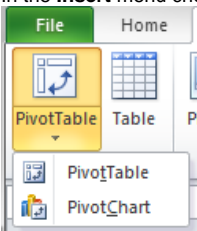
1. Now that your data is in the **Raw Data** tab, we want to name it so we can refer to the data later
2. Select all the columns that have data in them by **clicking on the top of the columns while holding shift**.
3. With the columns selected, click in the **text box above column A** (It likely says "A1" in it)
4. This is where you type the name of the raw data for reference later. Name it "**raw_data**".
5. Now, whenever you want to reference the raw data you can type "raw_data" in the formula instead of "='Raw Data'!A:E" like you normally would.

	A	B	C	D	E
1	Province	District	Clinic	Received Vaccine	Expected Delivery Date
2	gauteng	johannesburg	red_cross	no	6/15/2013
3	western_cape	cape_town	gugulethu	no	6/9/2013
4	western_cape	cape_town	gugulethu	yes	7/14/2013
5	limpopo	capricorn	makrado	no	9/12/2013
6	western_cape	west_coast	cederberg	yes	7/15/2013
7	gauteng	johannesburg	red_cross	yes	6/10/2013
8	western_cape	cape_town	khayelitsha	no	7/27/2013
9	limpopo	capricorn	aganang	no	7/12/2013
10	western_cape	cape_town	gugulethu	no	5/19/2013
11	limpopo	capricorn	blouberg	no	7/8/2013
12	western_cape	cape_town	gugulethu	no	7/10/2013
13	gauteng	tshwane	akasia	no	7/11/2013
14	western_cape	cape_town	gugulethu	no	9/5/2013
15	gauteng	tshwane	atteridgeville	yes	5/31/2013
16	western_cape	west_coast	cederberg	yes	7/28/2013
17	gauteng	johannesburg	red_cross	yes	9/23/2013
18	gauteng	johannesburg	red_cross	yes	7/18/2013
19	gauteng	johannesburg	red_cross	no	8/18/2013
20	western_cape	cape_town	gugulethu	yes	5/31/2013

Step 5: Create the first Pivot Chart

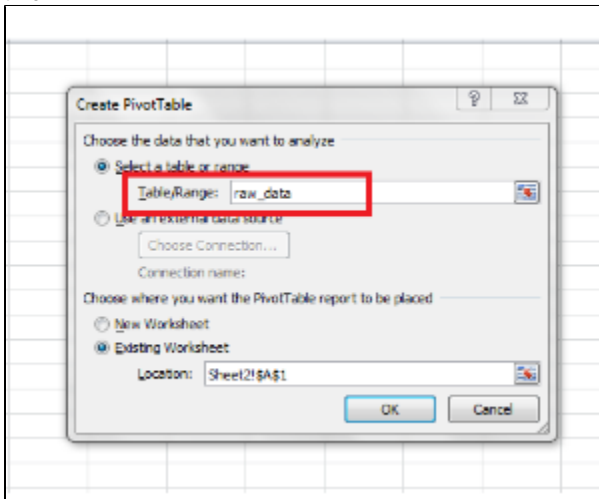
The first chart we will create is the Line Graph of Expected Delivery Date. This will plot the number of women expected to give birth in each month, broken down by Clinic.

1. Create a new tab called "**Expected Delivery Date**"
2. Select the top-left cell (A1) in this tab
3. In the **Insert** menu choose **Pivot Chart** from the **PivotTable** icon

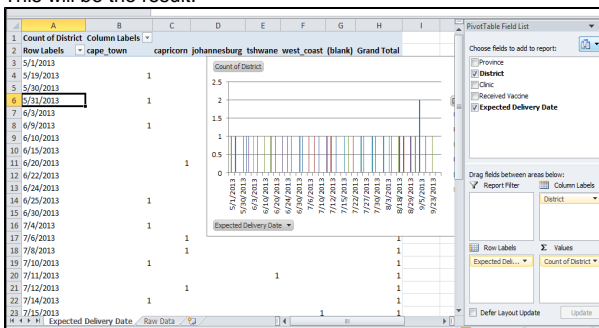


4. In the window that pops up, click "**Table/Range**" text box

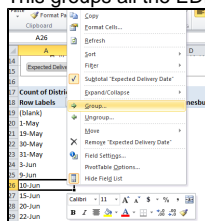
- Type "raw_data" into the box. This references the data range we created in the step above and is a lot easier than selecting all the columns each time.



- Click **Ok**.
- This creates a blank pivot table. (If this doesn't work it's likely because the range is referencing only to the first tab. Go back to step 4.2, then click "Formulas" at the top, next to "Name Manager" click on "Define Name", enter "raw_data" under "Name" and make sure "Scope" is set to "Workbook" as this will ensure the reference can be used in different tabs, click OK)
- Click the pivot table on the left
- In the Field list on the right, do the following:
 - Drag Expected Delivery Date to "Row Labels"
 - Drag District to "Column Labels"
 - Drag District to "Values"
 - Note: If you don't see the "Pivot Table Field List" on the right, click the **Options** menu at the top and choose **Field List** in the top right.
- This will be the result:

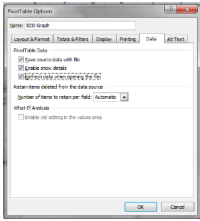


- We now have the data we want but it needs to be formatted:
 - You can drag the graphical chart to the side to get it out of the way
- Next, we need to display the dates as months instead of days
 - Right-click** on any of the dates in the pivot table and choose **Group**
 - Select **Months** in the list the appears and choose OK
 - This groups all the EDDs into monthly buckets



- The graph defaults to a bar chart, but you can change it:
 - Right-click** the graph and choose **Change Chart Type**
 - Select the line graph you'd like
- Set the table to update automatically
 - Highlight the pivot table
 - Choose the **Options** menu and in the top-left type the name "EDD Graph"
 - Click **Options** below where you just typed

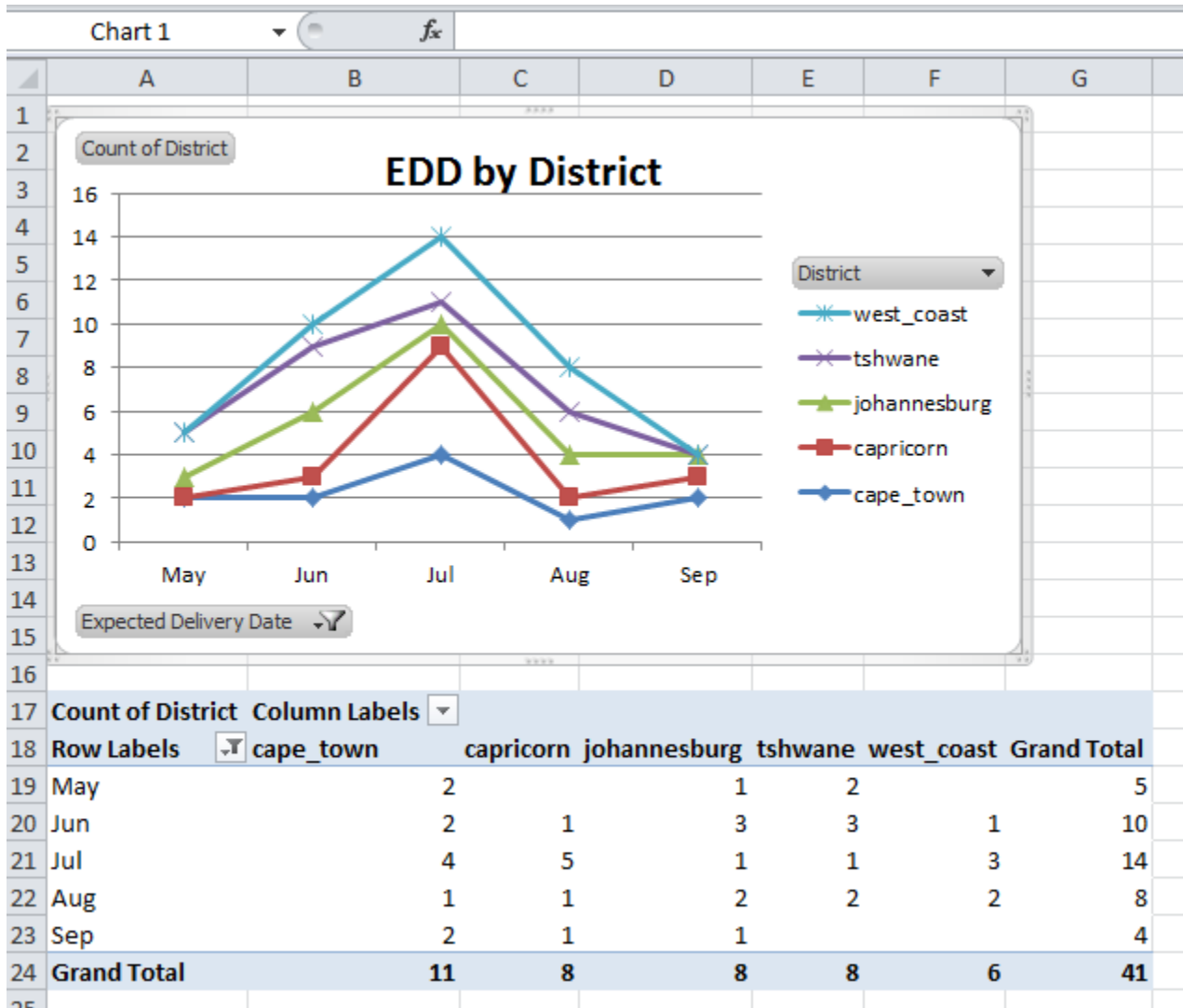
d. On the **Data Tab** select **Refresh data when opening the file**



15. Finally, rearrange the layout by inserting rows above table to move it down and drag the chart to the top of the page.

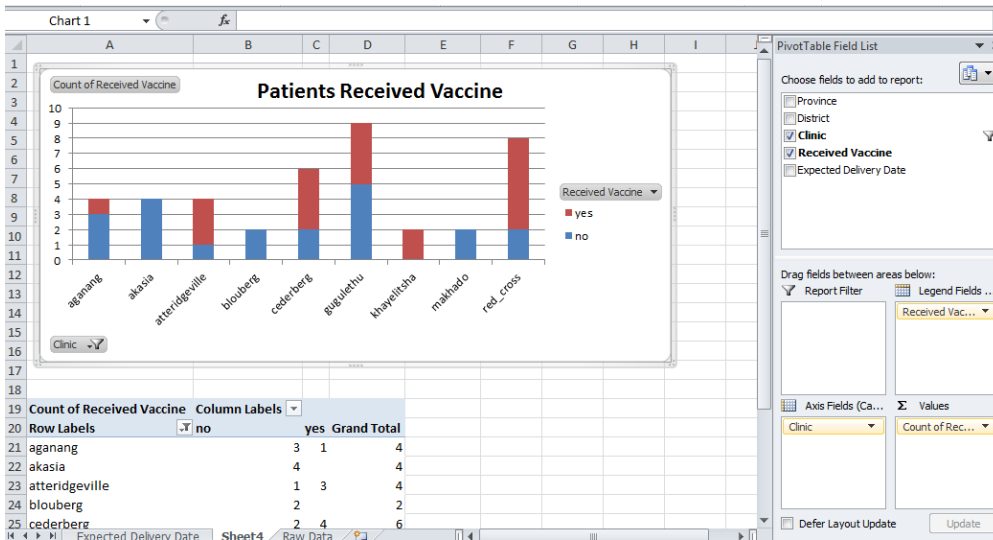
16. You can add titles and legends with the **Layout** menu

17. You're final result should look like this:



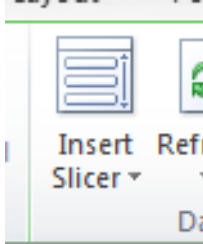
Step 6: Create Additional Pivot Charts

1. Repeat all the steps in Step 5 as many times as you'd like to create more charts
2. In this example, see the screen shot for how the "Patients Received Vaccines" chart was made.
3. Be sure to set all table to update automatically (Step 15 in the section above)

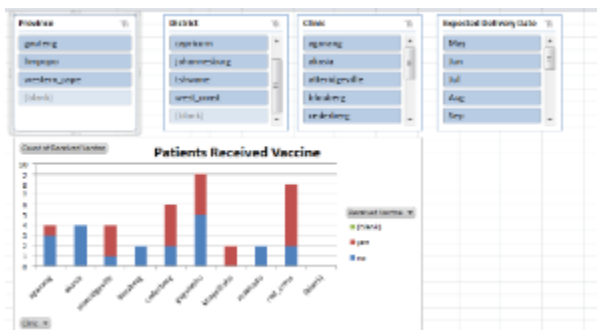


Step 7: Create Filters

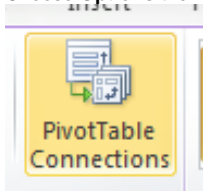
1. Excel uses "Slicers" to enable users to filter the reports in a user-friendly way.
2. For the first pivot table you created do the following:
 - a. Select the chart you created
 - b. Choose **Analyze** menu at the top
 - i. You may need to select **Options** menu instead
 - c. Choose **Insert Slicer** from the menus



- d. Select the items you will want to filter your reports by and click OK.
- e. Drag the filters and resize them to fit the layout as you like



3. Now we want this filter to apply to all charts in our Worksheet, so we connect the filters to the other tables by:
 - a. **Select** one of the filters you just created
 - b. Choose **Options** then **PivotTable Connections**

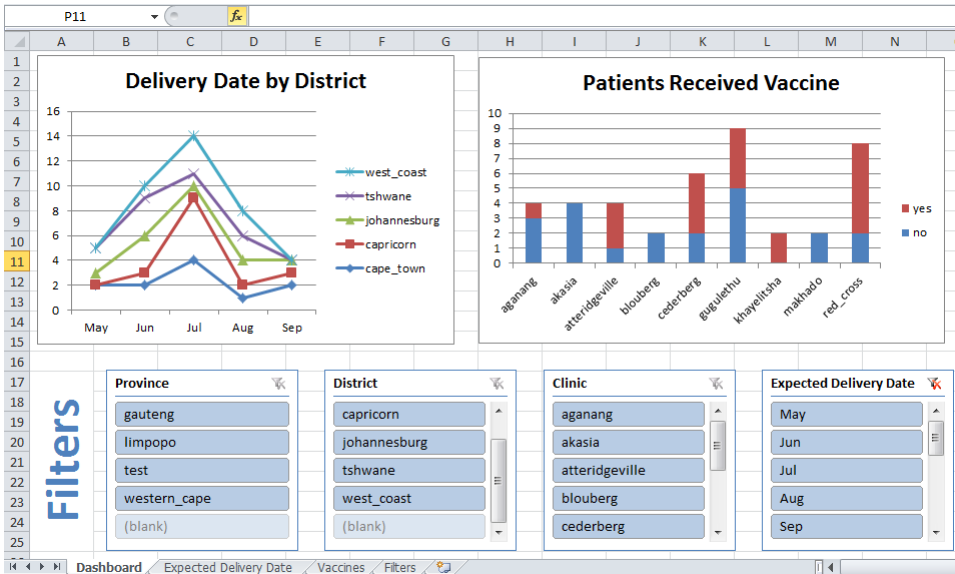


- c. Check all the boxes for the other tables you created.
 - d. Now changing this filter will change the filters on all the tables you created.
 - e. Repeat this step for all filters
4. Copy and Paste the filters to other areas of your Excel sheet if you'd like them to appear in more than one place

Step 8: Build the Dashboard with Copy-Paste

If you'd like to display all the charts on one page, you can copy and paste the reports and table anywhere you'd like

1. Create a new tab called **Dashboard**
2. **Copy and Paste** the charts from other tabs in to the dashboard tab
3. **Copy and Paste** the filters you created, if you'd like
4. A sample dashboard looks like:



Step 9: Hide the Raw Data

One of the challenges with Excel reporting is ensuring that users you send the reports to do not accidentally corrupt the data or people get confused with too many options. We can mitigate many of these issues with two methods:

1. "Protect" all data
 - a. **Right-click** each tab and choose **Protect Sheet**
 - b. Scroll to the bottom of the list and check the box for **Edit Objects** and Use **PivotTable Reports**
 - i. This will allow users to change filters but not edit the data
 - ii. Do NOT protect the "Raw Data" tab or the data will not update automatically
2. Hide the Raw Data tab (if desired)
 - a. If you'd like to hide the raw data tab, you can right-click it and choose **Hide**
 - b. To unhide, right click on any sheet name, choose **Unhide**. It would show you the list of hidden sheets and you can pick the one to unhide.
3. Choose PivotTable option in Step 4
 - a. Instead of putting the raw data on a tab you can directly make pivot tables when importing.
 - b. This means the raw data tab will not exist but the pivot tables will.

Step 10: Refresh Your Data

Each night CommCare will save the updated data to that file. To have Excel pull in the latest, do the following:

1. Choose **Data** menu
2. Click **Refresh All**
3. This will pull the latest data from CommCareHQ. You will be prompted for your password.


If Excel hangs during the refresh, disable **Enable Background Refresh** on all data connections. This is a known problem for spreadsheets with multiple web-based data connections. Find it under **Data -> Connections -> Select Connection, click Properties -> unselect Enable Background Refresh**.

NOTE: The data needs to be pulled/downloaded every 35 days (see warning label below) to maintain an active data connection/link. This can be achieved by clicking on **Refresh All** in the Excel dashboard (see instructions above). Otherwise, the data connection will expire and Step 3 needs to be repeated to re-establish a data connection.

Size: 426.1 KB Last Updated: 1 week, 5 days ago Last Downloaded: 1 month, 2 weeks ago

 Update Data

 Copy Dashboard Feed Link

 This saved dashboard feed has expired because it has not been used in the last 35 days. To renew daily updates, click the 'Update Data' button and download the file.

Step 11: Send to Others

If you just send the Excel file to others they will be prompted to enter login credentials in order to refresh the data. If you don't want this to happen, you can do the following:

Option 1: Delete the Connection to the Raw Data file

1. In the **Data** menu choose Connections
2. Select the Connection you made and choose **Remove**
3. This file will no longer update automatically but will still retain the most recent data.

Option 2: Export to pdf (might not be available on all computers)

- a. Chosse **File - Save As**
- b. Select **PDF** as the File Type