

# Efficient Reporting on a Tight Budget – Excel Report Guide

Fred J. Pasquarella

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This document provides instruction on how to recreate the “Reporting on a Budget Example” excel report demonstrated in the presentation. Excel file sheet overview:

**Analysis & Reporting:** First page has the final report with charts linking to the second page (to the right). The tables on the right are the final report tables and draw the data from the “data” table found in the Cleaning & Transformation sheet.

**Data Collection:** Has the “raw” data, the data pulled from whatever source. This data needs to be cleaned before analysis is possible. Process is to move this into the “data” table found in the Cleaning & Transformation sheet.

**Cleaning & Transformation:** This is the cleaned dataset. Create cleaning formulas, recodes, exclusion lists, etc. here. Clear out and update with new data whenever necessary. The reporting tables on the Analysis & Reporting sheet draw on this data.

**Lookups:** This sheet houses all the lookup tables created as a codebook and tool for recoding numeric values into categorical/text values. Each table is a named table (e.g, lkp\_race).

## Report Filter

The report filter will be the base of the dynamic calculations for the report tables.

Found in “Analysis and Reporting” sheet, tables off to the right of the report filter

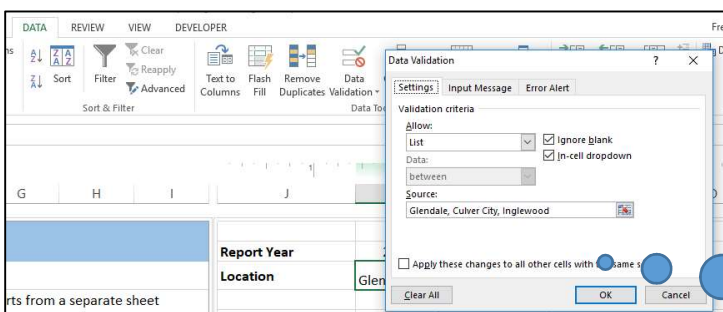
	J	K	L	M	N	O
Report Year	2019			Month Start		Month End
Report Month	Dec			12/01/2019		12/31/2019
Location	Culver City					

Month Start references the Report Month cell (k3)

Month End calculate the end month with  
=EOMONTH(\$M\$2,0)  
EOMONTH(start date, months from date)

Use Data validation for drop down using list (note: you can use [slicers](#) well). This helps reduce input error.

Data→Data Validation→Allow = List→Source = value1, value2, value3,...



<https://www.wallstreetmojo.com/slicers-in-excel/>

<https://www.excelcampus.com/tips/data-validation-drop-down-list/>

Report Year	2019	
Location	Glendale	
Month Label	Culver City	Month
	Inglewood	

**Advanced:** Use Lookup Tables for drop down and defining names. This allows for automatic updates based on the lookup table values.

Create your Lookup table and name it (example: lkp\_year)

Table Name: lkp\_year

Properties

year_id	year_name
1	2012
2	2013
3	2014
4	2015
5	2016
6	2017
7	2018
8	2019
9	2020
10	2021
11	2022
12	2023

Name your table

Set up your lookup table with id and name

Next step is to define the range so you can call it later.

<https://www.ablebits.com/office-addins-blog/2017/07/11/excel-name-named-range-define-use/>

Formulas → Define Names → Name = Report\_Year → Refers to = look up table and look up table column name lkp\_year[year\_name]

New Name dialog box:

Name: Report\_Year

Scope: Workbook

Refers to: =lkp\_year[year\_name]

Refers to can be a cell, a range, a formula, really whatever you want to create and tie a name to. This practice translates to declaring variables or creating functions when programming.

Now you can call this table range by using the name "Report\_Year"

Hit F3 to see available names to paste or go to Formulas → Name Manager to manage existing names (note: table names can also be viewed here).

## Report Title

Create an automatic updating report title using the concatenate function and the report filters.

Formula bar: =CONCATENATE(K3, " ", K2)

Program Report	Report Year	Location
E(K3, " ", K2)	2019	Glendale

led to demonstrate how to automatically populate reports from a separate sheet

<https://exceljet.net/excel-functions/excel-concatenate-function>

*Concatenate function.* Uses: Automate text, titles, labels, explanations, results with descriptions, etc.

=Concatenate(K3, " ", k2) → "Glendale 2019"

## Getting the Data Ready

What do you want to report?

- Monthly Enrollments, Demographics, Outcomes

What calculations do you need?

- Counts of enrollments by month and location
- Counts of Demographics by enrollment month and location
- Count of Outcomes scores and Discharge Disposition by discharge month and location

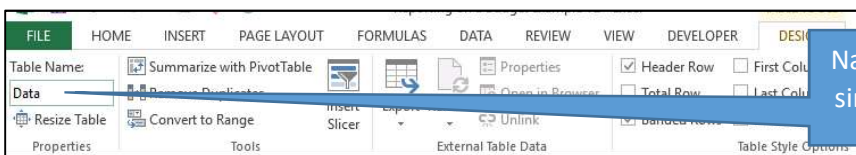
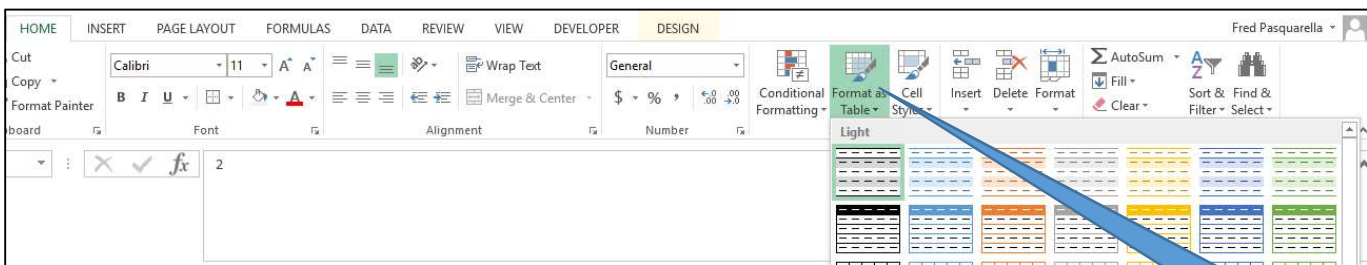
What do you need to do to the data?

A	B	C	D	E	F	G	H	I	J	K	L	M
id	dob	race	location	date_enrolled	income_ir	housing_i	outcome	date_dischar	income_discharge	housing_c	discharge	outcome_disc
52	01/01/2005	2	3	11/29/2019	3	1	80	12/29/2019	3	2	2	10
291	01/01/2005	2	2	11/29/2019	3	1	80	12/29/2019	3	2	2	10
452	01/01/2005	2	3	11/29/2019	3	1	80	12/29/2019	3	2	2	10
3	01/01/1997	1	3	12/12/2019	1	2	75	12/22/2019	1	2	2	20
305	01/01/1997	1	2	12/12/2019	1	2	75	12/22/2019	1	2	2	20

<https://business.tutspl.us.com/tutorials/how-to-make-tables-in-excel--cms-29166>

Create a data table and move the data there to clean and recode:

Name the table "Data" (or whatever works for you). Always, Always, Always create a table whenever working with sets of interrelated data. This created defined relations between your columns (variables) and rows (cases). You can also call your table and variables by name when creating functions/formulas without having to specify a worksheet.



Name your table something simple and understandable

Format as table to create table from your data range

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
id	dob	race_n	location	date_enrolled	income	housing	outcome	date_discharged	income_dis	housing	discharge	outcome_disc	location_reco	race_re	income	discharge_disposition_re
52	#####	2	3	11/29/2019	3	1	80	12/29/2019	3	2	2	10	Inglewood	White	Employed	Client achieved goals
291	#####	2	2	11/29/2019	3	1	80	12/29/2019	3	2	2	10	Culver City	White	Employed	Client achieved goals
452	#####	2	3	11/29/2019	3	1	80	12/29/2019	3	2	2	10	Inglewood	White	Employed	Client achieved goals

Found in "Cleaning & Transformation" sheet

## Recode Variables/Data values

Create Lookup Tables for the variable you want to turn from numeric vales to text/categorical values. This allows you to streamline the process for updating your data codebook/recodes, changing the value labels.

G	H	I	J	K	L	M	N
race_id	race_name		income	income_name		disch	discharge_disposition_name
1	Black		1	SSI		1	Arrested
2	White		2	General Relief		2	Client achieved goals
3	Latino		3	Employed		3	Deceased
4	American Indian/Alaska Native					4	Other
5	Asian/Pacific Islander					5	Psychiatric hospitalization
						6	Withdrew

Each table has identical set up and is named.

Table name = lkp\_variable  
First column = variable\_id  
Second column = variabl\_name

## Found in "Lookups" sheet

In the Data table, use VLOOKUP to create a new recoded variable pulling the information from the lookup tables:

=VLOOKUP(	
VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])	

=Vlookup([the value you want to change], [lookup table], 2, false)

<https://exceljet.net/excel-functions/excel-vlookup-function>

Note: The value 2 is the column distance from the first column in the lookup table. False would be applied to get an exact match. True would approximate a match, ideal for collapsing numeric data into categorical bins (e.g., 18 years old into 18 to 24 years old).

## Report Tables

After the data table is ready, we can create our tables for the report.

Base of all our tables aggregations: Countifs()

Count ifs counts the number of occurrences if the occurrences meet the criteria (Note: You can use countif() for a single criteria. However, the setup is different. So, ideally use countifs() instead with only one criteria specified. Allows you to add on later if you need more criteria).

Found in "Analysis and Reporting" sheet, tables off to the right of the report

=countifs(	
COUNTIFS(criteria_range1, criteria1, ...)	
n	%
39	72%

<https://exceljet.net/excel-functions/excel-countifs-function>

**Location filter** criteria: Data[location\_recod],<K\$3

**Date Ranges** criteria: Data[date\_enrolled],">=" & \$M\$2, Data[date\_enrolled],"<=" & \$O\$2

Data table results criteria:

- Race/Ethnicity: Data[race\_recod],[@[Race/Ethnicity]]
- Income: Data[incoma\_intake\_recod],[@Income]
- Discharge Disposition: Data[discharge\_disposition\_recod],[@[Discharge Disposition]]
- Outcome
  - Intake: Data[outcome\_intake],">65"
  - Discharge: Data[outcome\_discharge],">65")

## Monthly Enrollments

Create an enrollment count table. Make the table conditional by setting the start date and creating cascading formulas.

Month Label	Month Start	Month End	Enrollment Count
Jan	01/01/2019	01/31/2019	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
Feb	02/01/2019	02/28/2019	3
Mar	03/01/2019	03/31/2019	3
Apr	04/01/2019	04/30/2019	6
May	05/01/2019	05/31/2019	4
Jun	06/01/2019	06/30/2019	7
Jul	07/01/2019	07/31/2019	2
Aug	08/01/2019	08/31/2019	6
Sep	09/01/2019	09/30/2019	2
Oct	10/01/2019	10/31/2019	7
Nov	11/01/2019	11/30/2019	15
Dec	12/01/2019	12/31/2019	12

Click Formulas→Show Formulas to see formulas instead of values

Month Label	Month Start	Month End	Enrollment Count
=K6	=DATE(\$K\$1,1,1)	=EOMONTH(K6,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K7	=EDATE(K6,1)	=EOMONTH(K7,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K8	=EDATE(K7,1)	=EOMONTH(K8,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K9	=EDATE(K8,1)	=EOMONTH(K9,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K10	=EDATE(K9,1)	=EOMONTH(K10,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K11	=EDATE(K10,1)	=EOMONTH(K11,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K12	=EDATE(K11,1)	=EOMONTH(K12,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K13	=EDATE(K12,1)	=EOMONTH(K13,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K14	=EDATE(K13,1)	=EOMONTH(K14,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K15	=EDATE(K14,1)	=EOMONTH(K15,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K16	=EDATE(K15,1)	=EOMONTH(K16,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)
=K17	=EDATE(K16,1)	=EOMONTH(K17,0)	=COUNTIFS(Data[location_recod],<K\$3,Data[date_enrolled],<=" & L6)

Enrollment Count=COUNTIFS(Data[location\_recode],\$K\$3,Data[date\_enrolled], ">=" & K6,Data[date\_enrolled], "<=" & L6)

Count ifs function allows you to count a range based on multiple criteria. Here our criteria are to count enrollments for a specific location (from filter), for a specific month date range (from filter)

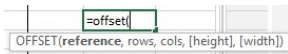
">=" & Month Start

"<=" & Month End

Advanced: Create labels and date ranges that change with Report Year filter

Named Ranges with Offset

Offset function creates an array/list/table of values with the ability to set height and width of array/table. Here we will use it with the month filter to add a range based on the number of months.



Reference is cell starting point. Rows and columns (cols) are left blank as we are not moving the starting point (note: if you want to start at a different cell, enter the number of movements in rows and cols here).

Height specifies how many cells are used vertically (Width, horizontally, but we are not using this here).

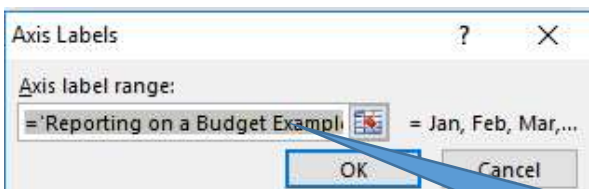
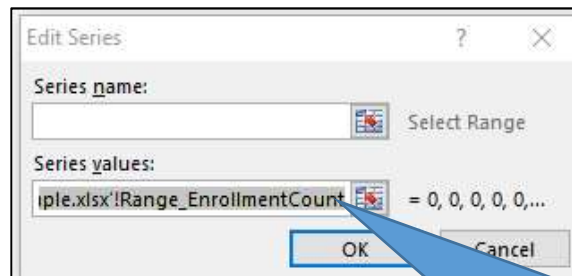
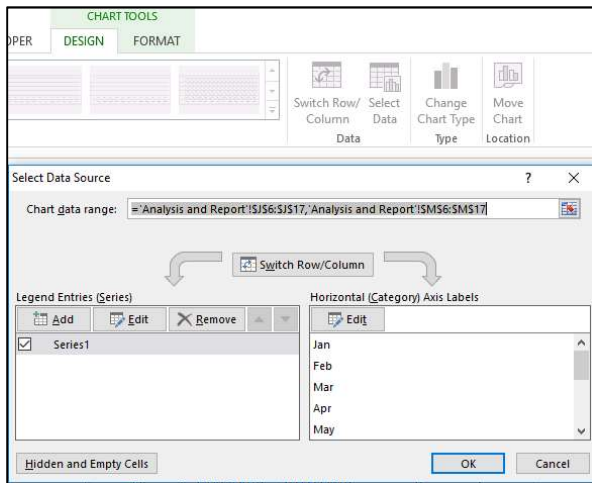
We are applying the offset ranges to create the chart labels (Range\_Month) and the chart values (Range\_Enrollment)

Range\_Month = OFFSET('Analysis and Report'!\$J\$6,,,MONTH('Analysis and Report'!\$K\$2),)

Range\_Enrollment = OFFSET('Analysis and Report'!\$M\$6,,,MONTH('Analysis and Report'!\$K\$2),)

**Now, define your ranges with Formulas → Define Names**

Once named, open the chart data sources



<https://exceljet.net/formula/dynamic-named-range-with-offset>

The values will be your named range of values

Series values ='Reporting on a Budget Example.xlsx!Range\_EnrollmentCount

Axis label range ='Reporting on a Budget Example.xlsx!Range\_Month