




Telling a Story with Data

Introduction to Making Your Project Information Visual



LTG Associates, Inc.
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Hi – my name is Elena Lumby, and I’m a Senior Research Associate with LTG Associates. I’ve had the privilege of providing evaluation technical assistance to grantee sites. I’d also like to introduce Cathleen Crain and Niel Tashima – managing partners of LTG Associates. Cathleen will be moderating the chat box, so please engage with one another. Niel will be helping me with time. Both were heavily involved in the creation of this presentation.



Purpose of Today's Training

- To introduce visual data presentation to beginner and intermediate audiences
- To provide guidance and examples of how to use visual data presentation to convey program activities and successes

The purpose of today's training is to

- To introduce visual data presentation to beginner and intermediate audiences (pros – you are encouraged to place other resources in the chat, or email me so we can share with others)

and

- To provide guidance and examples of how to use visual data to convey program activities and successes



Learning Objectives

- Describe the importance and relevance of visual data depiction
- Application of techniques for improving readability of visualizations
- Use graphics program data to identify trends, strengths, and gaps in your own program information
- Use graphics program data to illustrate trends, intervening factors, and outputs in NACCHO-RIM programs

This slide provided our intended learning objectives for your reference.

Relevance to Grantees



The emphasis of this presentation is making it relevant to NACCHO grantees.

Data visualization is relevant to grantees in a few ways.

Clarity: When done thoughtfully, visual data can present findings and concepts more clearly than narrative alone to community, professional, and funding audiences. It's also critical to communicate to different types of learners. Many of us are visual learners that learn far better through a graphic versus numbers or narrative. Adding data viz can better serve these learners and reinforce the story to those with different learning styles.

Audience Appropriate: Sites that have the power to present their data informs the use of variables that are appropriate for the work and community. I.e., use of meaningful demographic data.

Demonstrate Your Success: Visual representation of data can

demonstrate program progress and achievements to your community, staff, organization, leadership, and supporters

Stronger Proposals: Successful presentation of data can bring value to your organization by clearly presenting program effectiveness to include in future grant applications.

Benefit Others: Clear data presentation can enhance the ability to share information, and teach, the field.



Caveats

- Data visualization is its own area of expertise with an associated evidence base, research, and skillsets
- This presentation seeks to combine an introduction to best practices, in the context of your NACCHO grant
- Complicated is not necessarily better!

Before we move ahead, I have a few caveats I'd like to mention. [Read through slide]

I'd like to really emphasize that "complicated is not necessarily better." You may have come across some gorgeous visualizations from places such as the New York Times, filled with animations, filters, etc. While these are fantastic – you do not need to be deterred if you do not have that level of expertise. Hardly anyone does!

Instead, we want to think of the most straightforward ways to show our data, that is within our skillset, to help the populations we serve.



Two Avenues of Data Visualization

When thinking about data visualization, it can be helpful to think of two different – but often intersecting – avenues.



Two Avenues of Data Visualization



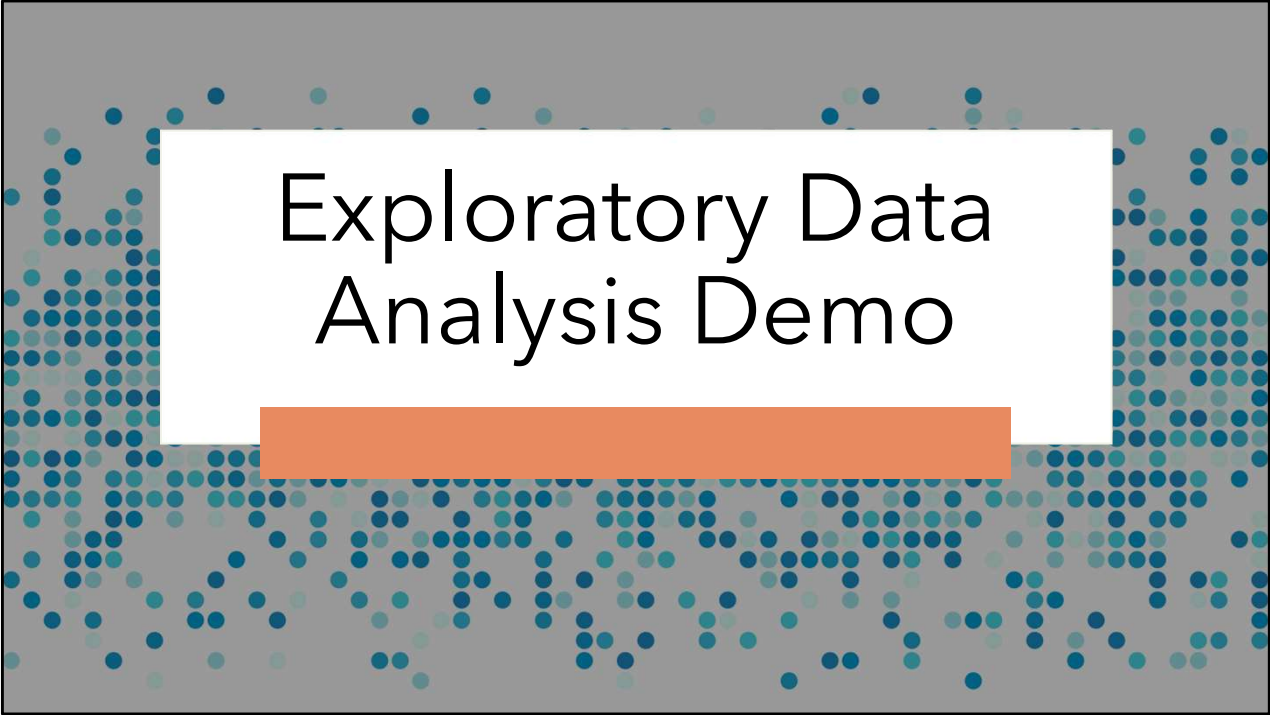
Exploratory:
Interacting with your
data to identify
trends, strengths,
gaps, etc.



Storytelling:
Presenting your
findings in a
meaningful way -
integrating narrative
with visuals

First is exploratory. This is using visuals to move beyond tables (which are dense with numbers) to identify trends, strengths, gaps, etc.

Second is storytelling. This is when you are presenting your findings to others. Note – you aren't trying to mislead anyone! Instead, the focus is on communicating what happened – and doing so clearly.



Exploratory Data Analysis Demo

We'll begin with a demo of exploratory data analysis. This is a natural place to start when you have just received your program data.

Scenario

Health Forward is an organization that has a history of providing health promotion services in the community. In the past we have focused on the **underserved including Black Americans and the Latinx community**.

With the NACCHO grant we have extended our services to some RIM populations - specifically **Afghan**, Burmese, and Sudanese.

There are **no other organizations** serving the Afghan population in the area, so we are especially concerned with reaching the community with COVID services.

Our local agencies are unable to tell us how many Afghan individuals there are in the community. So, **we cannot calculate the percentage we have reached**.

For this presentation, we will use straightforward mock data and organization, *Health Forward*, that is informed by the data you as grantees have submitted.

[Walk through slide text]

Vaccination Activity Date	Activity Type and Location	# Attended	Focus Community	How Recruited	Educational Information Provided	Languages Spoken	Intention Change Survey	# Vaxed	NEW: % Attendees Vaxed
3/1/2022	Vaccination Event A	150	Black Americans	Fliers at church	FAQ on Omicron	English	Yes	120	80%
3/2/2022	Vaccination Event B	200	Latinx	CHW	COVID prevention for agricultural workers	Spanish; English	Yes	100	50%
3/3/2022	Vaccination Event C	3	Afghan	Pop-up clinic at mosque	FAQ on Omicron	Dari; Pashto; English	No	2	67%
3/4/2022	Vaccination Event D	20	Burmese	CHW	Omicron and vaccination effectiveness	Karenni; English	Yes	19	95%
3/6/2022	Vaccination Event E	5	Congolese - DRC	Pop-up clinic at soccer field	Talking to friends and family about COVID myths	Swahili; English	Yes	5	100%
3/7/2022	Vaccination Event F	120	Black Americans	Mobile clinic	Talking to friends and family about COVID myths	English	Yes	90	75%
3/8/2022	Vaccination Event G	100	Latinx	CHW	COVID prevention for agricultural workers	English	Yes	18	18%
3/9/2022	Vaccination Event H	20	Congo-DRC	CHW	FAQ on Omicron	Swahili; English	Yes	120	600%
3/10/2022	Vaccination Event I	120	Black Americans	CHW	Talking to friends and family about COVID myths	English	Yes	2	2%
3/11/2022	Vaccination Event J	131	Latinx	CHW	Talking to friends and family about COVID myths	Spanish; English	Yes	130	99%

Summaries of attendance data for each group by month using NACCHO data

Can be created with Excel formulas, Pivot tables, and/or statistical software

Specific, but difficult to assess big picture and trends

	Black	Latinx	Afghan	Burmese	Congo-DRC
<i>March</i>	390	331	3	20	25
<i>April</i>	400	870	20	30	30
<i>May</i>	177	717	25	60	10
<i>June</i>	119	824	150	20	5
<i>July</i>	405	274	200	78	15
<i>August</i>	437	539	175	90	22
<i>September</i>	98	257	100	20	43
<i>October</i>	240	396	110	10	25

This slide presents some sample data that we will be working with. It should look familiar since it is in the format required for your quarterly reports! It is informed by the data we have received from some of the sites.

We have taken that data and summarized it in different ways. In this case it is summarized by month. You can do these summaries by using formulas in your spreadsheet program (Excel, Google Sheets, etc.) and/or statistical software. That piece is outside of the scope of this presentation.



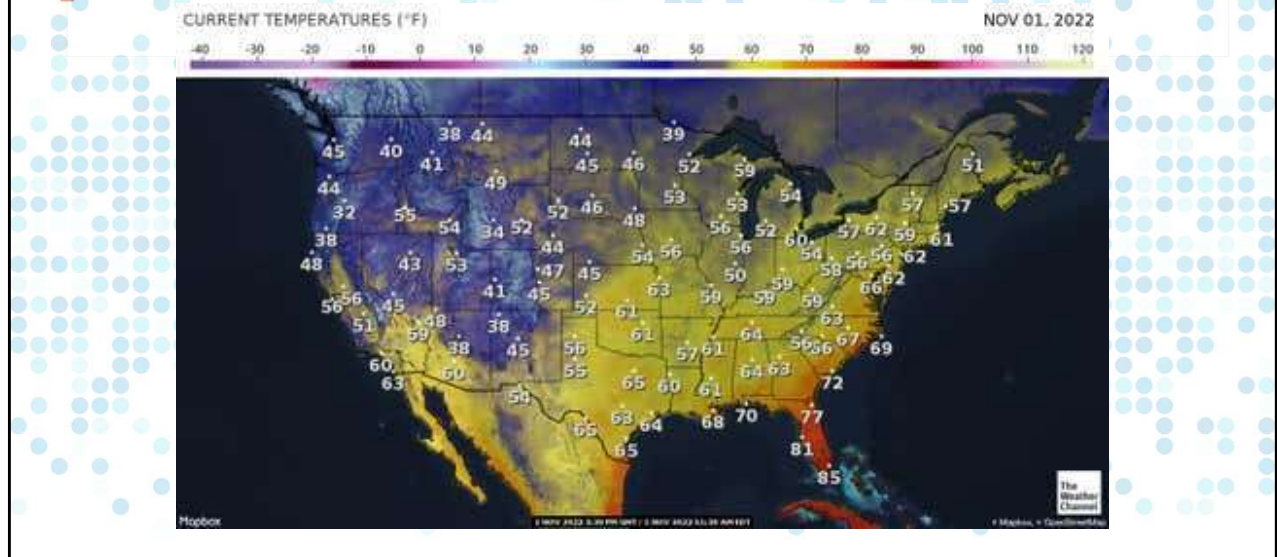
We often have the impulse to go straight to graphs to visualize our data. However, there are other options for you to consider! Some advantages of visualizing your data while it is in the table include:

- 1) saving time by avoiding graph formatting headaches,
- 2) ability to see the numbers simultaneously with the graphic, and
- 3) they can often be done with just a few clicks.

I'll walk through heat-mapping, data bars, and sparklines. These features are available in Excel and Google Sheets.

You will have access to a supplementary video with how I created these.

Seeing Highs/Lows with Heat Maps



When doing exploratory analysis, I like to begin by looking at the big picture. Heat maps are a great way to do this. The name is a little odd in reference to vaccination data – so I’ll show the origin of the name first.

On this heat map, redder colors correlate with higher temperatures, and bluer-colder. Hence it is called a “heat map!”

Seeing Highs/Lows with Heat Maps

	Black	Latinx	Afghan	Burmese	Sudanese	All
<i>March</i>	390	331	3	20	25	769
<i>April</i>	442	870	20	30	30	1067
<i>May</i>	400	717	25	60	10	1363
<i>June</i>	177	824	150	20	5	961
<i>July</i>	119	274	200	78	15	1192
<i>August</i>	437	539	175	90	22	879
<i>September</i>	98	257	100	20	43	852
<i>October</i>	240	396	110	10	25	800

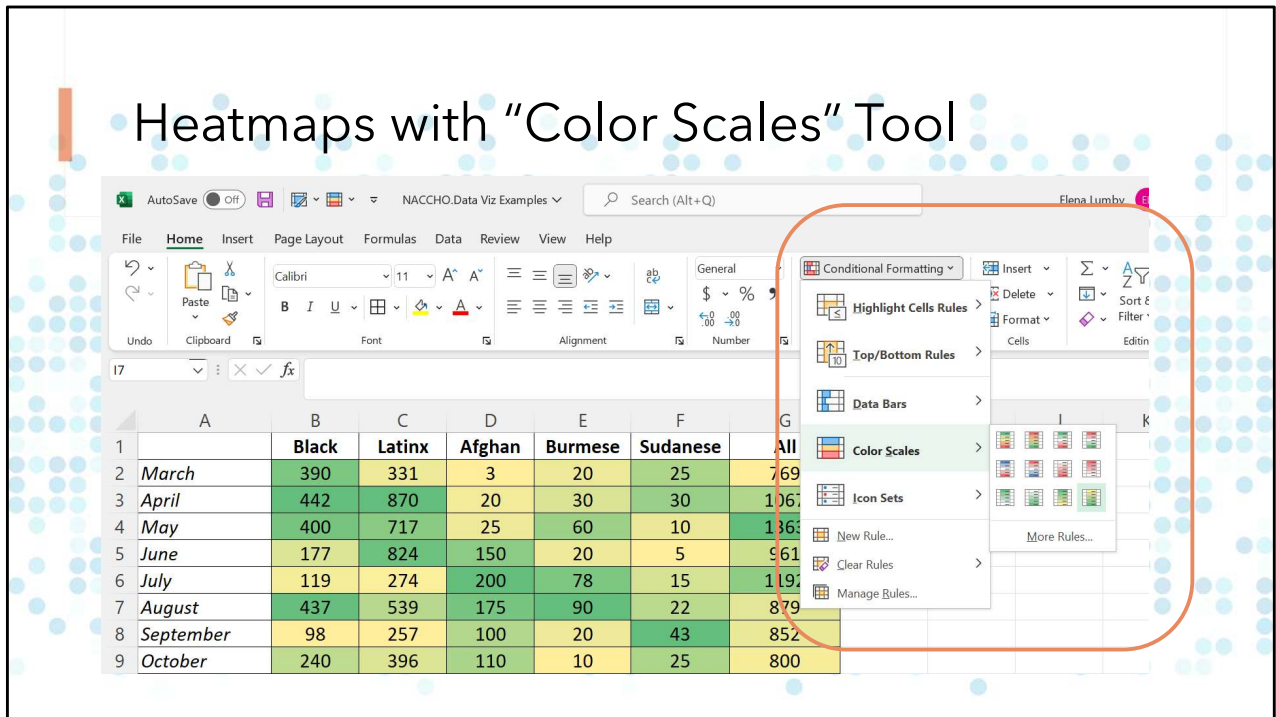
Here is a “heat map” of our vaccination data. For our table, instead of colors varying by temperature, they differ based on how low or high the vaccination numbers are in comparison to the mean for that group. I used darker green for higher numbers because in our field, we think of green as “go” or “good.” Yellow means lower numbers.

In this heat map, I’m seeing that for our Black and Latinx communities – who we had an established relationship with – darker green cells in the beginning, and they shift to yellow over the months. So, the numbers are higher then drop.

I’m also noticing that we have a diagonal dark green trend – that vaccination numbers do increase, but there are lags for the newer groups Health Forward is serving – but they eventually increase!

For our Afghan population we see that we shift from yellow in March-May, to darker green in June. Again – it begins slow, but then we have a dramatic increase in June. I wonder why....

Heatmaps with "Color Scales" Tool



This screenshot demonstrates the location of the "Color Scales" option that produced the heat map. This will be covered in the supplementary video.

Seeing Trends with Data Bars

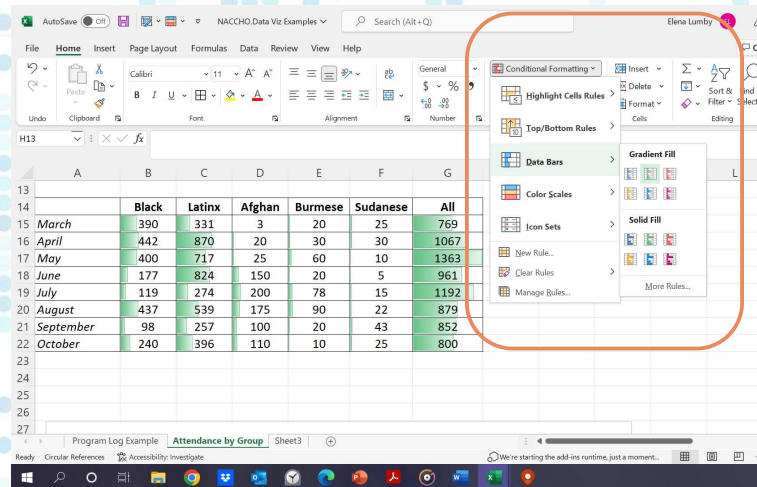
	Black	Latinx	Afghan	Burmese	Sudanese	All
<i>March</i>	390	331	3	20	25	769
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Another visualization we can perform is cell-based data bars. Think of it like a bar graph inside of your table.

It is also helpful for exploratory analysis in that we can easily see increases and decreases in our vaccination numbers based on the width of the bar. However, unlike the heat map, it is better suited to looking at the trends within each column – the changes over time for each group.



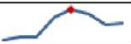

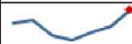

Again, we see that more vaccinations were administered to the Black and Latinx populations earlier in the year, then for Afghan individuals it begins to rise in June.

Creating Data Bars



This screenshot demonstrates the location of the data bars option in Excel. How to apply them is in the supplementary video.

Seeing Linear Trends with Sparklines

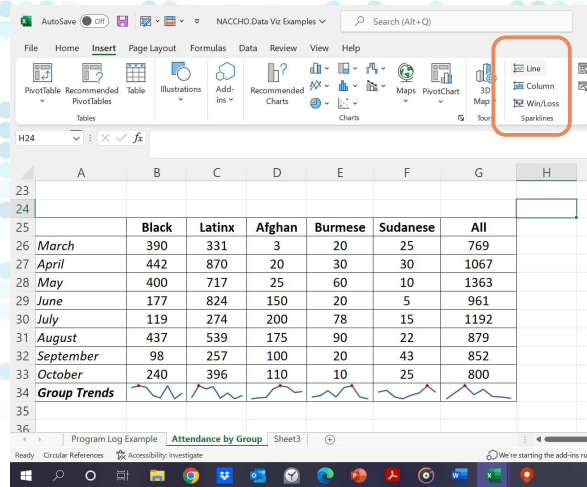
	Black	Latinx	Afghan	Burmese	Sudanese	All
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Group Trends						

The last table-based visualization I'll briefly review is "Sparklines." They are miniature line graphs to illustrate trends in your data. I like that they scale each of the groups the same way – so even though we serve a greater number of Black Americans, the line is the same height as our smaller populations. So we are less distracted by those differences.

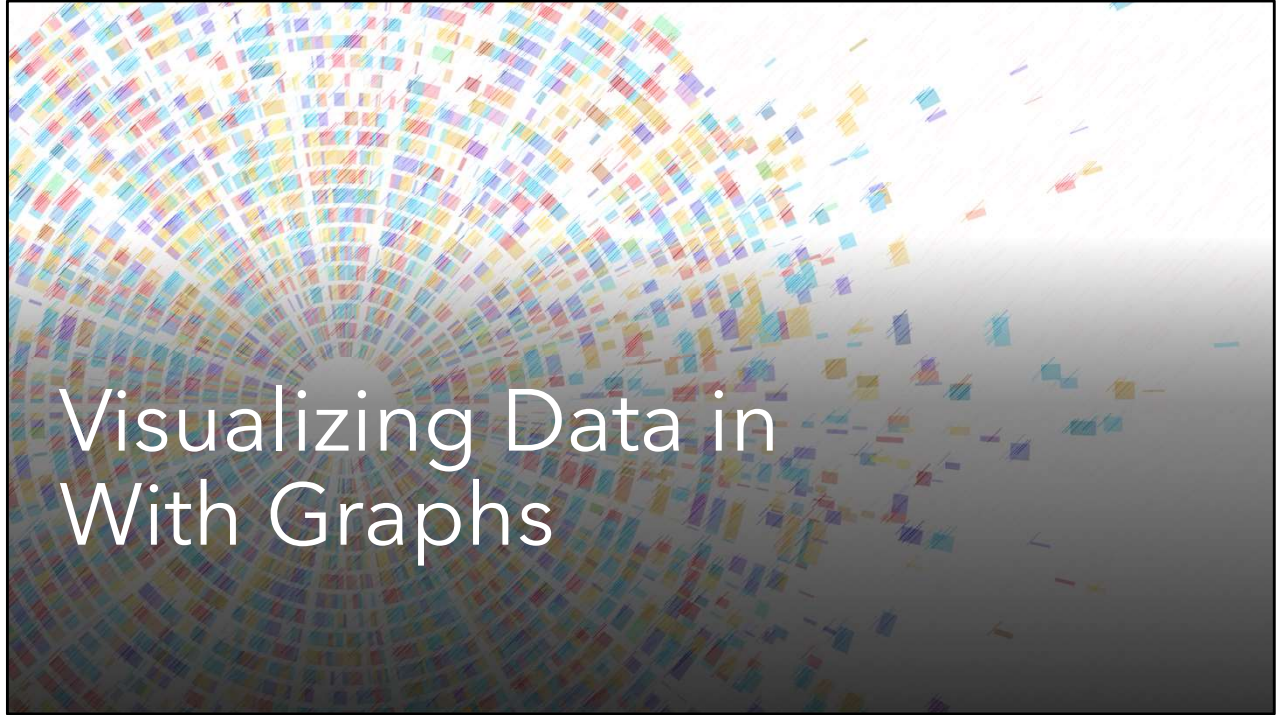
At the bottom of each group is a line that shows vaccination numbers over time. For the Afghan population we can see that it begins low, then slowly rises, then drops slightly.

I find this helpful to see the shape of the lines and note spikes, lags, plateaus, etc. Remember our line for the Afghan population, because it will come back later in the presentation.

Seeing Linear Trends with Sparklines

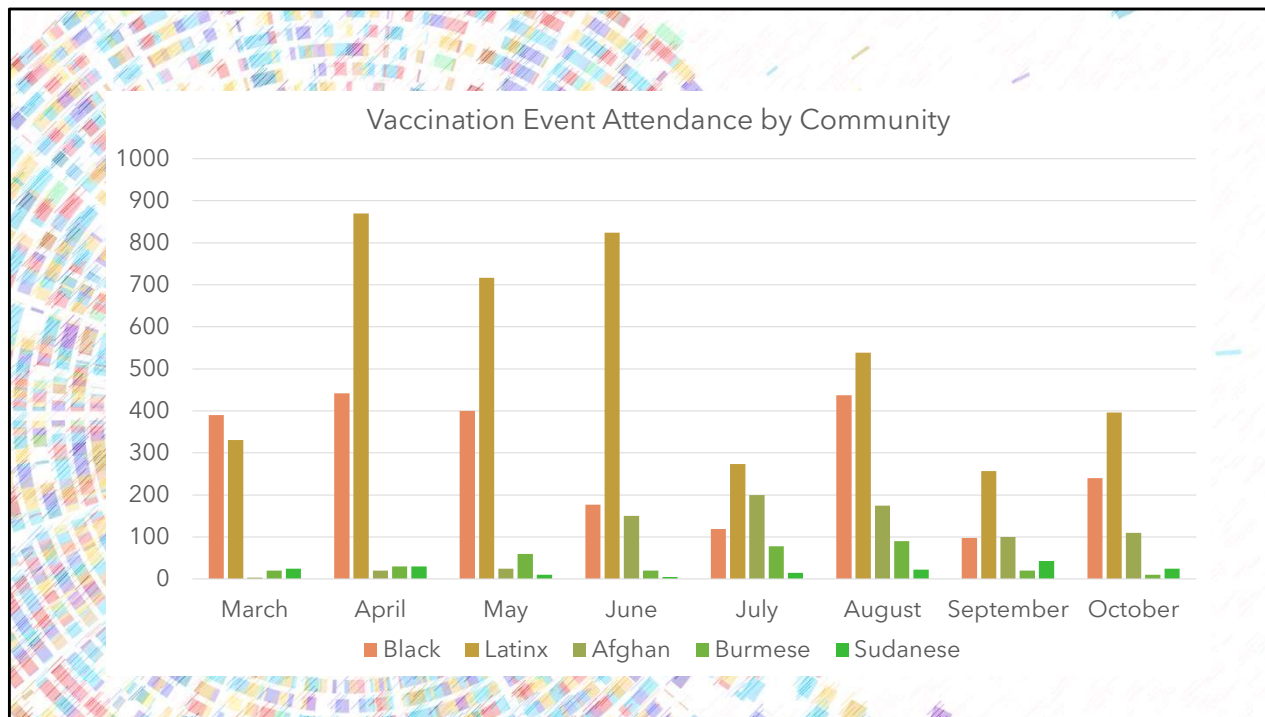


This screenshot demonstrates the location of the Sparklines option in Excel. How to apply them is in the supplementary video.



Now that we have covered table-based visualizations, we'll move to what folks are likely more familiar with – graphs.

Graphs can be a fantastic way to visualize and explore data – however there are a few things to be wary of. First – just because Excel and Google Sheets recommend graphs does not mean they are especially effective. Next, graphs can require more time to format and adjust than the table-based visualizations.



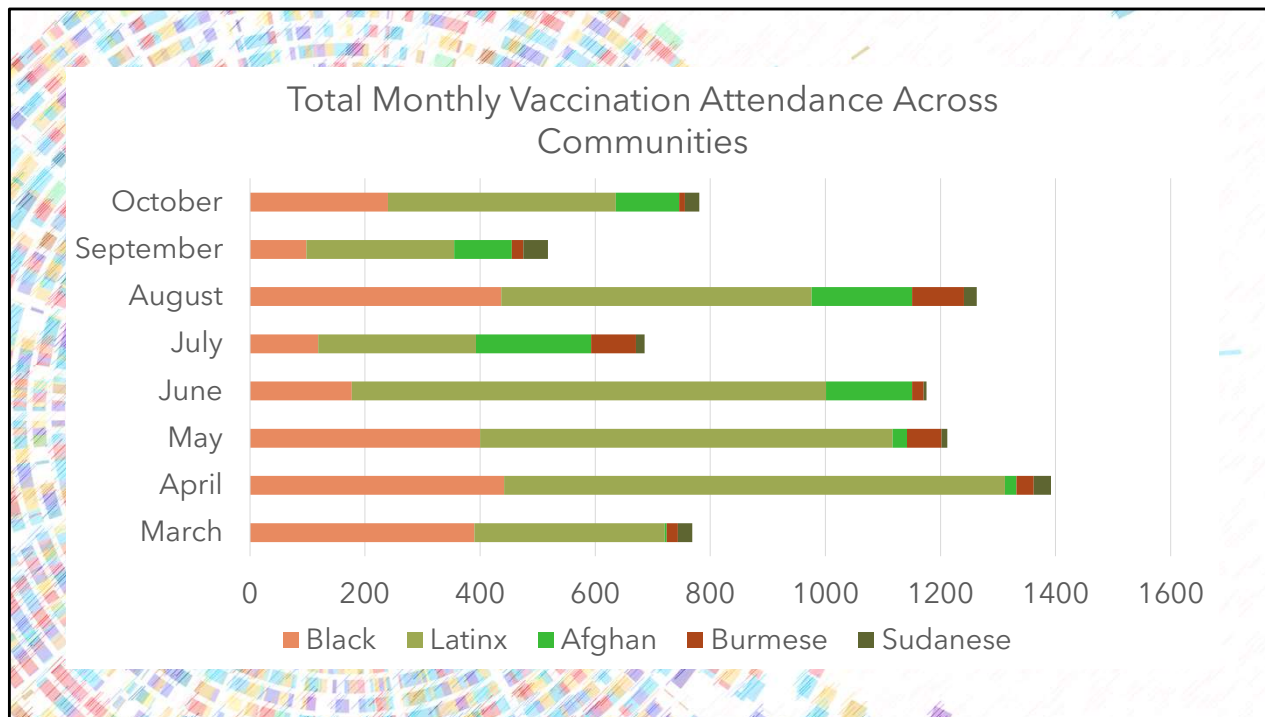
So, this is a commonly used graph, a clustered bar graph, and one that Excel will recommend for numbers associated with different groups. Excel created this graph through their default settings. I didn't choose the colors or how it is organized.

Is this a graph that perhaps you have used at your organization, or seen others use it? [Put it in the chat or raise hand].

This is a frequently used graph for “exploratory analysis.” It shows the size of the numbers, and how they change over time.

Here it gives us an overview of what is going on in our vaccination program. We can notice some trends and dig deeper into what is interesting. We can see how much, or few, vaccinations were conducted for different groups.

However, this graph is not good for “storytelling” – or to convey specific information. There are many stories within this data – the large number of Latinx receiving vaccinations, that our three RIM groups have not received many vaccinations, when spikes are occurring for different groups. With all of the colors, lines bars, groups, values, etc. it is hard to know where to look, or what to focus on. The title is generic and just repeats what data is being shown.



This is the a horizontal stacked bar chart – another commonly used graph.

This graph has common elements with the clustered bar chart. However, stacking the groups allows you to see the total number of vaccinations administered by Health Forward, and the composition by group. For the purpose of exploratory analysis, we can see that our total numbers fluctuate over time – and there seem to be differences by each group, but it’s hard to tell.

Again, organization of information is taken directly from the table. What it displays is a lot of information. It has not been reorganized with an intention. Colors are default. Interpretation of the information is not added. It’s useful for exploring the data, but not telling a story.



Findings from Exploratory Analysis

Majority of vaccinations administered by Health Forward are for the populations where we have established relationships - Black Americans and Latinx.

For our RIM groups, vaccination began lower, but then increased

We initially began with low numbers of vaccination for Afghan individuals, but that has risen over time

This increase might be due to our program activities

Based on our exploratory analysis using visual data we have noticed a few things.:

1. As we would expect, the majority of vaccinations administered by Health Forward are for the populations where we have established relationships – Black Americans and Latinx.
2. For our RIM groups, vaccination begins lower, but then increases
3. We initially began with low numbers of vaccination for Afghan individuals, but that has risen over time
4. This increase in vaccination for Afghan individuals might be due to our program activities. That’s what we will focus on in our next section!



Storytelling with Data

Now that we have walked through some ways of using visualization for exploratory analysis, and we have some findings, we'll moved to the second half of the presentation – Storytelling with Data!

Health Forward Scenario

- **March 2021**, Health Forward began working with a coalition of RIM groups who previously did not have a relationship
- **April 2021** Health Forward was able, with support of an external funder, to hire an Afghan community advocate recommended by a coalition member - an Imam from the local mosque with high Afghan attendance
 - Health Forward enrolled her in their community health worker training - which they had recently adapted for serving RIM communities
- **May 2021** the CHW began organizing and promoting vaccination pop-ups

We will be using the following scenario. [Walk through]

I'd like to note that I am not have any expertise with working with the Afghan population as many of you do. Instead, this is a scenario several sites encountered, hence we are selecting this population. I apologize in advance for any missteps.

Types of Stories to Tell with Data

Trends over Time

Comparing groups

Relationships between interrelated data/topics

Illustrating intervening events impact on trends outputs, etc.

There are several types of stories we can tell using data. For this demo, we will be focusing on the first and fourth items.

Our key intervening event is our new CHW with roots in the Afghan community.

Are there other big events – such as hiring new folks, programs, etc. that caused changes in your data? Put them in a chat and Cathleen can moderate!



Although it can be tempting to jump right into making visualizations – the process, and end result, should be better by mindfully planning the story you are trying to tell.

Four Steps of Planning



1. Purpose of the presentation - the story you wish to tell



2. Audience(s): Primary, secondary, and tertiary audiences



3. Data: Identify internal and external sources



4. Select Appropriate Graphic: Pie, bar, dot, line, etc.

Here are four steps to consider when planning your visualization. [Walk through slide]

Purpose: What is the arc? Who are the actors?

Audiences: Level of familiarity with the topic, what is important to them, their level of education

Data: What do you have available? Talk to your monitoring and evaluation staff person, or others familiar with your reporting. You are also encouraged to look beyond your own organization. Does the health department have COVID information? When were vaccinations made available to your population? You aren't limited to what your organization collects!

Selecting Appropriate Graphic: Only after you walk through the first three steps do you want to begin the selection process.



Demo: Planning our Visualization Story

Purpose: Demonstrate **success** of CHW in COVID prevention & vaccination outreach to the Afghan community

Audiences: Primary: Coalition; Secondary: Funder; Tertiary: Internal

Data: Outreach and vaccination tracker

Graphic: Potentially bar or line

This slide shows each of the steps as it relates to our demo. I'm going to walk through each one in separate slides.



Purpose

Purpose: Demonstrate **success** of CHW in COVID prevention & vaccination outreach to the Afghan community

- Illustrate when CHW started
- Highlight any changes that occurred during CHW outreach

[Read]

Audience

Audiences: Primary: Coalition; Secondary: Funder; Tertiary: Internal

- Coalition: Concerned about increasing vaccination numbers for Afghan individuals
- Funder: Interested in effectiveness of investment in new CHW program
- Internal: Celebrate the wins with HF's dedicated team

[Read]

Data Selection: HF's Outreach and Vaccination Tracking Data

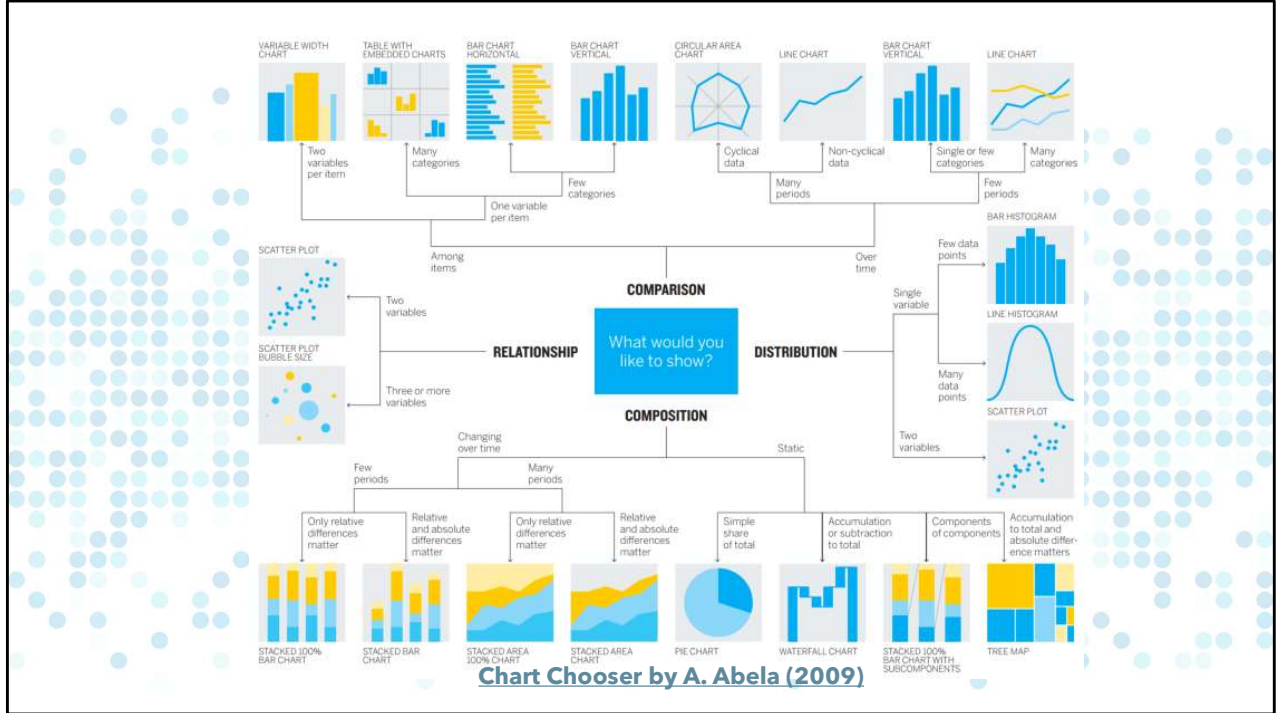
	Black Americans		Latinx		Afghan		Burmese		Sudanese	
	Vaccination	Education	Vaccination	Education	Vaccination	Education	Vaccination	Education	Vaccination	Education
<i>March</i>	390	630	331	400	3	40	20	35	25	30
<i>April</i>	442	500	870	500	20	60	30	40	30	45
<i>May</i>	400	200	717	780	25	75	60	80	10	56
<i>June</i>	177	50	824	600	150	100	20	40	5	23
<i>July</i>	119	100	274	145	200	130	78	85	15	20
<i>August</i>	437	400	539	130	175	120	90	100	22	40
<i>September</i>	98	24	257	100	100	90	20	30	43	60
<i>October</i>	240	30	396	95	110	95	10	40	25	45

The data we will be using is summary statistics (totals) from our trackers we used for our quarterly reports. Here we have COVID education and vaccination by group.

Select Appropriate Graphic

- Has two categories: vaccination and prevention are numbers that increase 1, 2, 3, etc.
- Changes happen over time
- Need a means of adding the time of CHW led outreach
- Potential options: bar or line graph
- Tip: Search "Chart Chooser" for guidance on selecting a graph.

Now we think about what we have available, and how it can inform selecting the right graphic to achieve our purpose.



We could use our entire time today just to discuss types of visualizations and how to select one. There are many helpful resources online to guide you through this process. The above is one example, but please note that terminology is geared toward folks with a background in statistics.

Search for a “chart chooser” on your web browser and select one that works for you and your skill level.

Experimentation is Part of the Process!

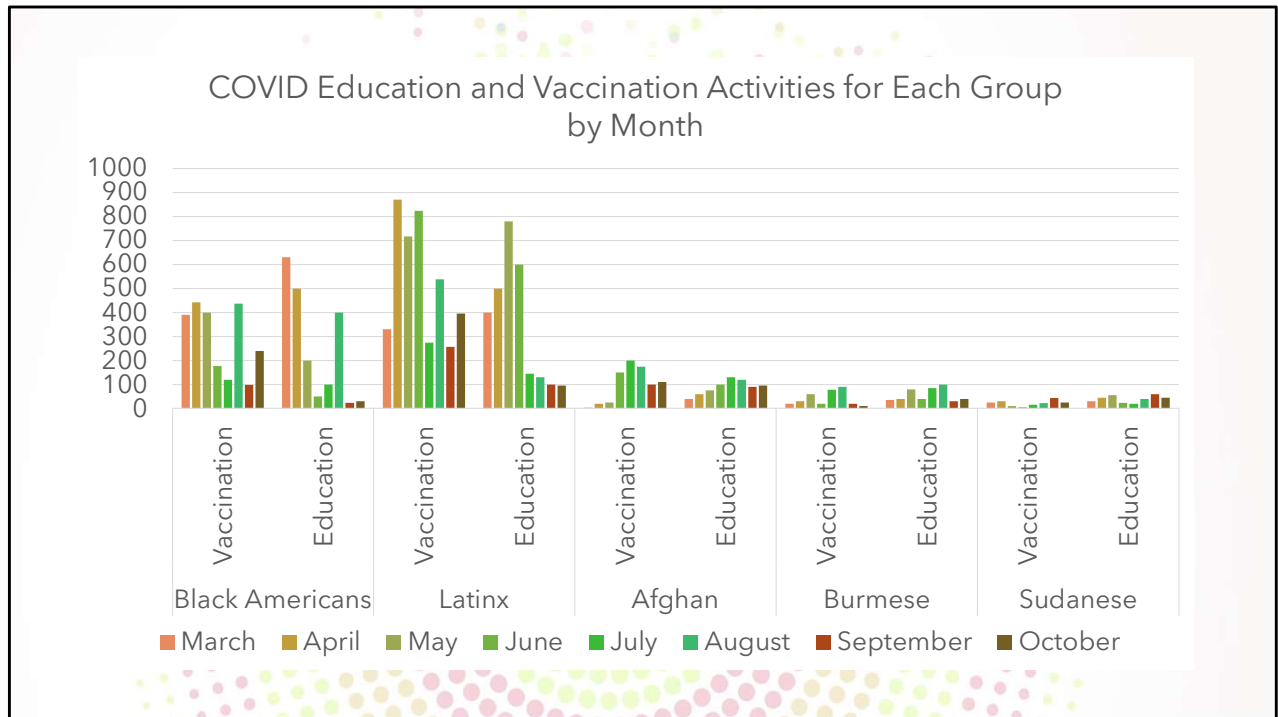


Try different formats



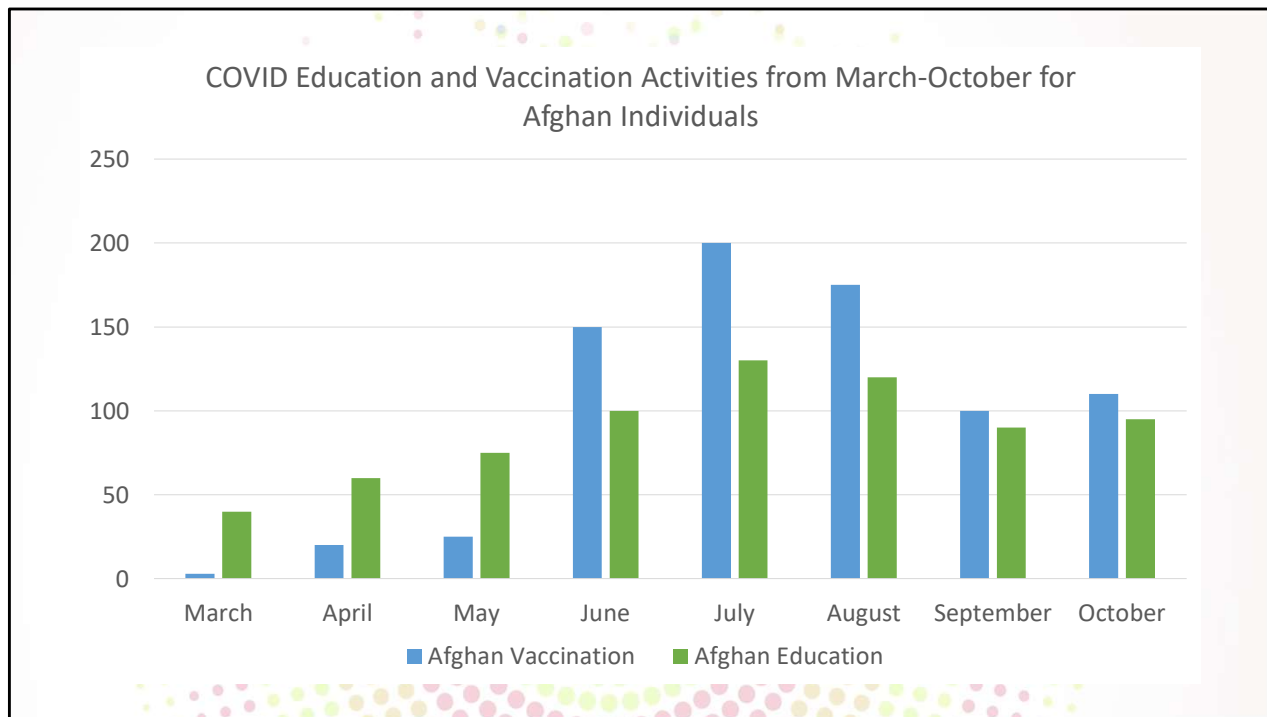
Selectively edit

I'd like to reiterate that this isn't a linear process. You will have many false starts, pivots, etc. This is normal, even for experts. Think of this as a science – and an art.



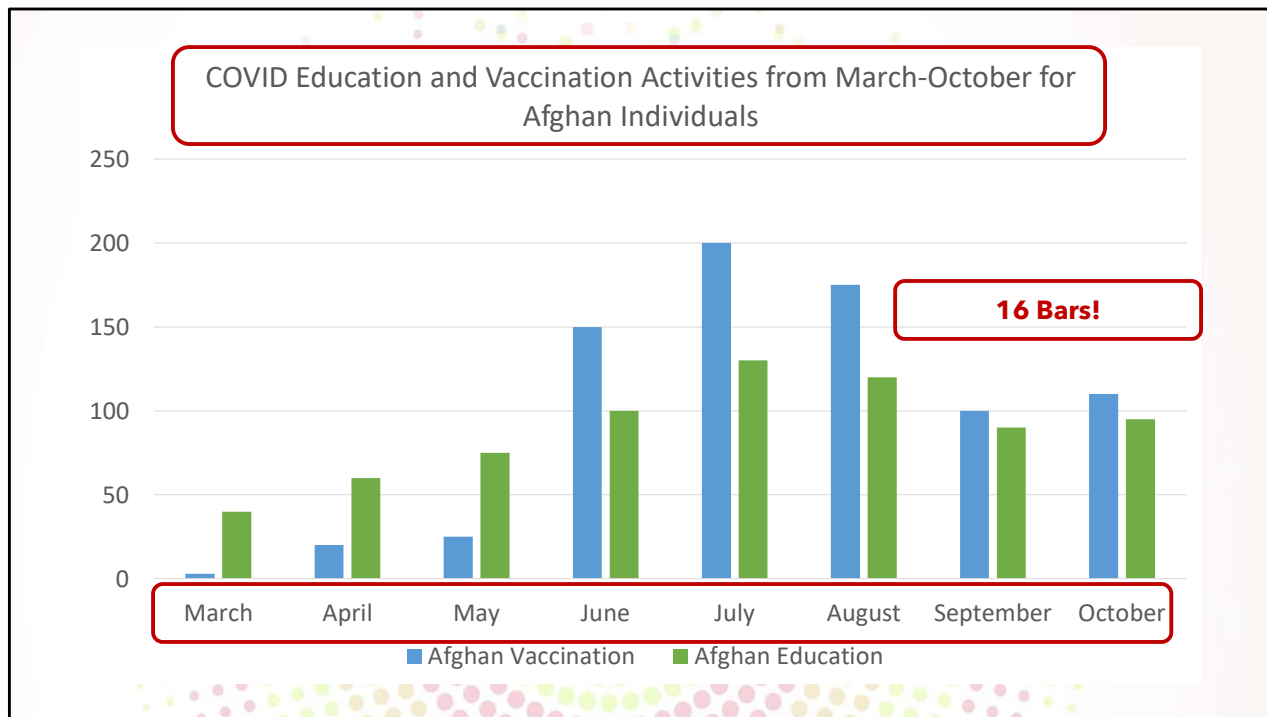
The graph above is the default produced by Excel, and where I'll begin in the development of an improved graphic that tells our story. Before we begin place in the chat some of the strengths – and challenges – with this graph.

In summary – it's a lot of information – and if we showed this to our audiences (coalition, funder, staff) they likely wouldn't know what to make of it in a timely way.



The first step I took to achieve the purpose of our graphic - Demonstrate **success** of CHW in COVID prevention & vaccination outreach to the Afghan community – was to drop the other groups.

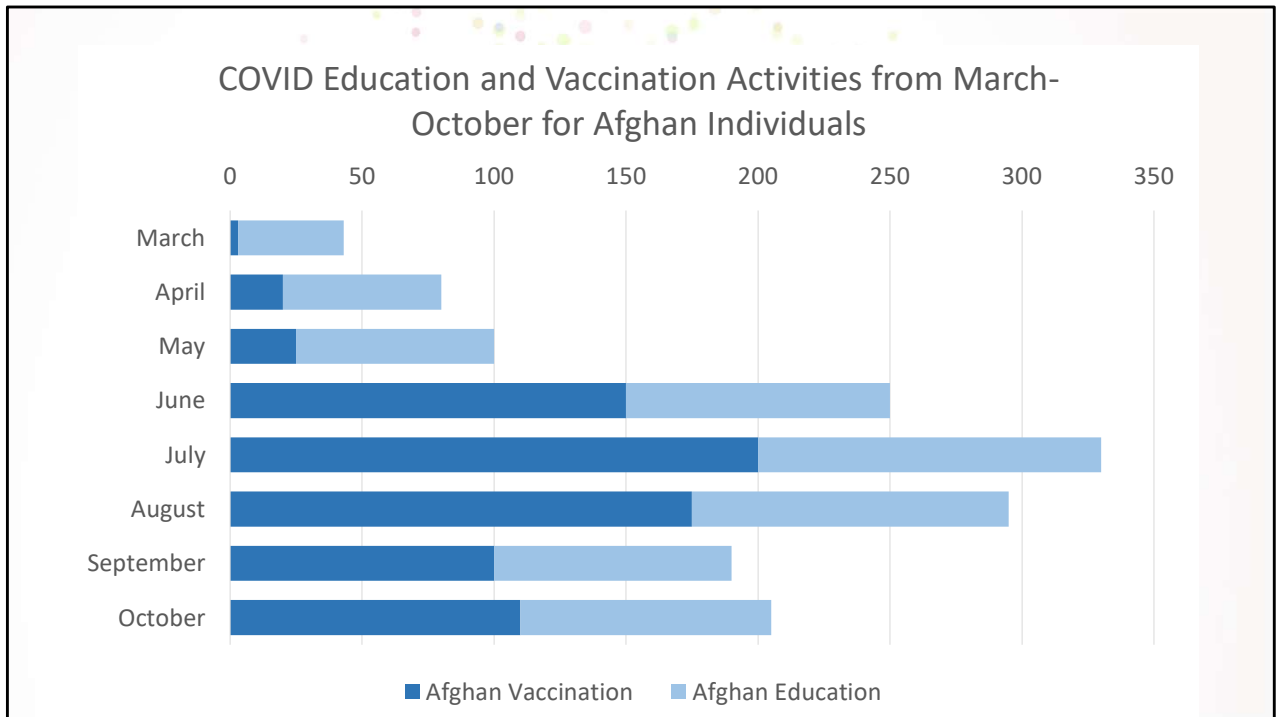
I did this because our purpose is to look specifically at the Afghan group – not compare progress to our other populations served. The other groups have different population sizes, they are likely to have different services developed over time (vs. a newly arrived population), and other organizations are also serving those groups. It’s not “apples to apples.”



While dropping the data from the other groups is progress, there is more to improve. The bars for each month, and activity, create 16 pieces of information for the viewer to process. Does it support our story enough to justify its use?

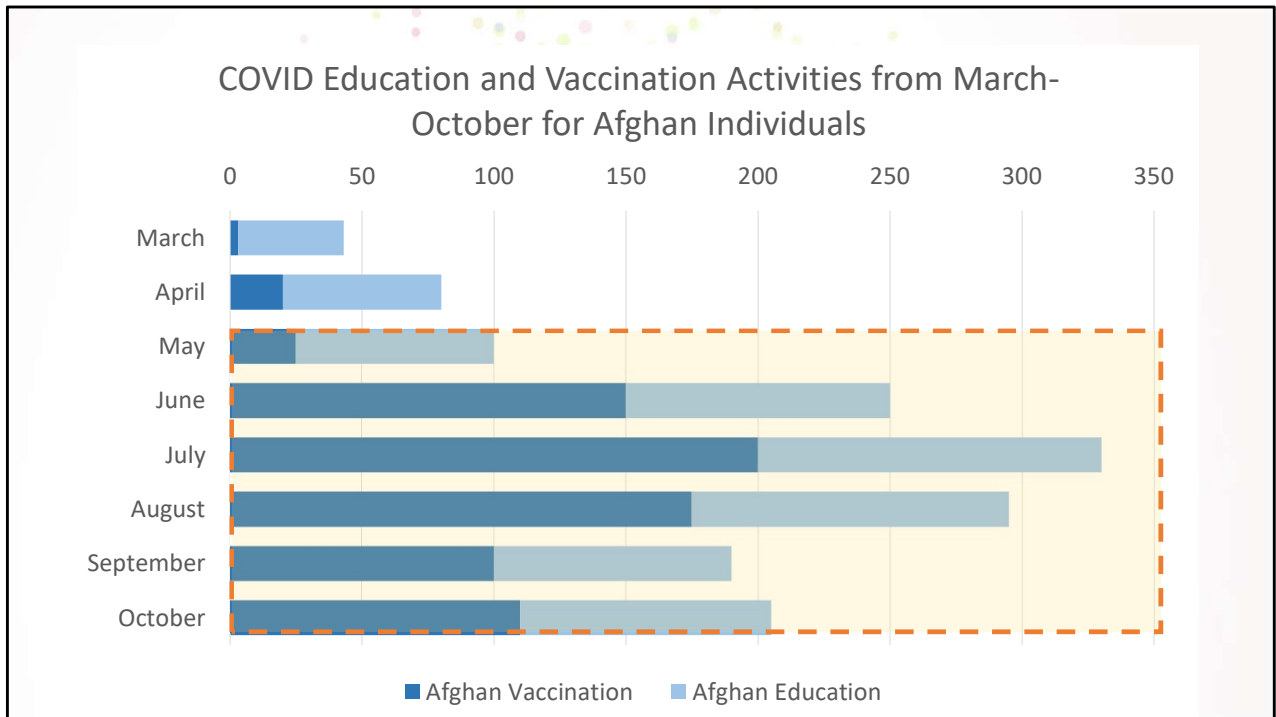
The months are listed left to right at the bottom. A best practice in easier reading is to have them oriented from top to bottom. We'll get back to this in a moment.

Other areas for improvement include the title – it merely describes what is in the graph- and incorporating the timepoint for CHW involvement. Otherwise, this would be lost in our narrative.

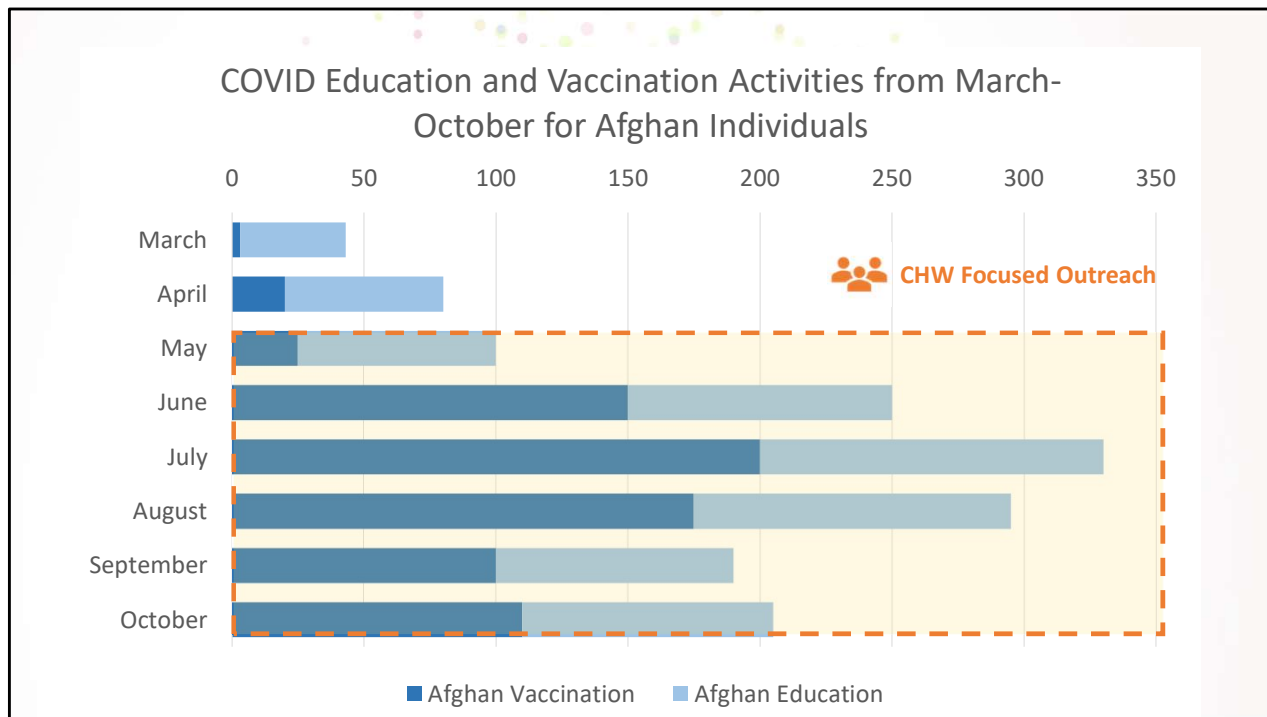


Next, I explored changing the orientation of the graph, and stacking them. I experimented with this because it oriented the month text so it can be read from top to bottom – which is a best practice for readability. I also wanted to see if stacking the columns to show total activities would effectively convey our story.

It seems like an improvement from our prior graph – we are focusing on the most important pieces of information, including the increase in June when our CHW started. I'll begin working with it to see if we can get it closer to telling our story, or if we should choose another graph.

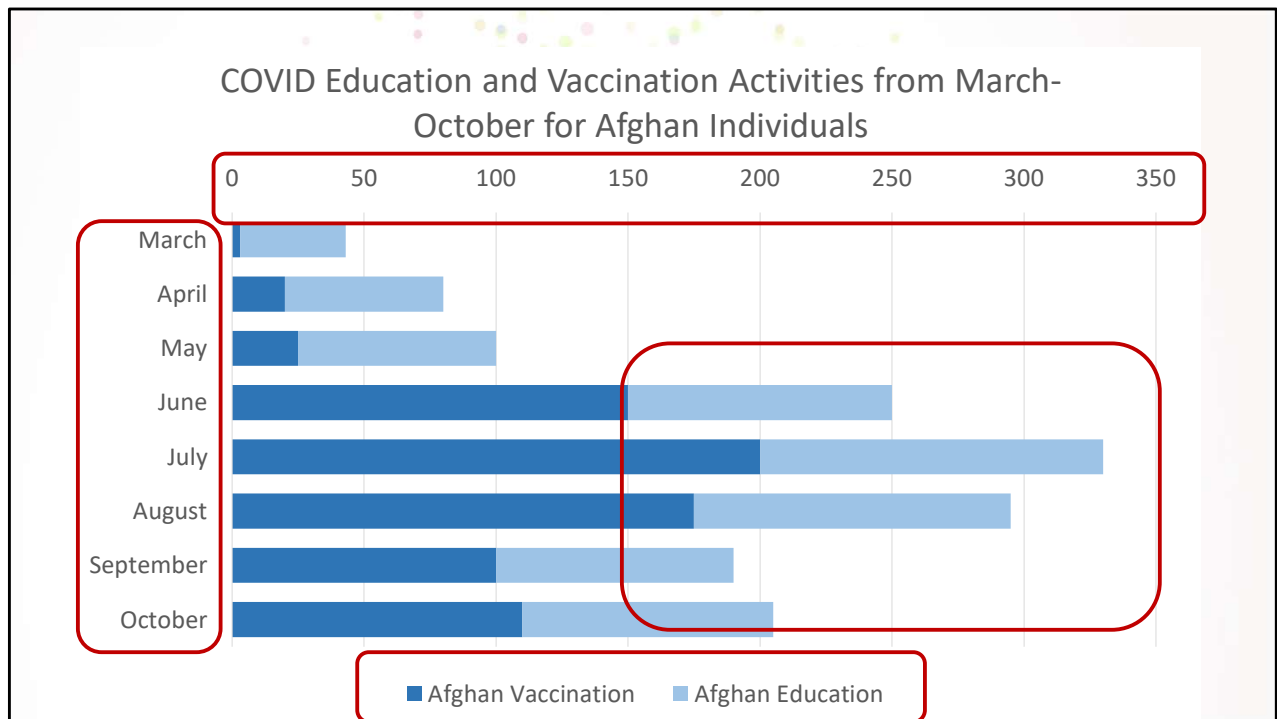


First, I added the time period for CHW focused outreach since the effectiveness of that intervention is a key finding we want to illustrate to our coalition, funder, and our staff – especially to our hard-working CHW!



Second, Instead of adding another item to the legend, I directly labeled the CHW focused time period using the same color and added a relevant icon to draw attention to it.

However, while I felt this improved our graphic, there were still a number of shortcomings. I found that while it shows the trend in time for vaccination, the trend in education is difficult to see. We still have a legend at the bottom – so the reader needs to retain which color correlates what. The axis of number of individuals served is also hard to decipher.



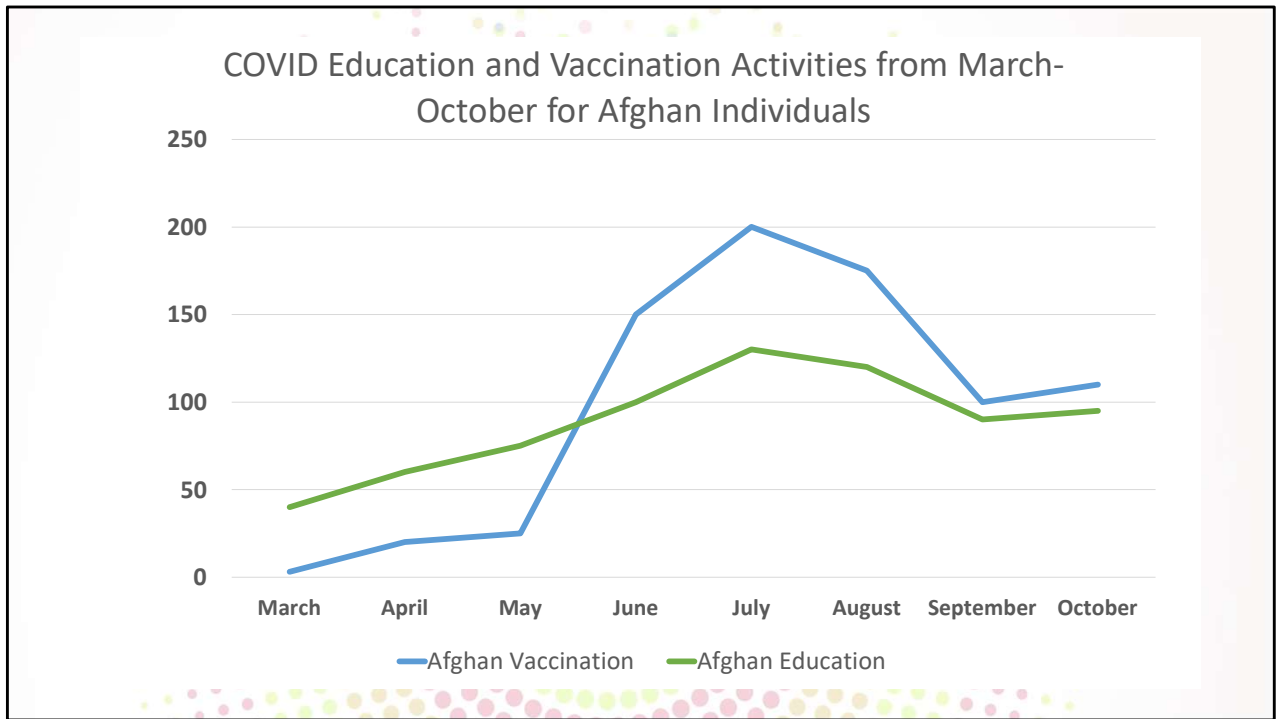
However, while I felt this improved our graphic, there were still a number of shortcomings.

First: I found that while it shows the trend in time for vaccination, the trend in education (lighter blue) is difficult to see. Is it going up over time? Down?

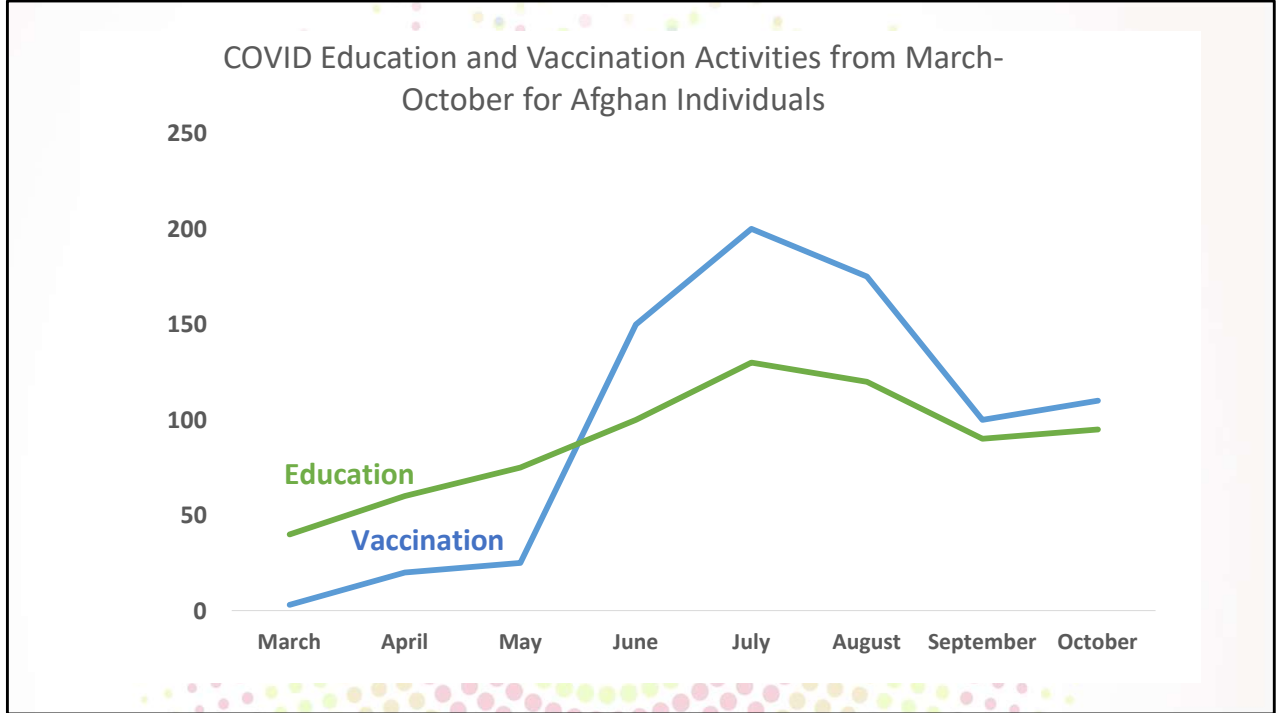
Second: We still have a legend at the bottom – so the reader needs to hold in their mind that dark blue means vaccination, and light is education.

Third: The axis of number of individuals served is at the top, making it a bit hard to read, and unclear if that information is useful.

Fourth: Another thought is whether a bar graph is the best fit for our story. While it does achieve our purpose of demonstrating a rise in reach of vaccination and education activities over time, it might not be the most efficient. What other graphs could be simpler, yet get our message across? Place your thoughts in the chat.

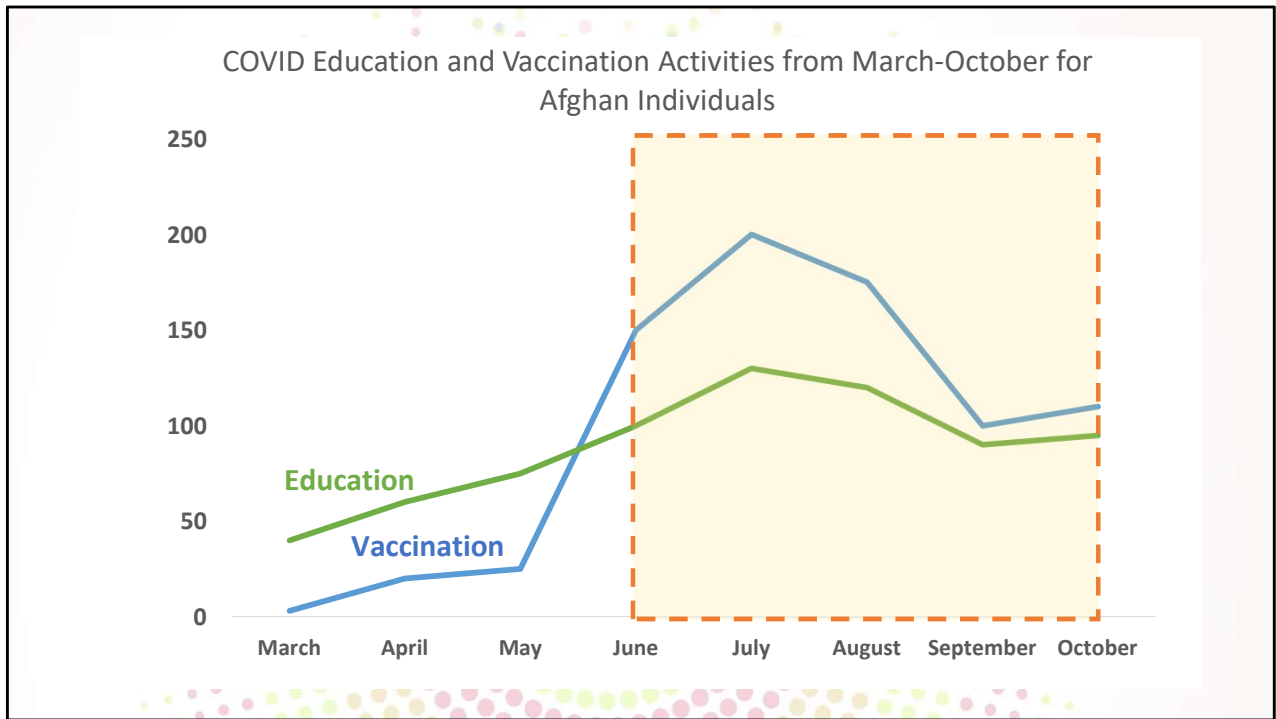


My experimentation continues! Since changes over time is critical to our story, I shifted to a line graph. This was what Excel produced for me. However, using best practices in data visualization, I felt I could better tailor it to our purpose and audience.

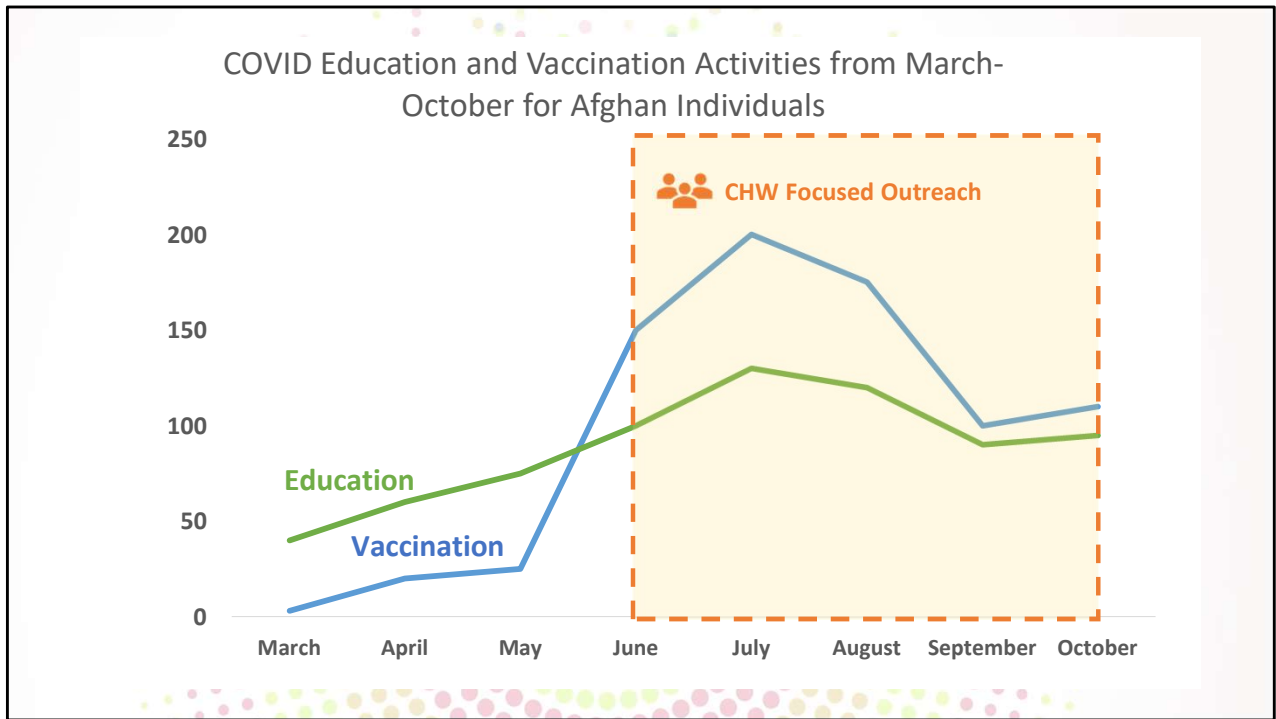


First, I removed the legend. To eliminate that need to remember the meaning of each color, it's recommended that you "directly label" your options. Here I have education in green to correlate with our green line showing number of Afghan individuals who received COVID education. Same for vaccination.

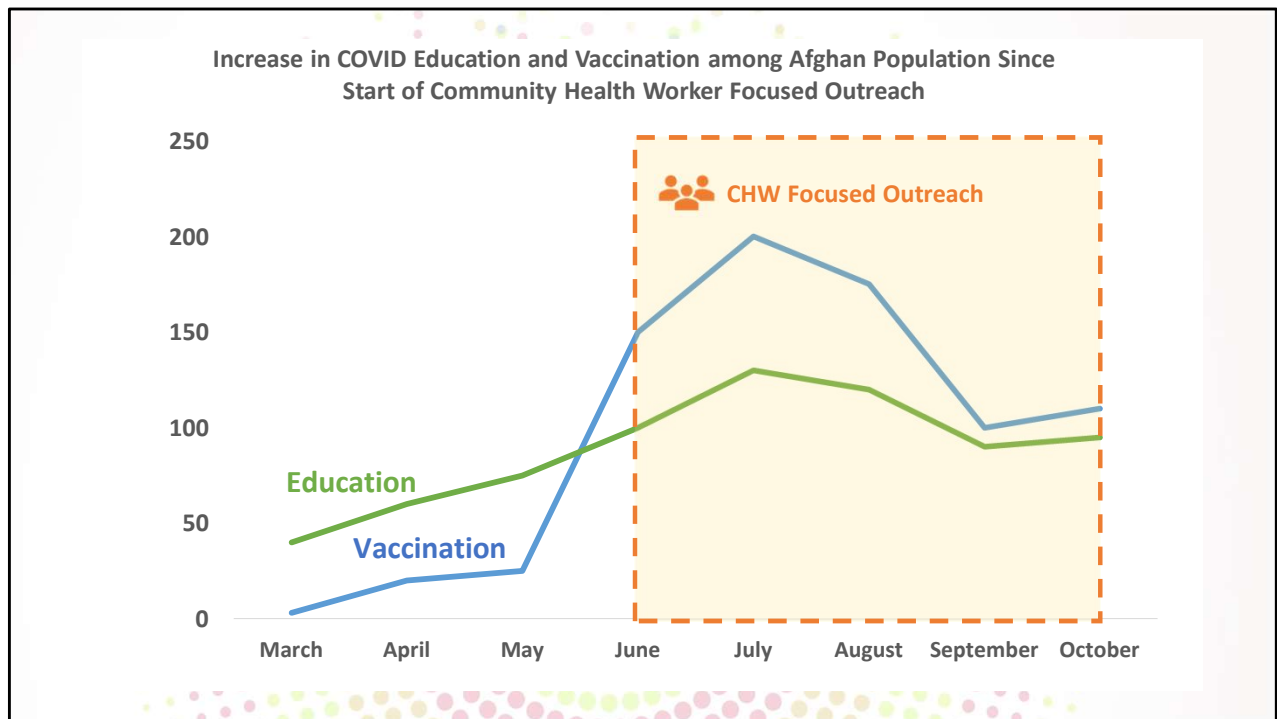
I dropped the axis lines because we want to show the general shape to our audiences – the specific numbers matter less. However, they might to an epidemiologist, or others. So again – tailor!



Next, I carried over the orange graphic to highlight the period of time when our outreach program began.

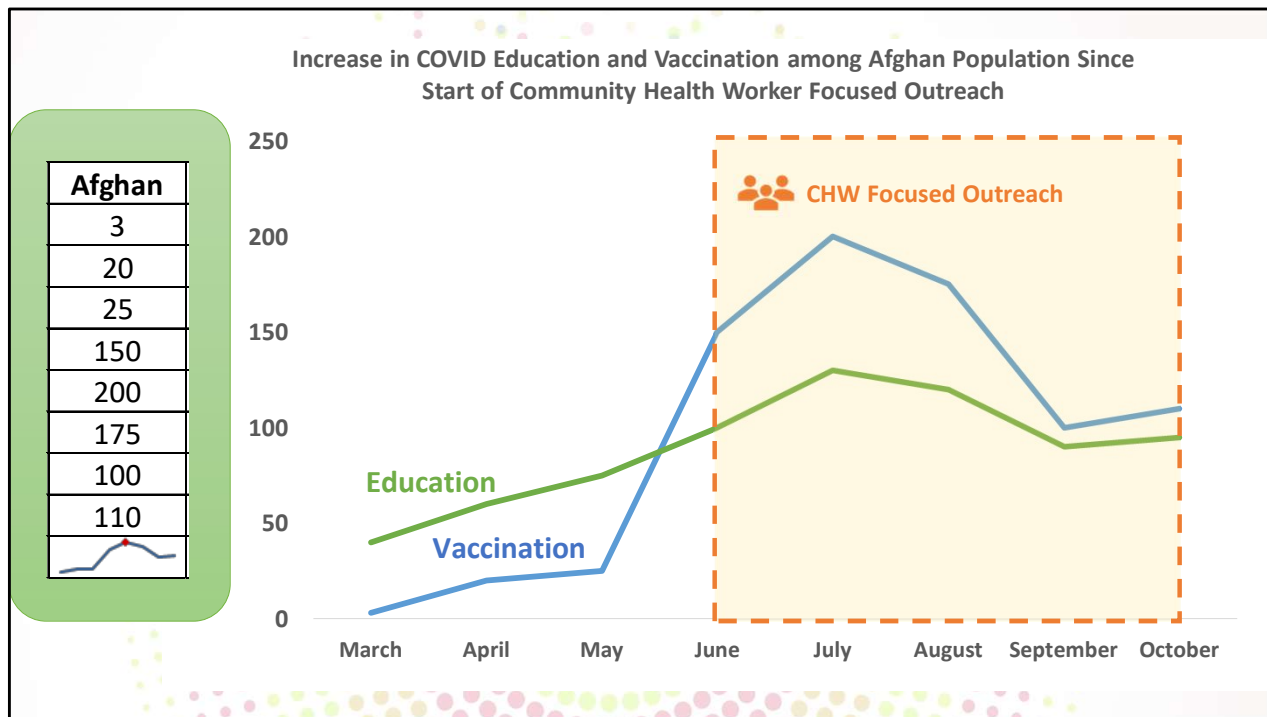


Finally, I added the “CHW Focused Outreach” direct label for clarity, and to draw attention to this pivotal moment in our story.




Finally, I changed the title. Another best practice for clarity in graphs is to state in the title what you are illustrating. If this was part of a report with narrative, you would further describe the graph. However, again, what we are trying to achieve is storytelling.

How do you feel about this graph? Does it achieve our purpose? What would you change? Put it in the chat!



I'd also like to point out that the vaccination line should look familiar – it's exactly what we saw in the "Sparkline" during the exploratory data analysis!



Best Practices in Readability

Contrast

- Strong contrast in colors

Sentence Case

- Avoid ALL CAPS

Text Orientation

- Orient text horizontally

Label

- Directly label vs. legends

Reduce

- Reduce reading level

Highlight

- Highlight the data of interest

[Designing Accessible Data Visualizations, Emery, A.K.](#)

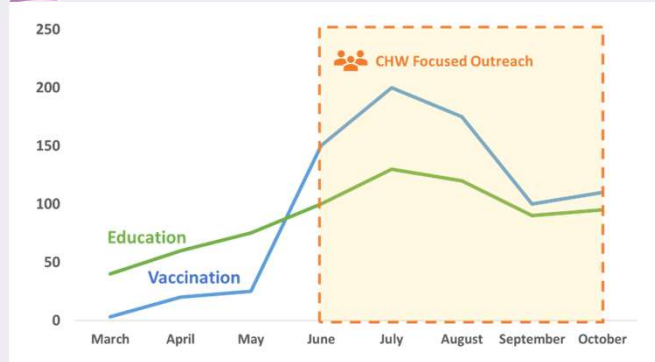
As I walked through my edits, I touched on several elements of improving the readability of our visualization. Here is a consolidated list. Attribution to Ann K. Emery and her guide “Designing Accessible Data Visualizations – 10 Quick Wins.”

Health Forward - Reaching Afghan Families through Community Health Workers

Since our Afghan Program Began in June:

❖ **610 Received COVID Education**

❖ **760 Received COVID Vaccinations**



However, you do not need to stop there! Consider other elements that could get our story across to our audience. If you were presenting this graph, the addition of a photo can visually capture what our program is trying to achieve – health through working with families. Side note – make sure you have consent before using any photographs!

I've also added a summary of what our program is trying to do, and the specific numbers for our outcomes. While I did this in PowerPoint (and it could certainly be better!), a staff person with skills in graphics, and access to more sophisticated programs like Canva, could make something more elegant.

Planning for Data Visualization

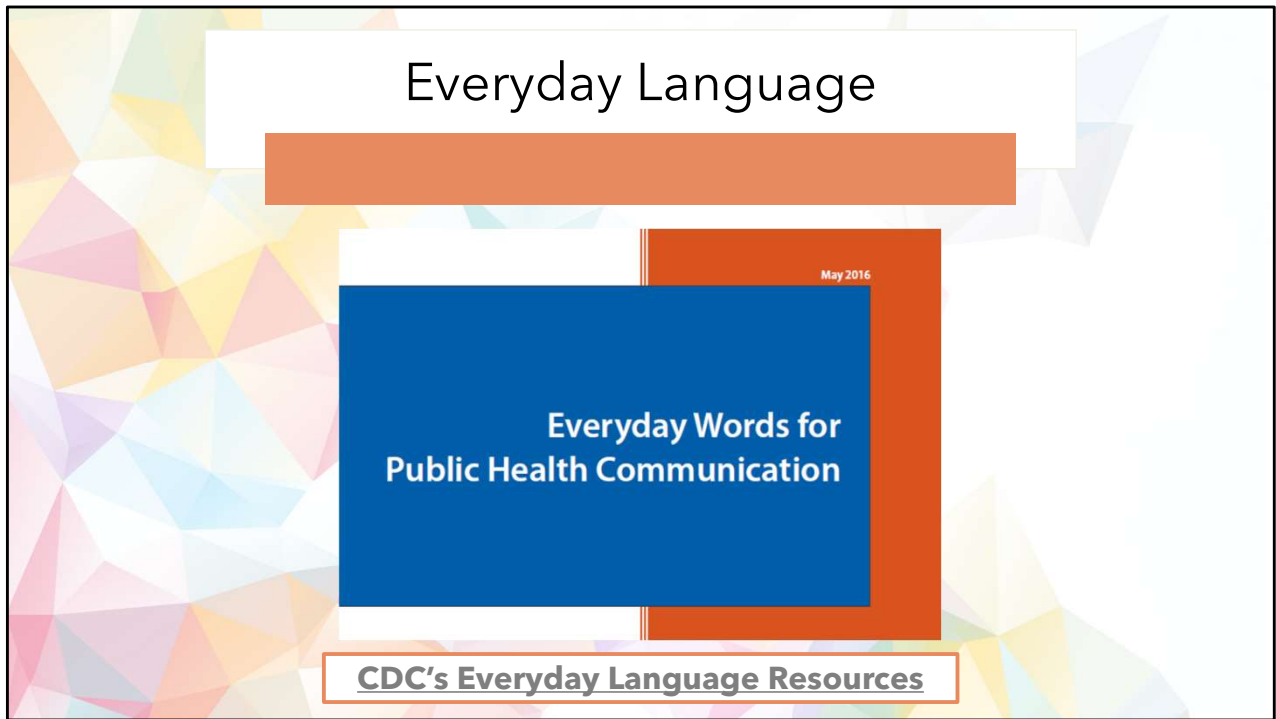
What you need	How to get there
Data points needed for analysis and presentation are collected	Strong plan for data collection. Have appropriate data collection tools and storage in place when program begins.
Data is organized in a way that allow for analysis	Database that houses the information you need. Data points are in a format that can be analyzed. For example, use numerals instead of text for numbers.
Data is reliable	Data quality assurance protocols in place.
Data can be analyzed and summarized	Have a data analysis software and expertise to summarize and manipulate data
Data can be put in a visual format	Have data visualization software (can be same as analysis software) and expertise to create graphs, charts, and tables from your data.

Data visualization does not begin when you receive your data – it should be integrated throughout your program planning and implementation. Here are the elements of what you'll need to be in an ideal position to visualize your data – and steps you could take to get there.

Resources

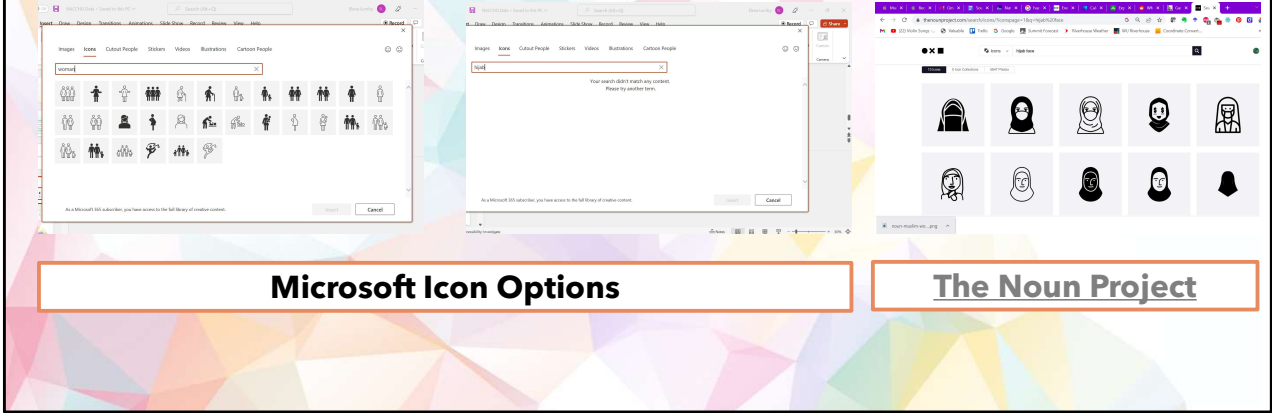
More to Explore!

There are many other aspects of data visualization that we wish we could have covered today – that are also important for this work. I'll briefly walk through them. Each has a link at the bottom.



Link: <https://www.cdc.gov/healthliteracy/developmaterials/plainlanguage.html>

Appropriate Icons

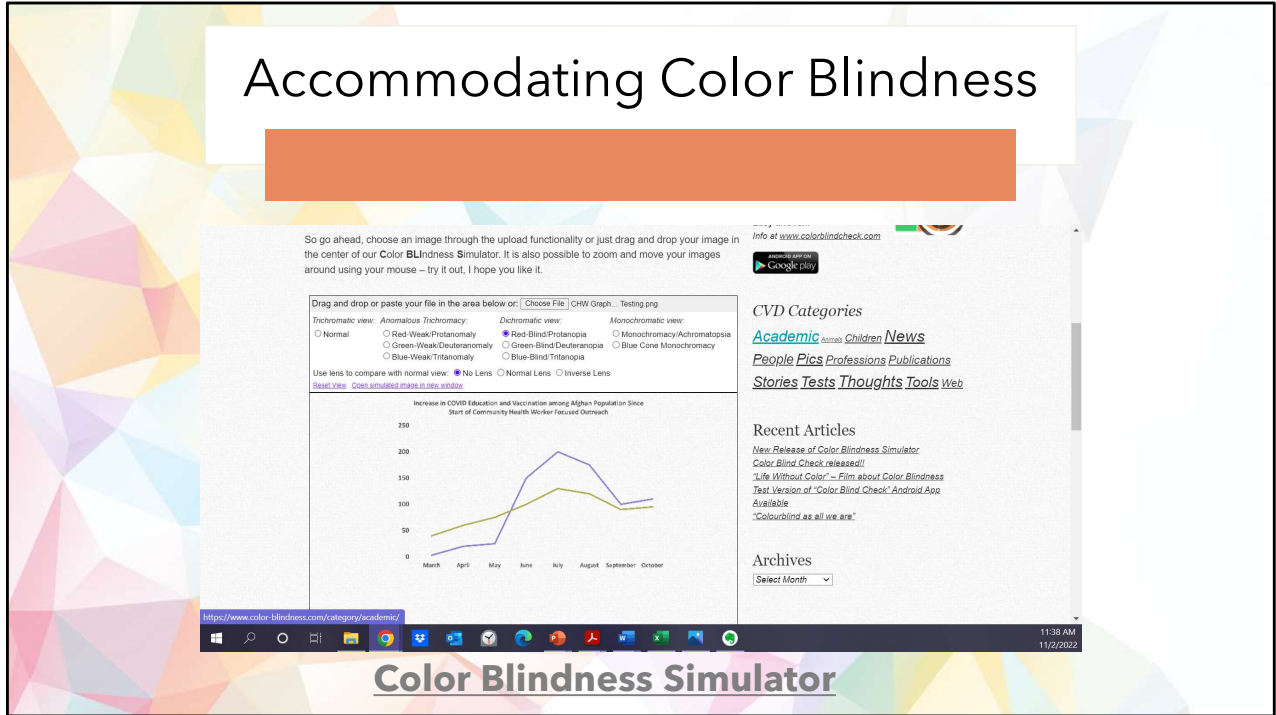


Microsoft Icon Options

The Noun Project

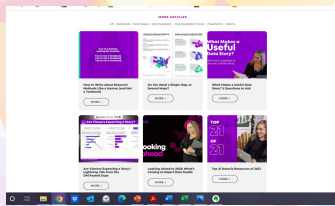
<https://thenounproject.com/>

Accommodating Color Blindness

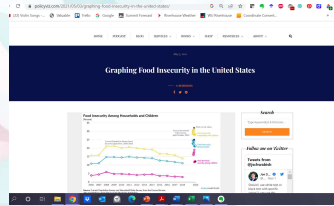


<https://www.color-blindness.com/coblis-color-blindness-simulator/>

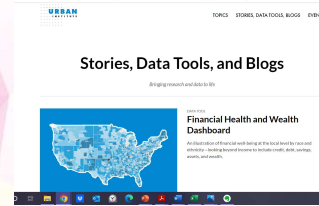
Expert Guidance



Depict Data Studio



Policy Viz



Urban Institute

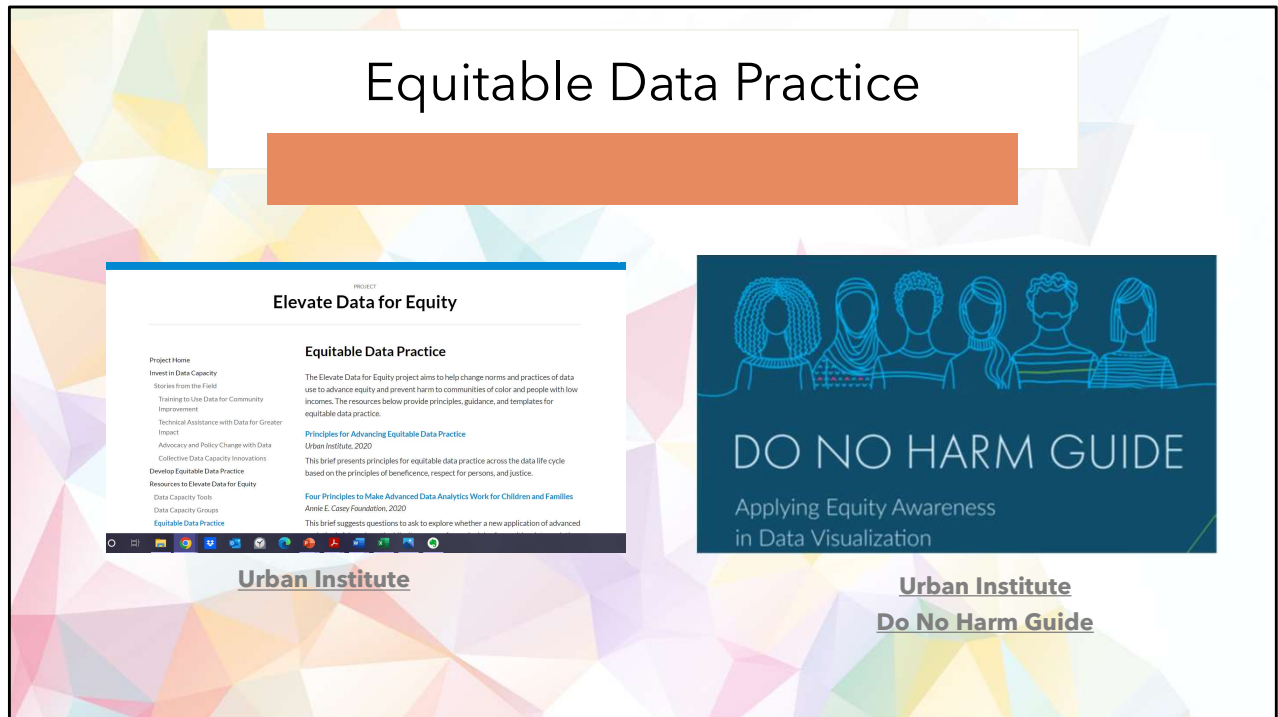
Check out “redesigns” walking through improvements like we did today, new visualization tools, research, and data sources.

<https://depictdatastudio.com/category/data-visualization/>

<https://policyviz.com/category/redesigns/>

<https://www.urban.org/stories-data-tools-and-blogs>

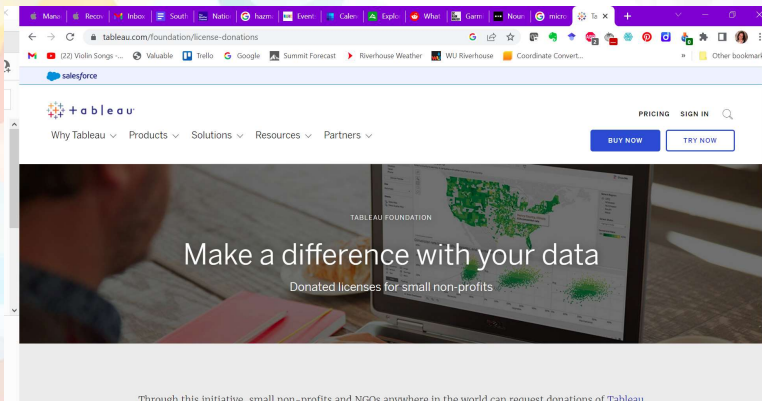
Equitable Data Practice



<https://www.urban.org/elevate-data-equity/equitable-data-practice>

<https://www.urban.org/research/publication/do-no-harm-guide-applying-equity-awareness-data-visualization>

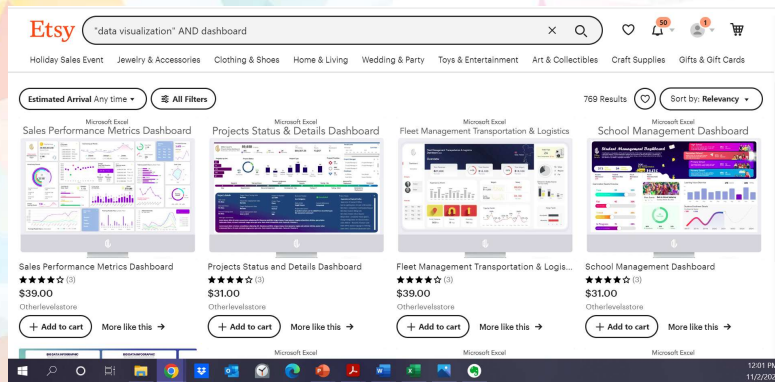
Tableau for Non-Profits



Licenses for Non-Profits
Always Inquire!

<https://www.tableau.com/foundation/license-donations>

Purchase Visualization Dashboards



Buyer Beware: Be sure it matches your needs, and has good customer reviews



Thank you!

Elena Lumby, DrPH, MPH
elumby@ltgassociates.com