WebMD Ignite™

Give your data a voice:

A quick guide to data visualization for healthcare professionals

INSIGHT GUIDE

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Introduction

Data and analytics have come to the forefront of our daily lives in one way or another. According to the U.S. Bureau of Labor Statistics, roles for data scientists is projected to grow 35% by 2032, much faster than the average for all occupations.[1] Increasingly, to not be data-driven is to be left behind. Still, when it comes to data and analytics, we often spend the majority of our time doing the analysis—the exploratory phase—and rush through or overlook the importance of the visualizations—the explanatory phase.

This happens for a number of reasons. First, we may look at hundreds of data points before determining what it is we think people need to know. As a result, we often feel the desire to show our work, which leads to cluttering the message and leaving more of the interpretation to the audience. Finally, we simply run out of time before a deadline.

This is a mistake. As technology continues to advance, AI and machine learning can handle more of the exploratory phase, freeing us to focus on the explanatory phase. Honing your ability to compellingly and succinctly use data to reinforce your recommendations will make all the difference to your career.

> **"The responsibility—and the opportunity—to tell a story with the data is yours."**
>
> —Cole Nussbaum Knaflic

Your "so what?"

We've all been there. Sitting in a meeting where we're seeing chart after chart and are thinking to ourselves: So what? Data is powerful. It can sound an alarm in reaction to a problem, proactively identify opportunities or avoid problems, and predict outcomes. Before putting graphs on slides or writing the introduction of a report, it's important to make sure you know what your main takeaway is, your "So what?" There should always be something specific you're trying to communicate.

Example: As a result of adopting a new data-backed marketing planning process that better pinpoints growth opportunities by service line across our regions, we recommend increasing our marketing spend over the next three years.

This statement gives you a True North for the rest of your communication. While it reflects deep analysis of multiple scenarios based on newly available intelligence, it cuts right to what's at stake: the lack of growth and potentially lost market share. From here, you can outline the key points needed to bring your recommendation to life through a story.

Tailor your "so what" to your audience

How you frame your main takeaway will likely vary from audience to audience. Consider the relationship you have with your audience: Do they already trust you as an expert, or do you need to establish credibility? Do they prefer to review the data before discussing further or are they looking for the highlights in a 10-minute conversation?

> *Imagine wanting to roll out a new growth strategy that positions marketing as a growth and profit center instead of a cost center. Rather than haphazardly juggling marketing campaigns based on competing executive leader asks, you want to prioritize marketing investment based on data (predicted market need, access and capacity, physician loyalty, etc.).*
>
> *There's likely multiple audiences, with whom you have different relationships, who need to support the new strategy. Imagine the different details and visualizations needed when presenting to the marketing department, compared to a budget committee, the CEO, or service line leaders.*

How you communicate with data matters

In a study conducted by Chip Heath in conjunction with Stanford, researchers found that only 5% of participants remembered individual statistics, but 63% remembered the stories that went with the individual data points.[2]

Remove the audience burden with smart use of preattentive attributes

The most effective communication of data takes the burden of interpreting key information off of the audience so their energy is focused on internalizing and responding to your call to action.

Good visualization design draws your eye to the most important data points, while limiting the cognitive load—or mental processing power—needed to decipher the information. There are a number of preattentive attributes that signal to your audience where to look:

Color: Color should be used sparingly. As a best practice, start by making everything gray and slowly introduce color to highlight or pull information forward. In most scenarios, you only need one or two colors to focus the eye. It's important to consider any brand guidelines that may guide the use of specific colors, but in general, the use of blue and black, in contrast to gray, are often enough to highlight key information.

Text emphasis: Bold text adds minimal noise to the visualization and is best paired with color. Italics are less noticeable than bolding or color use but are a great alternative for emphasizing text. Finally, using all UPPERCASE in a short word sequence is easily scanned. But avoid all uppercase when callouts are more than a few words.

Size: Larger items stand out and signal that they are more important than other information. When information is equally important, they should be the same size.

Position: In general, we read left-to-right and our eyes zigzag down the page. As you arrange elements, consider aligning your chart and axis titles to the left to ease the burden of interpreting your graph. Additionally, consider where you put the legend or when you include data values. As you can see in the included examples on the coming pages, there are times we omit the legend in favor of placing the information within the context of the data itself. In other cases, we move the legend to the top to remove the need for our eyes to bounce back and forth within the chart area.

Keep in mind

Axis: Always start a visible axis at 0. It can be extremely misleading to start elsewhere as it will warp the depiction of your data.

Alignment: Align your graph and text elements in clean lines. Avoid centering a block of text. Use the graph baseline (especially in vertical stacked bar graphs) as a baseline for components that you want to compare to one another.

Categorical order: Be mindful of the order of your categories. Do they have an intrinsic order (time periods, levels of satisfaction, ages, etc.)? If not, consider aligning based on the data itself, in descending or ascending order.

Inherently, 3D charts distort the positioning of two data points, making accurate interpretation impossible. It's tempting, but skip it.

Clutter is the enemy of clear communication

Not all data are equally important. When a detail isn't needed, try summarizing instead. It's always okay to move additional information to an appendix without having it clutter your main presentation. (Same goes for verbiage clutter on presentation slides. Drop it into the notes and keep bullets scant.) When you think you're done with a visualization ask yourself: Would eliminating [FILL IN THE BLANK] change anything? If not, remove it.

Here are a few common areas to further reduce clutter:

Whitespace: Whitespace denotes the blank or unused areas of your page. Why do designers love whitespace so much? Because it allows breathing room and enhances the visual experience. Whitespace makes visualizations easier to interpret. Don't be afraid of it!

Grid lines: These can almost always be removed.

Outlines: Remove borders around graphs. They make them feel unnecessarily closed off.

Light versus dark backgrounds: Unless brand guidelines encourage it, charts and graphs are often easier to read on a light background. However, dark backgrounds work well in the right circumstances—keep in mind how a dark background affects your other color choices.

Common chart types and when to use them

There are many tools out there to help you visualize data: from Microsoft® Excel to enterprise-level BI tools. While spreadsheets are by far the most common mechanism, in most cases, you'll need to modify the standard output to incorporate the preattentive attributes mentioned previously.

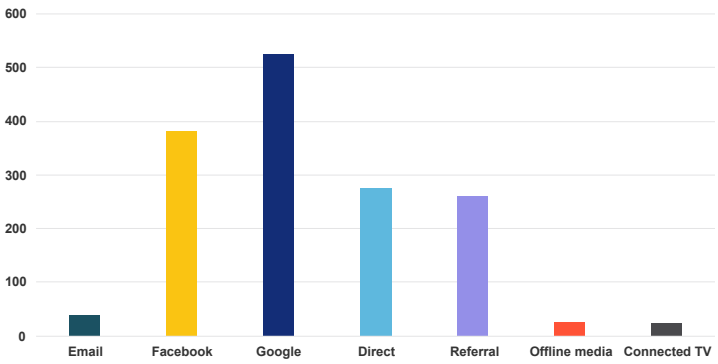
Bar graphs: horizontal vs. vertical

Bar charts are common and easy to read. Like line graphs, both vertical and horizontal bar graphs lend themselves to single, 2-series, and multiple series of data. Horizontal bar graphs, specifically, are best for categorical data because they are the easiest to read. Be mindful of the order in which the bars are presented and avoid using too many series as this can become confusing to interpret.

Notice how the improved graph lists the categories in descending order, uses only two colors, and highlights the Google channel success to reinforce the recommendation.

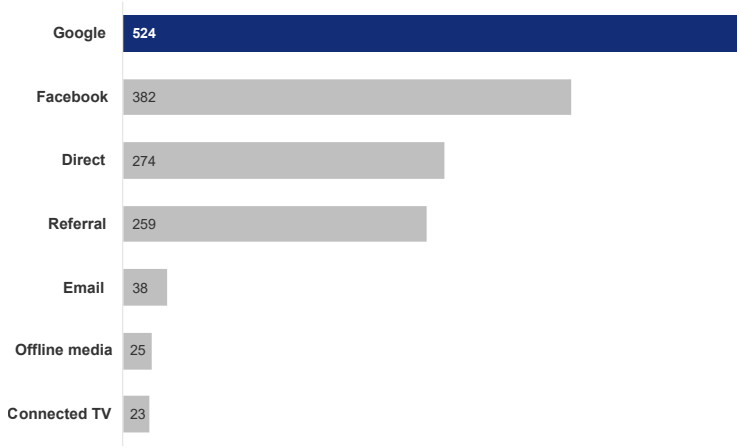
BEFORE

Leads by vendor



AFTER

Google generates the most leads for mammogram screenings



Data Source: Form fills from October - December 2023 for the mammography screenings campaign

Recommendation: Increase Google spend for this campaign as we hit max daily budget by 3pm daily

Stacked bar graph

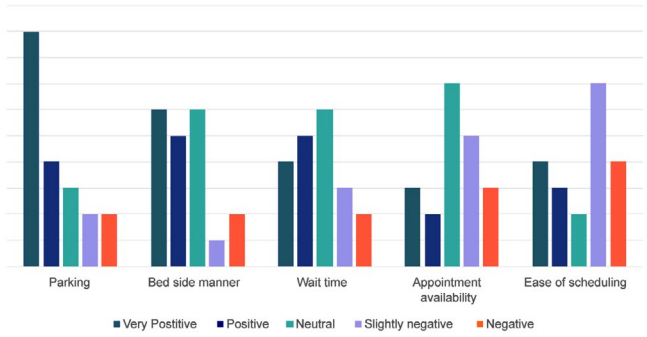
The horizontal or vertical stacked bar graphs are used to compare totals across categories and show the subcomponents of each category. If comparing components of 100% across various categories (like in survey results), the horizontal stacked bar graph works best. The vertical stacked bar graph tends to work better for absolute numbers. In this case, be sure to align the most important subcomponent comparison to the bottom of the chart.

The following example takes into account how the audience reads the page by aligning the categories to the left and moving the scale from negative to positive.

BEFORE

Patient online reviews following an appointment

Customer sentiment

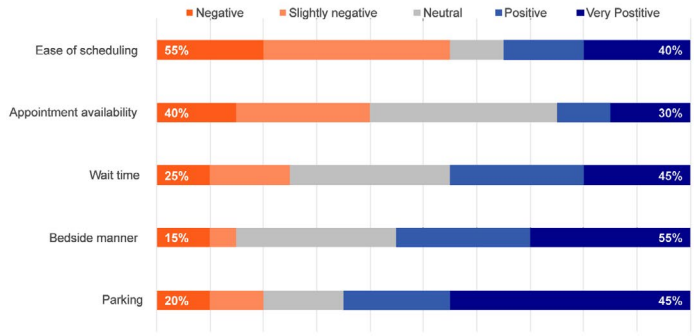


Overall, we do well on customer sentiment across all categories. Ease of scheduling is out biggest area of improvement

AFTER

Ease of access issue due to long hold times and off-hour appointments

Customer sentiment based on their appointment experience



Ease of appointment scheduling and availability are both opportunities for improvement.

Long phone hold times and lack of early morning, evening, and weekend appointments were mentioned most frequently in negative reviews.

Reviews often mention how they felt that Dr. Connors deeply cared about their health. This was the number one driver of the bedside manner sentiment.

Data Source: Online reviews posted between December 2022 - May 2023

Line graph

Line graphs lend themselves to single, 2-series, or multiple series of data. They are best used to display continuous data, most often in units of time. When data points represent time, keep your periods consistent to avoid misleading your audience (example: don't switch between years, quarters, and months).

In this example, see how a 2-series line graph (After) designed to persuade the audience to increase investment in a growth campaign paints a clear picture compared to the original cluster vertical bar (Before).

BEFORE

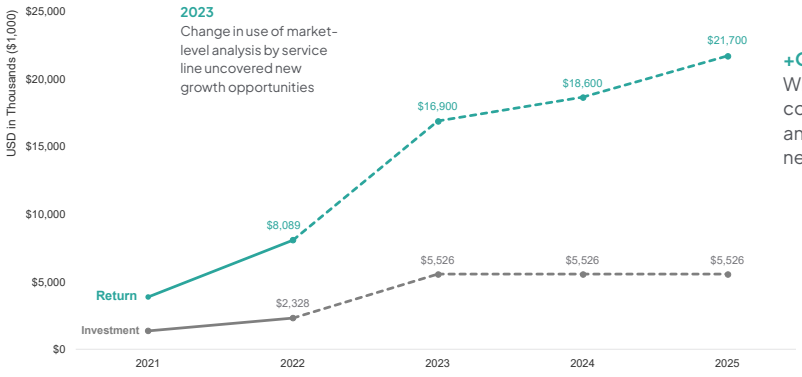
Forecasted ROI if we increase investment over next 3 years

Actual and forecasted return for growth investment

AFTER

293% ROI forecasted in 2023 with increased investment

Investment increase v projected returns



+Ongoing optimization

With new WebMD Ignite technology, we continue to optimize campaign efforts and remove access barriers that bring in new appointments, fueling increased ROI

Data Source: WebMD Ignite Campaign Performance Insights
Financial projections are under reported due to only 30% fill rate of contribution margin at patient level

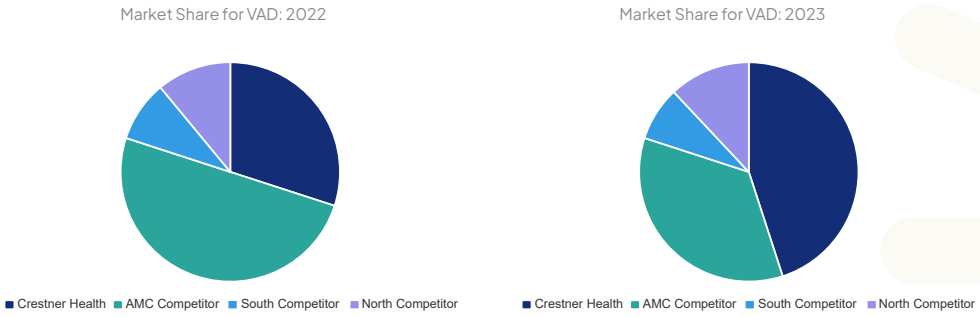
Slope graph

Slope graphs are extremely useful for displaying relative increases or decreases between two points across various categories, most often between two time periods. Note, if too many of the data lines overlap, a slope graph might not be the best visualization.

In this example, it's easy to see the improvement and decline in market share, further emphasized through the use of color.

BEFORE

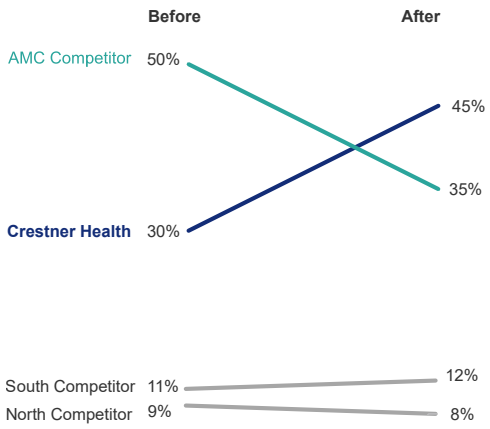
Comparison of market share before and after pilot



AFTER

Expand physician outreach pilot to additional priority services

Market share for VAD before and after pilot



Data Source: WebMD Ignite Provider Network Insights, Comparing where VAD procedures took place Between January-June (Before) to July-December (After)

Pilot program targeted 20 in-network specialists performing VAD procedures who qualaified as splitters. Following pilot outreach program, we saw a substantial shift in procedures performed at our locations.

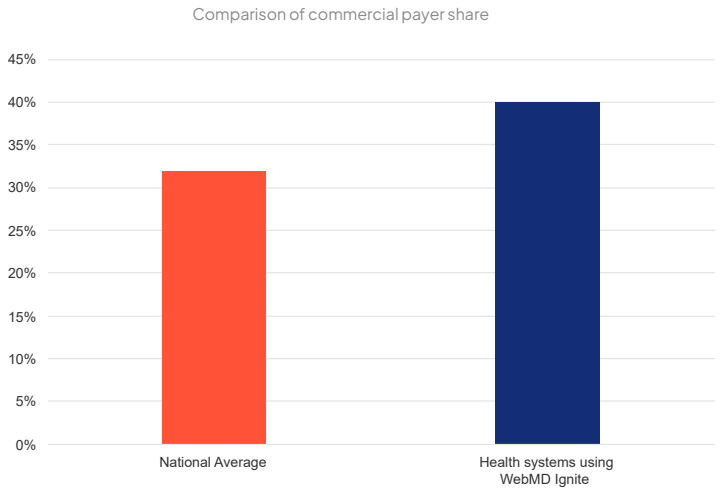
Simple text

When you just have a number or two to share, try to solely use that number as prominently as possible with a few supporting words. This is best when the graph alternative does not do much to help the reader understand the numbers or message.

Consider how the example of an improved visualization below gets right to the point of the data presented, and doesn't put the burden on the audience to understand your takeaway.

BEFORE

Commercial payer mix improvement



AFTER

Health systems using WebMD Ignite see significant improvement in payer mix

+25%

improvement to **commercial share of the payer mix** for health systems using WebMD Ignite to drive intelligent engagement

Data Source: Benchmark analysis of WebMD Ignite customers compared to the national average from AHA

Pro tips

Use headlines wisely

This is the first thing your audience sees. Rather than waste the real estate with redundancy to a chart on the slide, use the space for your recommendation or an important takeaway the audience should know.

Needs improvement: "Budget summary"
Better: "Estimated spend for YYYY is $XX under budget"

Storyboard with sticky notes

Resist the urge to open a new presentation or document as your starting point; we tend to become more attached to our initial ideas if we start here. Instead, use sticky notes, a whiteboard, or plain sheet of paper to storyboard your ideas.

In fact, we recommend writing your headlines first and using those in your storyboarding exercise to ensure a natural flow to your presentation.

Go gray

Strip out everything except the data—make it all gray—and slowly add color back in. This visually pushes less important context to the back.

Keep in mind that 8% of men and half a percent of women are color blind. Reserve shades of red and green—which can be hard to distinguish—for denoting a double-digit loss or significant growth, respectively.

Trust your gut!

You can recognize visualizations that are hard to digest versus intuitive, and pleasant to look at. Use the examples included in this guide for inspiration.

Get a fresh perspective

Share your visualizations with others and ask for feedback. Do they read the graph as you intended? Do their takeaways match your communication goals?

Get to the point

Rather than drag your audience through a long analytical process, prepare a 15 minute presentation that quickly and effectively communicates your main takeaway and recommendation. Schedule the meeting for 30 minutes so you have plenty of time to address questions and get into the details. Be prepared with supporting slides that back up your analysis and recommendations.

Match your delivery format to audience preferences

Based on what you know about your audience, consider how they prefer to receive recommendations. Some may prefer a report to pre-read, a live presentation, or one-on-one conversation. Choose the format for each stakeholder that is most likely to elicit buy-in.

Where to go from here

If you are producing regular reports, you may feel anxious at the prospect of an overhaul. Big changes can be difficult to make and you may be met with resistance when people are used to seeing a specific chart type. Slowly begin experimenting; showing side-by-side comparisons is extremely impactful. You can also offer multiple options that foster improvements to the current process, such as adding a 1-2 page summary using the techniques in this guide. Before long, stakeholders may admit that's all they really need.

Like any change management, socializing and getting buy-in from multiple people is key to your success. Articulate the benefits of the new approach. It could be that people have learned how to cope and suss out the key information they are looking for, not knowing that an alternative actually reduces the cognitive lift required of them. Once you have someone to help champion the change, you'll be on your way to improving that monthly or quarterly output.

It is hard work, but if you keep it up, you will find yourself naturally moving from exploratory to explanatory to inspirational in your communication. Practice and employ effective visualization techniques to position yourself as the go-to expert in data-driven decision-making at your organization. You have the data, now use it wisely!

> **"We've all heard the phrase 'the data speaks for itself,' but the truth is, it almost never communicates clearly for itself. We have to give it a voice."**
>
> — Nancy Duarte

Many of the ideas and suggestions presented in this guide were adapted from and inspired by the book *Storytelling with Data: A Data Visualization Guide for Business Professionals* by Cole Nussbaum Knaflic. We've utilized these learnings to enable healthcare professionals to accelerate growth and implement intelligent engagement strategies. Examples presented are based on real analysis, but have been altered to ensure anonymity.

Conclusion

In a world awash in data, it's extremely useful to have clear ways of presenting the information that matters. Data visualization allows us to succinctly and comprehensively explain the results of our analytics processes. It's a method of storytelling that helps audiences learn and remember what's important. Just be sure to keep graphics as simple as possible and free from clutter. The result will be a an engaging, informative, and compelling story that stands out.

Learn more

WebMD Ignite™

WebMD Ignite is the growth partner for healthcare organizations, helping guide people to better health from Discovery to Recovery. We use our industry expertise to engage individuals through seamless experiences that optimize outcomes, drive loyalty, and build lifetime value. Learn more at webmdignite.com.

SOURCES

[1] U.S. Bureau of Labor Statistics. Data Scientists: Occupational Outlook Handbook. https://www.bls.gov/ooh/math/data-scientists.htm.

[2] BusinessWorld. Story telling in data science. https://www.bworldonline.com/economy/2019/07/03/240363/story-telling-in-data-science/.