INFOGRAPHICS
for Safety Communication

By Morgan Bliss and Jeff Dalto

Communication is an important part of an OSH professional's job and it takes many forms. We tend to give primary emphasis to spoken communication, with secondary attention to written communication. However, we often do not give visual communication enough attention.

Morgan M. Bliss
Morgan M. Bliss, CSP, CIH, is an assistant professor in the Safety and Health Management Program at Central Washington University. Bliss holds an M.S. in Technology, Environmental Management from Arizona State University. She serves as Administrator of ASSP's Training and Communications Practice Specialty and is a professional member of the Puget Sound Chapter. Bliss is a member of the Society's Industrial Hygiene and Academics practice specialties, and a member of ASSP's Women in Safety Excellence Common Interest Group.

Jeff Dalto
Jeff Dalto is senior learning and development specialist at Convergence Training RedVector, a Vector Solutions brand, where he writes the *Convergence Training* blog. He has more than 20 years' professional experience in learning and development, including more than 20 years in safety and safety training. He holds a General Industry Safety Specialist certificate from University of Washington. Dalto is a member of the ANSI/ASSP Z490.2 online safety training standard subcommittee.

Visual communication is vital to OSH. One example familiar to OSH professionals is the use of colored and patterned markings to identify pedestrian walkways, boundaries, work areas or places to put tools. In addition, visual communication is an effective way to communicate OSH data, such as injury rates, near-hits, good catches and completed training modules.

Given the importance of visual communication for OSH, it is worth being aware of and able to create different types of visual communication, including infographics and info-posters. As a simple example, you can put numerical or statistical information in a table, but it is not easy for the viewer to make sense of that data, especially if it is a large or complex data set. As Cairo (2012) notes, "extracting meaning from a table is tough." If you place that information in a line graph, it can be easier to recognize patterns and trends. That is the value of visual communication.

What Is an Infographic?

According to Malamed (2018), an infographic is "a visual representation of information, data or knowledge." Cairo (2014) refines that definition a bit, noting that it is "a visual display intended to create a point." Combining these two definitions, an infographic is information turned into a visual representation to create a point, and that point is to provide insight.

Data visualizations are not intended to simplify information. Instead, their purpose is to show complexity in a way that reduces our cognitive load, allowing us to process the information in a more efficient manner.

There are many types of infographics including graphs, charts, diagrams, timelines, maps and modern visualizations that are typically computer generated and abstract. They do not have agreed-upon names, but they have great communicative power. Each of these different types of infographics is appropriate for a specific use.

Infographics Begin With Information & Data

All infographics are intended to effectively communicate information and data. Therefore, the first step in creating an infographic is to gather the data and ensure that it is accurate and complete. This part of the process is not a visual communication challenge, rather it is a research challenge. So, begin by collecting and organizing the data.

The Viewer & Your Purpose

Once you have the information and data, the next step is to ask two related questions. The first question is, "What will the viewer try to do with the infographic I create?" People are hardwired to try to find patterns. If you want to display a pattern in your data, the method used to present it in the infographic should make it easier for people to see that pattern.

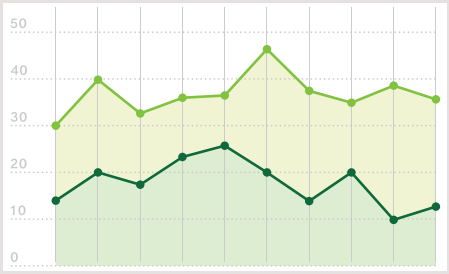
The second question you should ask is, "What type of infographic will best allow me to communicate the patterns in the data that I am trying to communicate?" You can think of this as the purpose or point of the infographic, the insight it is intended to deliver.

Choosing an Infographic Type

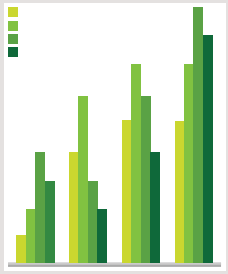
Once you have determined the purpose of the infographic, choose the type of infographic that is best suited to the data. A few different types of infographics can be seen in Figure 1.

Every type of infographic is suited for a specific visualization method to help viewers analyze and see

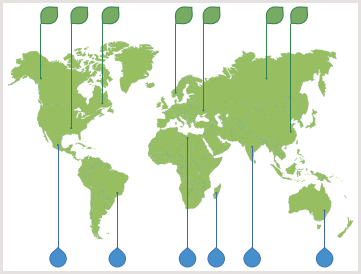
FIGURE 1
EXAMPLES OF INFOGRAPHIC TYPES



A line graph examines a change over time.



A bar graph compares several aspects.



A map evaluates geographic patterns.

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a pattern, relationship, truth or story that they might not detect in nonvisual communication or from another type of infographic. Conversely, when used to show a pattern or tell a story it is not effective at conveying, each type of infographic can also be unhelpful or create confusion.

The Problem With Pie & Bubble Charts

Pie charts are among the most commonly used type of infographic, but they are generally not effective. Pie charts are often used to show the percentages that different parts contribute to a whole. But, as Chang, Eyler-Werve and Cairo (2014) note, the human brain does a poor job of comparing angles and areas, including the angle and area of the different wedges in a pie chart. By contrast, the brain is much more effective at comparing length. So, pie charts with only a few wedges should be replaced with numbers, and pie charts with more than three wedges should be turned into something else such as a bar graph to facilitate the viewer's the ability to compare.

Visual Elements of an Infographic

When creating an infographic, begin with content, which consists of the data, statistics and facts you have gathered. Then use visual elements, such as lines, colors and perhaps labels to display knowledge (the pattern, relationship, meaning or insight) that you want the infographic to reveal to viewers.

Visual elements can be used to promote clarity, avoid clutter and draw attention. Learning how humans respond to attributes such as color can help you create more effective infographics. For example, the color red attracts attention. So, if the goal is to create a map displaying states in the U.S. with the highest workplace fatality rates, indicate those states in red on a map created with muted colors.

Info-Posters

Info-posters are increasingly common in social media. An info-poster is simply a collection of infographics on a related topic, often presented as a persuasive visual essay. Each infographic used in an info-poster may be accompanied by explanatory text.

If the purpose of an infographic is to tell a story, the same should be true of an info-poster. It should present a continuous, logical narrative that helps communicate the overall story, and should not be a random collection of infographics loosely related to a single theme. Many info-posters also contain a call to action at the end, so the viewer understands what they are supposed to do with the information.

Conclusion

Visual communication is an essential component of OSH practice. Different methods of data visualization can benefit safety communication and retention of information. But, before just using a pie chart or line graph by default, consider whether a different infographic would better present and visualize the data, delivering the insight you want to convey. Creating engaging infographics and info-posters can help improve communication at your workplace, leading to an overall improvement in safety culture. **PSJ**

References

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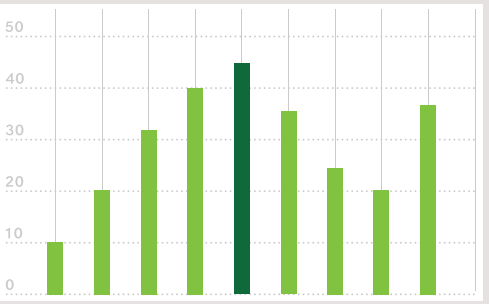
FIGURE 2

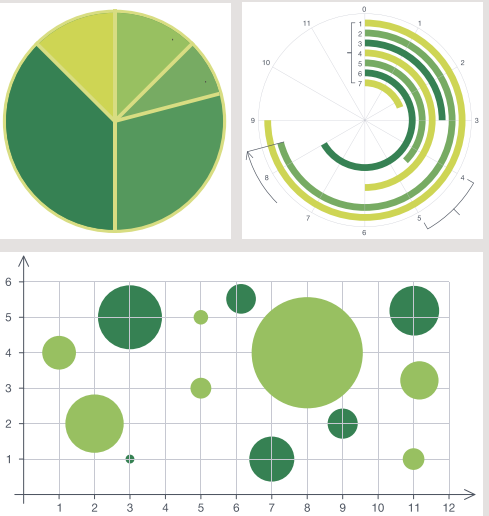
CHART DOS & DONT'S

The human brain does a poor job of comparing angles and areas, including the angle and area of the different wedges in a pie chart. The brain is much more effective at comparing length. The same argument applies to the use of other graphs that require viewers to compare areas, such as bubble charts and spider or radar charts.

Do: Bar Graphs



Don't: Pie, Radial & Bubble Charts



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