



The importance of data presentation:

**A commentary on
"Designing persuasive tables and charts"
by Barry Drees**

As the EMWA data presentation workshop leader (Data Presentation I and II) and as a firm believer in the importance of good data presentation to medical writing, I was naturally excited to read the subtitle of this article "Bad data graphics can be expensive, if not fatal", in this issue but the opening line "The 1986 space shuttle Challenger tragedy in which seven astronauts died was caused, in part, by bad graphics" struck me as something of an exaggeration. However, after reading the article, including the authors' citation of a leading expert in the field of scientific data presentation, Edward Tufte, who makes the same claim, I had to agree that "In dramatic situations, badly communicated technical information can cost lives." I don't think anyone can question the relevance of this to medical writing, which certainly involves dramatic situations when the regulatory authorities have to decide whether or not to approve a new medicine for the treatment of patients with sometimes life-threatening diseases.

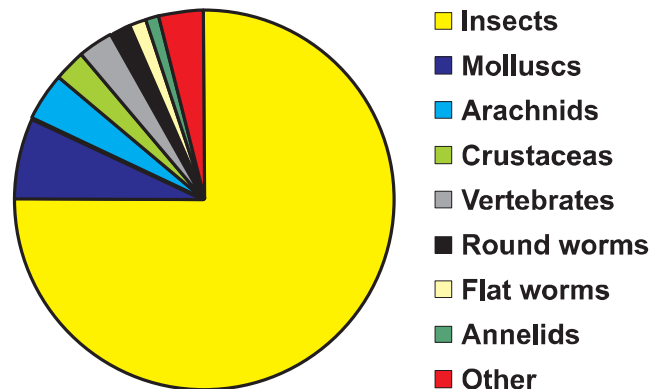
Anyone who has taken one of my data presentation workshops will know how strongly I feel that data presentation is one, if not the, most important part of medical writing. This article lays out the argument for this stance as well as offering some basic rules for good tables, graphs, and charts. Aside from the core message and its relevance to medical writing, I really liked that the authors separated their discussion into "Popular misconceptions" and "Neglect of wording". This second point is very important and is frequently overlooked in books and articles about scientific graphics. No matter how concise and elegant your graphic, the graphic must be explained well or it runs the risk of being incomprehensible.

Many authors in clinical research suffer from "the Tyranny of the Table" and believe that data are somehow more scientific in a table.

Sometimes the authors show their greater familiarity with publications or business graphics, as for example when they state, "Yet communicators are sometimes pressurised (sic) into using graphs when a table is appropriate". This may be true in business graphics, but I find the exact opposite to be the case in medical writing. Many authors in clinical research suffer from what I call the "Tyranny of the Table" and firmly believe that data are somehow more scientific or accurate when presented in a table rather than a graph. If you are confident of the data and how to interpret it, then the most important thing should be how clearly the message of the data is conveyed. One very unfortunate tendency among those who discuss scientific data presentation is to utterly dismiss pie charts. Edward Tufte even goes so far as to write, "A table is nearly always better than a dumb pie chart; the only worse design than a pie chart is several of them, for then the viewer is asked to compare quantities located in spatial disarray both within and between pies. Given their low data-density and failure to order numbers along a visual dimension, pie charts should never be used." I argue in my EMWA workshops that this is a case of a poor workman blaming

Importance of data presentation

his tools and that just because pie charts are frequently misused does not mean that they should never be used. I was hoping that the authors of this article might agree with me and not follow the Tufte party-line, but alas, they write, "The public may like pie charts but they force readers into the mental juggling of comparing triangles arranged in a circle." Sigh. Pie charts are used to show frequencies and when used correctly can be very effective. The famous pie chart showing how many species of living animals on earth are insects (see figure) very clearly conveys the message that there are an awful lot of insect species on this earth compared to other animals.



The problem of blaming the tools, is also demonstrated in their figure where they compare a "successful graph" (their Figure 1) to one they label as "over-complex, poorly designed graph" (their Figure 2). I would argue that both graphs are perfectly acceptable but just show different comparisons. Figure 1 allows comparisons of the total number with IT training, whereas Figure 2 allows comparisons of the IT training for Teams A, B, and C. Both graphs show these comparisons very clearly, it is up to the writer to decide which comparison is the most appropriate for the message of the document. They claim that Figure 2 cannot be summarized in a single sentence, but how about, "Teams A, B, and C had varying numbers completing IT training until 2005, *when the new training SOPs were introduced*"? Every graphic has a message, the important point is whether that message is the one you wish to present.

However, these are relatively minor points (would it be too pretentious to say, "quibbles among the cognoscente"?) and I think that the article generally does a good job of helping to disseminate the message of the importance of good data presentation to all kinds of scientific writing, including medical writing.

Barry Drees

Trilogy Writing & Consulting
Frankfurt am Main, Germany
barry@trilogywriting.com

So you think you know English?

A spam mail, which also informed that human thighbones are stronger than concrete, mentioned that 'rhythm' is the longest English word without a vowel, i.e. without *a, e, i, o, u* or *w* if you happen to be Welsh. This of course assumes that *y* is not a vowel.