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Murphy and His Law

In 1949, Captain Edward Murphy, a West Point graduate made an apocryphal remark while working on a special project at Edwards Air Force Base. He suggested that if there were any way to mess up the project, he or one of his colleagues would find it. This elegant, durable, and somewhat pessimistic philosophy has been canonized as “Murphy’s Law*.”

Murphy realized that there is nothing unusual about unlikely chance events. The opportunity for the bread to land with the buttered side down may seem to have at best a 50/50 probability. But rather than dwell on that statistic, Murphy would have us ponder on what the chances are that it will, instead, land on an edge, slip behind the refrigerator, or smear the side of the cabinet as it falls.

Unlikely events occur with a regular if unquantifiable frequency. Most experiments have isolated results that lie outside two standard deviations of the mean results. Though the explanation for these findings is usually complex, and may defy conventional logic, the “noise in the system,” is in fact very important—it is probably indicative of the chaos that characterizes life. The presentation of these findings in a manuscript is one of the hallmarks of a good scientist. These “outliers” bestow validity on the more orderly parts of the data, those that seem to behave in the expected manner. While it is reasonable to present this information in the data, it is also accepted practice to exempt it from data analysis—that is why Chauvanet invented his criteria.

It is this tantalizing mix of the expected and the unforeseen that makes experimental data credible. It is also one of the features that most reviewers seek as they evaluate a manuscript, and that readers should seek when they read an article. Is the data credible, or are the results too good to be true? An experienced reader can tell.

Always look for the outliers. If they are there, it is likely that science is truly reflecting life. If the results are perfect, we are being spared the disorderly appearance of things as they really exist. When this happens, it is fair to ask what else we are missing. Surely, in authors’ efforts to “clean-up” the data, they have also eliminated some of their more interesting observations—the ones that tax our imaginations and put the expected observations in perspective.

H. William Strauss
Editor, The Journal of Nuclear Medicine

*Murphy’s law: *If anything can go wrong, it will.*