

A Question of Science Writing

A journalist writing an article on the effectiveness of a new medical treatment interviews the principal investigator of the scientific study that showed benefit from the treatment and is impressed with the details she hears. While keeping the reader's interest, what measures should she take to maximize the credibility of her article? Are there any particular assumptions she should avoid stating in writing so as not to magnify the conclusions or confuse readers?

Solutions

Any journalist should do her best to present all sides of the story, as she would with any other piece of news. That means doing more than talking to the principal investigator, and she will do a better job if she does background research before interviewing the investigator. She should interview other physicians in the field to get informed outside opinions about the importance and relevance of the study. She should also do research about the context: How common is the condition being treated? What other treatments are already available? Are there types of patients who were not included in the study and who therefore might respond differently? She should also determine possible drawbacks to the treatment being studied, such as high cost or serious side effects.

This journalist should also look at the quantitative side of the study. A good medical reporter ideally learns enough about statistics and epidemiology to read a study critically. At the least, I'd like to suggest three rules:

Rule 1. Focus on the study's primary question, not its many secondary ones. Secondary analyses are not as important as the primary one, and they are rarely as statistically reliable. Be a little skeptical if the treatment was not effective in the primary analysis but appeared effective in subgroups of patients—the result might be due to chance.

Rule 2. Don't let yourself be bullied by "statistical significance". Some results can be statistically significant but useless in the real world. Imagine a drug that helped

overweight patients slim down by a half-pound. In a large study, such a result might be statistically significant, but who would bother to buy such a drug? Use common sense when evaluating the results, and incorporate everything you know about the treatment, not just the *P* value.

Rule 3. Always describe the absolute size of the effect (rather than or in addition to the relative size). Imagine a drug that reduced the frequency of heart attacks from 1% to 0.5% in some group of patients. Such a difference can be (and usually is) described in relative terms as a decrease of 50%. However, the absolute size of the difference is only 0.5%. Relative differences almost always look much larger than absolute differences, and journalists should try not to inflate the apparent size of an effect.

A final note: Be aware of the emotional impact of news stories about health and medicine. Many people—especially people with cancer, AIDS, or other serious diseases—may grasp at straws. Responsible journalists should recognize that and avoid providing false hopes.

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The credibility of the article can best be determined by the credibility of the science. If the investigator is very excited about the results of an unblinded, non-randomized, small study, the credibility of the article will crumble. If, however, the investigator has just published the results of a phase III randomized double-blinded, placebo-controlled clinical trial, the results have been validated by the most rigorous form of clinical test. The journalist should investigate the strength of the evidence herself by searching the literature and proceeding with caution. Other researchers in the same field should be interviewed about the technology so the reporter can get a sense of whether the excitement is warranted. What are the potential indica-

tions for the treatment? Does it have toxic effects? Is it expensive? Is it practical in a clinical setting? If the evidence is inconclusive, the journalist should say so.

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First, the writer should get in touch with several other researchers working on treatment for the disease in question and should find out whether they think the work of the investigator that she has interviewed is scientifically sound, novel, and important. She should ask both the investigator and the commenters to explain limitations of the finding.

Some aspects to consider: Was the test group large enough to give a clear result, assuming that the study was performed on people? If not, how far removed was the experimental situation from a clinical trial? Was the test group representative of all people who might have the disease? How long was the test group followed? Was the treatment provided in a form that could be used in a typical medical setting? How soon might the treatment be available to the general public? Would it be expensive? How does it compare with treatment now available or being tested by other researchers?

Does the investigator or the source of funding for the research have a financial stake in the success of the treatment? Has the study been reported in a peer-reviewed journal? The answers to such questions ought to influence how the writer presents the results along a range from suggestive and preliminary to convincing and conclusive. It is often useful to mention what experiments are planned for the near

future, so readers will recognize that the problem has not been completely solved.

To avoid hype, at *Science News* we are stingy with the use of the word *cure*, although we would certainly use it if we were convinced that a treatment permanently countered a medical condition.

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New Question: A Question of Data Security

A clinician has received an e-mail request for consultation asking him to provide information about a specific group of patients seen in his local clinic. The clinician is concerned about the new Health Insurance Portability and Accountability Act (HIPAA) regulations as they apply to confidentiality of patient information, but also is overwhelmed by the volume of information and the technology required for data security. What sources might he access to learn much more about this developing topic before deciding how to transmit the patient data requested?

The situations described as new questions in this column are not necessarily based on actual situations, and the ones that are may have been modified to focus the question. Send your responses to the new question to Della Mundy, Department of Medical Editing, Kaiser Foundation Research Institute, 1800 Harrison Street, 16th Floor, Oakland CA 94712-3429. Telephone 510-625-2373; fax 510-625-5231; e-mail della.mundy@kp.org.