Science reporting to the public: Does the message get twisted?

Celeste Condit

ß See related article page 1399

Lay people get a substantial amount of information about health and related topics from the media. Communicating with the public through the media can be vexing for medical professionals because they lack direct control over the final reporting. It is the reporter's framing of the information and his or her words that reach the public, rather than the scientist's or the clinician's. Moreover, there is a mismatch between the expectations of the scientist and those of the reporter. From the medical researcher's perspective, the news should be a sort of double helix, with media reports correctly matching, letter for letter, the original scientific publication. But this ideal is unachievable because the public cannot understand the language of an increasingly subspecialized scientific enterprise. Even scientists have trouble communicating across subdisciplines. Given that the ideal cannot be realized, what standards should be used for judging reporting about medical science and how well is current reporting meeting those standards?

The standards of accuracy applied in the popular press are set by the need for reporters to translate the precisely honed technical descriptions found in scientific writing into lively and clear summaries, using lay vocabulary. At best, this standard includes fidelity to sources, a balance among and inclusion of different viewpoints, and a translation that conveys some main idea from a study clearly and without the kind of distortions that might encourage inappropriate (or even dangerous) behaviour or unrealistic expectations.

Given these differences in expectations and the lack of personal control, it is not surprising that medical researchers are quick to blame the media for problems with public communication and to assume that media coverage is characterized by inaccuracy. However, the research that Tania Bubela and Timothy Caulfield[1] present in this issue (page 1399) suggests that these assumptions are not well founded. Their results indicate that media reports are reasonably accurate, except in specific types of controversial areas, and that cases of inaccuracy may be as much a product of the researcher's overenthusiasm as of error by the reporter. These findings are consonant with related research.

Early social scientific research on genetics reporting tended to assume that the media were "getting it wrong,"[2] but it soon became clear that anecdotal and sweeping assessments were subject to observer bias. It was all too natural for critics to notice and reprint examples of egregious reporting, portraying these as typical of the rapidly burgeoning area of genetics reporting. Similarly, these critics applied their own assumptions — usually that any favourable reporting about genetics was undesirable — to condemn all reporting about genetics as bad, simply because much of it contained favourable elements. More recent research has used quantitative measures, paid attention to sampling and generalizability, used standardized and accepted measuring instruments, checked coder reliability and used increasingly sophisticated analytic methods such as the classification and regression tree analysis applied in the study by Bubela and Caulfield.[1] Such research highlights that studying media coverage of genetics is as complex as the genetics itself, for communication is not a simple, linear process.

Bubela and Caulfield explicitly address the question of the fidelity of news reports to the scientific reports on which they are based. They find that disagreement between scientific findings and media reporting is rare. It might well be, however, that both journalists and scientists offer an exaggerated vision of the prospects of genetic medicine. The methods used by Bubela and Caulfield would not define such congruent exaggeration as inaccuracy. But, using different methods and a different sample, Mountcastle-Shah and associates[3] found a similar level of inaccuracy and noted that exaggeration by the media occurred in only a minority of news reports.

Another possibility is that press coverage could be faulted for being "unbalanced." That is, even though it might not exaggerate wildly or contain blatantly inaccurate statements, it might have a pro-genetics or anti-genetics slant. In fact, an overly optimistic slant has been detected in most studies.[4–7] This lack of balance includes a tendency to quote from scientists more than from other sources[4,5,7] and a failure to include topics such as potential risks[2] or specific ethical considerations.[8]

In addition to difficulties in defining the criteria by which press coverage of science should be assessed, there is evidence of differences among specific newspapers and across specific topics, as Bubela and Caulfield's data suggest.[1] Differences have also been found between different types of stories, coverage by different media and coverage published at different times: generally, "hard" news reports

DOI:10.1053/cmaj.1040005

are more accurate than feature stories,[9] print media are more accurate than television,[10] and later coverage is more accurate than earlier coverage.[5,7]

The use of exaggeration or slant (whereby some features are ignored and others are overemphasized) may be motivated by the conflicting responsibilities faced by both scientists and journalists, as a study by Wilcox[11] has made clear. She noted that reporters need to gain newspaper space (and ultimately an audience) for their topics, so they are prone to include sensationalistic, absolutist or at least dramatic statements. This drive conflicts with the norms of science journalism, which encourage cautious, detailed, balanced reporting, thus reflecting the norms of the science that is covered. Such conflicts may become evident as inconsistencies in coverage. In the interview setting, these dynamics are often manifested as reporters' efforts to get researchers to state the practical implications of the research, and the subsequent tendency to portray these applications as more general and perhaps more immediate than they may well be.[2] Similarly, researchers may be influenced by conflict between their responsibilities to the norms of science and their desire for academic promotion, grants for the maintenance of research staff and laboratories, or simply personal financial gain though patents and royalties.[12] They may also be under pressure from commercial sponsors of their research.

What then does the line of research represented by Bubela and Caulfield's study mean for medical researchers trying to communicate with the public about health? First, researchers should assume that what they say in their scientific publications may make its way into the public sphere and that press coverage may treat speculative "discussion" sections as fact. Second, researchers should talk to reporters. The public, who fund research with their hard-earned tax dollars, and patients, who indirectly fund research by purchasing products developed by private industry, have a right to know about that research, and news reporters are a major conduit. But researchers must prepare for such interviews as carefully as they would prepare for a talk at a scientific conference. The researcher should know exactly what she or he intends to communicate to the reporter and should resist the reporter's efforts to gain commentary that is different from what the researcher wishes to communicate. Detailed guidance about what is desired by lay audiences, as agreed upon by scientists and reporters, is provided by Mountcastle-Shah and associates;[3] noteworthy in their catalogue are replication status, opinion of outside experts, prevalence of the genotype and phenotypes, and symptoms of disease. It is perfectly reasonable to ask a reporter to send written questions in advance of the interview. When that is not possible, the researcher should at least be prepared to avoid answering the reporter's inevitable question — "What is this good for?" — with an enthusiastic forecast of potential applications. Given the dynamics of science reporting, the reporter will probably feature rosy forecasts if the scientist is willing to offer them, yet such forecasts may all too often come to be seen as broken promises. If it is appropriate to link the research to the development of medical treatments, supplying colourful metaphors that emphasize the distance from the ultimate goal may be a good way to do so. Thus, the researcher might say that this is one baby step on the long journey toward the cure for X or that it is one tiny piece in the giant jigsaw puzzle that might someday enable prevention or treatment of Y. Finally, if a reporter exaggerates or is inaccurate in the final story or broadcast, the researcher should let the reporter's editor know and should tell other researchers about the experience with that particular reporter.

An old communication aphorism has it that one "cannot *not* communicate." This is as true for medical researchers as it is for others; the corollary is that they must act responsibly in communicating with the media.

From the Department of Speech Communication, University of Georgia, Athens, Ga.

Competing interests: None declared.

References

1. Bubela TM, Caulfield TA. Do the print media "hype" genetic research? A comparison of newspaper stories and peer-reviewed research papers. *CMAJ* 2004;170(9):1399-407.
2. Nelkin D, Lindee S. *The DNA mystique: the gene as cultural icon*. New York: WH Freeman; 1995.
3. Mountcastle-Shah E, Tambor E, Bernhardt BA, Geller G, Karaliukas R, Ellison Rodgers J, et al. Assessing mass media reporting of disease-related genetic discoveries. *Sci Commun* 2003;24(4):458-78.
4. Conrad P, Weinberg D. Has the gene for alcoholism been discovered three times since 1980? *Perspect Soc Probl* 1996;8:3-25.
5. Sheedy KM. *Transcending tragedy: a "comic" critique of public discourse about breast cancer genetics, 1987-97* [dissertation]. Athens (GA): University of Georgia; 2000.
6. Condit CM. What is "public opinion" about genetics? *Nat Rev Genet* 2001;2:811-5.
7. Ten Eyck TA, Williment M. The national media and things genetic. *Sci Commun* 2003;25(2):129-52.
8. Craig D. Ethical language and themes in news coverage of genetic testing. *J Mass Commun Q* 2000;77:160-74.
9. Henderson LH, Kitzinger J. The human drama of genetics: "hard" and "soft" media representations of inherited breast cancer. *Soc Health Illness* 1999;21:560-78.
10. Condit CM, Ofulue N, Sheedy K. Determinism and mass media portrayals of genetics. *Am J Hum Genet* 1968;62:979-84.
11. Wilcox SA. Cultural context and the conventions of science journalism: drama and contradiction in media coverage of biological ideas about sexuality. *Crit Stud Media Commun* 2003;20(3):225-47.
12. Mitchell GR. *Strategic deception: rhetoric, science and politics in missile defense advocacy*. East Lansing (MI): Michigan State University Press; 2000.

Correspondence to: *Dr. Celeste Condit, Department of Speech Communication, University of Georgia, 110 Terrell Hall, Athens GA 30602; fax 706 542-3262; ccondit@uga.edu*