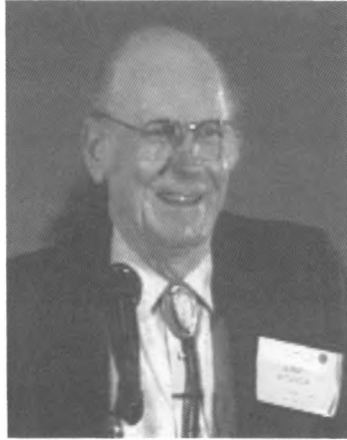

Communicating With the Public About Risk

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As many biotechnologists, particularly those involved in agriculture, are beginning to discover, it is not easy to communicate to the public the concepts of risk, at least not risk as understood by the scientific community. Many people find themselves baffled and chagrined by a weather forecast that says there is a 30 percent chance of rain when all they want to know is whether to take an umbrella to work.

Those who toil in the mass media are quite conscious of the difficulties of communicating risk concepts to the lay public. Hardly a week goes by when editors and reporters are not forced to decide whether to publicize some alleged threat to the public health. The threat may range from the risk of too little calcium or too much iron in the diet to the risk of using a cellular telephone or driving a pickup truck with the fuel tanks mounted outside the truck frame. Inevitably, one interest group will accuse the media of needlessly scaring the public while another interest group will charge that the media are failing to alert the public to a deadly danger.

The criticisms of the media from the scientific community, however, are of a different nature, are considerably more reasoned and, consequently, are more closely attended than those from special interest groups. One such

critic is Daniel E. Koshland Jr., the esteemed editor of *Science*. In an editorial in late 1991, Koshland had this to say about the mass media:

There are many examples these days of improper conduct, of which the recent coverage of the chemical Alar, used to slow the ripening of apples, is a dramatic example. In that case, a clearly dubious report about possible carcinogenicity by a special interest group was hyped by a news organization without the most simple checks on its reliability or documentation. This caused panic among consumers and losses of millions of dollars by apple growers. Confronted with the inadequacy of the data, a spokesman for the public interest group recently suggested that it was excusable because people are eating more apples than ever before. That is like an embezzler justifying embezzlement by saying the banking industry continues to survive. Worse, the public's disdain for repeated scares indicates that an individual publication's (or broadcast group's) willingness to cry 'wolf' uncritically may be destroying the press's own credibility and its ability to provide legitimacy to responsible environmentalists...the press has been too willing to publicize Jeremy Rifkin's cries of alarm, which so far have been consistently wrong.

Koshland goes on to argue that the press should adopt a policy of revealing the sources of data that are claimed to be "scientific" and should distinguish between a report in a peer-reviewed scientific journal and the claims made at a "dataless press conference" or in "a public relations document." He urges that "press conferences without peer-reviewed data should be greeted with heavy skepticism."

Most scientists, particularly those in biotechnology who have been in the glare of Jeremy Rifkin's pronouncements, probably agree with Koshland's recommendations on how the press should perform. But Koshland begs the more basic question of why a reputable organization like CBS Television and a highly regarded program like *60 Minutes* would deign in the first place to scare the wits out of the apple-eating American public by publicizing a report that lacked peer-reviewed scientific data.

To understand why television, newspapers, news magazines and other media would publicize such an unsupported allegation of a health danger it might be useful to look at a few examples. None, in this case, deal directly with agricultural biotechnology but they offer an insight that might be useful to those who might have to deal with the media and the public about issues of safety and risk of genetically altered crops and irradiated foods.

An interesting piece of history appeared a few years ago in the journal *Preventive Medicine*. Andrew McClary, a science historian at Michigan State University, had dug into newspapers and consumer magazines published in the early part of this century to see how they dealt with the problem of the housefly (McClary, 1982). The germ theory of disease was fairly new at the time and early research had discovered pathogens were harbored in the gut of the common housefly. It was well known, of course, that houseflies feed by regurgitation and that they are commonly seen flitting from outhouses and garbage cans to kitchens and dining rooms. These observations had led to the seemingly logical conclusion that the ordinary housefly could spread disease.

The evidence that the housefly was a vector of human disease was purely circumstantial. There had been no documented cases of human illness being directly transmitted via the housefly and infectious disease experts of the day said it seemed unlikely that the housefly was an important health hazard.

Nevertheless, the mass media fell in whole-heartedly with local campaigns to warn the public of the dangers of the housefly. In addition to many articles about proper sanitation, many newspapers championed “swat the fly” campaigns, McClary found. In Washington, D.C., 5,000 children brought in an estimated 7 million dead flies during a two-week campaign in which the *Washington Evening Star* offered prizes up to \$25 for the most flies killed. The champion, 13-year-old Layton Burdette, brought in 343,800 dead flies, having paid a company of 25 boys to kill and collect flies for him.

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It was the consumer magazines of the day, however, that went after the housefly with a vengeance, McClary found. In 1911, the *Independent* described the fly as “a monstrous being with more eyes than Argus, wings like a monoplane, six long, hairy legs and a mouth armed with horrid mandibles, sucking blood and dripping poison.”

McClure's charged, in 1909, that the fly would “slaughter the little babies through the summer.” A year later, *Ladies Home Journal* asked its readers: “What will you do? Shall he continue in his death-dealing path or will you rise and ‘swat’ him?” In 1913, *Good Housekeeping* declared that “women are the mothers of babies and the makers of homes, and the fly is an enemy of both.”

These exaggerated assertions undoubtedly caused the public an immeasurable amount of anxiety and led to the expenditure of an enormous amount of time and money to eliminate the housefly—an effort that continues to this day. But the media went unchallenged. Rarely, if ever, did infectious disease

experts and public health officials step forward and accuse the media of scaring the public on the basis of inadequate scientific evidence. Unlike the Alar controversy, the mass media's "play" of the housefly menace did not damage any particular interest. The housefly had no defenders; there was no insect rights group trying to protect the innocent housefly. Fly control even spawned a not-so-small industry in window screens, fly paper, fly swatters and, years later, insecticides.

So it would seem that one aspect of communicating risk to the public is whether the communication is likely to affect some particular economic interest. Koshland's editorial condemns "a clearly dubious report...by a special interest group"—presumably the Natural Resources Defense Council—because it "caused panic among consumers and losses of millions of dollars by apple growers" but he fails to classify the apple growers as a special interest group. One can only wonder whether the Alar story would have stirred such condemnation if it had not caused a precipitous—but temporary—decline in consumption of apples and apple juice.

Be that as it may, McClary raises a question regarding the housefly articles that remains pertinent to this day:

Should one condemn these articles as failing to meet desired standards of popular science writing? Was it better to gain reader interest through mild sensationalism, or risk its loss through the use of unemotional, objective prose?

This is not a trivial question that applies only to the media in the early part of this century. It is particularly pertinent today when a potential news story deals with "risk."

Every reporter and editor knows that if a story fails to interest the reader, the reader simply turns the page and looks for some other story that does interest him or her. No reporter is going to waste his or her time and effort writing a story that no one will read. And any newspaper or magazine or television news program that consistently publishes articles that fail to interest readers will quickly discover its readers going elsewhere for information.

At the same time, readers do not like to be misled; they resent it when they invest their time in reading a story that turns out to be far less interesting and informative than promised by the headline and "lead" of the story. One can imagine the chagrin of readers who, a few years ago, spent a dollar on a supermarket tabloid with a headline "Man Shot Eight Times and Lives" only to discover the story is about a body found with nine bullet holes.

In news stories dealing with risk, the reporter and then the editor have to decide how to arouse a reader interest enough to make them pause and read the story and yet not mislead the reader. I was reminded recently how diffi-

cult it is to tread this line by an incident involving one of my own stories (Bishop, 1993), an incident which, I fervently hope, continues to be rare on *The Wall Street Journal*.

A medical journal had published an article describing a long-term follow-up of women who had had chest irradiation after surgery for breast cancer. The analysis indicated that 10 years after irradiation there was a two-fold increase in risk of lung cancer. Any story about breast cancer inherently stirs reader interest. Many readers have either had breast cancer or have family members or friends who have had breast cancer. And this story would carry particularly strong reader interest because in recent years many women diagnosed in the early stages of breast cancer have opted for a so-called “lumpectomy”—plus radiation—in hopes of preserving the breast.

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But the report lacked certain information. It described only relative risk. The absolute risk of a woman developing lung cancer after breast irradiation was not calculated. Moreover, the effect of cigarette smoking on the relative risk of lung cancer was not taken into account. A call to the authors revealed that their main interest was not in the safety or long-term effects of breast cancer therapy, but rather in gathering evidence on the induction of cancer by ionizing radiation. The lead author had had several calls from the press and was becoming a bit overwrought that news stories might unduly influence therapeutic decisions for women with breast cancer.

We assumed that many of our readers would hear of this study on the evening news or read it in their morning paper. We also felt that if the story were not presented in the proper context, women readers who have had or might have breast cancer would be unduly alarmed about the findings. Therefore, it was decided that we would present the new findings to our readers in a context that was informative but not alarming. To this end the first sentence of the story, the “lead,” read:

A Columbia University scientist cautioned that his finding that radiation treatments for breast cancer increase the risk of lung cancer were mainly of scientific interest.

“I don’t think women who are being treated for breast cancer or who had radiation treatments for breast cancer in the past should be overly concerned” about the new finding, said Alfred I. Neugut, a cancer specialist at the College of Physicians and Surgeons, Columbia University’s medical school in New York.

Later in the evening, an editor on the copy desk decided that the lead sounded as though the finding of higher lung cancer risk was old news; it read as

though the reader already knew about the finding. He changed the lead as follows:

A new study says radiation treatments for breast cancer increase the risk of lung cancer, but the Columbia University scientist who headed the research team said the finding was mainly of scientific interest and should not alarm women who receive the treatment.

This version subtly puts more emphasis on the increased risk of lung cancer. The change, however, is not too far from the original and still cautions the reader that the study should not affect decisions on breast cancer therapy. However, a headline has to be written that sums up the story in few succinct words. And the headline usually is a condensed version of the lead of the story. Thus, the next morning the story appeared with this headline:

STUDY LINKS BREAST CANCER TREATMENT TO HIGHER RISK
OF THE DISEASE IN LUNGS

The headline, which gives readers a certain “mindset” before they read the story, states exactly what we originally tried to avoid. But the episode shows how difficult it is sometimes to grab a reader’s interest without resorting to the melodramatic exaggerations that the anti-house-

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fly writers used three-quarters of a century ago.

The editor’s reaction to the original lead also underscores another aspect of reporting risk—oriented stories. News of a risk attracts more interest than news of no risk. The original lead did not appeal to the editor, in part, because it indicated that readers need not concern themselves about the finding. The change put more emphasis on the discovery of a previously unknown risk and the resulting headline stated it rather baldly.

This bias against “no risk” stories was described in late 1991 in a report appearing in the *Journal of the American Medical Association*, “Bias Against Negative Studies in Newspaper Reports of Medical Research” by Koren and Klein of the Hospital for Sick Children in Toronto (Koren and Klein, 1991). Earlier in the year a single issue had carried two articles on risk of cancer among populations exposed to radiation. One study, the “positive” finding, showed that atomic energy workers at the Oak Ridge National Laboratory had 63 percent higher than normal risk of developing leukemia. The other study, the “negative” study, failed to find any increased risk of cancer among people living near nuclear power plants.

Koren and Klein found 19 daily newspapers that had carried stories about the articles but only 10 of these reported the results of both studies and,

of those 10, most emphasized the “positive” finding of a leukemia risk among Oak Ridge employees and gave minor consideration to the “negative” finding of no risk. Nine of the newspapers reported only the “positive” finding.

Koren and Klein conclude: “Responsible journalists should acknowledge the importance of providing balanced information to the public when covering controversial health issues and should give equal attention to positive and negative studies.”

Koren and Klein’s finding of bias against negative studies is not surprising. What Koren and Klein actually uncovered was not so much a bias on the part of the newspapers as a bias on the part of newspaper readers. News of health risks must compete for reader attention each day against news of other happenings in the world—including wars, murders, economic declines, election campaigns, Congressional votes on health care issues, stock market gyrations and the agonies and accomplishments of sports teams. It seems obvious that a scientific study that reveals a potential threat to one’s health will compete well for the reader’s attention. On the other hand, a report that tells the readers they need not worry about getting cancer from living near a nuclear plant will be of little interest to people who do not live near a nuclear power plant, which probably includes most of the readership of the newspapers surveyed by Koren and Klein.

It is somewhat naive to assume that people will read whatever the press decides to print. The fact is that, unlike a teacher or even a preacher, the audience served by most publications is not a captive audience that is required to sit there and read every word impressed on the page. It is a capricious audience, a fickle audience that picks and chooses what it wants to read.

This is the overriding criterion used by editors in deciding what news will be printed about risk or any other subject.

This criterion applies just as stringently to news about new technologies such as the genetically engineered economic animals and crops which the NABC audience deals with. First and foremost readers will want to know how the new technology will affect their lives. Thus, they will have more interest in genetically engineered tomatoes that will appear on their supermarket shelf than a strain of corn genetically engineered for drought resistance. Initially, they will be most interested—and the press will be most likely to report—how the new technology will benefit them, the readers.

Readers...want to know what such criticisms are and when they are expressed.

First and foremost readers will want to know how the new technology will affect their lives... they will immediately want to know if it is in any way harmful or dangerous.

But once the readers learn that they soon will encounter the products of a new technology and that its inventors are promising benefits, they will immediately want to know if it is in any way harmful or dangerous.

The press is acutely aware of these desires of readers and will publish the information they want as it becomes available. The first stories will describe the new technology, its potential benefits and probably include the assurance of its developers that it is safe. But the reporters and editors will be on the alert for any indications that the new technology might carry known or unknown risks. The risks, incidentally, could be financial as well as health-related since the readership includes those who might want to invest in the new technology.

This, for instance, is the reason the press gives publicity to pronouncements and actions by critics like Jeremy Rifkin and Ralph Nader, and prints stories about chefs of famous restaurants agreeing not to serve genetically engineered foods. Readers, including many attending NABC 5, want to know what such criticisms are and when they are expressed. It is as important, or perhaps more important, for the scientists and venture capitalists involved in developing genetically engineered foods to know what Jeremy Rifkin and the chefs are doing as it is for the general public.

To use any other criteria for deciding what should be printed or not printed in a newspaper or any other medium of mass communications would be lethal for the newspaper. To paraphrase one of my editors of several years ago, the newspaper editor who decides to print what he thinks people should read instead of what they want to read will soon find he has no newspaper to be editor of.

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