COMMENTARY

Improving Public Understanding: Guidelines for Communicating Emerging Science on Nutrition, Food Safety, and Health

For Journalists, Scientists, and All Other Communicators

Based on an advisory group convened by the Harvard School of Public Health and the International Food Information Council Foundation*

Twenty-five years ago, the chances were slim that a food and health-related study in a scientific journal would make the evening news or greet readers in their morning newspapers. Now, hardly a week goes by when a breaking dietary study doesn’t make headlines.

There are a number of reasons why. Public interest in nutrition and food safety has increased dramatically. And food stories—because they are inherently so personal—make for compelling news. Just as important, scientists have much to gain from increased visibility. And the same holds true for the journals that first publish the studies or other communicators who have an interest in advancing public understanding of the issues.

But there’s another reality about emerging science, the media, and the public. And that’s confusion. Surveys tell us that the high volume of media coverage has not brought clarity to or improved understanding of a topic of such obvious impact. More has not always meant better.

Again, there are several reasons why. First, the public’s unfamiliarity with the scientific process can make the evolutionary nature of research appear contradictory and confusing. Second, scientists, themselves, don’t always agree on what constitutes scientific evidence sufficient to warrant changing recommendations to the public. And, perhaps most important of all, how emerging science is communicated—by scientists, the journals, the media, and the many interest groups that influence the process—also can have powerful effects on the public’s understanding, on its behavior and, ultimately, on its well-being.

To examine these issues and assist the communications process, the Harvard School of Public Health and the International Food Information Council Foundation convened an advisory group of leading experts. Following the initial meeting in Boston, Massachusetts, a series of eight roundtables was held around the country involving more than 60 other nutrition researchers, food scientists, journal editors, university press officers, broadcast and print reporters, consumer groups, and food industry executives. (See “Appendix” section.)

Based on input from the participants at these meetings, a set of guiding principles for the communication of emerging science has been developed. The first draft of guidelines was subsequently reviewed by a second meeting of advisory group members and revised, and the final draft circulated to roundtable participants prior to publication. At the heart of these principles is the belief that food-related science can be effectively communicated in ways that serve both public understanding and the objectives of the communicators.

Of all the questions surrounding the communication of food-related studies, perhaps the most basic is, should single studies be communicated at all to the public at large? Almost by definition, much of the information involved is preliminary, not conclusive, and therefore not a strong basis for change in public policy or behavior. Even so, these studies, and the news stories they spawn, can be useful in raising public awareness of key nutrition, health, and food safety issues—if they are expressed in enough context to enable the average person to weigh the information appropriately.

These guidelines are intended to suggest how that context can be provided. They outline the necessary data, disclosures, and contextual qualifiers to help the public evaluate a study’s relevance and importance. However, there is no expectation that every news story will include all or most of the suggested information. Instead, these guidelines can help communicators focus on the most vital information the public should have in order to form the most useful net impression of a particular study’s findings.

With each study, the information will vary. The key to evaluating one study may be the limitations of its methodology; for another, it may be an understanding of which population groups are most affected by the findings. These guidelines will help communicators ask key questions so that they can identify which specific answers will best inform the public.


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The guidelines are presented in several groupings—first, general guidelines relevant for all, followed by more specific guidelines for scientists, journal editors, journalists, and interest groups. They purposely are expressed as questions, rather than imperative statements, to encourage self-inquiry and suggest measures of responsible communication. As such, they are intended to help ensure that sound science and improved public understanding are the ultimate guides to what is communicated and how.

General Guidelines for ALL PARTIES in the Communications Process

1. Will your communication enhance public understanding of diet and health?
   - Is the study credible enough to warrant public attention?
   - With the information you provided, will the public be able to properly assess the importance of the findings and whether they should have any immediate bearing on their food choices?
   - Have you avoided an overly simplistic approach that may inappropriately characterize individual foods, ingredients, or supplements as good or bad? Have you helped the public understand how the food, ingredient, or supplement can be consumed as part of a total healthful diet, or why it should not be consumed?
   - Have you appropriately represented the study’s overall conclusions and avoided highlighting selective findings which, on their own, might present a misleading picture?

2. Have you put the study findings into context?
   - If the findings are preliminary and nonconclusive, have you made that clear?
   - If the findings differ with previous studies, have you indicated this and explained why? If the results refute previously released results, do you provide a weight of evidence comparable to the earlier findings?
   - Have you clarified to whom the findings apply? Have you avoided generalizing the effects when the study was restricted to populations of a certain age or sex or with specific genetic, environmental, or other predisposing conditions?
   - Have you included information about risk/benefit trade-offs of consuming or not consuming certain foods, ingredients, or supplements? Have you explained how these risks and benefits compare with other factors (e.g., level of physical activity, genetic history) that may also contribute to health?
   - In explaining a dietary risk, have you distinguished between population-wide estimates and individual risk? Have you cited statistics on absolute risk and not just relative risk, e.g., expressing an increase in incidence from “one in a million to three in a million” and not just as “three times the risk”?

3. Have the study or findings been peer-reviewed?
   - Has the study been peer-reviewed by independent scientists or published in a peer-reviewed journal? At the same time, have you understood that while peer review is an important standard, it does not guarantee the findings are definitive or conclusive?
   - If a study has not been peer-reviewed (e.g., a paper presented at a meeting or convention), are the findings so important that they should be communicated to the public before peer review?
   - Have you distinguished between actual study findings and editorials or commentaries that may have been written about the study? Have you clarified that an editorial is an expression of personal views and has not always been peer-reviewed? Have you investigated how widely held these views are or whether the editorial represents a narrowly-held opinion?
4. Have you disclosed the important facts about the study?
   • Have you provided adequate information on the study’s original purpose, research design, and methods of data collection and analysis?
   • Have you acknowledged any limitations or shortcomings the study may have?
5. Have you disclosed all key information about the study’s funding?
   • Have you publicly disclosed all funding sources for the study?
   • Are you reasonably confident of the study’s objectivity and independence?
   • Have you considered what the funders stand to gain or lose from the study’s outcome?
   • Have you allowed the validity of the science to speak for itself, regardless of the funding?

**Communication Guidelines for Scientists**

1. Have you provided essential background information about the study in your written findings, or to journalists or others requesting it, in a language that can be understood?
   • Have you explained all details of the study including purpose, hypothesis, type and number of subjects, research design, methods of data collection and analysis, and the primary findings?
   • Are you reporting study findings consistent with the original purpose of the data collection?
   • Were appropriate scientific methods of inquiry used? Did you disclose any study shortcomings or limitations, including methods of data collection? Were objective health measurements used to help verify self-reports?
   • Was the study conducted in animals or humans? Are limitations of animal models noted in terms of their applicability to humans?
   • Have you waited to report the results until the study has been independently peer-reviewed? If not, did you disclose to the media that the findings are preliminary and have not yet been peer-reviewed?
2. Have you clarified dietary risks and benefits?
   • Did you explain the dosage of a substance or amount of food or ingredient that was linked to the health outcome? Is this amount reasonably consumed by the average individual?
   • What was the original risk of developing the disease? Have you expressed the new level of risk in terms of both absolute and relative risk?
3. Have you met the needs of the media?
   • Are you available for media interviews the day before/after the release? Do you make every attempt to respond to media inquiries in a timely fashion?
   • Does the news release prepared for the study communicate the primary findings faithfully and without exaggeration? Have you reviewed and approved the final version of your institution’s news release?

**Communication Guidelines for Journal Editors**

1. Does your embargo policy enhance public communication?
   • Do you make embargoed copies of the journal available to all journalists who agree to respect the embargo, not just a select group of reporters?
   • Do you notify scientists whose studies will likely receive press attention when the embargoed issue is being made available?
   • Do you provide the relevant articles from the embargoed journal to study authors so they can preview other related work in that issue, helping them respond to questions?
2. Do you encourage responsible media reporting on study findings?
   • If you issue a news release on an article in your journal, is it faithful to the underlying research? Does it provide adequate background information?
3. Have you considered the effect of the study findings on consumers?
   • Have you considered what might be the effect of the study finding on the general public?
   • Does the study warrant an accompanying editorial to help put the findings into context? If so, is the editorial content included in the news release?
4. Does your submission policy permit scientists to clarify results of abstract presentations with the media?
   • Does your submission policy make it clear that scientists presenting abstracts should submit the complete report for peer review? Have you stressed they should not distribute copies of the complete report of the study, or figures or tables from that study, to the media before publication in a peer-reviewed journal?

**Communication Guidelines for Journalists**

1. Is your story accurate and balanced?
   • Have you established the credibility of your primary source?
   • Have you asked other reputable scientists and other third-party health sources if they believe the study is reliable and significant? Have these scientists reviewed the study?
   • Do the third-party sources you are quoting represent mainstream scientific thinking on the issue involved? If not, have you made it clear that such opinions or commentary differ from most scientific perspectives on this topic? If such opposing viewpoints are expressed by only one or two individuals, does the amount of coverage given reflect that these are clearly minority opinions?
2. Have you received and reviewed a copy of the study publication—not simply reviewed abstracts, news releases, wire reports, or other secondary sources of information?
   • After reviewing the study results and limitations, have you concluded it still warrants coverage? Have you objectively considered the possibility of not covering the study?
   • Are words used to describe the findings appropriate for the type of investigation? Cause and effect can only be shown directly in studies in which the intervention is the only variable modified between the experimental and control groups.
   • Is the tone of the news report appropriate? Do you avoid using words that overstate the findings, e.g., “may” does not mean “will” and “some” people does not mean “all” or “most” people?
1. Have you provided accurate information and feedback to the Interest Groups Guidelines for Industry, Consumer, and Other special interest groups? What does the information source have to gain if its point of view is presented? Have you considered a range of conflict-of-interest possibilities beyond dollars?

2. Have you applied a healthy skepticism in your reporting?
   "scientific breakthrough" or "medical miracle"? Does the report indirectly suggest that a pill, treatment, or other approach is a "silver bullet"?

3. Does your story provide practical consumer advice?
   How do action steps relate to the larger context of existing dietary guidance (e.g., Dietary Guidelines for Americans, USDA Food Guide Pyramid, importance of balance, variety, and moderation)?

4. Is your reporting grounded in basic understanding of scientific principles?
   How do action steps relate to the larger context of existing dietary guidance (e.g., Dietary Guidelines for Americans, USDA Food Guide Pyramid, importance of balance, variety, and moderation)?

List of Further Resources to Accompany the "Guidelines for Communicating Emerging Science on Nutrition, Food Safety, and Health"

Books

Guidelines for Industry, Consumer, and Other Interest Groups

1. Have you provided accurate information and feedback to the media?
   • Are the headlines, photo images, and graphics consistent with the findings and content of your article?
   • In talking to sources and reading news releases, have you separated fact versus emotion or commentary?
   • Do the study findings seem plausible?
   • Have you used any hyped or "loaded" terms in the headline or body of a report to attract public attention, e.g., "scientific breakthrough" or "medical miracle"? Does the report indirectly suggest that a pill, treatment, or other approach is a "silver bullet"?

2. Have you applied a healthy skepticism in your reporting?
   • Are you aware of the difference between evidence and opinion? If not, have you consulted knowledgeable sources?
   • Are you familiar with the scientific method of inquiry and various terms such as hypothesis testing, control groups, randomization, double-blind study, etc.? Do you understand and communicate that science is evolutionary, not revolutionary in nature?
   • Are you familiar with different types of studies, why they are used, and the limitations of each?

3. Does your story provide practical consumer advice?
   • Are you familiar with the dietary guidance (e.g., Dietary Guidelines for Americans, USDA Food Guide Pyramid, importance of balance, variety, and moderation)?
   • Have you provided credible national, state, or local resources where consumers can obtain more information or assistance on the diet and health topic—especially if the findings present an immediate threat to public health and safety (such as foodborne or waterborne illness outbreak), e.g., brochures, toll-free hotlines, online resources?

4. Is your reporting grounded in basic understanding of scientific principles?
   • How do action steps relate to the larger context of existing dietary guidance (e.g., Dietary Guidelines for Americans, USDA Food Guide Pyramid, importance of balance, variety, and moderation)?
   • Have you provided credible national, state, or local resources where consumers can obtain more information or assistance on the diet and health topic—especially if the findings present an immediate threat to public health and safety (such as foodborne or waterborne illness outbreak), e.g., brochures, toll-free hotlines, online resources?
   • Are you familiar with the different types of studies, why they are used, and the limitations of each?
   • Do you stay current on diet and health recommendations, so as to help identify the true significance of new findings?
• IFIC review: how to understand and interpret food and health-related scientific studies. International Food Information Council Foundation, July 1997.

Articles

• Blakeslee A. Late night thoughts about science writing. Quill 1994 Nov/Dec;82:35–9.

Newsletters

• ScienceWriters. Newsletter of the National Association of Science Writers.
• Scipers. Newsletter of Science Communication Interest Group, Association for Education in Journalism and Mass Communication.
• SEJournal. Newsletter of the Society of Environmental Journalists.
• Food Insight. Newsletter of the International Food Information Council Foundation.

Workshops

• American Medical Association’s Annual Medical Communications and Health Reporting Conference

Online Resources

• EurekAlert! (http://www.eurekalert.org)
• FACSNET (http://www.facsnet.org)
• National Association of Science Writers (http://www.nasw.org/)
• New England Science Writers (http://www.umass.edu/pubaffs/nesw/)
• Society of Environmental Journalists (http://www.sej.org)
• Harvard School of Public Health (http://www.hsph.harvard.edu)
• International Food Information Council Foundation (http://ificinfo.health.org)
• Tufts University Nutrition Navigator (http://navigator.tufts.edu)

Appendix

Regional Roundtable Participants

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