



## Navigating the maze of medical research

MEDICAL RESEARCH

**S**ometimes news stories about health seem to contradict one another—one says something is good for you, and another says that the same thing is bad for you. Conflicting medical reports can make even the most educated consumer confused about what to believe and what to do.

Many people are interested in managing their own health. Nowadays, consumers can get health information from thousands of health-related books, videos, CD-ROMs, magazines, newspapers, television, other people, and off the Internet. With so much information vying for attention, it may be hard to distinguish between reliable and unreliable information.

Some believe the most influential conduits of health information are the media. Health reports on television news, or newspapers and magazines, often seem credible because they purport to report “scientific research.” Next time you hear or read about medical research, here are some things to keep in mind to be a more informed health consumer.

*Additional Sources: AMA’s Manual of Style, 9th Edition (1998), Consumer Health: A Guide to Intelligent Decisions, 6th Edition (McGraw-Hill, 1997), News & Numbers: A Guide to Reporting Statistical Claims and Controversies in Health and Other Fields (Iowa State University Press, 1989)*

### WHAT IS PEER REVIEW?

Some medical journals use the peer-review process to evaluate the importance and quality of original research manuscripts. Journal editors select the peer reviewers, who are considered experts in a certain area of medicine. Peer-reviewed research articles are considered highly credible medical research because they have undergone scrutiny by experts who are knowledgeable in the topic. This issue of *JAMA* is devoted to research about the peer review process.

### STUDY DESIGN:

There are several types of study design. Knowing how the study was conducted helps investigators, editors, and journalists to determine how strong the research is and how reliable the results are.

- **Randomized Controlled Trial** – testing a drug or some other treatment by comparing at least 2 groups: an experimental group that is being tested and a control group that is observed for comparison; often the studies are *double-blind*, so that the researchers and the participants do not know the treatment assignments; considered the best type of scientific research to determine effective treatments
- **Crossover Trial** – participants receive 2 or more treatments 1 after the other and act as their own controls for comparison of drug treatments
- **Cohort Study** – follows a group of people over time to determine who develops a disease or other outcome; can be *prospective* (the outcome studied has not occurred yet) or *retrospective* (information is collected after the outcome has occurred)
- **Case-Control Study** – retrospective study in which participants with a disease (cases) are compared with those who do not have the disease (controls) to study risk factors for the disease
- **Cross-Sectional Study** – studying a group of people at a given point or period in time; can be used to determine if variables are associated with each other but cannot be used to determine cause
- **Case Series** – describes the characteristics of a group of patients with a particular medical condition or patients who have undergone a particular medical procedure
- **Meta-Analysis** – systematic review of studies that pools the results of 2 or more studies to obtain the answer to an overall question of interest
- **Cost-Effectiveness Analysis** – compares the benefits of a treatment with monetary costs

### TYPES OF STUDIES:

- **Laboratory Experiments** – studies of animals, living tissue, cells, and disease-causing agents
- **Epidemiologic Studies** – search for risk factors, or predictors, of diseases
- **Controlled Clinical Trials** – studies that compare an experimental group with a control group

### WHERE TO TURN TO ON THE WEB?

With the proliferation of the World Wide Web over the past decade, it can be difficult to determine what health information on the Web is credible. Sites that generally are reliable include the federal government (eg, National Institutes of Health and the Centers for Disease Control and Prevention), national nonprofit health organizations (such as the AMA’s Web site at [www.ama-assn.org](http://www.ama-assn.org)), medical specialty organizations, major medical centers, and universities. Use caution with for-profit companies and single-source Web sites, which can be biased, and always check the source of the information and when the information was last updated.

### FOR MORE INFORMATION:

- International Food Information Council Foundation *Guidelines for Communicating Emerging Science on Nutrition, Food Safety, and Health* or *How to Understand and Interpret Food and Health-Related Scientific Studies*  
P.O. Box 65708  
Washington, DC 20035 or  
[ificinfo.health.org/press/scirept.htm](http://ificinfo.health.org/press/scirept.htm)
- Quackwatch, Inc.  
[www.quackwatch.com](http://www.quackwatch.com)
- Center for Disease Control and Prevention  
[www.cdc.gov/](http://www.cdc.gov/)
- National Institutes of Health Consumer Health Information  
[www.nih.gov/health/consumer/conicd.htm](http://www.nih.gov/health/consumer/conicd.htm)

### INFORM YOURSELF:

To find this and previous *JAMA* Patient Pages, check out the AMA’s Web site at [www.ama-assn.org/consumer.htm](http://www.ama-assn.org/consumer.htm).

**COPY FOR YOUR PATIENTS!**

Mi Young Hwang, Writer

Richard M. Glass, MD, Editor

Jeff Molter, Director of Science News

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