Health Writer's Handbook

Second Edition
Contents

List of Tables ix
List of Example Articles ix
Acknowledgments xi
Introduction xiii

Part 1 Finding Topics and Information
1. Some Basics 3
   Approaches to Finding Topics 3
   Evaluating Topics 4
   Saving Ideas 6
   An Information-Gathering Strategy 6
   Exercises 7

2. Books and Periodicals 9
   General and Medical Libraries 9
   Medical Books 12
   Medical Periodicals 14
   Exercises 29

3. Government, Associations, and Other Institutions 31
   Using Institutional Sources 31
   Government 36
   Organizations 42
   Educational Institutions 45
   Health-Care Institutions 46
   Industry 46
   Conferences 47
   Exercises 49
Contents

4. Researchers, Clinicians, Patients, and Others  51
   Identifying People to Interview  51
   Tips on Interviewing  53
   Interviewing Members of Various Groups  55
   Exercises  63

5. Online Sources  65
   The World Wide Web  65
   Electronic Mail  67
   Discussion Groups  70
   Exercises  71

Part II Preparing the Piece

6. Evaluating Information  75
   The Source  75
   Consistency  77
   The Study Design  77
   The Numbers  84
   Interpretations  91
   Applicability  92
   Alternatives  92
   Uniqueness  93
   The Big Picture  94
   The Costs  94
   Exercises  95

7. Health-Writing Technique  99
   Assessing the Audience  99
   Beginning Effectively  100
   Defining the Focus  102
   Explaining Well  103
   Providing Orientation  107
   Providing Points of Entry  107
   Including Human Interest  108
   Presenting Numbers and Sizes Effectively  109
   Ending Strongly  110
   Providing Access to Further Information  111
   Checking for Accuracy  112
Contents

Part III Exploring Issues and Areas

12. Ethical and Legal Issues 249
   Approaches to Ethical Issues in Health Writing 250
   Codes of Ethics 250
   Areas Posing Ethical Issues 253
   Legal Considerations 260
   Exercises 265

13. Covering Key Realms 267
   Diseases 267
   Health-Care Technologies 273
   Health Policy, Health Care, and Related Areas 276
   Other Realms 277
   Exercises 280

14. Presenting Risk 281
   Understanding Risk Perception 281
   Presenting Risk 282
   Covering Environmental Risk: Some Resources 285
   Exercises 288

Part IV Pursuing a Career

15. Career Options 291
   Media Old and New 291
   Public Information and Public Relations 298
   Freelance Writing 299
   Finding Health-Writing Opportunities 301
   Exercises 303

16. Professional Organizations 305
   Main Organizations 305
   Organizations in Related Areas 309
   Broader Organizations 310
   Exercises 311

17. Educational Opportunities 313
   Courses and Programs 313
   Internships and Related Opportunities 316

viii
## Contents

### Part III  Exploring Issues and Areas

12.  Ethical and Legal Issues  249  
    Approaches to Ethical Issues in Health Writing  250  
    Codes of Ethics  250  
    Areas Posing Ethical Issues  253  
    Legal Considerations  260  
    Exercises  265  

13.  Covering Key Realms  267  
    Diseases  267  
    Health-Care Technologies  273  
    Health Policy, Health Care, and Related Areas  276  
    Other Realms  277  
    Exercises  280  

14.  Presenting Risk  281  
    Understanding Risk Perception  281  
    Presenting Risk  282  
    Covering Environmental Risk: Some Resources  285  
    Exercises  288  

### Part IV  Pursuing a Career

15.  Career Options  291  
    Media Old and New  291  
    Public Information and Public Relations  298  
    Freelance Writing  299  
    Finding Health-Writing Opportunities  301  
    Exercises  303  

16.  Professional Organizations  305  
    Main Organizations  305  
    Organizations in Related Areas  309  
    Broader Organizations  310  
    Exercises  311  

17.  Educational Opportunities  313  
    Courses and Programs  313  
    Internships and Related Opportunities  316
Fellowships 318
Additional Resources 322
Exercises 324
Example 325

References 331
Sources Cited 331
Sources of Additional Help or Perspective 341

Index 349

Tables

2-1: Some Prominent Medical Journals 16
3-1: Examples of Toll-Free Telephone Numbers for Health Information 33
3-2: Telephone Numbers—National Institutes of Health (NIH) Media Contacts 38
5-1: Some Internet Sites of Potential Use to Health Writers 68
11-1: Examples of Health Writing Winning Major Awards 204
11-2: Examples of Awards for Health Writing 211

Example Articles

7-1: Medical Mystery Feature: “The Secret in the Marrow” by Daniel C. Weaver (Discover) 116
8-1: Overview Article: “It’s gettin’ hot in here: Spring break, days at the beach and sunburns are on tap for students next week” by David Barry (The Battalion) 146
8-3: A Local Newspaper Column—and an Interview with the Columnist: “Mediterranean Diet—A Model for Healthy Eating” by Eris Weaver (Argus-Courier) 151
8-4: Some Pieces from a Magazine Health Column: Pieces by Amy Givler, MD (HomeLife) 154
Contents


11-1: “The Annotated Monster”: “Mrs. Kelly’s Monster” (with annotations) by Jon Franklin (*Baltimore Sun*) 219

11-2: Depth Article: “Growing up too fat: Kids suffer adult ailments as more become dangerously obese” by Kim Severson and Meredith May (*San Francisco Chronicle*) 235

17-1: A Feature Article Prepared During an Internship: “Blood Relatives: First-generation artificial blood is about to hit the market” by Linda Wang (*Science News*) 325
Many individuals and institutions contributed directly or indirectly to this book. Gretchen Van Houten of Iowa State University Press encouraged me to pursue my goal of preparing such a work. Mark Barrett of Blackwell Publishing Professional provided guidance regarding the second edition. Texas A&M University granted me leave from my usual duties to do research and writing. Staff of various organizations and government agencies provided material for potential use, and fellow health writers generously shared their experience. Tom Linden, MD, contributed the chapter on medical reporting for the electronic media. Ann A. Duyka, Arkady Mak, PhD, MD, Joyce Michel, Jason E. Moore, Carol Cruzan Morton, Anne Woods, and a pair of anonymous reviewers commented helpfully on a draft of the first edition. Katherine Arnold Travis provided help in fact checking for the first edition, and Li Xiao did so for the second. Staff at both publishers helped transform the manuscript into the book you see before you.

To all of the above, and to others who aided me in this project, I express my gratitude. I especially thank my husband, Thomas I. Vogel, PhD, for his unceasing patience, kindness, and care. To him I dedicate this book.
Introduction

Many people in many settings now write about health and medicine for general readerships. Yet few have studied medical journalism, and little guidance is readily available in this field.

The current book, which evolved from a course in medical reporting, was written to help address this gap. The book is intended primarily for the beginning or aspiring health writer: the reporter newly assigned to the health beat, the writer newly hired by a medical institution, the clinician hoping to prepare some articles for the public, the student considering a career in the field. More experienced health writers may also encounter new information in this book—as I did while gathering material for it. The book also can assist the occasional health writer: for example, the business writer covering the release of a new drug, the feature writer profiling a clinician or researcher or patient, or the sportswriter reporting on an athlete’s illness or injury.

Paralleling the writing process, the book begins with guidance in choosing topics, gathering information, and evaluating the information gathered. Next come chapters on crafting the piece. Other areas addressed include facing ethical and legal issues, presenting information on risk, and building a career in health writing. The book also provides basic help in writing about such key realms as heart disease, cancer, infectious disease, and mental health.

The years since the first edition of this book went to press have seen many changes. The Internet has grown and evolved, the Association of Health Care Journalists has emerged, many publications on health writing and related topics have appeared, and much more. Therefore the information and guidance in this book have been updated extensively.

In addition, the book has been expanded. It now includes, for example, a chapter on medical reporting for television and other electronic media. Complementing the brief examples of health writing in the text, lengthier pieces have been added at the ends of chapters; thus, the book can serve as an anthology as well as a primer. Exercises, suitable for use in a course or on one’s own, now have been included.
Introduction

Because health writers come from varied backgrounds and have varied goals and tasks, different parts of the book may be of use to different readers. Thus the book has been designed so individual sections can be consulted as needed. Some redundancy has necessarily resulted; it is hoped that those reading the entire book will not find the repetition disruptive.

This book is oriented largely to the United States. Much of the content, however, also applies to health writing in other countries. I would welcome international readers' suggestions for suiting this book further to their interests, circumstances, and needs. Likewise, other readers' suggestions would be very welcome. May we work together to promote health writing of the highest quality.

Barbara Gastel, MD

e-mail: b-gastel@tamu.edu
Chapter 1

Some Basics

Good health writing begins with choosing a good topic and gathering ample information. Often the two intertwine: Determining the worth of a topic commonly entails some research, and information gathering often yields ideas for further writing. Thus, this chapter and the four that follow provide guidance in finding both topics and information. The current chapter offers general guidance, including advice on assessing topics and a strategy for gathering information. The remaining four chapters provide help in using specific types of sources, ranging from medical journals to health professionals to the World Wide Web.

Approaches to Finding Topics

The complexity and wonder of the human body. The findings every day in biomedical research. Our changing and challenging health-care system. The near-endless array of diseases. Health writers hardly lack subject matter. But how to decide just what to write about?

Depending on their circumstances, health writers vary in the breadth of the decision they face. Freelancers, for example, may be bounded by little more than the ability to match a story to a site. Health writers for the news media also can have considerable scope, though they often must favor material that is newly announced or has a local angle. Health writers working in public information or public relations—say, at a government agency, a medical school, or a disease-related association—typically choose from a narrower range of subjects. Yet they, too, often face considerable choice.

Whatever a health writer's setting, two approaches can work well for finding possible topics. One is to start with questions that people want or need answered. Another is to start by identifying information available to present.

Potential questions to address abound. Listen to the people around you or those in the groups for which you write. What health problems trouble them and their families and friends? What baffles them about their
I. Finding Topics and Information

bodies? What concerns them about health care? What questions do they have about keeping healthy? Listen carefully, and also consider what questions you yourself have or would have in their position. Reflect as well on your own experience, for example as a family caregiver or a patient; like Madge Kaplan of WGBH Radio in Boston, you may find unexpected story ideas (Kaplan 2001).

Freelance medical writer Karen Rafinski, formerly of the Miami Herald, favors starting with the questions. “Talk to doctors and patients about the issues they face and then work backwards seeking out what light the latest research has to shed on their concerns,” she advises. “In fact, I even make a point of attending patient support groups every once in a while so I can tap into what patients find most troubling—an exercise that always nets me a long list of story ideas.” (Rafinski 2000)

The other approach—first identifying information available to present—also is popular and productive. New information on which to base health writing is always emerging. Thousands of medical journals, some appearing as often as weekly, publish reports of research. Investigators present new findings at medical conferences every day. Expert groups frequently issue health-related recommendations. Drugs and medical devices continually enter the market. New health-care facilities open, and existing ones offer new services. As coming chapters will discuss, information on such developments is readily available.

Evaluating Topics

Indeed, information on what’s new in medicine is so readily available that health writers in some settings could keep busy covering nothing else. Publicity materials, such as news releases, deluge health reporters in the popular media, and they are easily obtained by others as well. Over the years, journalists covering science and medicine have repeatedly been criticized for relying so heavily on such materials that they let others set their agendas. Clearly, health writers in media and freelance settings must assess possible topics with care. So must those working in public information and public relations, to ensure that what they present is sound and worthy of attention.

When a potential topic emerges from information you encounter, three basic questions can be useful to consider. First, is it true? For example, do the researchers’ findings solidly support the conclusions? Or, as sometimes occurs, has a news release overstated the findings? Lawrence K. Altman,
1. Some Basics

MD, who writes for *The New York Times*, has noted an instance in which a news release from a major research institute made a preliminary finding seem to be proof of a cure for cancer (Altman 1995). Similarly, Susan Okie, MD, of *The Washington Post*, has recounted a case in which a news release hailed discovery of the first “schizophrenia gene” but in fact the finding was much more limited (Deming 2001). Indeed, a study of news releases from journals (Woloshin and Schwartz 2002) suggests that such releases tend to play up the importance of findings while ignoring limitations of the studies from which they came.

Second, is it new? As discussed in chapters to come, written and other sources can aid in determining whether something appearing new is truly so. Such determination can be especially important when a treatment is being hailed as novel. Newness can, however, be in the eye of the beholder. For example, a research finding may have been announced weeks or even months ago in a professional journal. However, if readers of a popular magazine are unaware of the finding, it may be sufficiently fresh.

Third, is the information important? Often, no absolute answer exists. Rather, the answer may depend on your audience’s concerns and your reasons for writing. In popular health writing, as in writing for medical journals (Huth 1999), two useful questions to consider are “So what?” and “Who cares?” If you shrug in response, the topic might best be abandoned.

If your possible topic derives from a question likely to interest your audience, evaluating it includes determining how much of an answer you can provide. Is sufficient information of sufficient quality available to pre-
I. Finding Topics and Information

pare a good piece of writing? If not, do not dismiss the topic entirely. Rather, save it for possible future use. For often the best health writing results when new information emerges to help answer long-important questions.

Saving Ideas

Often you may come up with a topic that has some merit but is not ready to pursue. A finding may be too preliminary, or adequate information may still be lacking on a question of interest. Or you may be unable to come up with an engaging angle, identify a site for publication, or spend the time the story requires. Do not give up; rather, place the idea in an idea file.

You may find it useful to keep two types of idea files: one for mere glimmers of ideas, others for ideas that are more developed. "Glimmer files" contain reminders of various ideas for potential evaluation and pursuit. The reminders may vary in form from a news release you found intriguing, to a journal article on a topic you think bears exploring, to notes from a talk by someone you may wish to profile, to jottings of story ideas that occurred to you after hearing acquaintances discuss medical concerns. Be sure to note in sufficient detail what you have in mind, lest you find yourself wondering after some months, "What is this doing in here?"

Story ideas that are more developed may merit individual files of their own. For example, you may be seriously considering doing a story on a new disease or an increasingly popular type of treatment. As you encounter materials relating to the topic, put them in the file on it.

Later, when you are seeking story ideas, or when new developments may make old topics timely, consult your story files. You may then be off to a running start.

An Information-Gathering Strategy

Once a topic seems promising, information gathering in earnest can begin. Some flexibility still is needed, though: Some topics may not pan out, at least for the present. And sometimes a different focus emerges than initially envisioned.

Good health writing demands thorough research. Not only must such research be deep enough to yield sufficient understanding and ensure that information is solid, it also must be broad enough to provide adequate context.
I. Finding Topics and Information

pare a good piece of writing? If not, do not dismiss the topic entirely. Rather, save it for possible future use. For often the best health writing results when new information emerges to help answer long-important questions.

Saving Ideas

Often you may come up with a topic that has some merit but is not ready to pursue. A finding may be too preliminary, or adequate information may still be lacking on a question of interest. Or you may be unable to come up with an engaging angle, identify a site for publication, or spend the time the story requires. Do not give up; rather, place the idea in an idea file.

You may find it useful to keep two types of idea files: one for mere glimmers of ideas, others for ideas that are more developed. “Glimmer files” contain reminders of various ideas for potential evaluation and pursuit. The reminders may vary in form from a news release you found intriguing, to a journal article on a topic you think bears exploring, to notes from a talk by someone you may wish to profile, to jottings of story ideas that occurred to you after hearing acquaintances discuss medical concerns. Be sure to note in sufficient detail what you have in mind, lest you find yourself wondering after some months, “What is this doing in here?”

Story ideas that are more developed may merit individual files of their own. For example, you may be seriously considering doing a story on a new disease or an increasingly popular type of treatment. As you encounter materials relating to the topic, put them in the file on it.

Later, when you are seeking story ideas, or when new developments may make old topics timely, consult your story files. You may then be off to a running start.

An Information-Gathering Strategy

Once a topic seems promising, information gathering in earnest can begin. Some flexibility still is needed, though: Some topics may not pan out, at least for the present. And sometimes a different focus emerges than initially envisioned.

Good health writing demands thorough research. Not only must such research be deep enough to yield sufficient understanding and ensure that information is solid, it also must be broad enough to provide adequate context.
As you do your research, keep careful notes on the sources you use and the information you obtain. Such record keeping will aid both in writing your piece and in checking it for accuracy.

Following two basic principles can aid in gathering information for health writing efficiently and smoothly. The first is to begin with less technical sources and move to more technical ones. The second is to start with written sources, which may be either printed or electronic, and then move to human sources.

More specifically, basic printed or electronic reference works, such as general and medical dictionaries and encyclopedias, are often good places to start. Next come reading materials for the public. These can include books; magazine, newspaper, and newsletter articles; items exclusively on the Internet; and publications of institutions such as government agencies, health-related associations, and companies. In general, the last written sources to consult are books and journals for the medical community.

Finally, interviews with scientists, health professionals, patients, and others can round out the information—and sometimes direct you to additional reading. Also, once you are well prepared, observing surgery or spending time in the laboratory with researchers can garner valuable material for your writing.

The next four chapters, which build on this introduction to finding topics and information, proceed largely in the order outlined here. First comes a chapter on books and periodicals, then one on institutional sources, and finally one on people to interview. Because computerized resources play such a prominent role in gathering information for health writing, they are both noted in these chapters and discussed in a separate chapter.

Exercises

1. Think about your own recent medical and health-care concerns and experiences and those of family members and friends. Based thereupon, come up with a story idea to pursue. Identify a potentially appropriate publication site or other venue for the story you envision.

2. On the World Wide Web, access EurekAlert! (www.eurekalert.org), a site containing science-related news releases from various research institutions. Under "News by Subject," click on "Medicine & Health." Browse through the news releases that appear, and from them identify three story ideas that you would like to pursue. Say which news release(s) each story idea was based on and why you chose these story ideas.
I. Finding Topics and Information

3. (a) During the next week, note medical and health stories you encounter in various media. Say how you think the idea for each story originated. Explain your reasoning.
(b) Repeat this exercise after finishing Part I of this book (Chapters 1–5) or after finishing the entire book.
Chapter 2

Books and Periodicals

Good health writers are good health readers. Knowledgeable about medical books and journals, they draw on such resources to generate story ideas, assess those ideas, and gather information for their writing. This chapter provides guidance in approaching the medical literature. Given the considerable availability of computerized resources in libraries and elsewhere, it touches on materials in electronic formats as well as those in print.

General and Medical Libraries

General and medical libraries offer health writers a wealth of information and guidance. Knowing and using these libraries well is a mark of the truly professional health writer.

Given the importance of medical subjects to the population, public libraries often have good collections on health. Especially when you are approaching a new topic, such libraries can be a fine place to start. Consider beginning in the reference section. Reference sources, such as general encyclopedias and the *McGraw-Hill Encyclopedia of Science and Technology* (2002), often provide a good grounding; you can then move to medical encyclopedias and other more specialized reference works.

Popular books and articles available at public libraries can introduce your topic in more detail or provide more up-to-date information. If an area is new to you, consider beginning with books written for young adults; then move to other books and to popular articles, which you can identify via computerized literature-search systems available through the library. You may also be able to consult materials such as publications from the National Institutes of Health, especially if the library has a government documents section. In larger libraries, you can look at materials that are more technical, such as basic medical textbooks and major medical journals. If a public library lacks materials you are seeking, it may be able to borrow them from another library through interlibrary loan. As well as
I. Finding Topics and Information

providing printed items, the library may offer use of computerized information sources to which you would not otherwise have access.

The main libraries of nearby colleges and universities also are likely to have collections that can aid you. If you are not enrolled or employed at the college or university, you may not be able to borrow books. However, you may still be able to consult and photocopy materials from the library.

To explore the medical literature in some depth, a medical library generally is a must. There you will have access to many printed and online medical books and journals. And importantly, you will have medical librarians who can aid you in your search.

Fortunately, the United States has an extensive system of medical libraries, including consumer health libraries as well as libraries mainly for the medical profession. Locations of consumer health libraries in the United States are posted at www.nlm.nih.gov/medlineplus/libraries.html. Libraries mainly for health professionals often are associated with medical schools. For help in finding a nearby medical library you can call the National Network of Libraries of Medicine at (800)-338-7657 or look at its Web site (nnlm.gov).

© Sidney Harris, reproduced by permission.
2. Books and Periodicals

Many libraries provide access to some of their resources online; links to U.S. and other medical and health sciences libraries on the World Wide Web are posted at www.lib.uiowa.edu/hardin-www/hslibs.html. Often, remote access to the full online resources of a medical library, including electronic books and journals, is limited to users affiliated with the institution at which the library is located. But usually any health writer with the initiative to point and click can access some of a medical library's online resources, such as its catalog and consumer information links. At the least, checking online whether a library carries a book or journal of interest can help make efficient use of time.

Users everywhere have extensive online access to the U.S. National Library of Medicine (NLM), www.nlm.nih.gov, located in Bethesda, Maryland. Among NLM resources that health writers may find useful are

- LocatorPlus, NLM's online catalog (www.locatorplus.gov),
- PubMed (pubmed.gov), the preeminent resource for searching medical journals, and
- MedlinePlus (medlineplus.gov), the NLM site for consumer health information.

Further information about PubMed appears later in this chapter, in the section on medical periodicals. Further information about MedlinePlus appears in Chapter 5.

To make the most of general and medical libraries, invest the time in getting to know them well. Acquaint yourself thoroughly with their Web sites. If tours are available, take them; perhaps take them twice. Do the same for demonstrations that libraries offer on searching the literature.

Also, get to know the librarians at your medical library. When you have questions, ask. And let the librarians know what you are working on. Given their familiarity with the literature, they may often direct you to resources you did not know to seek. "They'll go out of their way to help you find what you need," an experienced health writer observes. "Ultimately, your success is theirs, too." (Scully and Scully 1986, p. 90)

Medical libraries, and medical collections at general libraries, often are busy, which can frustrate the health writer trying to gather information for a story. At peak times you may well have to wait for access to a computer terminal or photocopying machine. To help avoid such frustration, check what times tend to be least busy. You may find, for instance, that a medical school library is relatively empty in the early morning,
I. Finding Topics and Information

when most of the students and physicians are in class or visiting hospital patients.

Although libraries aid mainly in gathering information for stories, they also can be sources of story ideas. At general and medical libraries, look at displays of new books; some may suggest story ideas to you. At medical libraries, also browse through journals on the current periodicals rack. And when doing research for writing projects, be alert for material that may generate spin-off stories.

As you keep using libraries for your health writing, you may find sources that you use repeatedly. Consider obtaining these items for your personal library. Many basic medical books are available at general bookstores. Others can be obtained at medical bookstores, which often are located at or near medical schools. Such books also can be readily ordered from publishers. Medical journals and newsletters generally contain information on subscribing. If in doubt, once again, consult your librarian.

Medical Books

*Key Reference Books*

Many excellent medical reference books are available for health writers to consult. Among the most basic are medical dictionaries. The giants in the field, both literally and figuratively, are *Dorland's Illustrated Medical Dictionary* (2003) and *Stedman's Medical Dictionary* (2000), each of which appears in a new edition every several years. Both of these dictionaries are available in electronic versions and pocket editions. Other less extensive but helpful dictionaries are published as well. In addition to being available at libraries, various medical dictionaries are widely sold at bookstores. For the serious health writer they can be a fine investment.

Some medical dictionaries are available on the World Wide Web. So are some specialized glossaries in areas of medicine and health. Sources of links to such resources include www.yourdictionary.com; look under “Glossaries” for both glossaries per se and general medical dictionaries.

Home or family medical encyclopedias also can serve the health writer well. Relatively recent additions to this group include *The Merck Manual of Medical Information* (Beers 2003). This book is the home edition of *The Merck Manual of Diagnosis and Therapy* (Beers and Berkow 1999), a resource for physicians since its first edition appeared more than a century ago. Both Merck manuals are posted at www.merck.com/pubs.
I. Finding Topics and Information

when most of the students and physicians are in class or visiting hospital patients.

Although libraries aid mainly in gathering information for stories, they also can be sources of story ideas. At general and medical libraries, look at displays of new books; some may suggest story ideas to you. At medical libraries, also browse through journals on the current periodicals rack. And when doing research for writing projects, be alert for material that may generate spin-off stories.

As you keep using libraries for your health writing, you may find sources that you use repeatedly. Consider obtaining these items for your personal library. Many basic medical books are available at general bookstores. Others can be obtained at medical bookstores, which often are located at or near medical schools. Such books also can be readily ordered from publishers. Medical journals and newsletters generally contain information on subscribing. If in doubt, once again, consult your librarian.

Medical Books

Key Reference Books

Many excellent medical reference books are available for health writers to consult. Among the most basic are medical dictionaries. The giants in the field, both literally and figuratively, are Dorland's Illustrated Medical Dictionary (2003) and Stedman's Medical Dictionary (2000), each of which appears in a new edition every several years. Both of these dictionaries are available in electronic versions and pocket editions. Other less extensive but helpful dictionaries are published as well. In addition to being available at libraries, various medical dictionaries are widely sold at bookstores. For the serious health writer they can be a fine investment.

Some medical dictionaries are available on the World Wide Web. So are some specialized glossaries in areas of medicine and health. Sources of links to such resources include www.yourdictionary.com; look under "Glossaries" for both glossaries per se and general medical dictionaries.

Home or family medical encyclopedias also can serve the health writer well. Relatively recent additions to this group include The Merck Manual of Medical Information (Beers 2003). This book is the home edition of The Merck Manual of Diagnosis and Therapy (Beers and Berkow 1999), a resource for physicians since its first edition appeared more than a century ago. Both Merck manuals are posted at www.merck.com/pubs.
2. Books and Periodicals

For information on pharmaceuticals, standard reference works include *USP DI [Drug Information]* (2004), which has a volume for health professionals and one for patients (and for others seeking drug information in lay language). Another widely available resource is the *Physicians’ Desk Reference* (2004), commonly known as the *PDR*, which contains information on prescription drugs. Both *USP DI* and the *PDR* are published annually. Additional information on prescription and nonprescription drugs may be obtained from various other readily available reference works.

Good reference works also exist in other, more specialized areas of medicine and health. Some such books, or types thereof, are noted in the following section. Selected others are mentioned in Chapter 13, which deals with covering some specific areas of health.

If you are seeking reference works, sources of further direction include the book *Introduction to Reference Sources in the Health Sciences* (Boorkman, Huber, and Roper 2004), published through the Medical Library Association. Also, browsing periodically through the reference section of a nearby medical library can update your knowledge of resources and suggest story ideas.

**Other Helpful Medical Books**

Textbooks in various medical specialties, such as internal medicine, pediatrics, and surgery, offer more detailed overviews of medical conditions and their treatment than do reference works listed above. The best and most up-to-date textbooks generally are available in reference sections of medical libraries. Elsewhere in medical libraries you can find monographs, that is, books dealing in depth with individual diseases or other specialized medical subjects.

Good health writing often looks beyond the purely biomedical, putting its subject in broader context. Check reference and other sections of libraries for works containing material on historical, social, economic, ethical, and other aspects of medicine. Examples of such works include *The Cambridge World History of Human Disease* (Kiple 1993), the *Cambridge Illustrated History of Medicine* (Porter 1996), and the *Encyclopedia of Bioethics* (Reich 1995).

Also, you may be seeking ideas for illustrating your work. Illustrations in medical books can yield ideas. In addition, the works can be sources of illustrations themselves. To reprint illustrations, typically permission must be obtained from the publisher or other copyright holder; sometimes a fee
I. Finding Topics and Information

must be paid. However, some sources, such as U.S. government publications and *The Sourcebook of Medical Illustration* (Cull 1989), do not bear such restrictions. Keeping alert for illustration ideas early in an information search and placing the ideas in a file can save effort later.

**Strengths and Limitations of Medical Books**

Medical books are good for some things but not for others. Given their scope, they function well in providing overviews of subjects. Many contain bibliographies or reference lists useful in seeking further information. And looking at medical books can aid in identifying experts to interview: Because authors of medical books and chapters have broad and authoritative understanding of their subjects and generally know many people in their fields, they can be good to interview and to contact for suggestions of others to consult.

The main limitation of medical books is that, given the publication process, they cannot include the most recent information. Although books in computerized format may be more up-to-date than their printed counterparts, they are rarely as current as periodicals. Nor do they typically deal in depth with specific pieces of research. Thus, the health writer’s information search generally must proceed to periodicals, the subject of the rest of this chapter.

**Medical Periodicals**

*Some Taxonomies of Medical Periodicals*

Medical periodicals are a rather diverse lot. Knowing some of the differences can aid in seeking topics and information. One distinction is between general and specialized medical journals. Another is between journals containing reports of new research and those devoted to summarizing what is already known. A third is between medical journals and other periodicals, such as newsletters, for the medical profession and those in related realms.

Two major general medical journals are published in the United States. One is *JAMA: The Journal of the American Medical Association* (jama.ama-assn.org), issued 48 times a year. The other is the *New England Journal of Medicine* (www.nejm.org), which appears every week. Both journals feature original reports of research and contain other types of articles as well. The
I. Finding Topics and Information

must be paid. However, some sources, such as U.S. government publications and The Sourcebook of Medical Illustration (Cull 1989), do not bear such restrictions. Keeping alert for illustration ideas early in an information search and placing the ideas in a file can save effort later.

Strengths and Limitations of Medical Books

Medical books are good for some things but not for others. Given their scope, they function well in providing overviews of subjects. Many contain bibliographies or reference lists useful in seeking further information. And looking at medical books can aid in identifying experts to interview: Because authors of medical books and chapters have broad and authoritative understanding of their subjects and generally know many people in their fields, they can be good to interview and to contact for suggestions of others to consult.

The main limitation of medical books is that, given the publication process, they cannot include the most recent information. Although books in computerized format may be more up-to-date than their printed counterparts, they are rarely as current as periodicals. Nor do they typically deal in depth with specific pieces of research. Thus, the health writer's information search generally must proceed to periodicals, the subject of the rest of this chapter.

Medical Periodicals

Some Taxonomies of Medical Periodicals

Medical periodicals are a rather diverse lot. Knowing some of the differences can aid in seeking topics and information. One distinction is between general and specialized medical journals. Another is between journals containing reports of new research and those devoted to summarizing what is already known. A third is between medical journals and other periodicals, such as newsletters, for the medical profession and those in related realms.

Two major general medical journals are published in the United States. One is JAMA: The Journal of the American Medical Association (jama.ama-assn.org), issued 48 times a year. The other is the New England Journal of Medicine (www.nejm.org), which appears every week. Both journals feature original reports of research and contain other types of articles as well. The
major general medical journals in Britain are the BMJ (www.bmj.com), formerly the British Medical Journal, and The Lancet (www.thelancet.com). In Canada it is the Canadian Medical Association Journal (www.cma.ca).

As almost anyone reading U.S. newspapers or tuning in to the U.S. broadcast media may discern, JAMA and the New England Journal of Medicine are major sources of medical news in the United States. Some people (for example, Houn et al. 1995) have criticized journalists’ extensive, and sometimes nearly exclusive, reliance on these two sources. The considerable coverage of research in these journals, however, does have some justification. As general medical journals, JAMA and the New England Journal strive to publish material of broad appeal to the medical profession; thus, they are more likely to contain findings of public interest than, say, a journal of ophthalmology or urology. Both journals also are known for their high standards. Because both journals appear so frequently, much material from them is available. And both journals facilitate coverage by health writers; early copies of each are available to journalists, and JAMA provides news releases on some articles.

As a health writer, you can hardly neglect JAMA and the New England Journal in your search for story ideas. However, you would do well to venture further, to more specialized and less frequently published journals. Unless you work in the daily or weekly media, you probably need not scurry to find articles in specialty journals as soon as they come out. Rather, you can periodically scan journals in various specialties. Besides seeking story ideas in medical specialty journals (for example, in pediatrics or surgery), look at journals in areas such as public health, medical education, hospital administration, and health policy. Some examples of prominent journals are listed in Table 2-1.

In addition to medical journals, general scientific journals can be worth scanning. One such journal is Science (www.sciencemag.org), published weekly by the American Association for the Advancement of Science. As well as containing reports of biomedical and other research, Science has a news section helpful in following research trends and policy issues. Another general scientific journal drawn on by health writers is the British journal Nature (www.nature.com).

Many medical and scientific journals are now available online as well as on paper, and some exist only in online form. Online versions sometimes offer news releases or other supplementary material or include links to related articles. Public access varies among journals online. Some journals are available online in their entirety to anyone who wishes; others are
I. Finding Topics and Information

<table>
<thead>
<tr>
<th>Table 2-1: Some Prominent Medical Journals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed below are the approximately 120 journals the National Library of Medicine has identified as being of particular interest to health professionals. These leading journals tend to be good sources for health writers to use as well.</td>
</tr>
</tbody>
</table>

- Academic Medicine
- AJR, American Journal of Roentgenology
- American Family Physician
- American Heart Journal
- American Journal of Cardiology
- American Journal of Clinical Nutrition
- American Journal of Clinical Pathology
- American Journal of the Medical Sciences
- American Journal of Medicine
- American Journal of Nursing
- American Journal of Obstetrics and Gynecology
- American Journal of Ophthalmology
- American Journal of Pathology
- American Journal of Physical Medicine & Rehabilitation/Association of Academic Physiatrists
- American Journal of Psychiatry
- American Journal of Public Health
- American Journal of Respiratory and Critical Care Medicine
- American Journal of Surgery
- American Journal of Tropical Medicine and Hygiene
- Anaesthesia
- Anesthesia and Analgesia
- Anesthesiology
- Annals of Emergency Medicine
- Annals of Internal Medicine
- Annals of Otolaryngology, Rhinology, and Laryngology
- Annals of Surgery
- Annals of Thoracic Surgery
- Archives of Dermatology
- Archives of Disease in Childhood
- Archives of Disease in Childhood. Fetal and Neonatal Edition
- Archives of Environmental Health
- Archives of General Psychiatry
- Archives of Internal Medicine
- Archives of Neurology
- Archives of Ophthalmology
- Archives of Otolaryngology—Head & Neck Surgery
- Archives of Pathology & Laboratory Medicine
- Archives of Pediatrics & Adolescent Medicine
- Archives of Physical Medicine and Rehabilitation
- Archives of Surgery
- Arthritis and Rheumatism
- BJOG (continues British Journal of Obstetrics and Gynaecology)
- Blood
- BMJ: British Medical Journal
- Brain: A Journal of Neurology
- British Journal of Radiology
- British Journal of Surgery
- CA: A Cancer Journal for Clinicians
- Cancer
- Chest
- Circulation
- Clinical Orthopaedics and Related Research
- Clinical Pediatrics
- Clinical Pharmacology and Therapeutics

16
2. Books and Periodicals

Table 2-1: (continued)

<table>
<thead>
<tr>
<th>Medical Journal</th>
<th>Medical Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMAJ: Canadian Medical Association Journal</td>
<td>Journal of Infectious Diseases</td>
</tr>
<tr>
<td>Critical Care Medicine</td>
<td>Journal of Laboratory and Clinical Medicine</td>
</tr>
<tr>
<td>Current Problems in Surgery</td>
<td>Journal of Laryngology and Otology</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Journal of Nervous and Mental Disease</td>
</tr>
<tr>
<td>Digestive Diseases and Sciences</td>
<td>Journal of Neurosurgery</td>
</tr>
<tr>
<td>Disease-a-Month</td>
<td>Journal of Nursing Administration</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>Journal of Oral and Maxillofacial Surgery</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>Journal of Pediatrics</td>
</tr>
<tr>
<td>Geriatrics</td>
<td>Journal of Thoracic and Cardiovascular Surgery</td>
</tr>
<tr>
<td>Gut</td>
<td>Journal of Toxicology. Clinical Toxicology</td>
</tr>
<tr>
<td>Heart</td>
<td>Journal of Trauma</td>
</tr>
<tr>
<td>Heart &amp; Lung: The Journal of Critical Care</td>
<td>Journal of Urology</td>
</tr>
<tr>
<td>Hospitals &amp; Health Networks</td>
<td>Journals of Gerontology. Series A, Biological Sciences and Medical Sciences</td>
</tr>
<tr>
<td>JAMA: Journal of the American Medical Association</td>
<td>Journals of Gerontology. Series B, Psychological Sciences and Social Sciences</td>
</tr>
<tr>
<td>Journal of Allergy and Clinical Immunology</td>
<td>Lancet</td>
</tr>
<tr>
<td>Journal of the American College of Cardiology</td>
<td>Mayo Clinic Proceedings</td>
</tr>
<tr>
<td>Journal of the American College of Surgeons</td>
<td>Medical Clinics of North America</td>
</tr>
<tr>
<td>Journal of the American Dietetic Association</td>
<td>Medical Letter on Drugs and Therapeutics</td>
</tr>
<tr>
<td>Journal of Clinical Endocrinology and Metabolism</td>
<td>New England Journal of Medicine</td>
</tr>
<tr>
<td>Journal of Clinical Investigation</td>
<td>Nursing Clinics of North America</td>
</tr>
<tr>
<td>Journal of Clinical Pathology</td>
<td>Nursing Outlook</td>
</tr>
<tr>
<td>Journal of Family Practice</td>
<td>Nursing Research</td>
</tr>
<tr>
<td>Journal of Immunology</td>
<td>(continues)</td>
</tr>
</tbody>
</table>
1. Finding Topics and Information

Table 2-1: (continued)

<table>
<thead>
<tr>
<th>Obstetrics and Gynecology</th>
<th>Radiologic Clinics of North America</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthopedic Clinics of North America</td>
<td>Radiology</td>
</tr>
<tr>
<td>Pediatric Clinics of North America</td>
<td>Southern Medical Journal</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>Surgery</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>Surgical Clinics of North America</td>
</tr>
<tr>
<td>Plastic and Reconstructive Surgery</td>
<td>Urologic Clinics of North America</td>
</tr>
<tr>
<td>Postgraduate Medicine</td>
<td></td>
</tr>
<tr>
<td>Progress in Cardiovascular Diseases</td>
<td></td>
</tr>
<tr>
<td>Public Health Reports</td>
<td></td>
</tr>
</tbody>
</table>

restricted to individual or institutional subscribers; and others have public access to some issues or some parts of issues. Still other journals online let nonsubscribers download material on a pay-per-view basis. Even when a health writer can access it only at a library, existence of an online version can help: A desired article can be obtained even if the needed volume is being used or is at the bindery.

Various resources can aid in seeking recently published journal articles that can spark ideas for stories. One is Current Contents, a continually updated database regarding journal articles; this resource can be searched online through many libraries. A helpful publication is Science News: The Weekly Newsmagazine of Science (www.sciencenews.org), which often includes articles on studies newly reported in medical journals. Also useful to consult are the abstracts (summaries) that JAMA publishes of articles that have appeared in other journals in the United States and abroad. Newsletters offering health professionals summaries of articles recently appearing in various journals can aid the health writer as well. One such periodical is Journal Watch (www.jwatch.org), which includes highlights from various major journals. More specialized newsletters, such as Journal Watch for Psychiatry (psychiatry.jwatch.org) and the American Psychological Association publication Clinician's Research Digest (www.apa.org/journals/crd.html), also can prove helpful.

Not all medical journals contain reports of new research; some focus instead on giving clinicians practical overviews. Some people look down on such nonresearch journals. And some such journals truly are little more than carriers for advertisements. However, the better nonresearch journals, for example, American Family Physician (accessible through www.aafp.org),
2. Books and Periodicals

can be fine resources. Health writers can fruitfully draw on them to obtain background information, identify trends or developments on which to write, and find experts to interview.

Medical periodicals other than journals also can be good resources for health writers. One such periodical is the *Morbidity and Mortality Weekly Report* (www.cdc.gov/mmwr), published by the federal Centers for Disease Control and Prevention. The *MMWR*, which contains reports of outbreaks and other material on public health, can be accessed free of charge on the World Wide Web and by electronic subscription. Selected items from the *MMWR* also are reprinted in *JAMA*. Another well regarded periodical is *The Medical Letter on Drugs and Therapeutics* (www.medletter.com), a newsletter providing reports on pharmaceuticals. Both publications can be good sources of background information and story ideas.

Trade publications, such as newsletters and magazines on the healthcare industry, also can be a resource for health writers. John Novack, of the trade publisher Opus Communications, discussed this resource at the 2001 Association of Healthcare Journalists annual conference. He noted that some trade publications can be viewed free of charge on the World Wide Web and that health reporters can obtain complimentary subscriptions to some others. Among the trade publications he mentioned were *Modern Healthcare* (www.modernhealthcare.com) and those published by American Health Consultants (www.ahcpub.com), Health Resources Publishing (www.healthrespubs.com), and Opus Communications/HCP (www.hcpro.com/onlinepubs).

**Anatomy of a Medical Journal**

Medical journals vary somewhat in anatomy. However, some commonalities exist among journals containing reports of new research. Knowing these commonalities can aid in using medical journals to identify possible topics and gather information.

The reports of new research, sometimes bearing such labels as “Original Articles” or “Original Contributions,” typically form the core of journals containing such reports. (See Figure 2-1 for a sample table of contents from *JAMA*.) With rare exceptions, each such report is written in the “IMRAD format”: Introduction, Methods, Results, and Discussion. The introduction provides background and identifies the question the research addressed. The methods section then describes how the research was conducted. The results section presents the findings; often it contains tables or
EDITORIALS

Vasopressin Receptor Antagonists: Will the "Vaptans" Fulfill Their Promise? .......................... 2017
C. S. Franks, W. H. Song

High-Quality HER-2 Testing: Setting a Standard for Oncologic Biomarker Assessment ................. 2019
E. L. Wechs, L. K. Davis

BOOKS, JOURNALS, NEW MEDIA .................................................. 2021
What I Learned in Medical School: Personal Stories of Young Doctors (Cacioppo et al, eds)

REVIEWED BY S. R. Grans

Med School: A Collection of Stories About Medical School 1951-1995 (Meador)

REVIEWED BY A. W. Goffa

The Political Life of Medicare (Coblerdor)

REVIEWED BY M. Miner

Clinical Hematology and Oncology: Presentation, Diagnosis, and Treatment (Franc et al, eds)

REVIEWED BY A. Tapp

Books, Journals, New Media Received

JAMA PATIENT PAGE

Reading Disorder ................................................................. 2040

News and Analysis

MEDICAL NEWS & PERSPECTIVES ........................................... 1945

Donald M. Berwick, MD, MPH

Advocate for Evidence-Based Health System Reform

Vaccination Rumors, Funding Shortfall Threaten to Derail Global Polio Eradication Efforts

Similar Drug Names a Risky Prescription

Journals' Freedom to Publish Affirmed

HEALTH AGENCIES UPDATE .................................................. 1951

Children's Health Initiative

Playing Possum

Testing for Heart Disease

Medical School Curricula

Neutralizing the SARS Virus

FROM THE CENTERS FOR DISEASE CONTROL AND PREVENTION .................................... 1952

School-Associated Pertussis Outbreak—Yavapai County, Arizona, September 2002—February 2003

Protocols for Confirmation of Reactive Rapid HIV Tests

Submissions to the CDC Public Health Law News

1929
I. Finding Topics and Information

illustrations. And the discussion section interprets the findings; among items that may be discussed are the relationship of the current findings to those of other researchers, the limitations of the research, and the implications of the findings for clinical practice or public health. Typically, each article is preceded by an abstract summarizing it. References to other writings appear at the end of the article.

This standard format lets readers—including health writers—know where to seek what type of information. If an article seems promising from the title and abstract, some health writers scan the article from beginning to end to see whether it is of sufficient interest to merit more careful inspection. Others begin by looking at the introduction and discussion; if these sections suggest that the article has sufficient appeal, the methods and results sections are then reviewed to provide some indication of the strength of the research. As will be discussed in Chapter 6, articles that still seem suitable to write about should then undergo more thorough and critical review.

Often, the most appealing articles to write about are those that report striking findings. Journalists have tended (see, for instance, Koren and Klein 1991) to neglect other articles, for example, those showing that a treatment is ineffective or suggesting that an agent poses little or no risk. The dilemma is a difficult one. If three studies arrive at results favoring a treatment and another three indicate that the treatment has no effect, writing articles only about the former will give a distorted impression. Yet, in general, articles saying that something makes little difference are not deemed very newsworthy. One solution can be to prepare an article discussing all six studies and considering why the results may have differed. Another can be to present each new positive study in the context of all the studies that have gone before. Once again, providing context is a mark of good health writing.

In some journals, editorials by experts provide broader perspective on the research reported. In seeking context for a research article, see whether an editorial about it appears in the same issue of the journal. And in seeking story ideas, also look at other editorials in the journal, as well as the "sounding boards" or other opinion pieces that the journals publish.

Many journals contain review articles, that is, articles summarizing what is known about a given topic. Traditionally, these articles have resembled book chapters reviewing the literature. More recently, some such articles, known as metaanalyses, have combined quantitative data from various studies in search of more definitive conclusions. Review articles are popu-
2. Books and Periodicals

lar with physicians, who find them an efficient way to stay up-to-date. Similarly, for health writers, review articles can be excellent sources of background and context. Some review articles, for example, those on new procedures or recent trends, also can be sources of story ideas.

A glance at the book review section of a journal, and at the books-received listing, also can yield story ideas. The topics of the books can suggest topics for future stories. Especially in general medical journals, some of the books are for general readerships and thus are well suited to review for popular media. The book review section can call attention to books useful as sources of background. Also, the review sections of some journals evaluate computerized resources, which can interest or assist the health writer.

Letters to the editor also can be worth a look. They can aid in following controversies in medicine. Sometimes the letters report amusing ailments, such as Frisbee finger, jogger’s nipples, and water-skier’s enema (Moskow 1987), that can be the subject of humorous stories for the popular media.

Some journals, such as JAMA, also contain news sections, which can yield story ideas. In addition, conference announcements in journals can provide leads to pursue. And for the astute health writer, even the classified advertisements can suggest areas to explore.

**Physiology of Peer-Reviewed Journals**

To work with journals, it is helpful to know how journals work. In particular, it’s helpful to know how reports of new research are chosen for publication. Central to this selection mechanism is a process known as peer review. When investigators submit a manuscript on their research for potential publication in a journal, the editor of the journal typically sends copies of the manuscript to two or more experts in the research area—in other words, “peers” of the authors. These peer reviewers are instructed to evaluate the manuscript’s suitability for publication and to report to the editor on the strengths and weaknesses they perceive. Based on the peer reviewers’ feedback and the editor’s own assessment of the manuscript, the editor reaches a decision. Sometimes the decision is not to publish the article (in which case the authors can submit the manuscript to another journal for potential publication). Rarely is a manuscript accepted for publication as is. More often, the authors are asked to make various revisions and then resubmit the manuscript. A more detailed synopsis of peer review (Shea et al. 2001), including a flowchart, has appeared in the journal *Academic Medicine.*
I. Finding Topics and Information

For the health writer, this evaluation process has various implications. Peer review and editorial review help ensure that only sound research is published; thus, checking whether a given piece of research has been reported in a peer-reviewed journal can aid in deciding whether to write about it. (It should be noted, though, that peer-reviewed journals vary in their standards. Also, because a study often reveals only a small part of the big picture, research can be well done but yield conclusions that later prove untrue.) In addition, the review and subsequent revision that manuscripts undergo often result in better, more informative articles in journals, and thus articles that are more useful to the health writer.

However, the time needed for the evaluation process—and beforehand for writing the article and afterward for editing and publishing it—often means that many months elapse between the time research is completed and the time it is reported in a journal. One question that arises is whether health writers should release stories on the research during this lag time. As noted below, different sources have different answers.

Pre-publication Publicity: Embargoes, etc.

Some journals place embargoes on the articles they publish. In other words, they prohibit the media from releasing stories about the articles until the official publication date of the issue in which the articles appear (or until late the previous day). Publishers of journals with embargoes state that the embargoes allow physicians time to read about research before it is widely publicized. Some advocates also note that the embargoes give journalists sufficient time to prepare their stories carefully, rather than racing to see who can break the story first. It also has been contended, however, that journals place embargoes in part to maintain their own newsworthiness (Castellucci 1998).

The International Committee of Medical Journal Editors, consisting mainly of editors of leading medical journals, has issued (1993) and updated (2003) a statement on medical journals and the popular media. (The 2003 version appears in Figure 2-2; for any further updates see www.icmje.org.) This statement expresses general support for embargoes. However, it notes that special arrangements can be made when earlier dissemination of the information is important to public health. This statement does not discourage reporters from writing about unpublished research presented at conferences, but it does discourage researchers from giving reporters more detailed information than included in their present
tations. In what may be an overinterpretation of journals' policies, some scientists have objected to giving talks when journalists are present, for fear that publicity would jeopardize publication of their work in a journal of choice.

Opinion varies about limiting presentation of research results in the popular media before they appear in journals. Opponents say that journalists and researchers should be allowed to exercise their own judgment more. Some object that such restrictions interfere with the important task of reporting the process, rather than just the products, of biomedical research (*Medicine and the Media* 1995, 22).

Much ado has been made of embargoes and related policies, and the
I. Finding Topics and Information

Figure 2-2: Medical Journals and the General Media (Statement from the International Committee of Medical Journal Editors)

The public's interest in news of medical research has led the popular media to compete vigorously to get information about research as soon as possible. Researchers and institutions sometimes encourage the reporting of research in the non-medical media before full publication in a scientific journal by holding a press conference or giving interviews.

The public is entitled to important medical information without unreasonable delay, and editors have a responsibility to play their part in this process. Biomedical journals are published primarily for their readers, but the general public has a legitimate interest in their content; an appropriate balance should therefore guide journals' interaction with the media between these complementary interests. Doctors in practice need to have reports available in full detail before they can advise their patients about the reports' conclusions. Moreover, media reports of scientific research before the work has been peer reviewed and fully published may lead to the dissemination of inaccurate or premature conclusions.

An embargo system has been established in some countries to prevent publication of stories in the general media before the original paper on which they are based appears in the journal. The embargo creates a "level playing field," which most reporters appreciate since it minimizes the pressure on them to publish stories which they have not had time to prepare carefully. Consistency in the timing of public release of biomedical information is also important in minimizing economic chaos, since some articles contain information that has great potential to influence financial markets. On the other hand, the embargo system has been challenged as being self-serving of journals' interests and impeding the rapid dissemination of scientific information.

Editors may find the following recommendations useful as they seek to establish policies on these issues.

- Editors can foster the orderly transmission of medical information from researchers, through peer-reviewed journals, to the public. This can be accomplished by an agreement with authors that they will not publicize their work while their manuscript is under consideration or awaiting publication and an agreement with the media that they will not release stories before publication in the journal, in return for which the journal will cooperate with them in preparing accurate stories.
- Editors need to keep in mind that an embargo system works on the honor system; no formal enforcement or policing mechanism exists. The decision of any significant number of media outlets, or of biomedical journals, not to respect the embargo system would therefore lead to its rapid dissolution.
- Very little medical research has such clear and urgently important clinical implications for the public's health that the news must be released before full publication in a journal. In such exceptional circumstances, however, appropriate
2. Books and Periodicals

Figure 2-2: (continued)

authorities responsible for public health should make the decision and should be responsible for the advance dissemination of information to physicians and the media. If the author and the appropriate authorities wish to have a manuscript considered by a particular journal, the editor should be consulted before any public release. If editors accept the need for immediate release, they should waive their policies limiting pre-publication publicity.

- Policies designed to limit pre-publication publicity should not apply to accounts in the media of presentations at scientific meetings or to the abstracts from these meetings. Researchers who present their work at a scientific meeting should feel free to discuss their presentations with reporters, but they should be discouraged from offering more detail about their study than was presented in their talk.

- When an article is soon to be published, editors should help the media prepare accurate reports by providing news releases, answering questions, supplying advance copies of the journal, or referring reporters to the appropriate experts. Most responsible reporters find this assistance should be contingent on the media’s cooperation in timing their release of stories to coincide with the publication of the article.

- Editors, authors, and the media should apply the above-stated principles to material released early in electronic versions of journals.

topic is one of which health writers should be aware. However, stories on new research constitute—and should constitute—only a fraction of health writing. Emphasis on the timing of stories should not distract from the more important issue of stories’ quality.

Searching the Journal Literature

Both for stories on new findings and for other health writing, sound background research is crucial to quality. Commonly, this background research should include obtaining previously published journal articles that pertain to the topic at hand. But how to find relevant material in the vast journal literature?

References in books can provide a start. So can those in journal articles. But in part because such references cannot be fully up to date, other searching is needed. Fortunately, the National Library of Medicine (NLM) has long provided extensive resources for searching the journal literature in medicine. For decades the main such resource was the massive printed
I. Finding Topics and Information

"According to an article in the upcoming issue of 'The New England Journal of Medicine,' all your fears are well founded."

© The New Yorker Collection 1993 Michael Maslin from cartoonbank.com. All rights reserved.

Index Medicus, a sort of medical Readers' Guide to Periodical Literature. Later, users could obtain computerized searches of MEDLINE, the NLM database of indexed journal citations and abstracts. Initially MEDLINE searches could be performed only by library staff. Eventually users could search MEDLINE themselves at or through libraries.

Today anyone with access to the World Wide Web can search the medical literature free of charge. To do so, access the NLM database PubMed (pubmed.gov). This database encompasses MEDLINE, which now contains bibliographic citations and abstracts from well over 4,000 biomedical journals published in the United States and other countries. It also includes information about some articles not included in MEDLINE. In some cases, links are provided from the bibliographic citation and abstract to the full text of the article; the journal that published the article sometimes charges...
Books and Periodicals

for access. Links also are provided to lists of related articles and to other resources, including related consumer health information.

You can search PubMed by topic, for example, if you want information about a given disease. You also can search PubMed by author if, for instance, you know of someone who has written about the disease or you are writing a profile of a medical researcher. And you can search it by journal title, for example, if you think a given journal has published something on your topic of interest. Often searches will yield many listings. To limit the listings to those likely to serve you best, you can click on “Limits” and restrict the listings in one or more regards: for example, to a specific type of publication (such as review articles or clinical-trial reports), to a given range of publication dates, to articles in English or other specified languages, to studies in humans rather than animals, or to given subsets of articles (for example, articles dealing with bioethics, complementary medicine, or history of medicine).

By using PubMed, library Web sites, and other online resources, health writers can do much of their literature searching without even leaving their desks. But don’t get too comfortable there. Until everything that libraries offer becomes available online, the good health writer will keep venturing to general and medical libraries in search of ideas and information and assistance. The venture is likely to be well rewarded.

Exercises

1. Explore the Web site of a medical library near you, and then visit the medical library. Look especially at materials in the reference section. If feasible, do one or more of the following in the library: take a guided tour, attend an instructional session (for example, on searching PubMed), or talk with a librarian. List some items you learned or found that could aid you as a health writer.

2. At a library or online, look at one or more issues each of JAMA, the New England Journal of Medicine, and at least one other medical journal.
   (a) Notice the range of material in each journal.
   (b) Skim an “original article” and notice how it is structured. Consider, from the standpoint of a health writer, what parts of the article you would read in which order.
   (c) Check whether editorials accompany any of the articles. Look at the editorials, and identify material that might help you as a health writer.
1. Finding Topics and Information

3. Access PubMed (www.pubmed.gov). Then do the following:
   (a) Search for articles on a topic you might like to write about. (If you receive many listings, click on "Limits," set some limits for the search, and repeat the search.) Click on some of the listings to access further information. For at least one listing, click on "Related Articles," and see what you find. If feasible, find at least one listing with a link to the full-text article and click on the link.
   (b) Do a search by author. (Enter the author’s surname and then initial(s), for example, mcmurray dj.) If possible, search for work by a medical researcher you know of. If you have difficulty thinking of a medical researcher, use mcmurray dj or an author’s name from one of the listings in your subject search.
   (c) Explore some other aspects of the PubMed Web site.
   (d) Note some items you learned through parts a, b, and c of this exercise.
Government, Associations, and Other Institutions

It is fitting that this chapter, which offers guidance in finding and using institutional information sources, occurs in the middle of this section of the book. Institutions—including government agencies, associations, medical schools, and medical centers—are central sources of information for health writers. Through news releases and other channels, they generate many story ideas. And through other means, such as helping writers identify people to interview, they aid in gathering information for stories. Perhaps less obviously, such institutions publish many of the journals health writers consult and organize many of the conferences they cover.

Of course, information from institutions, like that from other sources, must be evaluated critically. Often, institutions provide information to health writers not only to disseminate knowledge for its own sake; other goals can include helping to attract funds for research or patient care, enhancing institutional reputation, attracting health-care consumers, and selling medical products. Awareness of such possible goals can aid the health writer in using institutional sources wisely—and can keep the health writer from merely being used.

The current chapter aims to help you use institutions wisely and efficiently as information resources. The chapter first offers general guidance in finding institutional sources and then summarizes types of assistance that institutions can often provide. Next come sections on major types of institutional sources: government agencies, associations, educational institutions, health-care facilities, and companies. The chapter ends by discussing how health writers can use one specific institutional resource—conferences—as a source of ideas and information.

Using Institutional Sources

Finding Institutional Sources

How can you find institutions providing the types of information you seek? A number of general resources can help. One is DIIRLINE (Directory
I. Finding Topics and Information

of Information Resources Online), a National Library of Medicine (NLM) database available at dirline.nlm.nih.gov. After you indicate the subject on which you are seeking information, DIIRLINE identifies relevant resources such as organizations, government agencies, and academic institutions. DIIRLINE also provides a brief description of each resource and indicates how it can be contacted. The DIIRLINE site includes a link to the NLM resource Health Hotlines (sis.nlm.nih.gov/hotlines), which is derived from DIIRLINE and lists toll-free telephone numbers of many institutional sources. Health writers may find it handy to bookmark these sites.

Various toll-free numbers for obtaining printed and other health information also are listed in a guide, "Toll-Free Numbers for Health Information" (National Health Information Center 2004b) prepared by the federal National Health Information Center (NHIC), an information-referral service. The NHIC also provides a guide listing federal health information centers and clearinghouses (National Health Information Center 2004a). These guides are posted at www.health.gov/NHIC/pubs. Printed copies can be ordered from the Office of Disease Prevention and Health Promotion Communication Support Center, P.O. Box 37366, Washington, DC 20013-7366, fax (301) 468-3028. The NHIC Web site (www.health.gov/nhic) also includes a searchable database of organizations and government offices serving as health information resources. Selected toll-free telephone numbers from Health Hotlines, the NHIC guide, and elsewhere are listed in Table 3-1.

The American Association for the Advancement of Science periodically issues a printed guide, Science Sources (American Association for the Advancement of Science 2002), listing names, telephone numbers, and e-mail addresses of public-information contacts at various institutions. Phone numbers, geographic addresses, and Web addresses of the institutions themselves also are provided. Among institutions represented that may especially interest health writers are hospitals and medical centers, nonprofit research institutions, federal agencies and laboratories, and universities and colleges. The guide is available from the News and Information Office, American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005, (202) 326-6434, e-mail: media@aaas.org. Science Sources can be searched online at sciencesources.eurekalert.org.

If you do not know which person or office to contact at an institution, call the main number, explain that you are a health writer, and ask to speak with someone in public relations or media relations. Institutions’ offices
<table>
<thead>
<tr>
<th>U.S. Government Resources</th>
<th>Phone Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Institute on Aging Information Center</td>
<td>(800) 222-2225</td>
</tr>
<tr>
<td>CDC National AIDS Hotline</td>
<td>(800) 342-2437</td>
</tr>
<tr>
<td>National Clearinghouse for Alcohol and Drug Information</td>
<td>(800) 729-6686</td>
</tr>
<tr>
<td>Alzheimer’s Disease Education and Referral Center</td>
<td>(800) 438-4380</td>
</tr>
<tr>
<td>Cancer Information Service</td>
<td>(800) 422-6237</td>
</tr>
<tr>
<td>Food and Drug Administration</td>
<td>(888) 463-6332</td>
</tr>
<tr>
<td>Health Resources and Services Administration Information Center</td>
<td>(888) 275-4772</td>
</tr>
<tr>
<td>National Center for Chronic Disease Prevention and Health Promotion</td>
<td>(877) 232-3422</td>
</tr>
<tr>
<td>National Center for Complementary and Alternative Medicine Clearinghouse</td>
<td>(888) 644-6226</td>
</tr>
<tr>
<td>National Institute on Deafness and Other Communication Disorders Information Clearinghouse</td>
<td>(800) 241-1044</td>
</tr>
<tr>
<td>Agency for Healthcare Research and Quality Clearinghouse</td>
<td>(800) 358-9295</td>
</tr>
<tr>
<td>National Health Information Center</td>
<td>(800) 336-4797</td>
</tr>
<tr>
<td>National Library of Medicine</td>
<td>(888) 346-3656</td>
</tr>
<tr>
<td>Medicare Issues Hotline</td>
<td>(800) 633-4227</td>
</tr>
<tr>
<td>Office of Minority Health Resource Center</td>
<td>(800) 444-6472</td>
</tr>
<tr>
<td>National Institute of Neurological Disorders and Stroke</td>
<td>(800) 352-9424</td>
</tr>
<tr>
<td>National Institute for Occupational Safety and Health</td>
<td>(800) 356-4674</td>
</tr>
<tr>
<td>U.S. Consumer Product Safety Commission Hotline</td>
<td>(800) 638-2772</td>
</tr>
<tr>
<td>National Rehabilitation Information Center</td>
<td>(800) 346-2742</td>
</tr>
<tr>
<td>Centers for Disease Control and Prevention Office on Smoking and Health</td>
<td>(800) CDC-1311</td>
</tr>
<tr>
<td>Centers for Disease Control and Prevention National STD Hotline</td>
<td>(800) 227-8922</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nongovernment Resources</th>
<th>Phone Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alzheimer’s Association</td>
<td>(800) 272-3900</td>
</tr>
<tr>
<td>Arthritis Foundation Information Line</td>
<td>(800) 283-7800</td>
</tr>
<tr>
<td>Asthma and Allergy Foundation of America</td>
<td>(800) 727-8462</td>
</tr>
<tr>
<td>National Reference Center for Bioethics Literature</td>
<td>(800) 633-3849</td>
</tr>
<tr>
<td>American Council of the Blind</td>
<td>(800) 424-8666</td>
</tr>
<tr>
<td>American Cancer Society Information Center</td>
<td>(800) 227-2345</td>
</tr>
<tr>
<td>United Cerebral Palsy Association</td>
<td>(800) 872-5827</td>
</tr>
<tr>
<td>Cystic Fibrosis Foundation</td>
<td>(800) 344-4823</td>
</tr>
<tr>
<td>American Dental Association</td>
<td>(800) 947-4746</td>
</tr>
<tr>
<td>American Diabetes Association</td>
<td>(800) 342-2383</td>
</tr>
</tbody>
</table>

(continues)
provide information to writers have a variety of names, including public
information, public affairs, public relations, media relations, and communications. But by explaining your goal, you should be able to reach an
appropriate person. If all else fails, ask to reach the office of the head of the
institution; a staff member there should be able to direct you appropriately.
Indeed, at sources such as small associations, the director may serve as
the main media contact.

Contacting a public information professional at one institution often
helps in finding those at others. Staff at various institutions concerned
with the same area of health are aware of each other and, indeed, some-
times collaborate on programs. Thus, for example, calling or e-mailing a
government information office concerned with a given area of health may,
in addition to providing information on the topic, lead you to contacts at

I. Finding Topics and Information

Table 3-1: (continued)

<table>
<thead>
<tr>
<th>Organization</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Headache Foundation</td>
<td>(888) 643-8552</td>
</tr>
<tr>
<td>American Heart Association</td>
<td>(800) 242-8721</td>
</tr>
<tr>
<td>National Hospice Organization</td>
<td>(800) 658-8898</td>
</tr>
<tr>
<td>National Kidney Foundation</td>
<td>(800) 622-9010</td>
</tr>
<tr>
<td>Leukemia &amp; Lymphoma Society</td>
<td>(800) 955-4572</td>
</tr>
<tr>
<td>American Liver Foundation</td>
<td>(800) 223-0179</td>
</tr>
<tr>
<td>American Lung Association</td>
<td>(800) 586-4872</td>
</tr>
<tr>
<td>Lupus Foundation of America</td>
<td>(800) 558-0121</td>
</tr>
<tr>
<td>National Mental Health Association</td>
<td>(800) 969-6642</td>
</tr>
<tr>
<td>National Multiple Sclerosis Society</td>
<td>(800) 344-8667</td>
</tr>
<tr>
<td>American Dietetic Association's Consumer Nutrition Hotline</td>
<td>(800) 366-1655</td>
</tr>
<tr>
<td>United Network for Organ Sharing</td>
<td>(888) TXINFO1</td>
</tr>
<tr>
<td>American Parkinson's Disease Association</td>
<td>(800) 223-2732</td>
</tr>
<tr>
<td>Planned Parenthood Federation of America, Inc.</td>
<td>(800) 669-0156</td>
</tr>
<tr>
<td>National Organization for Rare Disorders</td>
<td>(800) 999-6673</td>
</tr>
<tr>
<td>National Safety Council</td>
<td>(800) 621-7615</td>
</tr>
<tr>
<td>Sickle Cell Disease Association of America, Inc.</td>
<td>(800) 421-8453</td>
</tr>
<tr>
<td>American Speech-Language-Hearing Association</td>
<td>(800) 638-8255</td>
</tr>
<tr>
<td>American Heart Association Stroke Connection</td>
<td>(800) 553-6321</td>
</tr>
<tr>
<td>National Stroke Association</td>
<td>(800) 787-6537</td>
</tr>
<tr>
<td>Thyroid Foundation of America, Inc.</td>
<td>(800) 832-8321</td>
</tr>
<tr>
<td>American Trauma Society</td>
<td>(800) 556-7890</td>
</tr>
</tbody>
</table>

Note: Governmental and nongovernmental resources are listed separately.
Within each group, resources are listed alphabetically by subject area.
3. Government, Associations, and Other Institutions

pertinent associations and research centers. If information officers do not suggest people to contact elsewhere, feel free to ask.

As will be discussed in Chapter 5, various resources on the World Wide Web, in addition to those already mentioned, can help you uncover institutional sources of potential interest. Viewing institutions’ home pages, which frequently offer online access to their publications, can provide information you seek and help you decide whether to pursue the source further. Often representatives of an institution can be contacted by e-mail through its Web site.

But what kinds of assistance can institutional sources provide? The next section provides an overview.

Seeking Types of Assistance

From generating story ideas to reviewing your writing for accuracy, institutional sources can help. Sometimes the mere name of an institution may suggest a topic. And particularly if you focus on a given area of health or report health news from a given locale, institutions can be ongoing sources of story ideas. If you specialize in writing about a particular area of health, arrange to receive news releases and other materials regularly from associations and other institutions in your area of focus; often such materials are available by e-mail and on the World Wide Web. Also check periodically with public information staff at those institutions to help keep abreast of the field. Similarly, if you write health stories with a local angle, get on the distribution lists of, and stay in touch with, public information staff at sites such as nearby health centers, health departments, and medical schools. As always, review items critically to determine whether they are indeed worthy of stories; be alert for what may be little more than ploys for publicity.

Once you have a story idea, institutional sources can provide various types of help in gathering information for stories. Commonly they have publications such as fact sheets or brochures, both in print and online; sometimes more substantial works are available as well. Also, public information staff often can provide perspective on a topic. In addition, they can recommend people to interview—for instance, administrators, researchers, clinicians, and patients—and help arrange the interviews. Sometimes they can aid in checking whether information is accurate or suggest others to do so. More detailed examples of assistance are provided in the following sections, which discuss various categories of institutional sources.
1. Finding Topics and Information

Government

A wealth of information on health is available from federal, state, and local governments; for health writers this information represents taxes well spent. In years past, health writers often relied on printed directories, for example of federal staff, to identify offices or individuals to contact. But today, health writers commonly depend on the World Wide Web for contact information. Starting points for finding relevant agencies and individuals in federal, state, and local government include the U.S. government Web portal FirstGov (www.firstgov.gov), which includes links to government phone directories. Also, the Web site of the U.S. Department of Health and Human Services (www.hhs.gov) includes phone numbers for media contacts at various Department of Health and Human Services (HHS) agencies. Some components of the federal government that health writers may find especially valuable as idea and information sources are discussed below.

© Sidney Harris, reproduced by permission.
3. Government, Associations, and Other Institutions

The National Institutes of Health

The mission of the National Institutes of Health (NIH) is to uncover new knowledge that will lead to better health. NIH pursues this mission by funding research at sites such as universities, by conducting research in its own laboratories, by helping to train investigators, and by fostering communication of biomedical information. The high priority that NIH places on communication makes it a particularly rich resource for health writers. As well as providing information on new research, NIH is a good source of information in areas of ongoing interest, such as health conditions and their management.

NIH, which is located in Bethesda, Maryland (a suburb of Washington, DC), consists of more than 25 institutes, centers, and other components. Each component has a public information office. Staff in these offices provide information directly to the public, for example by preparing publications and answering public inquiries, and they work with the media.

Telephone numbers of NIH information offices are presented in Table 3-2.

Different components of NIH originated at different times, making the institution somewhat of an agglomeration. Some components, such as the National Heart, Lung, and Blood Institute and the National Institute of Dental and Craniofacial Research, focus on certain body systems or parts. Some, such as the National Cancer Institute and the National Institute of Allergy and Infectious Diseases, deal with given categories of disease. Some, the National Institute of Child Health and Human Development and the National Institute on Aging, are concerned with specific periods of life, and others, such as the National Library of Medicine, have yet other emphases. Given this welter, how can health writers know where at NIH to obtain the information they seek?

Often, the name of an NIH component makes clear where to find information on a given health topic. And NIH has prepared an index listing hundreds of topics and indicating which NIH component(s) to consult for information on each subject. To access this index, click on “Health Information” at the NIH Web site (www.nih.gov). For topics listed, the index notes phone numbers to call for information and includes links to home pages of relevant NIH institutes.

You can often use your time and that of NIH staff most efficiently by beginning your NIH information search online. From the NIH home page you can access various types of information and reach the home pages of specific NIH components. These home pages, in turn, commonly provide
### Table 3-2: Telephone Numbers—National Institutes of Health (NIH) Media Contacts

<table>
<thead>
<tr>
<th>NIH Component</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Cancer Institute (NCI)</td>
<td>(301) 496-6641</td>
</tr>
<tr>
<td>National Center for Complementary and Alternative Medicine (NCCAM)</td>
<td>(301) 496-7790</td>
</tr>
<tr>
<td>National Eye Institute (NEI)</td>
<td>(301) 496-5248</td>
</tr>
<tr>
<td>National Heart, Lung, and Blood Institute (NHLBI)</td>
<td>(301) 496-4236</td>
</tr>
<tr>
<td>National Human Genome Research Institute (NHGRI)</td>
<td>(301) 402-0911</td>
</tr>
<tr>
<td>National Institute on Aging (NIA)</td>
<td>(301) 496-1752</td>
</tr>
<tr>
<td>National Institute on Alcohol Abuse and Alcoholism (NIAAA)</td>
<td>(301) 443-3860</td>
</tr>
<tr>
<td>National Institute of Allergy and Infectious Diseases (NIAID)</td>
<td>(301) 402-1663</td>
</tr>
<tr>
<td>National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)</td>
<td>(301) 496-8190</td>
</tr>
<tr>
<td>National Institute of Biomedical Imaging and Bioengineering (NIBIB)</td>
<td>(301) 451-4772</td>
</tr>
<tr>
<td>National Institute of Child Health and Human Development (NICHD)</td>
<td>(301) 496-5133</td>
</tr>
<tr>
<td>National Institute on Deafness and Other Communication Disorders (NIDCD)</td>
<td>(301) 496-7243</td>
</tr>
<tr>
<td>National Institute of Dental and Craniofacial Research</td>
<td>(301) 496-4261</td>
</tr>
<tr>
<td>National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)</td>
<td>(301) 496-3583</td>
</tr>
<tr>
<td>National Institute on Drug Abuse (NIDA)</td>
<td>(301) 443-1124</td>
</tr>
<tr>
<td>National Institute of Environmental Health Sciences (NIEHS)</td>
<td>(919) 541-3345</td>
</tr>
<tr>
<td>National Institute of General Medical Sciences (NIGMS)</td>
<td>(301) 496-7301</td>
</tr>
<tr>
<td>National Institute of Mental Health (NIMH)</td>
<td>(301) 443-4536</td>
</tr>
<tr>
<td>National Institute of Neurological Disorders and Stroke (NINDS)</td>
<td>(301) 496-5751</td>
</tr>
<tr>
<td>National Institute of Nursing Research (NINR)</td>
<td>(301) 496-0207</td>
</tr>
<tr>
<td>National Library of Medicine (NLM)</td>
<td>(301) 496-6308</td>
</tr>
<tr>
<td>Office of AIDS Research (OAR)</td>
<td>(301) 496-0357</td>
</tr>
<tr>
<td>Office of Medical Applications of Research (OMAR)</td>
<td>(301) 496-1143</td>
</tr>
<tr>
<td>Office of Research on Women's Health (ORWH)</td>
<td>(301) 402-1770</td>
</tr>
</tbody>
</table>

Note: The Web sites of various NIH components can be accessed through the NIH home page, at www.nih.gov.
3. Government, Associations, and Other Institutions

Online access to items of use to health writers, for example, news releases, event calendars, publications, and links to related Web sites. The NIH Web site doesn't just aid in background research. If you seek story ideas, consider scanning the Web site with a particular eye to material highlighted as new.

Staff members at NIH information offices can give you assistance well beyond that available on the Web. Often highly experienced at providing information in their fields, they can help supply the perspective needed for good health writing; for example, if you inquire about a given piece of research, they may also identify related studies. They also can be a good source of suggestions of people to interview. Among sources they may suggest are researchers at NIH, researchers elsewhere whose work is funded by NIH, and NIH administrators well situated to summarize and comment on research done at various sites. Information specialists at NIH also may direct you to other government agencies and to nongovernmental organizations that can provide information. And, of course, they may supply you with NIH publications you have not yet obtained through other routes.

NIH and health writers have a mission in common. Become familiar with NIH, and make good use of this resource. Quite likely, it will facilitate and strengthen your work.

Other Federal Components

Although other federal components concerned with health sometimes are less oriented than NIH to disseminating information or have fewer resources to do so, they can also be valuable resources for health writers. Of course, for news reporters covering health, material from these institutions can be important to cover. Among these institutions are the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA). Both institutions, like NIH, are parts of the Department of Health and Human Services.

Located in Atlanta, Georgia, CDC has the following mission: "to promote health and quality of life by preventing and controlling disease, injury, and disability." Among its components are the National Center for Chronic Disease Prevention and Health Promotion; the National Center for Environmental Health; the National Center for Health Statistics; the National Center for HIV, STD, and TB Prevention; the National Center for Infectious Diseases; the National Center for Injury Prevention and Control; and the National Institute for Occupational Safety and Health.
I. Finding Topics and Information

On invitation, staff from CDC work with state and local health personnel to investigate outbreaks of disease. CDC also publishes the *Morbidity and Mortality Weekly Report* (www.cdc.gov/mmwr), noted earlier as a source of story ideas and information.

The CDC Web site (www.cdc.gov) offers access to various resources, including news releases, publications, and links to other Web sites, such as those of state and local health departments. A listing titled “Health and Safety Topics” provides links to CDC information on many subjects. The CDC media relations office can be contacted by phone at (404) 639-3286, by fax at (404) 639-7394, and by e-mail at In.the.News@cdc.gov.

Unlike NIH and CDC, the FDA is a regulatory agency. Drugs and medical devices require FDA approval in order to be marketed in the United States; this approval is granted based on evidence of safety and effectiveness. Once drugs and medical devices enter the market, the FDA continues to monitor them. The FDA also monitors the safety and wholesomeness of food and sets standards for its labeling. In addition, it oversees the safety of such items as vaccines, cosmetics, radiation-emitting products, and the blood supply. The FDA is headquartered in Rockville, Maryland, near Washington, DC.

The FDA home page (www.fda.gov) provides online access to news releases and fact sheets as well as other information. Additional assistance is available from the press office at FDA headquarters. To contact this office, call (301) 827-6242. The public affairs specialists at FDA district offices are also a resource for health writers (Adams and Henkel 1995); to contact such an office, consult the telephone directory of the nearest large city (turn to the United States government listings, and look for the FDA under “Health and Human Services”) or see the FDA Web site.

Though smaller, another federal component that can aid the health writer is the Office of Disease Prevention and Health Promotion (ODPHP), which includes the NHIC, a health information referral service. ODPHP is in Washington, DC; its telephone number for media contacts is (202) 205-5968. The ODPHP home page can be reached at http://odphp.osophs.dhhs.gov.

One handy resource from ODPHP is an annual calendar of “health observances,” that is, months, weeks, and days devoted to promoting particular health concerns. (Examples include American Diabetes Month, American Heart Month, High Blood Pressure Education Month, National Hospice Month, Mental Health Awareness Week, National Poison Prevention Week, Save Your Vision Week, National Senior Health and Fitness Day, World
3. Government, Associations, and Other Institutions

Health Day, World “No Tobacco” Day, and National Condom Day—aptly, February 14.) For each health observance, an organization or institution that can provide information is identified; whether or not you peg a story to the health observance, these contacts can be useful sources of information. The calendar is posted at www.health.gov/NHIC/pubs.

Other agencies in the U.S. Department of Health and Human Services that can be excellent resources for writers, especially those covering health-care delivery, include the following:

- Agency for Health Care Research and Quality (AHRQ—pronounced “ark”)—www.ahrq.gov; phone number for media calls, (301) 427-1855
- Centers for Medicare & Medicaid Services (CMS)—cms.hhs.gov; phone number for media calls, (202) 690-6145
  (Note: Formerly CMS was the Health Care Financing Administration, or HCFA.)
- Health Resources and Services Administration (HRSA)—www.hrsa.gov; phone number for media calls, (301) 443-3376
- Substance Abuse and Mental Health Services Administration (SAMHSA)—www.samhsa.gov; phone number for media calls, (800) 443-8956

Acquaint yourself with the Web sites of these agencies and others mentioned. The time is likely to be well spent.

State and Local Government

Especially if you write for local or regional media, state and local health departments (and other health-related components of state and local government) can be important sources. Working with health departments is a must when covering local outbreaks of disease. These departments also can provide statistical and other information helpful in addressing a topic from a local angle. Their programs also can be good subjects for stories. Links to home pages of state health departments and some local health departments are posted at www.cdc.gov/other.htm, on the CDC Web site.

Health departments of states and larger locales commonly include public information professionals who serve as contacts with the media (Gellert et al. 1994); if possible, get to know such people when you are not under deadline pressure and they are not under the pressure of communicating in a crisis. In smaller settings, a public health official such as the health
1. Finding Topics and Information

officer may be the main contact. Such individuals vary in their experience with and attitude toward the media. Thus, they are less likely than public information staff to be waiting with the information you need in the form you need it. However, advance acquaintance and mutual patience can help you to work together well.

Organizations

Think of a disease, or hear of a disease for the first time, and quite likely you can find an organization concerned specifically with it. The same is true for any health profession or subspecialty thereof. These health-related organizations have much information to provide and can suggest many topics for stories. But how can you identify such organizations? What do they have to offer? And how can you use this information source soundly?

The online health-resource database DIRLINE (dirline.nlm.nih.gov) and other references discussed earlier in this chapter include listings of associations. The Encyclopedia of Associations (2003) devotes a substantial section to health and medical organizations, of which it lists more than 2,000. Among types of information commonly provided on the associations listed are main purposes and activities, size of membership, size of staff, budget, subgroups, publications, address, telephone number (and, in many cases, a toll-free number), fax number, e-mail address, and Web site. Similar information appears in the electronic resource Associations Unlimited.

Among associations that often have considerable information available to health writers are those focusing on given diseases or groups thereof. Sometimes called voluntary health organizations, these range from large organizations concerned with widespread causes of death or disability—for example, the American Heart Association, the American Cancer Society, and the Arthritis Foundation—to small groups concerned with one or another rare disease, to even the National Pediculosis (yes, that means lice infestation) Association. Although different health associations differ in their mix of efforts, common and often overlapping goals include supporting research, promoting prevention, improving treatment, and educating health professionals and the public. Some of the associations also work to influence policies affecting people with given health conditions or to change attitudes toward these people. Often, voluntary health organizations are active in fundraising; before and during fund drives, they commonly seek media attention. In addition to national headquarters,
3. Government, Associations, and Other Institutions

"There is an organization for almost every disease or condition."

© John Capps, MD, reproduced by permission.

many associations have local chapters, which can be good places to start seeking information.

"The associations are usually the first place I look for information," says Catherine Dold, a freelancer whose health-related articles have appeared in Cosmopolitan, Discover, Health, and other publications. Because various goals of voluntary health organizations entail conveying information to the public, these organizations tend to be quite accommodating to health writers, and, indeed, to court health writers' attention. Unless such organizations are small, they commonly have staff members specializing in media relations.

Brochures and other publications typically are available on topics the association deals with; some of the larger associations have media guides or other publications designed specifically as background for health writ-
I. Finding Topics and Information

ers and other journalists. Sometimes videotaped material is available for viewing or broadcasting. The associations commonly issue news releases; if associations publish journals, some of the releases may deal with research reported therein. News releases and related materials also are issued regarding conferences of the associations; especially at large national conferences, press briefings may be held on research being reported, and a newsroom may be available where health reporters and others covering the conference may work. In general, to find out about, and in many cases obtain, information resources from an organization, begin at the organization's Web site. Then, if you seek further information, follow up by e-mail or phone.

Also, some of the larger associations organize science writers' conferences or science writers' seminars to inform the media about work in their fields. When health writers seek researchers, clinicians, or patients to interview, associations provide referrals. Some associations' media offices have databases listing experts available to interview on various topics.

Associations of scientists likewise tend to offer some or all of the above. For example, an extensive array of press conferences, many of them on health-related topics, accompanies the annual meeting of the American Association for the Advancement of Science. Among other scientific societies that include many biomedical researchers and have active media programs are the American Society for Microbiology and the Society for Neuroscience.

Associations of health professionals also can assist health writers. Among such national organizations are the American Medical Association, the American Dental Association, the American Nurses Association, the American Dietetic Association, the American Occupational Therapy Association, the American Physical Therapy Association, the American Academy of Physician Assistants, and the American Veterinary Medical Association. More localized organizations such as state medical associations and county medical societies also exist, as do organizations in various medical specialties. Among resources commonly available from health-professional associations are publications on the professions they represent and the health conditions their members deal with, assistance in covering research reported in journals the associations publish or conferences they hold, and referral to members to interview on given subjects. Like other organizations, various associations in the health professions have World Wide Web sites containing information for the media and other material that can aid health writers.
3. Government, Associations, and Other Institutions

Voluntary health organizations, scientific societies, and professional associations can help the health writer on both an “acute” and a “chronic” basis. Their written, human, and other resources can aid considerably in gathering information for immediate stories. On an ongoing basis, they can aid in finding story ideas and staying up-to-date.

Like information from other resources, however, that from organizations should be evaluated critically. Is a development truly newsworthy, or is the organization largely seeking publicity, perhaps just before a fund drive? Does a recommendation have a sound scientific basis, or could it have been generated in part to serve the association’s own interests? Is a disease worthy of considerable coverage, or does an assertive association make it seem more important than it is? Asking such questions can help you make soundest use of organizations as a source.

Educational Institutions

Good health writers are perpetual students. Although they may not enroll in classes, they often draw on educational institutions such as medical and other health-professional schools. Involved in education, research, and patient care, these schools are a substantial source of story ideas and information.

You can draw on institutions such as medical schools in various ways. Keep track of their calendars of events, and attend presentations that may yield stories or serve as useful background. Obtain their publications, and scan them for material of interest. And consult their public information offices.

Public information offices of health-professional schools can aid in finding story ideas and identifying experts to interview. If a given school, such as a local medical school, is of particular interest, check into receiving its news releases regularly by e-mail. Also talk with public relations staff members, who can help you find more distinctive story ideas than those presented in news releases. As well as requesting experts to interview on given topics, check whether the school has a guide listing faculty members’ areas of special expertise. Some schools provide printed guides to journalists or post such guides on the World Wide Web.

Public information professionals at educational institutions strive, of course, to promote the images of their institutions. Good professionals, however, know better than to oversell; indeed, they sometimes recommend outside sources better suited to provide given types of information.
I. Finding Topics and Information

Nevertheless, the need to evaluate information for newsworthiness and other value remains for this source as for others.

Health-Care Institutions

Hospitals, clinics, and other health-care institutions can be sources of doctors and other experts to interview. Sometimes new programs or services that they offer are worthy of stories. Here, too, public relations staff can aid you. Here, too, work with them toward your mutual goals, but also retain your own judgment.

Industry

Like educational and health-care institutions, pharmaceutical companies and manufacturers of medical devices have public relations offices. These offices commonly have considerable material to offer regarding the companies' products. Some also have materials available regarding conditions for which their products are intended. One handy aid for identifying public relations contact people at pharmaceutical companies is the Pharmaceutical Research and Manufacturers of America (PhRMA) media handbook, which journalists can access through the PhRMA Web site (www.phrma.org). Draw on companies as resources, but of course keep in mind their commercial interests.

Health writers for media that can represent big markets note that sometimes members of the public relations community prove a bit too helpful. Some health writers, for example, find their work interrupted by many telephone calls pitching stories about products. Some find their mail cluttered with unsolicited samples of health-related products being promoted.

How do you deal with this situation? Members of the Association of Health Care Journalists have addressed the question on their e-mail discussion list. Some suggestions based on the discussion follow:

- To help avoid phone pitches, insist to callers that story ideas be e-mailed or faxed.
- If you don't report on products, or if you write only local stories, say so. Doing so may save everyone effort.
- Consider stating in your voice-mail message that pitches should be provided by e-mail, not phone.
- Perhaps obtain caller ID.
3. Government, Associations, and Other Institutions

- Ask senders of unwanted products not to send more.
- Put unsolicited goods to socially constructive use. For example, at some media sites, "freebies" or proceeds from auctioning them go to local charities.

Try not to let those who are overly assertive, whether from industry or other sectors, color your general view of those working in health-related public relations and public information. For as a whole, institutions and their representatives are valuable sources of health-writing ideas and information.

Conferences

Many institutions such as those noted in this chapter hold conferences dealing with health. For example, NIH holds consensus conferences to evaluate and integrate information on items such as health-care technologies. Various health-related organizations have annual meetings. Whether you actually attend or not, conferences can provide you with many story ideas and much information.

How can you find out about conferences that may be of interest? If you're on media lists of institutions and organizations, you may hear regularly, for example by e-mail, about conferences they will be holding. You can, in addition, scan Web sites of entities tending to hold conferences in your areas of interest. Some journals publish announcements of conferences. Lists of meetings are available on the Web, for example at www.eurekalert.org, www.lib.uwaterloo.ca/society/meetings.html, and www.newswise.com/cal-med.htm. After the fact, you can read about conference highlights in sites such as Science News, the news sections of Science and JAMA, and news periodicals for health professionals.

Few health writers have the funding and time to attend many conferences, but benefits can be obtained even from those not attended. Looking at conference programs, either in print or on the Web, can suggest story ideas to pursue and experts to consult. Often, written materials from conferences—news releases, media backgrounders, abstracts or texts of presentations, and written recommendations issued—are available online or from the public information office of the group holding the conference. Audiotapes or videotapes sometimes can be obtained as well, as can Internet-accessible audio or video recordings. Sometimes conference sessions can be accessed in real time via computer.
I. Finding Topics and Information

When you do attend a conference, how can you make best use of the time and other resources invested? The following tips can be of help. Sources of further guidance include an article in the Council of Science Editors periodical, *Science Editor* (Gastel 2002).

- Find out about media registration. As a health writer, you may be able to attend the conference free. You also may receive materials in advance that can help you prepare. If seeking media registration, be ready to offer proof that you either work for the media, have a freelance assignment to cover the conference, or belong to a professional organization such as the National Association of Science Writers.

- Review the conference program carefully in advance. Large conferences often include many simultaneous sessions. To choose most soundly among them, spend some time checking the program beforehand.

- Consider doing some background research. As emphasized repeatedly in this book, good health writing includes context. Especially if you must submit a story shortly after a presentation, try to do background research beforehand. For example, read up on the topic; find out about related work; perhaps even interview the presenter in advance if doing so may not be feasible at the conference.

- Make good use of resources provided for the media. At many conferences, written materials on the sessions are available for reporters to take; public information staff are on hand to aid in such tasks as arranging interviews, and space is available in which to work. Sometimes news conferences also are held. Find out about such resources, and make use of them.

- Obtain material for both immediate and long-term use. As well as looking for immediate stories, be alert for items to consider using in future projects. Also be on the lookout for possible trends to keep watching. Be prepared to carry home lots of material for potential long-term use.

- Recognize that research findings reported at conferences may be preliminary or largely unreviewed. To be accepted for presentation at a conference, research generally need not pass nearly as stringent or detailed review as to be published in a journal. Thus, much of the research presented at a conference may be preliminary or of limited quality, and much of it never makes it to print (Schwartz, Woloshin, and Baczek 2002). If research still appears exploratory, make that fact clear in your writing, if you cover the research at all. Also think carefully about whether research is strong enough to merit reporting. (For assistance in assessing research strength, see Chapter 6.)
I. Finding Topics and Information

- the printed version of Science Sources, the online version (science-sources.eurekalert.org), or both.

Compare the types of information obtained from each of the above. From the sources identified, choose at least one organization, at least one government entity, and at least one entity of another type (for example, a university or corporation). Go to the Web site of each, and note information that could aid you as a health writer.

2. (a) If you live in the United States, go to the Web site of the U.S. Department of Health and Human Services (www.dhhs.gov) and from there look at the Web sites of at least three health-related federal agencies. Also look at the Web site of the health department of the state where you live. (To do so, you can click on a link from www.cdc.gov/other.htm.) Note some items you found, and say how they could help you as a health writer.

(b) If you live outside the United States, look for the Web sites of health-related national government agencies in the country where you live. Also look for Web sites of health-related government agencies in your province, state, district, or other locale. Say what you found and how it could help you as a health writer.

3. Go to the Web site of the American Association for the Advancement of Science (www.aaas.org), and click on “annual meeting” or otherwise access the program for the AAAS annual meeting for last year, this year, or next year. For each day of the meeting, identify one half-day session on which to write a story, and explain why you consider the topic newsworthy. Also identify three sessions from which to gather material for possible future use, and say how you would envision using the material.
Researchers, Clinicians, Patients, and Others

You've reviewed the literature on your topic. You've gathered information from relevant institutions. In doing so, quite likely you have drawn on some of the newest information technologies. But do not neglect one of the oldest—talking with people who have pertinent expertise and experience.

For the health writer, interviewing is crucial in gathering information and generating new story ideas. It lets you learn about the latest work. It lets you check on items that are unclear. It allows access to expert opinion. It lets you learn about the process, not just the products, of biomedical research. It lets you explore the human side of being a researcher, a health professional, or someone affected by an illness. It also can provide a local angle. For print media, it supplies the quotes and anecdotes that help make health writing engaging. For broadcast, it supplies voices and human visuals important to a piece.

This chapter focuses on human sources: researchers, clinicians, patients, and others. It begins with guidance on finding appropriate people to interview. Next it addresses deciding on the interview medium and doing the interview. Finally, it discusses various major groups of sources and provides suggestions for working with them.

Identifying People to Interview

In gathering information thus far for your story, you almost certainly have identified people to consider interviewing. Your reading quite likely has disclosed authors to contact for further information on their work or to consult more broadly. Your contacts with associations and institutions probably have yielded suggestions of people to talk with also. Additional resources can help you round out your list of interview candidates.

One resource is MediaResource. This free service, which started in 1980, provides journalists with referrals to scientists, physicians, policy makers, and others who have expertise in given areas relating to science and have
I. Finding Topics and Information

agreed to provide information to the media. In making referrals, the MediaResource staff draws on a database of about 30,000 experts, many of them in biomedical fields; if an area is controversial, the staff identifies experts with a representative range of views. Candidates for the database are recommended by research institutions, professional societies, and fellow scientists and identified by surveying the scientific literature. Formerly a program of the Scientists’ Institute for Public Information, MediaResource currently is sponsored by the scientific research society Sigma Xi. It is funded by contributions from various foundations, media companies, and other corporations. MediaResource can be reached by telephone at (800) 223-1730 or (919) 547-5259, by fax at (919) 549-0090, and by e-mail at mediaresource@sigmaxi.org.

Journalists also can access databases of experts in medicine and other fields through AlphaGalileo (www.alphagalileo.org), which describes itself as “the world’s leading resource for European research news.” This resource, managed by the foundation of the same name, includes a section on health.

A third resource for finding experts is ProfNet, at www2.profnetr.com. Academic information officers founded ProfNet (short for The Professors Network) in 1992 to help journalists identify college and university faculty who could serve as sources. Since 1996, when PR Newswire acquired ProfNet, the range of members has expanded to include not only academic institutions but also companies, government agencies, hospitals and medical centers, nonprofit organizations, public relations agencies, and other entities. Journalists can search the ProfNet database of expert sources. They also can submit a query describing the expertise they seek; they can specify the categories of organizations they wish to query, and they can say how they want members to respond (by e-mail, telephone, or fax). Information officers reading your query can then suggest experts to contact. ProfNet can be very useful, but health writers should recall that members commonly join it to help promote their institutions or products. In using this resource and others, remember to think critically about whether suggested sources truly have the expertise sought, and be alert for material intended mainly to sell a product or enhance an institution’s image.

As you gain experience as a health writer, you probably will develop your own group of favorite sources in various fields—people who are knowledgeable, articulate, and ready to talk. Make good use of these sources but do not overuse them, as some health writers tend to do. The health community is a large one; let many voices be heard.
4. Researchers, Clinicians, Patients, and Others

Tips on Interviewing

In addition to whom you interview, how you interview affects what you learn. The following tips on interviewing are geared particularly to health writers. For the health writer without a journalism background, additional guidance is available in the near-classic *The Craft of Interviewing* (Brady 1976), more recent guides to interviewing, such as *Interviews That Work* (Biagi 1992) and *Talk Straight, Listen Carefully: The Art of Interviewing* (Stein and Paterno 2001), and basic journalism textbooks. Also, *Ideas into Words: Mastering the Craft of Science Writing* (Hancock 2003) contains some excellent advice on interviewing. Health writers with backgrounds in the health professions may find the principles of interviewing sources much like those of interviewing patients.

Deciding on the Interview Medium

Consider the best medium for the interview. Many health writers depend largely on interviewing by telephone. This medium can make efficient use of time, and of course it is well suited for interviewing people far away. Also, sometimes patients who are sensitive about their health conditions feel more comfortable being interviewed by telephone than face-to-face. Consider, however, written formats and especially interviews in person as alternatives to the telephone. Although written media, such as e-mail, do not permit as spontaneous an interchange as a spoken interview does, they can work well for gaining answers to straightforward questions, for example, before or after a more traditional interview. And e-mail or other written formats can be a good choice for interviewing people who have difficulty hearing or speaking.

If circumstances permit, try to do major interviews in person. In person you can gain information unavailable otherwise. You can note people’s appearances and observe their expressions; the nonverbal cues you perceive can aid in directing the interview. You also can see what a given laboratory, clinic, or other facility looks like; your observations may prompt questions, and you may be able to tour the facility. If you interview someone with a health condition, doing so in the person’s home or office may help you more readily see how the condition has (or has not) affected the person’s life.

Being present in person also facilitates talking with colleagues, family members, or others close to the person being interviewed or doing related
I. Finding Topics and Information

work. It can aid in obtaining written materials that can help with your story, as well as in thinking of visuals to accompany it. In short, interviewing in person can yield various insights, materials, and details that can strengthen your health writing.

Preparing, Interviewing, and Following Up

Before the interview, brief yourself well. (Don't be like the reporter who turned to her neighbor at a news conference and whispered, "I've heard about those 'kidney things,' now what do they do?") Review the reading you have done and any other material you have obtained. Develop a list of questions in advance, but remain flexible to pursue unexpected leads. Resist the temptation to flaunt the knowledge you have gathered; remember, as an interviewer your main task is to listen.

During the interview, be a good listener. Do not rush in with a comment or new question if the person you are interviewing hesitates; give the person sufficient time to think. If answers are unclear, do request clarification. And to check your understanding and elicit elaboration, restate in your own words what you understood the source to say. Near the end of the interview, check whether the source has anything to add; often doing so yields important material for the story or ideas for additional stories. If some questions may be sensitive, save them for last.

After the interview, review your notes promptly. Read and clarify what you have written. If you also tape-recorded the interview, check the tape and transcribe material of interest. Also check with the source about any important points that are unclear; for quick checks on items such as numbers and definitions, e-mail can be handy. A good source will appreciate your care—and, more important, your readers will benefit.

Answering Requests to Review the Story

When approached for an interview, or even after the interview ends, researchers and others sometimes demand to approve the story before it is aired or printed. Obtaining such approval, even when not explicitly requested, is common in public relations settings. For example, after drafting a news release, a health writer at a university normally shows it to the researcher whose work is being described. If the researcher is uncomfortable with anything in it, the writer works to come up with a version that is acceptable to the researcher and still effectively fulfills a release's functions.
4. Researchers, Clinicians, Patients, and Others

Reporters' and freelancers' stories for the media are not subject to such review; the writers and editors have the final say. However, as discussed in Chapter 7, asking those interviewed to check relevant passages for technical accuracy can be prudent practice. Often, assurance of a chance to do so will allay a source's concerns. And, if it is clear from the interview that the health writer is well prepared and attentive to detail, sources will likely feel much less need to have tight control.

Interviewing Members of Various Groups

Though similar interviewing skills can aid in interviewing anyone from a child with a disease to the discoverer of a newly found gene, types of sources differ somewhat in how they are best approached. How can you best locate sources of various types? What attitudes toward the media do they tend to bring to the interview? How can you best work with such sources? The following sections address such questions.

Researchers

Biomedical researchers to interview can be identified in various ways. Authors of journal articles are obvious candidates, as are speakers at conferences. In addition, public information staff at government agencies, associations, and universities can suggest researchers to interview. And the MediaResource and ProfNet are well geared to identify researchers.

Background information on a researcher can help you decide what to ask, as well as adding to an article itself. Various sources of such information exist. *American Men and Women of Science* (2003) provides basic biographical data on many prominent scientists; also, many scientists are listed in biographical guides such as *Who's Who*. Public information staff at researchers' institutions often can provide biographical information, and many researchers have home pages on the World Wide Web. Of course, you can ask a researcher for a copy of his or her curriculum vitae (essentially the academic equivalent of a resume).

Especially if a topic has commercial or policy aspects, be alert for possible conflicts of interest on the part of researchers. Have their studies of products been funded by the manufacturers? Have they consulted for companies? Have they served on boards of industry groups? Such ties do not necessarily mean a researcher is biased, but they should be kept in mind. In addition to resumes and other biographical information, starting points
1. Finding Topics and Information

"On that shelf are my scholarly books. On that shelf are journals in which my scholarly articles have appeared, and on that shelf are video and audio tapes of my appearances on talk shows."

Cartoon © Mischa Richter and Harald Bakken, for the Chronicle of Higher Education.

for identifying links between scientists and businesses include the database Scientists’ and NonProfits’ Ties to Industry (www.cspinet.org/integrity/database.html), maintained by the Center for Science in the Public Interest. Industrial and other ties also may be relevant to ask about during an interview. Doing so near the end often proves suitable.

Researchers vary in their attitudes toward the media; often a given researcher has mixed views. On the one hand, researchers voice various objections to dealing with the press. Some say that their work is too technical for the public to understand, that they lack the time to talk with reporters, that colleagues would criticize them for seeming to seek publicity, or that talking with the media about their work would jeopardize their chances of publishing it in a journal; some have had bad experiences or have heard of them and say, “never again” (Rodgers and Adams 1994). On the other hand, some researchers seek publicity; motives include bolstering the reputation of their research field or of science in general, enhancing the image of their institution, helping to attract funding, advancing
4. Researchers, Clinicians, Patients, and Others

causes that they support, promoting products, or enhancing their egos. Also, researchers vary considerably in their experience working with reporters. Some are extremely media-savvy; others are largely unacquainted with how the media work.

A study of researchers who had published articles in JAMA or the New England Journal of Medicine found generally positive attitudes toward the press (Wilkes and Kravitz 1992). More than 60 percent of the respondents agreed that media coverage helps inform the professional community of their research. Indeed, research over the years supports the view that, in addition to informing the public, stories in the popular media increase health professionals' and researchers' awareness of developments in their fields (Shaw and Van Nevel 1967; Phillips et al. 1991).

"Experts (particularly the ones who might be getting a flurry of attention because of a paper or controversy) have busy schedules," a public information staffer at a medical school notes. As well as doing their research, they must publish journal articles about it if they are to maintain their careers. In most settings, they also must write grant proposals seeking funding for their research, a stressful and time-consuming process. Many also teach students or see patients or both, and, they typically are involved in various other endeavors, such as evaluating manuscripts submitted to journals, speaking at conferences, and participating in professional societies.

Thus, health writers sensitive to researchers' time constraints are likely to work best with these sources. If you can, try to contact researchers well before your deadline; be flexible in scheduling interviews. To make efficient use of the interview time, consider faxing or e-mailing some of the questions beforehand.

Most important, prepare thoroughly in advance, so researchers need not spend much time explaining basics. "My experience is that people at the top of their profession are very kind and generally pretty good at explaining complex issues if they see that you are trying to understand what they are saying," says Elizabeth Ban, for many years a medical writer for the Voice of America. "If they see you haven't done your homework, they will not give you the time of day, which is fine. You should always do your homework."

Some researchers are founts of good quotes, crisp sound bites, and nice analogies. Others, however, tend to present material in a technical and dry manner. Sometimes acting less informed than you are can elicit a simple, punchy explanation well suited to quote or to broadcast. Another
I. Finding Topics and Information

tack is to ask researchers to present the material as they would to bright adolescents.

Biomedical researchers are intelligent and resourceful people, and most are highly committed to the public’s health. Meet them halfway by understanding their constraints and making clear your needs. The information and ideas they provide in return can add much to your writing.

Health Professionals

Health professionals are the people most quoted and mentioned in newspaper articles about medicine or health care (Stempel and Culbertson 1984; Buresh, Gordon, and Bell 1991). They also are major information sources for health writing in other media. Interviewing them can help make your writing more informative, engaging, and authoritative.

Members of various health professions can be well worth interviewing. Traditionally, physicians have been by far the most common sources; given their expertise and leading role, they remain important interview subjects. Today, however, health care is more and more a team endeavor. And various members of the team have knowledge and communication skills that can make them excellent sources. Among the many health professionals to consider talking with are physician assistants, nurses, pharmacists, dietitians, physical therapists, and occupational therapists. Because such individuals often are less rushed than physicians (or at least have hours that are more regular), and because they often focus on patient education, they can be particularly accessible resources, both literally and figuratively.

Health professionals to interview can be identified in various ways. The public relations offices of medical schools and other health professional schools can suggest experts to interview on given topics, as can such offices at hospitals and clinics. Professional societies—national, state, and local—can suggest members with requisite expertise. Some, such as the American Nurses Association, maintain speakers’ lists or databases of members with expertise on various topics. National and local offices of voluntary health associations, such as the American Heart Association and the American Cancer Society, also can recommend health professionals to interview on given topics. Contacting such an organization can help you find knowledgeable people from various health professions.

Awareness of what physicians in various specialties do can aid in knowing what information to seek from whom. One resource in this regard is the brochure Which Medical Specialist for You (American Board of Medical...
Researchers, Clinicians, Patients, and Others

Specialties 2002). This brochure is available from the American Board of Medical Specialties (ABMS), 1007 Church Street, Suite 404, Evanston, Illinois 60201-5913, telephone (847) 491-9091, and is posted at its Web site, www.abms.org. Biographical information on physicians certified in their specialties can be obtained from The Official ABMS Directory of Board Certified Medical Specialists (American Board of Medical Specialties 2002), found in general and medical libraries. Also, the “Who’s Certified” search feature on the ABMS Web site can aid in identifying board-certified physicians in various locales.

Other resources for identifying physicians in various fields and locales include the “Doctor Finder” feature at the American Medical Association (AMA) Web site, www.ama-assn.org. This feature provides basic information, such as address and phone number, medical school attended, and specialty, on almost every licensed physician in the United States. The printed AMA Directory of Physicians in the United States (American Medical Association 2002) also includes information on physicians who have not obtained or maintained licenses, for example because they work exclusively in research rather than patient care. For a concise briefing on licensure, board certification, and the stages of medical education, health writers can do well to consult the JAMA Patient Page “Your Doctor’s Education” (Pace 2000), which can be accessed through the JAMA Web site (jama.ama-assn.org).

Various health professions and niches within them can be good topics for stories. Also, story ideas can be obtained by consulting associations in various health professions about developments in those professions.

Health professionals vary considerably in their attitudes toward the media. Some shun any contact with reporters; others avidly seek publicity, sometimes with the help of public relations consultants (Rosman 1998). Likewise, health professionals vary considerably in their awareness of how the media function and what health writers are likely to find useful.

Much of the literature on the relationship between health professionals and the media focuses on physicians. Reading this literature reveals that interaction between physicians and journalists has changed considerably in some respects over the years but that many of the issues stay the same. For example, a report on a series of meetings between doctors and reporters during the 1950s indicates that the medical profession showed great aversion at the time toward anything that could be construed as a physician seeming to seek publicity; thus it was noted that physicians often checked
with their county medical societies before agreeing to speak with reporters. Yet many of the issues addressed in the meeting were the same as today. For example, participants discussed what degree of accuracy is acceptable in media reports, whether the role of the media is to educate or to inform, and whether reporters were qualified to present medical findings in adequate context (Kriegbaum 1957).

Results of a survey in the early 1990s suggest that physicians no longer consider their colleagues in the news merely publicity-seekers. However, they tend to view medical coverage in the media as being biased against physicians and the medical profession, containing technical inaccuracies, being sensationalistic, focusing too much on trendy diseases, being prone to the reporter’s biases, and telling only a small part of the story. The introduction to the report in which the survey is presented emphasizes, however, that physicians and journalists share the mission of serving the public (Rubin and Rogers 1994).

In talking with health professionals, make clear your commitment to this mutual goal and your dedication to accuracy. Find out your sources’ schedules and be ready to work within them; surgeons, for example, tend to start operating early in the morning but to be more available later in the day. (A health writer at a major medical center says that “e-mail works great for submitting questions and getting fast answers from doctors who are trying to do interviews between patients.”) Realize that emergencies can arise, so have back-up plans; do not wait to speak with a given source until it would be too late to contact anyone else. If health professionals lapse into technical jargon, consider suggesting that they present the material as they would to a patient. And if you are a health writer who is a health professional as well, resist the temptation to engage only in professional discussion; remember that the goal is to obtain material that will strengthen your story.

Patients

Patients—and ways to keep from becoming a patient—are what health writing is largely about. Interviewing patients and those near them can provide important perspectives and much human interest.

How can you find patients to interview? (Or both more broadly and more precisely, given that only people who are receiving medical care are rightly termed patients, how can you find people to interview who have a given condition?) One way to start is with your own acquaintances. If a
4. Researchers, Clinicians, Patients, and Others

condition is common, you may well know someone with it. Another way is to contact physicians, dentists, or other appropriate clinicians. Because they must maintain confidentiality, clinicians will not immediately suggest patients to contact. They may, however, let patients know that you are seeking people to interview. A third approach is to contact local or national offices of associations dealing with the condition of interest. Often, associations have available people with the condition who have indicated their willingness to be interviewed. Be aware, however, that those active in such associations or participating in support groups they sponsor may not be representative of those with a condition. For example, they may tend to be especially severely affected or attach particularly strong weight to their condition.

Indeed, given that many diseases vary widely in severity, an issue to consider is which individuals to feature in your writing. Although those most dramatically affected may make the most compelling reading (or listening or viewing), featuring only such patients conveys a distorted picture. Ideally, if stories on given diseases depict patients, they should include those affected to various extents. Just portraying someone with a severe case of a disease and stating that most cases are much milder is unlikely to suffice; those encountering the story are likely to remember the vivid case and forget the general statement.

Another issue is that of anonymity. Journalists generally try to avoid citing anonymous sources. However, there's a difference between someone claiming anonymously that the mayor is stealing public funds and someone willing to discuss personal details of an illness but unwilling to have his or her name appear in a story. In writing about health matters that may be sensitive, it generally is acceptable to maintain the source’s anonymity, for example, by identifying the person only by age and occupation or indicating that a name other than the person’s real one is being used. The person’s identity is not the point; the person’s experience and perceptions are.

Although some patients, such as those who are spokespersons for organizations, are experienced in talking with journalists, many patients whom you may interview are not. In the latter case, take care to set the source at ease, to keep from raising unrealistic expectations, and to avoid abusing trust. Begin with some general conversation and basic questions about the source. Make clear the scope of your project; otherwise, patients being interviewed for a general story on a condition may assume that a story will be solely about them. Likewise, note that only a small part of the interview may appear in the final story.
I. Finding Topics and Information

If you are an attentive, empathetic listener, often the person will tell you things you might not have dared to ask. Technically, anything a source tells you is fair game to use in a story unless the source has indicated otherwise beforehand. However, a patient you interview may view you as a friend and assume you would not, for instance, include anything that would be hurtful to a family member. Consider whether such items are worth including, or whether, for example, it would suffice to say that some patients feel a given way. If in doubt, check with the person you interviewed.

People to interview include those with disabilities. In doing so, keep in mind the following advice from Tari Susan Hartman (n.d.), an expert on disability and the media:

- Talk directly with the person with the disability. Do not communicate through the person’s companion.
- If a person uses a wheelchair or is of short stature, sit in a chair or kneel to conduct the interview at eye level.
- If a person is blind or has low vision, identify yourself and others with you.
- “Face a Deaf person squarely so she or he can read your lips. Keep your face in the light, and don’t cover your mouth . . . when you speak.”
- If you have trouble understanding a person with a disability that involves speech, ask the person to repeat what he or she said. Do not pretend that you understand.
- “Do not distract a working service dog. It’s doing a job and is not merely a pet.”

Additional guidance on interviewing people with disabilities appears on the Easter Seals Web site (www.easterseals.com) and on the Web site of the National Center on Disability and Journalism (www.ncdj.org).

Talking with patients provides important perspective on how medical conditions affect people’s lives. Also, many patients are highly informed about their diseases, so interviewing them can suggest biomedical areas to explore. Realize, however, that patients may be misinformed about medical subjects or may have misheard what health professionals told them. For example, a woman with binaural (in both ears) hearing loss thought she had been told that the hearing loss was “bineural.” As elsewhere in your research, cross-check your information.
4. Researchers, Clinicians, Patients, and Others

Others

Not only patients but also those close to them can provide perspective. Thus, consider talking with people such as family members, close friends, and colleagues. Before approaching such sources, seek the patient’s approval unless the patient is incompetent to give it.

The type of story you are preparing and the background research you do may also suggest people to interview other than those in groups discussed in this chapter. Among the many possibilities are social workers, medical ethicists, hospital administrators, policy makers, research administrators, and company executives. Also, trade press reporters, such as those at magazines and newsletters focusing on aspects of health care, can be interviewed for background and quotes. Whatever the source, do your homework first; ask and listen and listen some more; review your notes; and obtain needed clarification. Your health writing will benefit from your human sources.

Exercises

1. Identify a health or medical topic on which you plan or hope to write a story. Then do the following:
   (a) Do a PubMed search on your topic (see Chapter 2), and identify at least two journal article authors who could be appropriate to interview. Say why each seems to be a suitable candidate.
   (b) Identify an aspect of your topic about which it would be helpful to interview experts. Using the guidelines at the MediaResource Website (www.mediarource.org), prepare a request to find experts to interview on that aspect. Be specific in explaining what you are seeking. (Note: Unless you are writing your story for publication, do not actually submit your request to MediaResource.)

2. Find a health professional or health-professions student about whom you wish to write a profile. First prepare a list of questions to ask the professional or student; among possible areas to address are reasons for entering the field, career path, current activities (professionally related and other), and plans or aspirations. Then interview the professional or student and prepare a profile of about 500 words. If possible, indicate a publication for which your profile could be suitable. Identify aspects of the interview that went well and ways the interview might have been improved.
I. Finding Topics and Information

3. During the next week, note human sources quoted or mentioned in medical and health stories you encounter in various media. Think about the types of sources used and types of information obtained. Consider how the reporter might have identified the sources. Think of additional sources, or types of sources, that might have enhanced some of the stories.
"I'll put something in the mail" was long a standard response when health writers called public information offices for background materials. Then, as the 1990s progressed, one increasingly heard, "Do you have access to the World Wide Web? Let me direct you to our home page." Today, health writers commonly begin their information searches online. Indeed, some young health writers may have difficulty imagining any other way.

Similarly, much of what health writers formerly did by letter or telephone is being done by e-mail. As well as supplying old types of information in new ways, online capabilities are providing new and increased opportunities to find story ideas and information.

This chapter therefore provides guidance in using online resources in health writing. It begins by focusing on the World Wide Web. It then provides pointers on using e-mail in a health writer's work. Finally, it discusses using electronic discussion groups.

The World Wide Web

The World Wide Web abounds with information relating to health. Much of this information is excellent, and much is not. How can a health writer obtain good information efficiently from the Web?

An excellent place to start is MedlinePlus (medlineplus.gov), a service of the National Library of Medicine. MedlinePlus provides information from the National Institutes of Health and many other reliable sources. It contains information on hundreds of health topics, a section presenting drug information, a medical encyclopedia, a medical dictionary, a compilation of recent health news, contact information for consumer health libraries in the United States and Canada, and more. The Web pages on health topics include links to material at other reputable sites, such as those of health-related associations.

Another outstanding resource is the CAPHIS Top 100 List (caphis.mlanet.org/consumer), which provides links to and briefly describes 100
health-related Web sites that medical librarians have deemed especially valuable. The list is a project of the Consumer and Patient Health Information Section (CAPHIS) of the Medical Library Association. It includes sections on general health Web sites, women's health sites, men's health sites, sites regarding children and parenting, sites regarding older people's health, sites on specific health problems, drug information resources, and more.

Items listed by CAPHIS in the Top 100 have been carefully evaluated. Ditto for items that appear in or are linked to MedlinePlus. Health writers accessing material from the Web should make sure it has received such evaluation or should do such evaluation themselves. Questions to ask when determining whether material at a Web site seems credible include the following:

- Who runs and funds the Web site? For example, is the Web site sponsored by a government agency, a society of health professionals, a health-related association, or a company selling health-related products?
- What is the purpose of the Web site?

"THE DRUG DIDN'T HELP? LET'S SEE IF THE INTERNET HAS SOMETHING BETTER."

© Sidney Harris, reproduced by permission.
health-related Web sites that medical librarians have deemed especially valuable. The list is a project of the Consumer and Patient Health Information Section (CAPHIS) of the Medical Library Association. It includes sections on general health Web sites, women's health sites, men's health sites, sites regarding children and parenting, sites regarding older people's health, sites on specific health problems, drug information resources, and more.

Items listed by CAPHIS in the Top 100 have been carefully evaluated. Ditto for items that appear in or are linked to MedlinePlus. Health writers accessing material from the Web should make sure it has received such evaluation or should do such evaluation themselves. Questions to ask when determining whether material at a Web site seems credible include the following:

- Who runs and funds the Web site? For example, is the Web site sponsored by a government agency, a society of health professionals, a health-related association, or a company selling health-related products?
- What is the purpose of the Web site?
9. Medical Reporting for the Electronic Media

tions also have used to varying degrees video reports from syndicated med-
ical news services (such as Ivanhoe Broadcast News and Medstar Television) and video news releases ("VNRs") provided by pharmaceutical and medical device companies, non-profit organizations, and the American Medical Association (with its weekly JAMA Report VNR). The quality of these medical television news products varies tremendously.

One of the first organizations to represent medical broadcast reporters was the National Association of Physician Broadcasters, formed in 1982. The organization changed its name to the National Association of Medical Communicators (www.namc.info) in November 1997 to reflect its intention to increase its membership beyond physicians and dentists to include other health professionals, as well as medical and health reporters (NAMC 1998). NAMC convenes its annual meeting in conjunction with the American Medical Association's Medical Communications and Health Reporting Conference, which has met every year since 1981. The Association of Health Care Journalists (AH CJ) (www.ahcj.umn.edu) represents a mix of print, broadcast, and online journalists who report for both general news media and trade publications. AH CJ reports that about 10 percent of its members are full-time broadcasters.

Elements of a Medical Television Script

All of the rules of responsible print reporting apply to television reporting and need not be repeated here. The major difference between print and television reporting is that television has sound and moving pictures while print obviously does not. The writing of a television script requires attention to both audio (the sounds and words of a story noted on the right side of the script; see Figure 9-2) and video, including graphics and animation (noted on the left side of the script). Because a typical 90-second television story ("package") will contain fewer words than a moderate-length print story, the reporter must write clearly and simply. The reporter's narration ("track") weaves the various story elements together.

Audio elements include the following:

(1) track
(2) sound bites (the television analogue of quotes)
(3) natural sound (either ambient sound, called "nat sound," or snatches of conversation that are too brief to be considered bites)
(4) reporter stand-ups in which the reporter talks directly to the camera
The following is a script for a story that appeared on KTTV Fox 11 News in Los Angeles on July 21, 1994. The news director of Fox 11 at the time, Jose Rios, had suggested to Dr. Tom Linden, the medical editor, that he do a story about how older people can keep mentally active. Linden looked for a local hook and came up with this story for the 10 p.m. newscast. Please note that the volunteer's last name in the following script was omitted to ensure his anonymity. The script is courtesy of KTTV Fox 11.

***Anchor on cam***

---<Anchor Intro>---
Most of us want to stay physically and mentally fit as long as we can.
We know exercising can keep our bodies healthy, but what about our brains?
Medical editor Doctor Tom Linden is here with a prescription for keeping the brain in shape, something many of us don't even think about... Tom.

Toss to Dr. Tom

***Dr. Tom on cam***

---<Dr. Tom Intro>---
(ad lib to anchor: "A lot of us don't, but this is really a painless prescription.")
The good news is we each have more than one hundred billion brain cells.
The bad news is brain activity peaks at age eighteen... In a sense it's all downhill from there... unless we do something about it.
---<stop>---

Take package
Total Running time = 2:48

MS of computer map

<natural sound of neurologist: "There's really a little bit of activation..." >
<track> This is a computer map of a brain of a sixty year old. Notice the area behind the left and right ears... It's yellow indicating low level brain activity.
But with just a little memory training, this same individual's brain lights up red, especially behind the right ear... A sign the brain is working... like someone much younger.
<Leuchter bite>
“What our thinking is is that by giving people certain strategies to help them activate their brains more during memory tasks that we can enhance memory function.”

<natural sound of lab technician: “I’d like you to apply a strategy that we hope will improve your memory…”>
<track>
The “key” is a process called visualization.

Research volunteer 57-year-old Chuck T. is trying to remember these thirty-six words which flash across the screen.

By associating *each* word with a mental image or story, Chuck T. improves his recall… kind of like providing “food” for the brain.

Take the word “twilight.” Chuck remembered that word more than 15 minutes after it briefly appeared on the screen.

<nat sound>
CT: “And I pictured myself physically on Ocean Avenue in Santa Monica watching the sunset.”
Linden: “And you remembered that word.”
CT: “I still do.”

<natural sound of dripping fluid as Dr. Scheibel explains: “Well this is the brain of an individual who…”>
<track>
Brain researcher Doctor Arnold Scheibel calls it the “use it or lose it” principle.
I. Finding Topics and Information

- When sending a message to a group of people, consider using the "Bcc:" line. Doing so decreases clutter, and it avoids the risk of inappropriately sharing identities and e-mail addresses.
- For readability, keep paragraphs of e-mail messages fairly short.
- Although e-mail is a relatively casual medium, beware of excessive informality in work-related e-mail.
- Remember to proofread professionally related messages before sending them.
- Make good use of your e-mail program's capacity for separate files. For example, for each major writing project, keep a file of e-mail received.

Some caveats about e-mail also are in order. Normal e-mail is not completely private, and it is easy to copy and forward. Thus, it is not suited for confidential material, be it a story idea you wish to hide from competitors or information on identities of patients who will be anonymous in a story. One rule of thumb is: If you wouldn't send it by postcard, you probably shouldn't do so by e-mail.

Only with the consent of the sender should you include in your writing material obtained by e-mail. If the material clearly was requested for use in a story, then using it clearly is fair game. But what was offered in other contexts should be used only with the sender's permission. In short, treat information from e-mail as you would that obtained by conventional mail.

Discussion Groups

As well as using e-mail for one-to-one communication, you can join e-mail discussion groups. Likewise, you can participate in discussion groups via Web sites. Online directories offering links to many health-related resources include SupportPath.com (www.supportpath.com).

"There's a support group for everything online," one freelance writer has observed. Monitoring the messages can yield story ideas, alert you to patients' concerns, and aid in identifying people to interview. And posting messages of your own can lead you to information and sources. If you post messages for such purposes, ethics requires that you indicate that you are seeking the material for a story. And, of course, good journalistic practice demands that you verify all information.

Electronic discussion groups for science writers and health writers flourish. The National Association of Science Writers maintains for its members several e-mail lists, including lists discussing science writing in general,
5. Online Sources

freelance issues, and aspects of public relations. The Association of Health Care Journalists likewise has an e-mail discussion list. Both organizations keep archives of past discussions, thus allowing beginning health writers and others to benefit from earlier postings. Health writers interested in literary feature writing and related topics may appreciate WriterL: The Narrative Writers’ Listserv. For information on subscribing, see writerl.com. In part through such lists, health writers, who often work largely in isolation from colleagues, have become more and more a professional community.

Online resources have much to offer health writers. Keep informed about them, and use them wisely. They can bring much to your work and your professional life.

Exercises

1. Identify a health condition that you have or that someone you know has. In MedlinePlus (medlineplus.gov), look for information useful in preparing an article about that condition. You should look not only in the “Health Topics” section but also in some other sections. Note some types of materials you found. List at least three facts you uncovered that seem suitable to include in the article.

2. Through the CAPHIS Top 100 (caphis.mlanet.org/consumer), access two listed sites (other than MedlinePlus) that interest you. Spend some time exploring the two sites. Note types of information available at each. For each of the two, say why you think it ranked in the top 100. Say which of the two sites you liked better and why.

3. Imagine that there is a disease called healthwritis and that you are preparing a feature article about it. You have received the names and e-mail addresses of 15 people with healthwritis who have said they are willing to discuss having the disease. As a start, you decide to send a group message to all 15 people asking them some basic questions about their experience with the disease and checking whether they would be willing to be interviewed. What would the subject line of your e-mail message be? Would you list the people’s addresses in the “To:” line or in the “Bcc:” line? Why? What would you say in the body of the e-mail message? (Please provide the text.)
Part II

Preparing the Piece
Chapter 6

Evaluating Information

While gathering information for possible use in your story, you doubtless have been starting to evaluate it. Now, as you integrate material from various sources, further evaluation is crucial. This chapter discusses ten key items to consider when deciding what information to present and in what context to present it. Some examples of applying material from this chapter are included in the annotated health stories that accompany Chapter 8.

On reading some sections of this chapter, you may feel at first that nothing you find is good enough to present. Do not despair. Remember that medicine is an evolving field and that your role as a health writer often is to convey an understanding of what is known—and isn’t known—at present. You need not reject all that may be flawed in some way; indeed, if you did, you might have little to say. Rather, reject that which has serious weaknesses, make clear the limitations of other material, and remember to present information in a broad enough context for your audience to see how it fits in.

The Source

In deciding how much credence to assign, consider the information source. Knowing the source helps in determining how confident you can be that information was competently gathered and analyzed. It also can alert you to possible bias.

Consider, for example, where research was reported. Was it published in a peer-reviewed journal? Or was it presented only at a conference, which typically would have much less stringent quality control?

If research was reported in a journal, what affiliations are listed for the authors? For example, do the authors work for a university, the government, or a pharmaceutical company? Also, what institutions are listed as funding the research? Was the research supported by a government agency? by industry? by a private foundation? Do there seem to be possible conflicts of interest? For instance, is an article evaluating a medical
device accompanied by a statement that the author has been a consultant to the company producing the device?

When researchers, health professionals, and others make pronouncements, are they indeed experts on the subjects they are addressing? Or are they speaking outside their areas of expertise? Who pays their salaries, gives them consulting fees, or supports their research? With what causes are they known to be affiliated?

And when information comes from an institution, what are the institution's funding sources and goals? If an institution has an ambiguous name, what does the institution actually represent and do? For example, is it funded by a given industry and geared to advancing its interests? Is an association about to launch a fundraising drive and thus trying to engender publicity?

Clearly, circumstantial evidence such as that on the nature of sources...
6. Evaluating Information

not always valid. Work done by researchers at top universities and published in respected journals has later turned out to be fraudulent. And information and ideas from well outside the mainstream have turned out to be valid and important.

Nevertheless, consider the source when deciding what stories to pursue and what information to include. And provide sufficient information on the source so that your audience also can consider it.

Consistency

Think about consistency, both within a source and from source to source. If you are looking at a research article, are the numbers in the text consistent with those listed in the tables? Do the conclusions seem consistent with the data reported? If inconsistencies appear to exist, are they serious enough to disqualify the article from consideration or to merit contacting the researcher for a possible interpretation?

If you obtained statistics on a given item—say, the number of people with a certain disease—are those from different sources similar? If not, are the statistics central enough to your story that it would be worth looking into possible reasons for the discrepancies? Or would it suffice to provide a range of estimates?

If you are writing about a given piece of research, are its findings consistent with those of other studies that have attempted to address the same question? Different findings do not necessarily mean that one study is wrong and another is right. Rather, they often reflect the fact that different studies looked at different aspects of the same question, for example, effects of a treatment in different populations. However, such discrepancies are indeed worth reflecting on and noting.

The Study Design

Inconsistencies in the findings of different studies often reflect, in part, differences in study design. Not all studies are created equal. For health writers, the advantages and limitations of various study designs are important to consider when evaluating information.

In health writing and other popular writing, anecdotes often bring dull generalities to life. But beware, beware, beware of depending only on anecdotal information. Although a patient's unfavorable experience—say, with a medication or a given type of health-care facility—can well be a starting
II. Preparing the Piece

"Find out who set up this experiment. It seems that half of the patients were given a placebo, and the other half were given a different placebo."

© Sidney Harris, reproduced by permission.

Point for research into a possible story, it is by no means grounds in itself for a story concluding that the item in question is bad. And do not conclude that a treatment is effective just because one patient’s condition improved. Most conditions have their ups and downs, and improvement can be independent of any treatment. Thus, a comparison or control group receiving no treatment or an established treatment almost always is needed before one can validly conclude that a treatment is effective or an improvement. Other things being equal, the greater the number of people studied, the more credible the results of the research.

For evaluating treatments and preventive measures, the type of study generally considered to be the gold standard is the randomized double-
II. Preparing the Piece

"Find out who set up this experiment. It seems that half of the patients were given a placebo, and the other half were given a different placebo."

© Sidney Harris, reproduced by permission.

point for research into a possible story, it is by no means grounds in itself for a story concluding that the item in question is bad. And do not conclude that a treatment is effective just because one patient’s condition improved. Most conditions have their ups and downs, and improvement can be independent of any treatment. Thus, a comparison or control group receiving no treatment or an established treatment almost always is needed before one can validly conclude that a treatment is effective or an improvement. Other things being equal, the greater the number of people studied, the more credible the results of the research.

For evaluating treatments and preventive measures, the type of study generally considered to be the gold standard is the randomized double-
6. Evaluating Information

A randomized clinical trial. Randomized means that patients or subjects are randomly assigned to groups; without randomization, an investigator may, for example, tend to assign sicker patients to receive one treatment or another. Double-blind means that neither the investigators nor the study participants know who is receiving which treatment; this removes a source of possible bias in evaluating responses. (When use of medication is being compared with use of no medication, members of the control group receive placebos, pills that contain no active agent but look like the real thing. Of course, studies of some kinds of treatment, such as those comparing the use of medication and the use of surgery, cannot be double-blind.) Controlled means that a comparison or control group was included in the study. In general, randomized controlled clinical trials, especially those reported in major medical journals, are studies in which health writers can place considerable credence.

For a new treatment, the evaluation process typically includes a series of laboratory and clinical studies, culminating in randomized double-blind trials. The U.S. Food and Drug Administration requires drugs being considered for approval to undergo three phases of study in humans to assess their safety and efficacy. Figure 6-1, excerpted from the Scientific American article “Understanding Clinical Trials” (Zivin 2000), summarizes these three phases. Further information on clinical trials and issues relating to them can be found in the article as a whole.

Clinical trials are not always feasible or reasonable to do. Nor are they suited to address everything worthy of study. Consider, for example, research on whether smoking affects the likelihood of developing a given disease. Scientifically, the soundest approach may be to assign people randomly to become smokers or not and then watch for development of the disease. However, even if doing so were practical, it would not be ethical. Also, sometimes factors being studied are beyond human control and thus unsuited for an experimental approach. For example, researchers may wish to determine whether a genetic trait affects the likelihood of developing a given disease in the hope of diagnosing and treating the disease early in those so predisposed. The researchers cannot give people the trait; rather, to seek their answer, they must observe people who have it.

In circumstances such as these, researchers take observational approaches rather than conducting experiments such as controlled clinical trials. Sometimes the research is prospective, or forward-looking, such as when it follows groups of smokers and nonsmokers over the years and compares their health condition. Other times the research is retrospective,
Figure 6-1: Clinical Studies for Approval of a New Drug: The Three Phases

Phase 1: Screening for Safety

Number of volunteers: 10–100 people, typically healthy
What researchers hope to learn: Maximum safe dose of drug
Typical length: 1.5 years
Typical cost: $10 million

In the first stage of a clinical trial, researchers gather information about whether a drug is safe to give to humans and, if so, how much they can tolerate. Administering a drug for the first time can be a frightening experience because the volunteers (who are usually perfectly healthy and are also usually paid) are taking a very real risk. The initial dose is typically very low, to minimize the possibility of a major reaction, but as doctors escalate the dose the potential for problems increases. If the possibility of extremely serious side effects exists, phase I testing is conducted in patients with the condition that the medication is intended to treat. Potential harm then is balanced by potential benefit.

Of course, before human testing begins, the general safety of the drug has been established in animals. But animals cannot express whether they are dizzy, nauseated, or experiencing psychiatric symptoms; humans can and frequently do. And although such an outcome is extremely rare, volunteers occasionally suffer life-threatening side effects that were not apparent during animal testing.

The trial team monitors the participants closely, constantly observing their behavior and asking how they feel. Additionally, to spot problems early the researchers usually measure blood pressure and temperature, collect blood and urine samples, and monitor for any other danger signs warranted by the animal studies. The scientists also measure the level of drug in the bloodstream or tissues to determine how it is distributed in the body, how rapidly it reaches a therapeutic level and how the body eliminates the compound. When combined, these data help to determine the safe dosing regimen.

Phase 2: Establishing Protocol

Number of volunteers: 50–500 patients with the disease being studied
What researchers hope to learn: Who and how many people should be included in the final phase of testing, end points of trial, preliminary estimates of effective doses and duration of treatment
Typical length: 2 years
Typical cost: $20 million

The main goal of phase II testing is pragmatic: to find the experimental conditions that will allow the final phase of the trial to give a definitive result. (The purpose of a phase II trial is not, as some people assume, to prove that a drug candidate is an effective treatment.) In particular, researchers try to establish an optimal dosing regimen. One criterion that must be established immediately is the primary end point. End points describe unambiguous results that indicate exactly what the treatment can do. For instance, the usual end point sought when screening
a new antibiotic is whether a patient is free of infection after treatment. Many ailments cannot be so readily cured, however, so an alternative end point might be whether the progression of, say, HIV/AIDS has slowed or whether the death rate from cancer has fallen.

Phase II marks the introduction of the control group to the trial. Almost all diseases are highly variable in their progression, with remissions sometimes occurring spontaneously. Researchers must be able to distinguish between a natural remission and the effects of treatment. Inclusion of a control group—which receives either a placebo or the best available therapy—makes it possible to perform this comparison.

Similarly, having a control group enables doctors to account for people in whom health problems unrelated to a drug candidate develop. For example, a medication being tested for treatment of high blood pressure might be suspected of causing nausea. But nausea can occur in just about anyone. Only if its incidence is significantly higher in the treatment group than in the control group will it be considered a problem.

Ideally, neither the physicians nor the patients know whether they are part of the treatment group or the control group; in other words, they are “blind” to the type of therapy being administered. During phase II, investigators work hard to ensure that the blinding procedure is successful. For instance, if a placebo pill is used, it is made to look exactly like the drug, and the patients are treated with either the drug or placebo in exactly the same way.

Yet in some cases, keeping a trial blind is simply impossible. If the test drug causes some kind of mild side effect, patients will quickly figure out that they are in the treatment group. Also, it is usually considered unethical to subject a patient to anesthesia and placebo surgery when surgical procedures are being evaluated. Researchers can compensate for the loss of blinding, however, and phase II enables them to work out how to do so before entering phase III.

Phase 3: The Final Test

**Number of volunteers:** 300-30,000 or more patients with the disease being studied

**What researchers hope to learn:**
Whether treatment is effective and what the important side effects are

**Typical length:** 3.5 years

**Typical cost:** $45 million

The final stage of the clinical trial process, phase III, is most familiar to the general public. Hundreds, thousands, even tens of thousands of patients take part in such tests, and results often receive much publicity. By this point, the scientists running the trial have defined at least one group of patients who are expected to benefit, how they benefit, and the best way to administer treatment. The phase III trial can provide authoritative confirmation that a drug works.

If, after careful statistical analysis, the drug candidate proves to be significantly more effective than the control treatment, the trial is called pivotal. Ordinarily two pivotal trials are

(continues)
needed to prove the value of a new therapy to regulatory agencies such as the U.S. Food and Drug Administration or the European Agency for the Evaluation of Medicinal Products. But if the first result is sufficiently persuasive, one trial can be enough. If an agency is convinced, it approves the drug for sale as a treatment for the disease.

If the results of phase III testing are not positive, several options remain. By poring over the tremendous amounts of collected data, clinicians might be able to discover a cluster of patients within the larger group who seem to have benefited. Researchers must then conduct another full-scale phase III trial, this time with a more restricted set of patients, to prove whether the drug actually did help. In practice, initial phase III trials frequently fail to show adequate proof of a drug candidate’s efficacy, and several follow-up trials must be carried out.

Source: From “Understanding Clinical Trials” by Justin A. Zivin. Copyright ©2000 by Scientific American, Inc. All rights reserved.

or backward-looking. Such research compares groups with and without a given disease or condition in search of differences that could have predisposed those affected to develop the disease.

One difficulty in interpreting such observational studies is ascertaining whether a factor found to be associated with a condition actually contributes to causing the condition or whether it is merely linked with another factor that, in turn, is causal. If more smokers do develop a certain condition, is smoking itself responsible? Or could it be that people who choose to smoke tend toward other habits that increase the likelihood of developing the condition? If a retrospective study finds that people who have been treated for cancer are at increased risk of later developing a second cancer, is the treatment indeed responsible, or could the new cancer reflect the same factors that led to the original one? For aid in considering such questions, look at the discussion sections of journal articles reporting observational studies. Also look for related editorials in the same issue of the journal.

Some studies seek to determine how people’s health condition changes with age. In general, the ideal approach is to observe the same group for many years. However, such longitudinal studies sometimes are impractical, and, of course, the results are slow to obtain. Therefore, researchers sometimes undertake cross-sectional studies, which compare people of various ages regarding aspects of interest. If, however, a cross-sectional study discloses differences, one difficulty is knowing whether the differences are indeed due to age or whether the older people always differed from the
younger people, for example, because of differences in their childhood diets. Here, too, look for discussion in articles presenting the research and in accompanying editorials.

Other types of studies include crossover trials, case series, meta-analyses, and cost-effectiveness analyses. For an overview of types of studies, please see Figure 6-2, which is excerpted from a JAMA "Patient Page" (Hwang 1998).

Some health research involves gathering information from patients or members of the public. Here, consider whether the study design may have limited the accuracy of responses. For example, in a retrospective study, were subjects asked about events long ago that they may not have recalled clearly? Or in an interview survey on health habits, might subjects have tended to give what they perceived to be the socially correct response? Such a questioning attitude, which traditionally marks the good reporter, certainly marks the good health writer considering study design.
II. Preparing the Piece

Figure 6-2: Some Types of Medical Studies

- Randomized Controlled Trial—testing a drug or some other treatment by comparing at least two 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 two or more treatments one 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 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 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 two 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

Source: Excerpted from "Navigating the Maze of Medical Research" by Mi Young Hwang, JAMA, Volume 280, Page 386, July 15, 1998. Copyright © 1998, American Medical Association. All rights reserved.

For further consideration of study design, one health writer-friendly source is the book News and Numbers: A Guide to Reporting Statistical Claims and Controversies in Health and Other Fields (Cohn and Cope 2001). Written by two prominent longtime science writers, this work is an excellent resource on both study design and statistics, the topic of the next section.

The Numbers

Evaluating information on health often entails interpreting numbers. As a health writer you need not be a master statistician. Rather, familiarity with the basic items below, along with a thoughtful attitude, will accomplish much of what you need.

Here is an example where a bit more thinking might have helped: A magazine listed the numbers of deaths estimated to occur per year in var-
6. Evaluating Information

ous cities as a result of tiny particles polluting the air. Those cities with the most such deaths, the author implied, were those with the deadliest air. But those with the most such deaths tended to be merely the largest cities. Before making comparisons, the writer should have divided each number by the city’s population and thus come up with rates. Only then could the cities be compared meaningfully.

Little more than alertness and common sense can suffice for avoiding pitfalls such as that above, but considering numbers is difficult at times. When you find yourself beyond your depth, written resources include basic, everyday-oriented statistics books such as *Seeing Through Statistics* (Utts 2004), as well as the above-mentioned *News and Numbers* (Cohn and Cope 2001). Human sources, such as study authors and public health officials, can, and often should, be consulted for aid in interpreting the statistics they provided.

Statisticians uninvolved in the work or situation being reported also can be valuable resources. “Make friends with someone in your local statistics department,” advises a health writer who is himself a researcher. Public information staff at universities can help you find statisticians available to consult.

When in doubt, do ask a statistics expert for professional guidance. “Always trust your instinct if something doesn’t sit right,” another experienced health writer states. “Check, check, check.”

Health-Related Rates

Incidence. Prevalence. Morbidity. Mortality. Even if only an aspiring health writer, you probably have heard these terms, and quite likely have heard them misused.

The incidence rate indicates how common the occurrence of new cases of a given disease or condition was in a given population over a given period. Say, for example, that you live in a city of 100,000. And say that last year 530 people in your city developed the mythical disease health writers’ syndrome. You could then state that the incidence rate last year was 530 per 100,000 (or 5.3 per 1,000). And you could compare the incidence rate last year with that in previous years to see whether the tendency to develop the disease was changing. You could also compare the incidence rate with those in other cities to determine whether people in your city appeared more or less prone to the disease.

However, you should best take care in interpreting the incidence rates of
II. Preparing the Piece

health writers' disease. Do the rates include all new cases of the disease, or only those for which treatment was sought from a doctor? Were rates ascertained similarly over time, or, for example, did increased coverage in the media last year lead more people to seek medical attention for their health writers' disease? Were cases of health writers' disease sometimes concealed because it is considered a shameful condition? In preparing stories that rely heavily on statistics such as incidence rates, answers to such questions can be well worth obtaining.

Incidence rates do not say what proportion of people in a population have a given condition at a given time, but prevalence rates do. If health writers' disease is a fleeting affliction, such as a cold, perhaps only 10 people in your city have the disease today; thus, the prevalence rate would be 10 per 100,000. But if health writers' disease is a chronic nonfatal condition developing in early life, the prevalence rate would much exceed the incidence rate.

Morbidity means disease. Thus, both incidence rates and prevalence rates are morbidity rates. (Sometimes, though, "morbidity rate" is used to mean "incidence rate"; if in doubt about what is meant, be sure to ask.) In contrast, mortality means death, and mortality rates are death rates. You can write about the total death rate in a population over a given period. You can also write about the death rate attributable to a given disease; for example, if 300 people died of disease X last year in your city of 100,000, the death rate from disease X last year would be 300 per 100,000 (or 3 per 1,000). You can also write about case fatality rates, that is, the proportion of cases of a given disease that result in death. If on average 8 of every 10 people with disease X die of it, the case fatality rate is 80 percent.

When comparing rates, make sure the rates used are valid for the comparison being drawn. Let's say you find the incidence of heart attacks in your city to be much lower than that in a neighboring city. Can you surmise that people in your city probably have lifestyles that help prevent heart attacks? What if your city is a university town and the other city is a retirement community? Clearly, some adjustment for age is needed, and indeed age-adjusted rates exist. When logic tells you that the rates you have are not sufficient for the comparisons you wish to make, call on an expert for help.

Response Rates

For the health writer, another important number to consider is the rate of response to surveys. If a health-related survey was sent to the people in your
6. Evaluating Information

community and only 10 percent of the recipients responded, might those 10 percent have differed from your community's overall population? Quite likely. Should you doubt that the findings accurately reflect the situation in your community? Yes indeed.

In short, whether a survey is of an entire population or of a sample thereof, look carefully at the response rate. If the rate was low, be cautious in what, if anything, you conclude.

Averages and Ranges

Some of the most basic statistics are averages. Simple as they may seem, they can be misused or at least be misleading.

Often, "average" is construed only to mean mean, that is, the arithmetic average obtained by adding up all the values and dividing by the number of values. If values are evenly distributed around a center point, the mean can provide a good indication of what is typical. Let's say, however, that the distribution is skewed. What if the typical case of our mythical disease health writers' syndrome costs $50 to treat, but in one case in 1,000, life-threatening complications develop, requiring extensive hospital treatment at a cost of $100,000? The mean cost of treating the syndrome is then about $150. This mean value can aid in assigning appropriate resources, but it does not show what is typical. In cases of such skewed distributions, another type of average, the median—or middle value, when all the values are listed from lowest to highest—can provide a truer indication of the norm. So, sometimes, can the mode, the most common value. And describing the distribution, as was done above, is sometimes the best approach of all.

Also, values can be narrowly or widely distributed around a given mean or median. And different distributions—whether of survival times, costs, ages, or other items pertinent to health—can have different implications. Thus consider obtaining and providing information on distributions.

In short, when evaluating information, try to make sure that the statistics used to describe a situation give a sufficiently complete and accurate picture. If in doubt, seek fuller information.

Percent Change

One figure commonly presented in health writing—and, it seems, commonly computed wrong—is percent change. The key in computing percent change is always use the initial value as the baseline, not the later value.
II. Preparing the Piece

Imagine that last year 100 people in your community received a given treatment. What if 120 people received the treatment this year? Then the number of people receiving the treatment increased 20 percent. Or what if 80 people received the treatment this year? Then the number decreased by 20 percent. In either case, the change was 20 out of the initial 100, or 20 percent. The change was not, in the latter case, 20 out of 80, or 25 percent, because 80 was the later value, not the initial one.

Relative Risk

One of the statistics most commonly encountered by health writers is relative risk, sometimes called risk ratio. Simply put, relative risk indicates by what mathematical factor, if at all, an item such as an exposure or habit appears to affect the likelihood of developing a given condition. For example, if exposure to chemical X is associated with double the usual likelihood of developing condition Y, then the relative risk is 2.0. If the exposure is associated with half the usual likelihood, the relative risk is one-half, or 0.5. And if the likelihood is unchanged, the relative risk is 1.0.

Although relative risk helps show how strongly a factor seems to affect the likelihood of developing a given condition, it presents only part of the picture. Information also is needed on the absolute magnitude of the risk. Let's say that with regard to a given type of cancer, exposure to chemical Z is associated with a relative risk of 10. This relative risk is high. However, if the type of cancer is normally very rare, say, affecting only 1 person in 1 million, even relatively widespread exposure will result in few extra cases. And say that with regard to another type of cancer, exposure to chemical Z is associated with a relative risk of 2. Clearly, this relative risk is much lower. But if the cancer is a much more common type, say, affecting one person in one hundred, even this relative risk will result in many extra cases.

In short, when evaluating information, do not let relative risk suffice (unless the value is 1). Rather, obtain information on absolute risk as well.

Statistical Significance

Statistical significance. Sounds important. And indeed it is an important concept to grasp. However, it indicates only how likely it is that findings reflect more than a chance association. It in no way indicates how much practical importance the findings have.
In journal articles and conference talks, statistical significance often is presented in terms of *P values*, or probability values. Put simply, the *P* value is the probability (expressed as a decimal) that an effect at least as large as that observed could have occurred by chance if, in fact, there had been no real effect. Thus, the smaller the *P* value, the greater the certainty that the observed difference—for example, in the effectiveness of two drugs—reflected a real difference, not merely reflect chance variation. Often, to accept results as sufficiently credible, researchers require *P* values to be less than 0.05, meaning that chances are lower than 1 in 20 that the observed effect was just an artifact of chance. If, for example, the *P* value is 0.001 (one in a thousand), considerably more certainty can be attached to the results.

Another way that biomedical papers and talks sometimes present statistical significance is in terms of *confidence intervals*, which are akin to the “margins of error” sometimes reported for surveys such as political polls. Simply put, a confidence interval is the range within which one can be 95 percent sure that the actual value lies. For instance, say that on the basis of findings of a study, a relative risk is estimated to be 1.9. A 95 percent confidence interval then calculated to be 1.3 to 2.8 means that chances are 95 percent that the actual relative risk falls within that range. The wider the confidence interval, the less precise the estimate. For relative risk, reporting a confidence interval that overlaps 1.0—say, one that ranges from 0.5 to 4.5—is another way of saying that findings are not statistically significant.

Being statistically significant does not necessarily mean that something is of practical importance. Consider, for example, a study that finds a small but statistically significant difference in how long two drugs require to take effect. Statistical significance means that one can be reasonably confident that the speeds do differ along the lines described. However, it does not say whether the findings are of clinical importance. If the disease being treated is life-threatening and every second counts, the difference could be vital indeed. But if the ailment is minor, the difference may be of no real consequence, and other differences between the two drugs, such as cost or side effects, may be of overriding importance.

**Power**

Lack of statistical significance does not mean that an effect does not exist. It means only that from a given study one cannot conclude with reasonable confidence that an effect indeed exists.
II. Preparing the Piece

Put another way, absence of proof is not proof of absence. A study may have been incapable of detecting an effect even if one existed. Or put more technically, the study may have lacked what is known as statistical power. Just as a powerful microscope is needed to see small microorganisms, a statistically powerful study is needed to validly discern small differences between the test groups.

Little power is needed to test a possible cure for a normally fatal disorder such as rabies. If the treatment actually is a cure, testing it on just a few patients will show its value. In contrast, a powerful study involving many patients would be needed to test whether a drug improves the survival rate of patients with a condition that rarely is fatal.

When reading journal articles reporting that findings were not statistically significant, look in the discussion section for a discussion of statistical power. If you do not find such discussion, ask the investigator about the power of the study to detect the difference sought.

Statistical power increases and confidence intervals narrow as the size of the study population grows. Thus, all other things being equal, large studies tend to be more credible than small ones. But beware of a common fallacy: Sometimes when a small study shows a difference that fails to reach statistical significance, people say that had the study been larger, a statistically significant difference would have been found. However, all they can validly say is that had the study been larger, it would have been more capable of finding convincing evidence of an effect, if indeed such an effect existed.

Sensitivity and Specificity: Screening

How good is a given test at indicating whether people have a given disease, say, diabetes or prostate cancer? Two statistics that can help answer this question are sensitivity and specificity. Sensitivity is the proportion of people with the disease whom the test detects. For example, if everyone with the disease has test results in the “diseased range,” then the sensitivity of the test is 100 percent. Specificity is the proportion of people without the disease who have test results in the “normal” range. For example, if 97 percent of such people have normal test results but the other 3 percent show findings in the “diseased range” despite not having the disease, then the specificity of the test is 97 percent. Ideally, a test should have both high sensitivity and high specificity, for failing to detect a disease and mistakenly identifying someone as having it can each have serious consequences.
6. Evaluating Information

Sometimes tests are used to help establish, or help exclude, a given diagnosis in patients with signs or symptoms of disease. Other times, tests are used for screening, that is, to look for disease in people without any indication of it in the hope that early detection will improve outcome. Although screening for disease has intuitive appeal and some types of screening save lives, other types are of questionable value or even harmful on balance. Thus, health writers, rather than promoting all screening programs, should seek scientific evidence—for example, in the literature and from expert groups—that given types of screening are beneficial. For a health writer-oriented guide to thinking critically about screening, readers are directed to an article from the National Cancer Institute (Marciel and Kramer 2001).

Clusters

Over a short period, several cases of an uncommon disease are detected in a small community. Some people in the community suspect that something in the environment is responsible. How would you, as a health writer, proceed?

The way to proceed is with caution. The rates might not actually exceed those normally occurring. Or the cluster of cases might not be larger than those expected to occur from time to time by chance. To find whether the numbers are worthy of suspicion, consult experts on public health.

Interpretations

Findings are just that. Findings. They can be interpreted in various ways. When you receive information, consider the interpretations provided. Think whether they make sense to you. See whether you or others can think of plausible alternatives.

In particular, beware of assuming that correlation necessarily means causality, or that the causality necessarily runs in a given direction. Consider, for instance, a study finding that older people who continue to be employed are healthier, on average, than those who have retired. Some might conclude that continuing to work helps keep one healthy. But could the findings have reflected, at least in part, the fact that only people who are healthy enough can continue to work?

When evaluating information, try to come up with alternative interpretations yourself. Look for them in discussion sections of journal articles,
II. Preparing the Piece

and ask researchers and other experts about them. If they appear worthy of further consideration, share them with your audience.

Also notice whether the researchers reported final health outcomes or only intermediate measures. Were definitive outcomes, such as length of survival, reported? Or is information provided only on intermediate outcomes, such as changes in laboratory values, which might not necessarily translate into differences in clinical outcome? In the latter case, be wary. Seek further information, and watch for follow-up. If you report on the study, make clear that the findings may not be conclusive.

Applicability

Although the conclusions of a study might be well grounded, they might not necessarily apply to the audience your health writing serves. The conclusions may have been drawn from a study only of people with a given disease. Or the study may have been done in a specialized population such as nuns or nurses or doctors. Or the researchers may have studied only men, only young people, or only people of a given race. Indeed, the researchers may not have studied people at all but rather animals—or molecules. Thus, questions can—and should—exist about whether the findings apply to populations for whom you are writing.

As a health writer evaluating information, you should notice these possible limitations to applicability and note them in your writing. Find out whether studies in various groups or experimental systems have yielded similar findings, thus strengthening the likelihood that the conclusions can validly be generalized. Check the discussion sections of journal articles for discussions of the generalizability of the findings, and discuss the matter with authors and other experts. Beware of generalizing too much from information you encounter.

Alternatives

Often a given source, such as a journal article, deals with only a single approach or a limited range of approaches. Considering alternatives can result in sounder, more useful health writing.

Say that a journal article reports a study comparing two surgical operations. The condition being treated is common, and you decide to write about the findings. But are these operations the only approaches? What about other operations? How about treatment with medication? How
about lifestyle measures? Does the condition demand treatment, or can
one get along without it?
Answering such questions helps distinguish the thoughtful, analytical
health writer from the mere scribe or parrot.

**Uniqueness**

Too often, it seems, we assume that that which is new is unique. For the
health writer, checking whether this assumption holds is part of evaluating
information. Has a new drug been approved for release? Check whether the
drug is truly novel or merely a variant of an existing drug. Has a research
article of possible interest been published? Check whether the work is a new
departure or rather part of a body of related research by one or more groups.
Or is a local hospital opening a new kind of clinic or acquiring equipment

"I STOPPED TAKING THE MEDICINE BECAUSE
I PREFER THE ORIGINAL DISEASE TO
THE SIDE EFFECTS."

© Sidney Harris, reproduced by permission.
II. Preparing the Piece

of a new type? Check whether other facilities offer similar services or plan to do so. Such checking can help provide important context.

The Big Picture

Alternatives and uniqueness are parts of the big picture. Depending on the topic, other parts can include such items as the history of a situation, implications for the future, social and ethical and legal aspects, and economics. Considering such items often entails one of the hardest parts of evaluating information: determining what information is initially missing and readily gathered. But conceptualizing the big picture—and understanding and presenting it—can be well worth the effort.

Figure 6-3 presents some questions that can aid in both considering the big picture and evaluating the part of it that a given study represents. It serves to summarize some of the major points in this chapter.

The Costs

Costs have become such an important part of the big picture regarding health that they merit separate mention. No longer does it suffice, if it ever

Figure 6-3: The Big Picture: Examples of Questions to Consider Asking About a Study

- Who did the study? What were the researchers’ credentials and affiliations?
- Who funded the study?
- Where was the study presented or published? Was it reported in a peer-reviewed journal?
- If the study was reported in a journal, was it accompanied by an editorial? If so, what did the editorial say?
- What were strengths and limitations of the study design in your view, in the view of the researchers, and in the view of others in the field?
- Do the results seem complete? Are findings statistically significant? Do they seem to be of practical importance?
- Do the conclusions seem to follow from the findings? What other interpretations might make sense?
- To whom do the findings seem applicable?
- How does this research relate to previous research?
- What related studies, if any, are under way?
- What is the broader context? For example, if a treatment was studied, what alternatives to the treatment are there? Are there economic, social, ethical, and other implications? If so, what are they?
6. Evaluating Information

did, to say that a medical technology is an advance. Rather, in a world of limited resources, the costs of technologies require consideration. So, too, the monetary and human costs of much else regarding health.

Such consideration will cost you some time and effort, as will other aspects of evaluating information for writing about health. With experience, however, your efficiency will increase. And, from the beginning, the payoff will be a sounder basis for your piece.

Exercises

1. Answer each of the multiple-choice questions below. Then check your answers against those in the key. Explain why each of these answers is correct.

1) A researcher wishes to see what changes, if any, occur in students' blood cholesterol levels as the students progress through college. The most appropriate type of research to do would be a
a. case-control study.
b. cross-sectional study.
c. randomized experiment.
d. longitudinal study.

2) A report states that drug A is better than drug B in a given regard; a P value is provided. Which of the following P values would give you the greatest confidence in the conclusion?
   a. $P = 0.001$
   b. $P < 0.05$
   c. $P = 0.8$
   d. $P = \chi^2$

3) A researcher investigates an outbreak of food poisoning associated with attending a certain recent barbecue. She finds that 90 percent of the attendees who reported having eaten chicken at the barbecue became ill and that 10 percent of the attendees who said they had not eaten chicken became ill. What is the relative risk associated with a reported history of having eaten chicken at the barbecue?
   a. 80 percent
   b. 0.9
   c. 9
   d. cannot be determined from the information given
II. Preparing the Piece

4) A study that is relatively unlikely to detect an effect even if one is present is said to be lacking in
   a. significance.
   b. power.
   c. confidence.
   d. adjustment.

5) An article in a health newsletter states that "an estimated 1 in 700 Caucasians and 1 in 250 African-Americans" have the disease systemic lupus erythematosus. What kinds of rates are these estimates?
   a. mortality
   b. incidence
   c. prevalence
   d. correlation

6) A researcher finds that spending six or more evenings per week at a certain establishment near his university campus is associated with a relative risk of 3.0 of later developing liver cirrhosis. Which of the following confidence intervals would indicate that this finding is statistically significant?
   a. −0.2, 0.2
   b. 0.5, 5.5
   c. 2.5, 3.5
   d. none of the above

7) A test that is good at identifying a given condition in people who have it (in other words, that rarely yields false negatives or missed cases) is said to have high
   a. normality.
   b. specificity.
   c. sensitivity.
   d. causality.

8) Last year 1,000 new cases of health writers' syndrome were reported. This year 750 new cases were reported. By what percentage did the number of new cases decrease?
   a. 7.5 percent
   b. 25 percent
   c. 33 percent
   d. cannot be determined from the information given

9) Why are participants in controlled clinical trials randomized?
   a. to prevent investigators from knowing which participants receive which treatment
6. Evaluating Information

b. to allow use of placebos
c. to avoid bias in assigning participants to groups
d. to permit age-adjusted rates to be calculated
10) Which of the following are pitfalls to avoid?
   a. failing to note absolute as well as relative risk
   b. assuming that correlation necessarily indicates causality
   c. using raw numbers when rates are called for
   d. assuming that the mean is always the most suitable average
   e. ignoring the distinction between intermediate outcomes and final health outcomes
   f. all of the above

2. Go to the FACSNET Web site (www.facsnet.org). Under “Reporting Tools,” read the briefings “Epidemiology for Journalists” and “News and Numbers.” For each of these two briefings, list several important items you learned or were reminded of.

3. Obtain abstracts of several recent articles in general medical journals, such as JAMA and the New England Journal of Medicine. (Ways of finding such abstracts include looking at journals in the library, accessing their Web sites, and searching PubMed, discussed in Chapter 2.) In the abstracts, look for items discussed in this chapter (study design designations, P values, confidence intervals, etc.). Use what you learned from the reading to interpret the information in the abstracts.

4. To aid in your reporting, customize Figure 6-3 for your own use. To do so, add at least three questions you want to remember to consider asking. If doing so would help you, also clarify or expand on one or more of the existing questions.

Answer Key—Exercise 1

1) d
2) a
3) c
4) b
5) c
6) c
7) c
8) b
9) c
10) f
Chapter 7

Health-Writing Technique

Good health writing is at heart good writing. It relies on the same approaches and techniques. However, some items are particularly important in health writing or can pose special challenges.

This chapter identifies approaches and techniques especially pertinent to health writing and discusses their use. As well as dealing with crafting a piece of health writing, it looks at gearing the piece to the audience and checking it for accuracy. In keeping with its own advice, the chapter includes examples.

For further guidance, readers are encouraged to consult more general books on writing. One such recommended book is Ideas into Words: Mastering the Craft of Science Writing (Hancock 2003), which contains many medically related examples. Other useful guides include current editions of the classic works On Writing Well (Zinsser 2001) and The Elements of Style (Strunk and White 2000).

Assessing the Audience

Some years ago, when the hazards of excessive sun exposure were becoming increasingly apparent, a variety of magazines ran articles on protection from the sun. Articles in Redbook, Working Woman, Esquire, Parents, Business Week, and Outdoor Life contained similar basic information. Each, however, had a different emphasis, in keeping with the magazine’s focus and audience. The Parents piece focused on protecting babies from the sun, the Esquire article showcased the views of leading male skiers, and the Working Woman story included information on the sunscreen industry.

Before crafting a piece of health writing, assess the audience. Consider its age, its education, its knowledge level, its interests. Consider whether the piece should have a local emphasis. Look carefully at other articles in the same publication or on the same Web site, or attend carefully to other stories on the same broadcast program. Pay particular attention to the vocabulary level, lest you, having reviewed materials such as journal articles, tend to lapse into technical jargon. Check with the editor, who is likely to be well attuned to the audience being served.
II. Preparing the Piece

Consider checking as well with members of the potential audience, or with people of similar background and interests. One experienced writing teacher suggests the following approach: Mention to people that you plan to do a story on a given topic, then listen to their reactions. Do people say "oh yuck" or "oh boy"? Are they knowledgeable about the topic? Do they voice myths and misconceptions? Are there aspects they wonder about? Finding out can aid in deciding on both content and approach.

Beginning Effectively

Get off to a good beginning, and quite likely the rest of your piece will work well. Do not despair, though, if the beginning is slow in coming. Devising a good beginning entails much hard thinking, such as clarifying to yourself the central point of the piece and deciding on an appropriate structure. Once you have a good beginning in place, usually the rest goes much faster.

A good beginning both engages the audience and makes clear what the piece is about. In a news story, the beginning, or lead, typically accomplishes these goals quickly. Consider these leads from news articles:

Federal health officials approved sale of the world’s first contraceptive patch Tuesday, giving women an option considered as safe and effective as the pill but easier for some to use. (Neergaard 2001)

Overweight people who eat whole grains rather than refined ones are better equipped to manage their blood-sugar concentrations, according to a new study. The finding, consistent with previous ones, could help explain the observation that diets rich in whole grains guard against type II diabetes and heart disease. (Harder 2002)

The number of confirmed cases of viral encephalitis in Ouachita Parish has climbed by two to 31, but the rate of new infections appears to have plateaued, the state epidemiologist said Thursday. (Fahmy 2001)

By disabling a dementia-linked protein, a synthetic drug is showing a tantalizing capacity to interfere with the formation of waxy amyloid deposits like those that accumulate in the brains of people with Alzheimer’s disease. (Seppa 2002)

Each of these leads gets to the main point quickly. And because the topics are newsworthy, the subject matter itself helps make each lead engaging.
7. Health-Writing Technique

Feature stories often begin more slowly. Here is a lead from a newspaper piece on the high demand to hire family practitioners and other primary care physicians:

One classified ad rhapsodizes about “lake homes, low cost of living, nonexistent crime and great schools.” Others sing of incredible scenery, amazing fishing, astounding golf courses. Selling time-share condos, perhaps? Franchise opportunities?

No, these ads in the back pages of medical journals are a window on an even hotter market: the competition for family doctors. (Haney 1994)

This lead uses vivid images and lively wording, as well as suspense and surprise, to entice the reader. But it also makes clear what the topic of the story will be. Implicitly it tells the reader: Even if physician employment didn’t interest you much before, read on; this article will be interesting.

Finally, consider a longer lead that draws on various techniques useful in health writing:

In nearly every room of Kevin Leitzell’s house on a shady street in suburban Philadelphia sits a footstool. Dangling from the light switches are long plastic rods, and the lock on the back door measures inches lower than on most doors. Parked in the driveway is Kevin’s ’94 Ford Escort, and if you peek through the window you’ll see extensions on the pedals that elevate the surfaces more than a foot.

At 17, Kevin is a junior at Haverford Township Senior High and stands an even 4 feet tall. He is an achondroplastic dwarf who uses footstools, pedal extensions and the like to compensate for his short stature. He’s also sports editor of the school paper, manager of both the soccer and baseball teams, and working on getting a date for the prom. There is nothing in the demeanor of this young man, who hopes for a career in radio broadcasting or sports reporting, to indicate that he will allow his short limbs or any of the host of other physical problems that can accompany achondroplasia to limit his ambitions.

On this day, Kevin greets a visitor with a friendly smile. “My attitude toward the world,” he explains, in answer to a question about everyday difficulties, “is like it or not, here I come!”

It’s an outlook that has been nourished and supported by the Johns Hopkins Center for Medical Genetics . . . (Henderson and Centofanti 1995)

This lead from an article in the magazine Hopkins Medical News engages readers in various ways. Like the previous lead, it contains suspense. It also includes considerable human interest. As writers are often advised to do, the authors show rather than tell: Readers see that people like Kevin can have largely normal lives but must make some adjustments. Also fulfilling
II. Preparing the Piece

its second function, this lead indicates what the article will be about—people with dwarfism and the medical services for them at Johns Hopkins. It also introduces more specific themes of the piece, such as the medical problems to which people with dwarfism are prone.

As you read health writing, look for engaging, informative leads. And strive to write such leads yourself.

Defining the Focus

Short news leads, such as those early in the previous section, clearly indicate the focus of the piece. Long feature leads, however, risk leaving readers wondering just what the piece will be about.

When using a lead that is slow and indirect, be sure to provide soon thereafter a paragraph that makes clear what the focus and scope of the piece will be. Such a paragraph, called a nut graf or billboard paragraph, may constitute the end of the lead or directly follow it. For instance, in the lead from the newspaper story on demand for family physicians, the brief paragraph “No, these ads . . . are a window on an even hotter market: the competition for family doctors” may be considered the nut graf.

An article in Reader’s Digest, well known for concise and focused writing, illustrates effective use of a nut graf. The article begins:

On a hazy afternoon in New York City, Lauren Manning breezes through the door with an upbeat smile, her husband, Greg, at her side. A gauzy medical sleeve covers her left hand following a recent surgery, but her outstretched right hand is elegantly manicured. “Oh, this was a big deal,” she says with enthusiasm. “I don’t have that many nails left—I lost parts of a few fingers on my left hand—and one of my nails grows oddly. So this manicure was huge. A milestone.”

Now comes the nut graf:

Every day since September 11, 2001, has been a milestone for Lauren Manning. Burned over 82 percent of her body in the World Trade Center attack, she was given just a 15 percent chance of surviving. Now . . . (Wescott 2004)

The rest of the article traces Manning’s recovery to date.

In the above example, the lead and nut graf work together well. The lead, illustrating Manning’s attitude, sets the tone for the piece. And the nut graf, providing basic facts, defines the focus. Note how repetition of the word “milestone” provides smooth transition between the two.
7. Health-Writing Technique

Unless your story is intended as a mystery, make the focus clear early. Doing so will help orient and retain your readers. Your editors will be grateful as well.

Explaining Well

Much health writing involves explanation. Skillful health writers have long used various techniques to make their explanations effective. In addition, research (Rowan 1990, 1999) supports using some less widely known measures.

Explaining Terms and Concepts

Health writers often must explain what unfamiliar terms mean. Presenting the concept before the new term can ease understanding and help keep from intimidating readers. An example of this technique follows: In an article on osteoporosis (Travis 1995), the author writes of "bone-forming cells called osteoblasts" and "their destructive kin, the bone-destroying osteoclasts."

Although you may define a term, readers may not remember its meaning. Thus, if you reuse it after a while, consider providing a brief reminder. For example, early in a piece about a bone-marrow disease (Weaver 1994), the marrow is noted to contain "a delicate network of fibers known as reticulin."

Later, when the term "reticulin" is used again, it is immediately followed by the reminder phrase "the fibers in the marrow." (For the entire article, which employs a variety of effective techniques, please see the end of this chapter.)

Also, examples can help clarify terms or concepts. For instance, in his long-popular piece "Germs," physician-essayist Lewis Thomas states,

Most bacteria are totally preoccupied with browsing, altering the configurations of organic molecules so that they become usable for the energy needs of other forms of life. They are, by and large, indispensable to each other, living in interdependent communities in the soil or sea. Some have become symbionts in more specialized, local relations, living as working parts in the tissues of higher organisms.

Hmmm. Rather abstract and hard to visualize. But soon Thomas adds some examples:

The root nodules of legumes would have neither form nor function without the masses of rhizobial bacteria swarming into root hairs, incorporating them-
II. Preparing the Piece

selves with such intimacy that only an electron microscope can detect which membranes are bacterial and which plant. Insects have colonies of bacteria, the mycetocytes, living in them like little glands, doing heaven knows what but being essential. The microfloras of animal intestinal tracts are part of the nutritional system. And then, of course, there are the mitochondria and chloroplasts, permanent residents in everything. (Thomas 1974)

Ah, much clearer. Also more vivid and memorable.

Showing How Things Work

Health writing often entails explaining how things work. Consider this explanation of how the medication L-dopa helps control the neurologic disorder Parkinson’s disease:

In the brain this compound [L-dopa] is transformed into dopamine, a vital chemical that is lacking in Parkinson’s patients. Normally dopamine is produced by a specific set of nerve cells called the substantia nigra, tucked away at the base of the brain. The dopamine acts as a messenger, or neurotransmitter, and allows the substantia nigra to control one of the major motor areas in the brain, the striatum. But if there is no dopamine to act on the receptors of the striatal neurons, the patient develops Parkinson’s disease. The striatum itself, however, remains normal in Parkinson’s patients. So if the lost messenger can be replaced, the patients improve. And that’s the role of L-dopa. (Klawans 1991)

This explanation appeared in the science magazine Discover and thus may be more technical than those normally appearing in media such as newspapers. Nevertheless, it is easy to follow for a number of reasons. First, the author describes the process in stepwise fashion. Also, he uses transitional words, such as “this,” “but,” and “so,” to show the relationships of ideas. Perhaps less obviously, he also ties ideas together by repeating the same key words in successive sentences; the term “dopamine” appears in each of the first four sentences, and words such as “patient(s)” and “messenger” also are repeated in the paragraph. (In such explanations, unlike in some more literary writing, promoting clarity through use of consistent wording takes priority over using a varied vocabulary.) Finally, in keeping with an earlier suggestion, concepts tend to be presented before the technical terms for them. The author writes of “a specific set of nerve cells called the substantia nigra” and “a messenger, or neurotransmitter.”

Analogies, too, can aid in showing how things function. For example, in an article about hearing loss, the author says the membrane near the sen-
sory cells in the ear "acts like a battery, generating the electrical current that delivers the vibratory information to the brain" (Foltz-Gray 2002). And consider the following use of analogy to explain how fever arises:

A part of our brain called the hypothalamus functions much like a thermostat. Normally it is set for 98.6 degrees. If body temperature drops below that, you shiver to generate heat, divert blood from the periphery of your body to vital organs, and pile on the blankets. Temperatures above 98.6 cause you to sweat and breathe faster to dissipate heat. What IL-1 [interleukin-1, a body chemical involved in producing fever] does is cause the set point to shift upward. In other words, you begin to feel cold at 98.6, and various warming responses kick in and a new equilibrium is reached at a higher temperature. You are now running a fever. (Sapolsky 1990)

Here, comparison of the body's temperature-control system to a familiar device, the thermostat, makes the mechanism of fever easier to understand. Note that as well as presenting an analogy, this passage uses other, previously mentioned techniques to make the explanation clear. Among them are repetition (the recurring 98.6's) and use of transitional words and phrases ("in other words" and "now"). Often researchers accustomed to explaining their work to those outside their fields present analogies during interviews. Thus, when talking with experts, be alert for analogies that can clarify your explanations. If the analogies are apt but not worded suitably for your audience, recast them in your own words but credit your source; you might say that "Dr. ___ compares ___ to ___" and then present the comparison in your own terms. When your sources' words work well as is, you can quote them directly, thus providing both the clarity and liveliness of a good analogy and the engagingness of a good quote.

An example of quoting an analogy comes from a passage explaining how genes such as oncogenes influence development of cancer. Here the researcher is quoted as follows:

The automobile is a good analogy of what happens. The oncogenes are in normal cells but have mutated and gone awry, acquiring the potential to trigger abnormal cell division. The oncogenes act as accelerators for cell growth. It is like having the car in top gear with the accelerator stuck to the floor. But just like the driver of a car can reverse a floored accelerator by stepping on the brakes, so can other genes brake the oncogenes.

The cell's brakes are called tumor-suppressor genes . . . (Bree 1994)

Be alert for such analogies as you interview.
II. Preparing the Piece

Graphics such as diagrams and flowcharts also can aid considerably in showing how things work. Including them may especially aid those audience members who are more attuned to pictures than to words. Even if you are mainly a "word person," look for suitable types of graphics during your information search and think how your material might be presented visually; perhaps develop some sketches. Then share this material with the art staff if you write for a site that has one. Whether developing graphics yourself, choosing from those available, or working with others who prepare them, strive for simple graphics that present key elements without clutter that can distract. Your efforts can produce an explanation that is clearer and more appealing than otherwise and reaches a broader audience.

Countering Misconceptions

Not surprisingly, given the importance of health to people's lives but the many gaps that have existed in medical understanding, there are many misconceptions relating to health. Often the health writer's task of explaining includes countering these misconceptions, which often seem plausible but can lead to behaviors (or lack thereof) detrimental to health.

Drawing on research in science education, communication scholar Katherine E. Rowan (1990, 1999) has suggested a strategy for countering such misconceptions and providing more scientifically accepted explanations in their place. Rowan recommends beginning by stating people's common, often intuitive, view and acknowledging its apparent plausibility. Only then, she advises, should one demonstrate the inadequacy of this view, state what is more scientifically founded, and show its greater adequacy.

As an example of such a "transformative explanation," Rowan (1990) offers the following passage written by a student:

New parents sometimes object to constant use of child-restraint seats [in automobiles], thinking that their newborns must be just as safe in adult laps and firmly wrapped arms as they would be in restraint seats. The idea seems reasonable at first since babies weigh so little.

But what it fails to account for is the car's speed. In a collision at 30 mph both parent and child continue to travel at 30 mph after impact. A mother could no more hold on to her child in the car than she could if she were falling out of a three-story building—on top of the child! The force of the impact in both cases would be essentially the same.
By assessing—and respecting—the audience, health writers can develop such explanations well geared to counter misconceptions.

**Providing Orientation**

When encountering explanations or other materials that are technical or otherwise unfamiliar, audience members can easily become lost. You can help orient them by indicating the direction in which your piece is heading.

As noted earlier, the lead or nut graf should provide initial orientation. One useful orientation device shown in some of the passages above is the use of transitional words and phrases (some further examples: “also,” “therefore,” “next,” “in contrast,” “for instance,” “finally”). Another such device is the use of headings to let readers know what is coming and help them find material again. And an additional device is the presentation of overviews before details, say, telling readers that a process has three steps before presenting the steps or presenting the essence of an analogy before describing the details.

Health writers often intuitively provide orientation through such devices. Nevertheless, some explicit attention can be in order. If you sense that a passage may be confusing, check whether you seem to be providing sufficient orientation.

**Providing Points of Entry**

Readers are attracted to a piece in different ways. Some are drawn by the headline or title or by headings within the piece. Others are captured by the lead or by quotations drawn from the story and set in larger type. Still others are enticed by a photograph or drawing. And some are drawn in by other elements, such as brief related articles, or “sidebars,” accompanying the main piece.

Health writing offers many chances to provide such “points of entry.” Given the widespread interest in health, titles and headlines that attract readers can be readily crafted. And given the human and scientific elements in health care and medical research, there are many opportunities for photographs and other graphics. Depending on the type of piece, opportunities also may exist for sidebars: sets of tips, brief profiles of researchers or patients, deeper explanations for readers wanting further detail, or lists of sources of further information or help.
II. Preparing the Piece

Whether you write pieces about health or edit them, keep in mind opportunities for such points of entry. Doing so can help you engage your readers and thus get your message across.

Including Human Interest

A strong way to engage the audience is through human interest. Fortunately, opportunity for human interest abounds in writing about health. There are patients, health professionals, researchers, and other players. And of course various health topics relate to many of us as individuals and to others important in our lives.

Still or moving photographs of people involved add human interest; and in depicting signs of a disease, they can be worth at least a good fraction of the oft-mentioned 1,000 words. Anecdotes, say, of how a health condition affected a given patient's life, also add human interest, as well as serving as examples to help convey concepts. One caution, though: Do not abuse the human element. Although depictions of the bizarre and extreme, or pitiful tales of patients' woes, may initially draw audience members to a piece, they are the stuff of supermarket tabloids, not of good health writing.

Quotations from patients, scientists, and others also can add human interest and enliven a piece. However, they should be used sparingly lest they lose their impact. Typically, they should not be used to convey routine information such as definitions or statistics; you generally can present such information most clearly and concisely, as well as most suitably for your audience, yourself.

Three items for which quotations can indeed be useful in health writing are adding color through speakers' lively wording, conveying experts' views, and showing how people feel. Two examples of quotes providing liveliness and authority come from an article on keeping one's kitchen clean in order to prevent foodborne disease:

"Bacteria are all in business for themselves, and the business is making more bacteria," says George Chang, a professor of food microbiology at the University of California at Berkeley. "We're inviting the bad ones to make us sick when we don't clean properly."

and

"How to beat germs? "The biggest word in kitchen cleaning is 'now,'" says Don Aslett, author of 25 books on cleaning. (Janis 1996)"
7. Health-Writing Technique

Other examples of a quote providing authority comes from an award-winning article on epilepsy research:

“In the past, cure has been seen as a distant objective,” says [epilepsy researcher Daniel H.] Lowenstein. “We are finally making some real headway.”

and

“There’s an almost palpable excitement about the growing opportunities to treat epilepsy,” says Timothy A. Pedley of Columbia-Presbyterian Medical Center in New York. “We’re working to make the science fiction of today the reality of tomorrow.” (Christensen 2000)

Here are three examples of using quotations to show feelings. One is from an individual describing her first migraine headache:

“It was like someone stabbing my head with an ice pick. . . . It was terrifying.” (Sachs 1996)

Another is from a person with arthritis:

“I was frustrated. . . . Arthritis made my fingers, knees and ankles so stiff that it was difficult to move them. It became harder to do the things I liked most, especially biking.” (Christiano 1995)

And a third is from someone who stutters:

“It’s like I’m trapped in a glass capsule.” (Sobel 2001)

Quotations, like photographs and anecdotes, can provide human interest and otherwise enhance health writing. Aspiring health writers inexperienced in their use can obtain further guidance from basic journalism books widely available in libraries and general and college bookstores.

**Presenting Numbers and Sizes Effectively**

Health writing often entails presenting numbers and sizes. One suggestion regarding numbers is to avoid presenting many such pieces of hard-to-process information at once. Rather than doing so, intersperse supporting material such as examples and quotations.

Comparisons can help in presenting large numbers meaningfully. A
II. Preparing the Piece

story on hepatitis C indicates that in the United States the virus for this disease, which 3 to 4 million people harbor, "is now four times as widespread as HIV." (Cowley et al. 2002) An article on tuberculosis notes that, worldwide, "TB kills 1.5 million to 2 million people per year—almost as many as AIDS." (Okie 1999)

Similarly, comparison with familiar objects often helps in describing sizes. This example is from an article on asthma: A basic inhaler used to administer medication is described as "barely larger than a lipstick," whereas a more powerful device known as a nebulizer is "about twice the size of your average lunchbox." (Waldron 1993)

Presenting sizes effectively can entail converting quantities into units more familiar to the audience. Tables and other aids for converting metric to other quantities are readily available in reference books and online. Health writers may find it useful to recall that a centimeter is about 0.394 inches, a meter 39.4 inches, a gram 0.04 ounce, a kilogram 2.2 pounds, and a liter 1.06 quart. Also, comparison with familiar objects can aid in presenting metric quantities. The "Metric Style Guide for the News Media" (1997), available online at ts.nist.gov/ts/htdocs/200/202/metrsty3.htm, notes that a centimeter is about the width of a paper clip; a millimeter, the thickness of a dime; a gram, the weight of a paper clip; and a milliliter, one-fifth teaspoon.

In short, in presenting numbers and sizes, as in presenting other technical information, try to pace yourself, and try to link the unfamiliar with the familiar. The result will be more effective health writing.

Ending Strongly

Just as the beginning of a piece can merit particular effort, so can the end. Granted, this is not always so. For example, news articles on health, like those on other topics, do not typically have formal endings; rather, they dwindle into increasingly fine detail, thus allowing material to be cut from the end if space is limited. (For more on the structure of news stories, see Chapter 8.)

Feature articles on health, however, often do—and should—have endings providing closure. This example is from the article noted earlier on dwarfism and its management at Johns Hopkins:

Young people like Eboni White and Kevin Leitzell personify a feeling of pride and self-worth common among today's generation of little people. [Note: "Little
people" is a term that members of this population themselves use, not condescending wording by the article's authors.] They have had their way paved by increasing activism and antidiscrimination efforts by the Little People of America, by blunt-speaking role models like Dee Miller ("whatever you do," Miller says, sensing that a new acquaintance is not sure how to treat her, "don't pat me on the head") and, not least, by medical advances for which Johns Hopkins has been at the forefront. Step by step, those advances are allowing short-statured men and women to live longer, healthier, and more productive lives than ever before. (Henderson and Centofanti 1995)

This ending ties together various themes and people in the piece and leaves the take-home message resounding in readers' heads. If you write feature articles on health, consider striving for such a conclusion.

Providing Access to Further Information

One function of much health writing is to serve as a gateway for seeking further information. Consider whether this function is among those of your piece. If so, identify sources to mention, and present them in a way easy to find and consult.

During the research for your piece, quite likely you encountered information sources to consider mentioning to your audience. Possibilities often include government agencies such as components of the National Institutes of Health, local or national offices of health-related organizations such as the American Heart Association or American Cancer Society, and written materials. If appropriate, also mention resources such as clinics or courses. Take care, however, not to list one such resource in your vicinity while ignoring another.

"If you want to give the address or phone number of a small organization or facility in a story to be widely distributed, consider asking their permission or at least alerting them that they may soon be flooded with requests," a health writer advises. "I've gotten into trouble for not doing this!"

If toll-free numbers are available, provide them. Ditto for addresses of relevant sites on the World Wide Web. Given the varied quality of material on the Web, however, take care in recommending sites. If in doubt, mention only those that are associated with organizations known to be reputable.

Depending on your medium and format, you can present the sources in various ways for easy accessibility. Often, sources of further information are listed at the end of a feature article or broadcast segment. A resource list
II. Preparing the Piece

also can work well as a sidebar alongside the main article. In online articles, links may be presented within the text or at the end, depending on their function.

Finally, be sure to check the listings for accuracy and currency. Clearly, if they are incorrect or out-of-date they will frustrate rather than help.

Checking for Accuracy

Not only resource lists but also other content should be checked for accuracy. Check that you have the details right, and also make sure that you have accurately conveyed the big picture. In doing so, draw on your notes, and check reference sources. Do not hesitate to ask experts if you are unsure. Also consider having them review parts or all of your piece for technical accuracy.

In some instances, incorrect details can be harmful to readers’ health. In others, they at least undermine the writer’s credibility—and perhaps the writer’s prospects for further health-writing assignments. Consider the following errors: One newspaper article referred to “this month’s issue of the Journal of the American Medical Association” when this journal is published four times a month. Another placed the Mayo Clinic in Rochester, New York, rather than Rochester, Minnesota. In a single sentence, another spoke of a patient’s facial ticks (should be “tics”) and irritated bowel syndrome (should be “irritable bowel syndrome”). A health-related posting on the World Wide Web repeatedly said “nitrous oxide” when “nitric oxide” was meant. And the headline of a news release misspelled “laparoscopy” as “laporoscopy.”Oops. Oops. Oops. By checking details you can avoid such problems.

But checking for accuracy goes beyond making sure that the details are correct. Also back away from the details and make sure that the big picture is right. If you have written about a new development, make sure you have provided sufficient context to correctly show its significance. If you have discussed an area of health where controversy exists, make sure that all sides are fairly represented. It is also very important to indicate where the bulk of expert opinion lies. Whatever the nature of your article, make sure to indicate where important uncertainties exist.

If questions arise as you check your work, do not hesitate to contact sources consulted while gathering information. Technologies such as electronic mail and fax machines greatly facilitate doing so. Most sources would rather spend the time helping you check a fact than have an inaccu-
racy appear. Indeed, such evidence of your attention to detail may increase their willingness to work with you in the future.

Journalists traditionally have been wary about showing their drafts or parts thereof to sources for review. But views seem to have shifted over the years (Shepard 1996). And such review has long been accepted in technical areas, including health. Passages of concern often can readily be checked by telephone, e-mail, or fax. When seeking feedback on items such as balance, a draft of an entire piece may be shown to an expert in the field. Make it clear, however, that you are only seeking technically expert feedback, not ceding to others control over your work. You remain the health writer, and the writing remains your domain.

**Checking with the Audience**

This chapter began with the audience. And so shall it end. Once you have drafted your piece, consider showing it to others, especially members of
II. Preparing the Piece

the intended audience or people much like them. What do people find interesting about the piece? What other information would they like to have seen? What, if anything, do they find unclear or misinterpret?

"You have to understand what people think a word means," says Houston medical writer Ruth SoRelle. After SoRelle wrote that genital herpes was "incurable," a man called and asked her how much longer he had to live. On talking with him, SoRelle realized that the man had confused "incurable" and "terminal." Finding out how typical readers interpret a draft can aid in revising your work to avoid such confusion.

Typically, such feedback has been obtained by showing people a draft and then asking for comments. Another approach is to obtain running comments from people while they read your draft; readers can either provide the comments directly or dictate them into a tape recorder. Yet another approach is to have a group of people read your draft and discuss it.

Serving as a representative of your audience, your editor can also provide helpful feedback. And with growing experience as a health writer, you will likely develop an "internal editor" that helps you anticipate your audience's interests and needs and check whether you have fulfilled them. If you have followed advice in this chapter, quite likely the word from readers, editors, and yourself is that you have done your job well.

A final note—to help hone your craft, read good writing. A list of master health writers and a sample publication for each appears in Figure 7-1.
7. Health-Writing Technique

Figure 7-1: Health-Writing Technique: Some Masters

Good writing is contagious. And reading lots of fine popular medical writing can help you catch the bug. Listed below are some authors who are masters of such writing. For each, a book is noted that incorporates types of techniques discussed in this chapter. If you enjoy some of these books, look for other writing by the same authors.


**John Stone.** 1990. *In the country of hearts: Journeys in the art of medicine.* New York: Delacorte Press.


---

Exercises

1. Read the magazine article “The Secret in the Marrow,” which appears at the end of this chapter. Identify 5 to 10 techniques the author uses to make the writing clear and interesting. In doing so, be specific; for example, rather than only saying that the author uses analogy, give one or more examples of analogies the author uses. Also note other strengths of this piece. If you have suggestions for improving the piece, provide them as well.

2. Diane K. Sugg, health reporter at *The Baltimore Sun,* won the 2003 Pulitzer Prize for beat reporting for “her absorbing, often poignant stories that illuminated complex medical issues through the lives of people.” Her prize-winning set of stories is posted at www.pulitzer.org/year/2003/beat-reporting. Please access these stories; to do so, click on “Works.” In each story, notice the lead and identify the nut graf (bill-
II. Preparing the Piece

board paragraph), if any. Also note other aspects of the writing technique. Think about the types of content in the stories and the information-gathering entailed. Speculate on why the judges considered these stories worthy of the prize.

3. Identify an organ, medication, or medical device that interests you. In about 250 to 500 words, explain how this item works. In doing so, use techniques discussed in this chapter. At the end, list at least two sources for readers wanting further information. Please indicate the readership for which your explanation is intended.

Example

Article 7-1

“The Secret in the Marrow”

Daniel C. Weaver

Discover, January 1994

Note: This article illustrates many aspects of good health-writing technique. It is reproduced with permission of the copyright holder.

As I rode the hospital elevator up to Mrs. Fortner’s room, I reviewed the case in my mind. This 42-year-old woman had gone to a clinic, complaining that she was tired and weak. A doctor there had taken blood and noted a very low red blood cell count, as well as a slightly elevated white cell count. Iron-deficiency anemia, he told his patient; you have iron-poor blood. The white count he chalked up to a slight infection. He sent her over to our hospital for a more thorough blood workup. But when Julia Jones, our hematologist, looked at the blood under a microscope, she focused on the white cells. She saw oval nuclei and bluish cytoplasm. They looked peculiar, she thought. Indeed, they all looked like plasma cells, specialized antibody-making cells not normally found in the blood. And there were lots of them: it looked like they were growing unchecked, out of control. It looked like plasma-cell leukemia.

That’s when Julia called me. I’m a pathologist, a sort of doctor’s doctor—a detective, even, armed with a high-powered microscope. Because we diagnose but do not treat, pathologists have the luxury to hunt down rare, bizarre disorders—what are often referred to as medical zebras. Indeed, we
7. Health-Writing Technique

have an affinity for the exotic. And this certainly fit the bill: not only is plasma-cell leukemia a very rare disease, it’s mainly a disease of the elderly.

I knocked on the door and, without waiting for a reply, walked in. A pale woman with a slight anxious tremor in her hand was lying in bed.

"Hello, Mrs. Fortner, I’m Dr. Weaver," I introduced myself. "Dr. Jones asked me to come and see you. How are you doing?"

"Okay, I guess," she replied. "I’m just so tired. But Dr. Jones did say you’d be coming by this morning."

"Yes. Well, she asked me to take a sample of your bone marrow—a biopsy, it’s called—so we can try to figure out why you’re so tired."

"Will it hurt—the biopsy?" she asked.

"Yes, somewhat," I answered truthfully. "The pain will be sharp but short and will be gone when I am."

The technician brought in a tray with anesthetic and some needles, and I explained the procedure to Mrs. Fortner. "The bone marrow is the site where the blood cells are made," I said. "By analyzing the bone marrow, we can see if there is anything wrong with the way your blood is formed. To obtain a sample of the marrow, I will first numb the skin over your right hip and then insert a needle through the skin and into the center of the bone—the marrow."

To biopsy bone marrow is to drill for oil. A large-bore needle (something the size a veterinarian might use to anesthetize a horse) is inserted through the skin to the bone. When it hits bone, the doctor begins to rotate and grind the needle, to push its thick tip through the stony outer cortex. Once it has pierced the bone and reached the marrow cavity, the needle’s sharp center stylet is removed, and the fluid and cells that compose the marrow are drawn through the outer shaft of the needle. Sometimes the fluid comes gushing, sometimes it oozes, and sometimes it has to be sucked out by pulling back on a syringe.

I asked Mrs. Fortner to roll onto her side. I placed my hand on her hip to locate its highest, broadest point. Then I numbed the skin with an anesthetic and pushed the needle in until it butted against the bone. "It will hurt now," I warned. I firmly held the base of the assembled needle, then twisted and pushed it into the marrow cavity. Mrs. Fortner flinched but otherwise held steady. I removed the center stylet and waited for the thick, dark red marrow to ooze out into the needle hub. Normally it begins within a few seconds. But nothing came from Mrs. Fortner’s marrow. So I attached a syringe to the needle hub and tried to aspirate the marrow. Nothing. I repositioned the needle and tried again. Still nothing.
II. Preparing the Piece

What was going on here? I wouldn't be able to tell until I could look at the marrow. I was sure I was there—I could feel the needle give way as it passed through the cortex. So I decided to do what oil geologists sometimes do: cut a cylindrical core of material, remove it, and take it back to the laboratory.

I removed the syringe from the hub of the needle and put in its place a core-cutting tool, which I slowly rotated and twisted, back and forth, until I had removed a chunk of marrow eight-tenths of an inch across. Mrs. Fortner never moved. When I was finished, I thanked her for her patience and returned to the lab to see if I could find out what strange disorder lay locked within her bones.

The bone marrow is the cellular womb of the blood. It's where the red cells (which carry oxygen), the platelets (which help blood clot), and the white cells (which help defend against bacteria and other foreign agents) are born, nurtured, and mature before being released into the bloodstream. During development these three components grow in small, separate groupings, called colonies, that are supported by a delicate network of fibers known as reticulin. I needed to be able to recognize and locate these different components, so I stained the marrow with red and blue dyes. Normally the red cells stain red, the platelets stain a kind of deep blue gray, and the white cells remain basically white with a dark nucleus.

But when I looked through the microscope at Mrs. Fortner's marrow, I saw none of this. I adjusted the scope to its lowest power and looked down over the entire slide, like a bird soaring high in the sky to see a whole field below. All I could see were white cells—immature-looking white cells—spread out across the cellular landscape.

Next I adjusted the scope to its highest power, magnifying the field 1,000 times, swooping down to peer into these primeval cells. Although they had the oval nucleus Dr. Jones had described, they didn't have the characteristic clumping of genetic material found in plasma cells. They didn't even have the small cytoplasmic granules common to most white cells. These cells looked like no normal cell I knew.

They weren't even like the abnormal cells I knew. They weren't piled up on one another like most tumor cells. Instead, they were remarkably evenly spaced: they looked like soldiers linked arm in arm, marching to the horizon. And as they went, they were pushing aside the normal members of the marrow community.

Who were these guys? Clearly they were traitors—desperadoes, despite their white hats. But where did they come from? And why hadn't any of them come out when I tried to aspirate the marrow?
I took a deep breath and decided to begin at the beginning, with the original slide of Mrs. Fortner's blood, the one Julia had looked at. I saw just what Julia had seen—a low red cell count and an increased number of white cells with oval, eccentric nuclei. Then I switched the microscope to the highest power and adjusted the light. And there it was. At the edges of the cells, at their cytoplasmic extremes, were tiny but clearly visible hair-like projections—tentacles. Plasma cells don't have tentacles. No, this was something even more rare, even more exotic. This looked like a case of hairy-cell leukemia.

What wonders a single drop of blood can reveal—malaria, leukemia, pernicious anemia; exotic fevers like Oroya, which is found only in the valleys of the high Andes; and even hairy-cell leukemia, a most strange and wondrous disorder, first described just 36 years ago. As its name suggests, hairy-cell leukemia is a proliferation of a peculiar type of white cell—the hairy cell—whose tiny cytoplasmic projections look like hairs under the microscope. Of course, they aren't really hairs—they're far too small—but they give these cells their singular and ominous look.

I was pretty sure about my diagnosis. But in pathology, pretty sure isn't good enough. The wrong diagnosis can lead to the wrong therapy or even death. So I ordered more tests. A test for iron showed that Mrs. Fortner's clinic doctor had been at least partly right. She did have an iron deficiency, probably from menstrual bleeding. It just wasn't the cause of her weakness.

It was when I specifically stained the reticulin—the fibers in the marrow—that I confirmed my diagnosis and finally understood why I'd had such trouble aspirating the marrow. The hairy cells were separated one from the other by precisely the length of their tentacles, and the tentacles themselves were wrapped around one another and around the reticulin fibers in a tangled mass, like a Gordian knot. The hairy cells were literally linked arm in arm. There was no way to separate them from one another, no way to draw this mass up through the shaft of a needle.

That afternoon I called Julia to let her know what I had found.

"This is an oddball case," I said, "although I'm not sure it's so much a zebra as it is an okapi."

"What? An okapi?" Julia sounded bemused.

"Yes, an okapi. One of the last great hoofed animals described by zoologists this century. It looks like a cross between a giraffe and a zebra."

"Get to the point, Weaver," Julia demanded.

"It's hairy-cell leukemia."

"Really?" she exclaimed. "That's great."
II. Preparing the Piece

Now, doctors don’t usually get excited when they hear their patient has a rare, dangerous disease. Until recently, many patients with hairy-cell leukemia died as the hairy cells crowded out the normal white cells so that the patients couldn’t fight off even the simplest of infections. But thanks to a miracle of molecular biology, hairy-cell leukemia has become quite curable.

In 1972 Eloise Giblett, a Seattle hematologist and geneticist, was asked to test the blood of a child with severe combined immunodeficiency—another zebra—for a series of enzymes found in the blood cells. Dr. Giblett found that the child’s blood lacked adenosine deaminase, an enzyme that helps convert adenosine, a component of DNA, into a harmless metabolite when DNA is being broken down. In this rare immune deficiency, adenosine and other metabolites accumulate in the white cells and prevent them from making more DNA, eventually resulting in their death.

Children with this immune deficiency are extremely prone to infection. Indeed, for them to survive, some have been placed in complete isolation: recall David, the boy who lived in a plastic bubble. Although David eventually succumbed to his disorder, what we learned from him and children like him is what I was counting on to help Mrs. Fortner live. It’s one of the ironies of medicine that out of such dark aberrations of nature comes light.

Shortly after the discovery that white cells are exquisitely sensitive to the toxic metabolites of DNA, researchers began investigating whether they could use this information to treat proliferative disorders of abnormal white cells—in other words, leukemias. The idea behind the research was a simple one: to make a drug that would act like adenosine and kill white cells but that would kill only the bad, leukemic cells and spare the good guys. In 1986, two years after David died, the Scripps Clinic in La Jolla, California, began treating hairy-cell leukemia with a structural mimic of adenosine called 2-chlorodeoxyadenosine. In 1990 the researchers reported that patients treated with this new drug for just one week were in complete long-term remission. For all intents and purposes, they were cured.

The week after Mrs. Fortner’s diagnosis, I ran across Julia in the hallway. She seemed depressed, and for good reason. Mrs. Fortner was not a wealthy woman; her only insurance was Indiana’s Medicaid program. The Medicaid officer had refused to authorize the use of the new drug because it had yet to be approved by the Food and Drug Administration. He would, however, pay for long-term conventional chemotherapy—a treatment that would only postpone Mrs. Fortner’s demise, and at enormous expense.
Despite Julia's pleas, the bureaucrats had remained immobile, and Mrs. Fortner had remained untreated.

I thought about calling Medicaid myself but then thought better of it. I have learned over the years that bureaucrats are prisoners of rules, regulations, and lawyers. They are not in a position to evaluate new therapies. Sometimes I wonder if they realize that the enemy out there is disease.

But Julia wasn’t giving up. She kept looking for an alternative source of funds. Later that week she found it. The hospital administrator agreed to have the hospital itself absorb the cost.

Three months after her one-week treatment with 2-chlorodeoxyadenosine, I saw Mrs. Fortner in the hospital outpatient clinic. The tremor was gone and her cheeks were rosy. She was there so I could take another biopsy of her marrow, to make sure the therapy had worked.

"Hello, Mrs. Fortner," I said. "I’m glad to see you back."

"Oh, Dr. Weaver, I heard that you were the one who found out what was wrong with me," she replied. "I guess I owe you a thank-you."

"Well, I don't know about that, Mrs. Fortner," I said. "I was just doing my job." I felt uncomfortable and finally said, "Why don’t you just get ready, and I’ll complete my final biopsy." Again I placed my hand on her hip to locate its highest, broadest point, numbed the skin, and proceeded. The marrow gushed out easily.

When I had finished, however, and was on my way back to the laboratory, I thought to myself, I wish I had been a little quicker on my feet. Yes, there are some people Mrs. Fortner might want to thank, and she might want to begin with the Davids of this world.

The following day I placed the slide of Mrs. Fortner’s bone marrow under my microscope and focused. The hairy white traitors that had once filled her bones had vanished. In their place, in all their complexity and diversity, were islands of reds, whites, and blues—a normal marrow. On February 26, 1993, the FDA approved 2-chlorodeoxyadenosine for the treatment of hairy cell leukemia.
Chapter 8

Genres of Health Writing

Health writing comes in many genres: news reports, investigative pieces, feature stories, books, and more. While following the conventions of these various genres, health writing also presents special challenges and concerns within them.

This chapter addresses some of the main genres in which health writers work. Examples, along with comments, underline points in the chapter and elsewhere in the book. There is also direction to sources of further guidance.

Prospective health writers without a journalism background may find it useful not only to read this chapter but also to consult basic textbooks in areas such as news writing and magazine or feature writing. And all readers are encouraged to look analytically at examples of health writing that they encounter. For whatever the genre, health writing benefits from following good models and learning to avoid errors observed in bad ones.

News Stories and News Releases

New findings. New products. New services or techniques. New personnel. Whether for the public media or in institutional settings, much health writing consists of reporting news. Whether you write a news story for the public or a news release for journalists, awareness of a few basic conventions and guidelines can aid in following an appropriate format and including appropriate information.

Both news stories and news releases typically follow what is called "inverted pyramid format." As the name implies, in this format the big stuff is up to top. Thus, the opening, or lead, summarizes the news to be presented; it may also note its significance if that would be unclear. Readers then can decide whether to look at the rest of the story or release, which presents increasingly fine detail. Editors can cut the story at almost any point and still have a piece that makes sense.

In reporting news, journalists traditionally are told to remember the five W’s and an H: who, what, where, when, why, and how. For a story on research results, the “who” would include who did the research and, if rel-
II. Preparing the Piece

levant, who funded it. The "what" would include what was studied and what the findings were. The "where" would include the institution where the research was done and the journal or conference where it was published or presented. The "when" could include the date of publication or presentation. The "why" could include why the research was done and why the findings may be important, as well as the likely mechanism behind what was observed. Part of the "how" would be how the research was done. Another part would be how the findings fit with those of other studies—in other words, the context for the findings.

News stories reporting results of biomedical research often have failed to provide such context. For example, those on studies suggesting that given factors affect the likelihood of developing types of cancer have commonly reported the findings in isolation, rather than as part of an often complex big picture (Mann 1995). As emphasized elsewhere, such context is crucial to health writing that is accurate in the fullest sense and is the most helpful.

Context is one area considered in an index of scientific quality that researchers at McMaster University in Canada developed for evaluating health-related news reports. As noted by the researchers, this index, con-
sisting of eight questions, can serve as a checklist for health writers. The questions, as stated by the researchers, are:

1. Is it clear to whom the information in the report applies (i.e., to which population the evidence is applicable)?
2. Are facts clearly distinguished from opinions?
3. Is the assessment of the credibility (validity) of the evidence clear and well-founded (not misleading)?
4. Is the strength or magnitude of the findings (effects, risks, or costs) that are the main focus of the article clearly reported?
5. Is there a clear and well-founded (not misleading) assessment of the precision of any estimates that are reported or of the probability that any of the reported findings might be due to chance?
6. Is the consistency of the evidence (between studies) considered and is the assessment well-founded (not misleading)?
7. Are all of the important consequences (benefits, risks, and costs) of concern relative to the central topic of the report identified?
8. Based on your answers to the above questions, how would you rate the overall scientific quality of the report? (Oxman et al. 1993)

Consider consulting this list when you write news stories or news releases on research.

Other information to consider presenting includes limitations of research being reported and sources of funding of the research. A study of news releases from major medical journals (Woloshin and Schwartz 2002) found that few releases mentioned limitations of the research. Also, when the research was funded by industry, rarely did the releases say so. And data often were presented in ways that made the findings seem more important.

FRANK & ERNEST® by Bob Thaves

Reprinted with permission of Bob Thaves.
II. Preparing the Piece

than they were. Both preparers and users of news releases may do well to keep these findings in mind.

In addition to being suitably structured and containing suitable information, a news story or news release must be readable. And to fulfill its role of attracting media coverage, a news release must indicate whom to contact for further information. A British study (Albert 1995) suggests that many news releases are impenetrably written or fail to state whom to contact. In preparing news stories and releases, as in other health writing, attention to the audience remains crucial.

Figures 8-1 through 8-3 present three examples: a radio story reporting research findings, a newspaper story announcing approval of a drug, and a news release about a diagnostic test. Comments on content and technique accompany each example, reinforcing points made above and elsewhere in the book.

Investigative and Depth Reporting

What? A separate section on investigative and depth reporting? Isn’t a major message of this book that all health writing should draw on thorough investigation? True, but some types of health writing entail particularly deep, broad, or ingenious investigation. Among them are stories that seek to uncover problems in health care and those that discern, describe, and interpret broad trends with implications for health. These types of health writing are the focus of this section.

Many of us enter health writing partly because we have high regard for medical research and health care and enjoy reporting favorable news such as medical advances. However, medicine also has a sorrier side, and documenting and publicizing problems in realms such as health care can help lead to their solution. Given the scope of work that may be required, a team approach can be a good option, with the health writer lending knowledge of medical topics, sources, and institutions and a journalist experienced in investigative reporting bringing attitudes and approaches from that realm.

Among areas for possible investigation are the functioning of medical institutions, the competence of health practitioners, the costs and financing of health care, the efficacy and safety of drugs and medical devices, and the prevalence of occupational and environmental diseases. Are there problems in the performance of health-care facilities, clinical laboratories, nursing homes, home health-care services, or the like? Is local emergency medical care failing to meet standards? Are nonprofit institutions such as
Figure 8-1: News Story, "Smoking and Breast Cancer May Be Linked, Study Shows," Morning Edition (National Public Radio), April 26, 1996

**Story**

Alex Chadwick, Host: ... A new study raises the possibility that many cases of breast cancer may be caused by smoking, or by breathing secondhand tobacco smoke. This study seemingly contradicts dozens of others that have shown no link between these major public-health issues, but experts say there are compelling reasons not to ignore this study as a fluke. Instead, the conflicting conclusions should spur more study into the potential connection between increasing breast-cancer rates and tobacco use. NPR's Richard Harris has the story.

Richard Harris, Reporter: More than 20 studies have looked for a connection between cigarette smoking and breast cancer without finding a strong connection. But Alfredo Morabia from the University Hospital in Geneva, Switzerland, says all those studies have made a big assumption he didn't agree with—that is, women exposed to secondhand smoke were still considered to be nonsmokers.

Alfredo Morabia, University Hospital, Geneva, Switzerland: So we performed the first study in which we could separate women that were really never exposed to tobacco smoke from women who had been exposed passively.

Richard Harris: And what he found was startling, as he reports in the American Journal of Epidemiology's May 1st issue—smoking women were indeed at significantly greater risk of breast cancer. Their risk was doubled or

**Comments**

“Summary lead”: overview of study's main finding (note that uncertainty is acknowledged)

Context: comparison with findings of other studies

Continuing overview of the main points of the story

Context: previous studies

“Who”: the researcher

“Where”: his affiliation

“How”: way in which this study's approach differed from that of previous studies

Words of researcher himself

“Where”: site of publication of the study

“When”: date of publication

(continues)
Alfredo Morabia: We weren’t expecting that. We thought that passive smoking would be considered with a weaker risk than active smoking, but that’s not what we found.

Richard Harris: In other smoking-related diseases higher doses of tobacco smoke mean higher risks, so active smokers are usually at much higher risk than people who breathe secondhand smoke. Julie Palmer at Boston University says these findings really stand out. Taken literally, this study suggests smoking and passive smoke could cause more breast cancer than any other known risk factor.

Julie Palmer, Boston University: This was really a shockingly high effect or estimate of effect, and it would probably lead most people to discount these results.

Richard Harris: But Palmer says the study itself has no obvious glaring flaws, so it’s a finding that can’t simply be dismissed as a fluke. But Morabia will have to find a way to explain why much lower doses of secondhand smoke appear to be almost as dangerous as huge doses of carcinogens from active smoking. He theorizes that pol-

Comment

Mention of statistical significance; inclusion of numbers

Use of “surprising” here and “startling” above helps attract audience’s attention to key findings

Reinforcement by the researcher

Context: contrast with somewhat analogous findings

Opinion by expert not associated with the study

“Why”: importance of the study (impact if findings are true)

Comment by outside expert

Expert opinion on the study design and whether to take the results seriously

“Why”: question of mechanism behind the findings
Figure 8-1: (continued)

**Story**

Sons from cigarette smoke build up in fatty breast tissue of susceptible women, and it doesn’t take all that much to trigger breast cancer. But he hasn’t proven that. Most important, Morabia acknowledges other scientists will have to carry out similar studies and come up with similar results.

Alfredo Morabia: One study is not enough to say, “Well, there is a causal relationship, we have to bring this message to the population.” But one study like ours is enough to say that there may be something, and we need to take this very seriously because it may lead to simple public-health information to the women and to reduction of the number of cancer[s] in the population.

Richard Harris: If his conclusion holds up, he says it could explain a sizable fraction of breast cancer in the United States. So, considering the huge amount of attention being paid to both tobacco and breast cancer right now, this is a question that’s not likely to languish. This is Richard Harris in Washington.

**Comment**

"Why": researcher’s speculation on the mechanism

Distinction of speculation from established findings

Need for confirmation in order to accept findings

Idea well expressed by researcher

Possible public-health implications

Possible public-health implications

Reference to newsworthiness of topic

Allusion to likely future research

© Copyright National Public Radio® 1996. The news report by NPR’s Richard Harris was originally broadcast on National Public Radio’s “Morning Edition” on April 26, 1996, and is used with permission of National Public Radio. Any duplication is strictly prohibited.
A drug derived from the bark of a Chinese tree was approved by the Food and Drug Administration on Wednesday to help women whose ovarian cancer has progressed despite other treatments.

Topotecan is the first of a new class of cancer drugs that inhibit an enzyme essential for growth of tumors. It appears to work as well as the widely used ovarian cancer therapy Taxol.

While doctors caution that it's not a breakthrough, FDA Commissioner David Kessler said topotecan "is an important option" for advanced patients.

Manufactured by SmithKline Beecham Pharmaceuticals, topotecan will be sold under the name Hycamtin and will begin sales in several weeks.

Ovarian cancer strikes about 26,700 American women every year and kills about 14,800.

In a study of 337 women, topotecan helped shrink the tumors of 17 percent of patients, a response rate comparable to that experienced by patients taking Taxol, the FDA said.

The study found no statistically significant difference in survival between patients taking topotecan and those taking Taxol.

SmithKline touted data that suggested topotecan stopped ovarian tumors from progressing for 23 weeks vs. 14 weeks for Taxol patients.

However, topotecan patients experienced somewhat more severe side effects, particularly a drop in their immune system's ability to fight infections. This side effect is treatable.

"Summary lead": announcement of new drug's approval; indication of the drug's use

Newness: novelty of the drug's mechanism of action

Context: comparison with effectiveness of a previously approved drug

Caution: limitation of the drug's importance

Statement by authority

"Who": manufacturer of the drug

Trade name of the drug

"When": time sales will begin

Background: incidence and mortality of condition

The inverted pyramid continues: statistics on effectiveness of drug; more detailed comparison with established drug

Mention of statistical significance

Possible advantage noted by manufacturer

Side effects
although some women may require hospitalization.

The FDA approved topotecan as a second-line therapy, to be offered as an option for patients after another treatment has failed.

“I don’t think we can say with certainty yet whether it’s better than Taxol,” cautioned FDA oncology director Dr. Robert DeLay. “We simply don’t have enough data to address the question. . . . And they may turn out to be complementary drugs, so the question of better may not be an issue.”

Indeed, scientists are intrigued by topotecan because it works differently than other cancer drugs.

Whenever a new class of medicines is discovered, one hope is that combining it with older drugs could deal tumors a one-two punch.

Topotecan inhibits an enzyme called topoisomerase-I that is important for tumor growth. Existing drugs have proved beneficial against some cancers by attacking a related enzyme, topoisomerase-II.

The National Cancer Institute and SmithKline are studying whether combining these two types of drugs could help certain patients.

Also, tests of topotecan as a first-line therapy for small-cell lung cancer have found response rates as high as 39 percent, the NCI said.

Topotecan was discovered in the bark of a Chinese tree called *Camptotheca acuminate*.

The tree, as well as a relative that harbors the ingredient, is common and fast-growing, so SmithKline said topotecan’s supply is plentiful.
"Ultrafast CT" scanning with an electron beam proved many times more powerful than the best available non-invasive test in predicting heart attacks and other coronary disease episodes, even in apparently healthy people, a new study shows.

By measuring the amount of calcium deposits that build up in coronary arteries—a disease process commonly called hardening of the arteries—ultrafast CT accurately predicts cardiovascular disease events in people with no symptoms, doctors at St. Francis Hospital in Roslyn, N.Y., report in today's (June 1) American Heart Association journal *Circulation*.

“This is the first large, written report with a high degree of completeness of follow-up (99.8%) documenting the prospective short-term predictive value of EBCT (electron beam computed tomography) of the coronary arteries in asymptomatic patients,” the team writes.

EBCT is a "tool that allows us to identify people who are at high risk for coronary disease," says Yadon Arad, MD, the study's lead investigator and director of preventive cardiology at St. Francis Hospital. "EBCT screening would enable me to identify individuals in the early stages of coronary disease who would benefit the most from therapies (such as drug treatments, diet and exercise) that might prevent heart attacks."

EBCT scanning costs from $375 to $500 in the United States, which is "relatively inexpensive, compared to other diagnostic tests in cardiology," he says.
The researchers used EBCT in 1,173 asymptomatic patients between September 1993 and March 1994 and then followed the patients for an average of 19 months. During the follow-up, 18 patients had a total of 26 cardiovascular events—including one death, seven heart attacks, eight coronary bypass surgeries, nine coronary angioplasties and one stroke.

"We conclude that EBCT-based screening for coronary artery disease shows great applicability to the development of cardiovascular disease events in a relatively short time period (average, 19 months) in a mostly middle-aged group that was 71 percent male," the investigators write in Circulation.

But Lewis Wexler, MD, of Stanford University Medical Center in California, cautions that EBCT scanning is still undergoing clinical investigation. "As promising as the results of the study appear to be, it's still an experimental screening technique," he says. "Large-scale prospective studies are needed to prove its predictive value, which will differ depending on a patient's age, gender and the presence of coronary artery disease risk factors."

Wexler chairs an AHA panel that is developing a scientific statement on coronary calcification and EBCT.

Alan Guerci, MD, study senior author and director of research at St. Francis Hospital, says: "Our study shows that EBCT scanning of the coronary arteries has a predictive accuracy that exceeds by a large margin that of any other non-invasive technology."

Although cholesterol testing involves drawing a blood sample, it's
considered to be non-invasive, Guerci notes. But even the best cholesterol test (the ratio of total cholesterol to "good" HDL cholesterol) achieves an "odds ratio" of only about 1.6, he says. (An odds ratio of 1 implies no increased risk.) Guerci defines odds ratio as "the probability of getting sick or dying if your test result is abnormal, divided by the probability of something bad happening to you if your test is normal."

His team found EBCT achieved odds ratios ranging from 20 to 35, making the scanning technique more than 10 times more powerful a predictor of coronary disease episodes than cholesterol testing, he says.

Autopsy reports and other data have consistently shown a correlation between coronary artery calcium content (CAC) and the severity of coronary artery disease, the authors note. EBCT provides doctors a CAC "score" for each patient based on the amount of calcium seen in the scans. Among study participants, CAC scores averaging 935 in patients with coronary events vs. scores averaging 144 in patients without events. And those individuals with a CAC score above 160 had a 35-fold higher risk of developing a coronary event than those with scores below 160, the researchers found.

While this is the first published report of a follow-up of apparently healthy persons undergoing EBCT scanning of the heart, three other studies presented at two recent AHA scientific meetings had similar findings, Guerci points out. "Now there are four studies with a total of 2,745 asymptomatic patients and all four show the..."
Story

coronary calcium score is highly predictive of future cardiac events."

Because the coronary arteries supply blood to the cardiac muscle and are in constant motion as the heart beats, obtaining X-ray images of the moving vessels was difficult until the new superfast machines were built. Ultrafast CT devices using electron beams now are available in about 25 cities in the United States and about 30 cities in Europe and Asia.

Guerici emphasizes there's no link between calcium deposits in the coronary arteries and calcium-rich foods, or the calcium supplements taken by many older women. These women have a high risk of osteoporosis and "they should not lower their calcium intake because of our findings," he says.

Other co-authors with Arad and Guerici are Louise A. Spadaro, MD; Ken Goodman, MD; Alonzo Lledo-Perez, MD; Scott Sherman, MD, and Gail Lerner, MS.

Circulation is one of five scientific journals published by the Dallas-based AHA.

Comment

"Why": reason the new technique is needed to obtain the findings

Availability of the equipment

Anticipation and countering of a possible misinterpretation of the findings' implications

The inverted pyramid continues: names of co-authors

Sponsorship of the journal; mention again of the organization issuing the release

Reprinted with permission.
II. Preparing the Piece

health-related associations making inappropriate use of funds? Are given practitioners endangering public well-being by providing health care without appropriate competence or credentials? Are medical devices or drugs with substantial problems remaining available? Are there sites where high rates of occupational or environmental disease are not being suitably addressed?

If so, you may have the start of an investigative story or series. At a conference on investigative reporting, one reporter told of exposing a fertility clinic that was illicitly giving women other women's eggs. Another recounted uncovering the case of a heart transplant program that was no longer doing transplants and yet was still accepting patients. A third reporter told of investigating a doctor who was doing unnecessary medical procedures—and doing them incompetently.

A standard source of guidance in uncovering, documenting, and reporting such problems, now in its fourth edition, is *The Investigative Reporter's Handbook: A Guide to Documents, Databases, and Techniques* (Houston, Bruzzese, and Weinberg 2002). This book not only supplies extensive overall guidance in investigative reporting but also has a chapter on investigative reporting on health care. Another potentially useful book is *Investi-
8. Genres of Health Writing

gative Reporting for Print and Broadcast (Gaines 1994), which likewise contains a chapter on investigating health care.

The organization through which The Investigative Reporter’s Handbook originated, Investigative Reporters and Editors (IRE), offers as well other resources useful in investigative reporting on health care. Through the IRE Resource Center (www.ire.org/resourcecenter), investigative stories from various print and broadcast media can be identified and obtained. Reading the stories obtained on one’s subject can suggest ways of gathering information and presenting it, and consulting those who prepared the stories can yield additional guidance. Among other items available from the resource center are handouts from IRE conferences, which often include sessions on aspects of investigative health reporting.

Depth or investigative reporting also may focus on epidemiologic and other trends affecting health. One example is the Pulitzer Prize-winning series “When Bugs Fight Back” by science and medical writer Mike Toner of the Atlanta Journal-Constitution. Drawing on many sources, this extensive series, excerpted in the anthology The New Science Journalists (Anton and McCourt 1995), addresses two parallel developments: the increasing resistance of microorganisms to antibiotics and the increasing resistance of insects and weeds to pesticides. Other examples include the San Francisco Chronicle report “Growing Up Too Fat: Kids Suffer Adult Ailments as More Become Dangerously Obese” by Kim Severson and Meredith May; this award-winning report is reprinted in Chapter 11.

Personal and social dimensions of illness also can be areas for health writing in depth. Two highly lauded examples, each dealing with AIDS in a rural setting, are the newspaper series “AIDS in the Heartland” (Banaszynski and Pier 1987–88) and the book My Own Country: A Doctor’s Story (Verghese 1994). Another tour de force in this regard is the Pulitzer (and other) Prize-winning series “The Boy Behind the Mask” by Tom Hallman Jr. of The Oregonian; this series, which profiles a disfigured boy who undergoes surgery, has been posted at www.oregonlive.com/mask along with related materials. The series also has been expanded into a book (Hallman 2002).

Health writing in depth can include going beyond individual incidences of disease or injury to seek broader patterns and thus possible means of prevention. In one such case of reporter-as-epidemiologist, a correspondent obtained government records on snowmobile fatalities. Among the findings his analysis disclosed was a strong association with high blood alcohol levels (Imrie 1996).
II. Preparing the Piece

Investigative and depth reporting typically entail much time and effort. It is wise to think about whether a given project deserves the investment, or whether the resources would be better devoted to one or more other stories. Among aspects to consider are the importance of the problem or issue to public health, the potential of the project to enlighten the audience about its world, and the potential of the reporting to stimulate action that would benefit health. Factors affecting the likelihood that such reporting will influence health policy have been explored somewhat through case studies (Walsh-Childers 1994a). Among factors that seemed to contribute to one series’ success in spurring policy changes were agreement among experts regarding solutions, support by private citizen groups and public officials, the location of the newspaper in the capital city, widespread distribution of reprints, follow-up reporting on the issue, and publicity when the series won a Pulitzer Prize (Walsh-Childers 1994b).

The Feature Article Family

Just as what’s new and what’s wrong are only parts of the world of health, news reporting and investigative reporting are not all of health writing. Many aspects of the world of health are best conveyed through feature articles, which tend to be well suited for integrating information on a topic and showing how matters evolve.

This section deals with articles in the feature article family, among them, overview articles, narratives, and profiles. Although these types of feature are dealt with individually, it should be noted that many articles are hybrids.

Overview pieces acquaint an audience with a topic such as a given disease (or group of diseases), a diagnostic technique or treatment, or the functioning of a part of the body. A staple of magazines and newsletters, such pieces also appear in such forms as patient-education brochures, encyclopedia entries, and sidebars to news stories. In an overview article on a disease or other condition, key medical content to present typically includes the definition of the condition, the manifestations, the causative agent, the disease mechanism, the epidemiology of the condition (that is, its pattern of distribution within the population), means of diagnosis, means of treatment, prognosis, and prevention. In addition, historical, economic, ethical, and social perspectives can be worth providing, and items such as literary references can enrich the piece. Often, listing sources of further information also is worthwhile.