

that men are less knowledgeable than women about osteoporosis.

## INFORMATION ABOUT OSTEOPOROSIS CURRENTLY AVAILABLE TO THE PUBLIC

As noted earlier, the public receives information about osteoporosis from sources that include the mass media and commercial publishers; private organizations (i.e., the National Osteoporosis Foundation, other voluntary associations, health care organizations, dairy industry organizations, and pharmaceutical companies); and federal and state government agencies. The following sections describe the information typically available to the public from each of these sources.

### ■ Public Information About Osteoporosis Available from the Mass Media and Commercial Publishers

The mass media are an important source of public information about health. According to a study conducted in the late 1970s, the public ranks the mass media second only to physicians and dentists as a principal source of health information (138). The importance of the mass media as a source of health information has undoubtedly increased since then.

Commercial publishers are another source of information about health. Commercial publishers produce some of the health information disseminated by the mass media, as well as information used by hospitals, physicians, health educators, and others to inform patients and the public about health issues.

#### *Information Available from the Mass Media*

Television, radio, newspapers, and magazines provide health information. Every day, adults and children alike receive countless health messages from these sources.

The mass media often communicate health information in news reports. Some television and radio stations broadcast regular health information programs, and some carry talk shows and public service announcements that convey health

information. Many newspapers have health columns or weekly health sections. Some magazines focus only or primarily on health-related topics, and many other magazines include articles on health topics.

The mass media reach far more people than other sources of health information. A single television program or newspaper or magazine article can reach millions of people. Individuals who see, hear, or read a report about a particular method of prevention or treatment may decide to pursue the method on their own, or, if a prescription is needed, they may go to their physician to ask for the prescription. As noted earlier, one source cited in *ConsumerReports* estimated that one-third of prescriptions for new medications are now written at the request of the patient (16).

The information about osteoporosis available to the public through the mass media often comes from other sources. The media generally adapt information they receive, however, to emphasize aspects of the information they believe will interest their respective audiences.

Scientists and health care professionals are sometimes critical of the way the mass media adapt and communicate health information. Some scientists and others complain about inaccurate or misleading coverage of research findings. On the other hand, a survey of first-listed authors of articles published in 1989 in the *Journal of the American Medical Association* and the *New England Journal of Medicine* found that 86 percent of those whose research had been reported by the media believed the coverage was accurate (133).

Some scientists, health care professionals, and others also complain about headlines that overstate or oversimplify research findings and about curiosity-peaking captions and between-program commercials intended to entice people to watch, listen, or read (71). In contrast, many journalists believe that these techniques are effective in attracting and retaining people's attention and that although some people are distracted or offended by them, the techniques are useful in conveying health information to the public (15).

As noted earlier, the mass media often present information about research advances in osteopo-

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rosis in brief news reports. Because of time or space constraints, these reports often do not place the findings in context or make clear which individuals are likely to benefit from a particular method of prevention or treatment. As a result, people are unlikely to understand whether or how the information applies to them.

With respect to health information generally, some commentators have noted a bias against reporting “negative” studies, that is, studies that find no significant effect of the tested intervention. One study that compared the newspaper coverage of two articles from the same medical journal found that one article that described a positive effect was reported in many more newspapers and at greater length than another article that described the lack of an effect (50). In response to this finding, one journalist commented, “Selling a study that shows ‘no results’ to an editor who doesn’t understand science can sometimes be a tough task” (86). Another journalist commented:

To those of us in the news business, [the] finding that newspapers are biased against negative medical studies seems obvious and the reason for it quite simple. At any newspaper or magazine published for the profit of its owners, the first and foremost criterion for deciding whether to publish a story is whether it contains information that readers would like to know . . . Studies that find an effect usually are of more interest—and of more importance—to newspaper readers than studies that find no effect.

Most American newspapers strive to publish factual, accurate, and unbiased news stories, but . . . the newspaper editor who decides he has a responsibility to give his readers certain information, whether they want it or not, will see his readers turning elsewhere for news and he will soon discover he has no newspaper to be editor of(5).

Also with respect to health information generally, many commentators have noted a bias among researchers against submitting negative studies for publication (9,2 1,99). This bias and the media bias against reporting negative studies mean that the public is general] y more likely to hear that var-

ious methods of prevention and treatment are effective than that the methods are not effective. Both biases work to the advantage of pharmaceutical companies that do not want publicity for negative findings about the efficacy of their products. Although not specific to osteoporosis, these biases are likely to influence the kinds of information the public receives about osteoporosis as well as the information it receives about other diseases and conditions.

### Television

National network television reaches 98 percent of households, and cable television reaches 52 percent of households in the United States. Almost everyone watches television daily, and many people watch for many hours a day. On average, children and elderly people watch more television than other age groups; women watch more television than men; and some surveys show that minority group persons and those in lower socioeconomic groups watch more television than other persons (20, 123).

National network and local television news programs sometimes report the results of osteoporosis research. These news reports are generally brief, simple statements that last less than a minute. The scripts for television news reports are usually prepared by an in-house writer, but they may be based on information from a press conference, a press release, or a commercial news service. Pharmaceutical companies also submit information directly to television news offices which may or may not use the information in a news report.

Some local television stations have aired public service announcements about osteoporosis. Each year, the National Osteoporosis Foundation prepares an educational resource kit for National Osteoporosis Prevention Week, a week in May that is designated by Congress and the President as a time to focus on osteoporosis. The educational resource kit includes sample public service announcements and suggestions on how to cent’ince

local stations to air them during Prevention Week and throughout the year. According to a National Osteoporosis Foundation official, many local television stations broadcast the public service announcements (44).

In 1991, the U.S. Administration on Aging and the National Osteoporosis Foundation cosponsored the development of public service announcements narrated by Dr. Louis Sullivan, then-secretary of the U.S. Department of Health and Human Services. The public service announcements were sent to 250 television stations across the country: 71 of the stations aired at least one of the public service announcements during the summer of 1991; nine of these stations were in the "top 20" markets. An additional 60 stations reported that they were holding the public service announcements for future use (93).

Several national network news magazine programs and talk shows have broadcast information about osteoporosis. During the 1990 National Osteoporosis Prevention Week, for example, ABC's "Good Morning America" interviewed Dr. William Peck, then-president of the National Osteoporosis Foundation. During the interview, Dr. Peck suggested that people contact the National Osteoporosis Foundation for information about osteoporosis. As a result, the foundation received 25,000 letters from people asking for information about the disease (25).

The national television networks offer a few regular programs dedicated to health information. One such program is "Health Matters," a 30-minute health information series that was being broadcast weekly on stations in 20 cities in 1991. The series, which was produced and distributed by a commercial publisher of health news programs, included some information about osteoporosis (103).

In comparison with the national networks, cable television has a large selection of channels, many of which specialize in specific types of programming targeted to selected audiences. Two cable television channels—The Discovery Channel and the Lifetime Channel—specialize in health information programs. Some of the programs are intended for general audiences, and oth-

er programs are intended primarily for physicians, although lay persons also watch them.

"Your Health" is a series of half-hour health information programs for general audiences that was broadcast twice a day on the Discovery Channel in 1991. The series included several segments on osteoporosis, as well as segments on menopause and estrogen therapy (103). "Your Health" was produced by a commercial publisher of health news programs.

### Radio

American households have an average of eight radios, including kitchen, automobile, bedside, and portable radios (58). Nine out of 10 people say they listen regularly to the radio, for an average of two hours a day. It is unclear, however, how many people actually pay attention to radio messages since radios are frequently used as half-heard background during other activities (97).

Radio most often conveys osteoporosis information as news reports or discussions on health information programs. The news reports are generally brief. The scripts for radio news reports may be prepared by an in-house writer or a commercial news service and may be based on information from a press conference, press release, interview, or other source.

OTA is aware of several health information programs that have discussed osteoporosis. One example is a program hosted by Dr. Dean Eden and syndicated to radio stations nationwide. A second example is a program hosted by Dr. Gabe Mirkin on WWRC-AM in Washington, DC.

### Newspapers

About 62 million people read one or more of the 1,600 newspapers published daily in the United States (117). Men and women over age 50 are most likely to read a newspaper regularly. Married women under age 30 with children and women over age 30 who are single parents are least likely to read a newspaper (42).

Newspapers inform their readers about osteoporosis in news reports, health columns, and weekly health sections. Newspaper reports about osteoporosis are likely to be more detailed than

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those presented on television or radio, and they provide “tangible” information that can be read repeatedly.

Newspapers throughout the country published close to 1,000 news reports about osteoporosis in 1990 (115). Newspaper journalists get information about osteoporosis from press conferences, press releases, interviews, and other sources.

Big newspapers often have specialized science writers and a budget for research and investigative reporting about health issues. Small newspapers, which constitute the majority of newspapers in the United States, have few specialists and often rely on the wire services (113).

As noted earlier, on July 12, 1990, almost 400 newspapers nationwide reported that a study in the *New England Journal of Medicine* found etidronate effective for osteoporosis (see box 2). The newspapers used versions of the news story distributed by ten wire services. Most newspapers used one of two versions of the story written by an Associated Press science writer.

In February 1993, Ann Landers' column, which is syndicated nationally and in Canada and Europe, discussed osteoporosis and gave the address of the National Osteoporosis Foundation. The column generated 100,000 letters to the foundation from people asking for information about the disease (96).

### Magazines

Some 10,000 different magazines are published in the United States (58), and three out of 10 Americans say they read magazines daily (97). Magazines are published less frequently than newspapers, so readers do not get news as quickly. Magazines that publish health information usually take about three months to publish a news story after it has been distributed to the media (15). The longer lead time allows journalists to gather and present more detailed information, if they so choose.

To find out what is being said about osteoporosis in popular consumer magazines, OTA contracted for a survey of such magazines. From April 1990 through March 1991, OTA's contractor reviewed the contents of 62 magazines to identify osteoporosis-related articles (15). All issues of 51 magazines, as well as some issues of 11 additional magazines, were reviewed.

Over the one-year period of the survey, 26 of the 62 magazines had no osteoporosis-related articles (15). Table A-1 in appendix A lists these magazines.

The remaining 36 magazines had one or more osteoporosis-related articles. Table A-2 in appendix A lists these magazines with the month and title of each relevant article and the category and subcategory of the article's content. A total of 97 articles are listed. OTA's contractor used broad criteria for identifying osteoporosis-related articles, and a few articles about vitamin D, exercise, and calcium are included even though they did not specifically mention osteoporosis (15).

OTA's contractor regularly surveys consumer magazines for articles in the broad categories of nutrition, food, food marketing, and health policy. The 97 osteoporosis-related articles identified over the one-year period of the survey conducted for OTA constituted 3 percent of all articles identified by the contractor in this time period in these broad categories (15).

Of the 36 magazines that had one or more osteoporosis-related articles, the magazine *Longevity* had the largest number—17, followed by *Prevention* with nine osteoporosis-related articles, *New Woman* with six articles, *In Health* and *Woman's Day* with five articles each, and *Self* with four articles. The other magazines listed in table A-2 had three or fewer osteoporosis-related articles in the one-year period of the survey (15).<sup>8</sup>

Magazines are generally categorized in terms of their content and/or target audience. The 11

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<sup>8</sup>News magazines were not included in the survey. These magazines have regular health columns, and OTA is aware of some osteoporosis-related articles (see, for example, *Newsweek*, May 14, 1990 [87]).

magazines in the health category had the most extensive coverage of osteoporosis, with a total of 47 articles or an average of 4.3 osteoporosis-related articles per magazine. Magazines that target the 20- to 45-year-old audience had an average of 1.7 osteoporosis-related articles per magazine. Magazines that target women over age 40 had an average of 1.3 osteoporosis-related articles per magazine. Relatively little attention was given to osteoporosis in magazines targeted primarily to men. African Americans, older people, parents, or teenagers. *Modern Maturity*, a magazine targeted to people over age 50, had no osteoporosis-related articles, even though many people in this age group have or are at risk of the disease (15).

About half of the 97 articles identified by OTA's contractor were longer than one page. These articles are marked with an asterisk in table A-2. Longer articles usually convey more information and detail. On the other hand, journalists generally agree that shorter articles are read by more people. Thus, consumers may have read and may remember more about osteoporosis from the shorter articles (15).

Since magazine editors often weave several topics into a single article, content analysis is difficult. Clearly, however, calcium was the most popular osteoporosis-related topic in the one-year period of the survey. Twenty of the 97 osteoporosis-related articles discussed sources of calcium. In contrast to a few years earlier, the relative efficacy of dietary calcium versus calcium supplements was not a major topic. Instead, several of the articles discussed the issue of balancing one's need for calcium against increased health risks due to the fat, cholesterol, and caloric content of dairy products (15).

Eight articles discussed factors that affect calcium absorption, including the phosphate in sodas, the oxalate in certain green leafy vegetables, and the excessive use of antacids. One article noted that absorption of calcium supplements is improved by taking a smaller dose several times a day (15).

The importance of calcium intake to achieve peak bone mass was discussed in one article targeted to college students and in a research report

in *Prevention*. Peak bone mass was also mentioned in two of the other articles identified in the survey (15).

Exercise was the second most popular osteoporosis-related topic in the period of the study. Eleven of the 97 articles were about exercise. Four of the 11 articles focused on the negative effects of excessive exercise, i.e., amenorrhea and bone loss. Many articles about exercise that appeared in the 62 magazines during the period of the survey did not address osteoporosis (15).

Estrogen therapy was the topic of five of the 97 articles. The articles discuss the role of estrogen therapy in decreasing one's risk of osteoporosis and heart disease, as well as its possible role in increasing the risk of certain cancers. The other medications discussed in one or more of the 97 articles were etidronate, calcitonin, sodium fluoride, progesterone, and human growth hormone (15).

Four articles discussed the use of electricity to stimulate bone healing. Two of these articles suggested that electricity may eventually be used to treat osteoporosis (15).

Osteoporosis in men was discussed in three articles. *Runner's World* reported research done in Portland, Oregon, showing bone loss in 30- to 87-year-old men: it recommended regular exercise and calcium-rich foods. Two other articles discussed a study of osteoporosis in men age 21 to 79 and recommended calcium (15).

During the time of the survey, many consumer magazines published articles about the lack of research on women health. Osteoporosis was mentioned in two of these articles. *Self* published a chart showing how the National Institutes of Health budget is allocated for 10 research areas; osteoporosis was ninth on the list (15).

Very few articles gave any source for additional information about osteoporosis. *Self* published toll-free telephone numbers for health information, but osteoporosis was not among the diseases for which a number was given (15).

Some of the articles identified by OTA's contractor stressed self-help, whereas other articles recommended that people see a physician before instituting a preventive or treatment strategy. Ar-