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COVERAGE BY THE NEWS MEDIA OF THE BENEFITS AND RISKS OF MEDICATIONS


ABSTRACT

Background The news media are an important source of information about new medical treatments, but there is concern that some coverage may be inaccurate and overly enthusiastic.

Methods We studied coverage by U.S. news media of the benefits and risks of three medications that are used to prevent major diseases. The medications were pravastatin, a cholesterol-lowering drug for the prevention of cardiovascular disease; alendronate, a bisphosphonate for the treatment and prevention of osteoporosis; and aspirin, which is used for the prevention of cardiovascular disease. We analyzed a systematic probability sample of 180 newspaper articles (80 for each drug) and 27 television reports that appeared between 1994 and 1998.

Results Of the 207 stories, 83 (40 percent) did not report benefits quantitatively. Of the 124 that did, 103 (83 percent) reported relative benefits only, 3 (2 percent) absolute benefits only, and 18 (15 percent) both absolute and relative benefits. Of the 83 stories comparing absolute and relative risks, 3 (2 percent absolute and 7 percent relative) were not accurate in their relative reductions in risk.

Conclusions News-media stories about medications may include inaccurate or incomplete information about the benefits, risks, and costs of the drugs as well as the financial ties between study groups or experts and pharmaceutical manufacturers. (N Engl J Med 2000;342:1645-50.)

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The news media are an important source of information about health and medical therapies, and there is widespread interest in the quality of reporting. Previous studies have identified inaccurate coverage of published scientific papers, overstatement of adverse effects or risks, and evidence of sensationalism. The media can also have a positive public health role, as they did in communicating simple warnings about the connection between Reye’s syndrome and the use of aspirin in children.

Physicians, consumers, and third-party payers may be more enthusiastic about long-term preventive treatments when benefits are stated as relative, rather than absolute, reductions in the risk of adverse events. Medical-journal editors have said that reporting only relative reductions in risk is usually inadequate in scientific articles and have urged the news media to consider the importance of discussing both absolute and relative risks. For example, a story reporting that in patients with myocardial infarction, a new drug reduces the mortality rate at two years from 10 percent to 7 percent may help patients weigh both the 3 percent absolute and the 30 percent relative reduction in risk against the costs of the drug and its side effects.

Other issues are whether news stories cover potential adverse effects as well as benefits and whether stories report on the ties of cited experts or study groups to industry. Because evidence suggests that commercial funding may sometimes be associated with study outcomes that are more favorable to sponsors’ products, disclosure of such funding in media stories, as is done in a number of major peer-reviewed journals, may be desirable.

We studied news stories about three medications that are used for the prevention of major diseases. We examined whether benefits were stated in relative or absolute terms, whether potential harm and costs were discussed, and whether ties of cited experts or study groups to industry were included.

METHODS

Study Drugs

We studied coverage of three medications with important preventive benefits and potentially large markets that have attracted considerable media attention: two relatively new patented drugs (pravastatin [Pravachol, Bristol-Myers Squibb], a cholesterol-low-
The New England Journal of Medicine

June 1, 2000

1646

Effect of Intermittent Aspirin on the Risk of Fracture

by Stuart P. Weitzman, MD; Brian H. Jackson, PhD; and Mary H. Krumholz, MD

In the New England Journal of Medicine

The characteristics of the stories are described in Table 1. Two hundred seven stories released by 40 media outlets (36 newspapers and 4 television networks) were included. Of all stories, 27 (13 percent) were reported by the television networks, 53 (26 percent) by leading national newspapers, and 127 (61 percent) by other newspapers. The stories were well distributed with respect to drugs, years, and regions.

Quantification of Benefits

Eighty-three of the 207 stories (40 percent) did not report benefits quantitatively (Table 2). Of the 124 stories that quantified benefits, 103 (83 percent) reported only relative benefits, 18 (15 percent) reported both absolute and relative benefits, and 3 (2 percent) reported only absolute benefits. All three stories reporting only absolute benefits were about aspirin.

Coverage of Adverse Effects and Costs

Of the 207 stories, 98 (47 percent) mentioned potential harm, and only 63 (30 percent) mentioned...
the costs of therapy (Table 2). The likelihood that a story would mention possible adverse effects or costs was not affected by whether it appeared on television, in a leading national newspaper, or in another newspaper ($P=0.93$ for adverse effects and $P=0.51$ for costs) (Table 3).

**Coverage of Ties with Industry**

Of the 170 stories citing an expert or a scientific study, 85 (50 percent) cited at least one with an industrial tie disclosed in the scientific literature (Table 2); in 33 of these 85 stories (39 percent), the tie with industry was mentioned. The majority of these stories cited both experts and study groups with ties.

**An Example**

An example may help to illustrate our findings. On the evening of May 22, 1996, ABC, NBC, and CBS television news broadcast stories about alendronate, sparked by a conference at which the results of an important randomized, controlled trial were reported. All three stories gave only the relative reduction in risk, stating that the new osteoporosis drug could reduce the incidence of hip fractures by 50 percent, or one half. The CBS reporter described these results as “almost miraculous.”

None of the stories cited actual event rates in treated patients (1 percent) and untreated patients (2 percent); only one mentioned gastrointestinal distress as a potential adverse effect; and no story disclosed that the study investigator being interviewed had received funding for the study from the drug manufacturer.

**DISCUSSION**

Our evaluation of 207 newspaper and television stories on three drugs used for disease prevention showed substantial shortcomings in journalistic practices. Of stories quantifying the benefits of medications, only 15 percent presented both relative and absolute benefits. Eighty-three percent presented in-
formation on benefits in relative terms only — an approach that has been shown to increase the enthusiasm of doctors and patients for long-term preventive treatments and that could be viewed as potentially misleading.18,20,38

In general, giving only the absolute or only the relative benefits does not tell the full story; it is more informative if both researchers and the media make data available in both absolute and relative terms. For individual decisions about long-term preventive therapies, consumers need information to weigh the probability of benefit and harm; in such cases it seems

### Table 2. Quantification of Benefits, Coverage of Adverse Effects and Costs, and Disclosure of Ties with Industry in Media Stories, According to Drug.*

<table>
<thead>
<tr>
<th>Characteristic of Story</th>
<th>Total</th>
<th>ALENDRONATE</th>
<th>PRAVASTATIN</th>
<th>ASPRIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (no./total no.)</td>
<td>95% CI</td>
<td>% (no./total no.)</td>
<td>95% CI</td>
</tr>
<tr>
<td>Did not quantify benefits</td>
<td>40 (83/207)</td>
<td>33–47</td>
<td>57 (40/70)</td>
<td>45–69</td>
</tr>
<tr>
<td>Quantified benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only relative benefits</td>
<td>83 (103/124)</td>
<td>75–89</td>
<td>87 (26/30)</td>
<td>69–96</td>
</tr>
<tr>
<td>Only absolute benefits</td>
<td>2 (3/124)</td>
<td>1–7</td>
<td>0 (0/30)</td>
<td>0–12†</td>
</tr>
<tr>
<td>Adverse effects and costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adverse effects mentioned</td>
<td>47 (98/207)</td>
<td>40–54</td>
<td>53 (37/70)</td>
<td>41–65</td>
</tr>
<tr>
<td>Costs mentioned</td>
<td>30 (63/207)</td>
<td>24–37</td>
<td>21 (15/70)</td>
<td>12–33</td>
</tr>
<tr>
<td>Ties with industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cited expert or study</td>
<td>82 (170/207)</td>
<td>76–87</td>
<td>83 (58/70)</td>
<td>72–91</td>
</tr>
<tr>
<td>Cited expert or study with tie‡</td>
<td>50 (85/170)</td>
<td>42–58</td>
<td>71 (41/58)</td>
<td>57–82</td>
</tr>
<tr>
<td>Disclosed tie§</td>
<td>39 (33/85)</td>
<td>28–50</td>
<td>32 (13/41)</td>
<td>18–48</td>
</tr>
</tbody>
</table>

*CI denotes confidence interval.
†The one-sided 97.5 percent confidence interval is given because the percentage is zero.
‡The story quoted at least one expert or study-group member with a tie, as determined by a search of the published scientific literature.
§The tie was also disclosed in the media story.

### Table 3. Quantification of Benefits, Coverage of Adverse Effects and Costs, and Disclosure of Ties with Industry in Media Stories, According to Type of Medium.*

<table>
<thead>
<tr>
<th>Characteristic of Story</th>
<th>Television</th>
<th>Leading National Newspapers</th>
<th>Other Newspapers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (no./total no.)</td>
<td>95% CI</td>
<td>% (no./total no.)</td>
</tr>
<tr>
<td>Did not quantify benefits</td>
<td>37 (10/27)</td>
<td>19–58</td>
<td>36 (19/53)</td>
</tr>
<tr>
<td>Quantified benefits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only relative benefits</td>
<td>88 (15/17)</td>
<td>64–98</td>
<td>74 (25/34)</td>
</tr>
<tr>
<td>Only absolute benefits</td>
<td>0 (0/17)</td>
<td>0–20†</td>
<td>0 (0/34)</td>
</tr>
<tr>
<td>Relative and absolute benefits</td>
<td>12 (2/17)</td>
<td>1–36</td>
<td>26 (9/34)</td>
</tr>
<tr>
<td>Adverse effects and costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adverse effects mentioned</td>
<td>48 (13/27)</td>
<td>29–68</td>
<td>45 (24/53)</td>
</tr>
<tr>
<td>Costs mentioned</td>
<td>22 (6/27)</td>
<td>9–42</td>
<td>32 (17/53)</td>
</tr>
<tr>
<td>Ties with industry (excluding aspirin)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cited expert or study</td>
<td>85 (17/20)</td>
<td>62–97</td>
<td>89 (34/38)</td>
</tr>
<tr>
<td>Cited expert or study with tie‡</td>
<td>82 (14/17)</td>
<td>57–96</td>
<td>79 (27/34)</td>
</tr>
<tr>
<td>Disclosed tie§</td>
<td>0 (0/14)</td>
<td>0–23†</td>
<td>48 (13/27)</td>
</tr>
</tbody>
</table>

*CI denotes confidence interval.
†The one-sided 97.5 percent confidence interval is given because the percentage is zero.
‡The story quoted at least one expert or study-group member with a tie, as determined by a search of the published scientific literature.
§The tie was also disclosed in the media story.
¶The 95 percent confidence intervals were adjusted for clustering by a variance-inflation factor.32
desirable for media stories to include actual event rates with and without treatment.

In the case of public health interventions, such as vaccination, the use of seat belts, or prevention of Reyse's syndrome by avoidance of aspirin use, it is difficult to impart effective messages by reporting only on absolute reductions in risk, which would tend to minimize important population-wide benefits. In such cases, media reports might emphasize the relative benefits.

Fifty-three percent of the stories in our study did not include information about potential harms, which is a matter for concern, given the study drugs' associations with a range of adverse effects.29,31 The finding that 70 percent of stories made no mention of cost is also important, since cost effectiveness is increasingly considered an important factor in medical advances. For the two prescription drugs, a majority of the stories citing a study group or an expert with a link to the drug manufacturer failed to mention that link, despite the current emphasis on disclosure of such links in the scientific literature.29

There are several important limitations to the generalizability of our findings. First, these study drugs are not a representative sample. All three can be used as preventive therapies, for which benefits are readily framed in relative or absolute terms. For other therapies and conditions (e.g., Alzheimer's disease), more complex approaches would be required for reliable measurement of media coverage of benefits.40

Second, the coverage of the three study drugs was overwhelmingly positive and focused mainly on benefits, thus limiting the relevance of our findings to negative coverage, in which the risk of harm becomes the focus. For example, in 1995 several media stories about calcium-channel blockers emphasized the increased relative risk of heart attack among patients treated with these drugs, rather than the much smaller change in the absolute risk.41,42

Third, our results probably underestimate the extent of ties with industry, because we relied on disclosure in the scientific literature, where such ties have been found to be underreported.49 Finally, we analyzed only the textual content of news stories, omitting the important features of placement, illustration, and length.

The appropriate role of the media in reporting on medical advances requires more focused attention from both researchers and the media. Some may see the role of media stories as primarily to alert the public to medical advances, which can be further investigated by consumers together with their physicians. Others would favor more complete media reporting of salient aspects of scientific studies, including disclosure of ties with industry. An effective educational program or resource kit for journalists and editors, focusing on the reporting and interpretation of clinical findings, might be timely.3,11,43

Rather than prescribing or proscribing specific behavior on the part of the media, we believe it may be valuable to articulate basic principles of high-quality medical reporting, in line with an evidence-based approach to medicine. When reporting on new forms of technology or new treatments, journalists and editors might consider the evidence available in relation to the following questions: What is the magnitude of the benefit (e.g., both absolute and relative), and what groups of patients can be helped? What are the associated risks and costs? What are the possible links between the sources of information (studies or experts) and those (such as the manufacturers) who promote the therapy? Although not exhaustive, these questions could help inform attempts to improve the quality of medical reporting.

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