# Reporting research in medical journals and newspapers

Vikki Entwistle

**Newspapers are important sources of information about medical advances for many lay people and can influence those working in the health service. Medical journalists on newspapers routinely use general medical journals to obtain information on research. The *Lancet* and *BMJ* are both examined carefully by broadsheet journalists in Britain each week. These papers published an average of 1·25 stories from these journals every Friday. The stories focused on serious diseases, topical health problems, and new treatments rather than social problems. The newspaper stories were based on the full research article and not the journals' press releases, although the press releases were valued as early information. Journalists relied heavily on the peer review processes of the journals in ensuring accuracy.**

National newspapers often carry stories about the latest findings of medical research, many of which are based on articles published in prestigious general medical journals. Although the news media are an important source of information for many lay people, and may influence decision makers and health care professionals, little attention has been paid to the processes of lay reporting of medical research.

To explore how research is translated into news I analysed the content of medical stories in four broadsheet newspapers and interviewed a sample of 10 medical journalists: the health correspondents for the *Daily Telegraph*, *Guardian*, *Independent Observer*, and *Times* newspapers, three health page editors, a freelance journalist, and a medical columnist. The semi-structured interviews took place between November 1991 and June 1992 and lasted 45 to 120 minutes. Outline interview schedules were used flexibly to avoid constraining responses. Broad areas of questioning included how journalists saw their role and that of health news; sources of ideas and information; factors affecting the subject matter of their stories; and working relationships with colleagues, editors, and sources.

News reports based on articles from either the *BMJ* or the *Lancet* and published in Friday issues (6 September to 25 October 1991 and 8 May to 10 July 1992) of the *Daily Telegraph*, *Guardian*, *Independent*, and *Times* newspapers were identified, analysed, and compared with the original journal articles and with press releases issued by the journals. For each journal article, bibliographic details, the section of the journal in which it was published, the type of study it reported, whether it was included on a journal press release, the countries to which authors were affiliated, and details of resulting newspaper articles were recorded.

**Department of Information Science, City University, London EC1V 0HB**
Vikki Entwistle, *research student*

Correspondence to:
NHS Centre for Reviews and Dissemination, University of York, York YO1 5DD.

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## Journalists' exposure to journal articles

The journalists interviewed said that at least one specialist journalist on each British broadsheet newspaper routinely scans every issue of the *BMJ* and *Lancet* for potential news stories and that they expect to find at least one story from these journals each week. Other medical journals (including general practice magazines) are scanned and used less regularly. Journalists tend to look down contents pages for "key" diseases and eminent authors because they often find the titles of articles incomprehensible. Key diseases included big killers such as cancer and currently topical diseases such as AIDS. The *BMJ* and *Lancet* usually reach the news rooms by Thursday lunchtime, and articles for Friday editions must be submitted by the evening so quick decisions are needed. Major news stories from the *BMJ* and *Lancet* appear on Fridays because the journals give journalists advance information but put an embargo on its publication until Friday. The embargo is intended to allow journalists time to prepare stories without having to race to beat their rivals into print. Despite time pressures, most journalists claim to go through the *BMJ* and *Lancet* from cover to cover, reading the abstract and conclusions of each article for a first impression of its potential for a story. Close attention is paid to letters pages, which are thought likely sources of news articles because they often cover topical subjects about which people feel strongly and are less likely to be reported by all the newspapers.

Both the *BMJ* and the *Lancet* issue press releases each week alerting journalists to articles they think newsworthy. At the time of the interviews, press releases from the *Lancet* summarised several articles in lay English and provided details for contacting the author. Journalists usually received these on Thursdays. The *BMJ* circulated briefer highlights of a few articles together with authors' details earlier in the week and encouraged journalists to request the full text of those which interested them. The journalists considered the press releases useful as either simple introductions to articles (*Lancet*), appetite whetters (*BMJ*), or indicators of what the journals considered important. However, they would not rely on press releases alone, regarding access to the full text of the journal as essential both to ensure they did not miss potential stories and to provide them with adequate information for a news article.

Research institutions and funding organisations also issue press releases about particular journal articles. The journalists generally appreciated those which concisely and clearly explained what the news was and why it was important. They were reluctant to wade through waffle to find a buried story and suggested that the best press releases were written by press officers with journalistic experience and a good feel for what journalists need. Journalists were wary of being manipulated, particularly by commercial interests, and preferred to come across a story for themselves—for example, while scanning journals. However, media relations efforts can influence selection of stories by bringing information to journalists attention, presenting it as newsworthy, and making a news article easier to write.

## Content of medical news stories

I identified 90 articles in Friday newspapers based on 57 *BMJ* or *Lancet* articles over 18 weeks (an average of 1·25 news articles in each newspaper each Friday, with a range of 0-4). Journalists sometimes reported more than one journal article in one news piece. Five *BMJ* or *Lancet* articles were reported on a Friday by all four newspapers, four by three newspapers, and 16 by two.

The table shows the proportions of *BMJ* and *Lancet* articles from different sections that were reported as news articles. In total, five letters, five editorials, and 47 research or review papers were used in six, seven, and 87 news articles respectively. Only a small proportion of letters were reported, and they were less likely than research papers to be reported by more than one newspaper. Relatively few professional update type articles were reported.

*Proportion of articles published by BMJ and Lancet reported in British broadsheet newspapers on Friday of publication*

| Journal section | No of articles | No (%) reported by at least one newspaper |
|---|---|---|
| *BMJ* | | |
| Papers | 119 | 22 (18) |
| General practice | 28 | 0 |
| Education and debate | 84 | 1 (1) |
| Audit in practice | 4 | 0 |
| Editorials | 99 | 3 (3) |
| Letters* | 390 | 3 (1) |
| *Lancet* | | |
| Original articles | 72 | 13 (18) |
| Short reports | 35 | 1 (3) |
| Clinical practice | 27 | 3 (11) |
| Public health | 7 | 2 (29) |
| Other subject headings | 39 | 5 (13) |
| Editorial | 86 | 2 (2) |
| Letters* | 564 | 2 (0·4) |

*The number of letters refers to the number of headings under which letters were published and so the proportion reported by newspapers is slightly overestimated.

Most (81%) articles reported had appeared in a journal press release. These accounted for 77 (86%) of the newspaper articles. At least three of the reported journal articles which had not appeared in journal press releases had been the subject of press releases issued by research funding bodies.

The journalists stressed that medically worthy information is not necessarily newsworthy. They said they were more likely to cover currently topical subjects; common and fatal diseases; rare but interesting or quirky diseases; those with a sexual connection; new or improved treatments; and controversial subject matter or results. They expressed a preference for research papers with British authors. The results of the content analysis echoed these comments. Box 1 lists the five most widely reported subjects (human insulin was topical and controversial at the time, and legal wrangles were being reported in some newspapers).

Box 2 gives the journal articles reported in newspapers but not put in the press release issued by the source journal. Journals seemed more reluctant to include case reports and material from editorials and letters in their press releases than newspapers were to report them. The journals' press releases were dominated by summaries of research papers. One notable subset of papers not picked up by the newspapers included nine summaries of *BMJ* general practice articles looking at topics such as the underrecognition of visual problems in elderly people; the use of questionnaires to help general practitioners target asthma care; the possibility that the British medical system discriminated against Asian doctors; and the effects of an announcement that a housing estate would be demolished on the number of consultations residents made with their general practitioners. These topics did not involve high technology medicine and related more to social problems than biomedical problems, which are more commonly covered by the media. The content analysis confirmed journalists' preference for British authors. The only reported articles without a British author covered topics of interest to British readers. Cholera transmission in Africa, pneumonia in Nepalese children, and Venezuelan haemorrhagic fever were all ignored.

**Box 1—Subjects reported by all four newspapers**

Mortality from tobacco smoking in developed countries
New treatment for heart attack (intravenous magnesium sulphate)
Problems of transferring diabetic patients from animal to human insulin
Link between impaired fetal and infant growth and development of insulin dependent diabetes
Success rate of assisted conception techniques

### Development of news stories

The journalists would often write news reports from the full text of a journal article, but shortage of time discouraged them from seeking extra information. Sometimes, however, they contacted authors to check they had understood the article, to "humanise" the research by including quotes, and to obtain stronger statements; they hoped authors would be less cautious over the telephone than they were in print. They attended news conferences for similar reasons. Many of the journalists were critical of the impersonal and inaccessible style of research papers.

It is a basic rule of journalism to give two sides to every story, but the journalists did not always feel obliged to do so for peer reviewed articles in respected journals. Although they would usually report defence statements if a journal article claimed that a product was harmful or a service ineffective and reaction comments on controversial or sensitive research, they would not routinely seek an opposing view from another researcher or practitioner. They were concerned that potential sources of such comment would often not have seen the article in question, might be prejudiced by rivalry, and might weaken a story by questioning the claims made. Summarising a research paper in a few hundred words is hard enough, but having to summarise comments on it as well, with no extra word allowance, is even harder.

Journalists preferred to quote recognised leaders in the field and trusted contacts who had previously supplied lively comments. Many approached medical research charity press offices to identify suitable experts for them, giving these organisations a chance to shape media reporting.

The journalists were keen that their articles should not give rise to undue optimism (for example, for a new cure) or pessimism (for example, about an environmental health hazard) among their readers. They would therefore consider their choice of language

**Box 2—Articles not included in journals' press releases but reported in newspapers**

Possible case of transmission of *Mycobacterium leprae* in Britain
Case report of infection with HIV after fellatio (letter)
Case of HIV infection after heterosexual sex in Africa (letter)
Editorial on long term outcomes of coronary artery bypass grafting
Editorial on role of General Medical Council
Finding of a genetic link for insulin dependent diabetes
Finding of genetic link for Parkinson's disease
Association between serum concentrations of vitamins A and E and outcome of stroke
High incidence of oesophageal cancer around Scottish whisky distilleries
Discussion of non-paternity rates
Condemnation of hospital which advertised baby milk (letter)


*Medical stories that were picked up by newspapers*

(several claimed never to use the word breakthrough) and were to some extent less trusting of research on small samples than of major studies. They were aware, however, that if they were too cautious their stories would not get printed at all, and if they could find a recognised expert to speak with enthusiasm about the latest results his or her comments were considered fair game.

### Constraints of daily news reporting

Newspapers have limited space, and, since there are no reserved slots on news pages, articles about medicine compete with other stories. The competition is judged by editors, whose decisions reflect established news values such as the size and impact of an event, its relevance to readers, and strength of human interest.[1,2] Stories that are not considered newsworthy are not printed. News journalists working to tight deadlines on daily newspapers said they had little time to identify and develop news articles from the wide range of potential stories available to them, so they value conveniently packaged information.

They were also constrained by their inability to evaluate the quality of evidence and argument presented in medical journals. None of the correspondents interviewed was medically trained and none had sophisticated knowledge about research methods. Although they routinely translated medical jargon into readable news, they were less able to judge and report the credibility or importance of research. They relied heavily on journal peer review processes and the opinions of medical experts to guide them in the selection and development of stories. The journalists surveyed were keen to get stories right and had a sense of responsibility about reporting medical research. Their values tended to converge with those of the medical journals, and they acknowledged the tension between writing responsibly about medical research and producing articles considered newsworthy by news editors. Faced with a strict word limit, journalists said that they found it impossible to include all the caveats and qualifying statements that are often found in research reports without killing their story.

### Importance of peer review

General medical journals are a routine part of a medical journalists' "beat." They are recognised as authoritative, the information in them is regarded as new, and their publication dates make the stories current. Peer review gives research papers an independent stamp of approval, and the journalists saw no need to check the information published in peer reviewed journals. They regarded the process as a quality filter and safeguard and reported news from journal articles safe in the knowledge that if their story subsequently turned out to be flawed the blame would fall on the experts, the editors, and the referees and not on them.

Medical and scientific communities encourage journalists' reliance on peer reviewed articles. Peer opinion and journal policies discourage authors from discussing their work with journalists until it has appeared in academically and professionally acceptable print (the journalists were acutely aware of this). They depended on medical journals as regular sources and cooperated with embargo arrangements because not doing so would risk no longer being given advance copies of material.

The main arguments for ensuring that research is peer reviewed before it is published are that the public should be protected from the dissemination of flawed research and exaggerated claims[3] and that doctors should have access to medical research findings before their patients.[4] Journal peer review is widely believed to improve the quality of manuscripts before publication[5] but is not infallible. It is currently the subject of much research.[6] Peer review is not intended to function as a censor for the public interest.

### Conclusions

The way information flows from medical journals to newspapers influences the balance of medical topics reported, the quality of the research reported (and its appropriateness for public attention), and the quality of news reporting. Medical correspondents on quality newspapers rely quite heavily on a few journals as sources of medical research news, so the publication policies of these journals largely determine the pool of information from which stories are selected. (Media relations efforts also contribute to this.) Research published in specialist journals is less likely to come to journalists' attention and is less often used as a basis for news reports.[7] Journal publication bias in favour of positive results is less likely to affect the balance of stories that the public receives because lay journalists apply similar biases themselves.[8] Whatever topics the journalists are presented with, they will select stories in accordance with news values which are shaped primarily by media and political agendas. Medicine in the media tends to focus on hospital based medicine and pay scant attention to social causes of ill health.[9,10]

Concern about the quality of news coverage is at least partly rooted in concern about the effect it is likely to have. Media reports may increase the attention paid to particular projects by research communities,[11] but the effect they have on the opinions and behaviour of practitioners, decision makers, or the public is uncertain. It is not known to what extent lay audiences appreciate that single journal articles are often not definitive and rarely supply enough evidence to justify a change of behaviour. Until research provides information about the ways in which audiences understand and are affected by news reports of medical research we cannot say what kind of news coverage is in the best public interest, and recommendations for changes in the behaviour of journal decision makers, media relations staff, and journalists as these affect news reports of medical research will be based only on opinion and personal judgment.

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# What constitutes good prescribing?

Nick Barber

**Drugs are the mainstay of medical treatment, yet there are few reports on what constitutes "good prescribing." What is more, the existing guidance tends to imply that right answers exist, rather than recognising the complex trade offs that have to be made between conflicting aims. This paper proposes four aims that a prescriber should try to achieve, both on first prescribing a drug and on subsequently monitoring it. They are: to maximise effectiveness, minimise risks, minimise costs, and respect the patient's choices. This model of good prescribing brings together the traditional balancing of risks and benefits with the need to reduce costs and the right of the patient to make choices in treatment. The four aims are shown as a diagram plotting their commonest conflicts, which may be used as an aid to discussion and decision making.**

In 1992 Britain spent £3·3bn on drugs and associated services, yet surprisingly little has been published on what constitutes good prescribing. The most common definition is from a far sighted paper by Parish in 1973—that it should be "appropriate, safe, effective and economic."[1] However, drugs, the NHS, and society have moved on since then, and my own experiences have led me to question whether this definition is still appropriate.

The stimulus came when I was chief pharmacist in a hospital and a doctor asked whether I would supply sleeping tablets that were on the NHS blacklist for a dying man. The patient had no family and had come into hospital to receive care in his last few days of life. He had been using the sleeping tablets for more than 10 years, buying them on private prescriptions because he thought they were better than any NHS alternatives. The question was considered against the definition of Parish. According to these criteria, temazepam was an equal or better drug than the one he was taking—appropriate, equally safe, equally effective, and more economic (temazepam was cheaper and was available on the ward). The patient was duly prescribed temazepam and, as expected, died a few days later. Though the decision was correct in the face of the criteria used, it felt wrong. I am now convinced that it was wrong and some years after the event published my misgivings.[2]

## Need for new definition

Parish's definition seems no longer to stand up to the complexities of prescribing today. "Appropriate" implies that the treatment should suit the patient, but possibly because of the ambiguity of this term it seems to have been dropped from more recent definitions. "Safe" and "effective" imply achieving absolutes and are not sensitive enough to deal with the shades of difference that exist between drugs today. "Economic" is no longer sufficient; now that a range of techniques is being applied to the economic appraisal of drugs the term needs clarification. The whole definition suggests that good prescribing can be achieved simply by meeting the criteria and does not address the complex trade offs that affect practice.

Reports on the quality of prescribing were included in Bradley's review of decision making and prescribing patterns.[3] In those papers quality was implicitly assessed against the biomedical model, which sees disease as a physical disturbance that may be corrected by drugs. The authors were mostly academic clinical pharmacologists and based their work on "rational" prescribing, balancing evidence on the most effective way to treat a condition with the associated risks of drug treatments. Though this is an essential part of good prescribing, it is too narrow—for example, it sees the patient as a condition rather than as a person.

Rather than define what good prescribing is, I would define what a prescriber should be trying to achieve, both at the time of prescribing and in monitoring treatment thereafter. The prescriber should have four aims: to maximise effectiveness; to minimise risks; to minimise costs; to respect the patient's choices.

### MAXIMISING EFFECTIVENESS

There is little doubt that maximising effectiveness should be an aim of good prescribing. Usually it is achieved by pharmacological manipulation of the body to improve or remove a condition. The definition of effect usually comes from the biomedical model of disease—for example, it often uses some objective, numerical measurement to assess effect, such as lowering diastolic blood pressure below a certain point. The aim is to achieve this as quickly and completely as possible.

### MINIMISING RISKS

Safety is a level of risk that is acceptable to a culture, context, or individual. Because of the increasing recognition of the complexity of judging what is "safe" I have adopted a minimisation of risk approach. I define risk as the probability of an untoward happening resulting from drug treatment,[4] which may include transient and minor side effects, rather than an adverse drug reaction (noxious and unintended response[5]) or in the more rigorous sense of the probability of a hazard causing harm.[6] This ensures that effects that are more discomforting than debilitating, such as dry mouth, are included for consideration.

### MINIMISING COSTS

The economic assessment of drug treatment has undergone sudden, rapid growth to the extent that it has produced a neologism—"pharmacoeconomics"—and its own journals. There are several ways of relating costs and outcomes, but any aim of good prescribing should be accessible to a typical prescriber. Hence I have adopted the simple concept of cost

**School of Pharmacy, London WC1N 1AX**
Nick Barber, *professor of the practice of pharmacy*

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