

Medicine and the media**What is newsworthy?**

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Why one event is deemed newsworthy while another is not seems to be one of the biggest puzzles to newspaper readers. A science story, just like any other story, must compete for space, and whether it is chosen depends on headline potential, the relationship between the journalist and section head, external social and cultural events, and sources of news. Although the choice of news is affected mainly by the desire to establish a certain complicity with the reader, ultimately, it is the journalist's intuition that influences what is published.

In the hierarchical world of newspapers, decisions are made at many levels—namely, company editors, directors, and the editor and journalists who specialise in specific areas in response to the growing complexity of knowledge. Editors and directors mark out the main lines of information adopted by the relevant medium. Decisions about selection and placement of news are made on a daily basis, but, despite the hierarchical structure, placement decisions largely depend on direct contact between the specialist journalists and their respective area chief. A sort of auction of the news takes place to gain the space and subsequent importance that is given to each news item in any one day, and this ultimately depends on the criteria of the person in charge. All, in turn, submit their most important news to the management of the newspaper, who finally decides which stories are destined for the front page. This is the traditional pattern in the daily press.

Journalism is an activity with no scientific methodology. Among the many factors that influence the relationships between specialist journalists and colleagues are the characteristics of the newspapers (informative-interpretative, popular, sensationalist, &c), the cultural biases of each area chief, and the number of journalists with sufficient experience for the initial selection of a news item. Specialist journalists are influenced by professional intuition but also by the sources of news. For example, does a news item reach the newspaper office through a news agency or via the chief editor? Selection may also be influenced by imitation, which is common to all newspaper offices: news items that have previously been published in other areas of the media are regarded as important, so newspapers from different cultures or countries tend to offer similar news.

What influences selection of news?

In a quality, informative/interpretive newspaper—the model to which I shall mainly refer—differentiated and specific thematic areas of information, such as economics, sport, politics, culture, and entertainment, coexist. In addition, newspapers often have a section that is

interdisciplinary—sometimes called the “Society” page, or in the French tradition, *Faits divers*. In this section, scientific or medical news often appears with news about accidents, crime, curiosities, people, the environment, and many other events that do not fit into the thematic structure of a newspaper. This placement of scientific and medical news is very important in the understanding of why some news items are selected rather than others: in these “odds and ends” sections the science or medical journalist has to compete with journalists who specialise in the law, the environment, crime, consumer affairs, health policy, education, town planning, &c.

Clearly, the science or medical journalist has to search for news offering headlines that are interesting not only to the potential reader, which is the over-riding objective of any journalist, but also to their own section colleagues and even more so to the person in charge of the decision to publish the story and position it in the newspaper. Thus, news of killer bacteria, exterminating viruses, and miraculous therapies tends to have greater appeal because such stories compete with murders, rapes, ecological catastrophes, and declarations from famous people such as Princess Diana. Even in the most serious newspapers, science and medical journalists search for a certain spectacular style—not to be confused with vulgar sensationalism—to get their news to appear daily. The internal operation of newspapers is very similar in all countries. The sociologist Dorothy Nelkin explains it clearly with regard to the USA in her book *Selling Science*.¹

This complicated relationship between the journalist specialising in science or medicine and the person in charge, who usually lacks specialist knowledge, causes frequent difficulties in the headlines of news items. In August, 1995, *El País*, a rigorous and serious newspaper in Spain, gave a news item the title “The vaccine against cancer of the cervix will prevent half a million deaths a year”, even though the text talked only about the demonstration of the relation between the human papillomavirus and cancer of the cervix, an important step in the future attainment of a vaccine, which has not yet been achieved.² The scientific community has difficulty in accepting such mistakes, which obviously create false expectations among the readers.³ But even without sensational headlines, the judgment, culture, and professionalism of the chiefs of these Society sections shape the presentation of medical news.

The gradual specialisation of information in the mass media since the 1970s–80s, which has coincided with a

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Panel: Problems of newsworthiness

"In 1995, the complete DNA sequences of two bacterial species were published for the first time—*Haemophilus influenzae*, which has 1 830 137 bases (*Science*, July 28), and *Mycoplasma genitalium*, with 580 070 bases (*Science*, October 20). However, this news did not appear in the press or other sections of the mass media. By contrast, the epidemic caused by the Ebola virus and the cultivation of 'Jurassic' bacteria caught the attention of the newspapers for weeks. Although, it is good that the press is concerned with science, it sometimes runs the risk of trivialising it. First, the importance of a discovery is not treated the same in the media as in scientific circles, and all observations do not become news when they occur. Irrelevant discoveries or observations that are more spectacular for the public can command important headlines. It is likely that within a few years the 1995 epidemic (if the coincidence of a few cases of infection can be described in this way) of the Ebola virus will hardly be remembered. Although, the recovery of 'Jurassic' bacteria is important, it is one of those news items that should be treated with caution. Time will tell whether the expectations provoked by their discovery were justified. On the other hand, 1995 will be remembered as the year in which the complete DNA sequence of a living cell was achieved for the first time".⁶

higher level of education and therefore demands from readers, has gradually made it possible for editors to introduce specific science and medicine sections and subsections in the main newspapers. The reasons vary, but the spectacular race for the conquest of space in the 1960s–70s and the growing public awareness of the fragile nature of our planet stimulated an increasing interest in scientific matters in the media. On Nov 14, 1978, the *New York Times*, a mirror for most of the world's quality newspapers, created its weekly "Sciences Times" section.^{4,5} Something similar occurred in the main newspapers of other western nations. Thus, on Oct 10, 1982, *La Vanguardia*, the main newspaper in Barcelona, Spain, created its "Science and Medicine" section, which, starting from four pages per week, has evolved into the present *Ciencia y Vida* (Science and Life) supplement—a 24-page magazine. Without offering as extensive a coverage as *La Vanguardia*, most quality newspapers in Europe have specific pages dedicated to scientific and medical matters, some as weekly supplements and others (eg, *Le Figaro*) as a daily page called "Science and Medicine", or "Science and Health".

The appearance of these sections has had two advantages. First, they help in the training of journalists who have specialised in science and medicine, and second they encourage scientists and doctors to take part in the dissemination of science and medicine. Both doctors and scientists now share the responsibility for these specific pages in the world's best newspapers, so the decisions on what is and what is not newsworthy and how to present the same news has substantially improved in recent years.

These sections and supplements have also made professionals in charge of other areas of information aware that collaboration with science and medical journalists can improve the information in their own sections. Today, science and medicine are not shut away in their information ghetto—as these thematic supplements have in some cases been called—and in the major Society sections of newspapers the presence of science and medical reporters is valued and encouraged. They also occasionally collaborate with other sections, bringing their knowledge and information sources to bear on news in economics, sport, and other subjects.

Difficulties in selecting news

Despite the undeniable improvement in the quality and quantity of the scientific and medical information offered by the main newspapers, many problems persist. Ricard

Guerrero, president of the Catalan Society of Biology, makes the point well (see panel).

These examples point to the influence of external social and cultural events. Both the "Ebola epidemic" and the "Jurassic bacteria" coincided with similar subjects that had been previously developed in best sellers and films with an impact on the general public. The discovery of the so-called "Jurassic bacteria" (although they should be called Oligocenic or Miocenic in view of the period to which they belong) was published in the May 19, 1995, issue of *Science*.⁷ This issue included other subjects that deserved news attention. Various scientists agree that at least two articles had greater scientific importance than the one that referred to the possibility of bacterial spores from 25–40 million years ago returning to life. One of those items dealt with the crystal structure of urease from *Klebsiella aerogenes*⁸ and the other the control of calcium release in heart muscle.⁹ Neither of these two articles received special attention in the media; yet "the bacteria from the era of the dinosaurs" filled huge spaces and achieved large headlines in almost all the newspapers of the world, appearing in an important position on many front pages (eg, May 19, 1995, issues of *Público* in Lisbon and *La Vanguardia* in Barcelona, and the May 20–21, 1995, issue of *Le Figaro* in Paris). Would the same have occurred

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without the novel by Michael Crichton and the film *Jurassic Park* directed by Steven Spielberg? Did scientists Cano and Borucki take advantage of the *Jurassic Park* success for their own interests and to give a greater importance to their discovery than that which it really deserved? Do we not as scientific journalists possess sufficient knowledge and criteria to adequately assess scientific news, thus over-rating the "Jurassic bacteria" and completely ignoring the two other possible news items with important medical consequences? I believe that in this case the above-mentioned factors converged.

Journalists are inclined to fall for stereotypes and fashions, but they are also vulnerable to imitation. In all newspaper offices, the rival media are monitored and the major reference newspapers, such as *International Herald Tribune*, *Le Monde*, *Frankfurter Allgemeine Zeitung*, *The Times*, *El Pais*, and many others are used as sources of inspiration, depending on the intellectual affinity and knowledge of the respective languages. It is difficult to avoid imitation: if everyone else publishes a story, we follow their example. The most recent example was the "killer" or "human-meat-eating" bacteria.

On May 25, 1995, a substantial part of the British press (including that which is not regarded as sensationalist)

published detailed accounts of "victims" of necrotising fasciitis due to *Streptococcus pyogenes*. The news was immediately picked up by the correspondents of the international press posted in London, and alarm spread throughout Europe, leading to headlines in all sections of the press. Only a few days later did more considered and impartial comments begin to appear in the specialised pages of the weekly supplements, in which the importance of the news about "the killer bacteria" was played down. Yet the then British Secretary of State for Health, Virginia Bottomley, had done so from the outset (Thursday, May 26), emphasising that the number of cases reported was no higher than in previous years. Paradoxically, the same newspaper, *La Vanguardia*, ran the headline on May 26 in its Society section: "The aggressive mutation of a bacterium causes twelve deaths in Great Britain. The killer bacterium destroys skin and muscles and leads to death in 24 hours". By June 10 in its *Ciencia y Vida* supplement the same story had the reassuring headlines: "An old and feared gangrene. Well-known but infrequent disease. Unjustified alarm".

Why such a different assessment of the same story? First, consider the speed that journalists dealt with the subject. The almost sensationalist headlines coincided with the report from the London correspondent, a general reporter who evidently took the news from the British newspapers and television without any additional assessment; he sent it to the Society section where it was printed by the chief editor without advice from a specialist because of the immediacy and apparently spectacular nature of the event. The news was then picked up by the specialist team from the weekly supplement, in which journalists and doctors work together. It was prepared, assessed, and finally drafted by a doctor specialising in infectious disease, who states in the June 10 article: "Firstly, this is not a new bacterium, since the group A streptococcus has been known for some time. The disease is not new either, since necrotising fasciitis or streptococcal gangrene was described more than 150 years ago. This is not the appearance of a new strain

either, because according to the WHO around 166 references to this more virulent strain have been recorded over the past five years".

Influence of sources on news selection

The examples that I have described thus far concern spectacular news, but what happens to the rest of the news—the majority—which appears more or less routinely in the media?

Over the past few years, the increase in scientific and medical news that appears in the daily press, places pressure on the world of science and medicine. Scientists and doctors have had to confront journalists; many have regarded collaboration with the media as interesting, even becoming active proponents of their respective scientific activities. Others have remained outside the communicative arena and a minority have found that they can use the media for their own interests to gain fame, financial advantage, and other objectives not in keeping with good scientific practice.¹⁵ Scientific and medical congresses increasingly give special attention to the press, directly announcing results of research to the media in the form of press conferences or equivalent actions not in keeping with traditional scientific communication.

In view of the varied interests in the science/journalism relationship, good practice in scientific and medical journalism has consisted of relying on reference journals as sources of information, mainly *Nature*, *Science*, *The Lancet*, and the *New England Journal of Medicine*, since the practice of rigorous peer review is thought to guarantee reliable information. These journals send advance press releases to accredited journalists, giving them sufficient time to prepare the news. But the journals impose an embargo on that information, which usually coincides with publication of the journal.¹¹ These press releases reflect a certain rivalry between the journals, for social prestige and scientific authority. They want to be quoted regularly in the media.¹²

A study carried out by the Science Communication Observatory of the Pompeu Fabra University, Barcelona,¹³ on the "Health and Medicine" supplement of the Spanish newspaper *El Mundo* showed that the most commonly used external sources of the newspaper for the preparation of biomedical information were, in order of importance, *NEJM*, *New Scientist*, *The Lancet*, *British Medical Journal*, *New York Times*, *Science*, *Nature*, the *Journal of American Medicine Association*, and the WHO. It is clear that, apart from a magazine with a large circulation such as *New Scientist*, a newspaper that carries quality medical information such as the *New York Times* (which has its own news agency), and an institution such as the WHO (which generates numerous press releases), all the other external sources are peer-reviewed reference journals and which, with the exception of the *NEJM*, encourage the distribution of press releases among the specialist press.

A similar study is currently being undertaken on the daily news from the other main Spanish newspapers (*El País*, *La Vanguardia*, and *ABC*); it confirms the importance of journals such as *The Lancet* and *Nature* as sources of information for Spanish scientific and medical journalists. In most European newspapers also, news items on



Figure: *Lancet* press release for issue of June 3, 1995

scientific and medical discoveries have their sources in the press releases of these journals. The press releases also offer journalists the telephone and fax number, and e-mail of the main researchers, thus simplifying and decisively influencing the selection of news.^{14,15} The people who prepare these press releases use journalistic resources right from the start to attract attention to the information that they plan to publish in their journals. For example, an article published in *The Lancet* called "Central nervous system lesions and cervical disc herniations in amateur divers"¹⁶ was highlighted in the corresponding press release as "How safe is scuba diving?" (figure) and appeared as news in *Le Figaro*¹⁷ as "Les lésions insidieuses des plongeurs amateurs" (The insidious lesions of amateur divers) and in the *Ciencia y Vida* supplement of *La Vanguardia* as "Las barbijas malditas" (The accursed bubbles).¹⁸ *Science* published a report entitled "Increased cortical representation of the fingers of the left hand in string players",¹⁹ which was more attractively named in the press release "Cortical for strings in D Major", and which finally appeared in the press as "Cerebral changes in string instrumentalists".²⁰

Most specialist journalists know or should know the meaning of the acronym ISIS-4 (Fourth International Study of Infarct Survival). However, it is unlikely that the title of the article that appeared in *The Lancet*,²¹ "ISIS-4: a randomised factorial trial assessing early oral captopril, oral mononitrate, and intravenous magnesium sulphate in 58 050 patients with suspected acute myocardial infarction", would have had the same appeal to journalists if it had not appeared in the corresponding press release with the title "Giving patients the best chance after heart attack: ISIS-4, CCS-1". The press release title appeared independently of the fact that the pharmaceutical industry and the clinical researchers collaborating in this multicentre study had presented their results directly to the press. Increasingly, researchers and departments of communication of laboratories directly contact science and medical journalists. This increases the difficulty in knowing what is noteworthy, because the interests behind these communications are not always very clear.

The final story: intuition

Journalists use other systems to obtain information (press agencies, direct contacts, institutions, &c), but in the end our intuition influences what we decide to publish. There is no defined criterion, except for the constant attempt to establish a certain complicity with our readers. The objective should be compatible with the desire to be reliable and believable. But this is not always easy, because the credibility of a science or medical journalist relies on both scientists and readers, and journalists must respond to many pressures beyond their professional judgment. The difficulties are bound to increase with the expansion of electronic communication.²² Science writers Ted Anton and Rick McCourt of DePaul University in Chicago consider: "The work is critical now because the traditional mode of science communication with the

public is changing so rapidly. In the past professionally reviewed journals presented science findings in dryly written papers and conference presentations—occasionally filtered for the public by an insider crew of science journalists. That still happens. But the speed of information technology, the prospect of lucrative patent or business deals, the combat for grant funds, and flaws of peer review itself are breaking down that system".²³ Compounding the problems of evaluating the sources and interests behind each piece of information, these new conditions will place increased reliance on the experience, knowledge, and professional ability of the specialist science reporter.

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