From scientific advances to public health action: the crucial role of science dissemination

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It is widely accepted that dissemination of research results has received little attention in biomedical journals, and, clearly, a scientific discovery is worthless if not communicated. The method, for example, of isolating insulin developed by Eugène Grey and kept hidden for almost 20 years is noteworthy. In 1905 Grey injected gelatine into the pancreatic duct and waited for the pancreas to degenerate before preparing an extract.1 The concept was the same as that of Banting and Best. Had Grey published his results instead of depositing them in a sealed packet at the French Society of Biology until after the work of Banting and Best was published,2 the treatment of diabetes might have been advanced by a quarter of a century.

Pharmacology offers many examples of the role of science dissemination, in specialty journals and in the lay press, in the development and adoption of new drugs and on the limitations imposed on their use by notorious public health decisions. An appropriate example is that of arsphenamine—a drug, widely known as Salvarsan, which was developed by Ehrlich in 1910.3 This development was possible because Schaudinn and Hoffmann proved, in 1905, that Treponema pallidum was the causative agent of syphilis.4 Arsphenamine deserved its description as a ‘magic bullet’ because it was the first active remedy against the scourge of syphilis. It is not surprising that in 1911 an article in JAMA5 claimed that ‘Salvarsan is not simply an additional remedy for syphilis; it marks an epoch in medicine’ and that the New York Times published 10 articles on this drug in 1910 alone.6 The early history of arsphenamine and its derivative neoarsphenamine also illustrates the influence of non-medical factors on the dissemination of a scientific discovery. For example, the political climate in the days before World War I led to strong distortsions in manuscripts (for example, by referring only to relative risks and ignoring absolute values) that may lead to wrong conclusions, and press releases from scientific journals are not always free from propaganda.7 Educated and responsible scientific journalism should be fostered and scientists can and should help in this regard. Furthermore, the lack of specific training for PhD students and health professionals in the skills of scientific communication surely deserves attention.

Researchers may also play a part in the distortion of scientific communication. A review by Stather12 examined the substantial impact of an article in the lay press about an American Heart Association conference report on the results of a retrospective, case-control study that suggested that treatment of hypertension with calcium antagonists was associated with a 60% increase in the risk of myocardial infarction. It is not a minor issue that these results were presented at a press conference at that meeting, during which reporters were told that the study was funded by the University of Washington whereas the funding had come from a pharmaceutical company (which did not market any calcium antagonist).

The positive and negative contributions of the lay press in the dissemination of scientific knowledge have long been discussed. An example of the former is a New York Times article about the putative benefits of some anti-angiogenesis drugs in cancer, which led to a subsequent case study.13 Some scientists are irritated by, and even despise, science journalists14 but one should remember that some reporters have made major contributions to public health. One such contribution is the crusade by Brian Deer, in the Sunday Times, to expose fraud in the case against the measles, mumps and rubella (MMR) vaccine.15 An article in The Lancet (later retracted by the journal) linking MMR vaccines and autism had longstanding negative consequences affecting the attitude of parents towards the recommended vaccination programme. However, thanks largely to Deer’s work, this link was shown to be false and thus he made a major contribution to both science and society.

We can see that communication in science has a crucial role in the path from scientific advances to public health action and, clearly, the roles of the different participants in the process should be taken into account. It is not uncommon to discover distortions in manuscripts (for example, by referring only to relative risks and ignoring absolute values) that may lead to wrong conclusions, and press releases from scientific journals are not always free from propaganda.7 Educated and responsible scientific journalism should be fostered and scientists can and should help in this regard. Furthermore, the lack of specific training for PhD students and health professionals in the skills of scientific communication surely deserves attention.

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REFERENCES

15 Deer B. How the case against the MMR vaccine was fixed. BMJ 2011;342:77–82.
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