SOCIAL ISSUES RESEARCH CENTRE

The Royal Institution of Great Britain

Guidelines on Science and Health Communication

Prepared by the joint Forum of the Social Issues Research Centre in partnership with the Royal Institution

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Why it matters

Q: Why does it matter how health and science issues are reported?

A: It matters because misleading information is positively dangerous: it can even cost lives.

- There is a natural and inevitable tension between journalists and groups of professionals whose activities are the subject of widespread publicity.
- No-one expects journalists and politicians always to agree on the way politics should be reported, and some difference of perspective and emphasis between journalists and the science community is similarly to be expected.
- There is, however, a significant amount of common ground. All responsible journalists and all responsible scientists can agree, without prejudice to their editorial and professional freedoms, that the interests of the general public should always be paramount. These interests specifically include the right of access to accurate information on the basis of which individuals can make informed lifestyle decisions.
- Information which is misleading, as well as information which is factually inaccurate, can cause real distress to vulnerable groups. At worst, it can even be argued that misleading information which causes harmful public reactions (e.g. reluctance to undergo vaccination because of a scare) can cost lives.

In the context of health and science reporting, we recommend that a simple hypothetical question should be used by both journalists and scientists as a rule of thumb to help judge where the public interest lies.

The hypothetical question is as follows:

> *You are a scientist about to be interviewed on research results you believe to be important. Or you are a journalist responsible for the reporting of the same research results.*
>
> *Imagine you have a relative or close friend who is sensitive or vulnerable to information about a particular topic (for example, a cancer patient or a parent considering a vaccination for a child).*
>
> *If the only source of information available to that relative or close friend was the interview you are about to give or the report you are about to publish, would you feel comfortable with the way you propose to characterise and interpret the story?*

Introduction

The impetus for the development of these guidelines has come from concern expressed within the health and science communities regarding the ways in which some issues are covered in the media. Specific concern is evident, for example, among GPs and others in the medical profession regarding the negative impact of what are viewed as unjustified 'scare stories' and those which offer false hopes to the seriously ill. The Commons Select Committee on Science and Technology has also noted that:

> *"It is right that scientists should warn of possible health hazards but they must accept that such influence needs to be wielded with the utmost responsibility."*

The Social Issues Research Centre and the Royal Institution of Great Britain have brought together a Forum of distinguished scientists, GPs, medical specialists and representatives of the media to establish a set of guidelines which recognise fully the right of journalists in all media sectors to comment and editorialise with complete freedom. At the same time, however, there is an overriding obligation on journalists to distinguish clearly between fact and conjecture in all cases.

We also recognise that scientists themselves have an equal obligation to ensure that they present their findings to the public in an accurate and responsible way. For this reason a separate set of guidelines is included for scientists, research departments and professional bodies, developed in consultation with the leading Institutions and Societies.

No guidelines will ever be 'perfect' in the sense that they cover all eventualities and eliminate all types of misrepresentation, even when followed to the letter. For this reason the SIRC / RI Forum will consider amendments and additions to the guidelines from time to time in the light of on-going consultation with members of the media and the science communities. Through this process of open and non-confrontational exchange we very much hope to achieve not only more balanced and accurate reporting of health and science issues but also much improved working relationships between scientists and the media.

Forum Participants and Advisors

The SIRC / RI Guidelines were developed in consultation with the following organisations and individuals, to whom we are very grateful for their help and advice:

The Royal Society – Dr David Boak

The Royal College of General Practitioners – Dr David Haslam

The Royal Society of Medicine – Dr Jack Tinker

The Royal College of Surgeons – Mr Barry Jackson, President

Peter Bell - Former Editor of Television News and Controller of Programme Policy, BBC

Dr Michael Clark, MP – Chairman, Commons Science and Technology Committee

Steve Connor – Science Editor, The Independent

Dr Graham Easton - GP and Senior Broadcast Journalist, BBC Science Radio

Professor Susan Greenfield CBE – Director, The Royal Institution

Dr Michael Fitzpatrick – GP, East London

Philip Harding – Controller of Editorial Policy, BBC

Dr Roger Highfield – Science Editor, The Daily Telegraph

Professor Sir John Krebs – University of Oxford

Professor Sheila McLean – Director, Institute of Law and Ethics in Medicine, Glasgow University

Mr Henry Marsh – Consultant Neurosurgeon, Atkinson Morley's Hospital

Dr Desmond Morris

Tim Radford – Science Editor, The Guardian

Lord Dick Taverne QC

Professor Lewis Wolpert – University College, London

Forum moderators: Kate Fox and Dr Peter Marsh, Co-Directors of SIRC

Guidelines for Journalists and Broadcasters

The aim of the guidelines for journalists outlined below is to 'unpack' the broad principles contained in existing Codes of Practice such as those of the Press Complaints Commission and those guidelines which apply in the broadcast media. In particular, guidance is provided on the interpretation of notions such as 'accuracy', 'fair representation', 'misleading' etc. in the context of health and science reporting

We will take it as read that journalists and broadcasters will strive to ensure that all reports of scientific studies are accurate in the sense that the details of studies and specific findings are reported faithfully. This, however, will not eliminate the risk of a report being misleading. It is in the interpretation of the findings and in generalisations made from limited data that misrepresentations are likely to arise. Misrepresentation can also occur through selective coverage of available evidence, particularly when mention of substantial contrary findings in a particular health or science area is omitted.

While no guidelines or codes of practice can ever ensure error-free copy, we hope that the following may increase accuracy and reduce misrepresentation and distortion:

❶ Credibility of source

The peer review process of leading scientific and health journals ensures (with a few notable exceptions) that the quality of the investigation is such that it is worthy of consideration by the wider community. Journalists and broadcasters should, therefore, establish if the work has been assessed in this way and make clear occasions when it has not.

The reputation of the institute or academic department in which the investigation has taken place and the professional qualifications and previous track record of the investigators should be considered. Where the authors of a study appear to have no previous publications in relevant areas, or are from institutions not normally associated with excellence in the particular field, this should be noted.

The good reputation or excellent qualifications of the source, however, do not guarantee that the findings are either definitive or significant in terms of, say, public health concerns. A reputable author should not attempt to exaggerate the importance of a study.

Known affiliations or interests of the investigators should be clearly stated. This applies not only to researchers who are attached to, or funded by, companies and trade organisations but also to those who have known sympathies with particular consumer pressure groups or charitable organisations. It should be recognised, however, that a particular affiliation does not rule out the potential for objectivity. All scientists are paid by somebody.

The credentials of investigators should, where appropriate, be further assessed by consultation with other scientists in the relevant field. The establishment of an 'expert contacts' database of independent scientists (see ❾) in a wide range of disciplines will aid this process considerably.

❷ Credibility of procedures and methods

While the peer review process aims to weed out reports of studies which are seriously flawed, unpublished work, conference papers or research reported in lesser-known journals may contain errors in terms of design, execution and analysis. The absence of appropriate control samples, for example, may lead to a questioning of the results. In most cases, however, the identification of such flaws requires specialist knowledge and research experience. Consultation with an 'expert contact' (see section 9) may be useful in this context.

❸ Credibility of findings and conclusions

While there are occasions in science and health research where sudden 'breakthroughs' or 'giant leaps' in knowledge occur, most progress is made by relatively minor developments from existing bodies of knowledge and theory. Studies which appear radically to challenge existing assumptions should be subjected to particular scrutiny. It is also essential that where controversial findings are being covered, the fact that they are at variance with previous knowledge should be stated early in the report – within the first few lines of a newspaper report or the air-time equivalent in broadcast news.

❹ Communicating the significance of the findings.

The significance and implications of even credible studies may be open to a number of interpretations. This is particularly so when the findings:

- Are preliminary or inconclusive
- Differ markedly from findings of previous studies
- Appear to contradict mainstream scientific opinion on the subject
- Are based on small or unrepresentative samples
- Generalise to humans from animal studies
- Have found only a statistical correlation

In most cases, the authors of a journal paper will declare such limitations openly – usually noting the need for further research before definitive conclusions can be drawn. It is important that these limitations are reported fully in order not to misrepresent the views of the scientists involved. Where doubts exist about the frankness of the investigators in this respect, advice from independent scientists should be sought.

The use of the term 'link' in media reporting can give rise to unjustified and misleading impressions. In many cases the existence of a statistical association between two variables is, in itself, insufficient to establish a causal connection. Phrases such as "Red meat found to cause cancer" should not be used in reporting studies which have identified an as yet unexplained correlation. Additional evidence and the use of more sensitive statistical analyses are always required before a 'cause' can be effectively demonstrated (e.g. the systematic studies over the past decades on the causal links between smoking and lung cancer).

❺ Communicating risks

Many journal papers report changes in relative risks associated with a given variable. These are commonly expressed in percentage terms or odds ratios. Interpretation of these, however, can be very difficult. An increased risk of 30% of contracting a specific disease, for example, may seem quite significant. In fact, relative risks of less than 50% are rarely of

any significance at all, other than in the purely statistical sense. There is also the need for any responsible journalist to cite the 'absolute risk' of the disease itself. If the disorder is quite rare, say 1 in 100,000 of the population, then the new risk of 1.3 in 100,000 may be judged accordingly. The same principle applies to so-called 'cures', where the real benefits may be smaller than the statistics might imply.

In all cases, however, we recommend the reporting of risks in ***comparative*** terms. Is, for example, the reported risk comparable with that of being struck by lightning, crossing the road, taking a bath or flying a hang-glider? (The availability of appropriate risk tables, currently being prepared by SIRC, will be of value in this context.) The aim of the journalist or broadcaster here must be to provide members of the public with accurate and meaningful information on the basis of which they can make informed decisions.

Further potential for distortion arises when studies have consistently failed to identify any evidence of risk associated with, say, a particular food ingredient, even after a substantial period of use. Confusion can occur in these cases because scientists are very reluctant, by virtue of their training and the canons of modern science, to declare that anything is ever 'safe'. Such a reluctance, however, should not be seen as a sign of equivocation. From a common sense point of view, situations in which there has never been any demonstrable risk are considered to be 'safe', even if scientists would rarely use that term themselves.

❻ Anticipating the effects of reports.

There are numerous examples of press reports and broadcasts which, while following many of the recommendations above, have contributed to undesirable changes in the behaviour of readers and viewers.

The damage to public health from unfounded scares can be very serious. The 1995 'Pill Scare', for example, caused widespread panic, leading to thousands of unwanted pregnancies and over 29,000 abortions. The more recent MMR Vaccine scare has resulted in a drop in vaccination rates to below the level needed to prevent a measles epidemic. In both of these cases, the 'sources' must bear much of the responsibility, but more cautious media reporting (citing 'absolute' rather than 'relative' risks in the case of the Pill, and noting that the sources were speculating beyond the evidence of their published data in the case of MMR) could have significantly limited the damage.

While the harm and distress caused by reports of 'miracle cures' is more difficult to measure than that of unfounded scares, the raising of false hopes must be seen as equally irresponsible. We recommend that journalists and broadcasters should *always* communicate the limitations of any medical advance very early and prominently in their reports. For example, the fact that it will be at least X years before any drug/treatment/vaccine could be developed, or that a new drug is only effective in the early stages of a disease, should be clearly stated early in the report.

When in doubt, we recommend that journalists reporting medical advances should consider the effect of their report on a person suffering from the disease in question, or with a child/other relative/close friend affected by the disease. If there is a chance that the report will raise false hopes, it should be revised to avoid this. In the context of reporting on potential 'risks', the same principle should apply, in that journalists should carefully consider the damage to public health which can be caused by misleading reports.

❼ The role of science editors and other specialists

Most national newspapers, and a number of regional ones, and broadcast organisations, have specialist editors and correspondents whose role is to provide informed coverage of science and health issues. Their training and background, and their ability to communicate with other academics and professionals, should serve to minimise gross inaccuracy and misrepresentation in reporting of these issues. As the Commons Select Committee have pointed out, however, these individuals, particularly in the print media, are sometimes 'sidelined' by their editors in the coverage of controversial issues such as GM foods.

While we recognise the right of newspaper editors to pursue their own agendas on such issues, and to conduct campaigns on behalf of their readers, there is an obligation to separate such editorialising from factual coverage. In order that reporting is fairly balanced, and seen to be so, we urge that contributions from the media's science and health specialists should be given sufficient prominence to enable readers to distinguish clearly between facts and opinions.

❽ The role of sub-editors / headline-writers

The obligation to avoid misleading or distorted reporting of science and health issues must extend to sub-editors and others responsible for writing headlines, captions and other highly visible material. The effect of a balanced, accurate and responsible article can easily be distorted by a misleading headline or photo caption. The use of qualifiers such as 'may', 'could', 'claims', 'possible', 'potential', etc., should be encouraged to avoid misleading the public on the health risks or benefits of any product or activity. The terms 'cause' and 'cure' should be reserved for use *only* when justified by the scientific evidence.

❾ Expert contacts

A familiar comment from both print and broadcast journalists is that they work to strict deadlines and do not always have sufficient time to make all the required checks before covering health and science issues. While most of the science editors and correspondents have personal contacts in the academic world who they can consult, this is less frequently the case for staff and freelance reporters. It is also the case that many scientists are reluctant to talk to the media for a variety of reasons, including the fear that their comments may be misrepresented.

To overcome this problem there is a clear need for a central database or directory of 'expert contacts': scientists and health professionals who can offer impartial advice and opinions to journalists and broadcasters. In the social sciences, for example, the British Psychological Society has a press office which directs journalists to 'media-friendly' experts in particular fields.

It is not intended that these expert contacts should aim to maintain a narrow orthodoxy or try to dissuade journalists from reporting studies which might run counter to received wisdoms. Rather, by representing a broad cross-section of perspectives in the science and health worlds they should be seen as detached 'reviewers', able to communicate advice in lay terms.

The large majority of journalists now have access to the Internet and email facilities. We recommend, therefore, that the contact details and areas of expertise of scientists and medical experts in a wide range of fields should be published on a web site. Access to this site would be limited to registered journalists with bona fide credentials.

Guidelines for scientists, research departments and professional bodies

It is clearly desirable that scientists should be actively engaged in communicating the results of their work to the wider public. Illustrating the potential value to society of the work of scientists, and raising the profile and status of science itself, are important objectives in times when public faith in such endeavours appears to be waning.

Such communication of research findings, however, imposes a number of obligations on scientists in all disciplines. There is a requirement not only that findings should be presented accurately, but also in ways which minimise the potential for distorted or unwarranted conclusions being drawn in media reporting and non-specialist discussion.

These obligations are particularly significant in the medical and biological sciences where research may be seen by members of the public as having direct relevance to their own conditions, behaviour or lifestyle.

To ensure accuracy and to minimise the potential for misleading conclusions being drawn the following guidelines are proposed:

❶ Dealing with the media

Many scientists have little experience of being interviewed by journalists and broadcasters. While they may be at ease when discussing their work with fellow professionals in conferences and seminars, communicating their work accurately to the wider public often requires quite different skills.

It is desirable that all research institutions and professional bodies provide advice and guidance to their members regarding presentation of findings to the media in their specific disciplines. There should be encouragement to scientists to talk about their work in an open and responsible way, balancing the need for maintaining scientific rigour with communicating research in a way which can be clearly understood by the wider public.

Equally, specific advice on responses to predictable questions from the media should be provided in order to reduce the risk of misinterpretation.

❷ Credibility

The status of a research report should always be made clear and scientists should draw attention to the following where appropriate:

- The study has not yet been published in a peer-reviewed journal
- The findings are ‘preliminary’ or generalisation is not warranted
- The results are from an investigation whose findings have yet to be replicated
- The results differ markedly from previous studies in the same area
- The findings are derived from small or unrepresentative samples
- The findings are based entirely on animal studies
- The findings are purely correlational

Where several of the above points apply to a particular study it may be desirable that communication of the results is delayed until such time that the credibility of the evidence can be more firmly established.

❸ Accuracy

It is, of course, a fundamental requirement that all scientists report their work accurately. Correct details of methods, procedures, analyses and statistical methods are required in all cases to allow the merits or otherwise of a particular investigation to be assessed.

The concept of accuracy, however, extends further than this to the presentation of conclusions and implications of findings. While it is desirable that scientists draw attention to the 'interesting' and potentially newsworthy aspects of their work, this must be done in a responsible way. Where, for example, a number of interpretations of the data are possible, these should be clearly identified. Similarly, scientists should avoid speculation based on opinions or beliefs which are not related to the study itself

❹ Communication of risk and benefits

Communicating the results of studies which report changes in the probability of human morbidity or mortality, or similar changes in risks to the environment, imposes additional and quite specific responsibility on the scientific community. Scientists clearly have a duty both to warn the public of potential dangers and to highlight potential ways of improving health and safety. At the same time, however, it is essential that the generation of unwarranted optimism - e.g. 'breakthroughs' or 'miracle cures' - or fears and anxieties which cannot be supported by the data, are avoided.

With this in mind it is desirable that where relative risks are reported, the absolute risk of the phenomenon under investigation should be clearly stated in order to minimise the possibility of inappropriate conclusions being drawn. Where relative risks are small (e.g. less than 50%) the dangers of inferring causal connections should clearly be stated, even though the findings may be statistically significant.

It is also desirable that comparative risks should be provided where there is a potential for misinterpretation of results - e.g. comparing a reported 'danger' with the probability of being struck by lightning or travelling in a motor car for a short period of time. The observed 'benefits' of a particular variable should also be presented in a comparative manner.

❺ Is it safe?

An increased concern with safety is very evident in contemporary popular media. The concept of safety, however, is an issue with which science is ill-equipped to deal. The rise in significance of the Precautionary Principle in policy and public decision-making also adds to difficulties which many scientists face in this context.

Scientists are unable to say in response to media questioning that anything is ever 'safe'. There are always uncertainties. Such responses, however, are often seen as 'equivocation' or a lack of conviction by non-scientists.

There is, therefore, a need for scientists to anticipate the potential for such reactions while at the same time maintaining the rigorous application of scientific principles. This might, again, be done in a comparative manner - e.g. indicating that the risks associated with X are, empirically, no greater than those associated with Y, where Y might be something which is popularly perceived as 'safe'.