

House of Commons Science and Technology Committee inquiry into Science Communication

April 2016

Written evidence from the Science Media Centre.

Summary

- The coverage of science in the UK media is mostly very good and this is in part the result of good working relationships between specialist journalist, experienced press officers and responsible scientists.
 - Contradictory stories about areas of science (e.g. diet, e-cigarettes) in the press can lead to public confusion. More can be done by all three of these groups to explain to the public how the scientific process works to ensure that appropriate weighting is given to the various kinds of scientific studies which are undergone and reported.
 - Equally, more can be done by the media to explain where the balance of scientific opinion lies when giving a voice to individuals or groups who go against the consensus of mainstream science. Conflicts of interest may play a role in such conversations but are currently being used in an inelegant manner.
 - Science, as any field, has flaws and problems and journalism which investigates these, as well as press officers which publicise them should be encouraged and championed.
 - The government influences a wide range of researchers including those in government-owned institutes and those on advisory committees. The public has a right to hear the expertise of all of these groups but too frequently there are political restrictions placed on them that potentially deprive the public of evidence-based information at critical times.
1. The Science Media Centre (SMC) is an independent press office for science established in 2002 as a direct result of a House of Lords inquiry into science and society published in 2000¹. The goal of the SMC is to improve the quality and accuracy of science in the media by:
 - encouraging more scientists to engage with the media more effectively – especially during times of crisis, on topical controversies in science and in the reporting of new studies;
 - making it easier for the media (and through them the wider public) to access the very best science and evidence during times of crisis, on topical controversies in science and when learning about new research.
 2. The SMC's founding philosophy is: *"The media will 'do' science better when scientists 'do' the media better"*.
 3. As such our evidence to this committee will focus exclusively on matters related to science and the news media. As the committee has already acknowledged, any investigation of the influences on public attitudes to science must include the role of the media.

¹ House of Lords Science and Technology Committee (2000) [Science and Technology - Third Report](#)

Overall comment

4. When the SMC was established in 2002 people were using the phrases 'war footing' and 'poor bedfellows' to describe the tense relationship between science and the media. Scare stories around BSE, GM, and MMR as well as animal rights extremism had left the scientific community reeling and exploring ways of improving the relationship as a prerequisite to getting accurate and measured information to the wider public. The SMC was asked to sit on the 'front line' between scientists working on controversial science and the journalists reporting these stories.
5. The situation in the UK today is unrecognisable from that troubled time; the relationship between science and the media has improved significantly in the past two decades. In the view of the SMC this can be traced to a combination of the following changes:
 - i. A recognition at the highest echelons of science that scientists had to emerge from their ivory towers to engage the public and earn their licence to practise;
 - ii. A sharp increase in the number and quality of professional science press officers in universities and scientific institutions;
 - iii. The existence of specialist journalists reporting on science, health and environment in the UK mass media;
 - iv. The revolution in the culture of science which has seen scientists who engage with the media redefined from being 'media tarts' to being great scientists. Incentivised by funders, vice-chancellors and the Research Excellence Framework, more scientists now believe that doing science and then talking to the public about it is part and parcel of being a good scientist;
 - v. The proactive and bold approach pioneered by the SMC has been effective. We now have hundreds of case studies demonstrating that engaging with the media on controversial issues improves the quality of the media coverage, reduces potentially dangerous misinformation and leads to better informed public and policy debates.

Science and the media

6. It should be noted by committee members that much of the media's coverage of science is exceptionally good. The scientific community and MPs should take a moment to celebrate the fact that specialist science journalists tell the stories of new science to a mass audience on a daily basis. Science is no longer the 'and finally' quirky story closing the news. Increasingly science stories are headline news reported by experienced and responsible journalists.

Role of specialist science reporters

7. The SMC urges the committee to acknowledge the role of specialist reporters in this largely positive situation. The UK is now the envy of our colleagues in our sister organisations in Australia, New Zealand, the USA and elsewhere who have been haemorrhaging specialist science journalists; CNN sacked its entire science unit in a day. This is not the case in the UK. While there have been some losses the mass media generally have held onto science specialists (by which we

include science, health and environment). To give one example: the Daily Mail still has a science editor, a health editor, a medical correspondent and a science and environment correspondent. Many of these journalists have told the SMC that they see a critical part of their role as 'knocking down' poor science stories favoured by their news editors.

8. An analysis of the reporting of the GM furore in 2000 conducted by POST² at the time revealed that most of the stories were written by general news journalists or consumer affairs specialists who often got the science wrong. Today almost all GM stories are covered by the science or environment journalists with a significant rise in quality. Even when issues like human animal embryos and mitochondrial donation were front page news while being debated in the Commons, the stories remained in the capable hands of science journalists like the excellent Fiona MacRae at the Daily Mail and Fergus Walsh at the BBC.
9. Despite all the pressures on the media there are new and exciting examples of its commitment to this specialism. For example the BBC recently created new senior posts in science by appointing overall editors for science (David Shukman) and health (Hugh Pym). In factual programmes beyond news, Tom Heap now delivers specialist knowledge on farming, environment and science to *Countryfile*, *Costing the Earth* and *Panorama*. The *Today* programme and the Guardian now have overall news editors with a specialism in science and environment (Tom Feilden and James Randerson) and the Guardian even has specialist sub-editors.

What goes wrong in science reporting

10. Where things do go wrong with the media's reporting of science it often involves factors that are common across the media rather than specific to science: a tendency to sensationalise; a focus on bad news; the love of a good row; stories that are too good to fact-check.
11. To the extent that science has a specific set of issues we refer the committee to the Best Practice Guidelines for Reporting Science and Health³ produced by the SMC. Unlike other guidelines on science reporting produced from within the scientific community, these were compiled by a group including specialist reporters, editors and sub-editors from a representative cross section of the national press. The guidelines were requested by Lord Leveson as part of his inquiry into the press and were recommended to newsrooms in Lord Leveson's final report.
12. One point we would like to highlight and emphasise from these guidelines is:
"Specify the size and nature of the study – e.g. who/what were the subjects, how long did it last, what was tested or was it an observation? If space, mention the major limitations."
13. One of the causes of public cynicism about science is the apparently contradictory nature of much of the evidence on issues such as diet, HRT, statins, bees and neonicotinoids, e-cigarettes, cannabis etc. One day red wine is good for us; one day it's killing us. Often this opposing evidence is simply a result of the way science works – science is an iterative process that

² Parliamentary Office of Science and Technology (2000) [Science in the media: press coverage of GM food](#)

³ Science Media Centre (2012) [10 best practice guidelines for reporting science & health stories](#)

continuously builds on and corrects previous evidence, and different kinds of study which are testing different hypotheses can have different findings, all of which are rightly of interest to the media. However sometimes it is because small studies which lack sufficient statistical power, or were carried out in a test tube or in mice, or small uncontrolled observational studies in a particular subgroup of people, are reported as prominently in the media as Cochrane reviews or huge, gold standard, multi-centre, randomised controlled clinical trials on real patients.

14. The SMC believes that scientists, press officers and journalists could do much more to help the public understand the difference between small studies with preliminary findings, and bigger, more robust ones which may only confirm existing evidence but are worthy of more prominence. More could also be done to clarify whether a single new study does in fact herald a change in the direction of public health advice or is simply another small piece in the puzzle that contributes to the huge body of evidence on, for example, dietary fats. In addition, more could be done to clarify whether information being press released to journalists does indeed come from a peer-reviewed scientific publication, or preliminary data or posters being presented at scientific conferences.

Amplifying voices of minority scientists

15. One of the most damning things that emerged in the aftermath of the MMR debacle was a public opinion poll showing that a majority of the British public believed that medical science was split down the middle on the safety of the vaccine. This was untrue. Medical science was completely behind the vaccine and rejected the link to autism. Few people come out of the MMR furore smelling of roses but the one lesson we hope the media has learned is the danger of pitting one or two vocal mavericks against the whole of mainstream science without making it clear that the maverick holds a minority view.
16. This trend was seen again last year in the media coverage of 'statins wars' prompted by the controversial decision of NICE to extend this now cheap off-patent drug to people with a lower risk of heart disease. While the debate about over-medicalisation is a legitimate and indeed important one, the media often gave equal billing to one or two outspoken critics of statins and the huge numbers of cardiac experts and researchers, many of whom have conducted Cochrane reviews and other huge randomised controlled trials showing the relatively few side effects of these drugs. Recent research⁴ indicates that media coverage is associated with some patients discontinuing their statins treatment. It is not trivial if the British public believe that medical science is evenly split over whether life-saving treatments are safe, based on a media that has amplified the voices of a small number of medics, some of whom have never conducted research.
17. The SMC is not calling for minority voices to be banned from our airwaves. Indeed we have defended the BBC's use of climate sceptics in certain circumstances⁵. However we strongly endorse the approach adopted by Professor Steve Jones in his BBC Trust Impartiality Review of

⁴ European Heart Journal (2015) <http://eurheartj.oxfordjournals.org/sites/default/files/pdf/ehv641.pdf>

⁵ Science Media Centre (2013) [Give the BBC a break over their IPCC coverage](#)

science⁶ where he called for 'intelligent' balance and for the media to find ways of informing the reader/viewer of when a spokesperson represents a minority view held by only a handful of scientists. The wider public cannot be expected to judge levels of expertise among those scientific 'experts' who are given equal prominence in print and broadcast – the SMC would like journalists to remain vigilant about the power they wield in giving a mouthpiece to people commenting on matters that affect the public's health.

Changes in journalism

18. The biggest changes to the media landscape in recent years came from the move to a 24-hour news media and the move to digital. The main outcome of this for scientists is that journalists who used to write one or two articles for tomorrow's print edition are now routinely writing anything between five and ten stories a day. Never has there been a stronger case for scientists to make themselves available to answer questions and explain science. The SMC's philosophy remains as true today as it did in 2002: "the media will 'do' science better when scientists 'do' media better".
19. According to the most recent Department for Business, Innovation and Skills (BIS) Public Attitudes to Science report⁷, two thirds of people say that TV is one of their two most regular sources of information on science (either in the form of TV news programmes or non-news programmes), while a quarter say the same of print newspapers. The SMC is excited and positive about the huge changes ushered in by the internet and social media, which allow more and more scientists and science communicators to create their own content, and communicate it directly their chosen audiences. However the BIS poll shows that the scientific community must not neglect the national news media. Despite the challenges in the business model for newspapers the national news media is proving extremely adaptable and still reaching millions of people who would not ordinarily seek out science.
20. While the reporting of science news is in a relatively healthy condition, it is the case that what may be described as 'boat rocking' journalism on science is extremely rare. Most of the exposés of the problems of reproducibility in science have come from US media and outlets like the Economist rather than from our national news media. It is critical that original and investigative journalism on the problems in science are supported at a time where the media's ability to invest in this kind of journalism is limited. We refer the committee to recommendations made on this in the BIS report on the future of science and the media⁸ chaired by Fiona Fox, chief executive of the SMC.

⁶ BBC (2011) [BBC Trust review of impartiality and accuracy of the BBC's coverage of science](#)

⁷ Department for Business, Innovation and Skills (2014) [Public Attitudes to Science](#)

⁸ Science and the Media Expert Group (2010) [Science and the Media: Securing the Future](#)

The role of press officers

21. The media reporting of science is rarely ever the exclusive product of a journalist. Science stories, especially those on new research, start with scientists and then go to science press officers and then to the journalist. If a science story is covered beautifully, as many are, it will mostly be because every link in this chain worked well. When there is poor coverage blame is often laid at the feet of the journalists, but as research carried out shows, the exaggeration in media reports of new studies can often be traced back to exaggeration in press releases⁹.
22. As with science journalists the UK is blessed with fantastic, high quality science press officers. Many are scientifically qualified and have chosen this career to allow them to remain close to the scientific research they love without staying at the bench. They care passionately about accurate and measured science reporting and work hard with scientists and journalists to ensure accurate coverage¹⁰.
23. However not all science press officers work so responsibly. Sometimes pressure from scientists to hype their new findings or pressure from a university or institute for namechecks leads to a cavalier attitude to media relations where caveats and limitations of studies are downgraded and impact of small studies oversold. We have heard anecdotally from some press officers that some institutions give target numbers of press releases they should issue within the year, which again suggests a desire for publicity regardless of newsworthiness or quality. We have also heard anecdotally from some press officers that they believe the inclusion of caveats in their press releases can turn journalists off. The SMC would encourage the committee to support initiatives like the BIS-funded Stempra training for science press officers¹¹ which includes talks from science specialist journalists and the Stempra guide to being a press officer¹².
24. The professionalisation of science communication has also introduced some worrying trends. Some senior communications managers prioritise brand recognition and institutional reputation over openness and it is not unusual for the SMC to be told by institutions that their experts will not be commenting for strategic reasons - even during crises where these experts are the best qualified to answer public concerns.
25. Public trust in science depends on science admitting its flaws as well as promoting its successes, answering media questions about the problems as well as giving them great stories. The SMC is keen that more science press officers consider the public interest as well as their institutional interests when deciding when to make their experts available to the media.

Journals

26. Many of the science stories in the media come from science and medical journals publishing new findings which advance our understanding of the natural world and announce new

⁹ The BMJ (2014) <http://www.bmj.com/content/349/bmj.q7015>

¹⁰ The Lancet (2015) [Alzheimergate: neither miscommunication nor sensationalism](#)

¹¹ Stempra <http://stempra.org.uk/events/press-officer-training-day-2>

¹² Stempra [Guide to being a press officer](#)

breakthroughs or risks. The media use the peer review system as a comfort blanket to reassure them that claims being made are scientifically credible and reliable. Medical science journal editors and press officers must take special care and responsibility when promoting the voices of minority opinions which go against the grain of mainstream science and the weight of evidence. Press releasing editorials from experts who are not themselves active in research and do not publish in scientific journals can disproportionately amplify the voice of these experts, and leads the media and public to believe that experts are divided when they are not. The SMC believes journals that press release opinion pieces should clearly label them as such. If the opinion is at odds with the vast majority of medical research evidence then that should also be included in any press release.

27. Journals should endeavour to retract misleading information in a prompt manner when it is found that what they have published is seriously wrong. The lesson from the MMR and Árpád Pusztai stories of a decade ago is that inaccurate claims based on poor science that are not corrected quickly can mislead the public and affect public attitudes for decades to come.

Conflict of interest (COI)

28. Declarations of COIs are a critical part of openness and transparency in science. However the SMC notes a trend amongst some sections of the media and critics from inside and outside of medical science to use COIs as the weapon of choice to discredit scientists they disagree with. Top quality investigative reporting which lifts the lid on hidden conflicts and resulting biases is essential and should be encouraged. However there is too much superficial reporting that suggests that any contact between an independent scientist and industry leads to bias and automatically taints the scientist without providing any evidence to prove this case. This issue is not trivial. If the scientists carrying out the best quality research on statins, sugar or e-cigarettes are dismissed by the public as untrustworthy because of links to industry we will be deprived of the very best evidence. If top scientists are dissuaded from doing top quality research involving industry, or are dissuaded from telling the public about that research because of fear of being smeared, public health will suffer.
29. The leaders of science who champion appropriate links between science and industry should make a much more determined effort to say so publicly. The public and journalists remain suspicious of industry, often with good reason. But in some cases the biggest trials and the most robust research is funded by industry while being conducted by independent researchers. Science ministers, chief scientific advisers (CSAs), heads of research councils and all those who have encouraged closer links should look for opportunities to explain to the wider public and journalists why this is legitimate, and answer their concerns about influence. With the exception of John Savill, head of the Medical Research Council, too many leaders of science inside and outside government have remained silent when leading scientists have been hung out to dry in the press over perfectly justifiable and transparent links to industry. We commend the excellent work of the Academy of Medical Sciences on exploring the issues around COIs¹³.

¹³ Academy of Medical Sciences (2016) [How can we all best use evidence?](#)

Science and the government

30. There are many positive things to praise about the government's commitment to science and its support for public engagement in science, including the network of CSAs who champion the cause of public engagement and the many dedicated staff in BIS and the Government Office for Science who have supported the work of the SMC tirelessly since we were established.
31. However there is still a situation where the wider public are denied the opportunity to hear from the thousands of scientists who work for government-owned research institutes on subjects of huge public interest. Below we detail ways in which the public's right to receive unadulterated scientific information from scientists advising government are restricted by processes which politicise the communication of scientific advice to the public. Previous attempts by the SMC to raise these issues have sadly had no positive effect, and we would be delighted if the committee would raise these issues with government. The SMC sees a contradiction between the commitment of many in government to public engagement with science and the restrictions in place preventing their own scientists from such engagement.
32. Scientists who work at research institutes or agencies owned by government departments¹⁴ are not free to share their expertise with the media and are subject to onerous restrictions. These scientists are publicly funded and work on subjects of immense public interest including vaccines, bees and pesticides, badgers and TB, tree diseases, e-cigarettes, Ebola, GM etc. They do undertake media work but only with the express permission from government press officers and under very tight controls. During a scientific crisis, these institutes will typically select one or two spokespeople to deliver the agreed scientific messages to the media under controlled circumstances, thereby depriving the media and public of hundreds of other highly trained scientists who could also comment from a position of great expertise.
33. Independent scientists from academia who are appointed by government to sit on one-off or standing scientific advisory committees (SACs) do incredibly important work in advising ministers about complex and controversial science. Their work is generally free from political interference and these scientists take great pride in their work. But when it comes to communicating their findings to the wider public the process is inadvertently politicised. The communication of the findings or advice of these SACs is controlled by the government department that commissioned the work. This means that the timing and manner of the communication of independent science is subject to the political whims of ministers and the Number 10 Grid. There are many examples of the distorting impact of this system on the media reporting of the work of these scientists¹⁵. The SMC has for many years been urging the scientific community and CSAs to devise a new system whereby the communication of independent scientific advice to the public can be taken out of a communications system which is necessarily politicised.

¹⁴ Such as: Animal and Plant Health Agency (APHA); PHE Centre for Radiation, Chemical and Environmental Hazards (CRCE); Porton Down; Forest Research; Fera; Animal and Plant Health Agency (APHA); National Institute for Biological Standards and Control (NIBSC); Centre for Environment, Fisheries and Aquaculture Science (Cefas); PHE Chilton; PHE Collindale

¹⁵ Science Media Centre (2014) [A battle too far?](#)

34. While science-based government departments like the Department of Health and BIS demonstrate a strong commitment to public engagement this is often not shared across other departments. The two proposed clauses by the Cabinet Office in the past 18 months which would impose draconian restrictions on media work and lobbying have sent negative messages to the scientific community about the government's commitment to openness, and anything other than encouragement may suggest to scientists employed at these government-owned institutes that they are not fully supported in their efforts to explain science to the public. The SMC was recently involved in discussions with the Home Office about the government response to proposals about the regulation of the use of human materials in animals. Special advisors in Number 10 and the Home Office explicitly manoeuvred to ensure the story got the minimum media coverage possible to avert any negative headlines. This approach was not in any way consistent with the government's commitment to open and honest discussion of these controversial issues.

Recommendations

- We call on the committee to publicly champion the role of specialist science, health and environment reporters in the national news media and acknowledge the critical role they play in ensuring the accurate reporting of science to a mass audience and in knocking down bad science in the media.
- We call on the committee to recommend the 10 best practice guidelines for reporting science & health stories written by the SMC in conjunction with the national news media and recommended by Lord Leveson. We urge the committee to call on the Independent Press Standards Organisation to promote these guidelines to newsrooms.
- We call on the committee to highlight the need for critical reporting of science as well as positive reporting and highlight the need for the media to invest more resources into high quality investigations into problems in science.
- We call on the committee to highlight the contradictions between the government's expressed support for public engagement in science and their imposition of heavy restrictions on their own researchers which bar thousands of publicly funded researchers from engaging with the media.
- We call on the committee to propose a new system whereby independent scientific advisers to government are able to communicate their advice to the wider public outside of the government communications system.

Declaration of interest

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