'dependent on the context of the media and how they distort the issues involved' **'debates about science must involve the people actually doing the science'** *'scientists should be involved in public debates about science so the general public can get a true picture of the topic or debate. Otherwise, scientific views and principles are dominated by commercialism, nationalism, political motives, religious mythology, etc.'* **'if we are not willing to stand up and be open about our research and our techniques, how can we expect the public to fund us?'** *'scientists have the skills to analyse and debate science-based arguments and are less likely to have a political agenda'* **'we need to learn how to communicate the importance of our work effectively to the general public'** *'the public never sees the rise from "rookie" PhD to expert which could re-enforce the idea that scientists are just stuck in their ivory towers with little public contact!'* **'I think that**

Standing up for Science

A guide to the media for early career scientists

having experienced scientists speaking and making arguments is important, however maybe younger scientists would make more of an impact as they are easier for members of the public to relate to' *'young scientists represent the future of science. they need to be more media aware and prevent science from being misunderstood'* **'younger people in the general public are more likely to listen to younger scientists'** *'it is important to provide young people in society with access to scientists who are similar to themselves, so they can see that it is not 'men in white coats' making decisions behind closed doors'* **'early career scientists have their own opinions and represent an important sub-section of society'** *'many young scientists bridge the gap between layperson and expert and so have the potential to contribute positively to these debates particularly when it comes to encouraging young people to study science'* **'only people prepared to sustain a debate should talk in debates'**

Introduction

Frances Downey
VoYS coordinator
(2006-7)

Science is big news. There is a huge public appetite for finding out about the latest research developments and how the application of science might shape our world.

However, discussions about science don't always go the way scientists expect them to. In the recent debates about GM foods, the MMR vaccine, nuclear energy and avian 'flu there has been public confusion and it has been important for scientists to speak out both in the media and in public.

But how can you, as an early career scientist, get involved in these discussions? Our network of early career scientists, VoYS (Voice of Young Science), raised this issue following a workshop that explored how the media works. They now had the tools to get stuck in and stand up for science but wanted others to have them too.

Using a collection of concerns raised by their peers they set off to interview scientists, journalists and press officers across the country to find out what they think you should know about the media. This guide is the end result. It contains interviews and insights about how the media works, and practical tips about what you can do if your research area hits the news. Whether you're worried about what your peers think of you speaking to the media or would not know what to say if a journalist called, this guide will help you decode the inner workings of the media and will help you stand up for science.

The material here is just a snapshot of what our VoYS writing team* uncovered; the full interview transcripts, profiles of the interviewees and of the writing team can be found on our website, where you can also find out more about the VoYS network or comment on the guide: www.senseaboutscience.org/voys

* Our VoYS writing team includes:
Sheena Elliot, Haley Gomez, Julie Huxley-Jones, Carolyn Jones, Richard Newell, Lorna Nichols, Kate Oliver, Nicola Powles-Glover, Harriet Teare, Alice Tuff, Sander van Kasteren, Richard van Noorden, Debbie Wake and Petra Wark.

Contents

Scientists' views of the media

We asked scientists at different stages in their careers to tell us about their media experiences; the good, the bad and the ugly. Although experiences were mixed, they all agreed that it is important for all scientists to have an understanding of how the media works and for scientists to get involved in public discussion.

Dr Carly Stevens on her PhD research appearing in *Science* and the media frenzy that followed

We had press releases going out from the university, from *Science*, from the research council and suddenly my life had gone from sitting at my desk analysing data to dealing with the media. I gave a press conference in London and all the major newspapers and newsgroups came along. I was doing radio interviews over the phone, we got on the front page of *The Guardian* and every major newspaper ran the story the next day. Within a few days it had a knock-on effect and we had local press coming back to us for the local angle, and international press and international radio stations. It really spread.

Biog: Carly's paper 'Impact of nitrogen on the species richness of grasslands' came out in *Science* in March 2004 and led to media coverage world-wide. The research showed that current levels of nitrogen deposition are having a negative impact on biodiversity in the UK.

Did you have any bad experiences with the media?

I don't know if I was lucky, but we didn't have any bad stories. We were very careful to make sure we explained things thoroughly, in a way non-scientists could understand, and if a journalist wanted to talk to us we would talk to them. Looking back it was good, but I did find it all a bit worrying at the time.

"...the media aren't there to promote our work nor to do us any favours; they're there to write a story. If they see a story they will take it, so we have to be aware of that" Professor Jim Al-Khalili

Biog: Emma is in the final year of a cosmology PhD at the University of Nottingham and has engaged in numerous science communication projects, from giving talks in schools to proof reading popular science books.

Emma King on talking to journalists for the first time

I recall a journalist calling me. I'd never had any previous contact with journalists and, to start with, I just talked to them like they were a friend or an interested member of the public. It wasn't until they started repeating things back to me in terms of what they wanted to print that I realised I should have started out on a different track! I had attempted to explain my project in fairly vague and general terms and ended up with them saying to me, "can we say you've discovered anti-gravity?", at which I was fairly horrified! I then had to backtrack lots. It was rather scary that the things I'd been saying without giving too much thought to them could end up in print. At the time it really put me off speaking to journalists.

Professor Jim Al-Khalili on why all scientists should know how the media works

"Not all scientists are cut out to be science communicators. Not all of them are able to empathise with the general public or people who are outside their field and explain things in a very simple way without using jargon. That is not to say they should not learn something about how the media works"

Biog: Debbie is a published medical doctor, scientific researcher and trained media presenter and has recently completed a PhD looking at the role of steroid hormones in obesity and diabetes.

Dr Debbie Wake on where talking to the media has led her

My first media contact came from my university and was as a specialist talking about obesity. More recently I have started up a regular podcast, and I've also started writing my own column for the *Scotsman*. So it's kind of gone through different levels of things that I've done relating to the media.

Have you ever had any particularly bad or particularly good experiences?

As time has gone on my confidence in speaking to the media has increased, and my experiences have become more positive. Probably the worst experiences were early on when I would get a phone call out of the blue, I used to be quite nervous and tended to speak before thinking.

"...it's who you know as much as what you know, and consequently, if you become a media-friendly scientist, then they will contact you again, even if it's a subject outside of your field" Dr Lisa Jardine-Wright

"They asked me to comment on the algae in the Diana memorial fountain, I appreciate it's hard for non-experts to realise, but it has absolutely nothing to do with what I do" Dr Carly Stevens

Professor Jim Al-Khalili on headlines not matching stories

I think the first time I was involved with the media was through a committee called PANS (Public Awareness of Nuclear Science), a group of academics trying to dispel the negative image of the 'N' word. A science correspondent decided he would write a piece about us, which he sent back to me and one or two others to look at and we liked it. It went from his hands to the sub-editor of the newspaper who wrote the headline. When we saw it the headline was "Scientists try to nuke their image". Basically the whole point of what we were trying to do was ruined by the headline associating us with nuclear bombs.

Biog: Jim is a theoretical physicist and holds a joint chair in physics and in the public engagement of science at the University of Surrey. He has written several popular science books, given hundreds of public lectures around the world and is a regular contributor to television and radio science programmes.

Dr Milo Shaffer on what it's like when journalists try to get you to speculate

It's usually quite entertaining. However, when speculating about a piece of research and where it could go, it is easy to say something which is actually ridiculous, so you want a chance to agree on the conclusions of the discussion. You can also ask for time to review the information before commenting by getting the journalist to email you the paper or press release their story is based on.

Biog: Milo is a lecturer in nanomaterials chemistry at Imperial College, London. He is also a visiting lecturer on Cranfield's MSc in nanotechnology programme.

What advice would you give to early career scientists if they are asked to speculate?

Don't if you're not comfortable. Don't say something which you might later regret.

Professor Jim Al-Khalili on talking to the media outside of your expertise

"Most scientists say: 'well it's not my specialist area so I have nothing to say on the matter.' At the level the media usually operate on, most scientists with a background in a general field, say physics, could say something about it even if they have to do a little background research."

Biog: Lisa is a post-doctoral researcher and science communication officer for the Institute of Astronomy at the University of Cambridge and the astronomy researcher for the Royal Observatory in Greenwich. She often gives talks on astronomy to the general public.

Dr Lisa Jardine-Wright on doing media fellowships

One advantage I had was working as a media fellow with the *Financial Times*. I saw the other side of things and that made me much more aware of what one needed to do in order to facilitate and help the media as much as possible. I think my usefulness to the media has increased hugely since I did the fellowship.

Dr Robin Lovell-Badge on standing up for science when debates are polarised

One thing to bear in mind is that you're never going to be able to persuade 100% of your audience. There are always going to be people who have a fundamental belief and you're not going to change that however hard you try. But you can try to win over the majority of people. Be honest, put things into context and point out the good things. It is my view that it is ethically bad not to do research when it could possibly lead to cures and a better quality of life for many people. Balance your arguments like that.

Biog: Robin is the head of developmental genetics at the MRC National Institute for Medical Research in London. He has taken part in numerous media interviews on genetics, sex determination, cloning and stem cells, and he has participated in debates at public meetings, on radio and TV.

Is it important to state your opinion on an ethical issue?

Yes, I think that's important, and not just to give in and say, "I don't care about ethics, it's not my subject." I think you have to be prepared to defend your science.

TOP TIPS *from our scientists to early career scientists*

"I don't think I can talk to the media"

Professor Jim Al-Khalili: The main thing is not to be scared of the media. A lot of early career scientists hear the scare stories and think it's an 'us and them' situation when it isn't.

"But I don't know what I should say"

Dr Debbie Wake: Take your time to think about what you are being asked, don't feel rushed into giving an answer.

"What if a journalist tries to push me into saying something I don't want to say?"

Dr Lisa Jardine-Wright: Be prepared to say "What's the focus of your article going to be? What's the slant?" and then be able to say "Well actually, I don't agree with that and I don't feel I can give you that sort of information".

Enter the journalists: time to answer their critics!

"How does it work with headlines and the story? Is there a conflict?"

"There is a strong tendency in the media to make it appear that there is a debate between two sides, so they will always want the negative as well as the positive, whereas in fact that doesn't actually reflect the true distribution of opinion."

"Do you think it is a problem that a lot of science journalists do not have a science background?"

"I've stopped buying newspapers, they've all become tabloids, all sexing up science stories"

"What steps are taken to make sure the facts are correct?"

Biog: Mark is the science editor of *The Times*. He graduated in modern history from Oxford University in 1996. As well as covering science for the news pages, he writes the Saturday Junk Medicine column.

Mark Henderson on reporting science as a non-scientist

Science is such a broad field that being a specialist in one small bit of it doesn't necessarily better qualify you to write about the rest of it. As a non-specialist you're also not tempted to use jargon or to assume too much prior knowledge.

"It's about the scientific process and how it works. Once you have grasped that, you've made a start" Tom Feilden, BBC Radio 4's *Today* programme

Anna Fazackerley on journalists 'sexing up' stories

"I think it is splendid that journalists 'sex up' science stories and it is naïve of scientists to think they shouldn't. All stories should be sexy, an attractive sexy line doesn't make it untrue. That phrase has too bad a name."

"But scientists 'sex up' science stories too. It's very difficult to sex something up that isn't without help. Certainly if we overplay something it is usually because somebody has overplayed it to us" Mark Henderson, *The Times*

Biog: Fiona is a science reporter at the *Daily Mail*, having previously worked at the *News & Star* in Carlisle. She studied medical microbiology at Edinburgh University before training in journalism at Cardiff University.

Fiona MacRae on finding and pitching science stories

Many stories come from journals such as *Nature* and *Science*. Stories also come from contacts, charities, freelance journalists, press releases and surveys. Other sources include ring-ins from readers, articles in other newspapers and magazines, and your own original ideas.

How do you decide which stories to pitch for the paper?

I look for stories that would appeal to a wide range of people. These may be particularly topical or deal with something that affects their day-to-day lives. It is also important to consider whether the story is under embargo [while a story is under embargo it should not be published or discussed in the media].

Tom Feilden on misrepresentation of scientists by the media

"I can't imagine a situation in which I would deliberately edit a piece that makes it seem someone thought the opposite of what they actually think. There is my own personal integrity, or any journalist's integrity; why would I do that?"

Alok Jha on if journalists double check their facts when writing science stories

As far as checking facts is concerned, you try to do it as you go along and make sure that your sources are accurate and valid. If I think something is wrong or if I think I have misheard something then of course I will go back and check it, but as a matter of course, no.

Biog: Alok has worked as a science correspondent for *The Guardian* since 2003. He has a physics degree from Imperial College and previously worked for *Research Fortnight*.

Do you check quotes with interviewees?

No, as a rule I do not check quotes, because people never come back to me on time.

What really goes on in a newsroom?

We asked Alok Jha, *The Guardian*, to take us through a day in the life of a science correspondent

The night before you know your diary stories: publications in the journals, press conferences, events, lectures, press releases that kind of thing. We send these to the news desk so they have a rough idea of what we will be working on the next day.

9am-10am We will have a meeting with the news desk and go through all of the day's news stories. Some stories are obvious, we'll know days in advance we are going to do a major Nature paper for example. Others we're not sure of, so we will discuss them first.

10am-12pm At this point we are working on a number of stories under the assumption that each one is going to be about 500 words long, so you can cut it down easily or add another 300 words. We ring scientists in the morning and arrange interviews.

"For most of the day we really don't know how long our stories are going to be, how much space they are going to get, or if there is going to be a picture with the story; we are really shooting in the dark."

12pm-2pm At about 12pm the news desk has another meeting to decide what goes where in the paper. At that stage you know which stories you're definitely doing and how much space they have – you're in the home straight.

2pm-5pm We file stories around 4-5pm, so we have to interview people by 2-3pm. If we can't speak to people until 4pm, we'll have the story written, speak to them, add the quotes and quickly file.

"Scientists sometimes criticise us for using the same experts again and again. But the reason is because they work within our schedule. We usually have about 90 minutes to write each story and we have to publish the paper at 7pm, that's just how it is."

5pm-8pm Everything now gets edited which takes about 3 to 4 hours. The paper gets printed at about 7-8pm.

The breaking story When you have spoken to a scientist and taken up half an hour of their time, they'll sometimes see their story doesn't appear or they are not quoted. This is usually because something major has happened during the day and everything else has been pushed back. It is a dynamic newspaper and things get changed all day. If it is breaking news you can't not cover it, you have to either dump all the stuff you are doing and start again, or you have to finish everything really quickly and then start on the new story.

And how do science correspondents get your details?

We asked Fiona MacRae, *Daily Mail*, to tell us

If I am writing about an article from a journal, I will try to contact the researchers behind the study. I am often put in touch with scientists by colleagues, charities, press offices and museums. All of these things help me to build up my own database of scientists who are knowledgeable in particular areas, easy to contact and happy to help.

Biog: Anna works for the *Times Higher Education Supplement (THES)* as the higher education correspondent having previously been the science correspondent. She has a degree in English from Manchester University and trained in journalism at Westminster University.

Anna Fazackerley on why headlines don't always match the article

Because journalists don't write the headlines – the sub-editors do! Headlines quite often over hype things, take one angle and don't sum up a story. But you have to remember that they're the hook that grabs the reader and without the headline people probably wouldn't bother reading about the research. Don't be too petty about it. You might not like the headline, but if someone stops and thinks 'bloody hell, that looks interesting' and then reads what you've got to say, it's better than them turning over the page and ignoring you completely.

"It irritates reporters as much as it irritates people who are reported on when a story is totally unreflected in the headline" Mark Henderson, *The Times*

Tom Feilden on journalists presenting issues as if there was an equal split in opinion when there isn't

Biog: Tom is the science and environment correspondent for BBC Radio 4's *Today* programme. He covers advances in genetics, space, technology, the GM debate and global warming.

It is valid to have a debate and put people who fundamentally disagree with each other about a particular point on the air and let them hammer it out live, for the entertainment and education of the audience. However, the problem that kind of programming has is a tendency to appear to challenge what is actually true or false about a particular assumption. Climate change is an obvious example here. I think that the BBC, along with a lot of other journalists, has to hold its hand up and say we've probably given too much air time to people who are just denying the science of climate change rather than having a balanced discussion about the facts.

Alok Jha on whether his news editors would be happy for journalists to quote a young scientist in a story

"They wouldn't care! What does it matter? All sorts of scientists through the ages have had their best ideas at 26 and 27. I'm 29, I would much rather speak to a 29 year old than a 50 year old. I know there is this feeling that if you talk to older scientists they have more knowledge, but really it's about your level of expertise in a certain area."

Journalists on whether early career scientists should talk to the media

"Only if they want to. Science is all about debate and the public do not see that at all, for them it is all about facts. The more people you have talking about science, the more realistic a picture you get of science."

Alok Jha, *The Guardian*

"Completely. I am in desperate need of new early career scientists all the time. There are too many bearded men in their sixties wanting to talk about science."

Anna Fazackerley, *THES*

"If you don't put yourself forward to the media you can't influence what they write. If you are leaving journalists, who don't understand the work nearly as well as you, to write stories from press releases and impenetrable papers in journals without making yourself available to explain it, then you pretty much lose the right to complain about being misrepresented."

Mark Henderson, *The Times*

from our journalists to early career scientists

"But I'm not an expert"

Alok Jha, *The Guardian*: You are more expert than me, and that's all I want. If you have done a bit of research then you are the expert, and if you can take me clearly through what you've done, it is worth millions. If you still feel like you're not the expert, know this: some of the most stimulating talks about bits of research are by people who think they are not experts.

"What do you want from an interviewee?"

Anna Fazackerley, *THES*: A good interviewee is sparky, uses colourful language, and explains things in a simple fashion. If you work in a complicated area of science it is really splendid if you can use analogies from the outside world. These are the sort of things that will always make it into a quote.

"Is there anything I can do before being interviewed?"

Tom Feilden, Radio 4's *Today* programme: Do a bit of homework, sit down and think 'What do I want to say here? What are the things that are fun, or interesting, or original, or novel, or useful about whatever it is that I've done?' Think of the masters. When Steve Jones answers a question, he won't say 'Yes', 'No' or go into an elaborate description of the genetics of what he's done, he'll tell you a little story. Ask yourself how would you tell your grandparents about what you've done at work today?

Getting to know your press officers

We have heard from the scientists and journalists, but what practical advice is out there for early career scientists?

Universities and funding bodies have press officers who can help you publicise your research and deal with media enquiries. If you are speaking at a conference organised by your learned society they will usually have a press office there to publicise the event and the papers being presented so you can talk to them about promoting your research.

from press officers to early career scientists

Go and meet your press officer and get to know them

"Press officers want to hear about your findings before they come out, so come and have a chat first."

Jenny Gimpel, media relations manager, University College London

Try and get some media training

"If a post-graduate student came to me with a story about some research that they have done and want publicising I would suggest they do media training."

Aeron Haworth, media officer for life sciences, University of Manchester

Practise talking without using jargon. Aim for clear and accurate

"Remember you are not addressing your peers but the public."

Emma Darling, public relations officer, Cardiff University

Find out what makes a good story

"Unless it's of interest to a wider audience the media won't pick it up."

Nicola Buckley, press officer, University of Cambridge

Don't be snobby about the type of media you do

"Many scientists are worried about speaking to tabloid newspapers. But The Sun *has a daily readership of over 3 million, whereas* The Guardian *only has around 400,000."*

Dr Claire Bithell, senior press officer, Science Media Centre

Remember your manners!

"A bit of humility and good grace goes a long way. Putting a smile on your face will stand you in good stead."

Ronald Kerr, press officer, University of Edinburgh

Don't be too sensitive about what is written about you

"The first time you see yourself quoted you'll think 'did I really say that?' but try not to worry."

Jenny Gimpel, media relations manager, University College London

Be sympathetic to what journalists have to do

"Most reporters are bloomin' heroic. They are trying to grapple with stuff that is very complex in a very short space of time and they are doing the best they can. No one sets out to write an inaccurate article."

Ronald Kerr, press officer, University of Edinburgh

What do press officers do?

We have two roles: a pro-active role that involves going out and finding stories, these could be to do with papers being published for example; and a reactive role, which is when journalists ring up because they know we have experts in a particular field at our university who we can put them in touch with.

Aeron Haworth, media officer for life sciences, University of Manchester

Where to go for further information…

Standing up for Science looks at how the media treats science and at scientists' experiences of the media. It is for early career scientists and produced by Sense About Science's VoYS (Voice of Young Science) network. Not everyone's work will create a media storm, but we can all take responsibility for public access to good science and for challenging bad science. If you want to give voice to this aim, or make suggestions about other activities, fill in the tear-off form or complete it online at the Sense About Science website; or contact us at: voys@senseaboutscience.org or phone 020 7490 9590.

Standing up for Science covers just some of the experiences and advice we collected from scientists, journalists and press officers. To read more, visit our website where you will find full profiles, interviews and details of the VoYS writing team.

www.senseaboutscience.org/voys

We are grateful to the following organisations for supporting the reprint in 2012 and the VoYS programme:

The Association for Clinical Biochemistry
Biochemical Society Advancing Molecular Bioscience
BIR The British Institute of Radiology
ELSEVIER
IET The Institution of Engineering and Technology
IPEM
MRC Medical Research Council
The Physiological Society
The Royal College of Pathologists Pathology: the science behind the cure
Society for Endocrinology
society for applied sfam microbiology
society for general Microbiology

Sence About Science would like to thank all of the contributors who were interviewed for this guide, the VoYS writing team, and the following organisations who supported the original production of the guide: the Biochemical Society, Elsevier, Engineering and Physical Sciences Research Council, Health and Science Communication Trust, the Institute of Biology, the Physiological Society, Research Councils UK, the Royal Astronomical Society, the Royal Pharmaceutical Society of Great Britain, the Royal Society of Chemistry, Scence Careers, Society for Applied Microbiology, the Society for General Microbiology.

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VOICE OF YOUNG SCIENCE www.senseaboutscience.org

Published by Sense About Science in 2006
Reprinted in 2012

Sense About Science
14A Clerkenwell Green, London EC1R 0DP
Registered Charity No. 1101114
www.senseaboutscience.org

Standing up for Science Media checklist

You've been contacted by a journalist, what next?

The following is a checklist of what you can do, step-by-step, if you are contacted by a journalist. It doesn't have to be followed exactly but is a good guide if you are unsure of how to handle the situation.

- [ ] **1. Find out why the journalist is calling you**
  - where are they from?
  - what are they reporting on?
  - why are they reporting this now – what is their 'peg'?
  - who else have they spoken to?
  - what do they want to ask you?
  - can they send you the press release/paper/report they are working from?
- [ ] **2. Get their contact details – a direct telephone number and email address**
- [ ] **3. If you need time to gather your thoughts, find out when their deadline is and ask if you can call back in 15 minutes – be aware journalists only have a certain amount of time to write the story**
- [ ] **4. Contact your press officer and your supervisor**
- [ ] **5. Prepare the three most important points you want to get across in your interview**
- [ ] **6. Call the journalist back within the time frame promised**
- [ ] **7. When talking to them make sure you say your three points (most important first) and only comment further if you feel comfortable doing so**
- [ ] **8. Let the journalists know your availability for the rest of the day and give them your mobile phone number where possible**

Developed with Dr Claire Bithell, senior press officer, Science Media Centre

sense about science

To find out more about VoYS (Voice of Young Science) and to order further copies of this guide please visit

www.senseaboutscience.org/voys

Standing up for Science
Contact us and find out more

If you would be interested in finding out more about Sense About Science or the VoYS (Voice of Young Science) network, please complete the form and send it to: Sense about Science, 14A Clerkenwell Green, London EC1R 0DP

An electronic copy of this form is also available on our website where you can read about our past VoYS media workshops, register for details about forthcoming events, and find out more about VoYS activities promoting access to evidence and challenging bad science.

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☐ **I would like to find out more about Sense About Science**

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