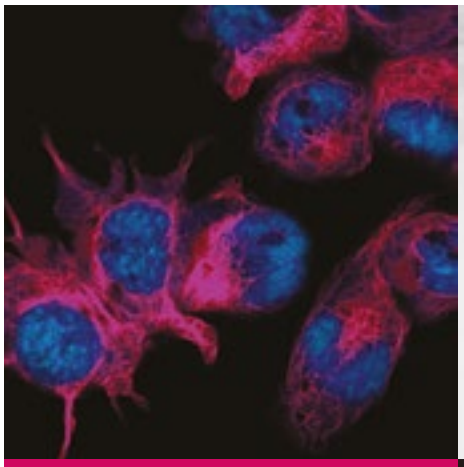
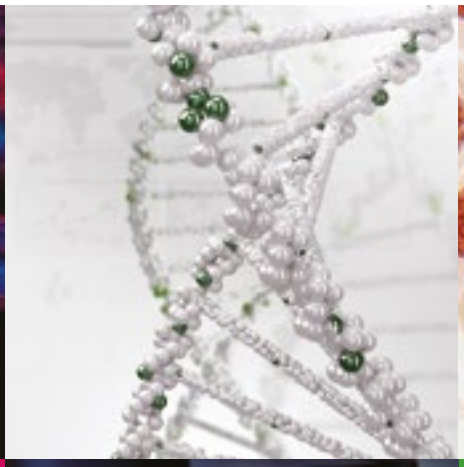
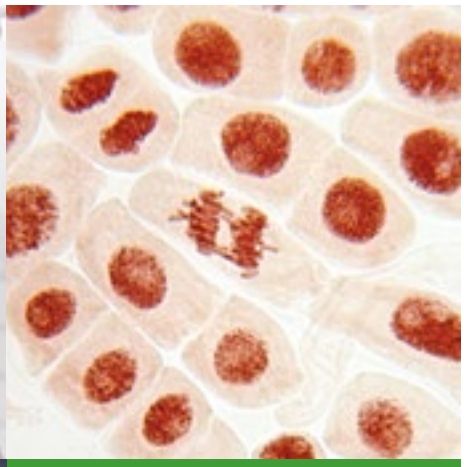
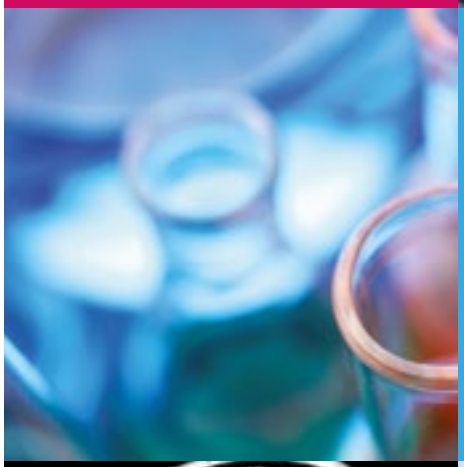
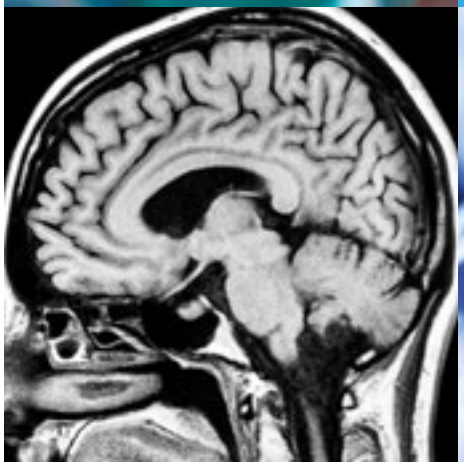
Access to Understanding

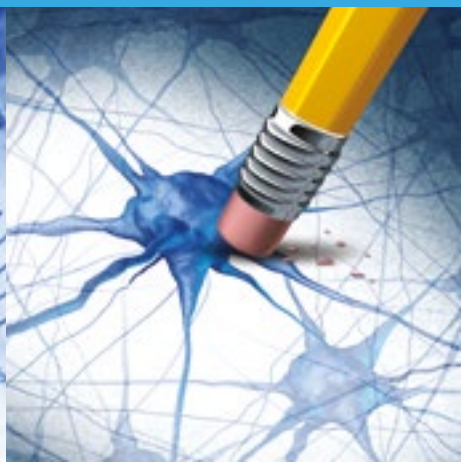




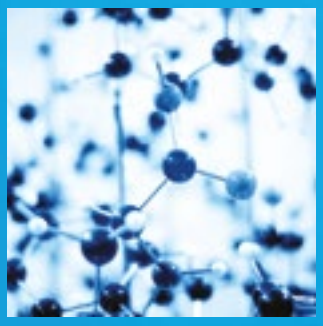


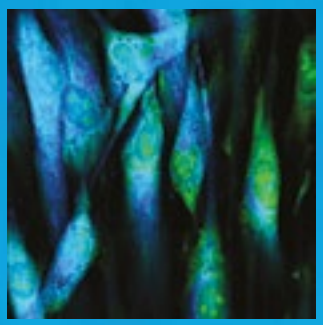
Writing about biomedical and health research in plain English

A guide for authors









Contents

Part one – The basics

Each year billions of pounds of public money is spent on scientific research. Open access to research findings online is increasingly common, but this access doesn't necessarily lead to wider understanding. Most scientific research findings are still written for a specific audience – the scientific community.

For many who would like to look at the very latest research findings, the style and jargon of scientific-research articles puts that information out of reach. One step in bridging the gap between providing access and improving understanding is to provide an easy-to-understand, stand-alone summary that complements the research article. This guidance is for authors who want to write this type of summary.

Who is this guidance for?

This guidance is for anyone who is planning to write about biomedical or health research for a non-specialist audience. It is particularly intended to help scientists who are used to writing about biomedical and health research for their peers to reach a wider audience, including the general public, research funders, health-care professionals, patients and other scientists unfamiliar with the research being described. This guidance focuses on writing plain-English summaries of scientific research articles, not journalism or promotional writing. However, we hope it will help you craft well-written pieces that engage your audiences, whatever your purposes.

What does this guidance cover?

This guidance will give you advice on how to write a succinct, plain-English summary of contemporary biomedical or health research in a clear, balanced and engaging way. Topics covered include:

- definitions of what a plain-English research summary is, and what it isn't;
- reasons why you might need to write a plain-English research summary;
- practical tips on how to write about biomedical and health research for a non-specialist audience;
- a source of examples of plain-English summaries;
- viewpoints from a range of people on the importance of plain-English summaries;
- a summary of some of the benefits of writing about research in plain English; and
- a list of links to other relevant resources.

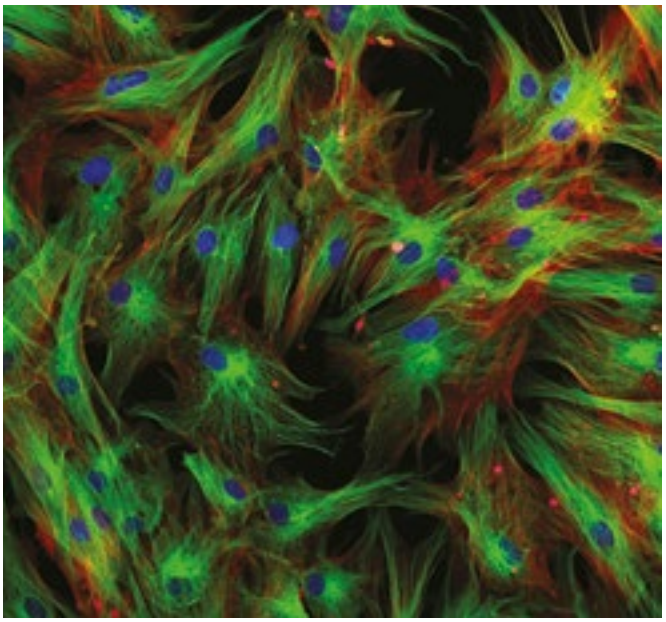
Writing about science in plain English

Plain English is a style of writing that the intended audience can understand on first reading. Plain English is about clarity of language. Well-written, plain English should engage and inform your audience.

A plain-English summary of a science article is sometimes referred to as a 'lay summary' as it is aimed at an audience

> Science is for everyone. It's not just to be shared within a small, closed community. We are in the middle of an information revolution, which has been made possible by Open Access and electronic publications. Plain-English summaries are the way of the future.

Professor Sir Mark Walport
Chief Scientific Advisor to the UK Government
(Keynote speech, Access to Understanding competition awards ceremony 2014)



> We must get better as researchers at communicating with the public on their own terms. This includes writing and talking to people using plain English. I am therefore delighted to support Access to Understanding, which promotes awareness and skills among researchers and scientists in this important area.

Professor Dame Sally C Davies FRS FSciMed
Chief Medical Officer and Chief Scientific Adviser, Department of Health

that is not expert in the ideas or methodologies described in the original article. These summaries provide a concise and informative way to share research findings with a wider, non-specialist audience.

Plain English avoids using jargon, technical terms, acronyms and any other text that is not easy to understand. If technical terms are needed, they should be properly explained. When writing in plain English, you should not change the meaning of what you want to say, but you may need to change the way you say it.

What a plain-English summary is not

A plain-English summary is not a 'dumbed down' version of your research findings. You must not treat your audience as stupid or patronise them.

Anyone reading a plain-English summary should not need to refer to other information to understand what is being said. Your summary needs to be thorough enough so that the reader does not have to go to other sources to find out what you mean. It should be understandable as a stand-alone piece. That means that you should not cut and paste sections from your research paper without tailoring the text to suit the needs of the intended audience – a plain-English summary is not the same as an article abstract.

A plain-English summary is not necessarily a piece of science journalism. You will generally be writing a summary of a research article that describes incremental progress, rather than a seminal paper describing a giant leap forward in our understanding of a research area. As a result, you need to balance your summary, keeping your reader's attention without resorting to unsupported claims. You should try to communicate the facts or evidence in an interesting way and put them in the appropriate context.

A plain-English summary is not a critique of the research article. You should avoid personal opinion unless there is a clear reason to include it, and then your opinion should be clearly identified. If you are writing a summary of a peer-reviewed published research article, you should assume that the reviewers have done their job. A plain-English summary presents the work simply, accurately, objectively and without exaggeration.

> Every scientist should be able to explain what they are doing, why, and how to non-specialists. It is important not just for public communication but it will make you much better at communicating to scientists.
>
> **Professor Dame Nancy Rothwell,**
> President and Vice-Chancellor, University of Manchester

The main requirements

Below is a summary of the main requirements of a plain-English summary.

1 It should be written in an understandable way
Make sure it is easily read and understood as a stand-alone piece by the intended audience.

2 It should set the context
Define the who, what, why, when, where and how of the research.

3 It should describe the research accurately
You don't need too much detail, jargon or any patronising language.

4 It should be balanced
You need to reflect the merits and caveats (specific conditions or limitations) of the research in an honest and objective way.

5 It should be interesting
This is - of course - subjective but you should aim to engage your reader whenever possible.

Part two – The specifics

If you are ready to put pen to paper or fingers to keyboard, here are a few more things that you need to think about.

Give yourself enough time

Don't leave it until the last moment to plan and write your summary. You may write exceedingly well but don't expect to get it right on the first draft. Plain-English summaries of science are not easy to write. To do it well, you must allow time to plan, prepare, draft and review. You should read example plain-English summaries – and consider what works well and what doesn't. If you compare an example summary with the research article about which it was written, you will get a feel for what information has been kept and translated into plain English and what has been left out. If you are serious about wanting to communicate with a broader audience, take the time and make the effort.

Who is your audience?

The content and language in a summary will depend on your intended audience. One size will not fit all. When considering your audience, think about what they already know about your research topic, what might need further explanation, and what detail you can ignore. Consider the range of people you are aiming to communicate with, and then make a judgement of the minimum level of scientific knowledge you can assume they have. You do not have to explain every aspect of the scientific concept to get the information across to your audience. You will, of course, need to outline some of these details if they are relevant to the point of the article.

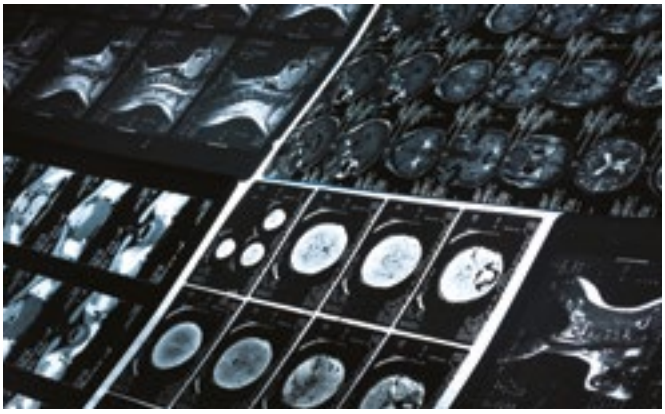
Set the research in context

It is crucial that the summary provides context for the research. Setting context may include describing preceding relevant research, explaining why the current research is justified, and outlining what the broader implications of the research are. You should always provide the source for any background information you include in your summary.

However, context shouldn't take up most of the summary – you are communicating an advance in a field of research. You do not have to explain every scientific concept mentioned in your summary or describe the entire research field to set the context for your audience. Remember, your summary should make sense to the reader as a stand-alone piece. So, deciding what not to say is equally as important as deciding what to say. Draw up a series of sensible questions before writing your summary. Some examples are below.

Why was the research done? What were the researchers aiming to find out? What research had been done previously that relates to the current research questions?

What did the research involve? Why were certain approaches taken? Who was involved? What were the benefits or limitations of the work carried out?



What did the research show? How rigorous was the study? Are the findings important? – If so, why? Who benefits from the research findings? What are the implications for our scientific understanding or research practices?

Structure your summary to engage your audience

A well-crafted plain-English summary should be both informative and enjoyable to read. Not all research findings are momentously exciting, but there are some basic approaches to structuring your summary that can help gain the reader's interest.

You should aim to maximise your reader's interest in the first few lines to draw them in. Think about the research from different viewpoints to explore what might interest the reader. You may not necessarily explain the research in the order it's presented in the research article, but that's fine as long as you don't misrepresent it.

Paragraphs and white space help organise the information into digestible sections. Headline statements to paragraphs can alert the reader to the main points in the summary and allow them to scan and find, more easily, the points that they are interested in.

However you decide to structure your summary, it needs to have a logical flow from the reader's point of view.

> When writing a plain English research summary, there are some golden rules that always work: short sentences are easier to read than long sentences, active sentences work better than passive sentences, and you should always keep the reader at the front of your mind.

Peter Rodgers
Features Editor, eLife Journal

> Clear, concise communication is vital to the work of medical research charities which rely on an engaged, informed public, not only for support, but also to inform future research.
>
> **Association of Medical Research Charities**

Avoid jargon

A good summary leaves out unnecessary detail and jargon, and focuses on the main concepts that are relevant to the audience. Consider different ways to describe the science without the need for a complete summary of terms and definitions. When you must use scientific terms, define them and any other technical concepts you use, avoiding further terminology when doing so.

You should also remember that many words in general usage can have a particular meaning when used in a scientific context (for example, control, error and mutant), so take the time to consider whether your audience will understand your intended meaning, and consider your choice of words carefully. If it helps, use analogies or metaphors. The target audience might have an easier time grasping the science if you can relate it to a common scenario or experience. But make sure that analogies or metaphors don't take over and confuse, rather than clarify.

Be balanced

Be accurate and honest in representing the science. You should aim to grab your audience's attention but do not exaggerate the facts or weight of evidence. Ask yourself if you have any bias towards the research you are writing about. If you do, manage your views so that you communicate the science impartially. By all means convey excitement about the research findings, but also make sure that you mention any caveats or uncertainties. If you disagree with the findings you are writing about, set aside your views, describe the science objectively, and provide all relevant supporting evidence. If opposing scientific evidence is needed to give a balance and context for the research you are writing about, include it.

Tone is crucial

Don't patronise your audience. Use language precisely and concisely to convey the information. Don't fall into the trap of keeping the scientific content simple, but then using unnecessarily elaborate language and phrasing for the piece as a whole. Use short sentences and an active tone to connect with your reader. Read other plain-English science summaries to identify an appropriate tone and style.

Get feedback and use it

You should allow time for at least a second draft. Ask people who have no professional knowledge of the science to provide feedback. Give them some guidance on what you want to find out.

- Did they understand it? Does it make sense to them? Did they find it easy to read?
- Was it interesting? Did they learn anything new? Did it make them want to find out more?
- Did they appreciate the context, implications and limitations?
- Do they now feel able to explain the research to someone else?

Take their feedback seriously. Step back from what you have written and consider their views. You may think what you have written is perfect but if it's not working for them, it's likely other readers will find the same. Redraft and retest with readers as needed.

Submitting your summary

If you have written your summary for a particular publication or organisation, make sure that you are aware of any specific guidelines to authors. You don't want to have crafted a brilliant summary that you cannot submit because it goes over the allowed word count, is incorrectly formatted, or is not suitable for an audience given in their guidance. Check and recheck spelling and grammar.

Make a note of what you have learnt and re-use that knowledge and experience next time you write a plain-English summary.

> We are increasingly seeing early career researchers put science and evidence in the hands of the public, by demystifying how science works: including statistics, peer review and different types of studies. Access to Understanding is a fantastic initiative to support early career researchers communicate scientific research so that it can reach more people.
>
> **Voice of Young Science**

Part three – The reasons

Plain-English summaries allow biomedical and health research findings to be shared with the wider community. But why is this important? What are the benefits of writing about science for a broad audience? Why should you bother?

1. Increase understanding of publicly funded science

The public should be able to read about and understand the research that they are paying for. Helping the public understand biomedical research will raise awareness of its value and may help attract further public support and involvement. By communicating research in an understandable way, your audience will be inspired to learn more.

2. Understand the user's viewpoint

Connecting the public with biomedical research through a plain-English summary can help develop a dialogue between researchers and those who use the outcomes of that research. This can help scientists understand the needs of patients, health professionals, and other members of the public, enriching the relevance and responsiveness of the research. This deeper understanding can inform future research directions and funding priorities, and increase recruitment to clinical trials and public health studies.

3. Improve your communication skills

Being able to write about science in plain English is a valuable and transferable skill. For example, you may need to write a plain-English summary of your proposed research as a part of a grant application or for an institutional report. In broader terms, any job roles you will want to apply for in future will very likely require an ability to write in a clear, precise and engaging way.

4. Increase visibility of your research

Describing your research in a way that is accessible to a wider audience will increase its readership, and so its visibility. Politicians, policymakers and other decision-makers value clear, concise, plain-English summaries of research evidence. Greater visibility can lead to increased collaborations and funding opportunities beyond your existing network.

5. Get inspired!

Writing a plain-English summary can be an enjoyable and rewarding experience. It can help you think about your research from a different viewpoint. Rethinking how you describe your work allows you to reflect on the concepts and ideas that got you excited about it in the first place. Taking a step back from your research allows you to look at it in a fresh light. Your plain-English summary may even help inspire the next generation of budding scientists!

> "Science isn't finished until it's been communicated."

Professor Sir Mark Walport
Chief Scientific Advisor to the UK Government
(Keynote speech, Access to Understanding competition awards ceremony 2014)

> Funders, researchers and clinicians have a moral duty to help improve the way we communicate about research. Our responsibility is to get it right from the start, in how we write that first article or paper from the bench. That's why Access to Understanding is such an important initiative.

Simon Denegri
National Institute of Health Research Director for Public Participation

Part four – Learn more

You can find examples of plain-English summaries of research articles on the Access to Understanding Web Resource.

http://www.access2understanding.org

The site provides links to shortlisted entries from the Access to Understanding science writing competition that illustrate many of the points mentioned in this guidance. The summaries were written for the Access to Understanding target audience who were described as being interested in the research and motivated to learn more, and capable of understanding something written at the level of an article in a broadsheet newspaper. Each of the summaries is provided with a link to the original research article which is freely available through Europe PMC. This will allow you to compare the plain-English summary side-by-side with the research article.

We hope that these examples prompt you to think how you will tackle specific aspects of your own plain-English summaries.

The following resources may be of use to those who are interested in finding out more. They cover different aspects and perspectives on writing in plain English, from general guidance to more specific advice on biomedical and health topics.

Please contact us via http://www.access2understanding.org to let us know which of these resources you found useful or to tell us about any other resources that we should consider including.

Further guidance and resources

Plain English Campaign

http://www.plainenglish.co.uk/

Plain English Campaign has been promoting the use of plain English since 1979. Their website includes an A-Z list of plain English alternatives (not science-focused), and general guidance in writing in plain English.

Cancer Research UK Glossary

http://www.cancerresearchuk.org/cancer-help/utilities/glossary/

Provides definitions for commonly used scientific and health terms.

British Heart Foundation

http://www.bhf.org.uk/research/information-for-researchers/how-to-apply/lay-summaries.aspx

Examples of scientific descriptions as they might appear in a journal article or similar, with an accompanying simplified explanation.

Science and Development Network

http://www.scidev.net/sub-saharan-africa/communication/practical-guide/how-to-write-about-your-science-2.html

Guidance for writing about science in plain English, with the emphasis on thinking about your audience.

European Commission

http://ec.europa.eu/translation/writing/clear_writing/how_to_write_clearly_en.pdf

An informative, general guide to improving your writing. It is not specific to science writing but contains relevant advice.

Patients Participate! Project

http://www.dcc.ac.uk/resources/how-guides/write-lay-summary

'How to write a lay summary' is a comprehensive guide about writing plain-English summaries for scientific or medical findings from the Jisc funded Patients Participate! Project awarded to the British Library's Science team, the Association of Medical Research Charities and the UK Office for Library and Information Networking.

Sense About Science: Making Sense of Statistics

http://www.senseaboutscience.org/data/files/resources/1/MSofStatistics.pdf

This guide explains statistical significance, percentages and changes in risk in plain language.

Articles

Denegri, S, and Faure, H (2 013) It's plain and simple: transparency is good for science and in the public interest (http://europepmc.org/articles/PMC3735400)

The article makes the case for plain-English summaries and reviews current practices.

INVOLVE & the National Institute for Health Research (NIHR)

http://www.invo.org.uk/wp-content/uploads/2013/03/Improving-quality-of-plain-English-summaries-report-final.pdf

This review aims to help improve the quality of plain-English summaries by highlighting changes that should be made within the NIHR in terms of the plain-English summaries. It includes recommendations throughout on how to improve these summaries.

Further inspiration

Royal Society of Chemistry blog

http://prospect.rsc.org/blogs/cw/2014/05/06/one-word-many-meanings/

'One word, many meanings'

This blog post discusses words that may be understood differently by scientists and the public.

Nature News

http://www.nature.com/news/beyond-compare-1.13609

'Beyond Compare: Metaphors are like cheese – often desirable but sometimes full of holes'

An article that discusses using metaphors.

Scientific American

http://www.scientificamerican.com/article/just-a-theory-7-misused-science-words/

The article '"Just a Theory": 7 Misused Science Words', describes seven scientific terms that can be ambiguous for the public and across research disciplines.

Bournemouth University

http://blogs.bournemouth.ac.uk/research/2011/06/15/writing-a-lay-summary-is-easy-right/

A blog post defining plain-English summaries, explaining their purpose and pointing to helpful resources.

Part five – Access to Understanding

This guidance was developed by The British Library for Access to Understanding.

Access to Understanding is a collaboration promoting wider understanding of biomedical research findings. To find out more visit http://www.access2understanding.org

Collaborators

[This section is not covered by the Plain English Campaign Crystal Mark]

Association of Medical Research Charities

http://www.amrc.org.uk/

We are the national membership organisation of leading medical and health research charities.

We help our members to meet their charitable objects by interpreting and influencing the regulatory, policy and research environments, and connecting members to encourage collaboration and share learning. Our vision is charities delivering high quality research to improve health and wellbeing for all.

AMRC members support over one third of all publicly-funded medical research in the UK. Our members invested £1.3 billion in health research in the UK in 2013. Many of these charities exist because the public choose to donate money to support research to develop new treatments and cures.

The British Library

http://bl.uk

The move towards open access in science and other disciplines is accelerating, and recognition is growing among the research community of the need to communicate the purpose and outcomes of their work to the public. One of our main purposes is to give everyone who wants to do research access to information. More than that, we want to help people use what they find – we want to help them gain insight, acquire knowledge and create and share their understanding. We want to bridge the gap between access to information and wider understanding.

eLife

http://elifesciences.org/

eLife Sciences is a unique, non-profit collaboration between the funders and practitioners of research to improve the way important results are presented and shared. The open-access eLife journal is the first step in this initiative to make science publishing more effectively benefit science and scientists.

eLife is committed to meeting the needs and aspirations of early-career researchers, by highlighting their accomplishments and making them an active part of the eLife initiative. Learn more here, and get involved at http://elifesciences.org/careers

Europe PMC

http://europepmc.org

The European Gateway to the World's Research.

Europe PMC is the world's largest free life sciences and biomedical information resource. While Europe PMC is a comprehensive source of original research findings, the funders of Europe PMC recognise that more can be done to make these advances in scientific understanding more accessible to their users. It is a partner in the Access to Understanding science-writing competition, and this guidance has been informed by the need of researchers who entered the competition.

National Institute for Health Research

http://www.nihr.ac.uk/

The National Institute for Health Research (NIHR) is funded through the Department of Health to improve the health and wealth of the nation through research. Since its establishment in April 2006, the NIHR has transformed research in the NHS. It has increased the volume of applied health research for the benefit of patients and the public, driven faster translation of basic science discoveries into tangible benefits for patients and the economy and developed and supported the people who conduct and contribute to applied health research.

The NIHR is committed to making sure that each research study it funds has a clear and concise plain-English summary which explains the research as a whole and is easy to read and understand. Writing clearly is important to every aspect of research and can help everyone to better understand sometimes complicated research. From 14 May 2014 a good quality plain-English summary, submitted as part of the standard application form, has been a requirement of NIHR funding.

Sense About Science

http://www.senseaboutscience.org/

Sense About Science is a charity that equips people to make sense of science and evidence in public discussion.

Voice of Young Science

http://www.senseaboutscience.org/voys

Voice of Young Science (VoYS) is network of early career researchers, coordinated by Sense About Science, who play an active role in public discussion about science, by engaging in debates, producing their own communication guides, and taking on myth-busting activities.

Contributing authors

With thanks to those who provided written and editorial input: Katie Howe, Anna Kinsey, Allan Sudlow, Rebecca Withers.

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Contact us

To share comments or suggestions about this Access to Understanding writing guidance, please contact us using our website at http://www.access2understanding.org.


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Plain English Campaign