

A **Gower** Book

# Communicating Clearly about Science and Medicine

**JOHN CLARE**



Making data  
presentations  
as simple as  
possible...  
but no  
simpler

# Communicating Clearly about Science and Medicine

*To Dan, Ollie and India*

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*Making Data Presentations as  
Simple as Possible ... But No Simpler*

JOHN CLARE

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# About the Author

John Clare is passionate about communicating science and medicine. He will talk about it to anyone who will listen, and listen to anyone who talks about it. He has worked with thousands of presenters since he founded LionsDen Communications in 1992. They range from introverted research scientists who emerged from the lab blinking into the spotlight to inspirational presenters who are world leaders in their fields.

He attends many of the major medical congresses around the world and has been responsible for helping speakers to prepare for every kind of talk from plenary presentations of ground-breaking science to satellite symposia attended by a small number of specialists.

He has worked with most of the world's large pharmaceutical, biotech and vaccines companies, helping them to clarify and present their messages to triallists, regulators, investors, payers and journalists. He also coaches executives who need to present their business cases to senior management.

He is a regular moderator and presenter at medical meetings around the world, and has hosted media briefings and news conferences about science and drug development in Europe, the USA, Asia and South America. He has prepared many hundreds of scientists and physicians for interviews with every type of media outlet from international news agencies and world-renowned newspapers and TV programmes to scientific journals.

He was a journalist in newspapers and TV for many years. During that time he was a reporter, producer and news editor. He worked in a number of leading media outlets based in London, including ITN and *The Daily Mail*. He was the executive producer for LionsDen of *Organ Farm*, a TV documentary series about xenotransplantation. The series revealed and explored efforts to breed transgenic pigs whose organs could be transplanted into humans in need

of a replacement major organ. It won many prestigious awards including two 'Freddies' at the TimeInc Health Awards in New York.

He and LionsDen are retained as issues and crisis consultants by many large pharmaceutical firms and scientific organisations.

He has a Master's Degree in Mass Communication. His MA thesis, *Town Criers in the Global Village: An Investigation into the Newsmaking Processes of International TV News Agencies* is regularly referenced and quoted.

In the UK he was awarded the *Communiqué Judges Award for Outstanding Healthcare Communications* in recognition of his long commitment to communicating about healthcare. He is the chief executive of LionsDen Communications, the international communication coaching and training specialists based in London. He writes regularly for magazines and websites and is a regular blogger and Tweeter. His previous book *John Clare's Guide to Media Handling* was published by Gower in 2001 and has been translated into Chinese, Arabic and Urdu. He is also the co-author (with Jenny Bryan) of *Organ Farm*, the book of the TV series, and *Patents, Patients and Profits*, published by SCRIP special reports.

You can find out more about him here:

<http://www.lionsdencommunications.com>

# Preface

This book is a practical guide for anyone who aspires to present medical or scientific data to their peers and colleagues, and to talk confidently about it in the media and with other non-specialists. It addresses the specific challenges of talking about complex science in an engaging way.

*It teaches readers how to combine the accuracy of peer-reviewed science with the narrative skills of journalism.*

Spoken communication skills are now essential for success in science and medicine. It is no longer sufficient to be a good physician or scientist. Anyone who seeks to play an important role in their field must also be an excellent communicator. They must be able to present, explain and be interviewed about their research, confidently and memorably. They must also be prepared to talk about their work in informal situations and meetings. These may be with colleagues, business partners, potential investors, regulators, journalists and medical students.

This is not just the case for young professionals starting out on their career. Once experienced professionals have achieved key opinion leader status, they need advanced spoken communication skills to maintain it.

Written communication in the form of a peer-reviewed publication has been the cornerstone of research and its dissemination since the seventeenth century, so why are verbal communication skills so important today? Because the way science is communicated has changed. The days of a publication appearing in a learned journal to be discussed solely by fellow experts and commented on weeks or months later have disappeared. The timescale is now compressed.

Key studies are now presented at major congresses and simultaneously published online. The lead authors are interviewed for congress TV channels and websites within minutes of their presentation ending. They then enter the lion's den of the news conference, to share their findings with journalists from all over the world. Once the news spreads, they will be besieged with requests for interviews and talks about their work. They will be called upon to explain, contextualise and defend their findings by scientists, non-scientists, funders, regulators, journalists of different types, pressure groups and many other interested parties.

These are the overlapping rings of science communication: Publication, presentation and interviews. This book equips scientists, physicians and others involved in the scientific community to deal with the last two.

By nature the medical and scientific worlds are complex and speaking about them is challenging. It is not the same as talking about the latest mobile phone, breakfast cereal or fashion range. The challenge for all communicators is to say things in a way which cannot be misunderstood. Doing so in the field of science and medicine is more difficult than most areas, but has never been more important. This is the case whether you are making a plenary presentation at a major congress or taking advantage of a chance meeting in the staff restaurant or by the water cooler. In today's ever more complex, fast-changing world, every interaction counts. Whether your topic involves complicated epidemiology, a novel mechanism of action or a breakthrough in understanding the pathophysiology of a disease, it needs to be communicated clearly. The key is to convey the right message in the right language to suit the audience.

The advice attributed to Einstein is a great starting point:

*Make things as simple as possible, but no simpler.*

In the medical and scientific field the challenges of clear communication are great, the risks of getting it wrong are high, and the consequences of doing so can be hugely expensive, in terms of credibility and wasted opportunity and investment. A mishandled presentation to regulators such as the Food and Drugs Administration (FDA) or the European Medicines Agency (EMA) can set a project back months or years. Failing to convey accurately the potential risks, benefits and potential of an investigational compound can lead to legal action from investors. The stakes are high.

Achieving recognition as a communicator is increasingly important for the career progression of physicians and scientists. Universities and institutions are ranked according to the amount and calibre of their research, and successful researchers attract more funding for further work. Presenting and publicising their research, in addition to having it published in respected scientific journals, is a crucial element of this process.

Undertaking speaking and publicity engagements requires skills which are not taught routinely as part of normal scientific training. For some researchers, communication has traditionally been something left to others. Until recently, many of them shied away from getting involved. That position is no longer sustainable. Every university or scientific organisation needs its leading researchers to communicate clearly to a range of audiences.

Over the last 20 years I have worked with some of the world's leading medical and scientific thought leaders, presenters and interviewees. With this book I have tried to put the benefit of that experience in your hands and take you on a journey from complexity to clarity. I hope you find it engaging, enjoyable and useful.

I would be delighted to receive your comments and suggestions to:

[john.clare@lionsdencommunications.com](mailto:john.clare@lionsdencommunications.com)

John Clare

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# Acknowledgements

Helping doctors, scientists and pharmaceutical executives improve their spoken communication skills is an enormously enjoyable and fulfilling way of earning a living. It's also a privilege. I started my business in 1992 after a successful career in print and broadcast journalism. Since then I have had the pleasure of working with some of the world's leading scientists, academics, researchers and business visionaries. Just as I have tried to help them to communicate, they have tried to teach me a little about science and medicine.

From both points of view the experience has been exhilarating, rewarding and at times frustrating. The journey from complexity to clarity can be hard work as we try to maintain the integrity of the science while removing any barriers to clear understanding.

Over the years I have been helped by more people than I could possibly acknowledge here. Some are leaders in their fields who have produced brilliant examples of how to communicate complex science. Others have suggested particular techniques for improving communication skills, or have commented on what they have found helpful in my own teaching. This, coupled with my own enthusiasm and exploration of the very best ways of communicating science, has produced the body of techniques, experience and anecdotes you will find in this book.

In particular I would like to acknowledge the help from all the LionsDen team who work with me in the UK and around the world. It is hard to imagine a more talented team of individuals who work so successfully on a daily basis to communicate such complex raw material in so many languages.

I would like to thank Lloyd Bracey for so many stimulating discussions, and for allowing me to use the grid system of presentation planning which he developed. You can see it in Chapter 4.



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# List of Abbreviations

ACC	American College of Cardiology
ACE	Angiotensin Converting Enzyme
AHA	American Heart Association
AIs	Aromatase Inhibitors
AIDS	Acquired Immune Deficiency Syndrome
ARB	Angiotensin Receptor Blocker
ARV	Antiretroviral (Drug)
ASCOT	Anglo Scandinavian Outcomes Trial
ASH	American Society of Haematology
<i>BMJ</i>	<i>British Medical Journal</i>
BP	Blood Pressure
BR	Background Regimen
CI	Confidence Interval
CFUs	Colony-Forming Units
CNN	Cable News Network
CTA	Call to Action
CV	Cardiovascular
DNA	Deoxyribonucleic Acid
DVT	Deep Vein Thrombosis
EBM	Evidence Based Medicine
ECG	Electrocardiograph/Electrocardiogram
EMA	European Medicines Agency
EQ	Emotional Quotient
ERs	Emergency Rooms
ERS	European Respiratory Society
ESC	European Society of Cardiology
FDA	Food and Drugs Administration
GM	Genetically Modified
HDL	High Density Lipoprotein
HIV	Human Immuno-Deficiency Virus
hsCRP	High Sensitivity C Reactive Protein

IMRAD	Introduction, Methods, Results and Discussion
INR	International Normalised Ratio
IQ	Intelligence Quotient
IV	Intravenous
LDL	Low Density Lipoprotein
LFT	Liver Function Test
MALES	Message, Audience, Language, Examples, Summary
MI	Myocardial Infarction
MIC	Minimum Inhibitory Concentration
MMR	Mumps, Measles, Rubella
MRSA	Methicillin-resistant <i>Staphylococcus aureus</i>
MS	Multiple Sclerosis
PEP	Point, Evidence, Point
PI	Principal Investigator
PLATO	Platelet Inhibition and Patient Outcomes
PPI	Proton Pump Inhibitor
RAM	Resistance Associated Mutations
RRMS	Relapsing Remitting Multiple Sclerosis
SSRIs	Selective Serotonin Reuptake Inhibitors
TED	Technology, Entertainment, Design
THR	Total Hip Replacement
TKR	Total Knee Replacement
TLAs	Three Letter Acronyms
T-scores	Bone Mineral Density (BMD) test
VTEs	Venous Thromboembolisms

# Introduction: About this Book

**Question:** There are many books on communicating clearly, so why is this one different?

**Answer:** It's aimed at doctors and scientists, and anyone else who has to present or talk about clinical trials, science or medicine to a range of audiences. Scientific researchers, physicians who conduct clinical trials, academics, executives in pharmaceutical companies and representatives of scientific will find it invaluable.

Scientific communication poses its own challenges. The subject matter is complex and often requires the audience to have a certain level of prior knowledge to understand it correctly. Describing hazard ratios, interpreting Kaplan Meier curves and explaining confounding factors is different from talking about a new car or clothing range. Processes, for example in clinical trials, are laborious and tedious. Knowing how much of the detail to include and exclude requires judgement. Conclusions are rarely clear cut, and are often a matter of interpretation rather than hard facts. Communicating statistical risk and probability is challenging, especially to non-statisticians and non-scientists such as journalists. This book will look at these and many more challenges, then introduce powerful techniques for overcoming them.

It focuses on three types of activities:

1. **Peer to peer communication**, where you are talking to (and answering questions from) informed or specialist audiences.
2. **Onward communication**, where you need to communicate complex matters to non-experts, for example funding bodies or the public.
3. **Media interviews**, where you are required to tell a complex scientific story in a range of media, including newspapers, magazines, specialist journals, TV, radio and online.

Imagine you are one of the leading researchers on a trial of a promising new treatment for one of the major killers which attracts worldwide attention, such as diabetes, cancer, dementia or HIV/AIDS. You and your team have received the data, and the preliminary results are striking. You have been invited to present them at a satellite meeting at the year's major conference in the US.

You expect there will be a few hundred physicians, scientists and researchers in the audience, as well as medical journalists from around the world. *The New England Journal of Medicine* will simultaneously publish the findings online. The presentation will be a high profile event which has handed you a professional responsibility (to get it right) and a personal opportunity (to raise your profile in the medical community).

The findings are unclear, despite the smallest hint of a potential minor safety concern. If they are confirmed by larger and longer trials, this treatment could be what physicians and patients around the world have been waiting for. You want to do justice to the data, and strike the right balance in communicating the potential risks and benefits of the new treatment. You need to convey the promise it offers, while avoiding the 'miracle cure' and 'medical breakthrough' headlines you know the journalists will demand.

After your presentation, you will have to answer questions from scientific colleagues (and rivals!). Immediately following that there will be a series of interviews with scientific and medical correspondents accredited to the conference. They will file their stories and you will then be contacted by non-specialist journalists from all over the world, whose understanding of the subject matter may be sketchy at best. When you return to your institute you will be besieged with requests to talk about your data.

All of these situations require sophisticated communication skills. In particular, you will be dealing with different levels of understanding and prior knowledge.

Before any of that, you have to write the presentation. Where do you start? Where do you end? The data set is large and complex ... how much should you include? How much emphasis should you give to that potential small safety concern? How will you illustrate the key points, ensuring that every slide enhances the audience's understanding? When you take the stage, how can you ensure you will deliver an assured, impactful and memorable performance? How confident will you feel handling questions from internationally-renowned