Communicating statistics to the media: highs and lows of the pandemic (so far)

David Spiegelhalter

Chair of the Winton Centre for Risk & Evidence Communication, Centre for Mathematical Sciences, University of Cambridge

> Non-Executive Director, UK Statistics Authority President, Royal Statistical Society 2017-2018 @d spiegel

COPSS-NISS COVID-19 Data Science Webinar 2021

Information Science and Statistics

Robert G. Cowell · A. Philip Dawid Steffen L. Lauritzen · David J. Spiegelhalter

Probabilistic Networks and Expert Systems

Exact Computational Methods for Bayesian Networks

🙆 Springer



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David Lunn Christopher Jackson Nicky Best Andrew Thomas David Spiegelhalter



I used to do statistical methodology.... until I was philanthropically funded in 2007.....





Winton Centre for Risk and Evidence Communication

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WintonCentre@maths.cam.ac.uk

A PELICAN BOOK

The Art of Statistics Learning from Data David Spiegelhalter







Data does not speak for itself

INTRODUCTION

- The numbers have no way of speaking for themselves. We speak for them. We imbue them with meaning.
- Nate Silver, *The Signal and the Noise*¹

Deat	Deaths within 28 days of positive test			
Daily	Total			
6	127,434			

Deaths with COVID-19 on the death certificate

Weekly Total 422 150,841

Deaths within 28 days of positive test by date of death

Number of deaths of people who had had a positive test result for COVID-19 and died within 28 days of the first positive test. Data from the four nations are not directly comparable as methodologies and inclusion criteria vary. Data for the period ending 5 days before the date when the website was last updated with data for the selected area, highlighted in grey, is incomplete.

Daily Cumulative Data About



• UK total O By nation



Figure 3: Deaths from all causes were below the five-year average in Week 15

Number of deaths registered by week, England and Wales, 28 December 2019 to 16 April 2021



16 Apr 2021

Source: Office for National Statistics – Deaths registered weekly in England and Wales

ILI -"Influenzalike illness



Figure 30: RCGP ILI consultation rates, all ages, England

Figure 35: Weekly overall hospital admission rates per 100,000 of new COVID-19 and influenza positive cases reported through SARI Watch, England



But let's drill down

- 25% extra non-Covid deaths at home continue
- What is the quality of these deaths?

Figure 6: Deaths in private homes and other settings were above the five-year average in Week 15 but remain below the five-year average in hospitals and care homes

Number of excess deaths by place of occurrence, England and Wales, registered between 7 March 2020 and 16 April 2021



Source: Office for National Statistics - Deaths registered weekly in England and Wales

It's been a busy time...

- National statistics and public health organisations have (mainly) done an amazing job in getting stats out!
- Huge demand from media for comments from 'experts'
- I've been part of weekly press briefings run by UK Science Media Centre
- Most journalists have acted well
- But tricky to remain 'non-aligned'
- Constant need to say 'not what I know about'



• Significance

Sound human, steer clear of jargon, and be prepared

Kevin McConway and David Spiegelhalter offer tips to statisticians communicating through the media, especially in the time of Covid-19

The coronavirus pandemic has brought an unprecedented demand from the media for statistical commentary. Whereas a trip to a aimed at statisticians who are willing to studio for a radio or TV interview was once an engage with the media, and who would like exciting novelty for a statistician, the seller's market over the pandemic means that many requests have to be turned down, and the rest fitted in with family life at home.

While it is always gratifying to be wanted, we have personally faced many challenges

in our media work, and here we try to distil our experiences into a list of tips. These are to avoid making all the mistakes that we have - although, even if you absorb our nuggets of wisdom, things will still go wrong (see no. 9). We start with some selected points taught to anyone dealing with the media, then get onto specific issues for statisticians, and finish or live, solo or with someone else, and so on.

off with some comments on relationships with journalists.

General tips for dealing with the media

1. Get media training Media training will go through essential matters such as understanding the format of the interview (for radio or TV), pre-recorded

32 SIGNIFICANCE April 2021

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The McConway and Spiegelhalter guide for statisticians talking to the media about Covid

- 1. Get media training
- 2. Don't be lured out of your comfort zone
- 3. Beware of 'just a chat'
- 4. Beware of being set up for a pre-selected quote
- 5. Make friends with journalists
- 6. Don't be pulled into someone else's argument
- 7. Being a statistician is assumed to mean that you know every number...
- 8. Stick to explaining
- 9. Control the nit-picking
- 10. Sound human
- 11. Keep off the (statistical) jargon
- 12. Get a 'critical friend'
- 13. You'll get things wrong. Don't agonise about that
- 14. Don't be shy about complaining

Learning the hard way through repeated mistakes...

Too much attention...

The Guardian view Columnists Cartoons Opinion videos Letters

Opinion Coronavirus outbreak This article is more than 2 months old

Coronavirus deaths: how does Britain compare with other countries? *David Spiegelhalter*

It's tempting to try to construct a league table, but we'll have to wait months, if not years, for the true picture



May 6^{th:} Boris Johnson in PMQs

I would echo what we have heard from Professor David Spiegelhalter and others: at this stage I do not think that the international comparisons and the data are yet there to draw the conclusions that we want.

Later that day...



May 13 Keir Starmer in PMQs This is what Professor Spiegelhalter said at the weekend, and we need to think about it: "we should...use other countries to try and learn why our numbers are high"



Polite request to PM and others: please stop using my Guardian article to claim we cannot make any international comparisons yet. I refer only to detailed league tables-of course we should now use other countries to try and learn why our numbers are high

theguardian.com/commentisfree/...



Coronavirus deaths: how does Britain compare with other countries? | David Spie... theguardian.com

6:33pm · 6 May 2020 · TweetDeck

View Tweet Activity

536 Replies 10,151 Retweets 23,608 Likes

Some attempts at communication



Winton Centre for Risk and Evidence Communication, Statistical Laboratory Centre for Mathematical Sciences, Cambridge, UK

david@statslab.cam.ac.uk Cite this as: *BMJ* 2020;370:m3259 http://dx.doi.org/10.1136/bmj.m3259

Use of "normal" risk to improve understanding of dangers of covid-19

Accumulating data on deaths from covid-19 show an association with age that closely matches the "normal" risk we all face. Explaining risk in this way could help people understand and manage their response, says **David Spiegelhalter**

David Spiegelhalter chair¹

In the first wave, what have been the death rates in the population (ie catching it and then dying)?

Very strong age-gradient

COVID death rates in population around 12–13% higher for each year older, double every 5–6 years.

> 10,000–fold variation in risk

Men have around double risk of women the same age. Covid risk is for uninfected people, and is IN ADDITION to normal risk

In first wave, those over 50 on average experienced extra risk roughly equivalent to 5 extra weeks of normal life



age

age

(Deaths registered E+W Weeks 11 to 26: 7 Mar- 26 Jun)

What about the chance of dying IF you catch it? (IFR)



- Back in March I said that the risk, if you caught Covid, was similar to the risk of dying this year from other causes
- This was misinterpreted!



Keeping perspective. Fact based tweet.

Corona deaths are NOT outpacing what is normal or usual.

Graph from Prof Sir David Spiegelhalter, at the University of Cambridge

Chances of dying from coronavirus v normal annual risk

Risk of dying each year by age (GB)



8:10am · 5 Apr 2020 · Twitter for iPhone

100 Replies 269 Retweets 547 Likes



CALMING FEARS Your risk of dying is NO different this year – despite coronavirus pandemic, says expert

Lucy Jones, Digital Health & Fitness Reporter 1 May 2020, 11:44 | Updated: 1 May 2020, 15:15

CALMING FEARS Your risk of dying from coronavirus is roughly the same as your annual risk, says expert

Lucy Jones, Digital Health & Fitness Reporter 1 May 2020, 11:44 | Updated: 3 May 2020, 10:13

What about the chance of dying IF you catch it? (IFR)



Availability of data can have unintended consequences...

18th November 2020



New study suggests more than five million Britons have had the coronavirus. Given that ~50,000 people have died from it, that means it has an IFR of <0.1%. That's roughly the same as seasonal flu. dailymail.co.uk/sciencetech/ar...



More than 5 MILLION Britons caught the coronavirus by September dailymail.co.uk

5:43am · 18 Nov 2020 · Twitter for iPhone

2,266 Replies 692 Retweets 2,143 Likes

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But 50,000 from 5,000,000 is 1%, not 0.1%....

What about **trust**?

Onora-O'Neill....

Organisations should not be aiming to 'increase trust'

• Rather, aim to demonstrate trustworthiness



Code of Practice for Statistics

Ensuring official statistics serve the public

Edition 2.0 February 2018





The pillars and principles of the Code of Practice for Statistics

Trustworthiness

Confidence in the people and organisations that produce statistics and data

T1 Honesty and integrity

People in organisations that release statistics should be truthful, impartial and independent, and meet consistent standards of behaviour that reflect the wider public good.

T2 Independent decision making and leadership

Organisations should assign a Chief Statistician/Head of Profession for Statistics who upholds and advocates the standards of the Code, strives to improve statistics and data for the public good, and challenges their inappropriate use.

T3 Orderly release

Organisations should commit to releasing their statistics in an open and transparent manner that promotes confidence.

T4 Transparent processes and management

Organisations should have effective business processes and appropriate resources to support their statistical functions and be open about their plans, priorities and progress.

T5 Professional capability

People producing statistics should be appropriately skilled, trained and supported in their roles and professional development.

T6 Data governance

Organisations should look after people's information securely and manage data in ways that are consistent with relevant legislation and serve the public good.

Part of demonstrating trustworthiness..

- .. is admitting uncertainty about what we know
- Could be a range about a number
- Or an acknowledgement of limited quality of evidence

Too much precision?

- Different estimates of R from 8 groups
- Using essentially same data, different models
- Precise estimates (narrow intervals)
- But cannot be accurate, as don't all overlap
- Intervals are based on assuming model assumptions are true
- Too confident!
- "All models are wrong, but some are useful"

Figure 1: SPI-M-O groups' estimates of median R in the UK, including 90% confidence intervals. Bars represent different independent estimates shaded area represents the combined numerical range and the black bar is the combined range after rounding to 1 decimal place. The UK estimate of R is the average over very different epidemiological situations and should be regarded as a guide to the general trend rathed description of the epidemic state.



"Star ratings" for quality/strength of evidence for effectiveness of policies

UK What Works Centres



0031 0	Evidence Strength ~ Months Impact	
£££££	888 +2	
£££££		
£££££	8888 +4	
£££££		
	(2)	

£££££

+5

Moderate impact for very low cost, based on extensive evidence.

Sage on Covid interventions (S0770)

Requirement for use of face covering outdoors Very Low impact on community transmission. **High confidence.**

Closure of places of worship / community centres Potential reduction in Rt of up to 0.1, though precise estimation very difficult **Moderate confidence**. Explore our content v Journal information v Subscribe

View all Nature Research journals Search C

nature > comment > article

COMMENT · 18 NOVEMBER 2020

Five rules for evidence communication

Avoid unwarranted certainty, neat narratives and partisan presentation; strive to inform, not persuade.

Michael Blastland, Alexandra L. J. Freeman 🖾, Sander van der Linden, Theresa M. Marteau & David Spiegelhalter 🖄

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Consider what information - in what format - would best support your audiences' decisions. Credit: Matthew Horwood/Getty

- 1. Inform, not persuade
- 2. Balance but not false balance
- 3. Disclose uncertainties
- 4. State evidence quality
- 5. Pre-bunk misinformation

The vaccines work: rates of severe Covid-19 are falling faster and further among the elderly than among younger groups, from the UK, to the US to Chile

Hospital or ICU load a percentage of the winter peak, by age group (log scale)



Sources: FT analysis of UK government Covid-19 dashboard; US CDC; Chilean science ministry FT graphic: John Burn-Murdoch / @jburnmurdoch © FT

Communicating the potential benefits and harms of the Astra-Zeneca COVID-19 vaccine



Winton Centre for Risk and Evidence Communication

WintonCentre@maths.cam.ac.uk

Weighing up the potential benefits and harms of the Astra-Zeneca COVID-19 vaccine



* Based on coronavirus incidence of 2 per 10,000: roughly UK in March

Conclusions

- Data literacy is a vital skill in modern life
- The Covid crisis has made this even clearer!
- Statisticians have shown themselves to be helpful and without strong agendas

Be careful speaking to the media...

In December on the Today programme, discussing possible Christmas rules



- I said that raised voices could spread the virus
- So maybe singing may be banned?
- Also might be a good idea to ban family arguments
- This was a joke
- By 9.25 am....



Christmas warning: Families could be banned from ARGUING to prevent Covid spread

FAMILY rows could be banned at Christmas dinner if coronavirus lockdown rules are relaxed over the festive period, according to a leading British statistician.

By OLI SMITH PUBLISHED: 09:25, Fri, Nov 20, 2020 | UPDATED: 16:06, Fri, Nov 20, 2020