

KEY LEARNINGS

# Data, Evidence and Science

What does Covid-19 teach us about how data, evidence and science is accessed, used and communicated? How can we use this learning to enhance Scotland's ability to effectively use data, evidence and science?



*Post-Covid-19  
Futures Commission*  
THE ROYAL SOCIETY OF EDINBURGH



# Data, Evidence and Science

## Executive Summary – Key Learnings



### **Transparency is critical for public understanding and building trust.**

This includes: transparency around the collection and use of data; transparency around the basis on which decisions are made including levels of confidence in data; and transparency on the structures, membership and discussions of advisory groups.

**Engagement with the public supports understanding and underpins effective decision-making.** This includes: engagement around how data is collected and used and the way in which data sharing provides public benefit; engagement that enables different voices to be heard and different forms of expertise to inform decision-making; and tapping into the potential of citizen science for providing data and intelligence.

**A holistic collaborative approach is fundamental to responding effectively to complex challenges.** This includes: a multi- and inter- disciplinary approach drawing on expertise from a wide range of disciplines and specialisms; recognising and drawing on evidence and expertise from the third and private sectors; and working effectively between and across all levels of governments (national, devolved and local) and with the wider public sector.

**Good communications is key to ensuring public understanding.** This includes clarity, consistency and accessibility of messaging; being mindful about who is best-placed to communicate including the value of peer communicators; and working to address the spread of misinformation or misleading reportage.

*This report represents the views of the Royal Society of Edinburgh's Post-Covid-19 Futures Commission, which was set up by the RSE to contribute to Scotland's recovery and renewal. The views are not necessarily those of the RSE but are the learnings and recommendations emerging from an 18 month programme of activities and research which were designed to take into account expert opinion and lived experience. Along with a number of bodies mentioned in the report, the RSE will explore these findings over the coming months.*

# Key Recommendations

The RSE should work with the Scottish Government and the university sector to develop a rapid response service that enables the Government and wider public sector to rapidly access good quality, independent evidence and expertise from across the academic community in crisis / emergency situations<sup>1</sup>.

The Scottish Government and the UK Government should include a section on their websites setting out the main expert advisory committees, their remits, membership and decision-making flows.

Research awarding bodies should review their grant application processes to ensure they continue to allow for more rapid targeted funding of research in response to future challenges.

The Scottish Government should work together with partners, such as The Data Lab, to support an informed national conversation on the use of personal data and data sharing for public good to inform responses to future pandemics and other societal challenges.

Education Scotland should work with The Learned Societies Group and other science bodies, to explore the scope for pooling resources to create a Scottish equivalent of Let's Talk Science Canada, to support science education and outreach to school-aged children.

The RSE should establish a science into practice series with targeted sessions for key practice groups, including politicians and the media, on key scientific issues and questions or issues which have a scientific base / underpinning.

The UK and Scottish Governments should work with the RSE, the other national academies, and the university sector to establish a fully independent fact-checking service to review and challenge mis-reporting and presentation of scientific information in the media / social media which leads to, or could lead to, social harms.

The RSE should explore the scope for producing easy to digest summaries of key issues and underpinning science and research in collaboration with the Royal Society and the other national academies.

<sup>1</sup> Red text = Commission-level findings

# Access, Co-ordination and Deployment of Data, Evidence and Science

- Data, Evidence and Science (DES) is used routinely to inform policy decisions but the pandemic brought challenges of working at pace to address an immediate threat to life, in circumstances where the evidence was evolving and subject to a high degree of public exposure and scrutiny.
- With evidence evolving and decisions often required ahead of a full understanding, inevitably judgments had to be made about the necessary level of robustness (e.g. 'on balance' or 'beyond reasonable doubt') required to inform decisions and what level of risk in these decisions was acceptable.
- Initial decisions drew on evidence and advice from a relatively narrow set of academic disciplines focused on understanding the virus with wider expertise, including around human behaviours, coming later to the table. Given the importance of behaviours in slowing or speeding transmission this was a serious omission.
- Policy development and government decisions were often heavily reliant on models and modelling. However the role, and limitation of models, was not always articulated while the complexity of models makes it difficult for those not involved in building them to scrutinise the models and the different variables and assumptions underpinning them.
- While Covid-19 presented a great number of unknowns, particularly in the early days of the pandemic, there was a knowledge base about the spread of infectious diseases and lessons from other countries around infection management that could have been drawn on more effectively.
- The departmental nature of Government(s) makes it harder to join up the commissioning and use of DES across Government on cross-cutting issues particularly in a crisis situation. The use of advisory groups played a key role in facilitating access to external expertise during the pandemic but how these groups were constituted, their organisational and reporting structures, impact on decision-making and the links between the different groups was not always clear.
- The opaqueness of advisory structures, and the lack of known routes for relevant perspectives to be articulated, made it difficult for other voices to input. This included small life science businesses with innovations to contribute (e.g. in therapeutics) being overlooked.

- Organisations like the Royal Society of Edinburgh, Scotland's National Academy can play a key role in facilitating access to and convening a breadth of expertise including co-ordinating expert input from across academia, the public and third sectors and industry and working with sister academies from around the world to share understanding and draw lessons from elsewhere.
- Responsive and flexible research funding was key to supporting an understanding of the virus and how it was playing out across different groups in society as well as societal responses.

## Key Learnings

It is important that policy responses to future emergencies draw, from the start, on contributions from a wide range of disciplines to ensure the broadest understanding and to support an effective response.

There is a need for mechanisms which support easier access to evidence and expertise making best use of existing bodies such as the Royal Society of Edinburgh and the Scottish Science Advisory Council.

There would be value in ensuring a dedicated co-ordinating point for evidential advisory groups within Government charged with helping define and clarify interconnections between different advisory groups and identifying gaps in understanding and expertise.

An organogram setting out the different advisory structures, remits and how they connect in decision-making terms would aid understanding while routine publication of membership and minutes would aid transparency.

Grant application processes need to be reviewed, on the back of innovative funding approaches introduced during the pandemic, to ensure they continue to allow for more rapid targeted funding of research in response to future challenges. Thought should also be given to the merits of creating an 'urgency fund'.

## Sharing of Data

- Covid-19 highlighted significant gaps in data including the ability, at least initially, to disaggregate data to consider the impact of the virus on different groups in the population. This was a function of both limitations of data collection and of data sharing.
- While providing often necessary protections, GDPR is not fit for purpose in a crisis situation where the sharing of data between key bodies is required to protect society and prevent public harm. At the same time, there is a need to build much greater trust amongst the public in how data is collected, used, and could be used, and to equip people with the skills (including in data literacy) to make informed choices about how their data is used.
- The response to Covid-19 relied heavily on an effective sharing of data between Government departments / directorates, between the UK and Scottish Governments, between national and local government, and between the NHS and government. While there was much good will and good practice, there is a need for clearer protocols and transparency around the publication of data and data sharing and an investment in systems that support the easier secure sharing of data.

### Key Learnings

There is a need for more conversations with the public about data sharing, what it means and why it's important along with education to empower people to make choices about how their data is used.

There is a need to facilitate data sharing between key bodies where it supports enhanced public health. There might be merit in exploring, for some forms of data sharing, the approach recently introduced for organ donation, where the public opt out rather than opt in.

Transparency, including through accessible published organisational protocols around the sharing of data, is critical to developing and maintaining public trust.

# Communication of Data, Evidence and Science

- Communication of data and evidence has been critical to public understanding and securing support for interventions in day to day lives and behaviours. The pandemic has provided examples of where communication has been done well and also where it has been done poorly.
- The frequency, duration and consistency of messaging is vital. The use of daily / regular briefings played a key role in this regard, providing a key mechanism for governments to communicate with the public.
- At the same time, there is a need to consider who is best placed to communicate with the public and when and the social and cultural knowledge needed for effective policy-making and implementation. As the Ipsos MORI Veracity Index consistently shows, scientists and professional advisers tend to be more trusted than politicians. This has implications for the perceived legitimacy or otherwise of the message. It is also important to consider the vital role of peer and community communication, for example, in relation to vaccine take up in particular communities.
- With evidence evolving during the course of the pandemic, for example advice on face masks, there was a risk at times of the public losing trust in science and scientists. Notions of ‘following the science’ or being led by the science gave a false impression of how science works and its evolving nature.
- The pandemic highlighted both a lack of understanding of how science works among the public, politicians and the media and the need for more accessible communication to support a better understanding.
- Communicating uncertainty, presented some particular challenges. It is important to be honest with the public about what is and is not known but to do so in a way that maintains public confidence, for example by talking about risks or levels of risks. This also implies the need for a wider public understanding of how to assess risks. Transparency in communicating the rationale for a particular approach or intervention is vital to maintain trust.
- While the response to Covid-19 has seen a high reliance on academic expertise, the pandemic has highlighted the importance and value of citizen science and engaging citizens in the science which impacts their lives. Such engagement is critical in building trust (e.g. around Track and Trace or the vaccine).

- The media have played an important role in communicating DES and informing debate. However, the media are not, as a rule, impartial and the presentation of DES has sometimes been used to support a particular opinion or approach e.g. a more or less interventionist approach. The appetite for a newsworthy story also led, on occasions, to a distorted picture being presented for example, a focus on large house parties, suggested a lower level of adherence than the data indicated.
- The media faced a number of challenges in providing accurate and informative reporting of the pandemic in the context of the volume and complexity of information, contested views and evolving understanding particularly in the early days of the pandemic. This was further exacerbated by a lack of in-house scientific expertise and science journalists, and challenges in identifying experts who were well-placed to contribute to issue being discussed, as well as not always understanding the importance of peer review in standing up or challenging unreviewed findings.
- Covid-19 generated a greater pull for experts and expertise from Government and the media with scientists and researchers in a very visible role as participants in Government briefings and or a source of expert comment in the media. In the main, academics have been able to avoid being drawn into addressing questions outwith their area of expertise or becoming advocates rather than advisers. Notwithstanding, some academics have found themselves on the receiving end of vitriolic criticism on social media.
- Social media have proved both an effective vehicle for communication of science and public health messages. At the same time they has also allowed for the widespread dissemination of misinformation and uninformed commentary.

## Key Learnings

Greater training is required for those engaged in the communication and presentation of DES to the general public particularly in relation to communicating complexity, uncertainty and (competing) risks.

There is a need to enhance scientific literacy among the general public, the media and decision-makers, including around how science works.

It is important that expert communities have an ongoing dialogue with the media at times of crisis to ensure that key objective information is communicated in an accessible way to multiple audiences.

There is a need for a wider discussion around the responsibilities of different types of media and how regulation might appropriately be designed to guard against social harms including misinformation and disinformation, while protecting freedom of speech and the press.

**RSE** *Post-Covid-19  
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