Communicating modelling results to non-technical audiences

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NIHR Health Protection Research Unit in Emerging and Zoonotic Infections

Overview

Introduction → Example 1: Uncertainty and decision-making → Example 2: Science communication experts → Example 3: Public opinion → Example 4: Modelling in the media → Reflections

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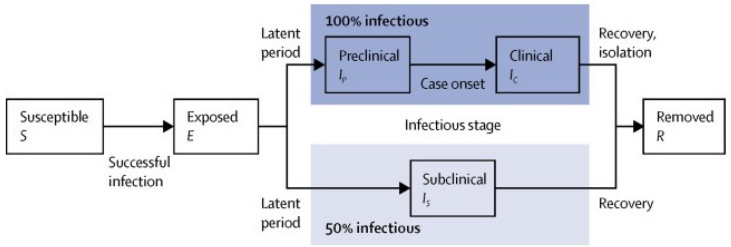
Introduction



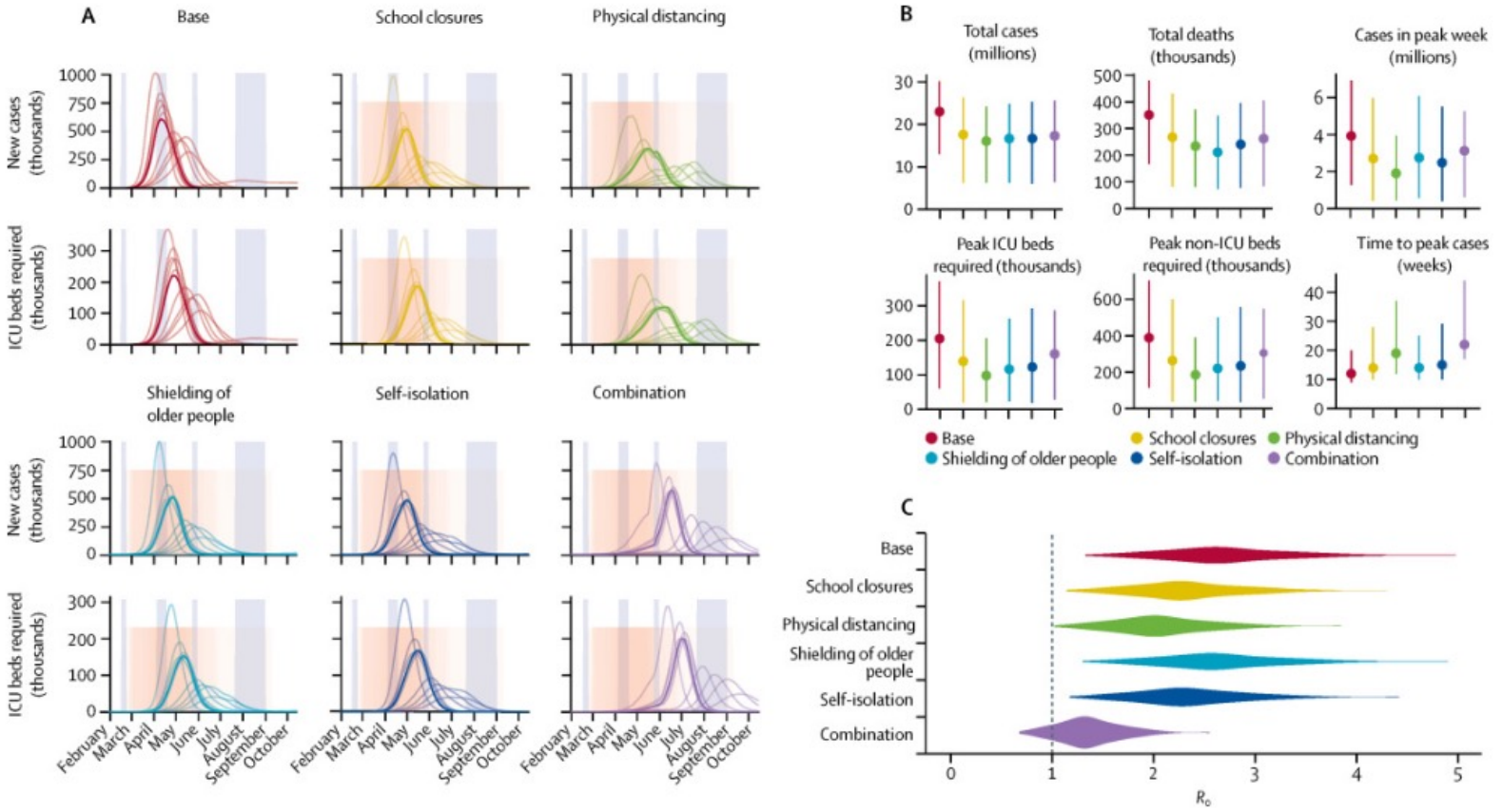


Figure 2 Impact of interventions lasting 12 weeks

Davies et al. Effects of non-pharmaceutical interventions on COVID-19 cases, deaths and demand for hospital services in the UK: a modelling study, 2020. https://doi.org/10.1016/S2468-2667(20)30133-X

Introduction

Example 2

Disease transmission and control modelling at the science-policy interface

(https://doi.org/10.1098/rsfs.2021.0013)

Example 1

Communicating uncertainty in epidemic models

(https://doi.org/10.1016/j.epidem.2021.100520)

Public awareness and opinions on the use of mathematical transmission modelling to inform public health policy in the United Kingdom

(https://doi.org/10.1098/rsif.2023.0456)

Example 3

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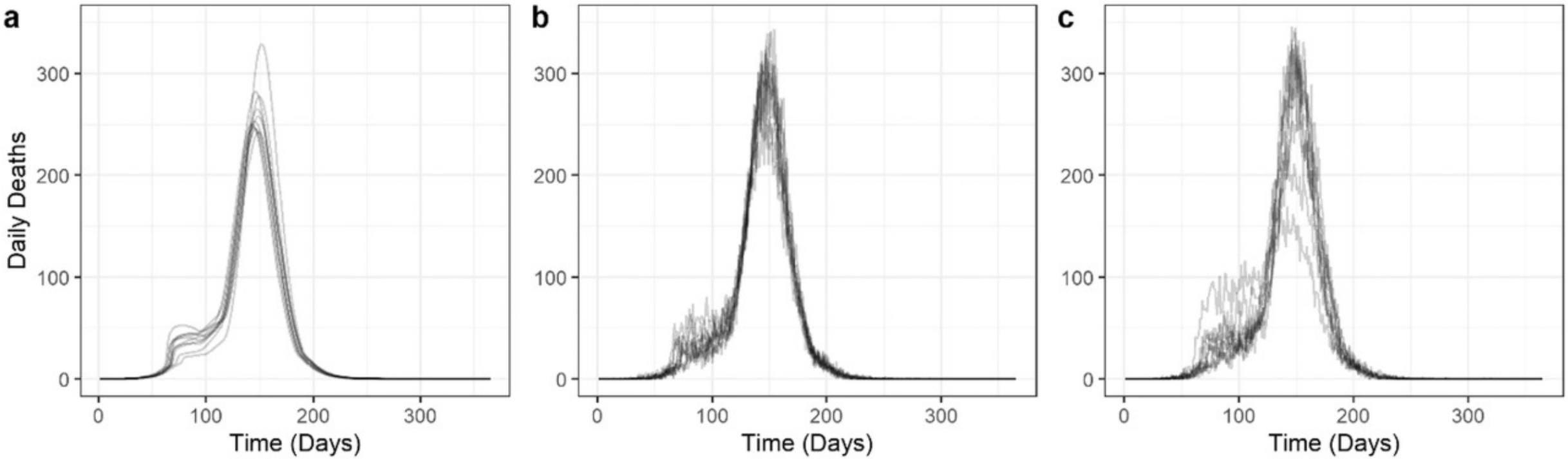
Reflections

Example 1: uncertainty



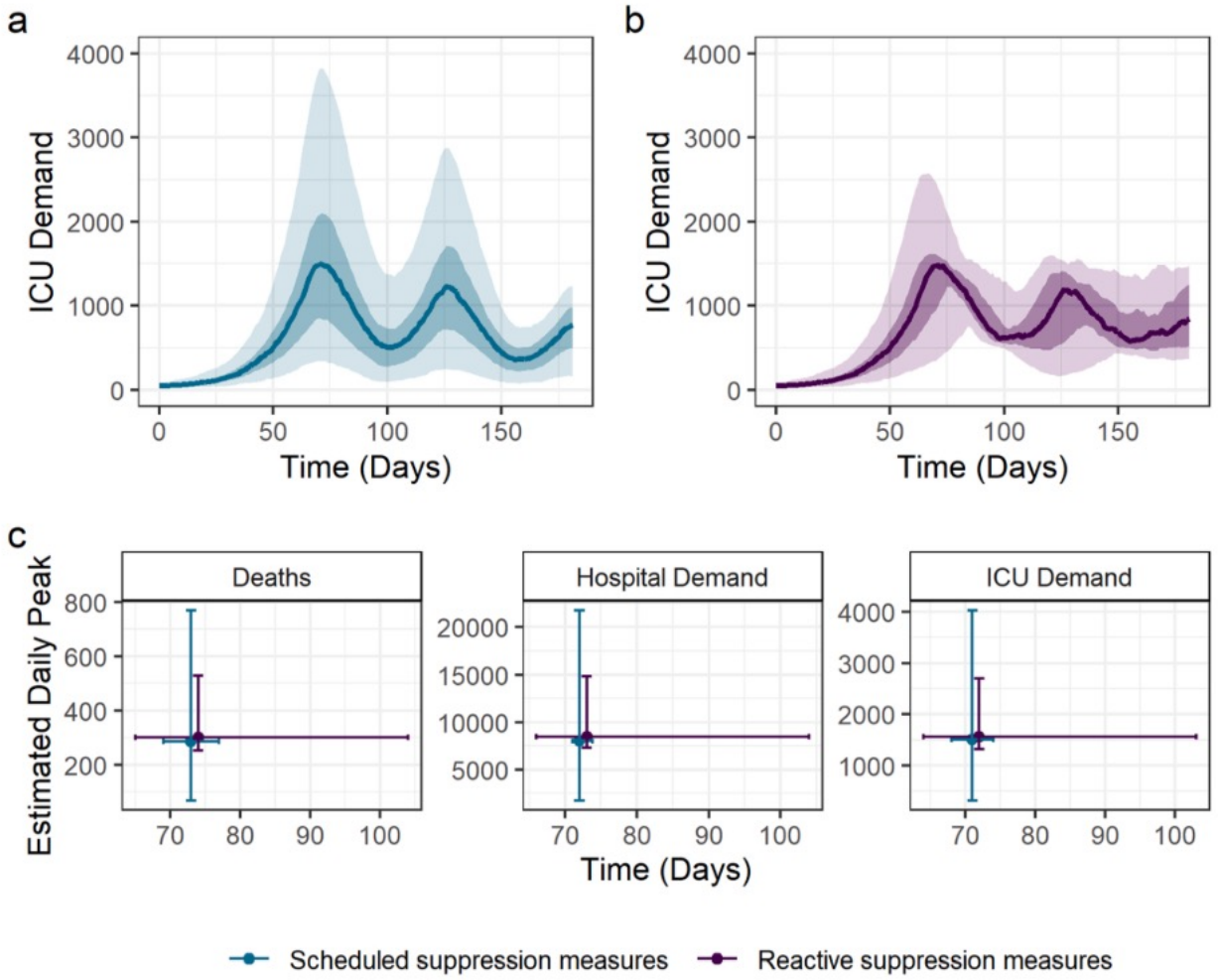
(a) Deterministic model with different parameters per simulation

(b) Stochastic model with fixed parameters across simulations

(c) Stochastic model with different parameters per simulation

McCabe et al. Communicating uncertainty in epidemic models, 2021 https://doi.org/10.1016/j.epidem.2021.100520

Example 1: uncertainty



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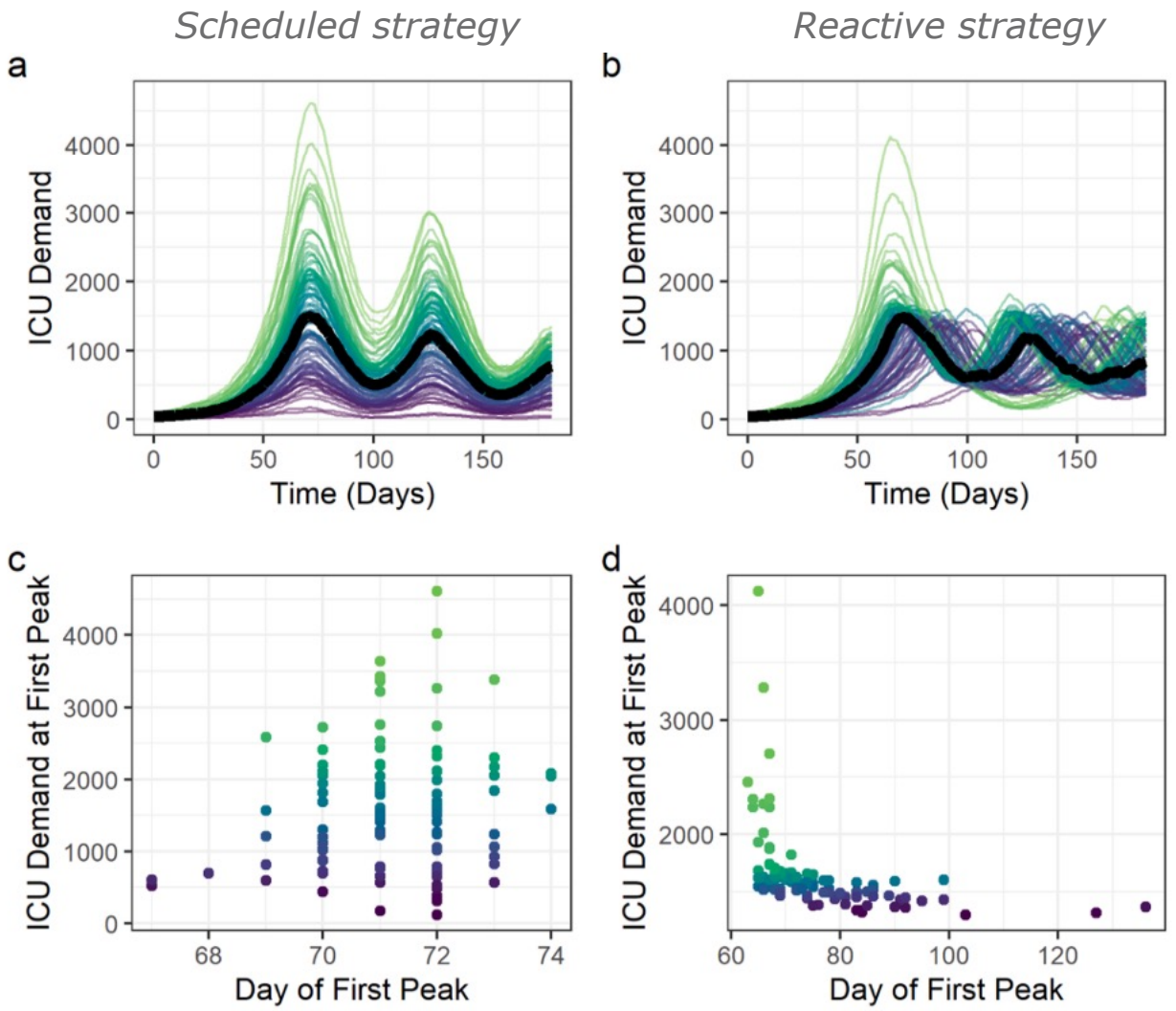

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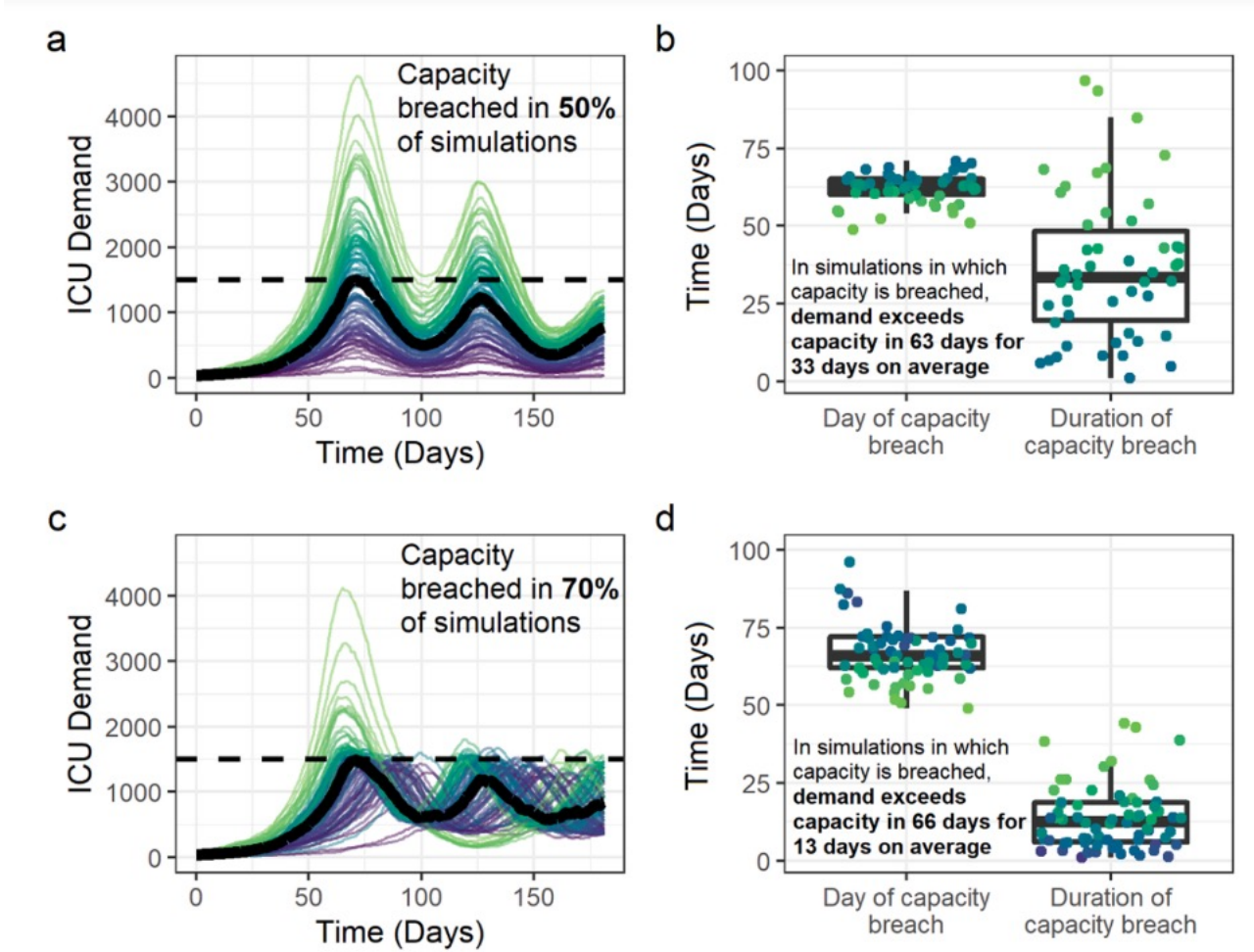
Example 1: uncertainty

Scheduled strategy

Reactive strategy



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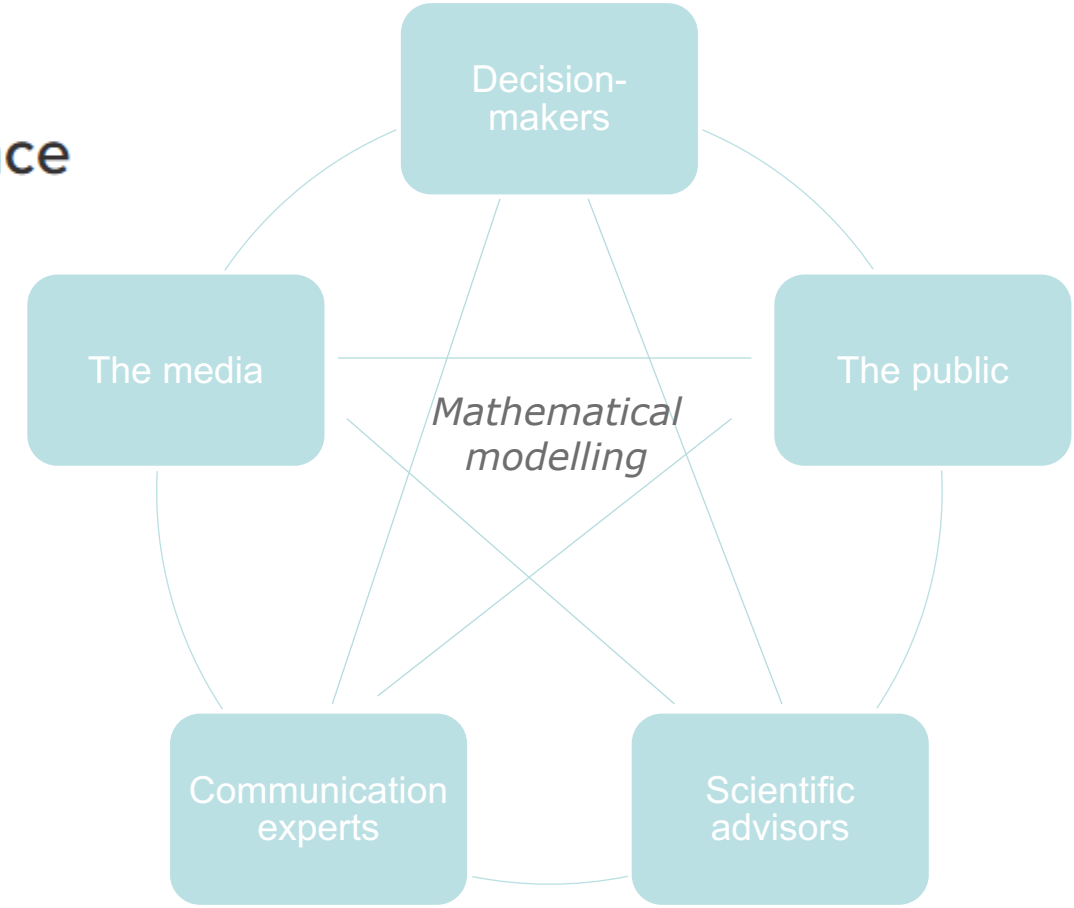
Example 2: science communication experts

Research articles

Disease transmission and control modelling at the science–policy interface

Ruth McCabe and Christl A. Donnelly

Published: 12 October 2021 https://doi.org/10.1098/rsfs.2021.0013



Example 2: science communication experts

Evidence informing policy must be communicated to the public

McCabe and Donnelly, Disease transmission and control modelling at the science-policy interface, 2021 https://doi.org/10.1098/rsfs.2021.0013

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Evidence informing policy must be communicated to the public

Strike a balance between understandable but also noting the caveats of the results

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Evidence informing policy must be communicated to the public

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Broad messages: "cases will rise next week" rather than "we expect an increase of 127 cases by next week"

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Example 2: science communication experts

Evidence informing policy must be communicated to the public

Strike a balance between understandable but also noting the caveats of the results

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Communication of modelling results should come from scientists and scientific advisors

McCabe and Donnelly, Disease transmission and control modelling at the science-policy interface, 2021 https://doi.org/10.1098/rsfs.2021.0013

Example 2: science communication experts

Professor Jason Leitch, National Clinical Director for the Scottish Government 2015 - 2024

https://www.bbc.co.uk/programmes/b0079mcc

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Example 3: Public opinion

Online panel sample
using Prolific Academic

509

- Responses (July 2021)

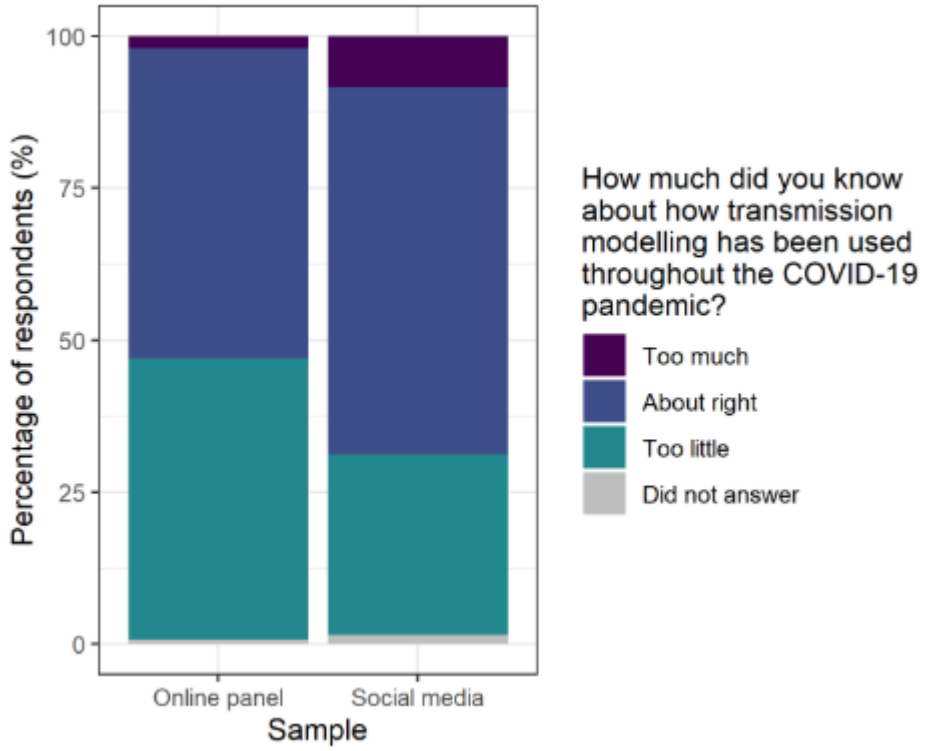
Social media sample
using Twitter

207

- Responses (July – Sept. 2021)

McCabe and Donnelly, Public awareness and opinions on the use of mathematical transmission modelling to inform public health policy in the United Kingdom, 2023 https://doi.org/10.1098/rsif.2023.0456

Example 3: Public opinion



	Online panel	Social media
Too little	233 (46%)	60 (30%)
About right	257 (51%)	122 (60%)
Too much	10 (2%)	17 (8%)
Did not answer	4 (1%)	3 (1%)

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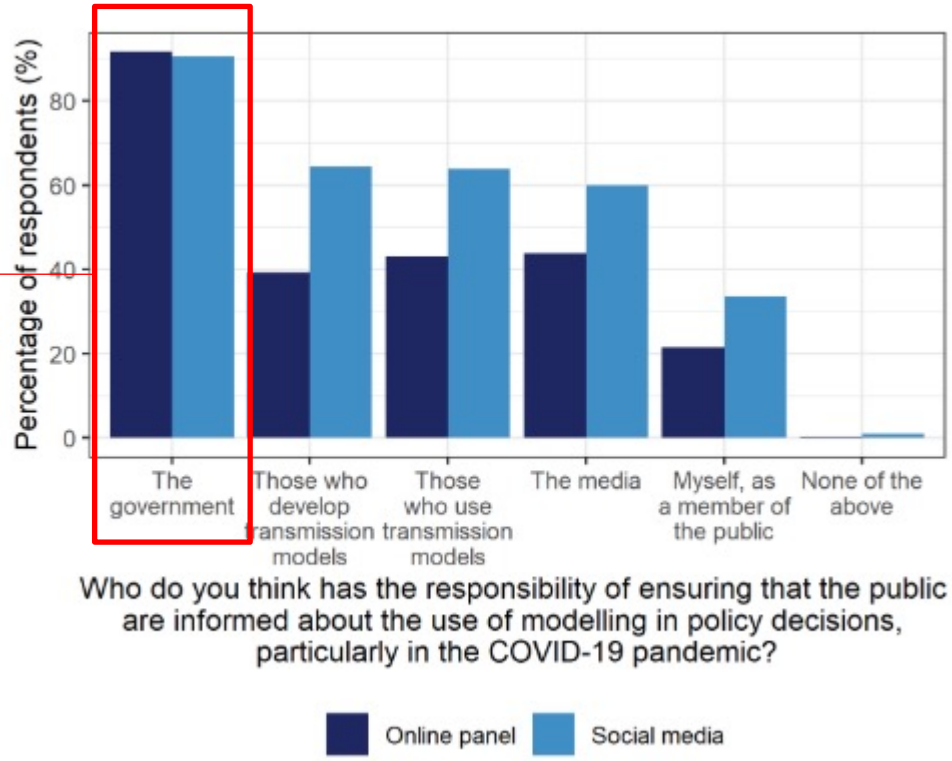
Example 3: Public opinion

- 92% online panel (462 respondents)
- 91% social media (183 respondents)



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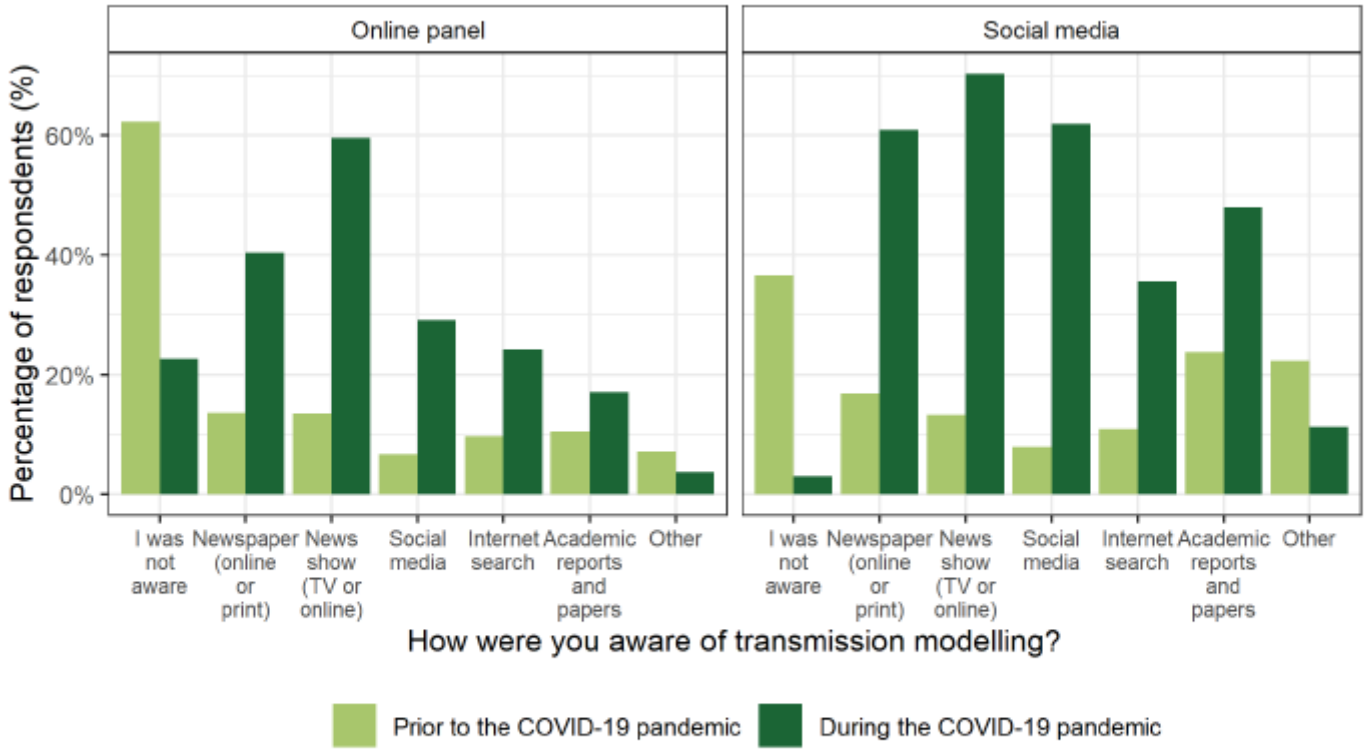
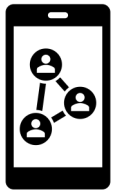


Newspapers

News shows



Social media

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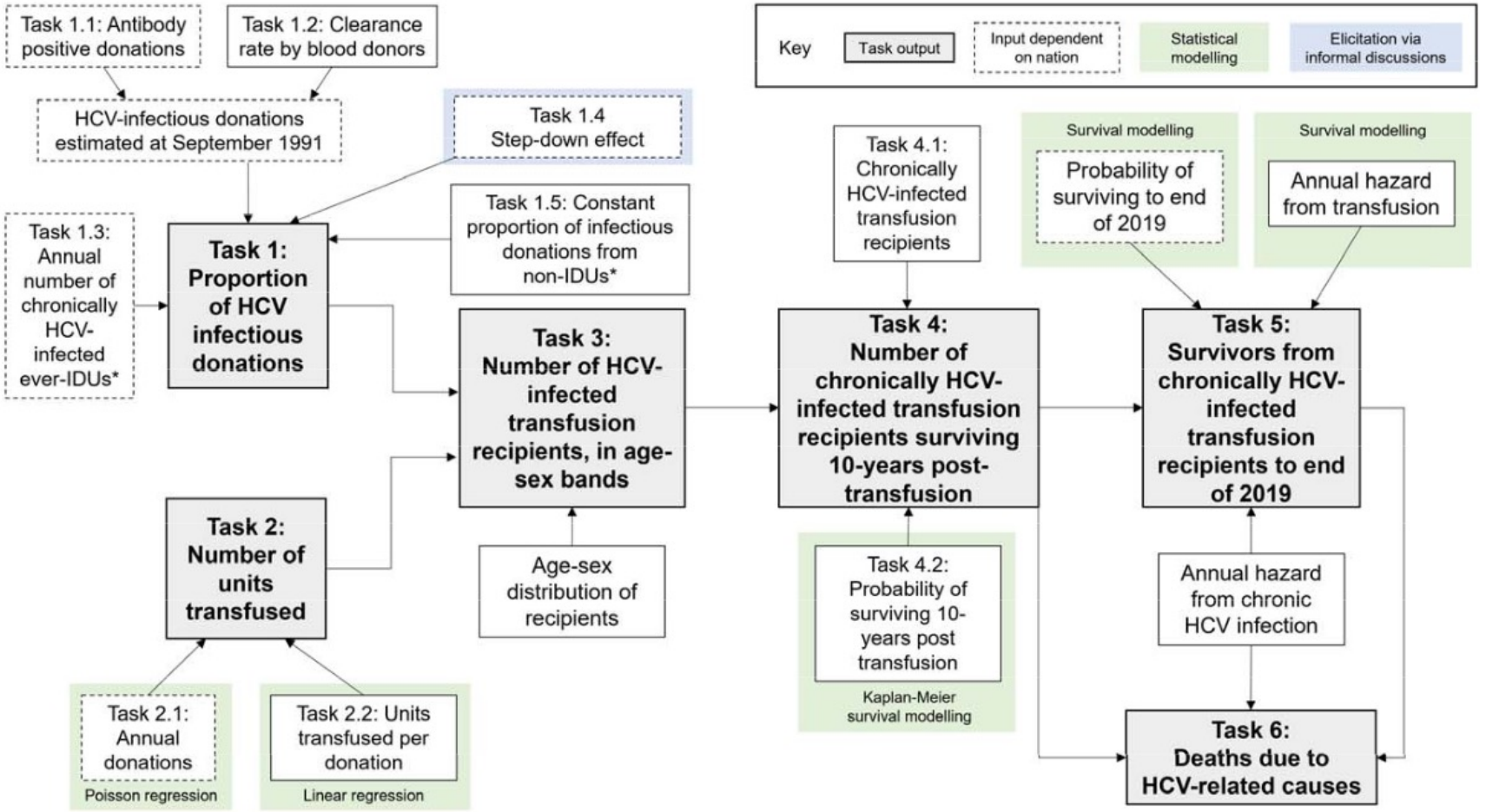
Example 4: modelling in the media

Expert Report to the Infected Blood Inquiry: Statistics

Communicating Uncertainty ii
Executive Summary 1
Introduction 6
Chapter 1 Human Immunodeficiency Virus (HIV) infections in people with bleeding disorders 8
Chapter 2 Hepatitis C Virus (HCV) infections in people with bleeding disorders 19
Chapter 3 HIV infections in transfusion recipients 33
Chapter 4 Hepatitis C Virus (HCV) in transfusion recipients 38
Chapter 5 Information from funds 84
Chapter 6 Variant Creutzfeldt Jakob Disease (vCJD) infections from blood and blood products 91
Chapter 7 Hepatitis B Virus (HBV) infections from blood and blood products 95
Acknowledgements 99
Authors 101
Verifying Statements 103
Appendix 104

Source: https://www.infectedbloodinquiry.org.uk/sites/default/files/EXPG0000049%20-%20Expert%20Report%20to%20the%20Infected%20Blood%20Inquiry%20-%20Statistics_0.pdf

Example 4: modelling in the media



Over 750 distinct scenarios considered

Core results:
26800 (95% UI 21300 – 38800) infections of which
1820 (95% UI 650 – 3320) died due to their infection.

Hayes, McCabe et al. Modelling hepatitis C infection acquired from blood transfusions in the UK between 1970 and 1991 for the Infected Blood Inquiry, 2024 https://doi.org/10.1098/rsos.231722

Example 4: modelling in the media

Top Stories

Infected blood victims await report into biggest ever NHS disaster

More than 30,000 people were infected with HIV and hepatitis C in the infected blood scandal - and 3,000 have since died.

More than 30,000 infected and 3,000 dead: The shocking numbers behind the infected blood scandal

Explainer

What is the UK's infected blood scandal?

More than 3,000 people died and many others were left with lifelong health problems after being given contaminated blood

Sunak set to apologise for infected blood scandal which killed 3,000 as inquiry publishes report

UK's infected blood scandal that killed 3,000 was covered up: Report

Government covered up infected blood scandal that left 3,000 dead

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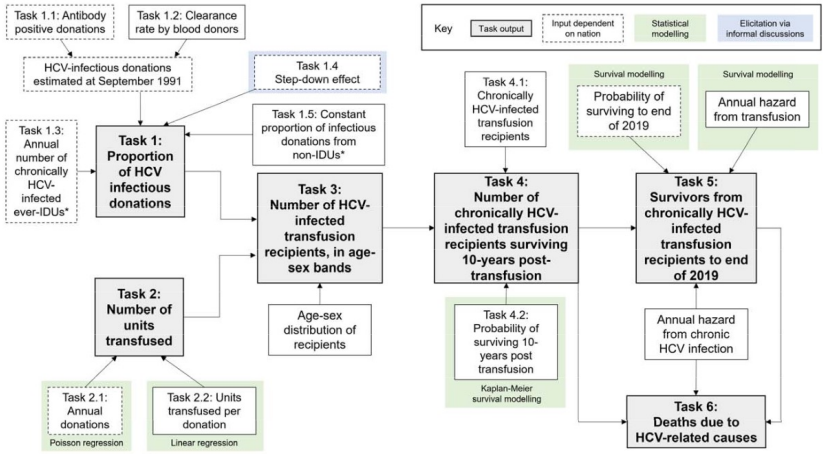

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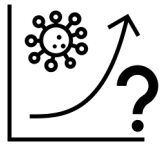

How can we ensure that uncertainty is being reported and understood as a key modelling result?

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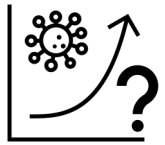

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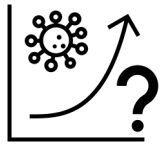

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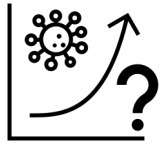

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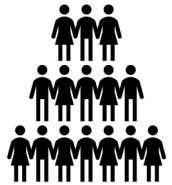

Understanding your audience and what you want to get across will go a long way

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