



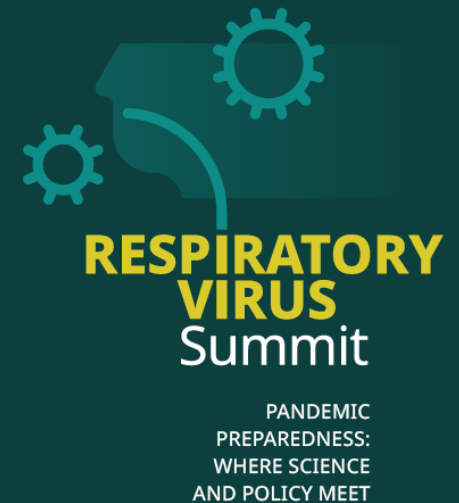
RESPIRATORY VIRUS Summit

organised by **ESWI**

PANDEMIC
PREPAREDNESS:
WHERE SCIENCE
AND POLICY MEET

The role of scientists in advising
policymakers in a pandemic,
what do we do now?
How do we make it work?

Prof. David Fisman, *University of Toronto's Dalla
Lana School of Public Health, Canada*





THE ROLE OF SCIENTISTS IN ADVISING POLICYMAKERS IN A PANDEMIC

David N. Fisman, MD MPH
FRCPC FCAHS

Professor, Epidemiology

Dalla Lana School of Public Health
University of Toronto, Canada

Respiratory Virus Summit

Brussels, Belgium

June 21, 2022

OUTLINE

Politics, policy, science: working definitions.

The pandemic to date: what was knowable? What was unknowable?

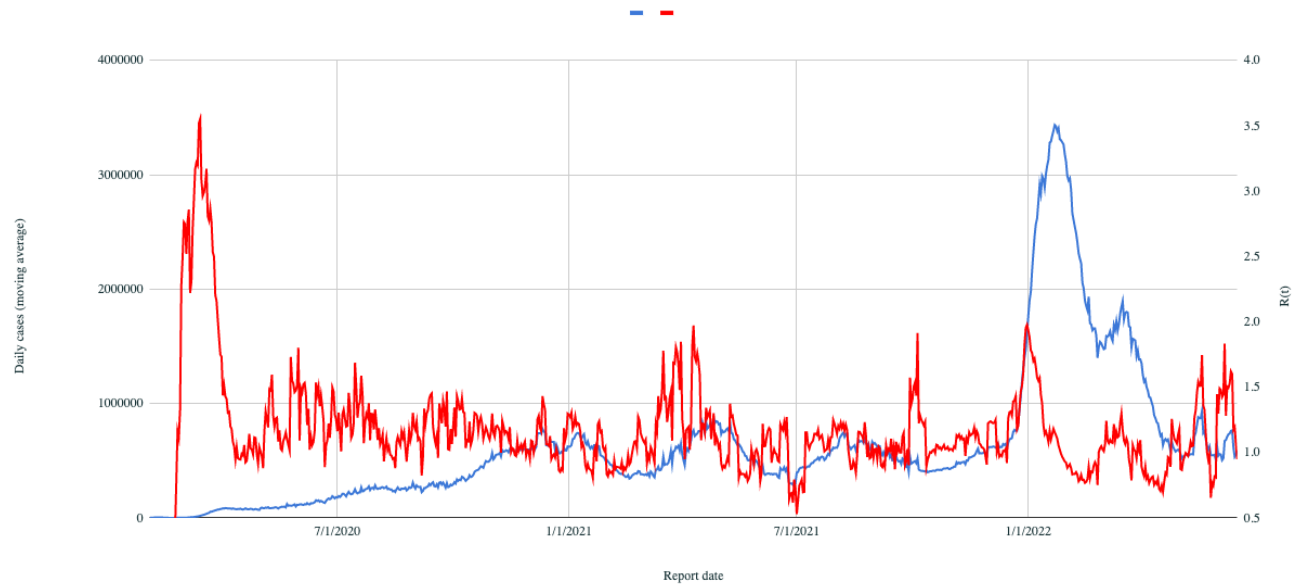
Stringency and control.

Values and disinformation.

Future challenges.

THE SARS-COV-2 PANDEMIC TO DATE

Global Daily Cases (smoothed, blue) and $R(t)$ (red)



THE SARS-COV-2 PANDEMIC TO DATE

- Source:

<https://www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2902796-3>

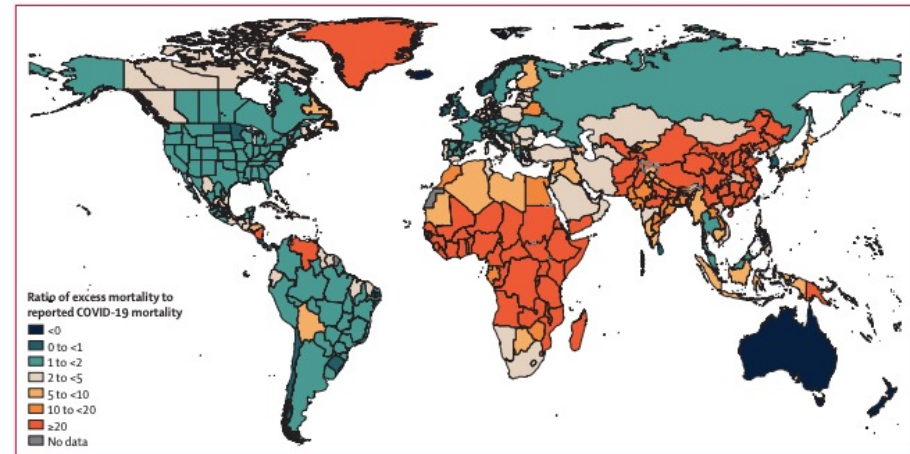
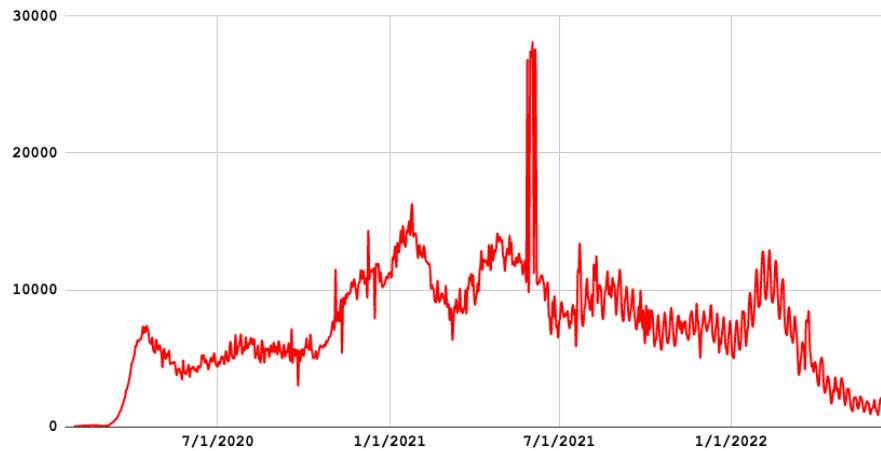
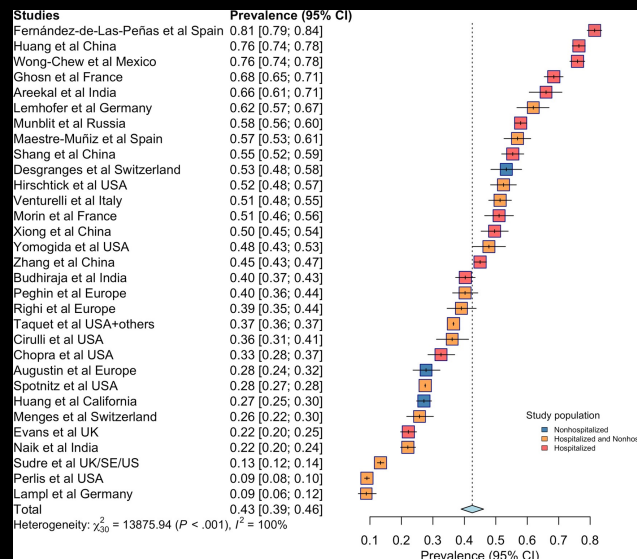


Figure 4: Global distribution of the ratio between estimated excess mortality rate due to the COVID-19 pandemic and reported COVID-19 mortality rate, for



Variable	Patients, No.	OR (95% CI)
Pregnancy SARS-CoV-2 status		
SARS-CoV-2 negative	7550	1 [Reference]
SARS-CoV-2 positive	222	1.86 (1.03-3.36)
Maternal age, y	7772	1.03 (1.00-1.06)
Maternal race		
Asian	772	1.38 (0.92-2.07)
Black or African American	656	0.51 (0.27-0.96)
White	5363	1 [Reference]
Other	733	1.40 (0.82-2.40)
Unknown	248	1.22 (0.61-2.48)
Maternal ethnicity		
Hispanic	1134	1.25 (0.76-2.06)
Non-Hispanic	6378	1 [Reference]
Unavailable	260	1.51 (0.78-2.92)
Maternal public insurance		
No	6341	1 [Reference]
Yes	1431	1.01 (0.68-1.50)
Offspring sex		
Female	3819	1 [Reference]
Male	3953	1.39 (1.07-1.81)
Preterm birth		
No	7086	1 [Reference]
Yes	686	3.39 (2.49-4.62)

LONG-TERM IMPACTS [SOURCES: [HTTPS://DOI.ORG/10.1093/INFDIS/JIAC136](https://doi.org/10.1093/infdis/jiac136), [HTTPS://WWW.THELANCET.COM/JOURNALS/LANCHI/ARTICLE/PIIS2352-4642\(22\)00005-0/FULLTEXT](https://www.thelancet.com/journals/lanchi/article/piiS2352-4642(22)00005-0/fulltext), [HTTPS://JAMANETWORK.COM/JOURNALS/JAMANETWORKOPEN/FULLARTICLE/2793178](https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2793178)]

POLITICS, POLICY, SCIENCE

- **POLITICS:** “Bargaining, negotiation and compromise in pursuit of desired ends”
 - **POLICY:** “A decision, a commitment to a particular course of action”
 - **SCIENCE:** “Systematic pursuit of knowledge”
 - Roger Pielke, *The Honest Broker*, Cambridge University Press, 2007.
 - **Karl Popper:** Scientific knowledge is objectively true, even in the absence of an observer.
 - Generation of knowledge is inductive and proceeds through falsification of competing hypotheses.
 - “How is it that...people believe that instances of which they have no experience will conform to those of which they have had experience? [The Problem of Induction (1974)]”
 - Key question during emergence of previously unknown infectious disease!
-

ISSUE ADVOCATE OR HONEST BROKER?

[SOURCE: PIELKE R, THE HONEST
BROKER, CAMBRIDGE
UNIVERSITY PRESS 2007]

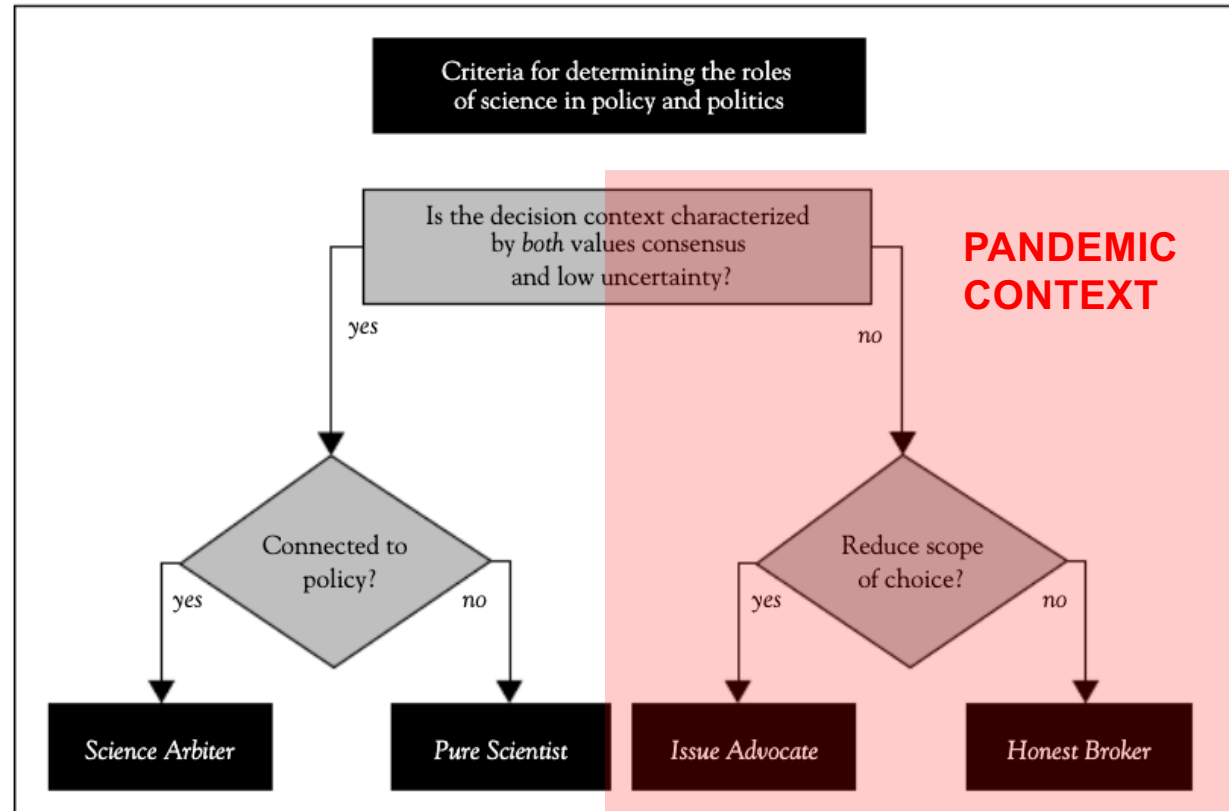
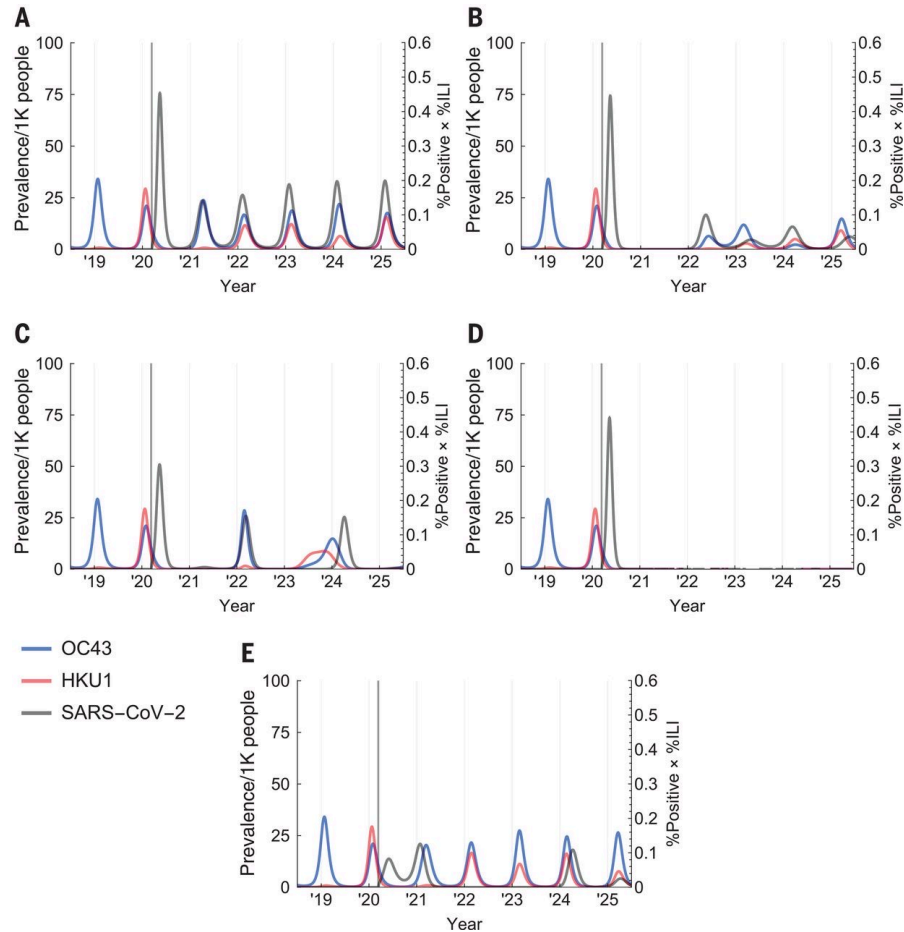


Figure 2.1 Flow chart illustrating the logic of roles for scientists in policy and politics

CHARACTERISTICS OF HARD DECISIONS

- “Scope of choice ambiguous or continuous.”
 - “Conflicts around the desirability of different outcomes.”
 - “Ambiguity exists around conditions that motivate the need for decision-making.”
 - ”More information provides little insight into courses of action likely to lead to a desired outcome.”
 - “Uncertainty is also a resource for various interests in the process of bargaining, negotiation, and compromise...”
 - Roger Pielke, The Honest Broker
-



KNOWLEDGE UNCERTAINTY: WHAT DID WE KNOW AT OUTSET, OR EARLY?

- Basic contours of epidemic defined by the relation $R = pcDS$.
- Coronavirus: immune protection likely to be transient (Kissler et al., Science 2020 <https://www.science.org/doi/full/10.1126/science.abb5793>)

WHAT DID WE KNOW EARLY? WHAT CAME LATER?

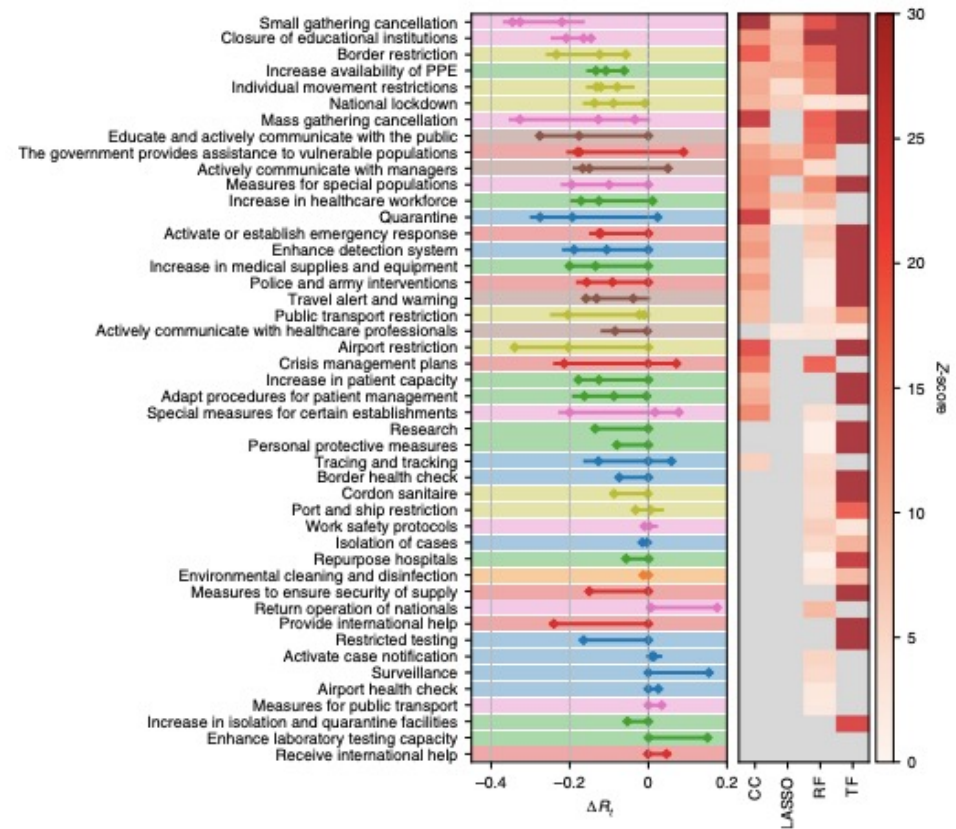
Elements understood early on, or for which sufficient data existed to allow understanding/implementation of control.	Elements understood later, perhaps harder to predict.
Asymptomatic/presymptomatic transmission (February 2020)	Rapidity of vaccine development.
Dominant aerosol transmission (June 2020)	VOC emergence and associated changes in transmissibility, virulence, immune escape.
Overdispersed R_0 (February 2020)	Immune imprinting by early infection.
Importance of masking (April 2020)	Profound social and economic inequities in attack rates, morbidity and mortality.
	Vascular injury and late sequelae.

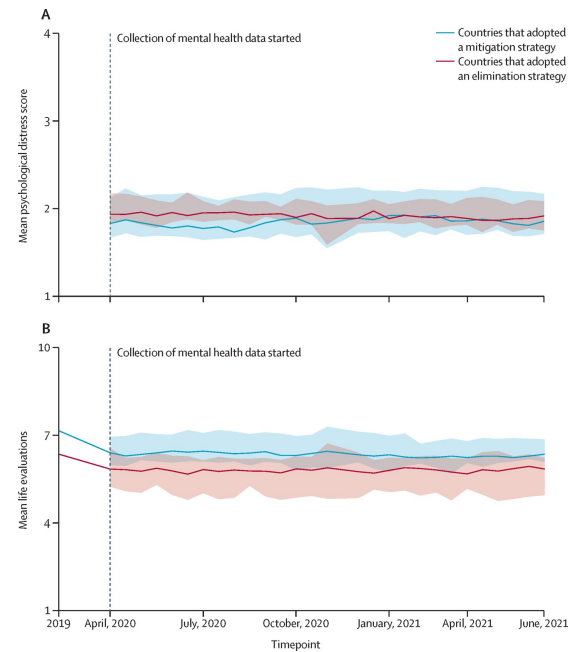
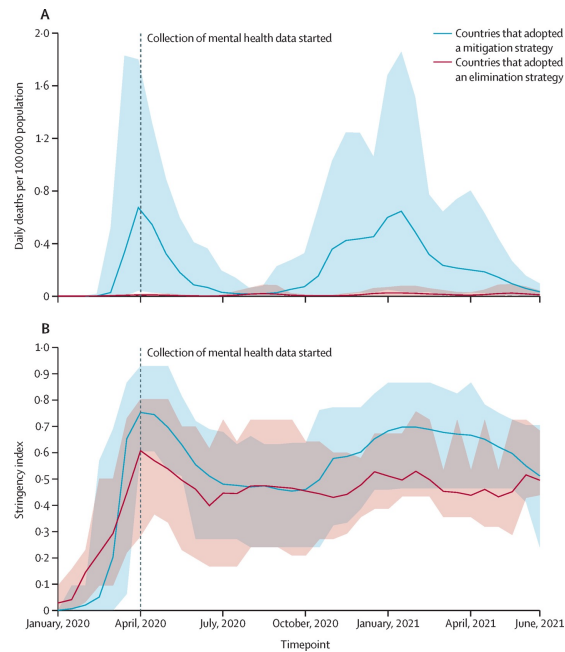
HOW TO CONTROL SARS-COV-2

SOURCE: HAUG ET AL.,
NATURE HUMAN BEHAVIOUR
NOVEMBER 2020;
[HTTPS://WWW.NATURE.COM/ARTICLE
S/S41562-020-01009-0/FIGURES/1](https://www.nature.com/article/S/S41562-020-01009-0/figures/1)

ARTICLES

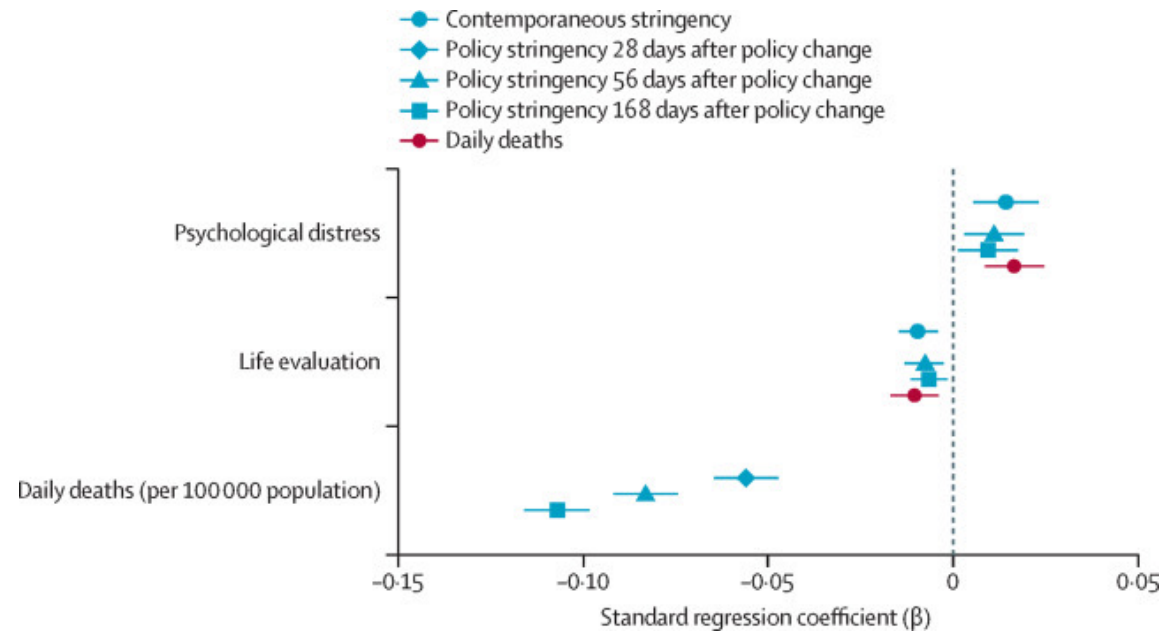
NATURE HUMAN BEHAVIOUR





STRINGENCY, MORTALITY AND EMOTIONAL IMPACT

[SOURCE L. AKNIN ET AL., LANCET PUBLIC HEALTH, [HTTPS://WWW.THELANCET.COM/ACTION/SHOWPDF?PII=S2468-2667%2822%2900060-3](https://www.thelancet.com/action/showpdf?pii=S2468-2667%2822%2900060-3)]



STRINGENCY, MORTALITY AND EMOTIONAL IMPACT

[SOURCE L. AKNIN ET AL., LANCET PUBLIC HEALTH,

[HTTPS://WWW.THELANCET.COM/ACTION/SHOWPDF?PII=S2468-2667%2822%2900060-3](https://www.thelancet.com/action/showpdf?pii=S2468-2667%2822%2900060-3)]

HETEROGENEOUS OUTCOMES

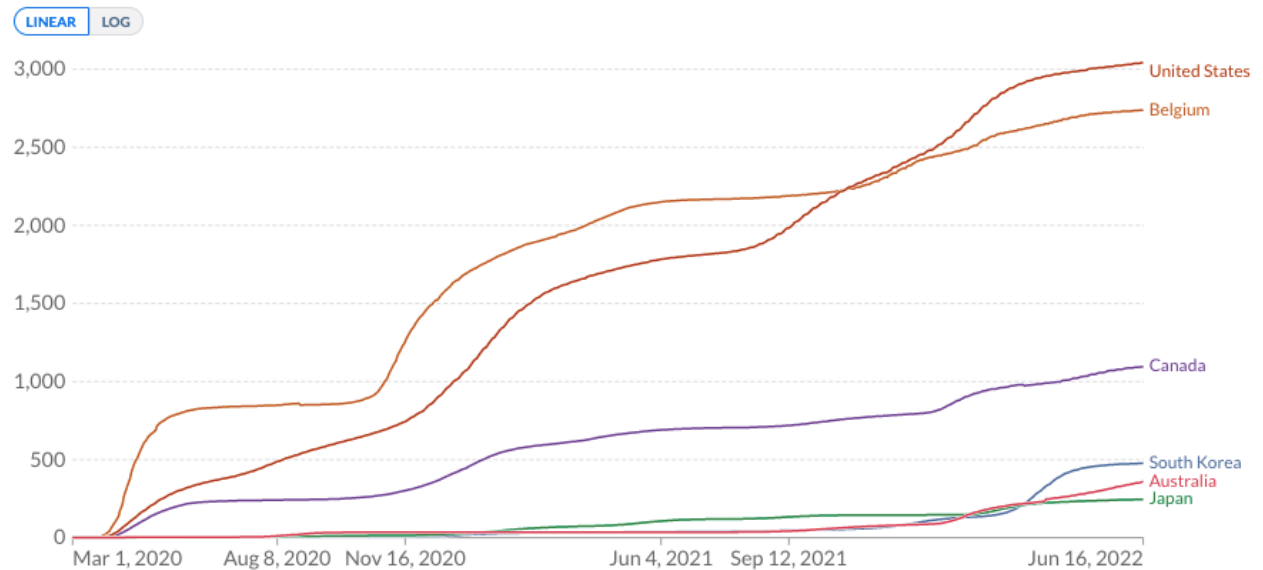
[SOURCE: OUR WORLD
IN DATA,

[HTTPS://OURWORLDINDATA.ORG/COVID-DEATHS](https://ourworldindata.org/covid-deaths)]

Cumulative confirmed COVID-19 deaths per million people

Due to varying protocols and challenges in the attribution of the cause of death, the number of confirmed deaths may not accurately represent the true number of deaths caused by COVID-19.

Our World
in Data



Source: Johns Hopkins University CSSE COVID-19 Data

CC BY

▶ Feb 13, 2020 ◯ Jun 16, 2022

LACK OF VALUES CONSENSUS?

Multiple potential objectives: prevent death, preserve health systems, maintain mental health, maintain educational systems, protect economies, profits of specific commercial sectors, employment...

Supply side vs. demand side? [Dr. Satoshi Akima]

Manufacture of scientific “uncertainty”, via well-funded disinformation campaigns, as a “resource for various interests in the process of bargaining, negotiation, and compromise...”

CSIS Canada @csiscanada

Disinformation about #COVID19 is being spread by threat actors to discredit government efforts and diminish confidence in vaccine rollout efforts.

Be sure to verify information before you share it. Follow @CPHO_Canada & @GovCanHealth for accurate info on the pandemic in Canada.



12:02 PM · Apr 29, 2021 · Hootsuite Inc.

516 Retweets 90 Quote Tweets 642 Likes



HEALTH

A vaccine scientist's discredited claims have bolstered a movement of misinformation

By Timothy Bellis
January 24, 2022 at 11:51 a.m. EST



THE DISINFODEMIC

ABOUT ▾ LIVE DATA MEDIA ▾ RESOURCES ▾

THE WHO PARADOX

Corporate dominance in global public health

THE BIGGER PICTURE

Video About FAQ Focused Protection Signatures Read the De

Great Barrington Declaration

Respected infectious disease epidemiologists and public health scientists express concerns about the damaging physical and mental health impacts of prevailing COVID-19 policies, and recommend an approach called Focused Protection.

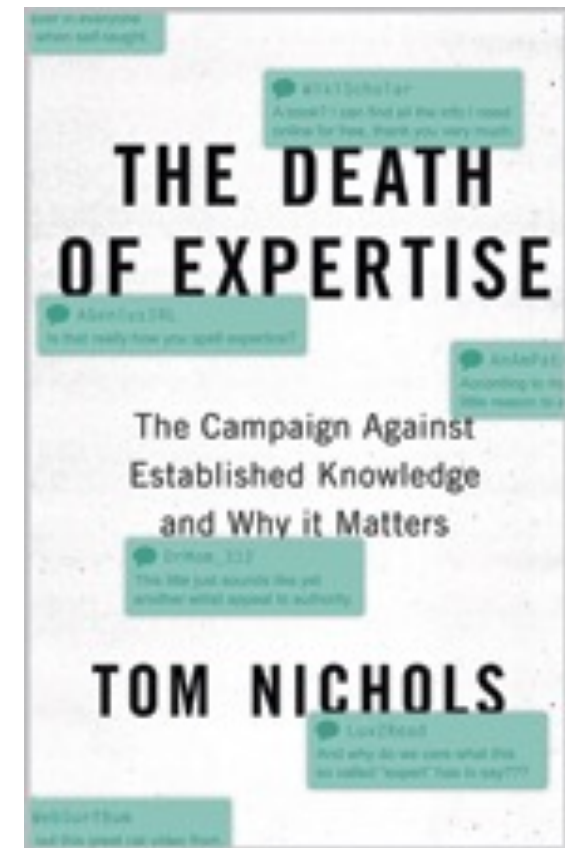
READ THE DECLARATION SIGN THE DECLARATION

930,500+ signatures

CURRENT POLITICAL ENVIRONMENT IS FERTILE SOIL FOR DISINFORMATION

- “Political debate and the making of public policy are not science. They are rooted in conflict, sometimes conducted as respectful disagreement but more often as a hockey game with no referees and a standing invitation for spectators to rush onto the ice...Those political leaders who manage to be smarter than the public wade into these donnybrooks and contradict their constituents at their own peril”

- Prof. Tom Nichols



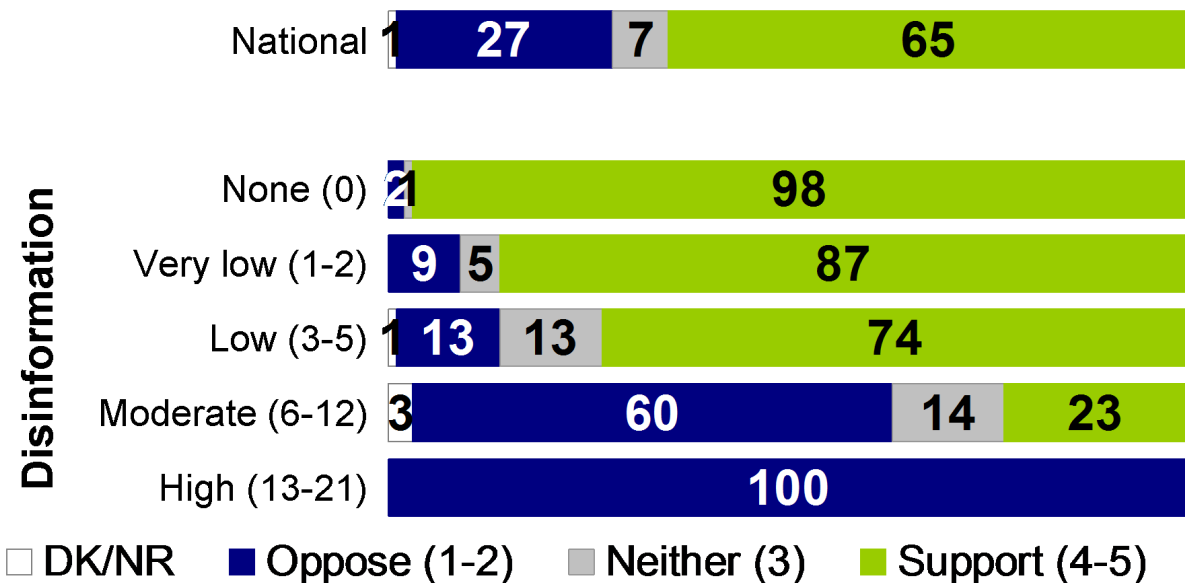
DISINFORMATION AND PANDEMIC CONTROL POLICY

[SOURCE: EKOS
RESEARCH,

[HTTPS://WWW.EKOSPOLITICS.COM/INDEX.PHP/2022/02/THE-ESSENTIAL-PANDEMIC-REDUCED-TO-ONE-CHART](https://www.ekospolitics.com/index.php/2022/02/the-essential-pandemic-reduced-to-one-chart)]

Support for vaccine passports by disinformation index

Q. *To what extent do you support or oppose requiring Canadians to carry proof of vaccination in order to...
...travel or attend public events like concerts and sporting events?*



BASE: Canadians (third-sample); January 18-24, 2022, n=408, MOE +/- 4.9%, 19 times out of 20

Copyright 2022
No reproduction without permission

FUTURE CHALLENGES

“Era of pandemics”? Ecological destruction, food production practices, extraordinary connectedness, disruption of the human animal interface.

- Biosecurity and risky research need to be added to this list.

Ambiguity and (manufactured) uncertainty leave only roles of Issue Advocate and Honest Broker.

Informational environment, ease of creation of disinformation, manipulation of populations need to be considered as future components of pandemic threats.

Transdisciplinarity essential, requires more than lip-service: the time to create transdisciplinary HQP is between crises, not during crises.
