RESPIRATORY VIRUS Summit

PANDEMIC PREPAREDNESS: WHERE SCIENCE AND POLICY MEET

organised by ESWI
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
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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
THE SARS-COV-2 PANDEMIC TO DATE

Source: https://www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2902796-3
**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”
- **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!

**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?

<table>
<thead>
<tr>
<th>Elements understood early on, or for which sufficient data existed to allow understanding/implementation of control.</th>
<th>Elements understood later, perhaps harder to predict.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic/presymptomatic transmission (February 2020)</td>
<td>Rapidity of vaccine development.</td>
</tr>
<tr>
<td>Dominant aerosol transmission (June 2020)</td>
<td>VOC emergence and associated changes in transmissibility, virulence, immune escape.</td>
</tr>
<tr>
<td>Overdispersed R0 (February 2020)</td>
<td>Immune imprinting by early infection.</td>
</tr>
<tr>
<td>Importance of masking (April 2020)</td>
<td>Profound social and economic inequities in attack rates, morbidity and mortality.</td>
</tr>
<tr>
<td></td>
<td>Vascular injury and late sequelae.</td>
</tr>
</tbody>
</table>
**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
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]
STRINGENCY, MORTALITY AND EMOTIONAL IMPACT

[SOURCE L. AKNIN ET AL., LANCET PUBLIC HEALTH,
HTTPS://WWW.THELANCET.COM/ACTION/SOWPDF?PII=S2468-2667%2822%2900060-3]
HETEROGENEOUS OUTCOMES
[SOURCE: OUR WORLD IN DATA, HTTPS://OURWORLDINDATA.ORG/COVID-DEATHS]
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…”
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.

THE DISINFODEMIC
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
## 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?

<table>
<thead>
<tr>
<th>Disinformation Level</th>
<th>Support (4-5)</th>
<th>Neither (3)</th>
<th>Oppose (1-2)</th>
<th>DK/NR</th>
</tr>
</thead>
<tbody>
<tr>
<td>None (0)</td>
<td>98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very low (1-2)</td>
<td>87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low (3-5)</td>
<td>74</td>
<td>13</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Moderate (6-12)</td>
<td>23</td>
<td>14</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>High (13-21)</td>
<td>23</td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

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

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.