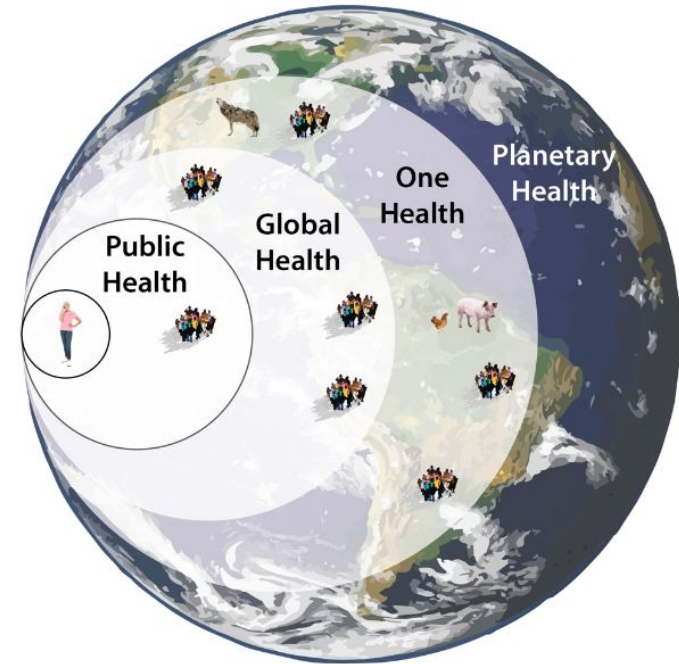


# Pandemic preparedness

Dr. Anja Schreijer, MD, PhD, MPH  
Medical Director PDPC  
VSAE 4 maart 2025



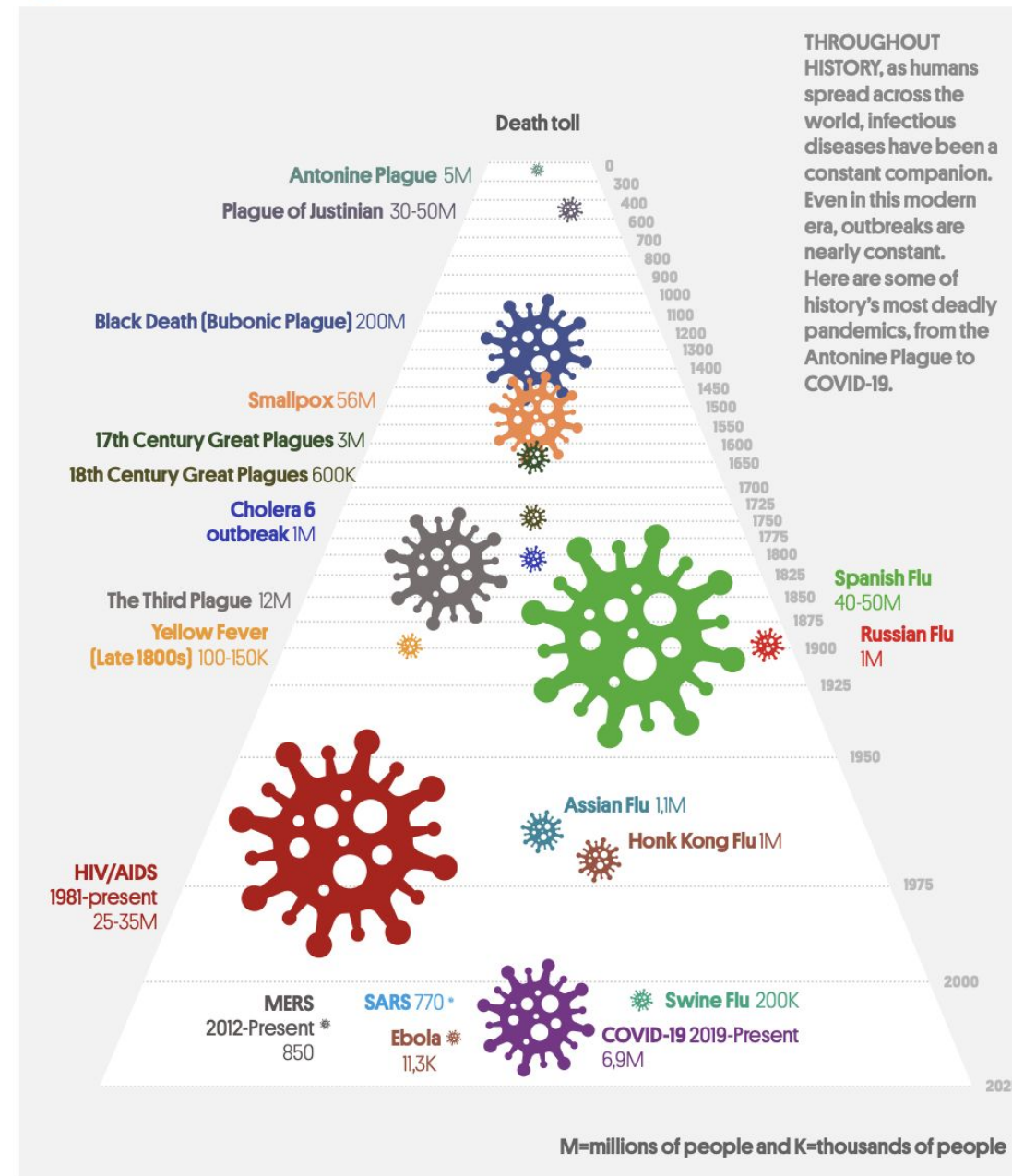
Bron: What is planetary health? (forbes.com)



# Disclosure of speaker's interests

<b>(Potential) conflict of interest</b>	None
<b>Potentially relevant company relationships in connection with event <sub>1</sub></b>	-
<b>Sponsorship or research funding <sub>2</sub></b> <b>Fee or other (financial) payment <sub>3</sub></b> <b>Shareholder <sub>4</sub></b> <b>Other relationship, i.e. ... <sub>5</sub></b>	-

Figure 1. The history of pandemics



THROUGHOUT HISTORY, as humans spread across the world, infectious diseases have been a constant companion. Even in this modern era, outbreaks are nearly constant. Here are some of history's most deadly pandemics, from the Antonine Plague to COVID-19.



# History of pandemics

Source: Adapted from LePan N. (2020), Visualizing the History of Pandemics. Visual Capitalist. <https://www.visualcapitalist.com/history-of-pandemics-deadliest/>



# INTERNATIONAL HEALTH REGULATIONS (IHR)

– from policy to people’s health security

## What are the IHR?

The IHR are legally binding and help countries work together to protect lives threatened by the spread of diseases and other health risks, including radiation and chemical hazards



# International Health Regulations (IHR) Protecting people every day

## What are the IHR?

The International Health Regulations (IHR) represent an agreement between 196 countries, including all WHO Member States, to work together for global health security. Under the IHR, all countries must report events of international public health importance.

## 5 reasons why the IHR matter



### HEALTH THREATS HAVE NO BORDERS

The IHR strengthen countries' abilities to control diseases that cross borders at ports, airports and ground crossings



### TRAVEL AND TRADE ARE MADE SAFER

The IHR promote trade and tourism in countries and prevent economic damage



### GLOBAL HEALTH SECURITY IS ENHANCED

The IHR establish an early warning system not only for diseases but for anything that threatens human health and livelihoods



### DAILY THREATS ARE KEPT UNDER CONTROL

The IHR guide countries to detect, assess and respond to threats and inform other countries quickly



### ALL SECTORS BENEFIT

The IHR prepare all sectors for potential emergencies through coordination and information sharing



Until all sectors are on board with the IHR, no country is ready

[www.euro.who.int/ihr](http://www.euro.who.int/ihr)

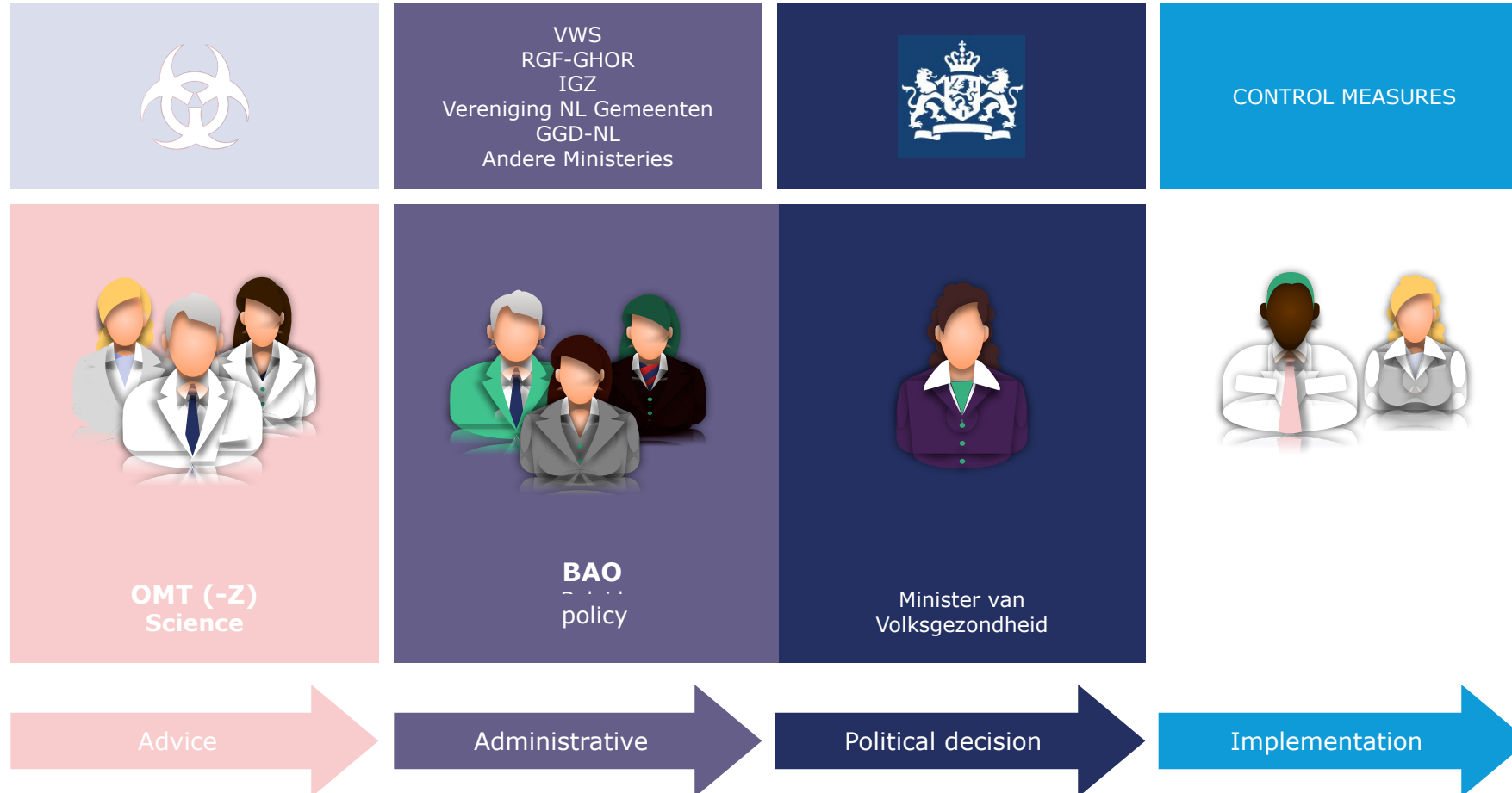
We share a responsibility to protect our world from outbreaks of infectious diseases and other health threats. The goal of the IHR is to stop events in their tracks before they become international emergencies.

Source: Report to the Director-General of the Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation, November 2014





# Risk assessment and risk management in crises



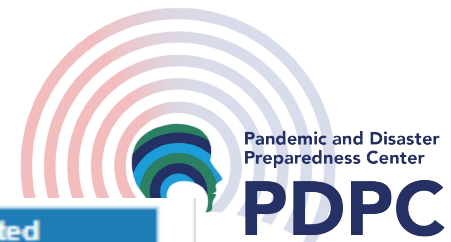
When was the first OMT meeting ever?

**A: 1995**

**B: 2000**

**C: 2020**

# Public Health Events of International Concern (PHEIC)



Updated ▼	Country	Hazard	Syndrome	Disease	IHR Assessment	Created
2020-12-22	Netherlands (the)	Infectious		Influenza due to identified avian or animal influenza virus	Public Health Risk (PHR)	2020-12-22
2020-03-17	Netherlands (the)	Infectious	Acute Respiratory Syndrome	COVID-19	PHEIC	2020-03-17
2020-03-04	Netherlands (the)	Infectious		COVID-19	PHEIC	2020-03-04
2019-11-26	Netherlands (the)	Infectious		Lassa Fever	Public Health Risk (PHR)	2019-11-25
2019-04-10	Netherlands (the)	Infectious		Yellow Fever	Public Health Risk (PHR)	2018-11-24
2018-04-20	Netherlands (the)	Infectious	Acute Respiratory Syndrome	Influenza due to identified human influenza virus	To be assigned	2018-03-22
2017-07-17	Netherlands (the)	Infectious		Poliomyelitis, acute paralytic, wild virus, indigenous	Public Health Risk (PHR)	2017-04-13
2017-03-15	Netherlands (the)	Infectious		Zika virus disease	PHEIC	2016-02-17
2017-02-28	Netherlands (the)	Infectious		Zika virus disease	PHEIC	2016-03-02
2017-02-23	Netherlands (the)	Infectious		Zika virus disease	PHEIC	2016-01-29

Acknowledgement: Corien Swaan/ LCI



# The case COVID-19



Hoe kom je bij het OMT en wie bepaalt dat?

Door Job van der Plicht



# First year of COVID-19

**Marion Koopmans** @MarionKoopmans · 5 jan. 2020  
 Results of travellers returning to HongKong from Wuhan, as part of their enhanced surveillance system. 6/16 flu pos, 1 rhino, 1 parafu, 1 corona 229E and RSV. So the mix of what you expect in "respiratory season". Info Dx in Wuhan needed.  
[chp.gov.hk/files/pdf/enha...](http://chp.gov.hk/files/pdf/enha...)

**CADDE Project** @CaddeProject · 5 jan. 2020  
 Novel human virus? Pneumonia cases linked to seafood market in China stir concern  
 @WHO statement (5 Jan 2020): [who.int/csr/don/05-jan...](http://who.int/csr/don/05-jan...)  
 Read @sciencemagazine news (3 Jan 2020): [sciencemag.org/news/2020/01/n...](http://sciencemag.org/news/2020/01/n...)

12 12

Q1 2020

Achteraf was het niet verstandig om ons Nederlanders deze zomer zoveel vrijheid te geven



Q3 2020



Q1 2021



Q2 2020

Q4 2020



Stephanie Franziska Scholz



**ECONOMISCHE PROGNOSES**

## Besmettingen lopen op: nu wordt het spannend voor de economie

De eerste coronagolf was al een grote klap voor de economie. In hoeverre is die klaar voor een tweede?

Door onze redacteurs **Maarten Schinkel** en **Marno Tammings**

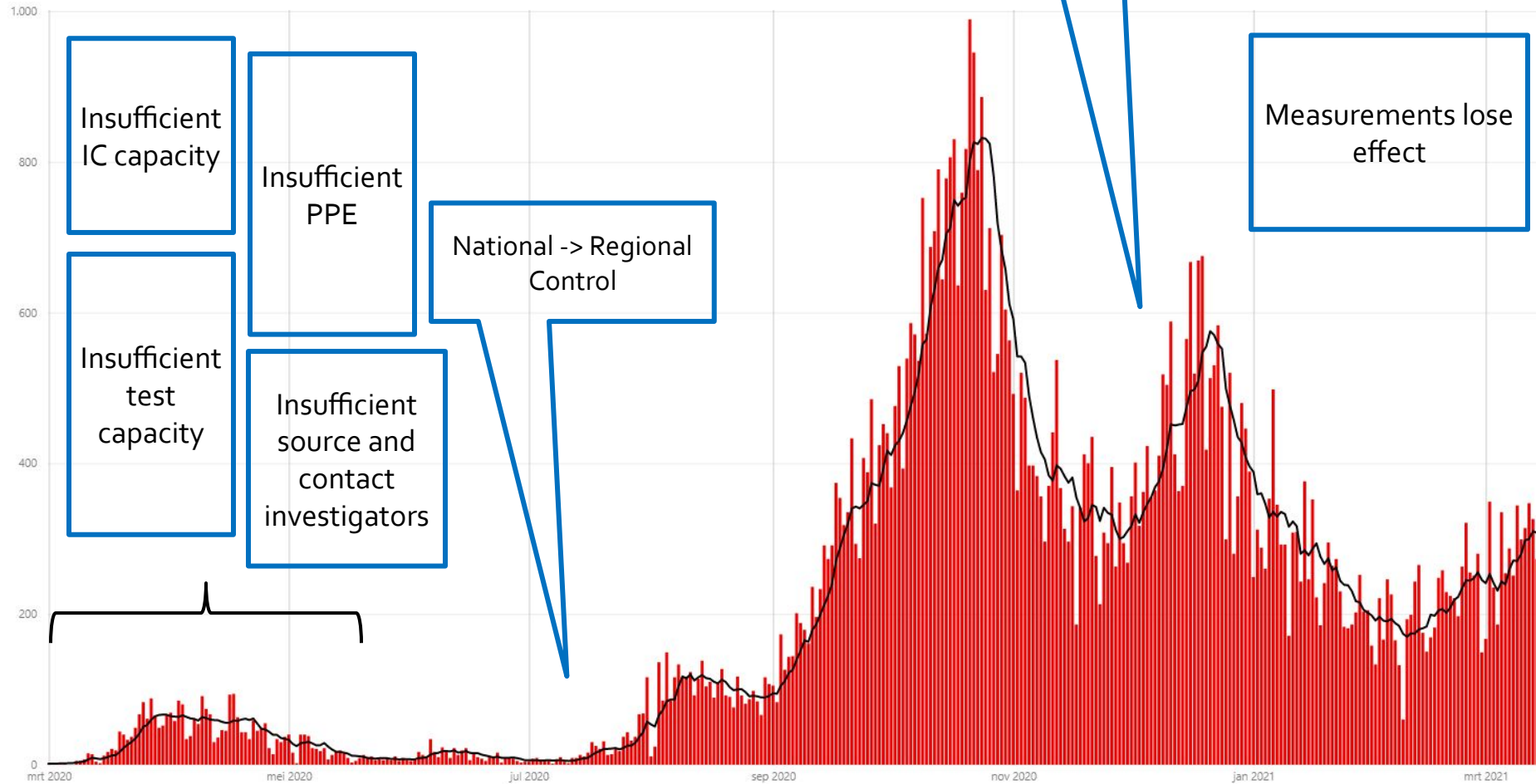
**AMSTERDAM** Het twaalfde grote verspreidingsmoment in alle economische voorspellingen. Komt er een tweede coronagolf? Nu de Covid-19 besmettingen verder dan verwacht, in Nederland weer oplopen, wordt het spannend voor de economie, voor de werkloosheidsstand en voor de gezondheid van het bedrijfsleven. Een coronagolf doet aan van voor ondernemers en bedrijven al een aantal maanden en consumenten zijn in een maand gediende. Het is maar de vraag of dit publiek nog wil met het kabinet maandgewijs nieuwe beperkende maatregelen nemen tegen de verspreiding van het virus. Premier Mark Rutte (VVD) zei maandag dat de maatregelen economische consequenties hebben. Dat roept twee vragen op. Hoe staat de economie nu voor? En worden met deze maatregelen de werkloosheidsstand wel tot nu toe?

De economie heeft nu veel weg van een wereld die de afgelopen maanden stil was en consumenten zijn in een maand gediende. Het is maar de vraag of dit publiek nog wil met het kabinet maandgewijs nieuwe beperkende maatregelen nemen tegen de verspreiding van het virus. Premier Mark Rutte (VVD) zei maandag dat de maatregelen economische consequenties hebben. Dat roept twee vragen op. Hoe staat de economie nu voor? En worden met deze maatregelen de werkloosheidsstand wel tot nu toe?

De crisis komt van buiten, in de vorm van het coronavirus. De consumenten voor de economie kunnen niet uit beperkende maatregelen. Maar nu? In de week tot en met 19 september gingen 68 bedrijven failliet, bijna vijf procent van het totaal. Volgens de Staatsecretaris van het Centraal Bureau voor de Statistiek (CBS). Met dit aantal faillissementen is het aantal faillissementen op de faillietlijst van 241 bedrijven in de afgelopen maanden gestegen tot 319.

De werkloosheid. Nog zo'n belangrijke indicator is de werkloosheid. In 2013, het laagste punt van de vorige crisis, was het 7,9 procent. Nu, twee maanden na de start van de huidige crisis, is het 7,9 procent. Nu, twee maanden na de start van de huidige crisis, is het 7,9 procent.

# First year of COVID-19



Massive scaling-up and bottlenecks forced various public sectors to cooperate



# Question

How many lives were saved in the WHO european union region by covid vaccination?

- A: 550.000
- B: 1,1 Million
- **C: 1,6 Million**

# 1,6 million lives saved by COVID-19 vaccination in WHO euro region



## Estimated number of lives directly saved by COVID-19 vaccination programmes in the WHO European Region from December, 2020, to March, 2023: a retrospective surveillance study

Margaux M I Meslé, Jeremy Brown, Piers Mook, Mark A Katz, José Hagan, Roberta Pastore, Bernhard Benka, Monika Redlberger-Fritz, Nathalie Bossuyt, Veerle Stouten, Catharina Vernemmen, Elisabet Constantinou, Marek Maly, Jan Kynčl, Ondrej Sanca, Tyra Grove Krause, Lasse Skafte Vestergaard, Tuija Leino, Eero Poukka, Kassiani Gkolfinopoulou, Kassiani Mellou, Maria Tsintziloni, Zsuzsanna Molnár, Gudrun Aspelund, Marianna Thordardottir, Lisa Domegan, Eva Kelly, Joan O'Donell, Alberto-Mateo Urdiales, Flavia Riccardo, Chiara Sacco, Viktoras Bumšteinas, Rasa Liausediene, Joël Mossong, Anne Vergison, Maria-Louise Borg, Tanya Melillo, Dragan Kocinski, Enkela Pollozhani, Hinta Meijerink, Diana Costa, João Paulo Gomes, Pedro Pinto Leite, Alina Druc, Veaceslav Gutu, Valentin Mita, Mihaela Lazar, Rodica Popescu, Odette Popovici, Monika Musilová, Maja Mrzel, Maja Socan, Veronika Učakar, Aurora Limia, Clara Mazagatos, Carmen Olmedo, Gavin Dabrera, Meaghan Kall, Mary Sinnathamby, Graham McGowan, Jim McMenamain, Kirsty Morrison, Dorit Nitzan, Marc-Alain Widdowson, Catherine Smallwood, Richard Pebody, on behalf of The WHO European Respiratory Surveillance Network

### Summary

**Background** By March, 2023, 54 countries, areas, and territories (hereafter CAT) in the WHO European Region had reported more than 2·2 million COVID-19-related deaths to the WHO Regional Office for Europe. Here, we estimated how many lives were directly saved by vaccinating adults in the WHO European Region from December, 2020, to March, 2023.

**Methods** In this retrospective surveillance study, we estimated the number of lives directly saved by age group, vaccine dose, and circulating variant-of-concern (VOC) period, regionally and nationally, using weekly data on COVID-19 mortality and infection, COVID-19 vaccination uptake, and SARS-CoV-2 virus characterisations by lineage downloaded from The European Surveillance System on June 11, 2023, as well as vaccine effectiveness data from the literature. We included data for six age groups (25–49 years, 50–59 years, ≥60 years, 60–69 years, 70–79 years, and ≥80 years). To be included in the analysis, CAT needed to have reported both COVID-19 vaccination and mortality data for at least one of the four older age groups. Only CAT that reported weekly data for both COVID-19 vaccination and mortality by age group for 90% of study weeks or more in the full study period were included. We calculated the percentage reduction in the number of expected and reported deaths.

**Findings** Between December, 2020, and March, 2023, in 34 of 54 CAT included in the analysis, COVID-19 vaccines reduced deaths by 59% overall (CAT range 17–82%), representing approximately 1·6 million lives saved (range 1·5–1·7 million) in those aged 25 years or older: 96% of lives saved were aged 60 years or older and 52% were aged 80 years or older; first boosters saved 51% of lives, and 60% were saved during the Omicron period.

**Interpretation** Over nearly 2·5 years, most lives saved by COVID-19 vaccination were in older adults by first booster dose and during the Omicron period, reinforcing the importance of up-to-date vaccination among the most at-risk individuals. Further modelling work should evaluate indirect effects of vaccination and public health and social measures.

**Funding** US Centers for Disease Control and Prevention.

Lancet Respir Med 2024;  
12: 714–27

Published Online  
August 7, 2024  
[https://doi.org/10.1016/S2213-2600\(24\)00179-6](https://doi.org/10.1016/S2213-2600(24)00179-6)

See [Comment](#) page 663

World Health Organization  
Regional Office for Europe,  
Copenhagen, Denmark

(M M I Meslé PhD, J Brown PhD,  
P Mook PhD, M A Katz MD,  
J Hagan MD, R Pastore MPH,  
D Nitzan MD,

M-A Widdowson ScD,  
C Smallwood DPhil,  
R Pebody PhD); Österreichische

Agentur für Gesundheit und  
Ernährungssicherheit, Vienna,  
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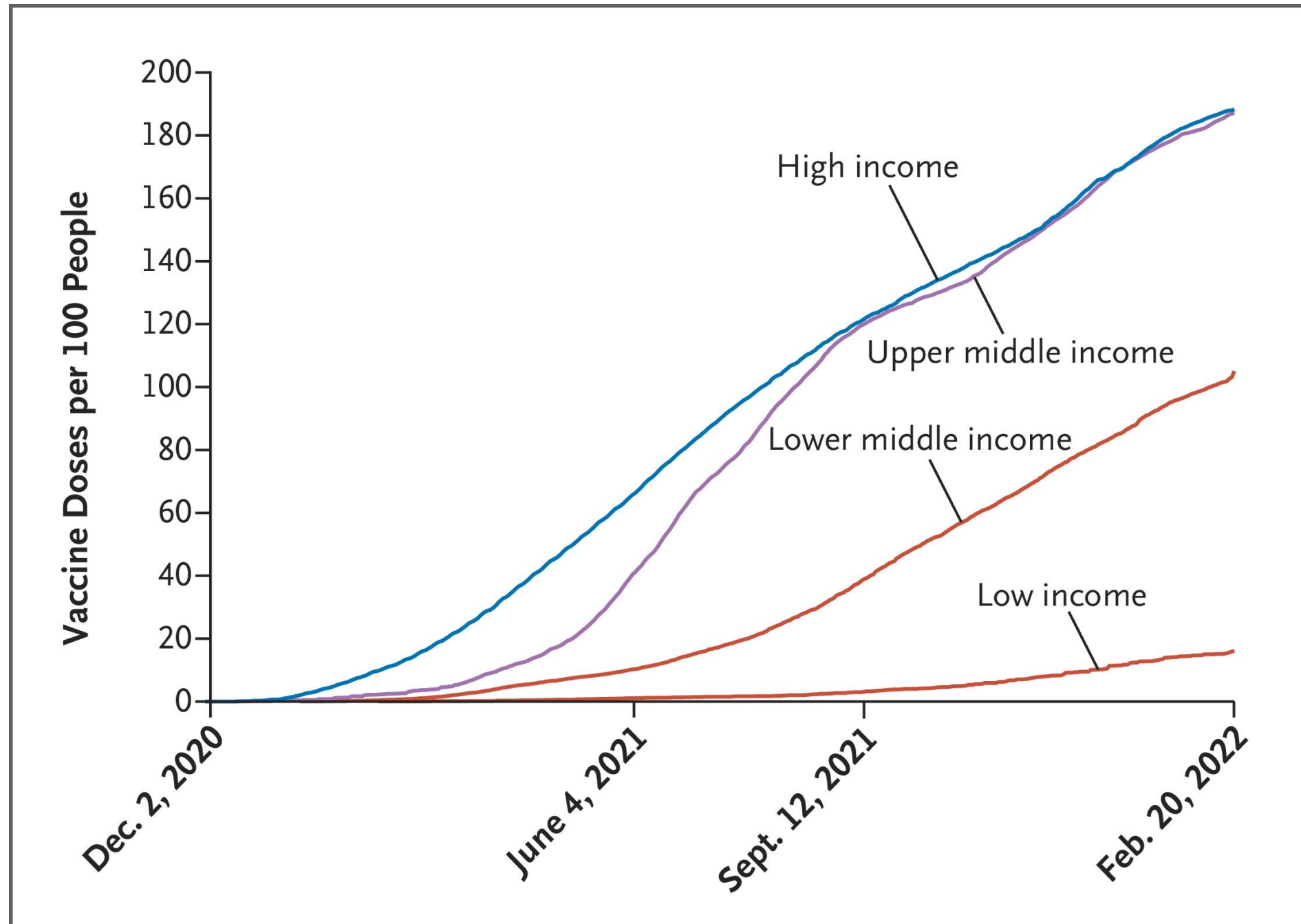
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C Vernemmen MSc); Medical  
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Cyprus (E Constantinou MPH);  
National Institute of Public

Health, Prague, Czechia  
(M Maly PhD, J Kynčl PhD); Third  
Faculty of Medicine, Charles

# Vaccine inequity



Addressing Vaccine Inequity — Covid-19 Vaccines as a Global Public Good NEJM 2022



# Pressure cooker COVID-19: OMT -> BAO -> Catshuis



## Catshuisstukken 13 januari 2022

Vergaderstuk | 13-01-2022

Hier vindt u documenten die zijn besproken tijdens de informele bijeenkomst op het Catshuis op 13 januari 2022. De bijeenkomst ging over de aanpak van het coronavirus.

- [Catshuisstukken 13 januari 2022](#) (PDF | 24 pagina's | 3,9 MB)
- [Presentatie NCTV: Maatschappelijk Beeld en Uitvoeringstoets](#) (PDF | 13 pagina's | 5,2 MB)
- [Presentatie SCP, CPB, PBL en RIVM: Maatschappelijk beeld van Nederland in coronatijd](#) (PDF | 26 pagina's | 3,7 MB)
- [Presentatie NCTV: Opties maatregelenpakket besluitvorming 14 januari 2022](#) (PDF | 14 pagina's | 4,6 MB)

### Zie ook

- [Coronavirus COVID-19](#)  
Onderwerp

### Verantwoordelijk

- Ministerie van Volksgezondheid, Welzijn en Sport
- Ministerie van Algemene Zaken

# Tension between society, experts, politicians

de Volkskrant

RECONSTRUCTIE

## Over politieke druk, bedreigingen en onderlinge spanning

Een jaar in het voetspoor van vijf OMF-leden

Tweede Kamer DER STATEN-GENERAAL

Debat en vergadering



Rijksoverheid



# Wij stropen onze mouw op


generaal **2**

leden der Kamer

Houwelingen (FvD) aan de Minister van en Sport over het bron- en contactonderzoek van de 2021.

postief getest zijn op het coronavirus door de worden voor een bron- en contactonderzoek een vrijwillig onderzoek betreft?

het feit dat de GGD medewerkers instrueert om niet en dat het bron- en contactonderzoek vrijwillig is en het iemand anders vraagt? Zo ja, hoe is de instructie er wie en welke instantie is daartoe bevoegd?



Home > Kamerstukken > Kamervragen

Schriftelijke vragen

### Het bron- en contactonderzoek

Download

Schriftelijke vragen

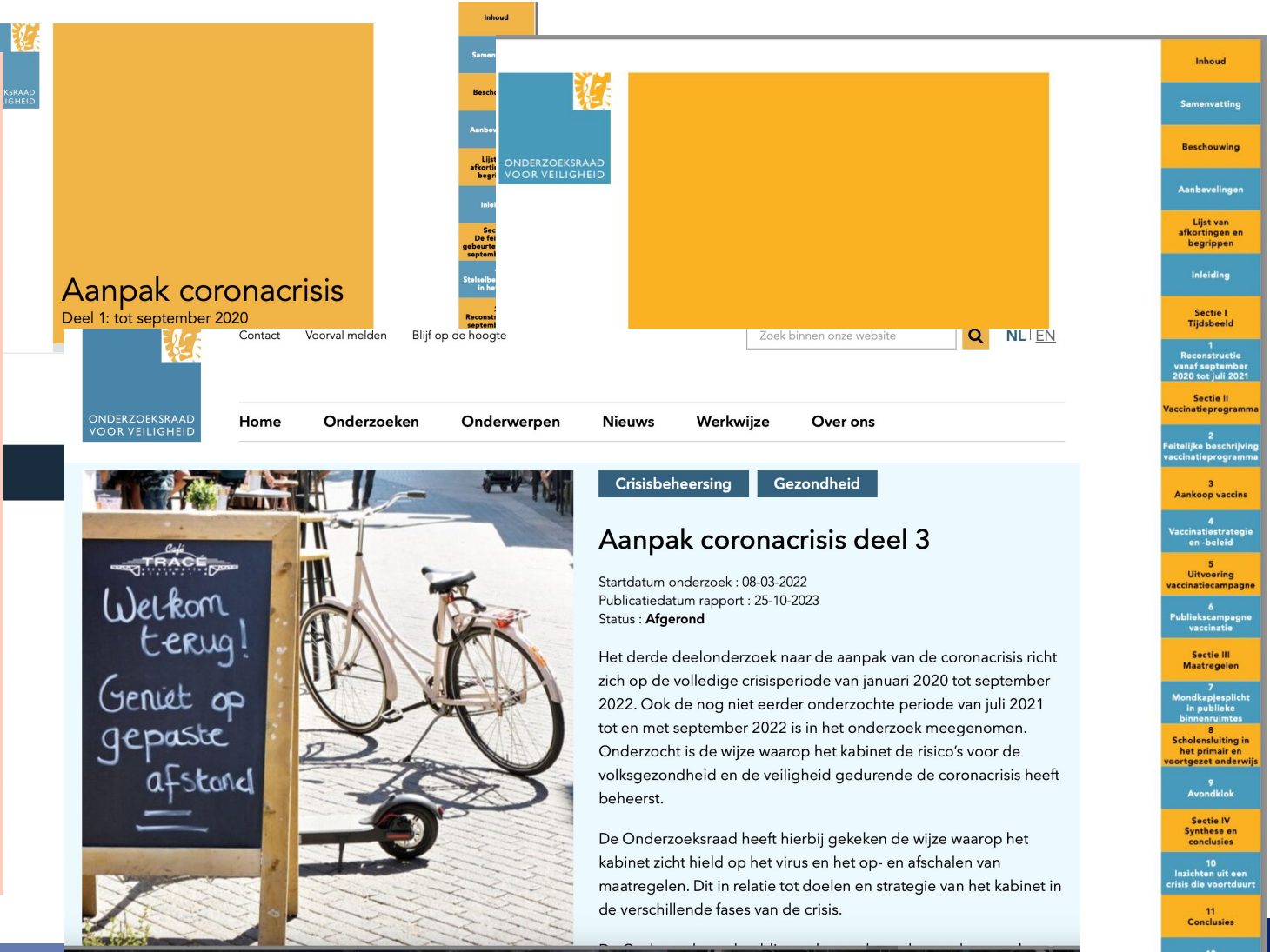
Indiërs

- Indiener  
Pepijn van Houwelingen, Kamerlid Forum voor Democratie
- Gericht aan  
H.M. de Jonge, minister van Volksgezondheid, Welzijn en Sport





# Evaluations COVID-19: call for integrated approach & long term vision



**Aanpak coronacrisis**  
Deel 1: tot september 2020

ONDERZOEKRAAD VOOR VEILIGHEID

Home Onderzoeken Onderwerpen Nieuws Werkwijze Over ons

**Aanpak coronacrisis deel 3**

Startdatum onderzoek : 08-03-2022  
Publicatiedatum rapport : 25-10-2023  
Status : **Afgerond**

Het derde deelonderzoek naar de aanpak van de coronacrisis richt zich op de volledige crisisperiode van januari 2020 tot september 2022. Ook de nog niet eerder onderzochte periode van juli 2021 tot en met september 2022 is in het onderzoek meegenomen. Onderzocht is de wijze waarop het kabinet de risico's voor de volksgezondheid en de veiligheid gedurende de coronacrisis heeft beheerst.

De Onderzoeksraad heeft hierbij gekeken de wijze waarop het kabinet zicht hield op het virus en het op- en afschalen van maatregelen. Dit in relatie tot doelen en strategie van het kabinet in de verschillende fases van de crisis.

**Inhoud**

- 1 Reconstructie vanaf september 2020 tot juli 2021
- 2 Feitelijke beschrijving vaccinatiëprogramma
- 3 Aankoop vaccins
- 4 Vaccinatiëstrategie en -beleid
- 5 Uitvoering vaccinatiëcampagne
- 6 Publiekscampagne vaccinatie
- 7 Mondkapjesplicht in publieke binnenspaces
- 8 Scholensluiting in het primair en voortgezet onderwijs
- 9 Avondklok
- 10 Inzichten uit een crisis die voortduurt
- 11 Conclusies
- 12 Aanbevelingen



# Key lessons

❖ Bottlenecks



❖ Important role surveillance, modelling & scenario thinking

❖ Knowledge of behavior is key in testing, tracing, vaccination, measurements

Other sites: ECDC European Antibiotic Awareness Day ESCAIDE - Scientific conference Eurosurveillance journal EVIP - Vaccination portal

European Centre for Disease Prevention and Control  
An agency of the European Union

All sections Enter your keyword(s)

All topics: A to Z Newsroom Publications & data Tools About us

### COVID-19 pandemic

ECDC is monitoring the COVID-19 pandemic and assessing the risk to the EU, follow our latest updates

[All info about the COVID-19 pandemic](#)

COVID-19 pandemic Hepatitis cases of unknown aetiology in children Support for countries neighbouring Ukraine COVID-19: Second booster could avert deaths in older age groups

[COVID-19 quick links](#) [Manage cookies](#)

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## Sustained behavior change is key to preventing and tackling future pandemics

Investment in research and programs to discover and apply the principles that underpin sustained behavior change is needed to address the continuing threat from COVID-19 and future pandemics and will require collaboration among behavioral, social, biomedical, public-health and clinical scientists.

Susan Michie and Robert West

Human behavior was instrumental in causing COVID-19, and changing it has been vital to tackling this pandemic. The countries that have done best in mitigating COVID-19's harms to health and to their economies have rapidly and successfully persuaded their populations to enact large-scale behavior change. Some of these interventions have been highly effective, others have been less so, and some have produced substantial social and financial harm. In particular, national 'lockdowns' have been effective in keeping people from interacting, to reduce the spread of disease, but they have been very damaging to people's lives and to national economies. Therefore,

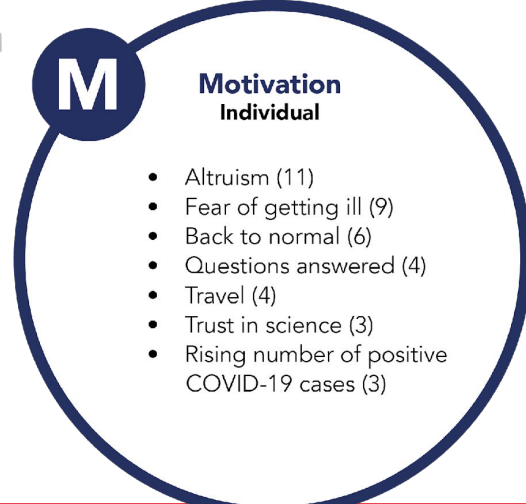
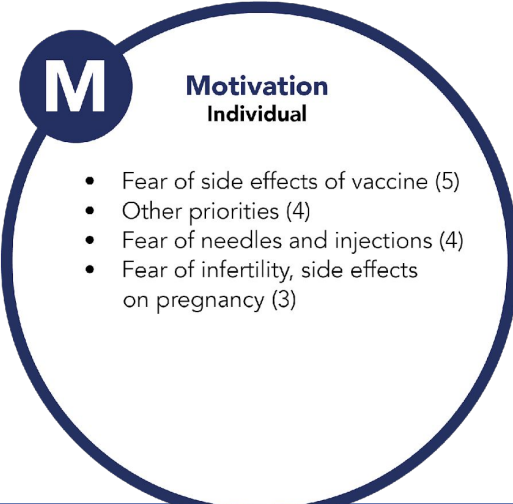
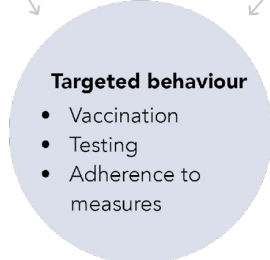
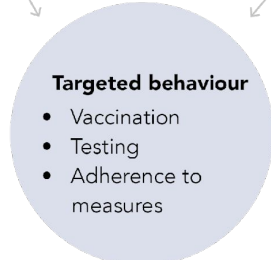
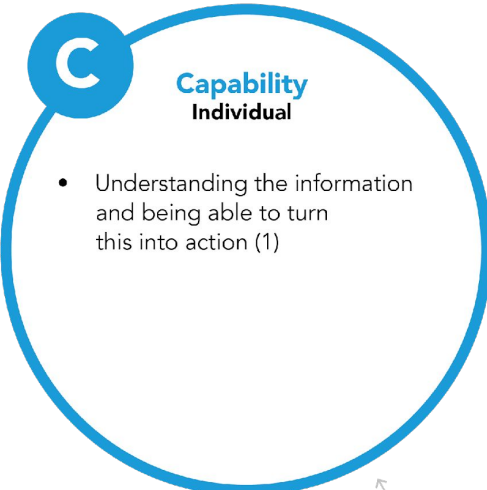
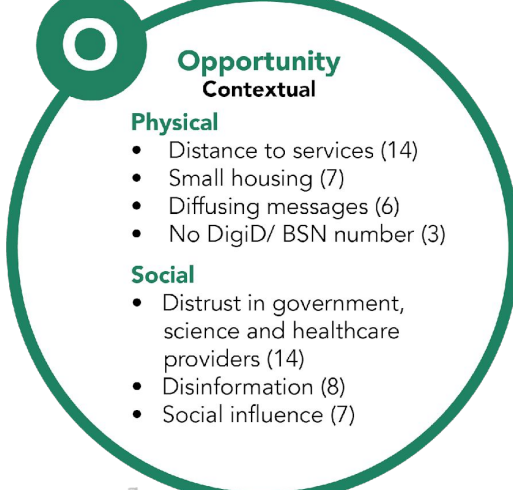
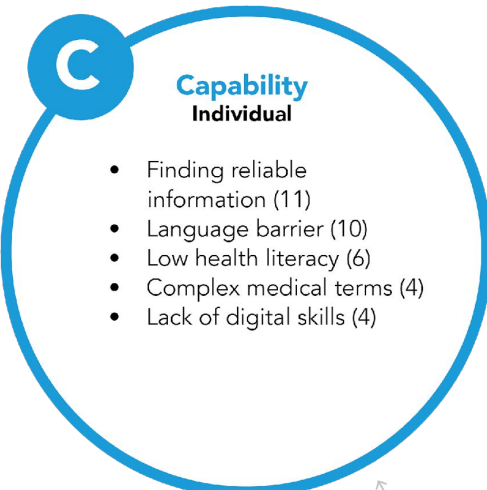
lockdowns should ideally be used only to bring transmission levels low enough to be controllable by other policies. These policies include adequate 'find, test, trace, isolate and support' systems; border controls and quarantine to prevent reseeding of infections; the creation of safe working, domestic and transport spaces; and the promotion of personal protective behaviors such as the use of face coverings<sup>1</sup>.

**Capability, opportunity and motivation**  
Large-scale, sustained behavior change is needed to reduce the risk of, and to prepare for, future pandemics<sup>2</sup>. The COVID-19 pandemic has shown that populations will adopt at least some of the required behaviors

under certain conditions<sup>3</sup>. However, adoption has been variable across countries, over time and across social groups<sup>4</sup>.

Achieving sustained behavior change requires a sound understanding by policymakers and intervention designers of what underpins the behaviors concerned. For example, what does it take in all cultures to ensure that, where appropriate, people keep safe physical distances from each other, wear face coverings masks and disinfect their hands? What is needed to ensure that adequate ventilation is provided in enclosed spaces, and that people in high-risk settings use personal protective equipment effectively?

We provide here important behavioral targets for the prevention and mitigation of



# Barriers & Drivers Measures COVID-19 NL

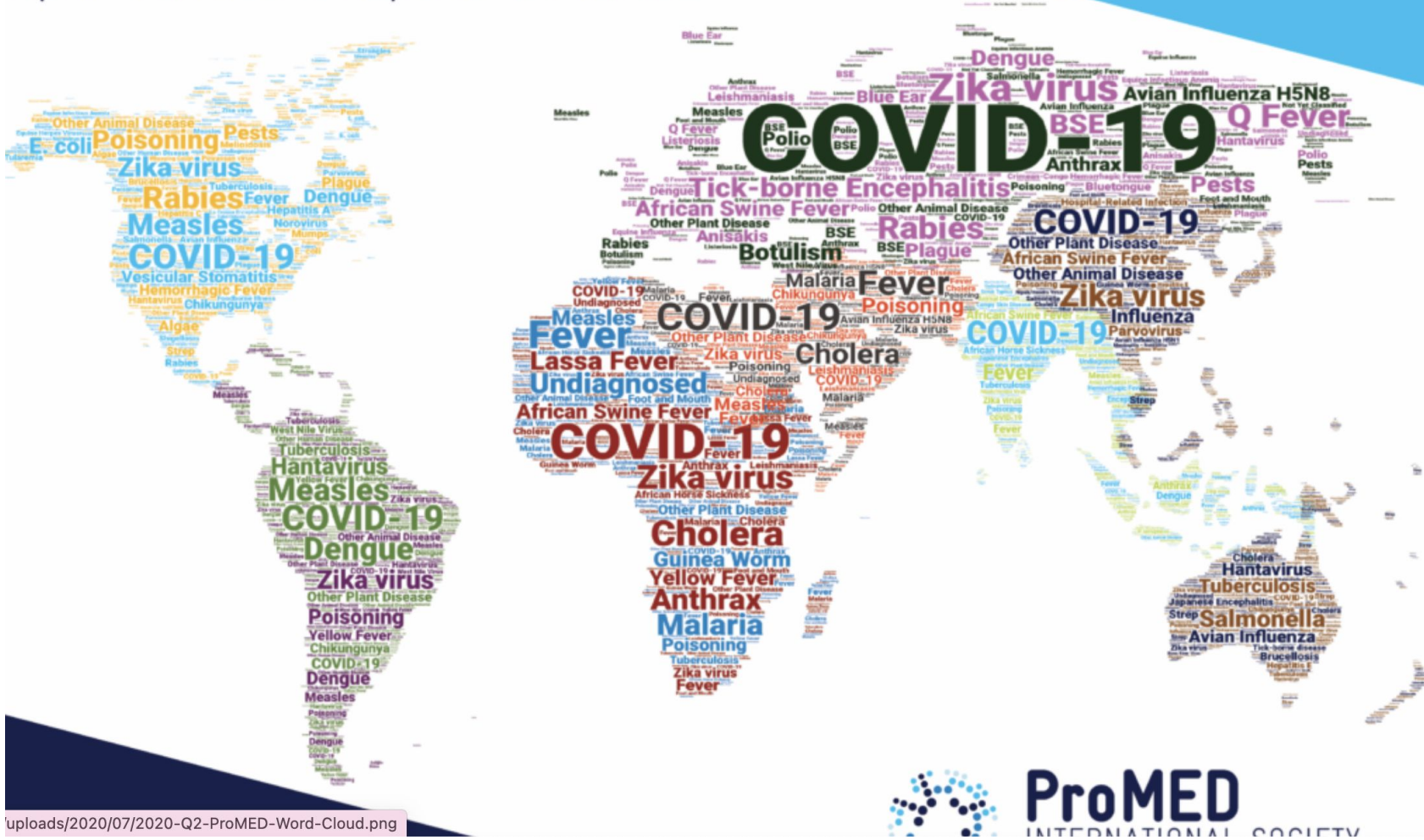
Eijrond V, Bünemann N, Renna N, Craig B, Habersaat KB, Voeten H, Dykstra P, Schreijer A. Barriers and drivers influencing people's behaviour towards COVID-19 public health and social measures in the Netherlands. Public Health Pract (Oxf). 2024 Dec.

# Lessons learned

- Challenges in **data** access – data analytics – actionable insights – capability for action
- Scenario thinking and **long-term vision (and long term effects)** needs further development in infectious disease control
- Lack of **large cohort studies** that combine epi and social/economic data
- Knowledge of **behavior** (-change) is key – including targeted intervention
- The current **crisis structure** is a good basis for short-term outbreaks, but not for long-term pandemics
- We need a better **decision-making framework** that includes societal, economic, mental, medical impact
- Structural **financial investments** by the government in infectious disease control and research is necessary

# So what's next?

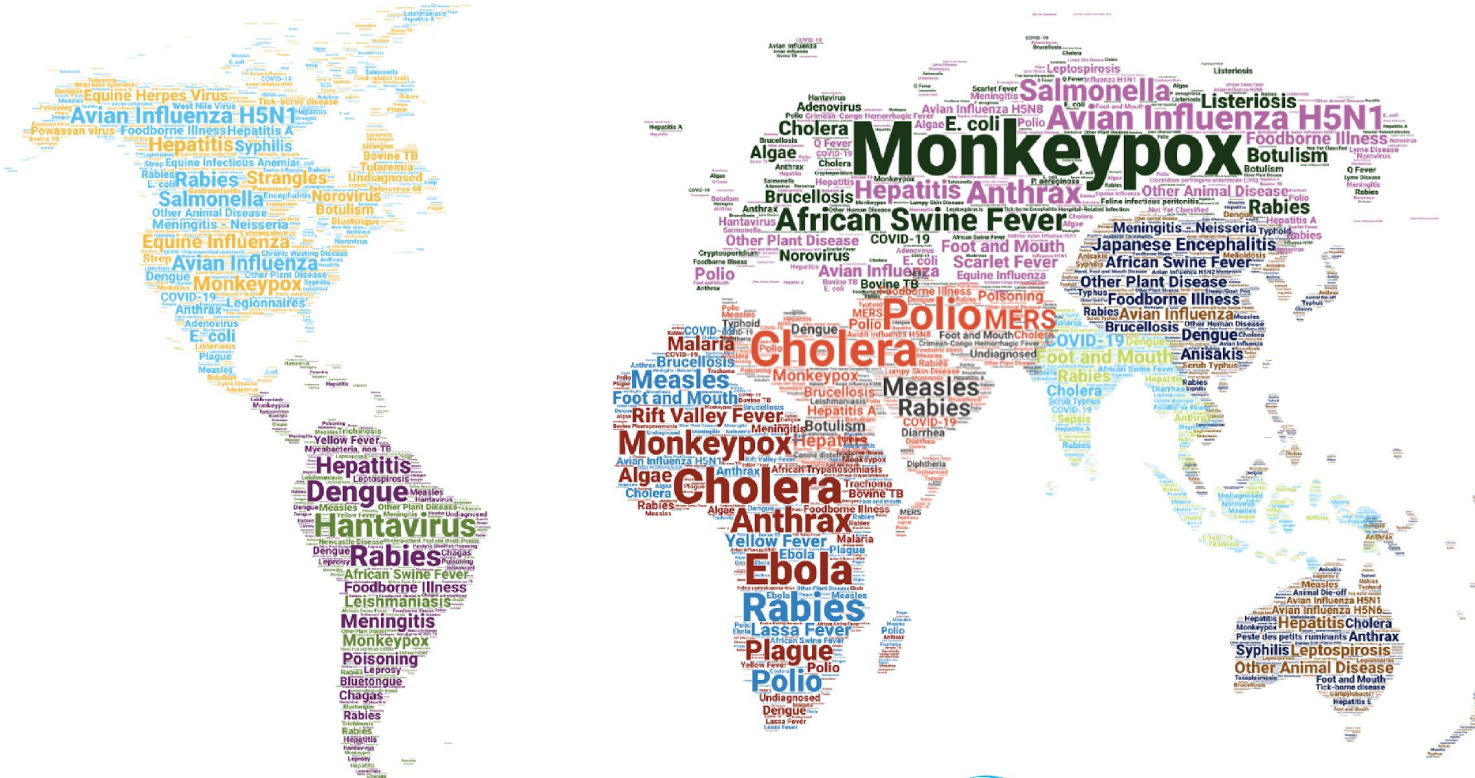
April - June 2020 Reports to ProMED\*



uploads/2020/07/2020-Q2-ProMED-Word-Cloud.png



# April - June 2022 Reports to ProMED\*



To learn more and view  
outbreak reports, visit us at  
[www.promedmail.org](http://www.promedmail.org)



\*Words represent number of reports, but word location does not always correspond to the exact location of disease outbreak report

# Question

What are important drivers for pandemics?

A: Travel & Transport

B: Climate change

C: Urbanization

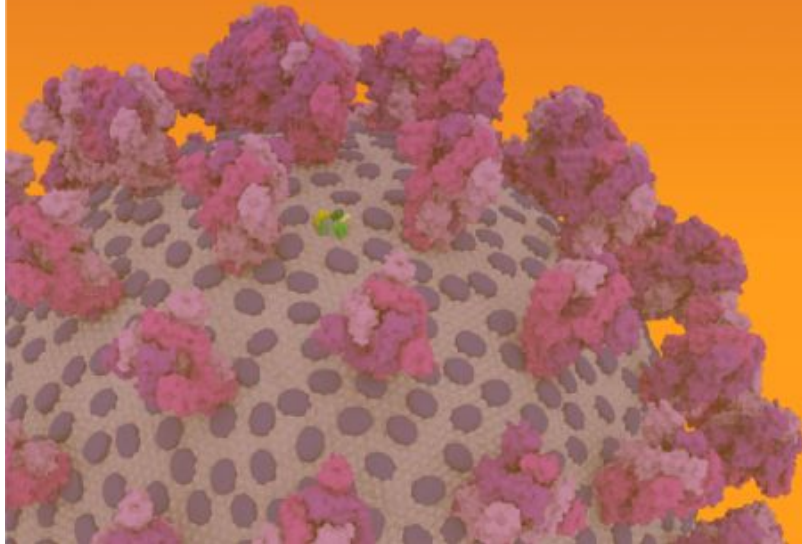
**D: all of the above**

# Drivers for pandemics



## PREVENTING THE NEXT PANDEMIC

Zoonotic diseases and how to break the chain of transmission





WORLD VIEW | 04 September 2024

# Why the next pandemic could come from the Arctic – and what to do about it



Only a unified approach across disciplines can reduce the underappreciated threat of emerging diseases arising in the north.

By [Christian Sonne](#)



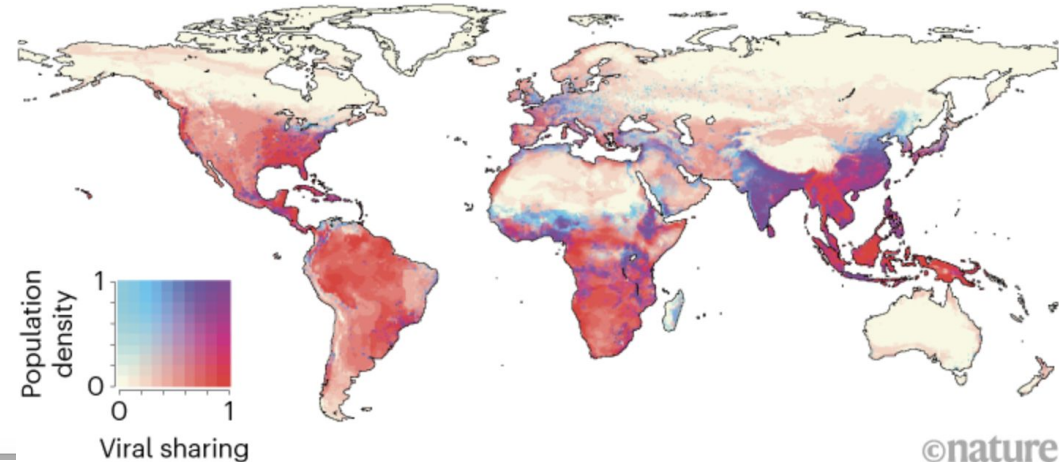
“The release of ancient microorganisms long frozen in ice and sediments...”

The Arctic is under stress, that much is known. Between 1979 and 2021, the region warmed four times faster than the global average, with effects – as yet poorly understood – on its ecology and ability to store carbon, on global sea levels and on wider ocean-circulation and weather patterns.

Add in the effects of biodiversity loss and pollution, and people often refer to a triple planetary crisis. I think we should actually be talking about a quadruple crisis. Since starting research in the Arctic in 1997, I have spent nearly all of my summers there, monitoring

## SPILLOVER HOTSPOTS

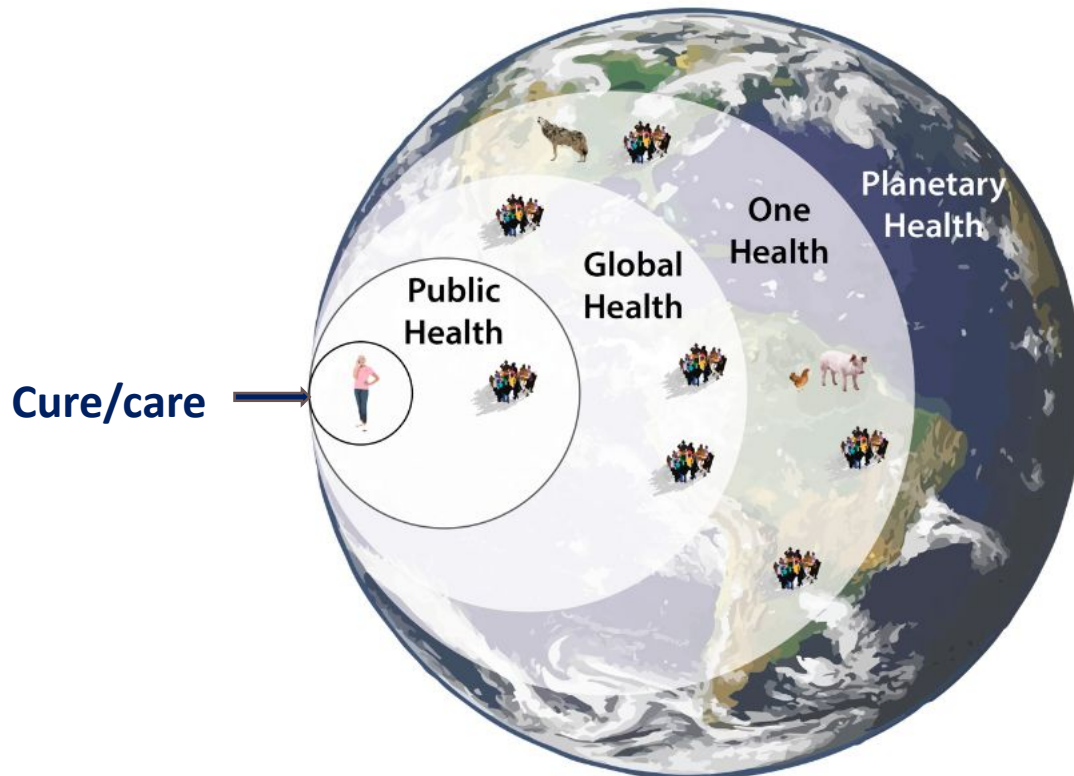
Models suggest that by 2070, climate change will be driving many mammal species to cooler regions, where they will meet for the first time and could exchange viruses. If Earth warms by 2 °C, they say, the regions with the highest chance of virus sharing will overlap with areas of dense human population, including parts of India and Indonesia. That will increase the risk of pathogens transferring to people.



Source: Ref. 1



# Important role for public health



Bron: What is planetary health? (forbes.com)

While **public health** is about **health protection and health promotion** within the health systems and

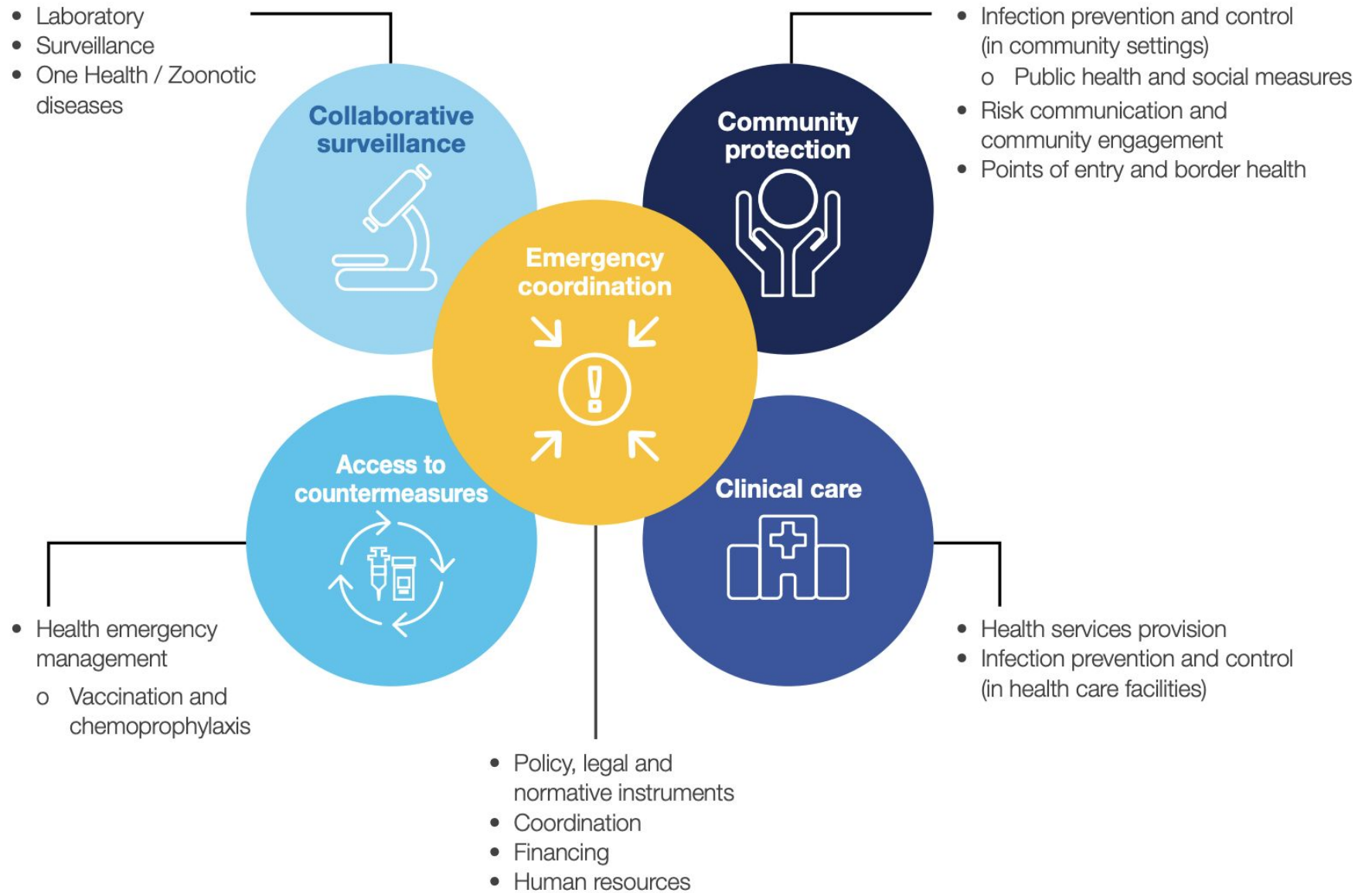
**Global health** looks at how to improve the **health of populations worldwide,**

**One Health** is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems.

**Planetary health** broadens this discussion by looking at **the societies, civilizations and the ecosystems** on which they depend..”

Bron: WHO & The Lancet

# Pandemic Preparedness Plans



From: WHO Preparedness and Resilience for Emerging Threats

# Complex reality

The New York Times

Reuters

World Business Markets Sustainability Legal Breakinviews Technology

Bi nrc

Mijn nieuws Podcasts

NIEUWS

## GGD, RIVM en OVV uiten zorgen over geplande bezuinigingen infectieziektenbestrijding

Dorine Booij

15 september 2024 • Leestijd 1 minuut

Luisteren

Leeslijst

## A(H5N1) Virus Infection

Published December 31, 2024 | DOI: 10.1056/NEJMc2415890 | Copyright © 2024

TO THE EDITOR:

Highly pathogenic avian influenza A(H5N1) viruses are circulating among wild birds and poultry in British Columbia, Canada.<sup>1</sup> These viruses are also recognized to cause illness in humans. Here, we report a case of critical illness caused by influenza A(H5N1) virus infection in British Columbia.

On November 4, 2024, a 13-year-old girl with a history of mild asthma and an elevated body-mass index (the weight in kilograms divided by the square of the height in meters) of greater

BBC

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## US exit from WHO could see fifth of budget disappear

21 January 2025

Share Save

Ana Faguy  
BBC News, Washington

Dominic Hughes  
Health correspondent



and FDA to restore after Trump order

Analyse • 10 feb 14:55

Het Parool

Abonneren vanaf 2,20 per week

Login

Plus Exclusief

## Nederland is nu slechter voorbereid op pandemie dan vóór corona: minder ic-bedden en geen noodplan



The FDA headquarters in Washington, D.C.

A federal judge has ordered the U.S. Department of Health and Human Services, the Centers for Disease Control and Prevention, and the Food and Drug Administration to restore funding for the National Center for Disease Control and Prevention's National Center for Immunization and Control following a court order.







## Vision:

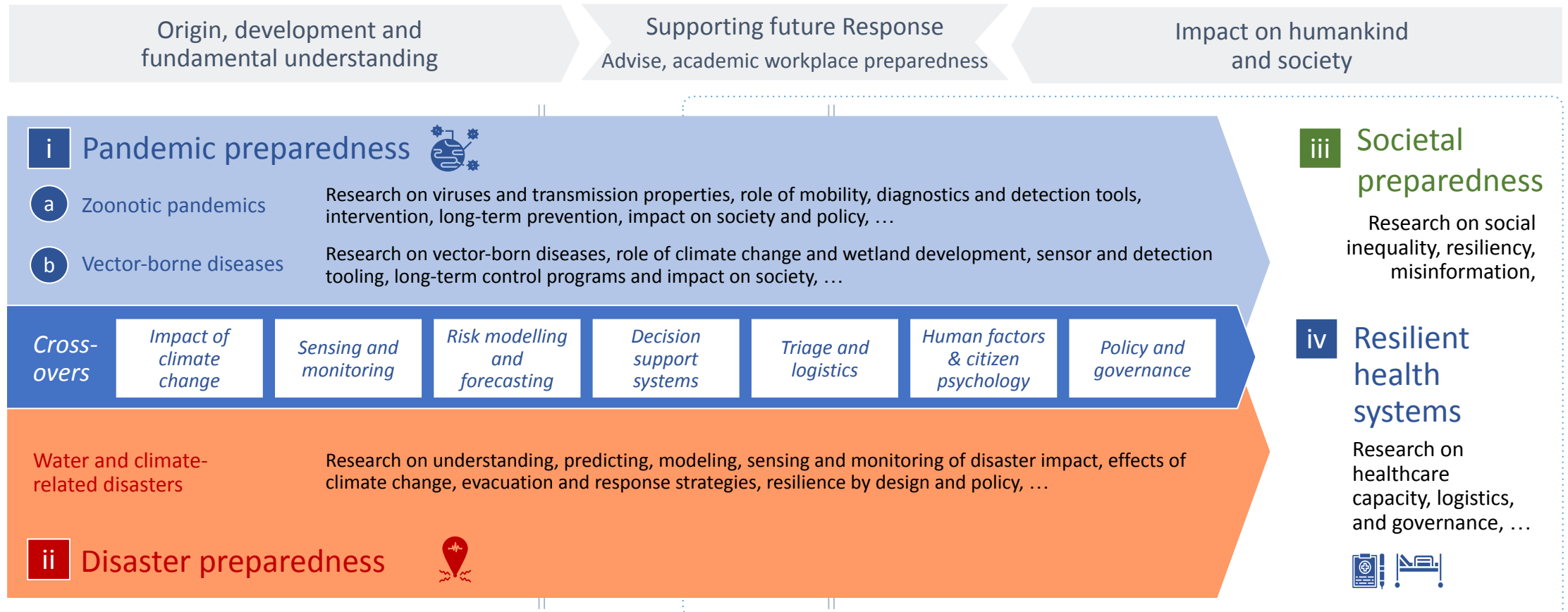
The complexity of pandemics and disasters require convergence, a systemic view, a combined approach to pandemics & disasters, and continuous, long-term commitment

## Ambition and position:

Build and position a national and global leading center for pandemic and disaster preparedness: the Pandemic & Disaster Preparedness Center (PDPC)



# The PDPC research and innovation program: focus on the origin and development, response and impact of pandemics and disasters



# PDPC Leadership team



Marion Koopmans,  
ErasmusMC  
Scientific director  
Director PDPC



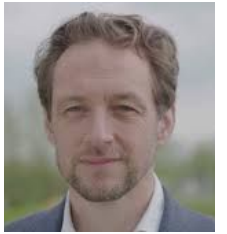
Thom Boogaard  
Director Disaster  
preparedness research



Tom Emery, EUR  
Director Societal  
preparedness research



Anja Schreijer, ErasmusMC  
Director Medical affairs &  
Public health preparedness



Bas Jonkman, TU Delft



Pearl Dykstra, EUR



Jeanette de Boer,  
ErasmusMC,  
director Education



# Kickstarting the PDPC philosophy: the Frontrunner projects



1. Climate change and increased risks of vector-borne virus outbreaks
2. Airborne: Predicting, measuring and quantifying airborne virus transmission
3. Pandemic lessons for flood disaster preparedness
4. Towards social and urban resilience for pandemics and disasters
5. Integrated early warning surveillance methods and tools

Plus: PDPC academy!

Interdisciplinary

Key knowledge gaps

Challenging

(inter)national partnerships



## FR 1: Climate change & risks virus outbreaks



Naturalis  
Biodiversity  
Center

Deltares



WAGENINGEN  
UNIVERSITY & RESEARCH



Universiteit  
Leiden



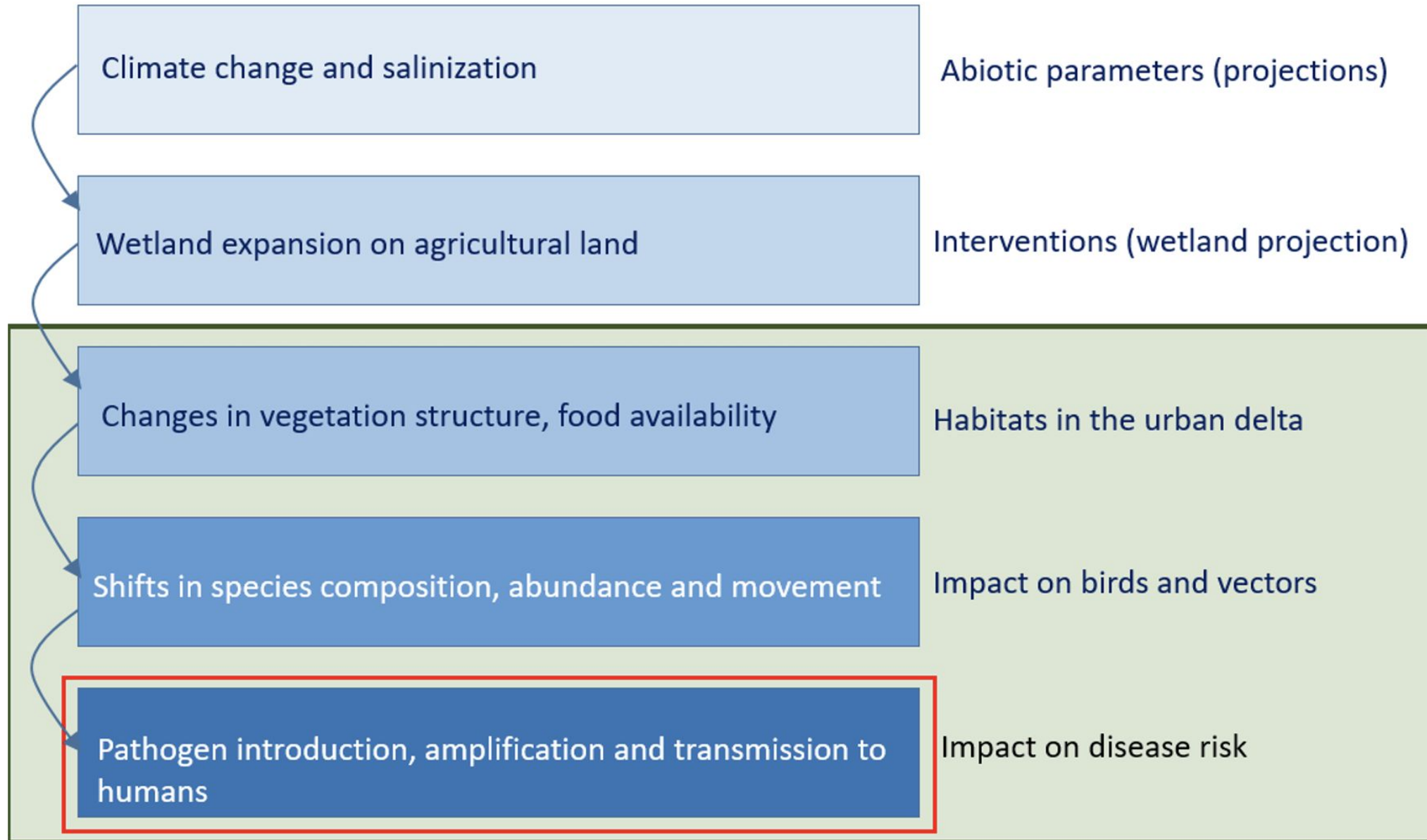
Koninklijk Nederlands  
Meteorologisch Instituut  
Ministerie van Infrastructuur en Waterstaat

Erasmus MC



# frontunner 1: Climate and vectorborne diseases

# Important ramifications for disease risk

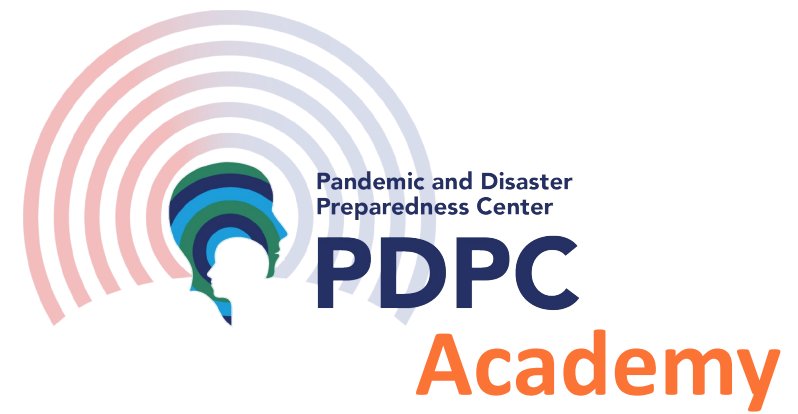




# Impact academy

- Underserved groups
- Innovative infectious disease control
- BePrepared
- PRESENT study: school closures
- Integrated science for policy

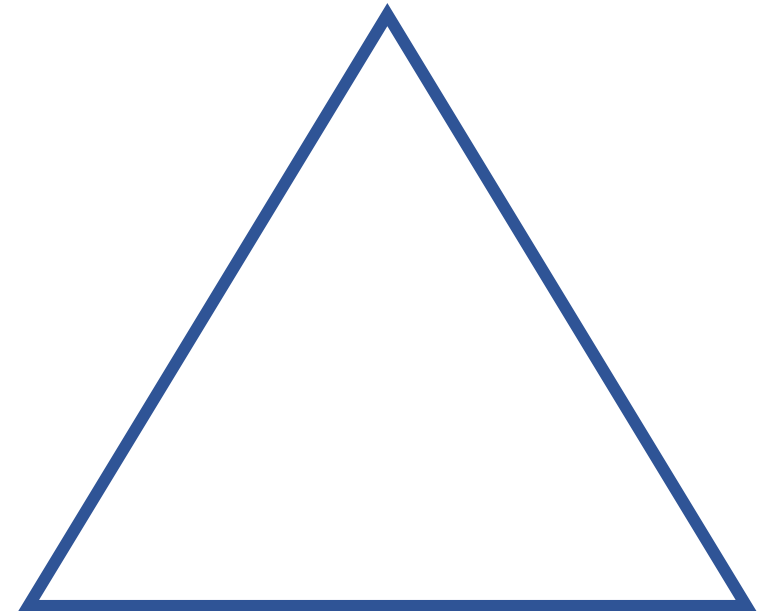
Plus: education



Practice

Research

Policy



# Pandemic Preparedness of Underserved Groups

- Gain insight into **individual and contextual barriers and drivers** to the support for and compliance with measures implemented during a pandemic among **underserved groups**
- Develop **interventions tailored** to the target groups' needs in collaboration with stakeholders
- Using the **WHO Tailoring Health Programme (THP) Approach**

## ONE SIZE DOES NOT FIT ALL!

Barriers and drivers influencing people's behaviour towards COVID-19 public health and social measures in the Netherlands

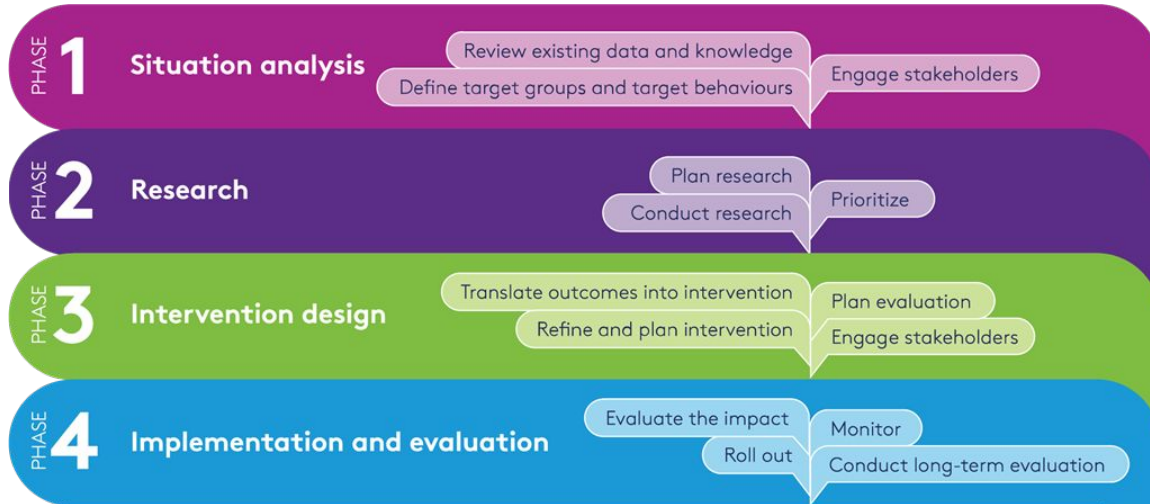
October 2023



Eijrond, V., Bünemann, N., Renna, N., Craig, B., Bach Habersaat, K., Voeten, H., Dykstra, P., & Schreijer, A. Barriers and drivers influencing people's behaviour towards COVID-19 public health and social measures in the Netherlands. *Under review. Journal Public Health*



WORK IN PROGRESS



Gain insight into the individual and contextual factors contributing to the support for and compliance with measures implemented during a pandemic of **older people with a migration background in Rotterdam**

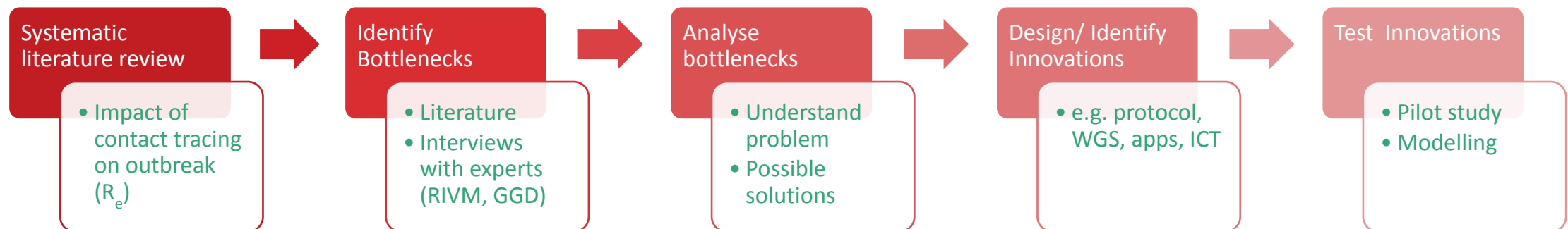
# Innovative Infectious Disease Control

## Background

- Goal to improve nonpharmaceutical interventions
  - Such as contact tracing, two goals:
    - Limit spread by quarantine
    - Keep track of the virus
- Both need to be taken into account

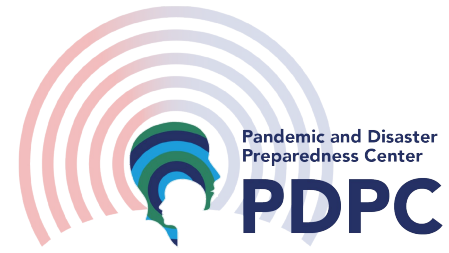
## Progress

- Systematic literature review on impact of contact tracing on transmission
- Contact with experts, e.g. AI/machine learning
- ZonMw subsidy application on epidemiologic, social and economic effects





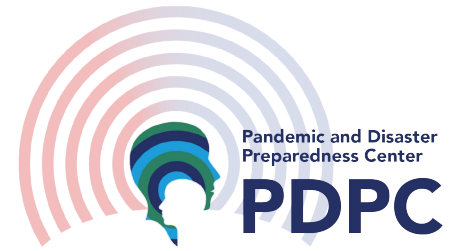
# PRESENT study: Pandemic-related secondary school closures



Differentiated effects of school closures between student subgroups

Consortium members:  
PDPC (EMC), EUR, UMCU,  
SEO economisch onderzoek, Nivel

# PRESENT study



Differentiated effects of school closures between student subgroups, educational track, grade, socio-economic background etc.

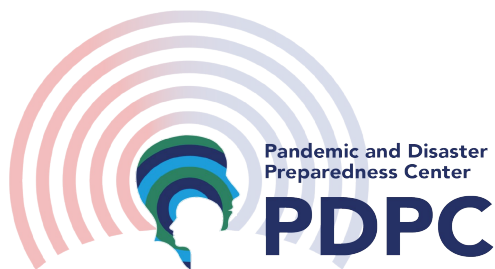
i.e.

- WP1: Epidemiological effects
  - Transmission rate reduction, differences between and within schools
- WP2: Socio-educational effects
  - Educational performance, transition to higher education, mental wellbeing
- WP3: Economic effects
  - Effects for children and overall GDP
- WP4: Synthesis and recommendation
  - Stakeholder meetings and workshops, knowledge synthesis

# *Integrated science for policy*

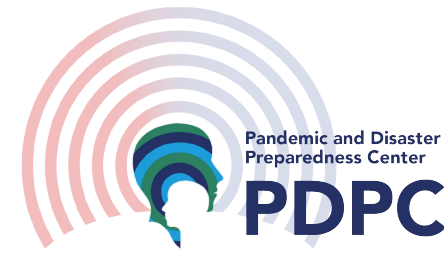


Source: Washington post





# Background: advice to cabinet in silo's



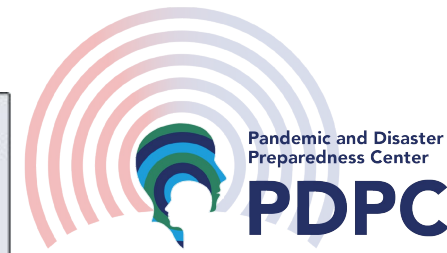
- **Outbreak management team** -> Biomedical advice -> Cabinet meeting -> Decision -> Press conference
- **Effective control** of an outbreak requires **not only biomedical knowledge** but also **social and economic advice** -> societal impact team
- At the same time, effective pandemic preparedness cannot consist solely of **separate, independent** biomedical, social and economic elements
- Therefore, it is necessary determine how preparations can be made from a **domain-overarching perspective** in order to be better prepared for a new pandemic

# Results:

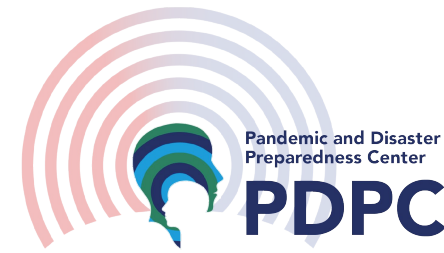
## Current state of pandemic preparedness in each domain

- **Biomedical sciences** relatively well-prepared
- Gaps identified social and economic sciences
- **Little/no domain-overarching research, infrastructure, or organisation**

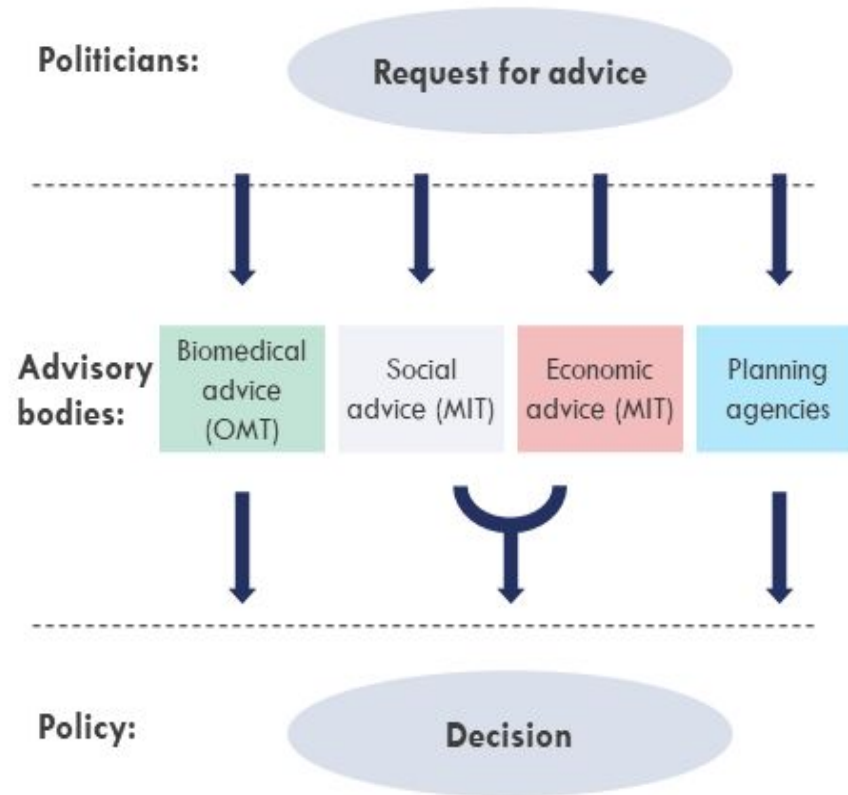
	Biomedical sciences	Social sciences	Economic sciences	Domain-over arching
Fundamental knowledge	<ul style="list-style-type: none"> <li>• There is already a lot of fundamental knowledge about pandemics and viruses</li> <li>• Some crucial questions for pandemic preparedness remain</li> </ul>	<ul style="list-style-type: none"> <li>• A lot of general knowledge on social sciences exists already</li> <li>• There was a lack of specific knowledge about COVID-19</li> <li>• Knowledge could not always be applied in practice</li> </ul>	<ul style="list-style-type: none"> <li>• Fundamental knowledge exists on: the consequences of closing part of the economy support measures and weighting measures</li> <li>• However, specific consequence of lockdown was not yet known</li> </ul>	<ul style="list-style-type: none"> <li>• There was little domain-overarching research</li> </ul>
Guidelines & infrastructure	<ul style="list-style-type: none"> <li>• There were unequivocal (international) guidelines that help to rapidly collect the right knowledge</li> <li>• There is scope for improvement in knowledge infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• No clear guidelines for knowledge acquisition (which did exist for communication, for example)</li> <li>• As a result it was not clear which information was crucial</li> </ul>	<ul style="list-style-type: none"> <li>• Infrastructure present to gain insight into all groups and make projections</li> <li>• Must subsequently be made more specific</li> <li>• No clear guidelines for knowledge acquisition</li> </ul>	<ul style="list-style-type: none"> <li>• No domain-overarching guidelines exist</li> <li>• Interdisciplinary cohort studies<sup>3</sup> are required as infrastructure</li> </ul>
Organisation	<ul style="list-style-type: none"> <li>• Advice is organised in a clear manner</li> <li>• However, there is scope for improvement</li> <li>• For instance: Organisation of independent studies can be improved</li> </ul>	<ul style="list-style-type: none"> <li>• No domain-wide organisation where advice and different subdomains could be brought together</li> </ul>	<ul style="list-style-type: none"> <li>• No domain-wide organisation where advice and different subdomains could be brought together</li> </ul>	<ul style="list-style-type: none"> <li>• No organisation where advice from different domains could be brought together</li> </ul>



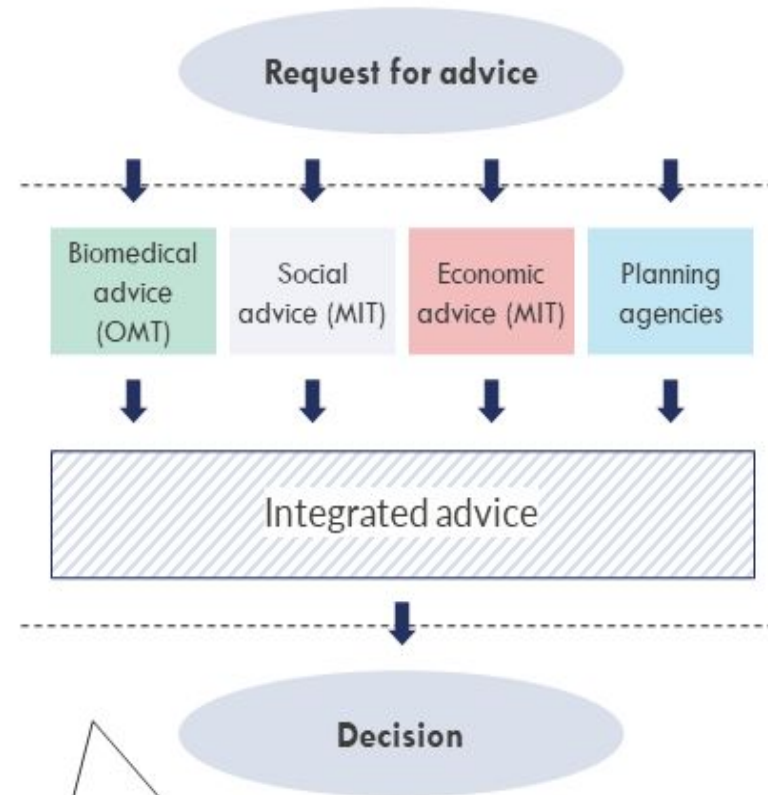
# Results: Proposed process of integrated advice



## Current situation (April 2023):



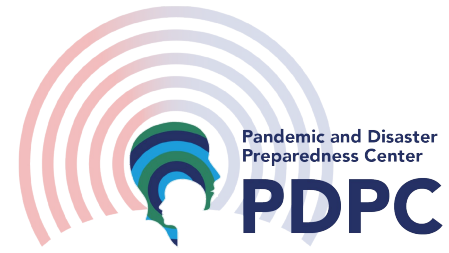
## Integrated advice:



- What is the potential added value?
- What are the remaining unanswered questions?
- What needs to happen now?



# Follow up project: simulation avian influenza

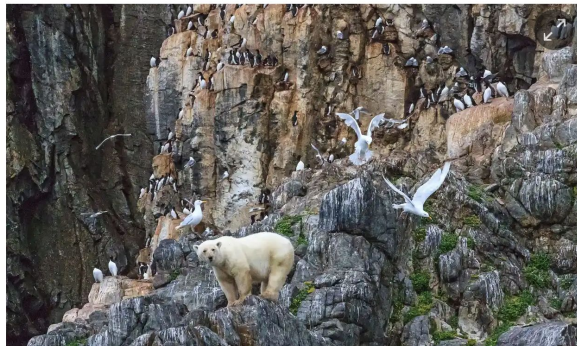


## South Georgia: Bird flu infects penguins at famous wildlife haven



### Polar bear dies from bird flu as H5N1 spreads across globe

Current outbreak, which started in 2021, is estimated to have killed millions of wild birds and thousands of mammals globally



## Bird flu kills over 900 seals, sea lions in southern Brazil

Diego Vera and Ana Mano

December 11, 2023 6:14 PM GMT+1 · Updated 3 months ago

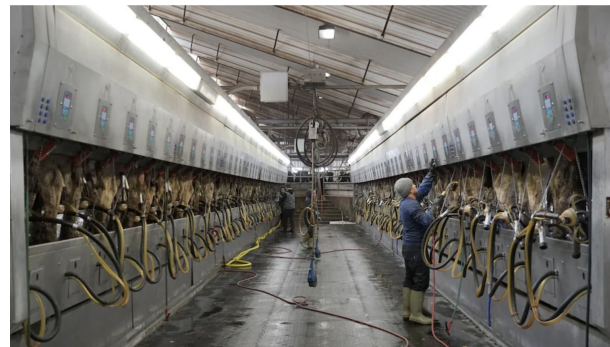


(1/5) A sea lion with symptoms of bird flu sits on the coast of the Atlantic Ocean during an outbreak of Bird Flu, in São José do Norte, in the state of Rio Grande do Sul, Brazil. (AP Photo/Chris Wedel)

## US to test dairy products including ice cream and butter for H5N1 bird flu virus

The FDA will survey 155 products sold in stores across America to check for the highly pathogenic strain of avian influenza

Maeve Cullinan GLOBAL HEALTH SECURITY REPORTER  
18 June 2024 · 12:35pm



The New York Times

## Bird Flu Spreads to Dairy Cows

U.S. regulators confirmed that sick cattle in Texas, Kansas and possibly in New Mexico contracted avian influenza. They stressed that the nation's milk supply is safe.

Share full article



and Kansas had tested positive for avian influenza. Allison Terry for The New York Times

## Highly Pathogenic Avian Influenza A (H5N1) Virus Infection Reported in a Person in the U.S.

CDC's Risk Assessment for the General Public Remains Low

[Print](#)

Press Release

For Immediate Release: Monday, April 1, 2024



United States

## Second US dairy worker infected with bird flu confirmed in Michigan

# Simulation design & methods

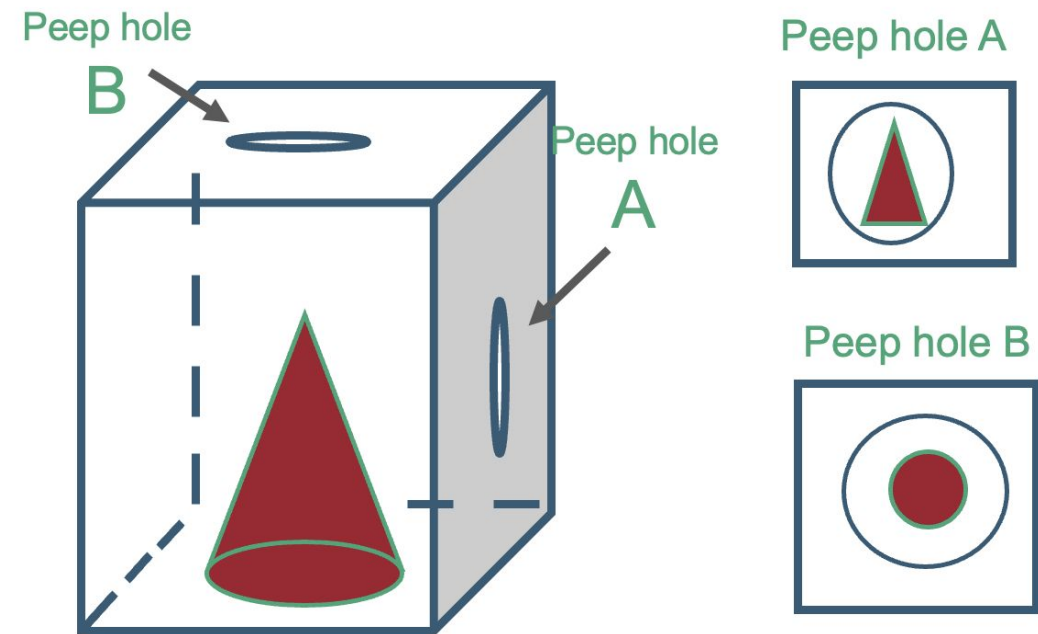
## Preparation:

- Literature review (scientific and grey literature)
- Interviews with 30+ experts from biomedical, social sciences and economic disciplines

## Two simulation exercises

20-23 Dutch experts from biomedicine, social and behavioural sciences and economics

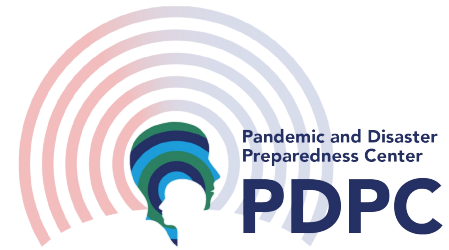
- April 17: Large-scale outbreak of Avian Influenza among poultry and pig farms in the Netherlands with first human cases
- May 24: Large-scale outbreak of Avian Influenza with human-to-human transmission (mainly those <30yrs affected), including transmission in schools



© The President & Fellows of Harvard University 2024

# Key findings:

Interdisciplinary discussions help to recognize blind spots in risk perception, urgency, and unintended consequences of recommendations





# Implications for preparedness

- Interdisciplinary advice should be **further explored** to determine when and where it is **most effective**
- Invest in **simulation exercises** to facilitate **mutual understanding**
- Develop **over-arching structures**, tools and approaches to **optimize** pandemic preparedness



-> NOW IS THE TIME!

# Do you have any questions?

For more information, please visit our website for updates on the topic:

<https://convergence.nl/pandemic-disaster-preparedness-center/>

&

<https://convergence.nl/learning-from-a-crisis/>



## LEARNING FROM A CRISIS

Lessons learned and knowledge agenda to improve pandemic preparedness

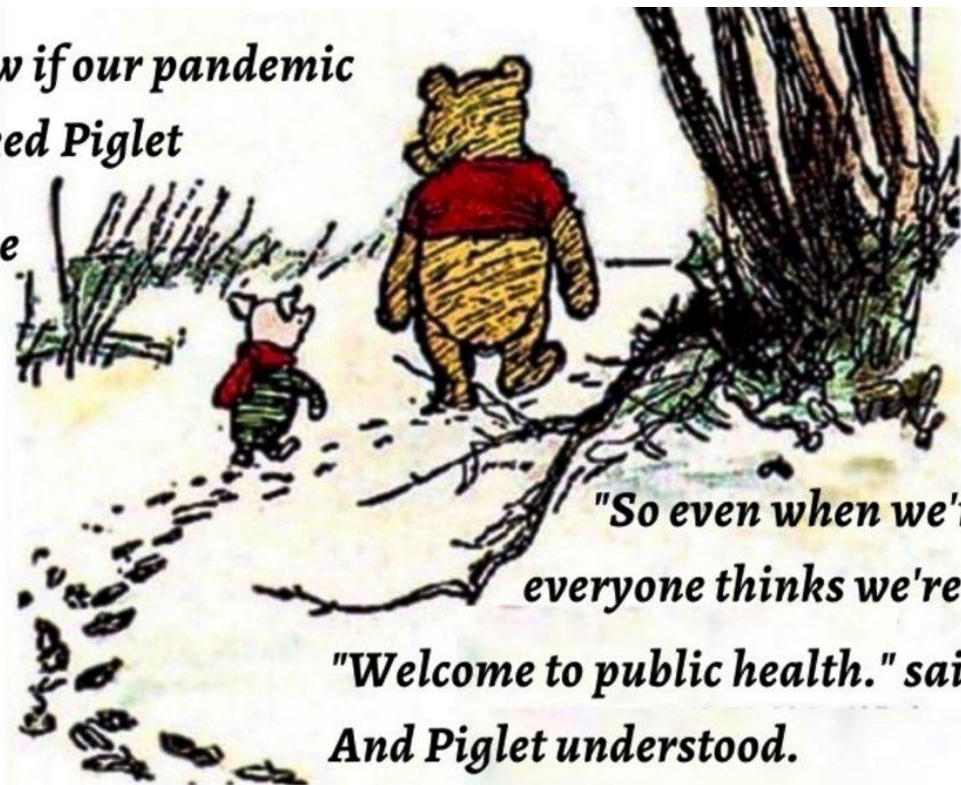
June 2023



# Questions?

*"But how will we know if our pandemic guidelines work?" asked Piglet*

*"The world will think we overreacted," said Pooh*



*"So even when we're right, everyone thinks we're wrong?"*

*"Welcome to public health." said Pooh  
And Piglet understood.*