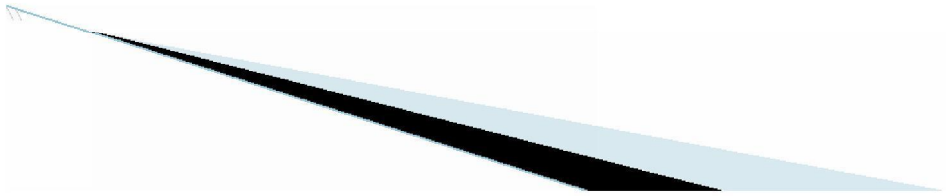
Outbreakmanagement 2020

5.1.2e

RIVM & VU

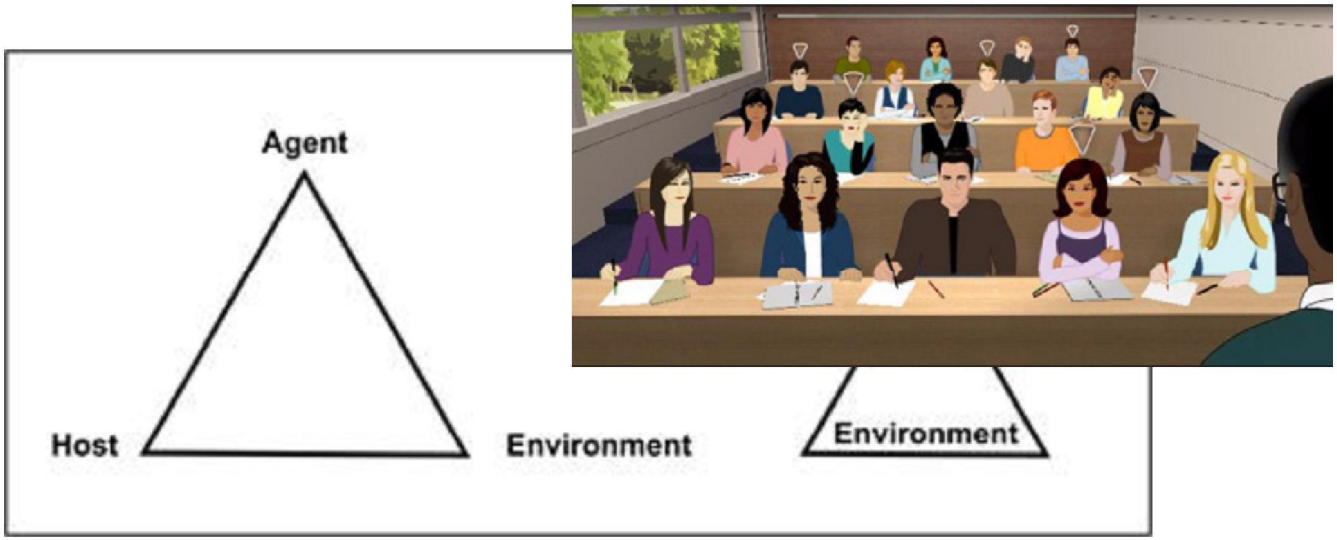
In today's lecture you will learn about:

- The transmission chain
- Major crises/outbreaks
- Role of the WHO
- Global health issues (reflections)
  - COVID-19



Epidemiologic triad (triangle)

model for infectious diseases

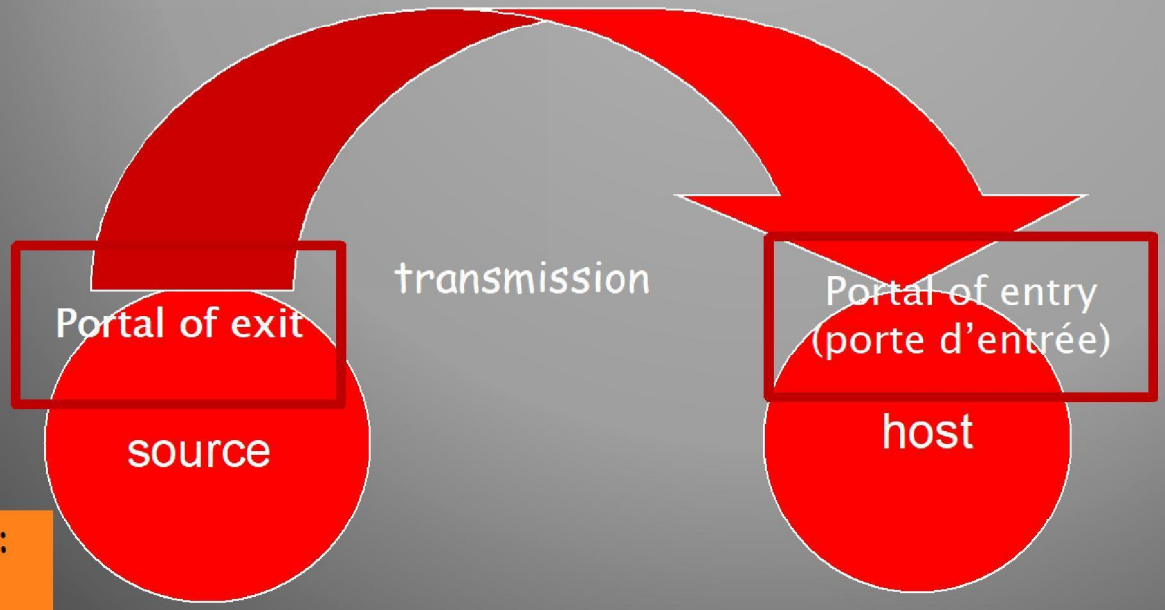


AGENT: microorganisms and their characteristics
HOST: the human who might get infected (risk factors for exposure, susceptibility -vaccination, natural immunity- and response)
ENVIRONMENT: environmental factors, crowding, sanitation, vectors, access to health services

Go to the chatbox

* Wat zijn de grootste 5 onzekerheden mbt Covid volgens jou?

The chain of infection



Reservoir:

Humans, animals, soil, water

eliminate

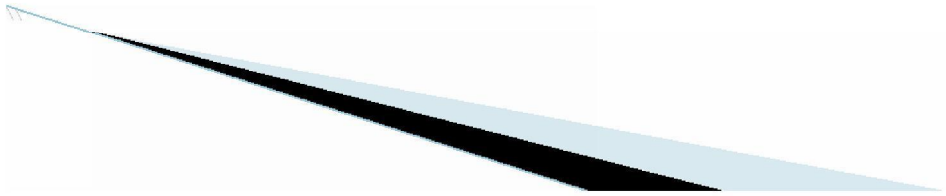
eradicate

curtail

protect

Which diseases eradicated?
Why? Other candidates?

SUGGESTIONS? Go to the chatbox!



5/8/1980
Smallpox Declared Eradicated

The World Health Assembly accepted the WHO Global Commission's recommendation and declared the world free from smallpox.

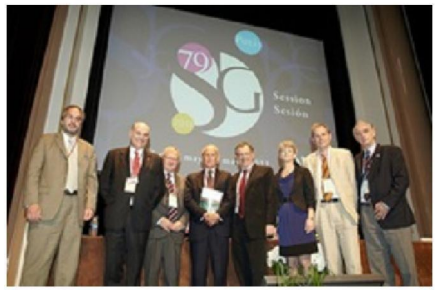
Obvious clinical manifestation

Lifelong immunity following natural infection and good vaccine

No animal reservoir

Scroll of the Declaration of Smallpox Eradication.

2011
Rinderpest eradication

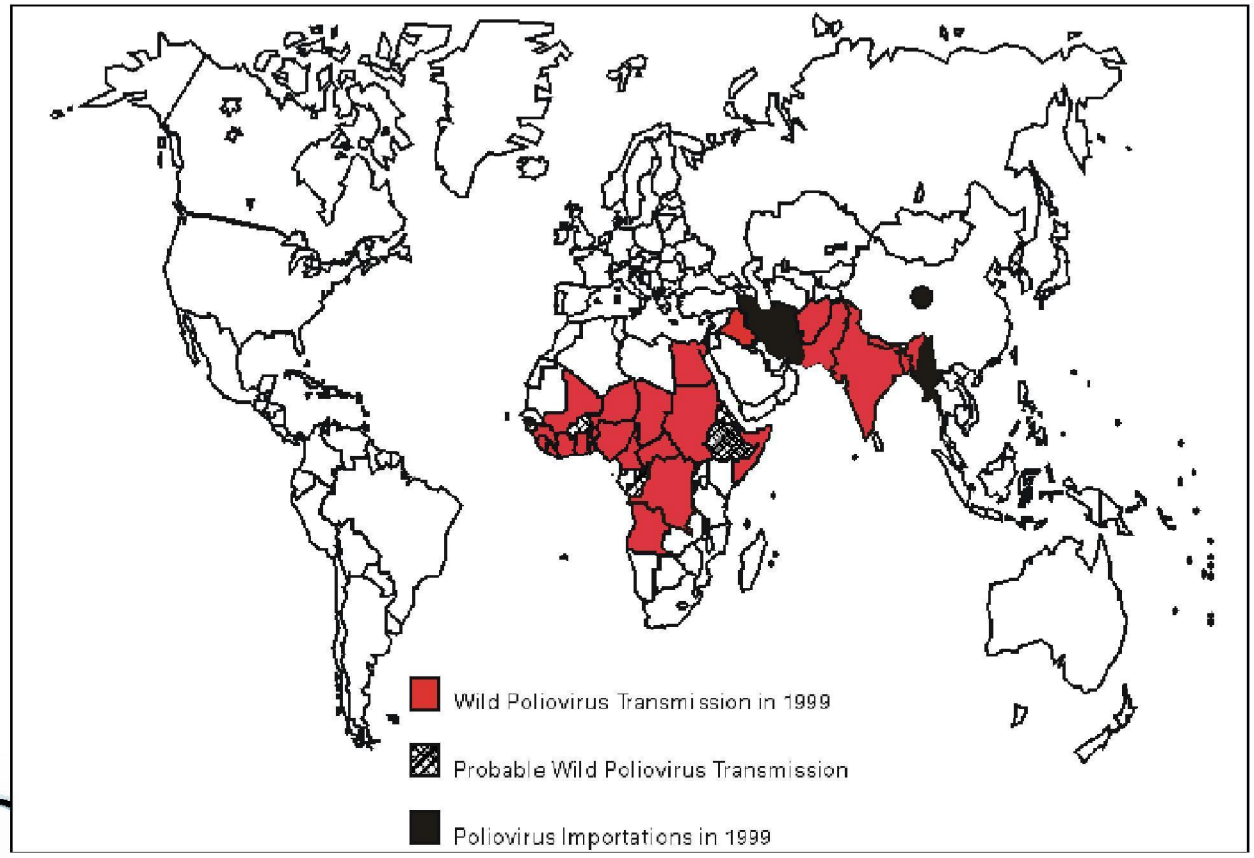


- 2011 – Global freedom from rinderpest
- The world was officially declared free from rinderpest in 2011 in the course of the 79th OIE General Session.
- Rinderpest, once the scourge of societies across Asia, Europe and Africa, is only the second infectious disease, after smallpox for humans, to have been eradicated globally thanks to decades of internationally concerted effort.

Declaration of world-freedom from rinderpest at the 79th OIE General Session (2011)

World Health Assembly (WHA) 1988:
Polio eradication by 2000!

FIGURE 1. Countries with known or probable wild poliovirus transmission — World Health Organization, 1999*

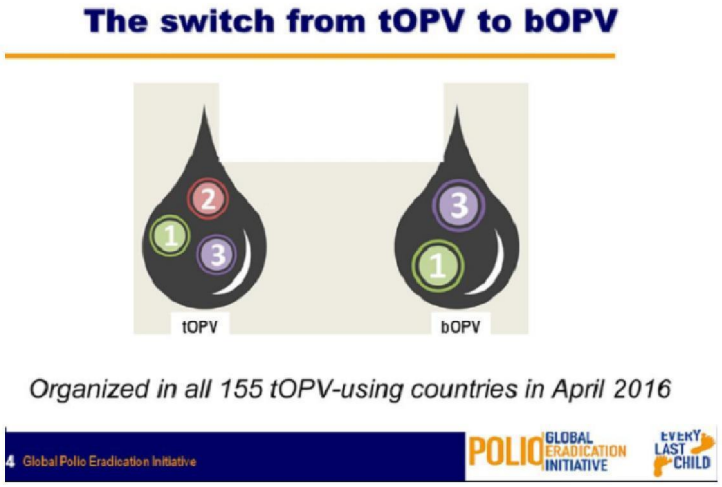


*As of March 13, 2000.

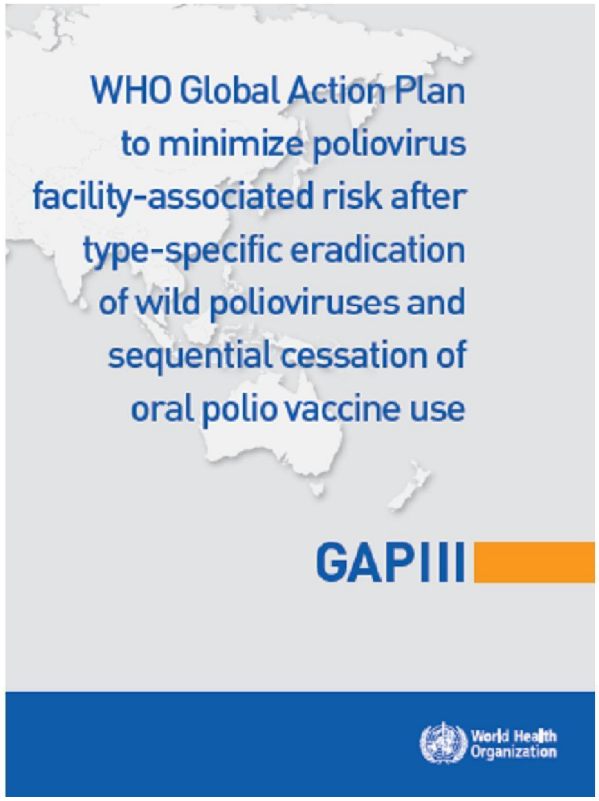
https://www.cdc.gov/mmwr/preview/mmwrhtml/mm4916a4.htm

2016

PV2 Eradicated
OPV – Sabin 2 strains can evolve to VDPV



Now: GAPIII phase 2- all PV2 must be contained



WPV3 eradicated 2019

Two out of three wild poliovirus strains eradicated

Global eradication of wild poliovirus type 3 declared on World Polio Day

24 October 2019

In an historic announcement on World Polio Day, an independent commission of experts concluded that wild poliovirus type 3 (WPV3) has been eradicated worldwide. Following the eradication of smallpox and wild poliovirus type 2, this news represents a historic achievement

WHO: Africa is free from wild polio virus

August 2020

Polio can only be prevented through immunisation

Africa has been declared free from wild polio by the independent body, the Africa Regional Certification Commission.

Polio usually affects children under five, sometimes leading to irreversible paralysis. Death can occur when breathing muscles are affected.

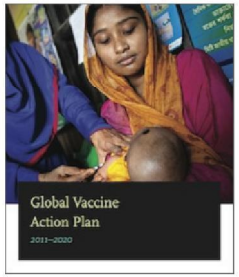
Twenty-five years ago thousands of children in Africa were paralysed by the virus.

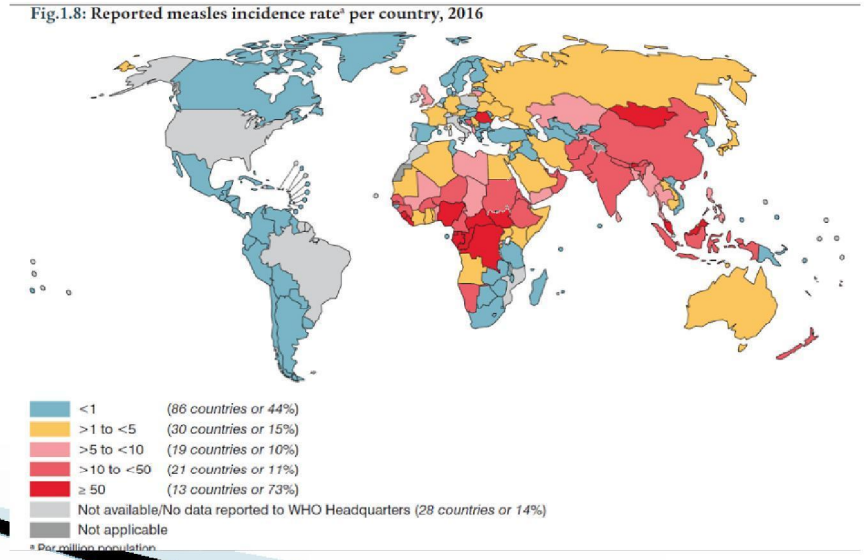
The disease is now only found in Afghanistan and Pakistan.

Source: https://www.bbc.com/news/world-africa-53887947

2012 WHA endorses the Global Vaccine Action Plan

- Eliminate measles in four World Health Organization (WHO) regions by 2015 and in five regions by 2020.
- Measles elimination: absence of endemic measles virus transmission in a region or other defined geographic area for ≥12 months, in the presence of a high quality surveillance system

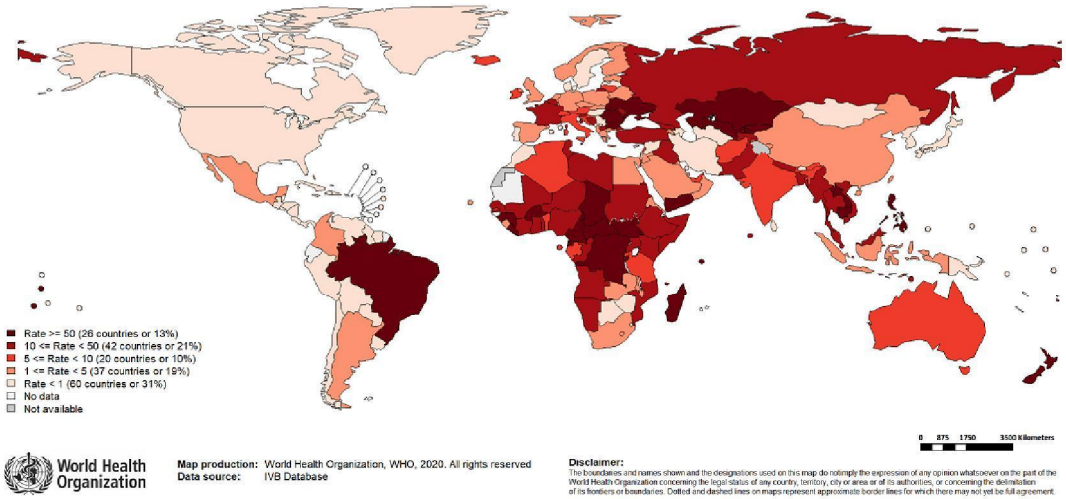




WHO, disease elimination

Measles Incidence Rate per Million (12M period)

Top 10*	Top 10**	Top 10**
Country	**Cases**	**Rate**
Brazil	29135	137.18
DR Congo	25538	294.46
Philippines	9016	83.4
Nigeria	8294	41.27
India****	7009	5.12
Kazakhstan	6514	350.35
Bangladesh	6473	38.51
Uzbekistan	5201	158.53
Central African Republic	4914	1018.3
Madagascar	3465	128.48



Other countries with high incidence rates***	Other countries with high incidence rates***	Other countries with high incidence rates***
Country	**Cases**	**Rate**
New Zealand	1910	398.55
Tonga	34	308.98
Seychelles	28	292.57
Samoa	47	236.29
Liberia	793	159.31
Chad	2505	158.4

Measles cases from countries with known discrepancies between case-based and aggregate surveillance, as reported by country

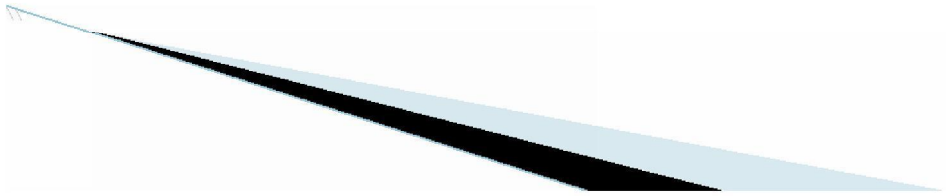
Country	Year	Cases in Case-based	Cases in Aggregate	Data Source for aggregate #s
DR Congo	2019	18,447	311,408	SitRep RDC No. 47
	2020	15,378	68,626	
Somalia	2019	290	4442	Somali EPI/POL Weekly Update Week 31
	2020	56	1436	

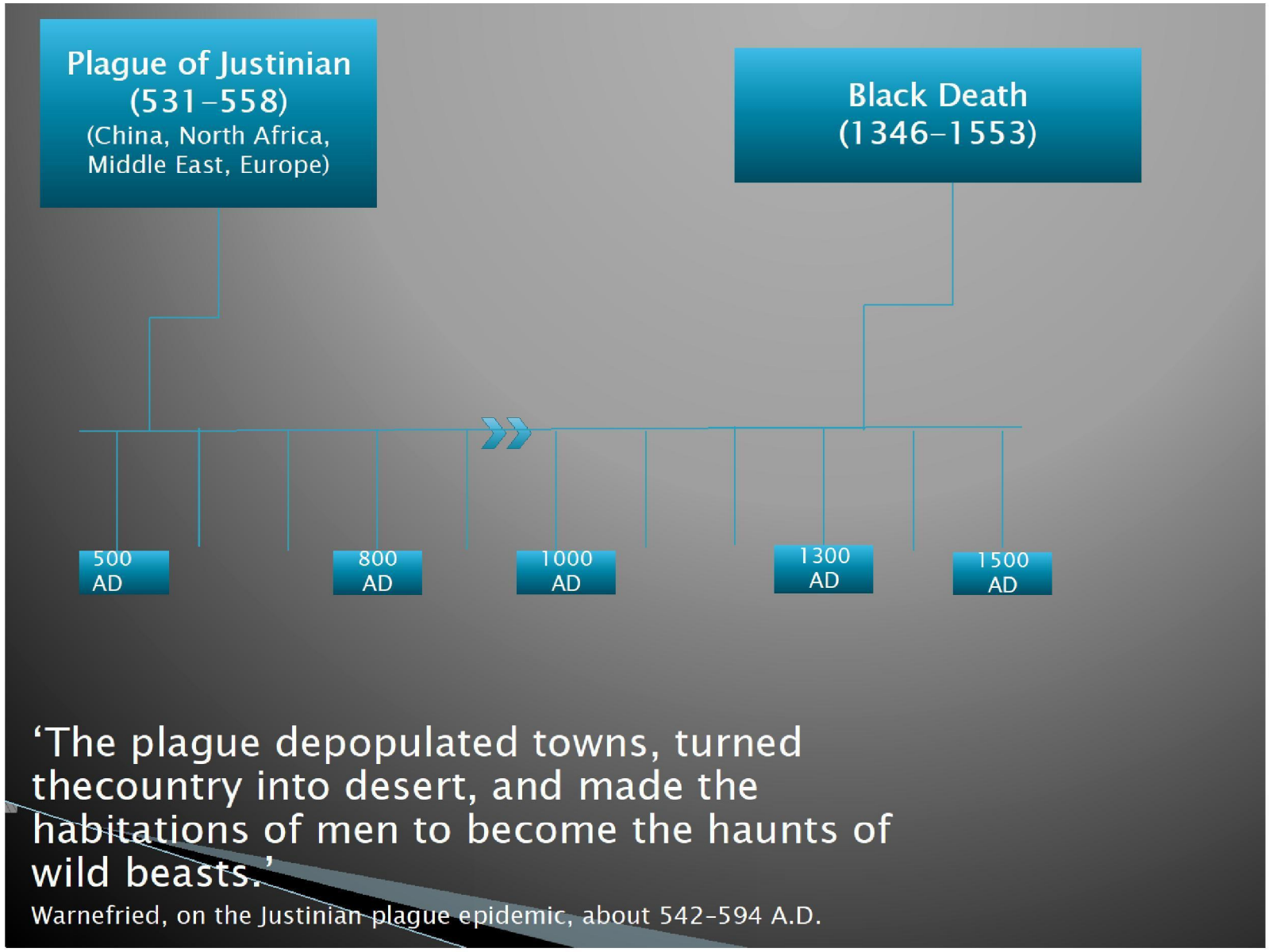
Notes: Based on data received 2020-08 and [illegible] between 2015-07 and 2020-06 – Incidence: Number of cases / population * 1,000,000 – * World population prospects, 2019 revision – ** Countries with the highest number of cases for the period – *** Countries with the highest incidence rates (excluding those already listed in the table above) – **** WHO classifies all suspected measles cases reported from India as measles clinical [illegible] was not collected as per the algorithm for classification of suspected measles in the WHO VPD Surveillance Standards. Thus numbers might be different between what WHO reports and what India reports.

BEGRIPPEN

- To interrupt further spread of the disease (control) by reducing the number of new cases, the number of cases currently infected, and decrease morbidity and mortality associated with the disease
- To eliminate the disease from the population (elimination); reduction of the disease incidence to 0 in a geographical area
- To achieve the complete and permanent worldwide reduction to zero new cases of the disease through deliberate efforts (eradication)

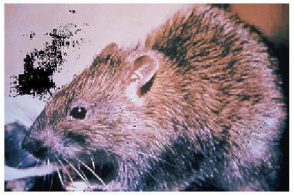
Lessons from plague



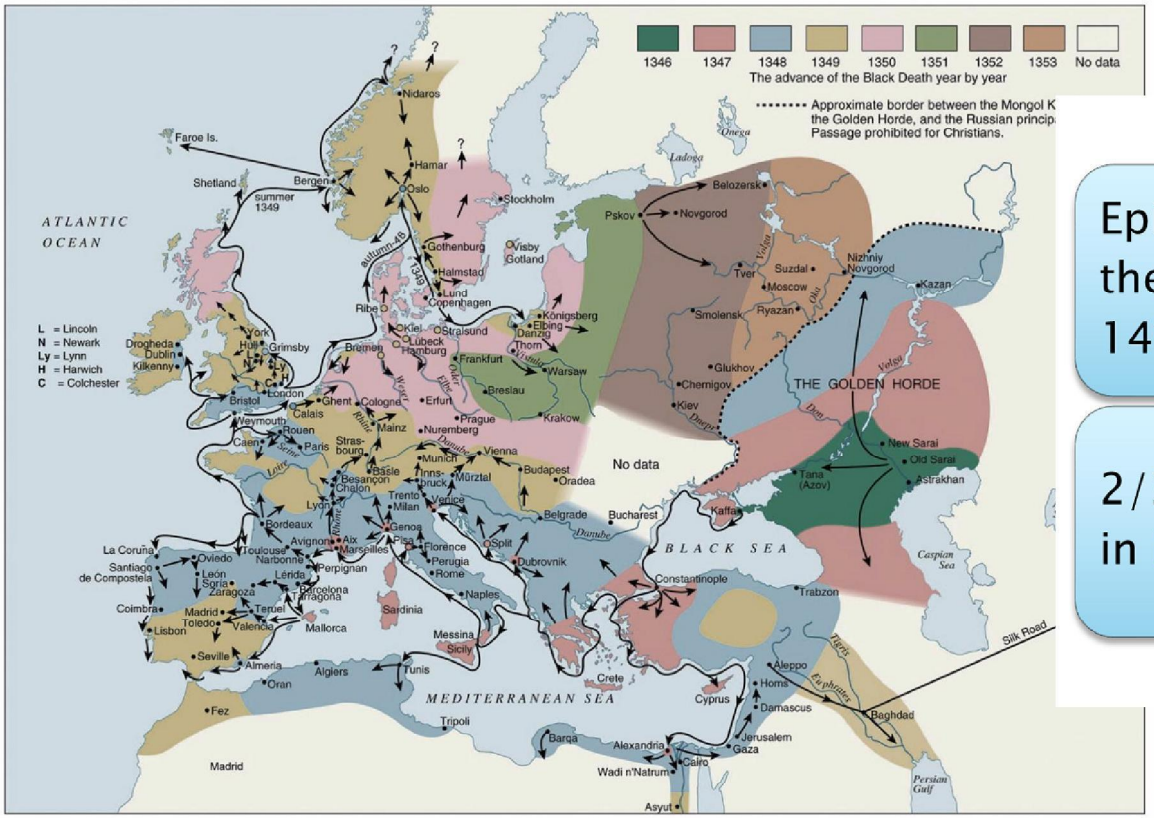

Plague of Justinian
(531–558)
(China, North Africa,
Middle East, Europe)
Black Death
(1346–1553)
500
AD
800
AD
1000
AD
1300
AD
1500
AD
‘The plague depopulated towns, turned thecountry into desert, and made the habitations of men to become the haunts of wild beasts.’
Warnefried, on the Justinian plague epidemic, about 542–594 A.D.

high impact on mankind: black death

PHIL/ CDC/ Ken Gage



cdc

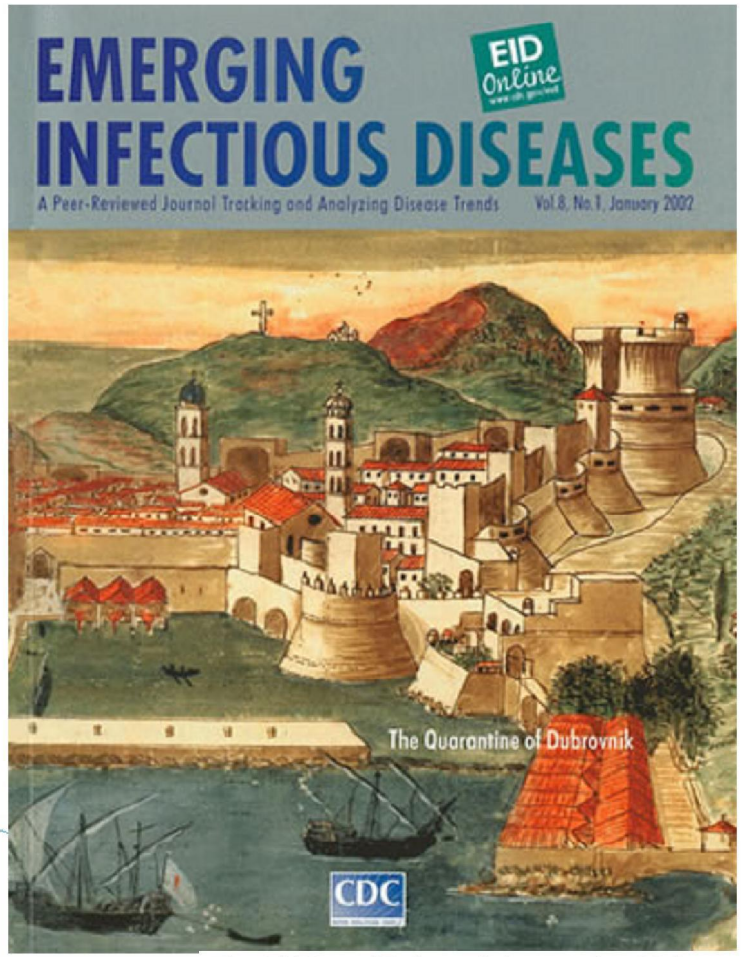


Epidemics of plague ir
the 6th–8th century and
14th–17th century

2/3 of the population
in Europe

Source: Cesana et al, Anthropological Science, 2016

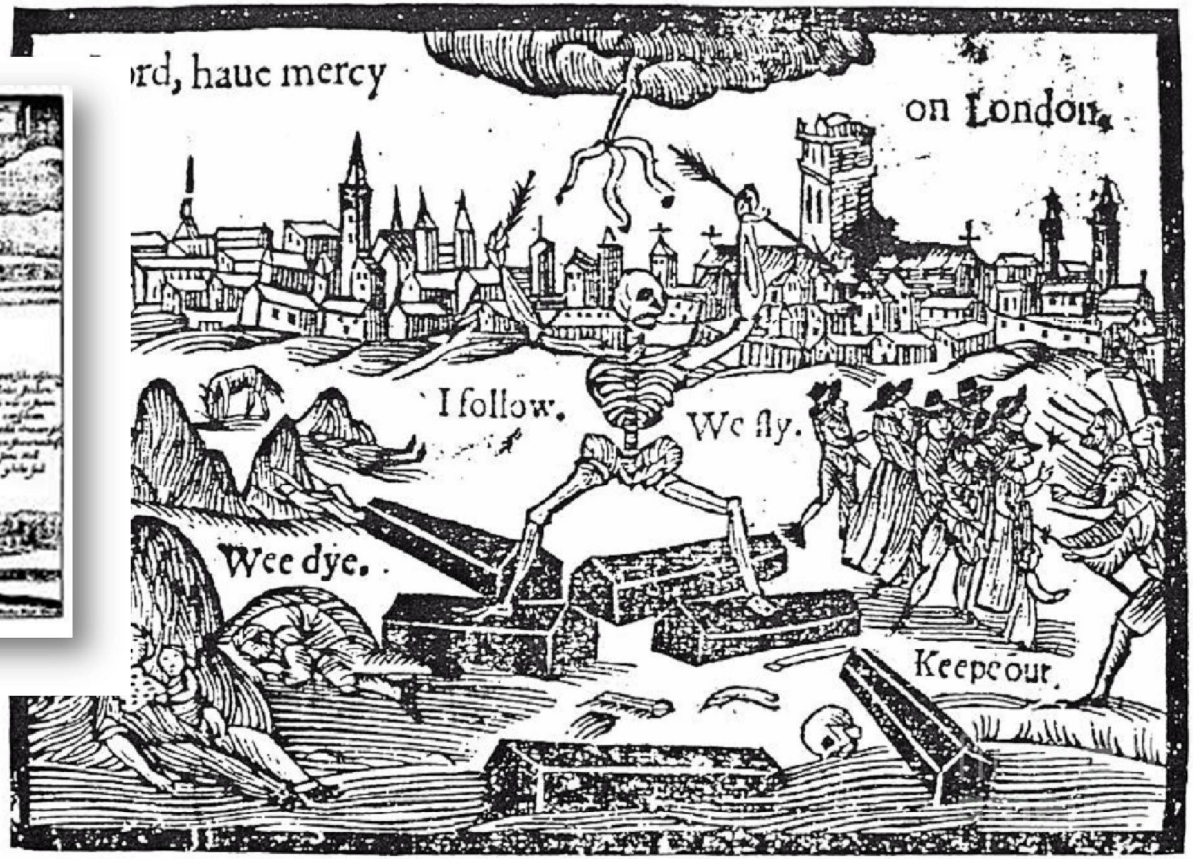
Quarantine



The Old Port of Dubrovnik (watercolor, 18th century). Anonymous.Provided courtesy of Dr. Andreja Tambic-Andrana (CK)

Great plague in London

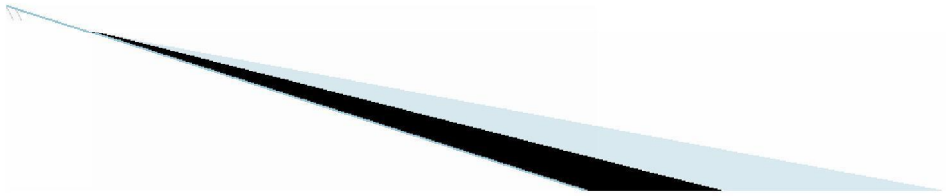
Isolation, personal protection equipment, social distancing



Wrap-up!

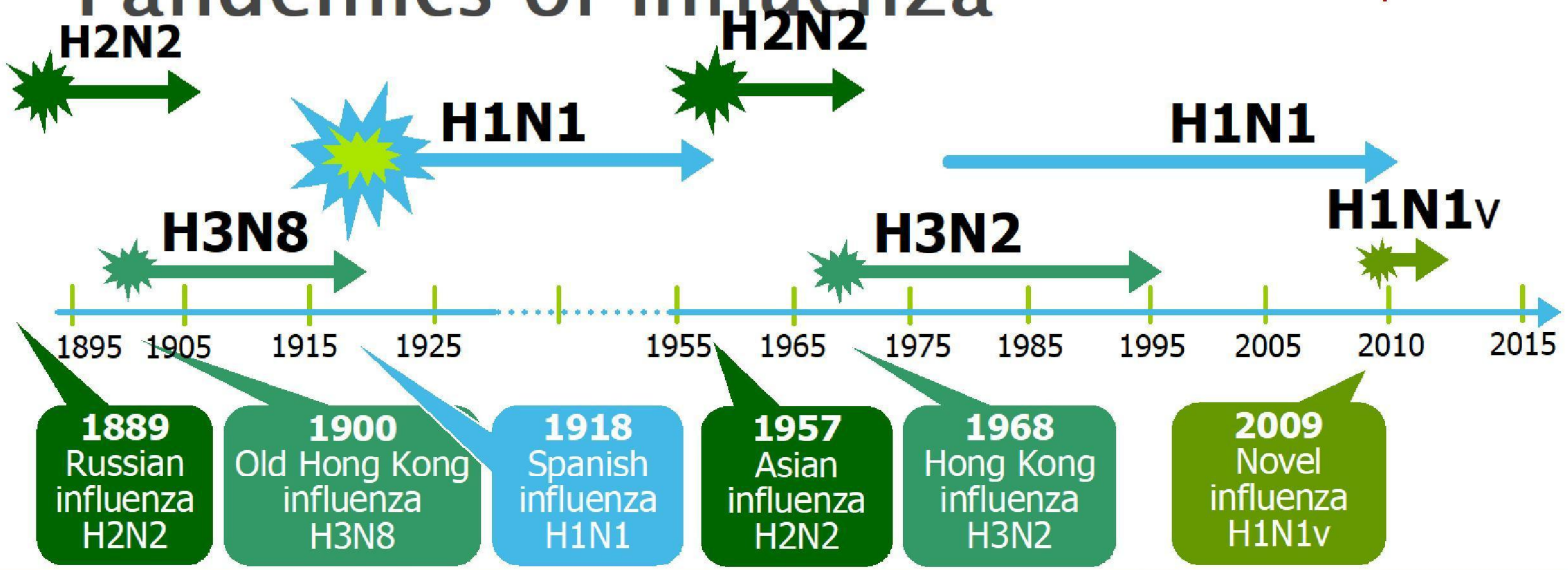
- Isolation of the ill
- Personal protection equipment
- Social distancing
- Quarantine of the contacts
- The role of the city administrators

Lessons from the flu pandemic

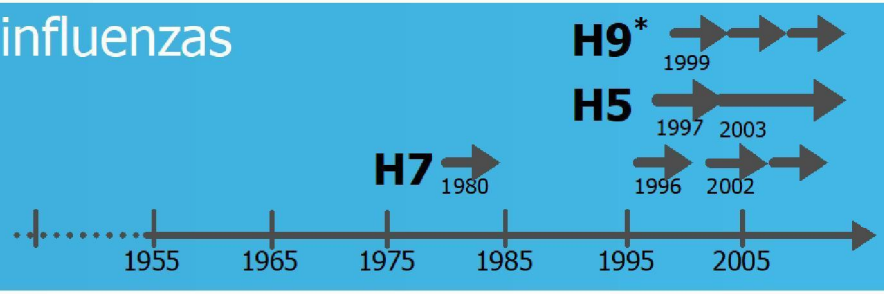


NIID 国立感染症研究所

Pandemics of influenza



Recorded new avian influenzas



Reproduced and adapted (2009) with p[illegible] Masato Tashiro, Director, Center for Influenza Virus Research, National Institute of Infectious Diseases (NIID)

Source: ECDC

GO TO CHATBOX

- Welk influenzavirus is recent gevonden in NL en waar?

Influenza pandemics 20-21 century

Communicable Disease Surveillance and Response, WHO

Credit: US National Museum of Health and Medicine

H1N1 H3N2 H2N2

1918: "Spanish flu"	1957: "Asian Flu"	1968: "Hong Kong flu"
20-40 mil. deaths	1-4 mil. deaths	1-4 mil. deaths

H1N1

2009: swine flu (Mexican flu)

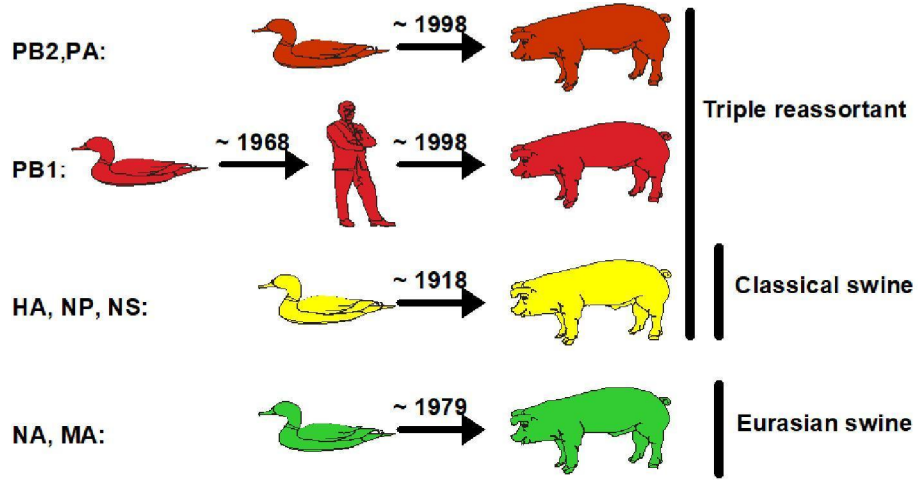
000-300.000 deaths

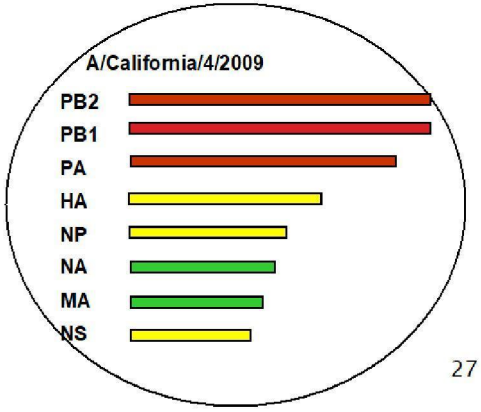
GLOBAL HEALTH SECURITY

The flu pandemic 2009

Source: NOS Journaal

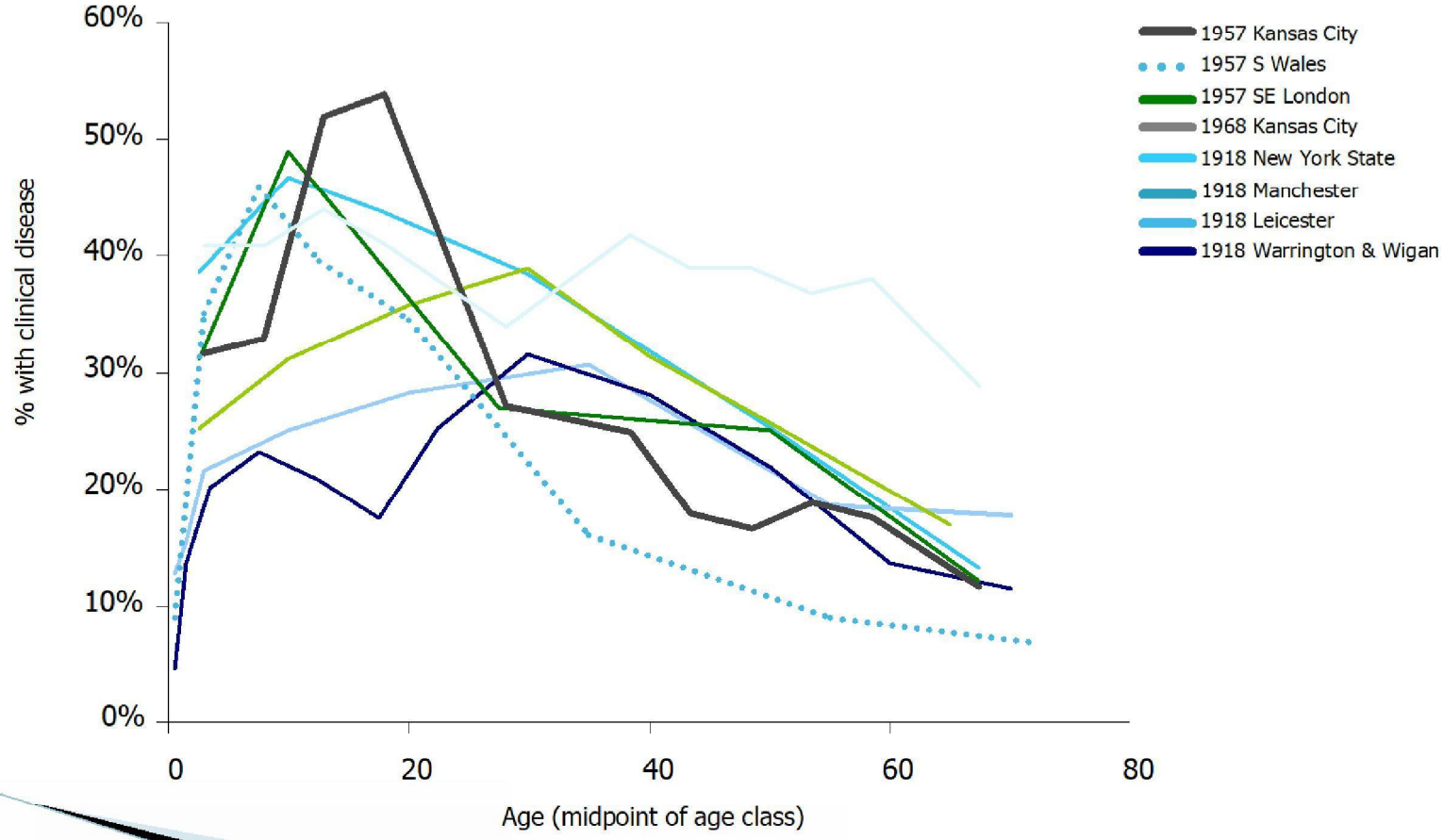
New virus: combination of genes from 4 viruses



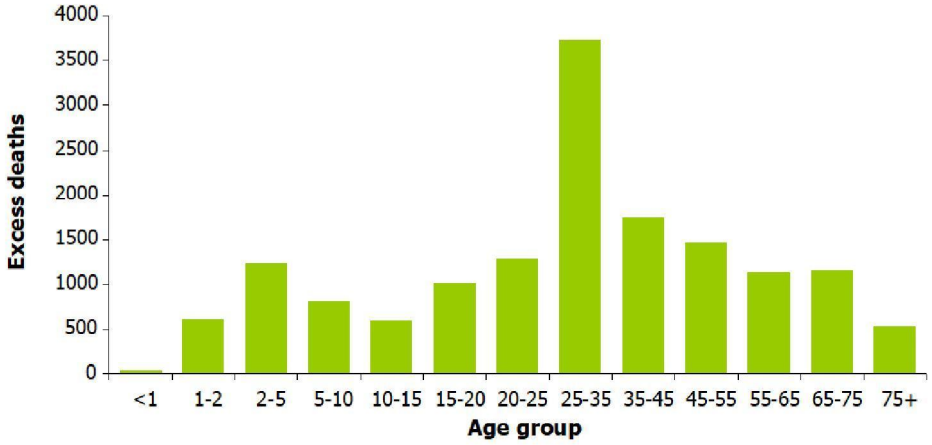


Novel Swine-Origin Influenza A (H1N1) Virus Investigation Team*, New England Journal of Medicine, 2009

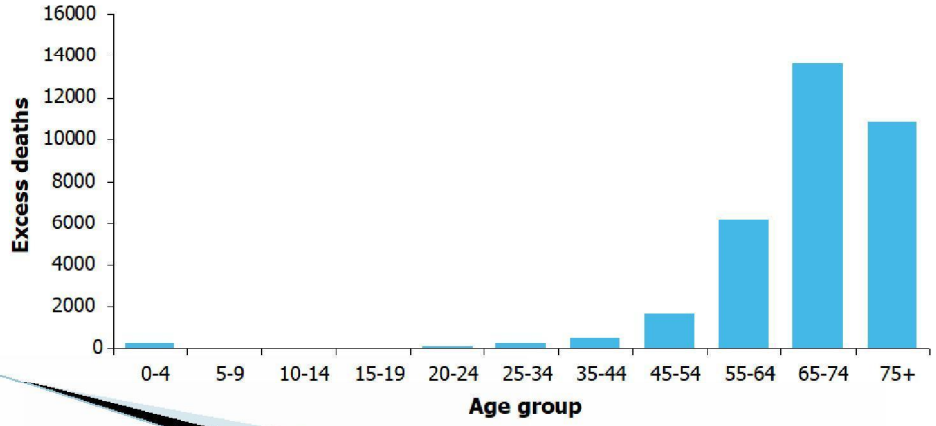
Age-specific clinical attack rate in previous pandemics



Different age-specific excess deaths in pandemics



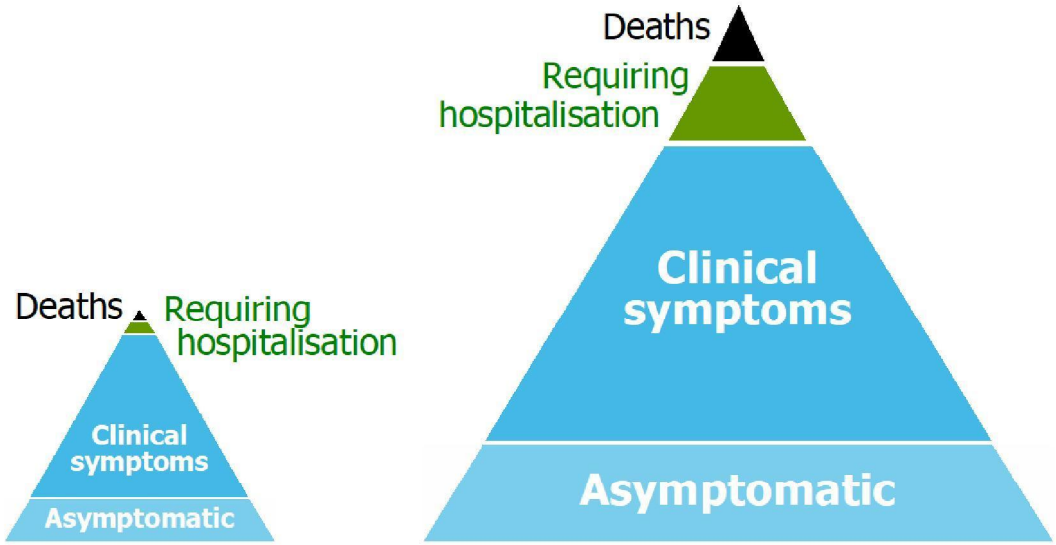
Excess deaths, second wave, 1918 epidemic



Excess deaths second wave 1969 pandemic, England and Wales

ECDC

Seasonal influenza compared to pandemic — proportions of types of cases



ization

Status as of 26 April 2009

Country, territory and area	New cases since previous update	Cumulative tot
United Kingdom of Great Britain and Northern Ireland	0	
United Kingdom, Isle of Man, Crown Dependency	0	
United Kingdom, Jersey, Crown Dependency	0	
United States of America	20	
Uruguay	0	
Vanuatu	0	
Venezuela (Bolivarian Republic of)	0	
Viet Nam	0	
West Bank and Gaza Strip	0	
Yemen	0	
{Grand Total}	38	

Click here for latest influenza A(H1N1) updates from WHO.

ılization

Status as of 30 April 2009, 17:00 GMT

Country, territory and area	New cases since previous update	Cumulative tot
United Kingdom of Great Britain and Northern Ireland	3	
United Kingdom, Isle of Man, Crown Dependency	0	
United Kingdom, Jersey, Crown Dependency	0	
United States of America	18	
Uruguay	0	
Vanuatu	0	
Venezuela (Bolivarian Republic of)	0	
Viet Nam	0	
West Bank and Gaza Strip	0	
Yemen	0	
{Grand Total}	109	

Click here for latest Influenza A(H1N1) updates from WHO.

ıMT
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	Cumulative
0	8
109	257

ıinese Taipei has
cases of
0 deaths. Cases
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ıraçao: 3
hree confirmed
ʳs of a cruise

ization

Status as of 15 May 2009, 06:00 GMT

Country, territory and area	New cases since previous update	Cumulative tot
United Kingdom of Great Britain and Northern Ireland	0	
United Kingdom, Isle of Man, Crown Dependency	0	
United Kingdom, Jersey, Crown Dependency	0	
United States of America	946	
Uruguay	0	
Vanuatu	0	
Venezuela (Bolivarian Republic of)	0	
Viet Nam	0	
West Bank and Gaza Strip	0	
Yemen	0	
{Grand Total}	1023	

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	Cumulative
0	65
023	7520

inese Taipei has
cases of
0 deaths. Cases
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uraçao: 3
hree confirmed
s of a cruise

Click here for latest Influenza A(H1N1) updates from WHO.

ization

Status as of 29 May 2009, 06:00 GMT

Country, territory and area	New cases since previous update	Cumulative tot
United Kingdom of Great Britain and Northern Ireland	66	
United Kingdom, Isle of Man, Crown Dependency	0	
United Kingdom, Jersey, Crown Dependency	0	
United States of America	1163	
Uruguay	2	
Vanuatu	0	
Venezuela (Bolivarian Republic of)	0	
Viet Nam	0	
West Bank and Gaza Strip	0	
Yemen	0	
{Grand Total}	2112	

GMT
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	Cumulative
4	99
112	15510

inese Taipei has
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uraçao: 3
hree confirmed
s of a cruise

Click here for latest Influenza A(H1N1) updates from WHO.

ization

Status as of 11 June 2009, 14:00 GMT

www.who.int

Country, territory and area	New cases since previous update	Cumulative tot
United Kingdom of Great Britain and Northern Ireland	156	
United Kingdom, Isle of Man, Crown Dependency	0	
United Kingdom, Jersey, Crown Dependency	0	
United States of America	0	
Uruguay	0	
Vanuatu	0	
Venezuela (Bolivarian Republic of)	1	
Viet Nam	1	
West Bank and Gaza Strip	0	
Yemen	0	
{Grand Total}	1037	

reports

GMT
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	Cumulative
3	144
37	28774

inese Taipei has
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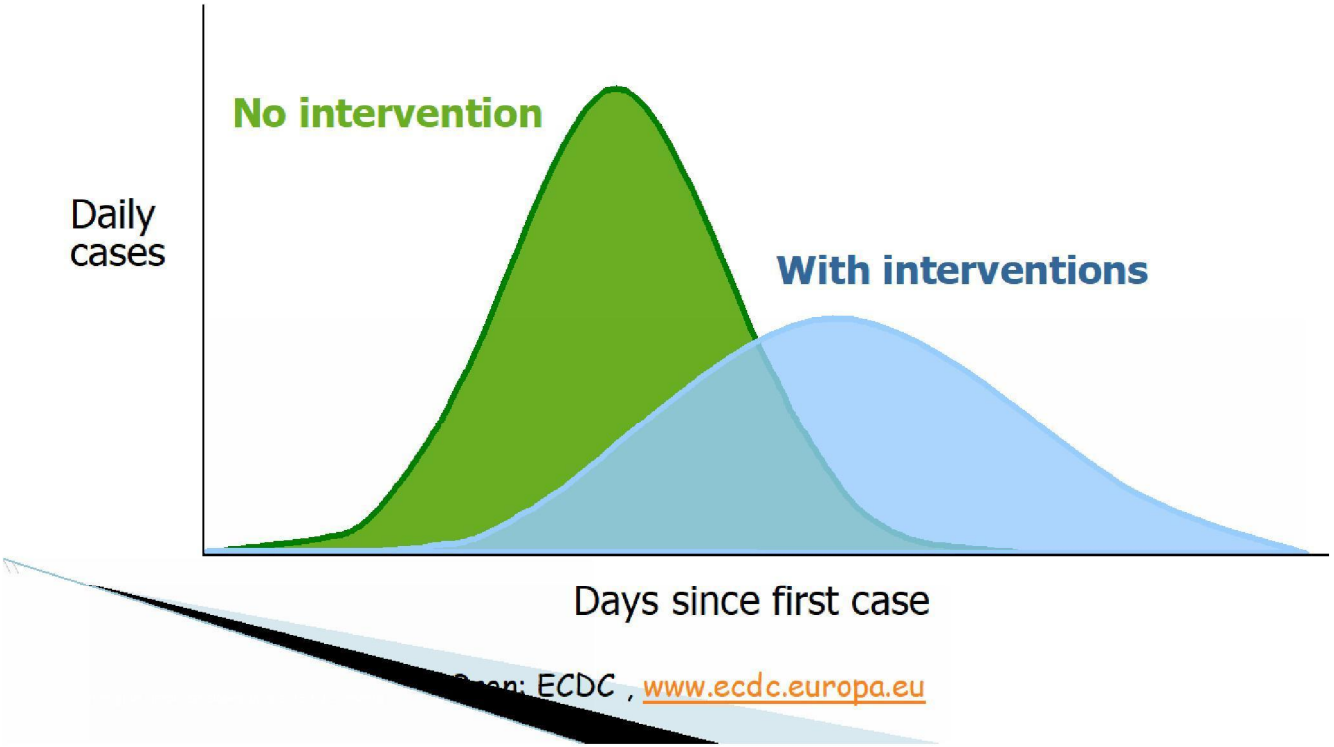
uraçao: 3
hree confirmed
s of a cruise

Click here for latest Influenza A(H1N1) updates from WHO.

Aims of community reduction (containment) of influenza transmission — mitigation

- Delay and flatten epidemic peak
- Reduce peak burden on healthcare system and threat
- Somewhat reduce total number of cases
- Buy a little time



Source: ECDC , www.ecdc.europa.eu

Which interventions for containment or mitigation?

Social distancing, cough hygiene

Antivirals

Vaccination with pandemic vaccine (adjuvated)

Antivirals: neuraminidase inhibitors

Containment: PHS

- April 28–June 29: treatment of patients and prophylaxis in household contacts (in NL: 126 patients)
- June 30–August 15: treatment of patients (in NL: > 1000 patients)

Mitigation: GP's, hospitals

- August 15 – February 2010: treatment of patients from risk groups or with severe disease

Vaccines in the NL

34 million doses of vaccines were ordered: sufficient for 2 doses for every one

Scepticism whether pandemic vaccination needed ('mild pandemic')

Anxiety about new vaccines not tested thoroughly for safety or effectiveness

Confusion about 2 versus 1 doses, in particular after WHO statements

Discussions about role of pharmaceutical lobby in scientific advisory committees

Outbreaks in schools or public health events?

School outbreaks

- Hygienic measures
- No school closure advised

Public events

- Hygienic measures;
  - → involve the PHS
- No cancellation of public event advised

Pandemic vaccine coverage

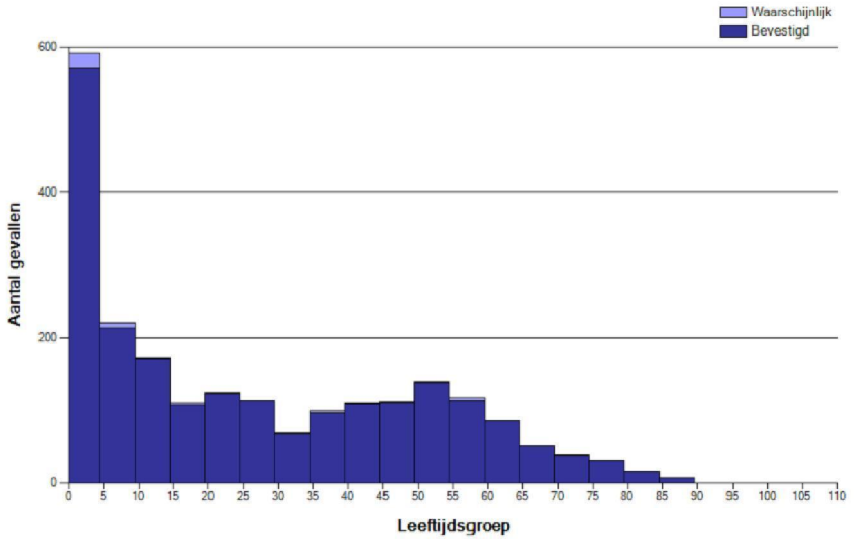
- Medical risk groups (GP): 76% (93%, 2 doses)
- Health care workers: 50% (87%, 2 doses)
- Healthy children: 74% (81%, 2 doses)
- Care providers infants: 64% (80%, 2 doses)
- Estimated >5 million people vaccinated (30% population)

Influenza A (H1N1) 2009 pandemic in the Netherlands

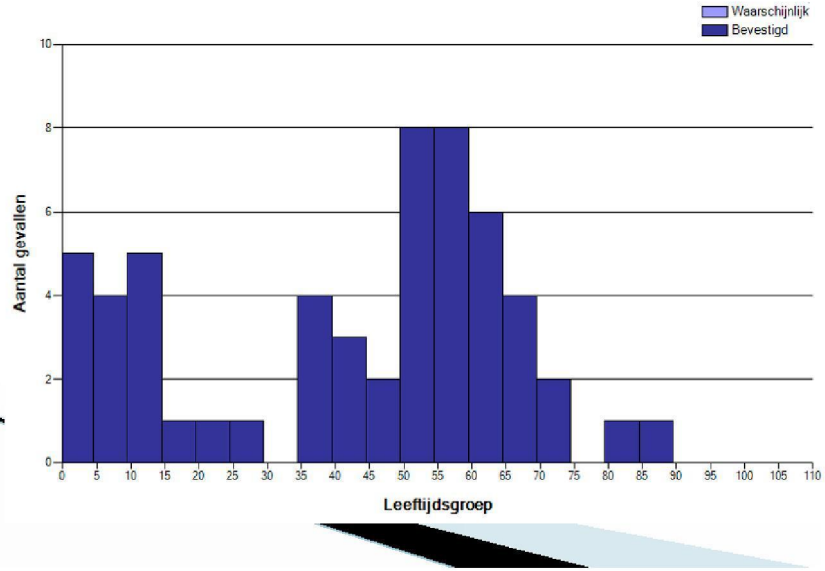
2193 patients admitted to hospital (50% with co-morbidity)

63 notified deaths (90% with co-morbidity)

Source:
RIVM



Age distribution of the patients admitted in hospitals during the H1N1 pandemic in the Netherlands



Age distribution of patients who died of A/H1N1, in the Netherlands

Source: RIVM,

Influenza A (H1N1) 2009 pandemic worldwide by August 2010

18.500 laboratory-confirmed deaths from pandemic influenza A (H1N1)

201 200, estimated number of deaths due respiratory disease, associated with the pandemic

83 300 due to cardiovascular disease.

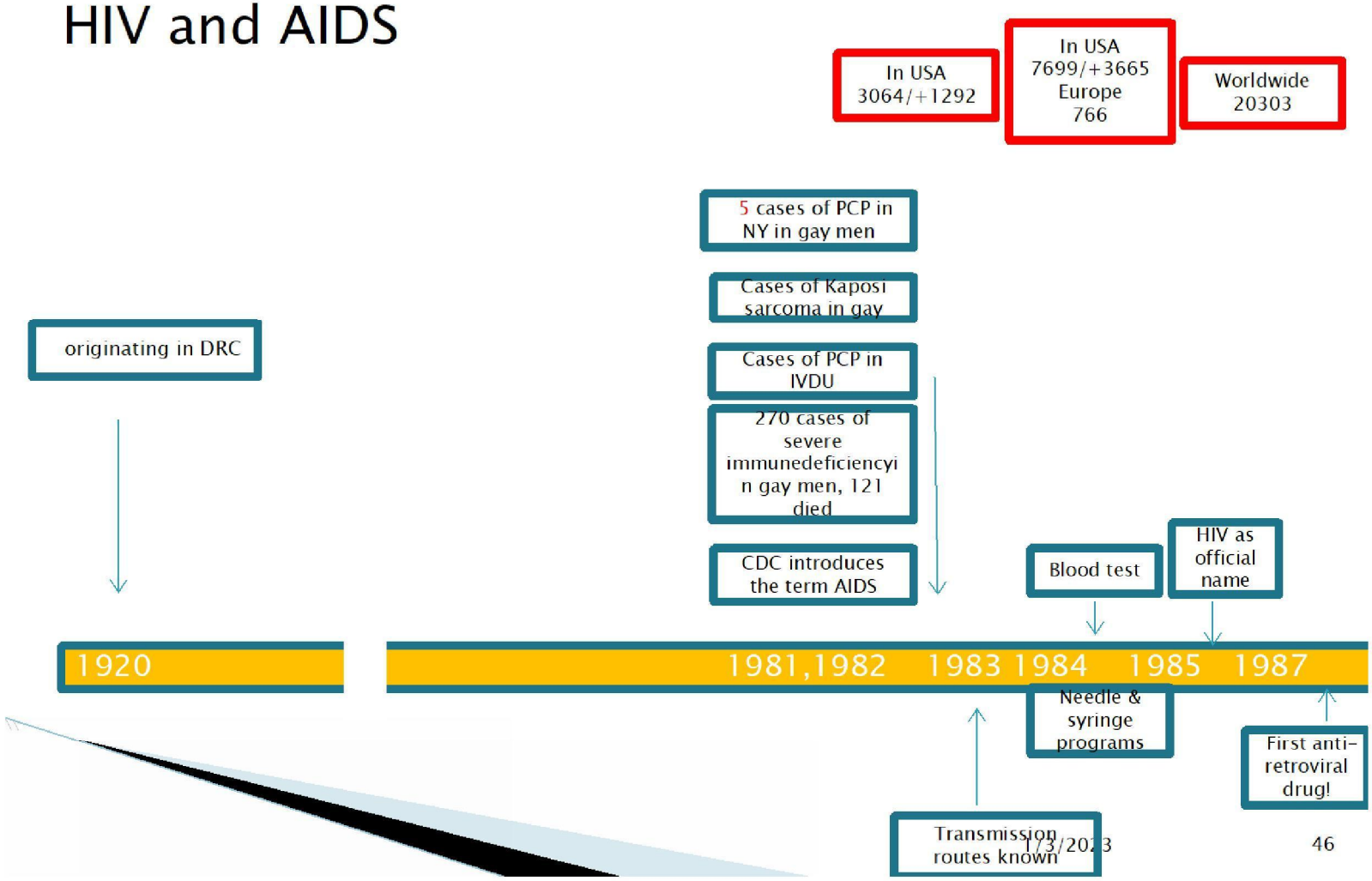
Estimates of mortality 0.001-0.007% compared to 0.03% of the world's population during the 1968 pandemic and to 1-3% of the world's population during the 1918 pandemic.

Sources:
WHO, update 112,
Dawood & Iuliano 2012, CDC

Wrap-up!

- The role of contact tracing in early stages
- The role of antivirals
- Social distancing
- The role of vaccines
- The role of joint human/animal surveillance systems

HIV and AIDS


In USA 3064/+1292
In USA 7699/+3665 Europe 766
Worldwide 20303
5 cases of PCP in NY in gay men
Cases of Kaposi sarcoma in gay
originating in DRC
Cases of PCP in IVDU
270 cases of severe immunedeficiencyi n gay men, 121 died
CDC introduces the term AIDS
Blood test
HIV as official name
1920
1981,1982
1983
1984
1985
1987
Needle & syringe programs
First anti-retroviral drug!
Transmission routes known

"control measures: ART, health education, safe sex, safe blood/blood products, safe needles

HIV 2018, according to WHO

HIV/AIDS one of the world's most significant public health challenges, particularly in low- and middle-income countries.

antiretroviral therapy (ART) allows HIV-positive people to live longer and healthier.

ART prevents onward transmission of HIV.

21.7 million people received HIV treatment in 2017 (59% of the 36.9 million people with HIV).

In 2017, 8 out of 10 pregnant women with HIV (1.1 million women), received ART

Lessons from Ebola

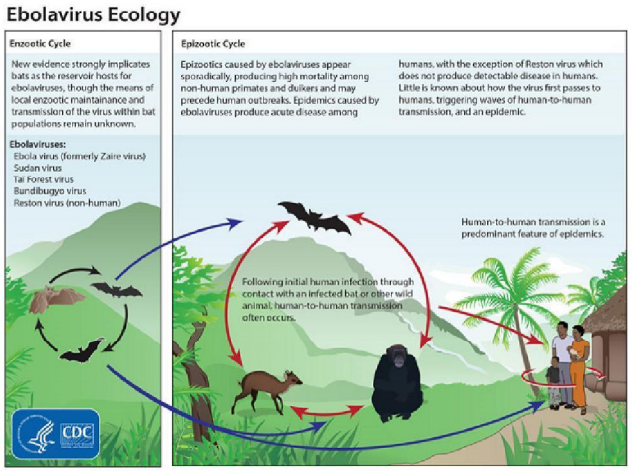
"Everybody knows that pestilences have a way of recurring in the world; yet somehow we find it hard to believe in ones that crash down on our heads from a blue sky. There have been as many plagues as wars in history; yet always plagues and wars take people equally by surprise."

A. Camus. The Plague

Ebola

- Symptoms: 2-21 post-exposure (8-10)
  - Fever
  - Headache
  - Myalgia
  - Malaise
  - Fatigue
  - Diarrhoea
  - Vomiting
  - Abdominal pain
  - Bleeding

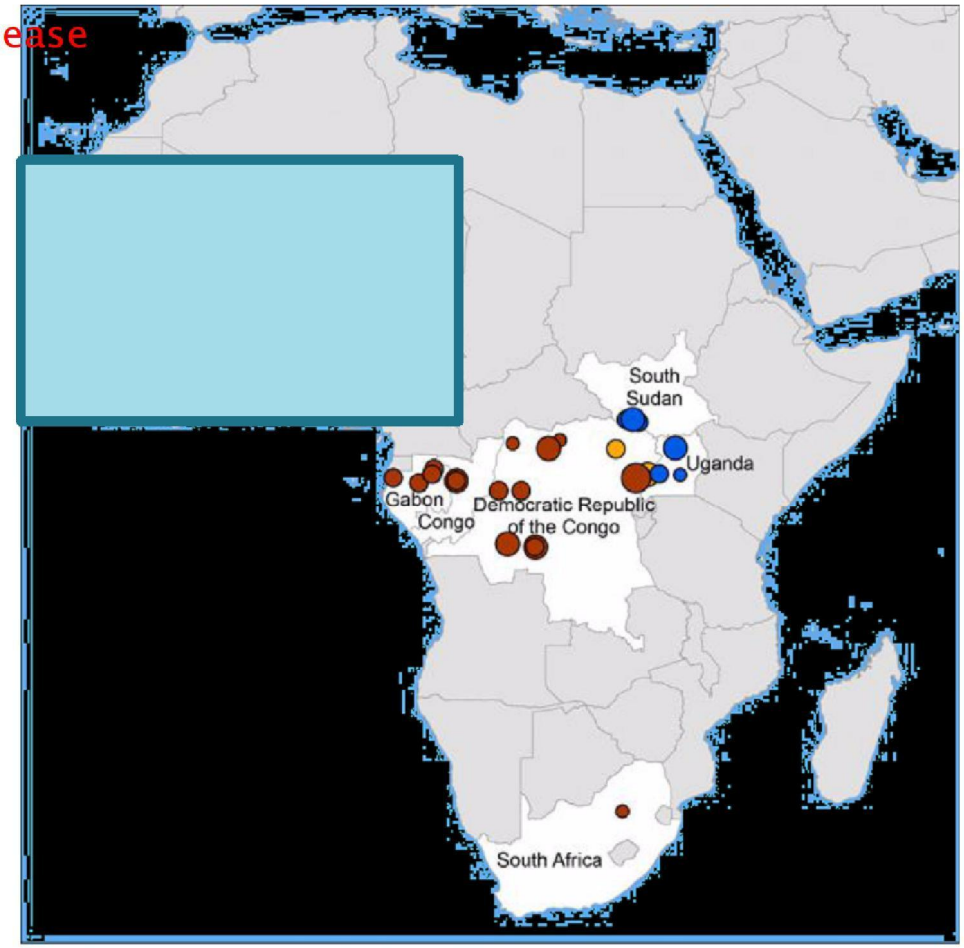
  - 20-30% bleeding
  - 50% shock, multiple organ failure



bron: CDC (www.cdc.gov)

- direct contact (damaged skin or mucosa) with blood or bodily fluids
- Contaminated needles
- Consumption of bushmeat
- R0 = 1,5

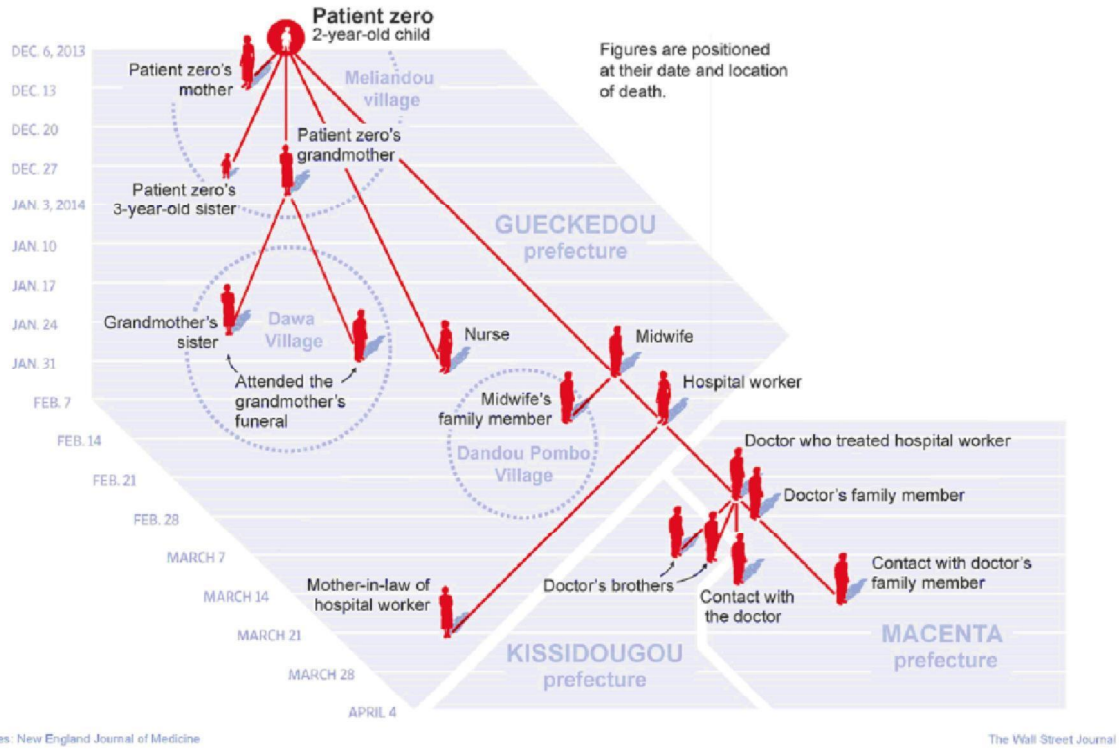
Cases of Ebola Virus Disease in Africa Since 1976



Source: CDC

https://www.cdc.gov/vhf/ebola/history/distribution-map.html

Ebola
index case– dec 2013

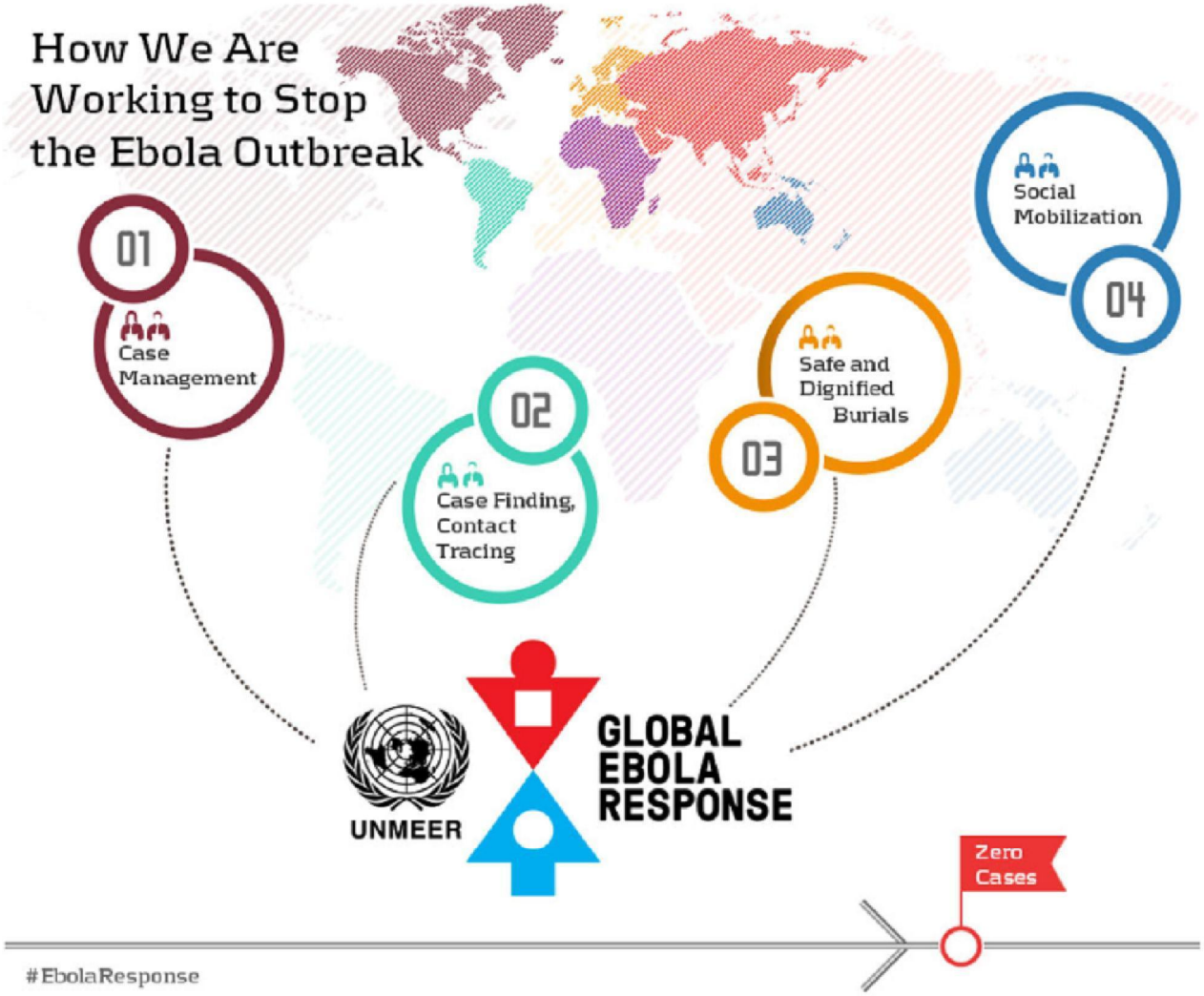


Sources: NEJM, The Wall Street Journal

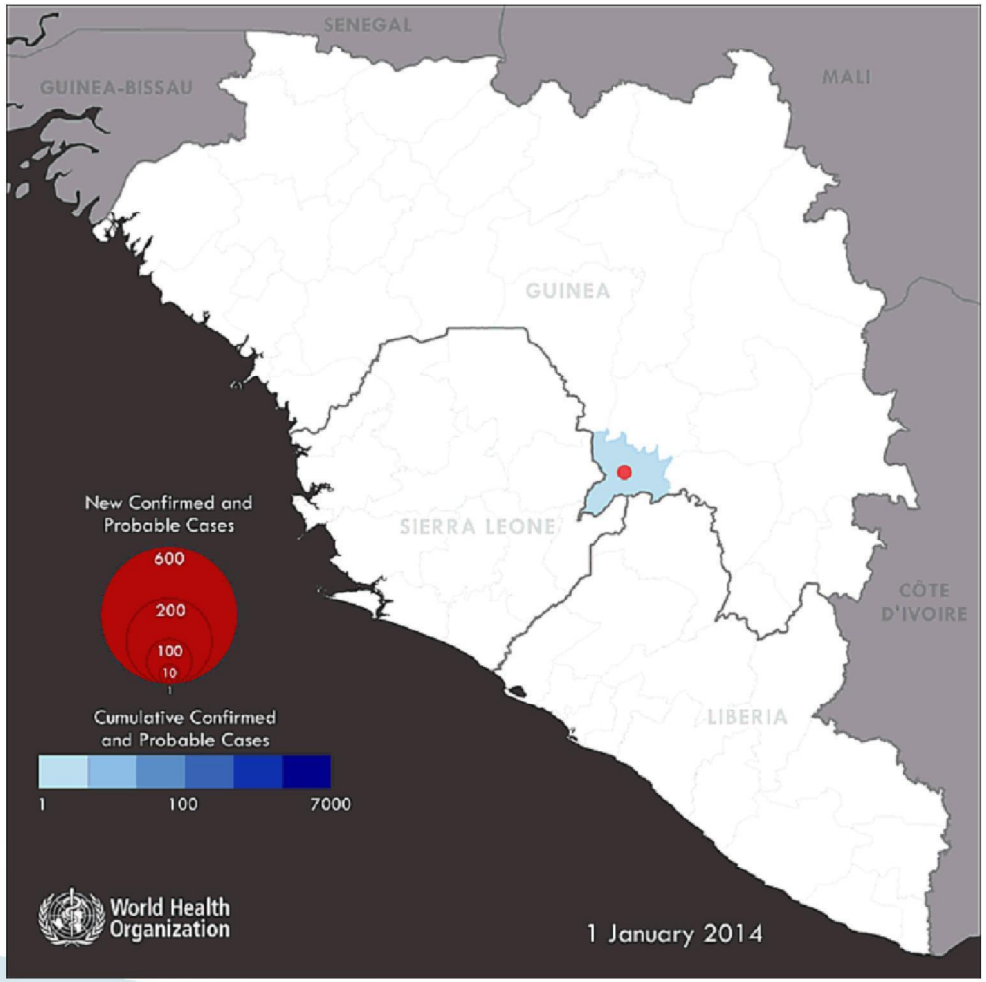
Acknowledgements: J van Dissel

- 8 August 2014, WHO: Ebola is a "Public Health Emergency of International Concern' (PHEIC)
- 28 August 2014, WHO Ebola response roadmap
  - To stop Ebola transmission in affected countries within 6-9 months and prevent international spread
- 19 september 2014: UNMEER (United Nations Mission for Ebola Emergency Response)

UNMEER was set up as a temporary measure to meet immediate needs related to the unprecedented fight against Ebola. The Mission deployed financial, logistical and human resources to Guinea, Liberia and Sierra Leone to support the push to zero cases:



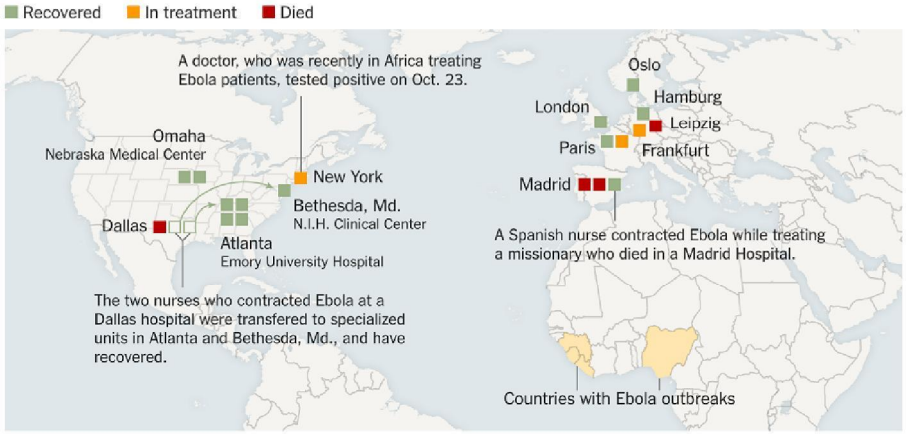
Ebola outbreak 2014-2016 :
How the outbreak has unfolded



Source: WHO

http://apps.who.int/ebola/our-work/achievements

Ebola
how many people have been treated outside of Africa?



Cases of Ebola Outside of West Africa As of Nov. 2, 2014

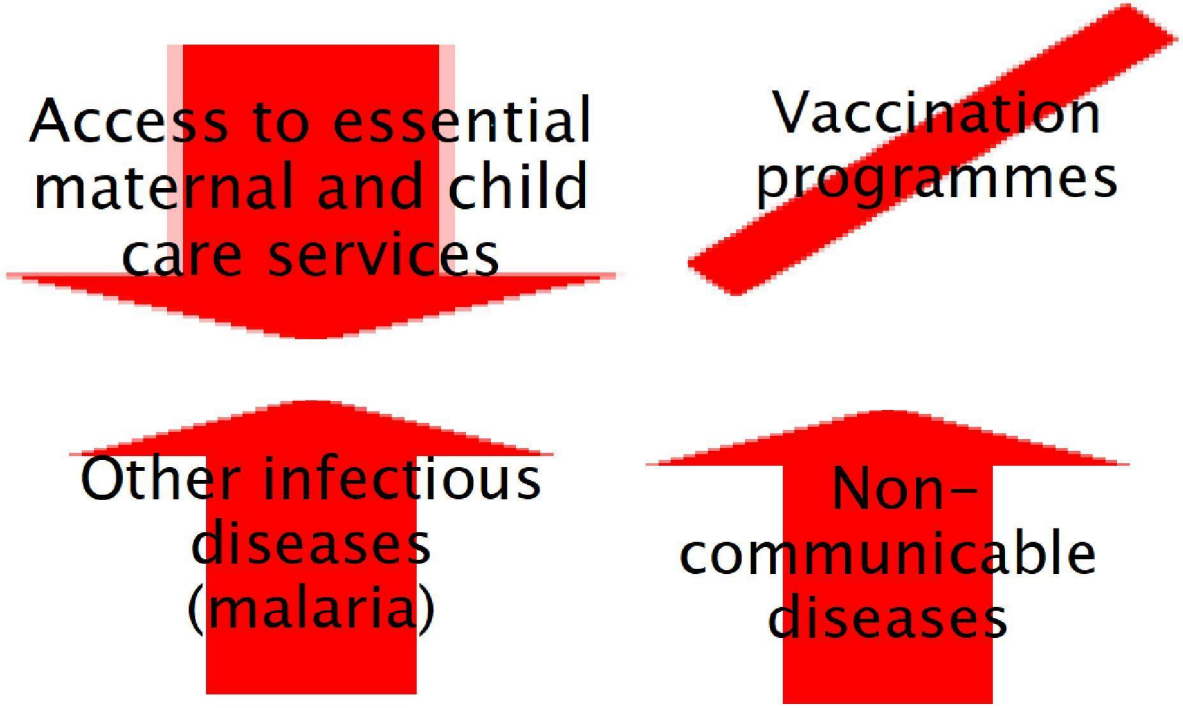
Land	Confirmed cass	High risk exposure
Duitsland	3	1
Spanje	2	1
Frankrijk	2	-
Verenigd Koninkrijk	2	13
Noorwegen	1	-
Italië	1	-
Nederland	1	2
Zwitserland	1	1
Denemarken	-	4
Zweden	-	3

880 Healthcare workers
512 died

Countries with Widespread Transmission and other Countries Affected During the Epidemic

Country	Total Cases (Suspected, Probable, Confirmed)	Laboratory Confirmed Cases	Total Deaths
Countries with Widespread Transmission			
Guinea	3,814	3,358	2,544
Liberia	10,678	3,163	4,810
Sierra Leone	14,124	8,706	3,956
Affected Countries			
Italy	1	1	0
Mali	8	7	6
Nigeria	20	19	8
Senegal	1	1	0
Spain	1	1	0
United Kingdom	1	1	0
United States	4*	4	1
Total	28,652	15,261	11,325

cdc.gov



Delamou, Lancet Global [illegible] 2017
Elston, Public Health 2017
Walker, Lancet Infectious Diseases, 2015

Lessons of Ebola

- 40 countries implemented restriction, contrary to advice WHO
- Incidents triggered panic in society, unprecedented reaction
- Reform of the WHO needed

From international activities to global response

Cholera epidemics: 1830, 1847 in Europe

- International governance of communicable diseases

1851: first International Sanitary Conference (convened by France);

- 10 conferences in the 19th century on cross-border aspects of cholera, plague , yellow fever

1905: Inter-American Sanitary Convention

notification for cases of cholera, plague, and yellow fever

1924: Pan-American Sanitary Bureau, Office International d'Hygiene Publique, Health Organisation of the League of Nations, and the Office International des Epizooties; epidemiological surveillance

1951: WHO adopts the International Sanitary Regulations (ISR)

1969: ISR become International Health Regulations (IHR)

Source: Bulletin of the WHO, 2002

IHR

multilateral regulatory mechanisms focusing on global surveillance for communicable diseases.

transboundary spread of cholera, plague, and yellow fever

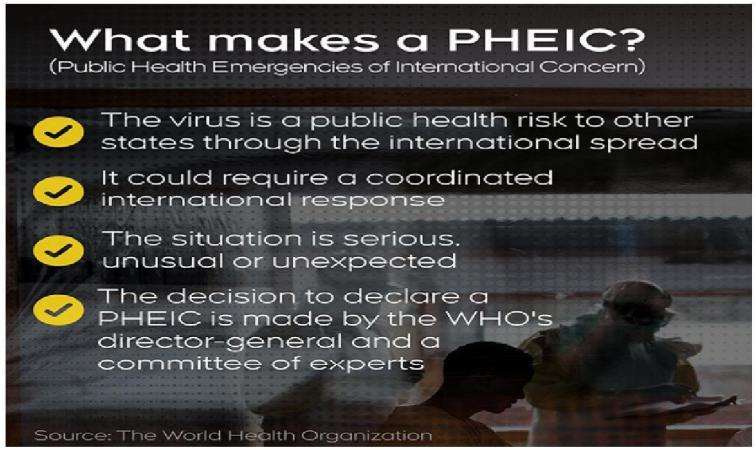
maximum security against the international spread of diseases with a minimum interference with world traffic

requirements of health and vaccination certificates for travellers from areas infected by the three diseases

deratting, disinfecting, and disinsecting of ships and aircraft, health measures at airports and seaports

REVISED IHR: 2005

criteria to define a public health emergency of international concern (PHEIC)



Core capacities to:

Detect

Assess

Report

Respond

national focal points

all WHO Member States

https://www.ctvnews.ca/health/five-other-times-the-who-declared-a-global-health-emergency-1.4782443

PHEIC Declared by the WHO

How many PHEIC have been declared by WHO?
GO to the CHATBOX

0
4
6
10
23

- H1N1 influenza (2009)
- Polio (2014)
- Ebola (2014); Ebola (2019)
- Zika (2016)
- !

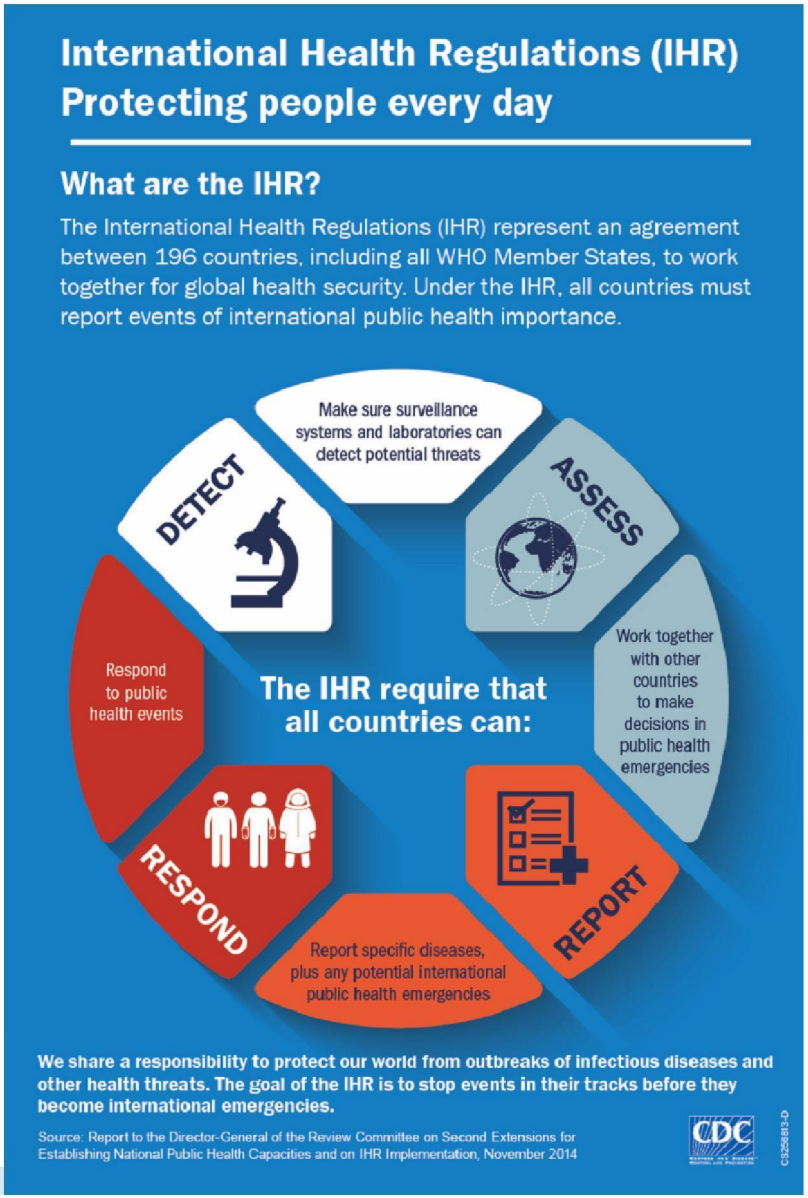
Revision 2005
Implementation IHR (comply with core capacities, notify events – all hazard approach)

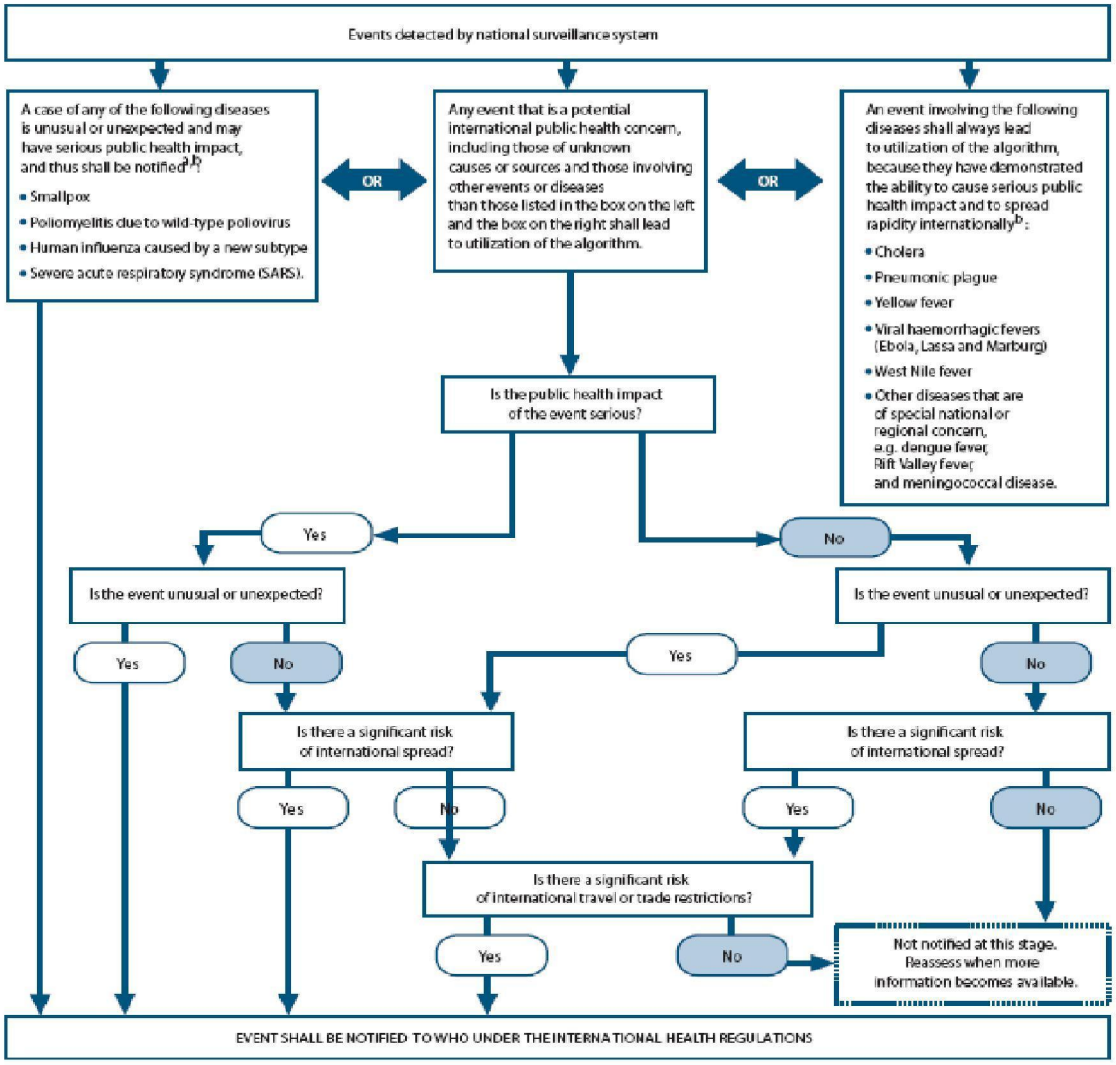
Always Notifiable

- Smallpox
- Poliomyelitis due to wild-type poliovirus
- Human influenza caused by a new subtype
- Severe acute respiratory syndrome (SARS)

Potentially Notifiable Events:

- cholera, pneumonic plague, yellow fever, viral hemorrhagic fever, and West Nile fever, as well as any others that meet the criteria laid out by the IHR.
- Other biological, radiological, or chemical events that meet IHR criteria





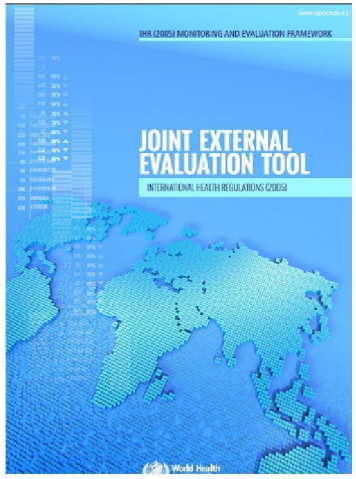
* Extracted from Annex II of IHR (2005).

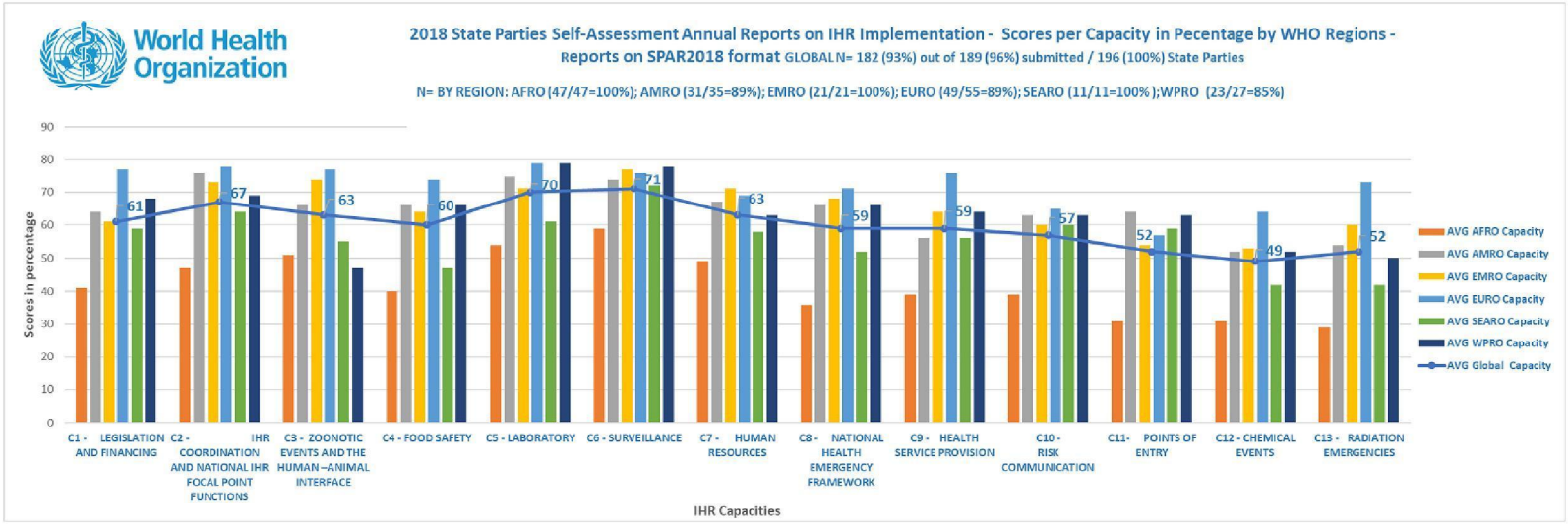
[a] As per WHO case definitions. [b] The disease list shall be used only for the purposes of these Regulations.

fever
diag

Enhanced global preparedness
IHR Monitoring Framework

- E- SPAR (State Parties Annual Self Assessment and Reporting Tool
  - 13 capacities
- JEE
- After Action Reviews, table top exercises




World Health Organization
2018 State Parties Self-Assessment Annual Reports on IHR Implementation - Scores per Capacity in Pecentage by WHO Regions -
Reports on SPAR2018 format GLOBAL N= 182 (93%) out of 189 (96%) submitted / 196 (100%) State Parties
N= BY REGION: AFRO (47/47=100%); AMRO (31/35=89%); EMRO (21/21=100%); EURO (49/55=89%); SEARO (11/11=100%);WPRO (23/27=85%)
Scores in percentage
90
80
70
60
50
40
30
20
10
0
61
67
63
60
70
71
63
59
59
57
52
49
52
C1 - LEGISLATION AND FINANCING
C2 - COORDINATION AND NATIONAL IHR FOCAL POINT FUNCTIONS
C3 - ZOONOTIC EVENTS AND THE HUMAN–ANIMAL INTERFACE
C4 - FOOD SAFETY
C5 - LABORATORY
C6 - SURVEILLANCE
C7 - HUMAN RESOURCES
C8 - NATIONAL HEALTH EMERGENCY FRAMEWORK
C9 - HEALTH SERVICE PROVISION
C10 - RISK COMMUNICATION
C11 - POINTS OF ENTRY
C12 - CHEMICAL EVENTS
C13 - RADIATION EMERGENCIES
IHR Capacities
AVG AFRO Capacity
AVG AMRO Capacity
AVG EMRO Capacity
AVG EURO Capacity
AVG SEARO Capacity
AVG WPRO Capacity
AVG Global Capacity

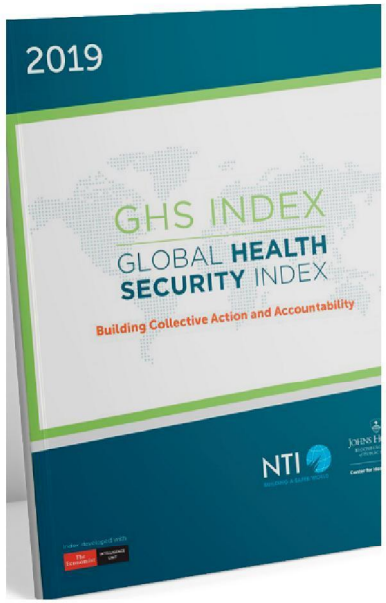
BREAKOUT SESSION 1

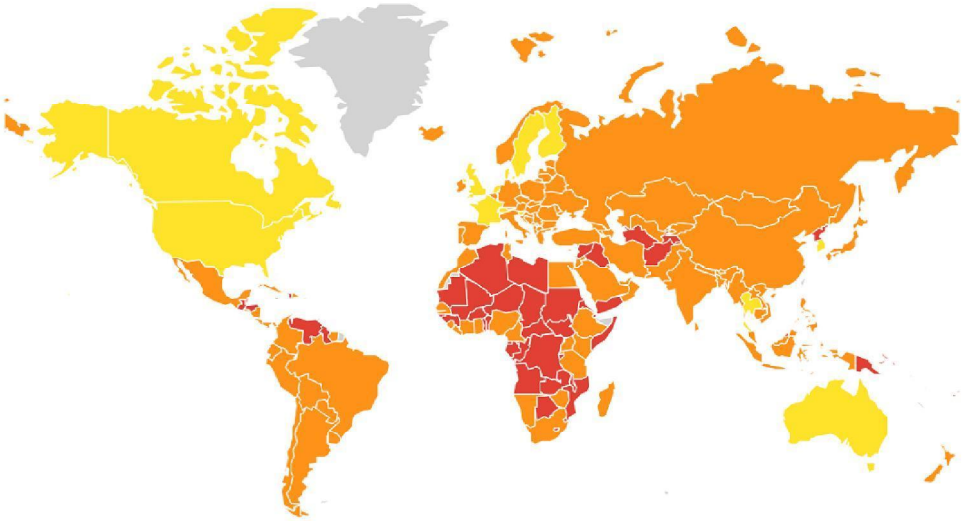
Analyze the strengths and weaknesses of the global preparedness for COVID-19, second wave 2020

- Which capacities are well developed?
- Which capacities are most vulnerable?
- Which WHO geographic region needs enforcement of the capacities

Ignore chemical and nuclear capacities as not relevant for the topic of the exercise

How prepared was the world for a new pandemic (ranking 2019) the Global health security index for response





Key

- Most Prepared
- More Prepared
- Least Prepared

Select a country to see Overall Score/Rank and access a full country page.

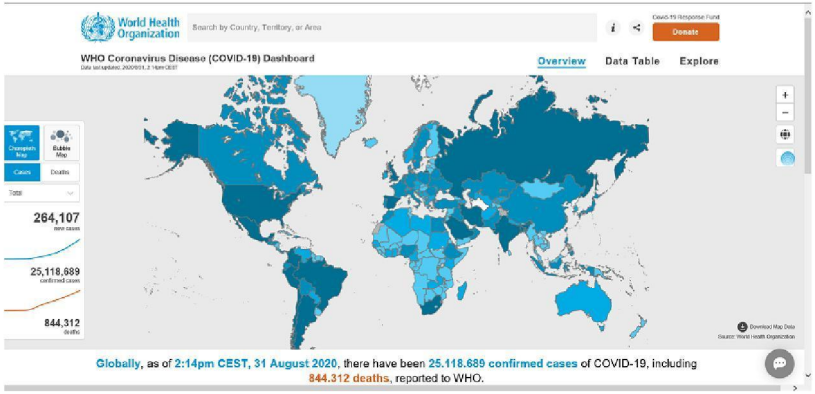
to see Overall Score/Rank and to access the country page

https://www.ghsindex.org/

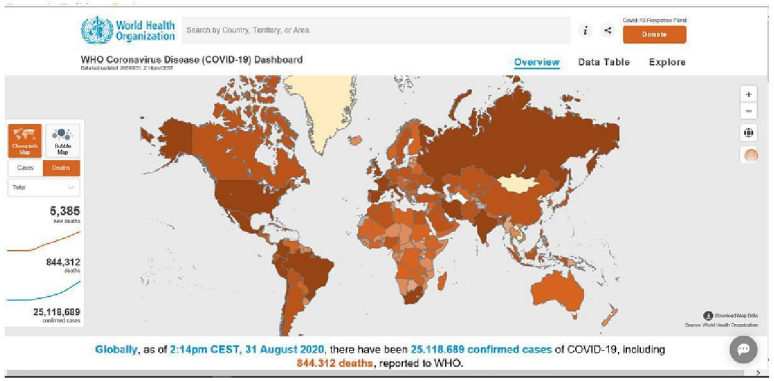
COVID, WHO

DISCUSSION
– Rationale for the incidence of COVID in countries with high GHSI?

GO TO CHATBOX



Global situation: COVID cases, August 31,2020



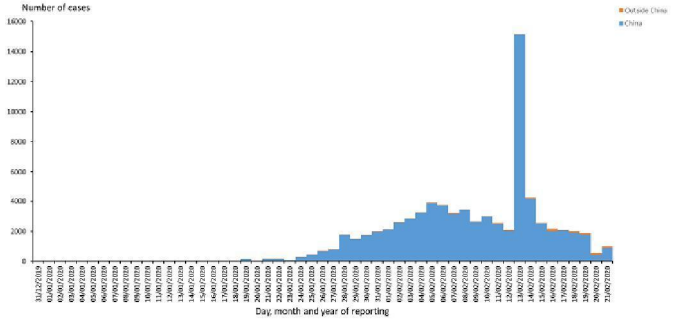
Global situation: COVID deaths, August 31, 2020

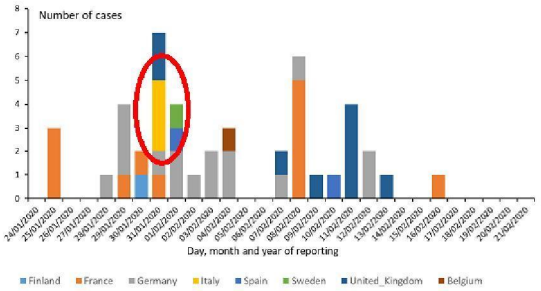
COVID- 19 in retrospect

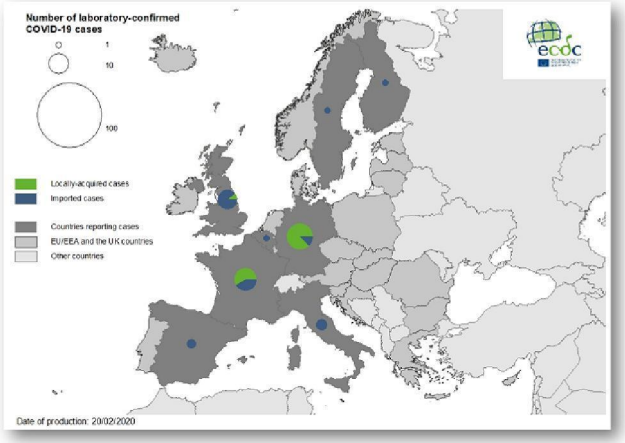
The first wave

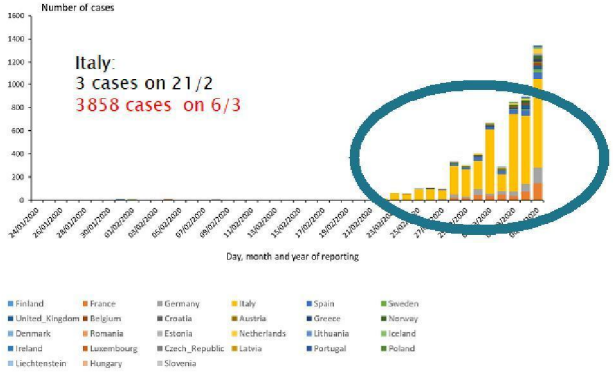
Distribution of COVID-19 cases (according to the applied case definition in the country) by country and region, as of 21 February 2020

All countries



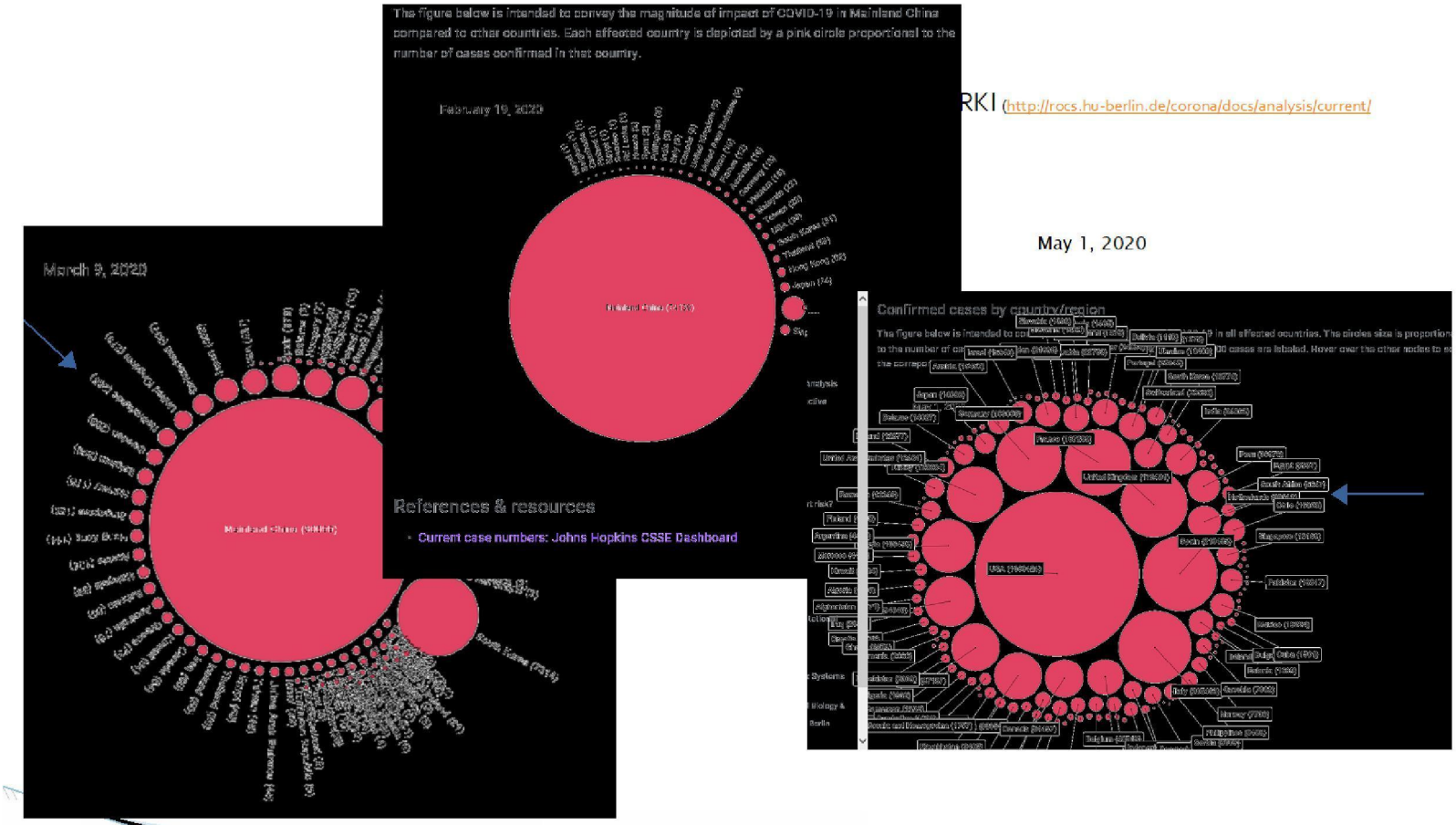






Bron:ECDC

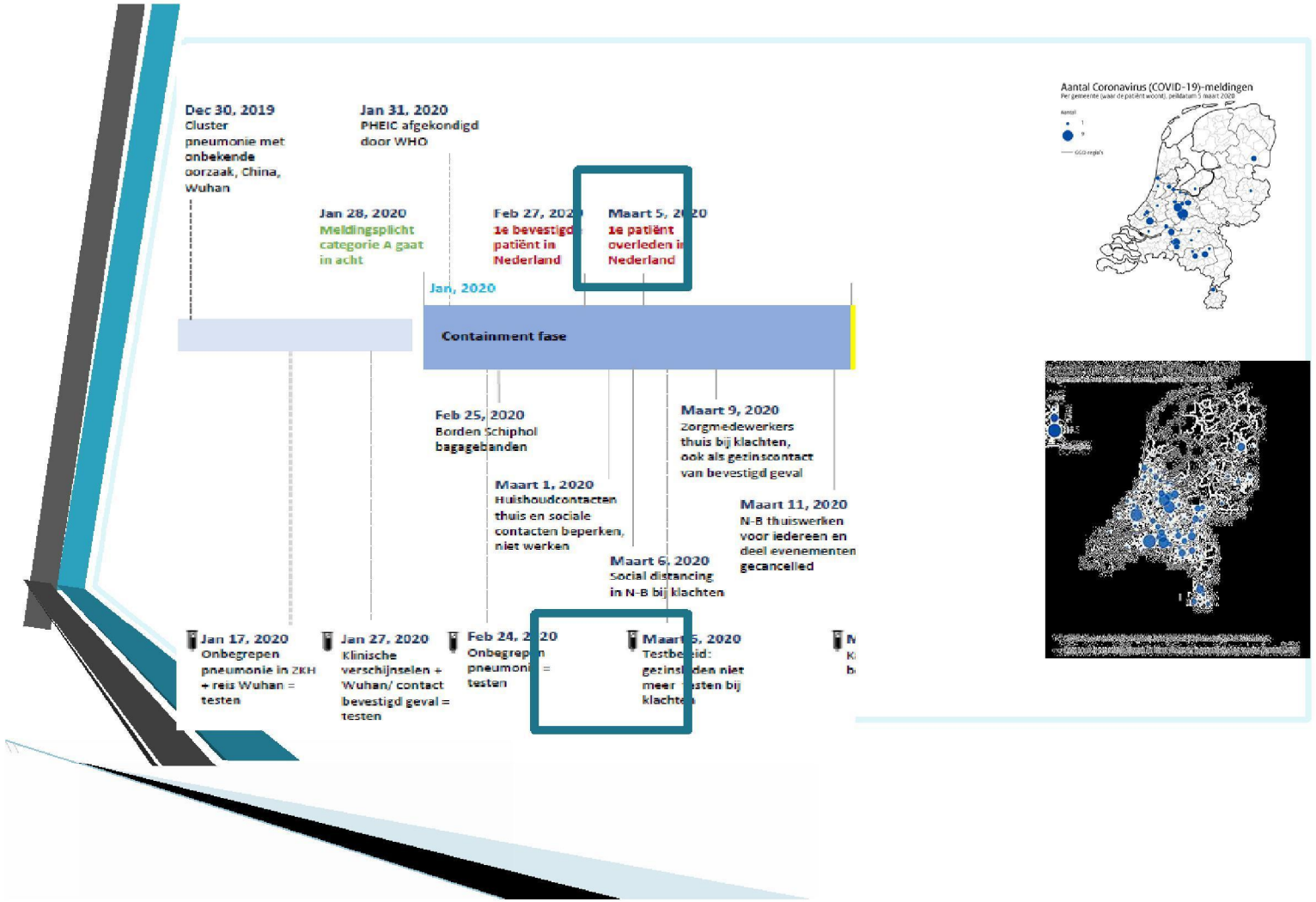
Distribution of COVID-19 cases (according to the applied case definition in the country) in EU/EEA and the UK, as of 6 March 2020

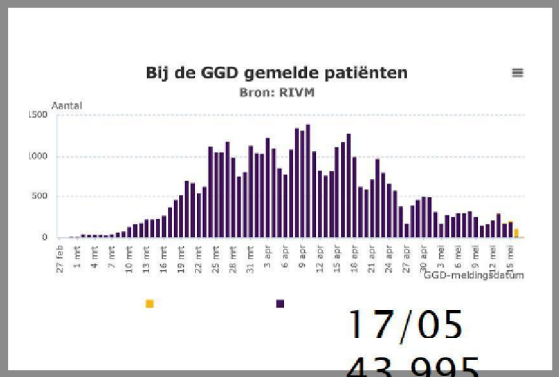


RKI (http://rocs.hu-berlin.de/corona/docs/analysis/current/

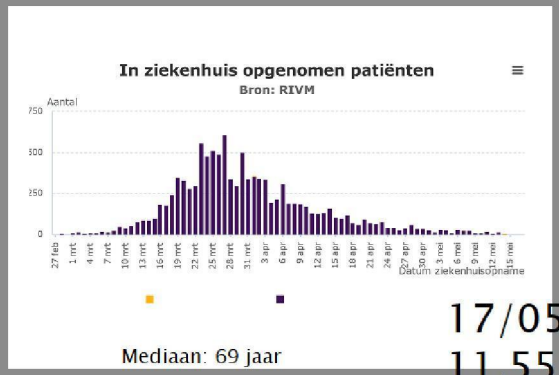
May 1, 2020

What happened in the Netherlands?



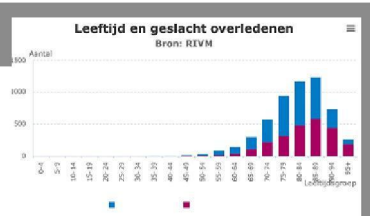


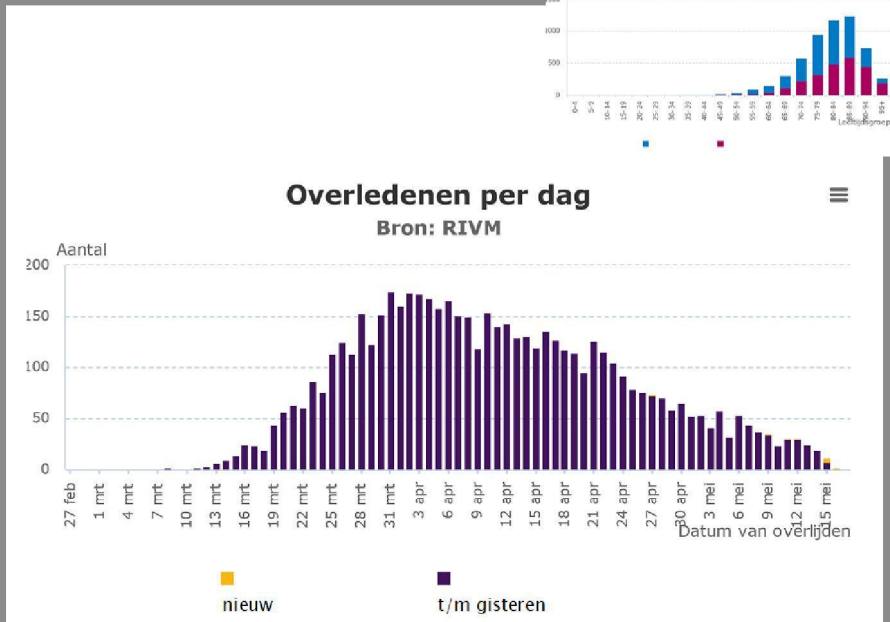
17/05
43.995



Mediaan: 69 jaar

17/05
11.552

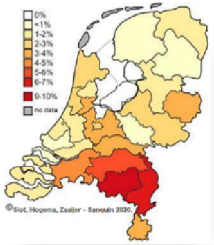




Mediaan: 82 jaar

17/05
5.680

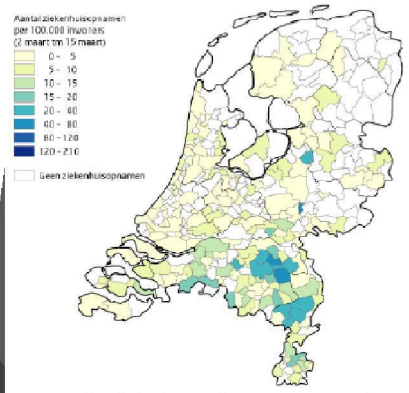
COVID-19 uitbraak
ziekenhuisopnames per 2 weken



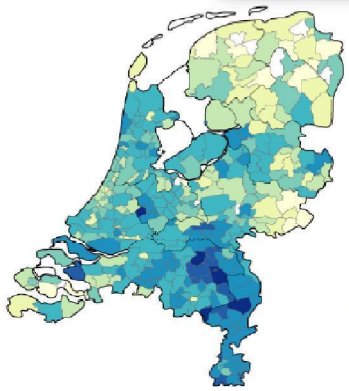
Seroprevalentie antistoffen
Dank: prof. H Zaaijer, Sanquin

top IC-bezetting 7 april:
1.332 bedden COVID-19

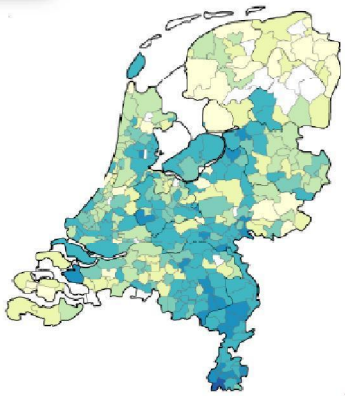
2-15 maart



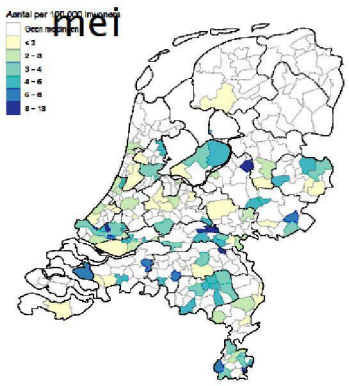
16-29 maart



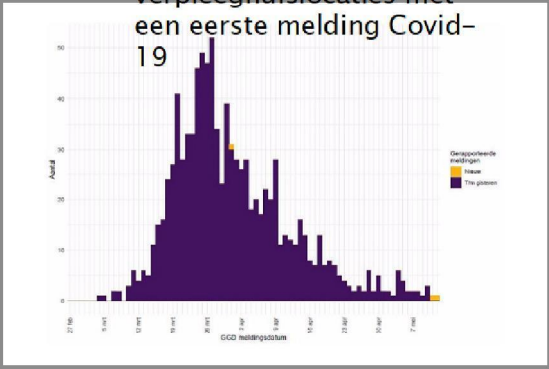
30 maart – 12 april

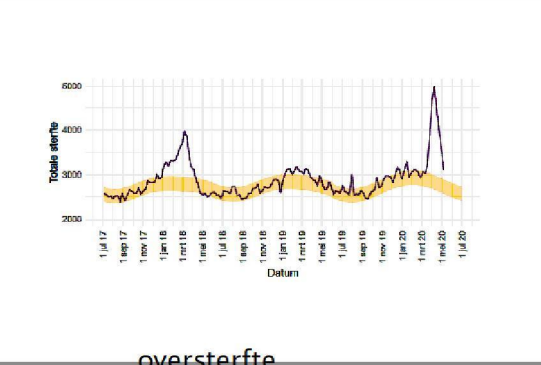


3 mei–16 mei



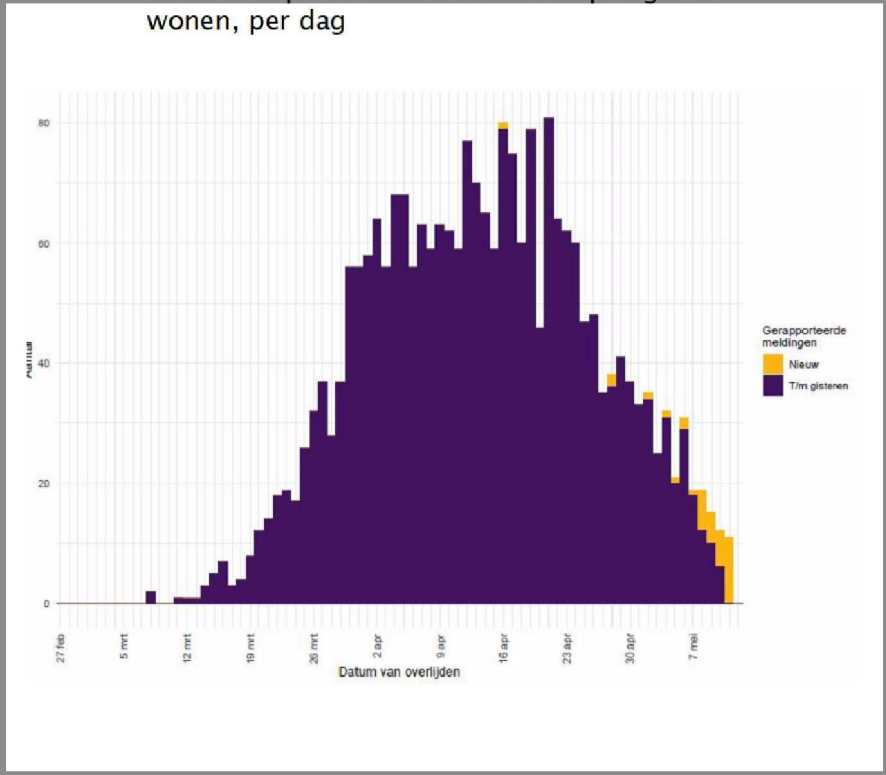
Nieuwe verpleeghuislocaties met een eerste melding Covid-19



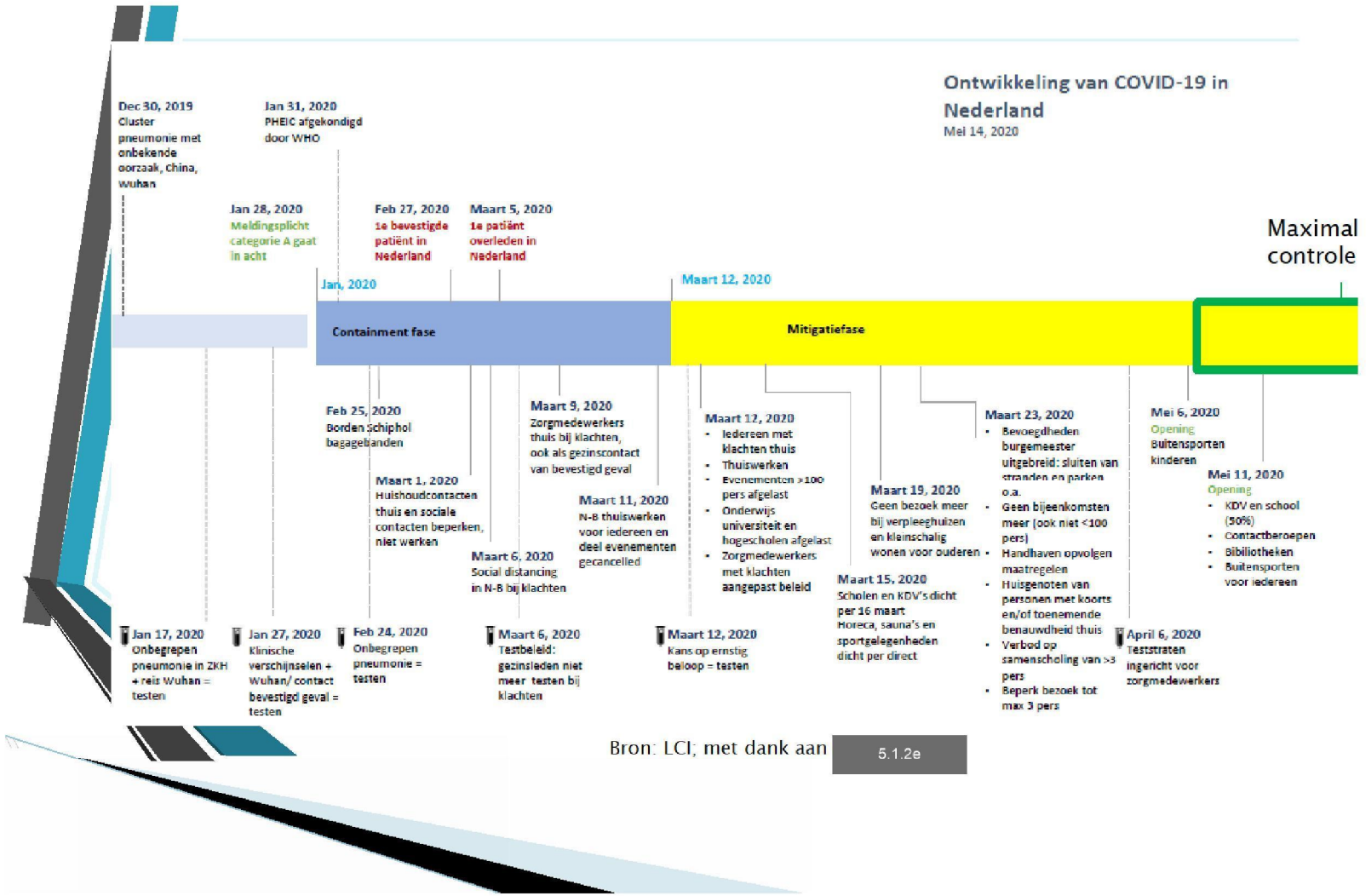


oversterfte

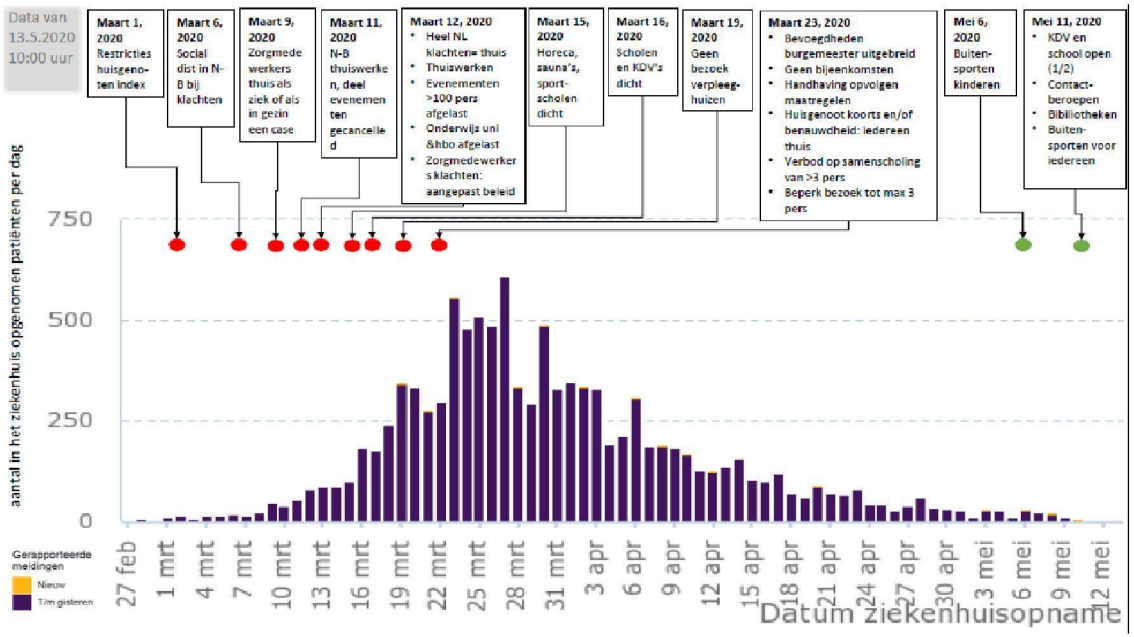
Overleden patienten die in een verpleeghuis wonen, per dag



Bronnen: RIVM, CBS, VERENSO, NIVEL



Bron: LCI; met dank aan 5.1.2e



Bron: LCI; met dank aan 5.1.2e

WHO
Euro

Results – Relevant dates

NPI= non-pharmaceutical interventions

Country	Case 1	Case 100	Death 1	Death 10	First national NPI	Testing mild cases stopped	Days to first national NPI
	22/02	24/02	24/02	26/02	30/01 (04/03)[b]		-23 (11)[b]
	26/02	09/03	13/03	19/03	12/03		15
	26/02	02/03	10/03	16/03	17/03		20
	26/02	03/03	05/03	10/03	13/03	11/03	16
	26/02	07/03	06/03	15/03	13/03		16
	27/02	03/03	27/02	08/03	13/03	11/03	15
	27/02	07/03	14/03	25/03	12/03	13/03	14
	27/02	07/03	21/03	21/03		11/03	
	28/02	11/03	16/03	22/03	13/03	12/03	14
	28/02	07/03	05/03	14/03	12/03		13
	28/02	06/03	07/03	14/03	21/03	13/03	22
	02/03	08/03	12/03	20/03	14/03		12

a The country implemented NPI at subnational level (i.e. regional, provincial or local) before national NPI were announced

[b] Italy banned travelers from China on the 30/01/2020. Information in brackets relates to the first NPI after detecting cases in the country

Bron: WHO Euro, 2 April, cor

Results – Dates of NPI implementation

WHO Euro

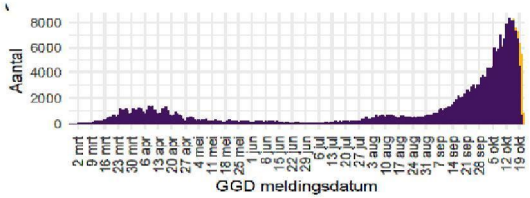
Category	Educational institutions	Mass gathering				Cordon sanitaire	
	Schools	Shops	Restauration	Culture	Sports	Blanket restrictions	Border control
	04/03	12/03	12/03	08/03	04/03	10/03	**30/01**
	13/03	17/03	17/03	**12/03**	17/03	17/03	18/03
	17/03	20/03	23/03	20/03	20/03	23/03	18/03
	13/03	15/03	15/03	15/03	15/03	15/03	16/03
	13/03	17/03	17/03	17/03	17/03	21/03	16/03
	13/03	15/03	15/03	15/03	15/03	17/03	
	12/03		**12/03**	**12/03**	**12/03**		16/03
	13/03	18/03	18/03	13/03	18/03		14/03
	16/03	16/03	16/03	**12/03**	16/03	23/03	
	21/03	**21/03**	**21/03**	**21/03**	**21/03**	24/03	
	14/03	18/03	**14/03**	**14/03**	**14/03**	18/03	
	11	**10**	**11**	**11**	**11**	**9**	**7**

In bold appears highlighted the earliest national NPI implemented by the country

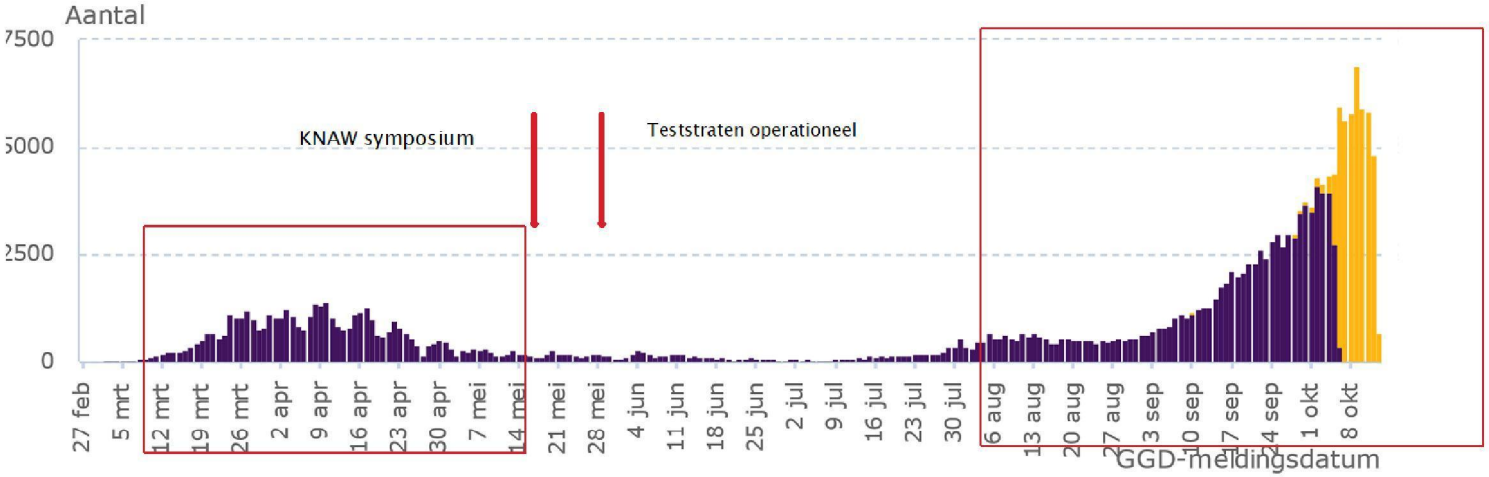
Bron: WHO EURO 2 april

Blanket restrictions": considered when gatherings of >5 people prohibited

Waar staan we nu?

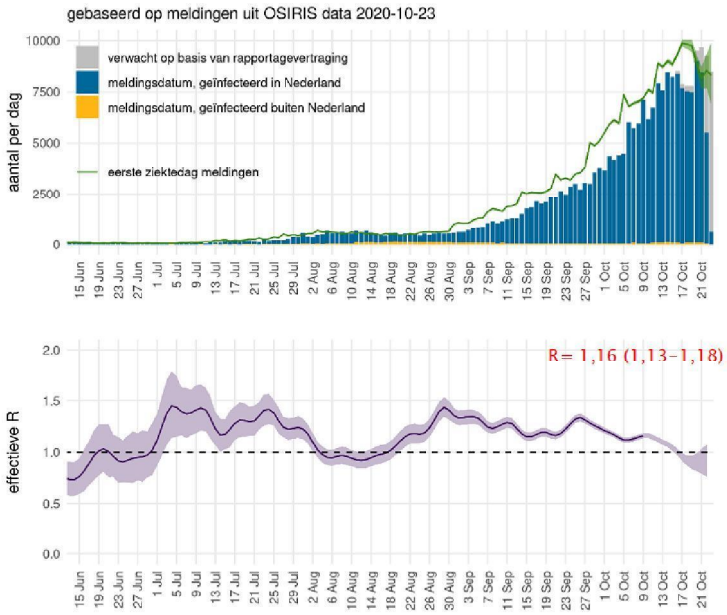


Bron: RIVM

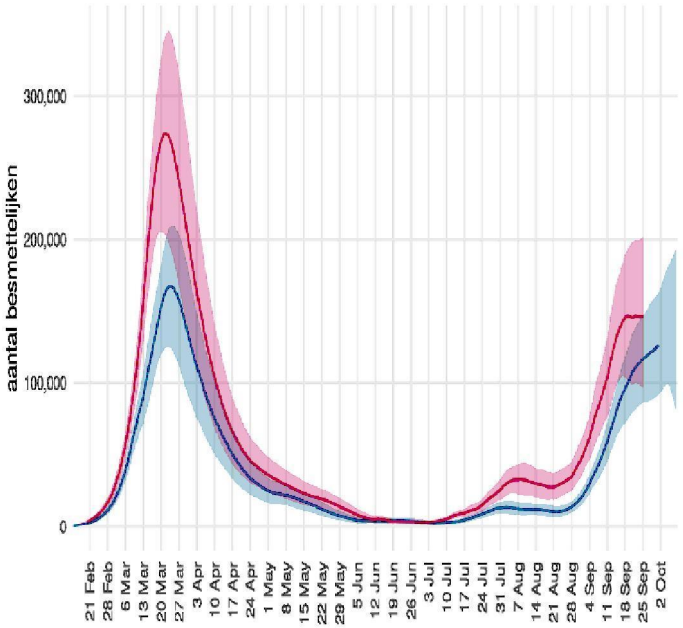


Meldingen bij de GGD

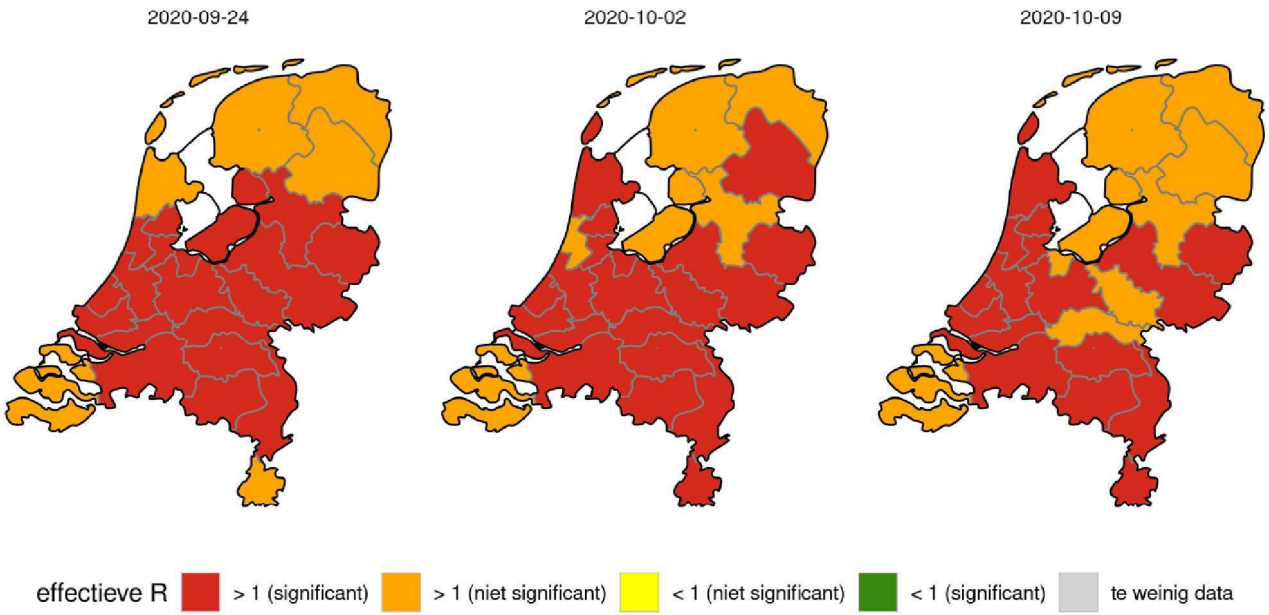
Indicatoren van de transmissie



Aantal besmettelijke mensen, schattingen obv Osiris en Nice



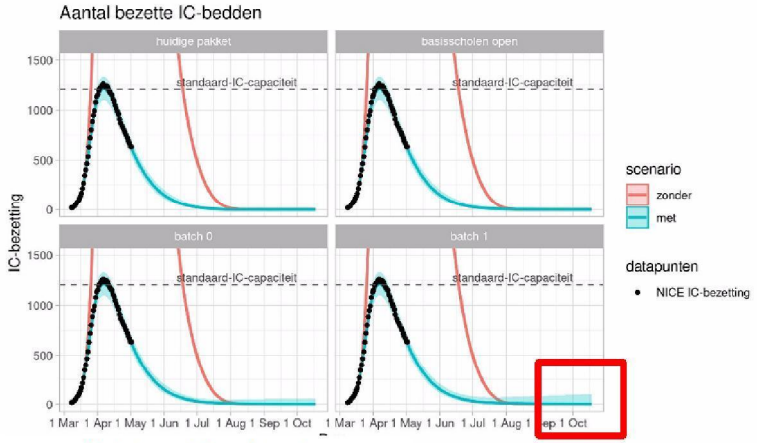
Bron: RIVM/EPI/ Wallinga et al.


2020-09-24
2020-10-02
2020-10-09
effectieve R
> 1 (significant)
> 1 (niet significant)
< 1 (niet significant)
< 1 (significant)
te weinig data

Doelen
- De transmissie van het virus maximaal onder controle houden
- De zorg toegankelijk houden
- De kwetsbaren beschermen

VERSOEPELING MAATREGELEN

* modellering



Winkels, markten, dierentuinen, pretparken, natuurparken vakantieparken (eigen toilet, badkamer), buitenzwembaden rechtspraak

non-contact sporten
contactberoepen
bibliotheken

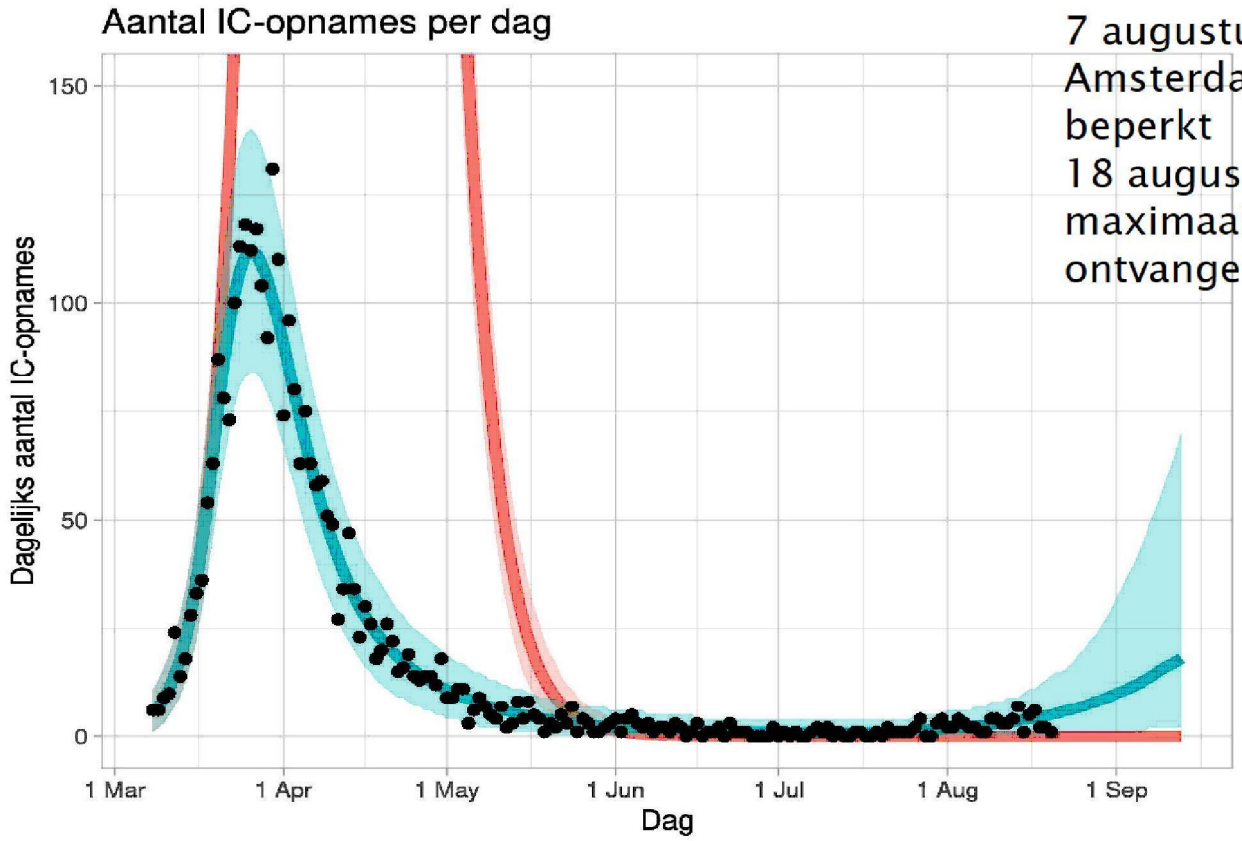
voorwaarden

- algemene hygiënische maatregelen
- afstand houden
- thuis werken
- thuisblijven bij klachten
- testen
- bron- en contactopsporing

- epidemiologische parameters (voortgang epidemie, R0)
- data uit de teststraten
- data uit virologische dagstaten
- verpleeghuismonitoring
- indicatoren van effectiviteit BCO
- mobiliteit
- compliance m.b.t. gedrag
- seroprevalentiestudies (Pienter Corona, Sanquin)
- NIVEL peilstations

Bron: Wallinga et al, RIVM

Mei 2016



7 augustus: bco Amsterdam, Rotterdam beperkt
18 augustus: maximaal 6 gasten ontvangen

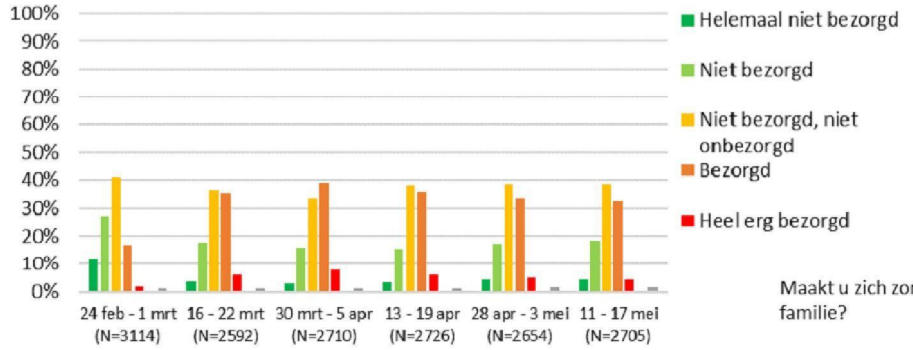
scenario
- geen bestrijding
- met gevolgde maatregelen

datapunten
- NICE IC-opnames

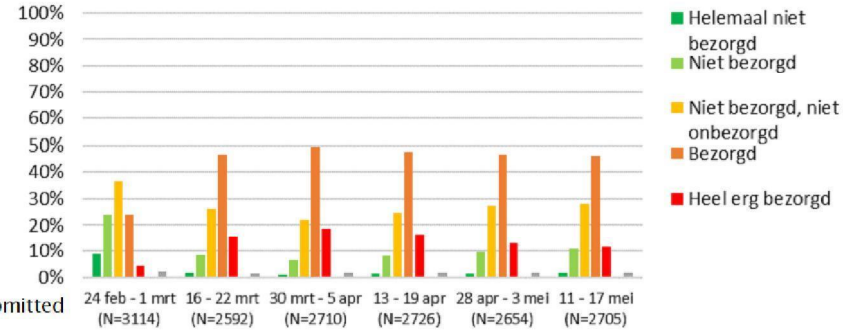
Wallinga, et al.
28 aug 2020

HOOFDBREKERS: GEDRAG

Maakt u zich zorgen door het nieuwe coronavirus ... over uw eigen gezondheid?

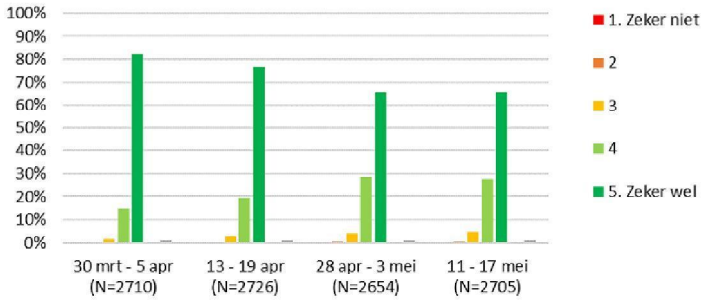


Maakt u zich zorgen door het nieuwe coronavirus ... over de gezondheid van familie?

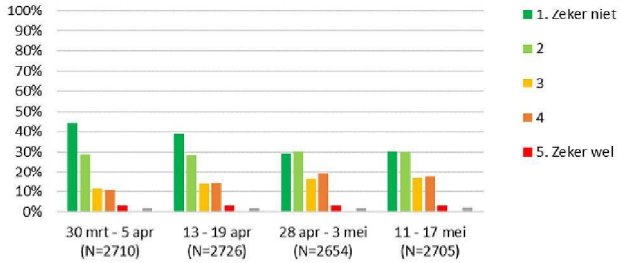


De Vries, Claassen, te Wierik, Brabers, de Jong, Timmermans, Timen. Dynamic public perceptions and responses to the Covid-19 crisis, submitted

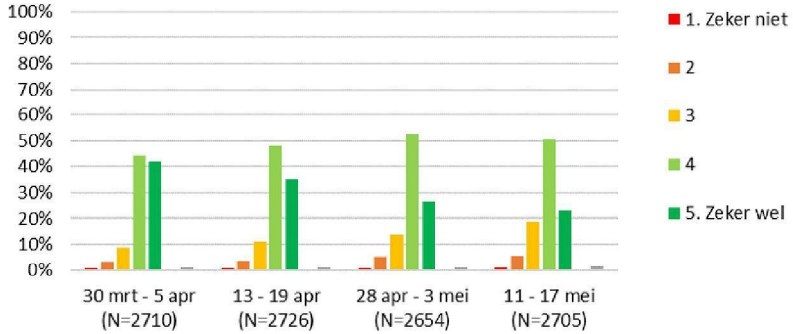
Ik vind dat mensen zich moeten houden aan de geadviseerde maatregelen



Ik vind het moeilijk om mij te houden aan de geadviseerde maatregelen



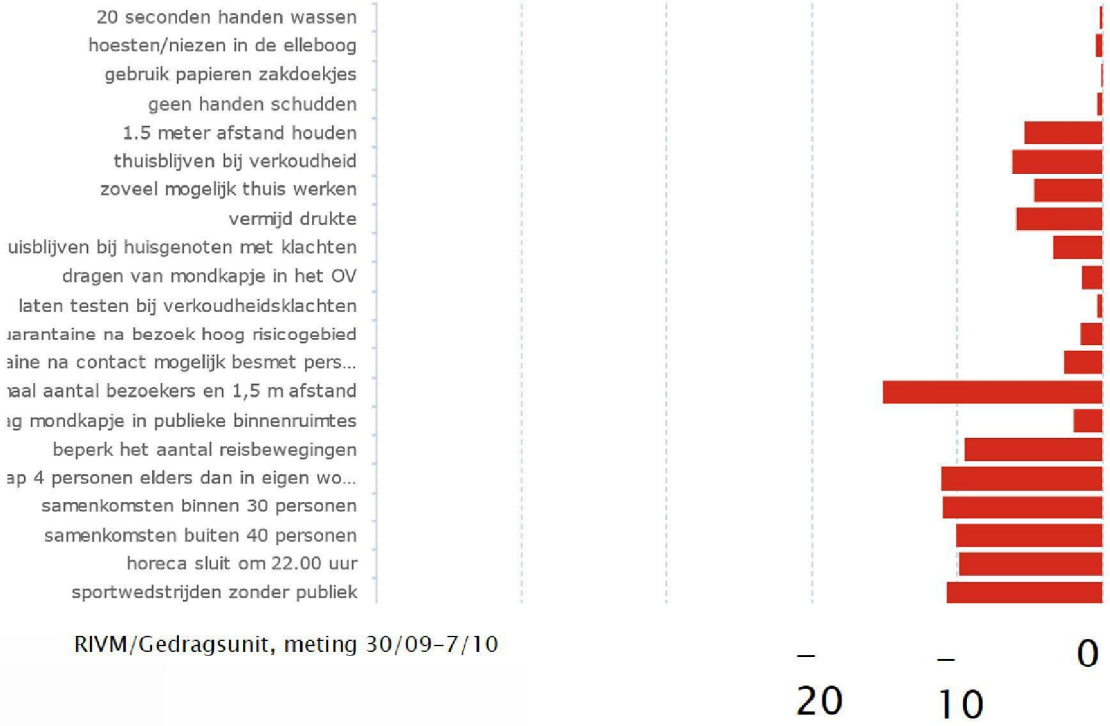
De meeste mensen in mijn directe omgeving houden zich aan de geadviseerde maatregelen



De Vries, Claassen, te Wierik, Brabers, de Jong, Timmermans, Timen.
Dynamic public perceptions and responses to the Covid-19 crisis, submitted

	Zelf klachten (n = 3538)	Zelf positief getest (n = 512)
	29%	79%

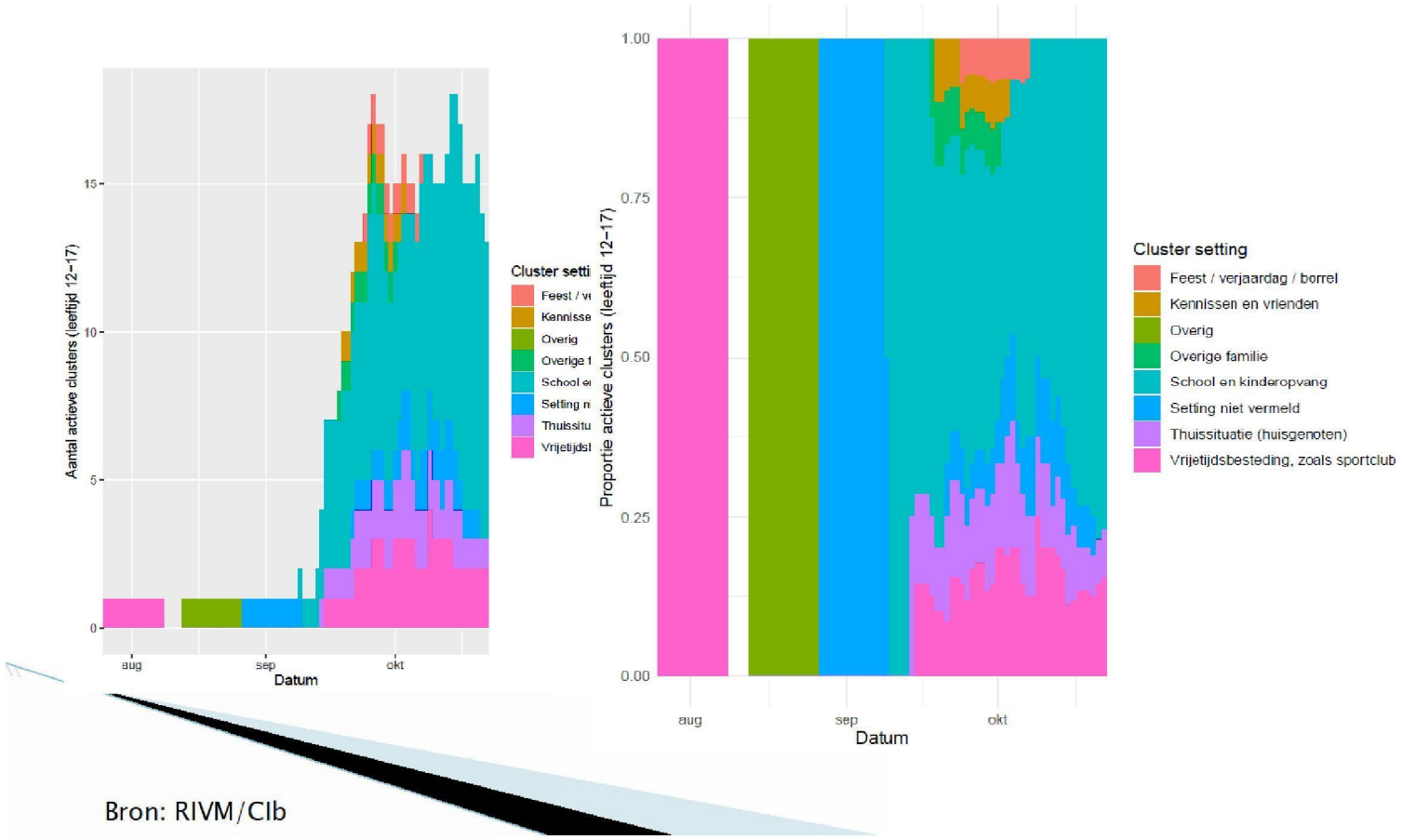
Verandering in draagvlak als maatregelen langer duren (6 mnd)



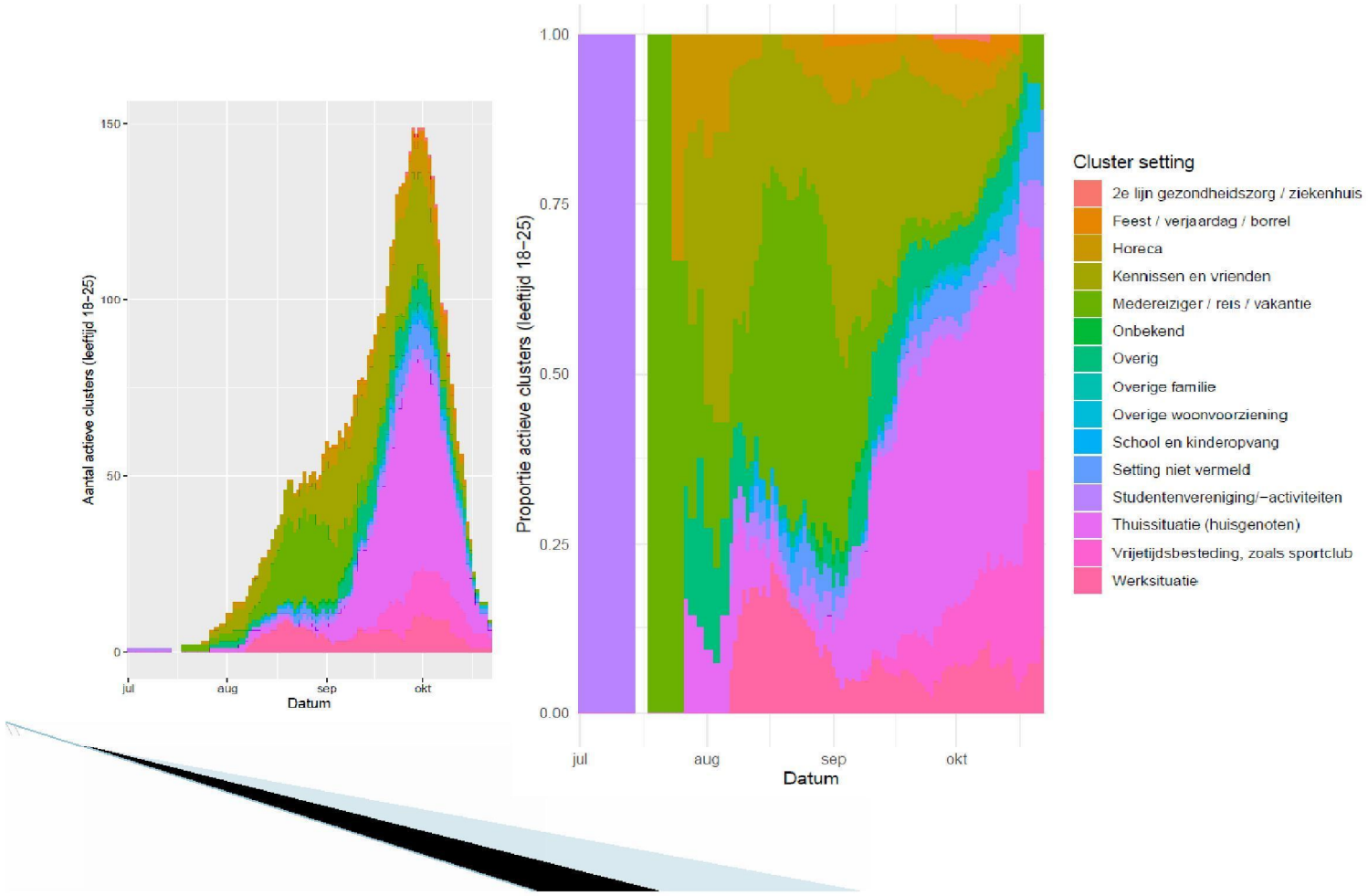
Timen, Okt. 2020

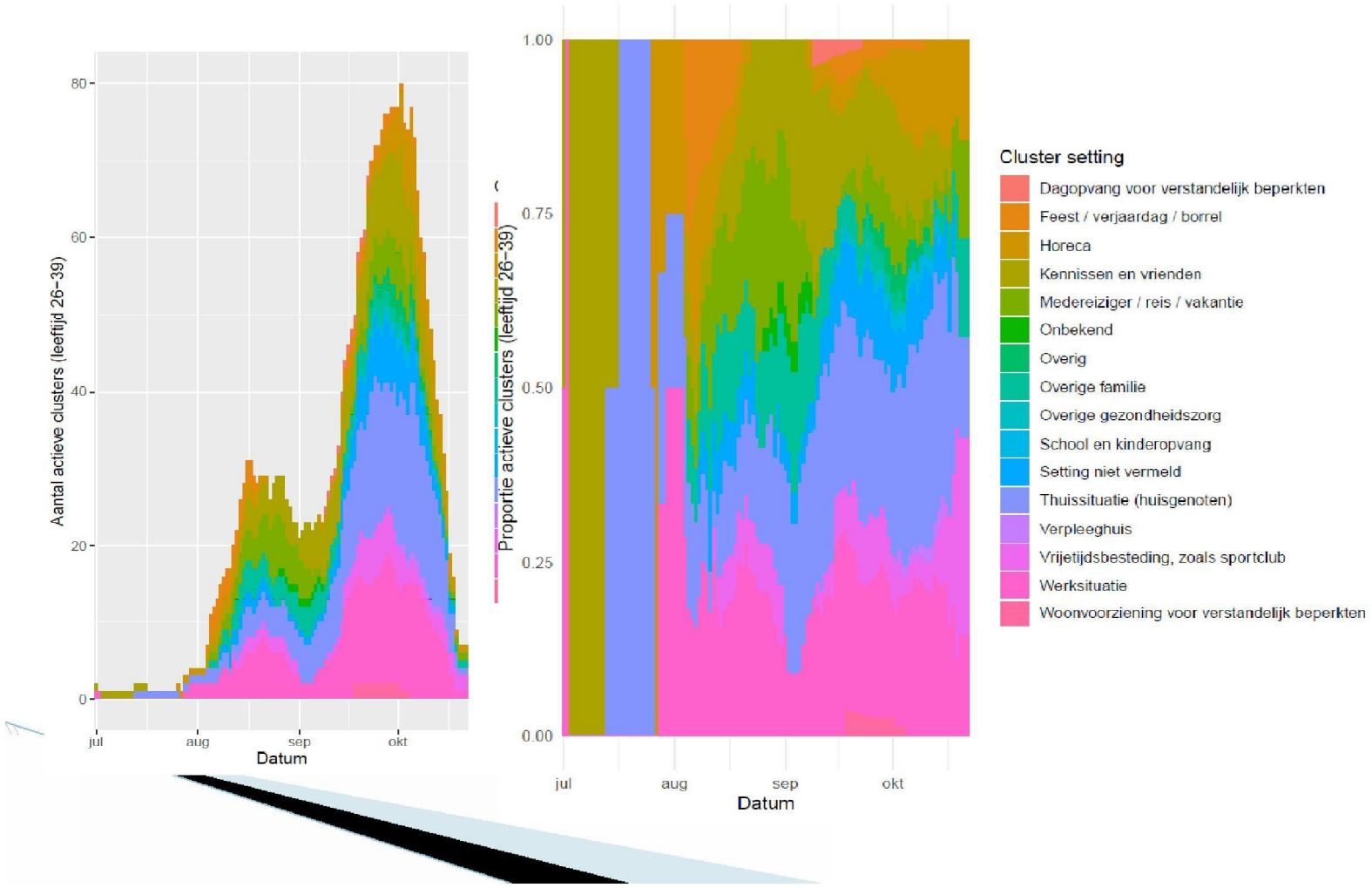
RIVM/Gedragsunit, meting 30/09-7/10

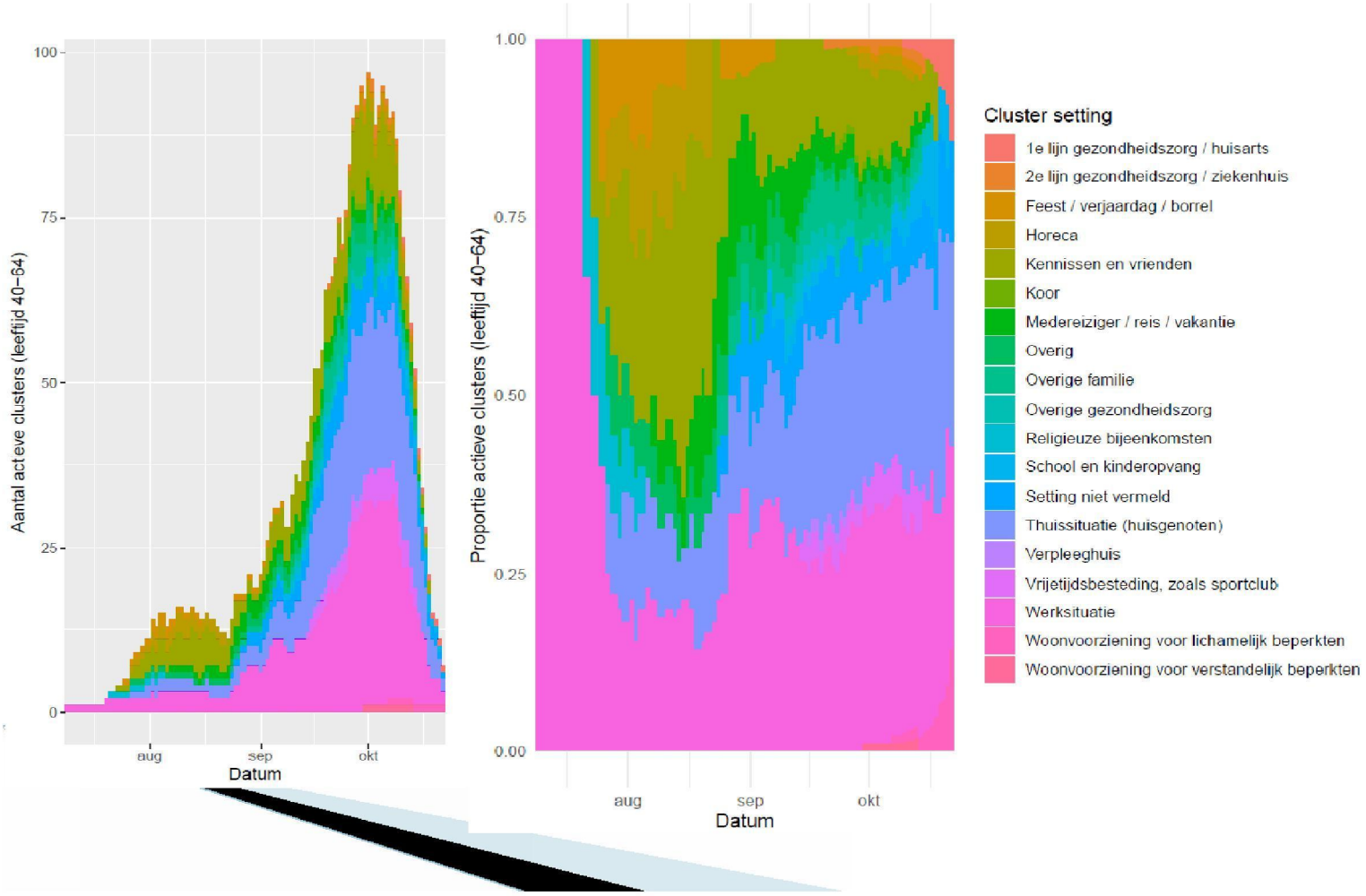
Meest geregistreerde settings bij clusters binnen leeftijdsgroepen

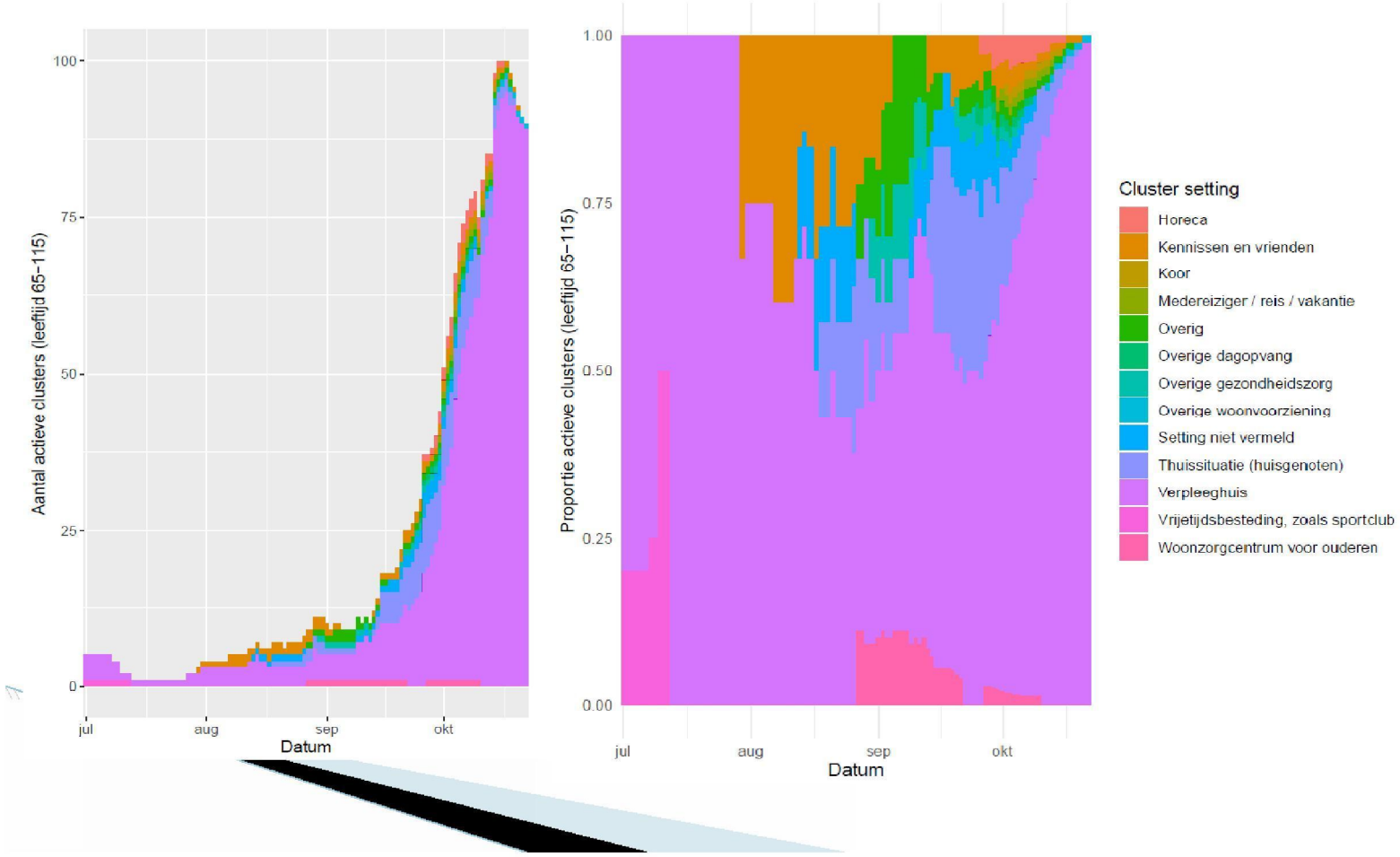


Bron: RIVM/CIb

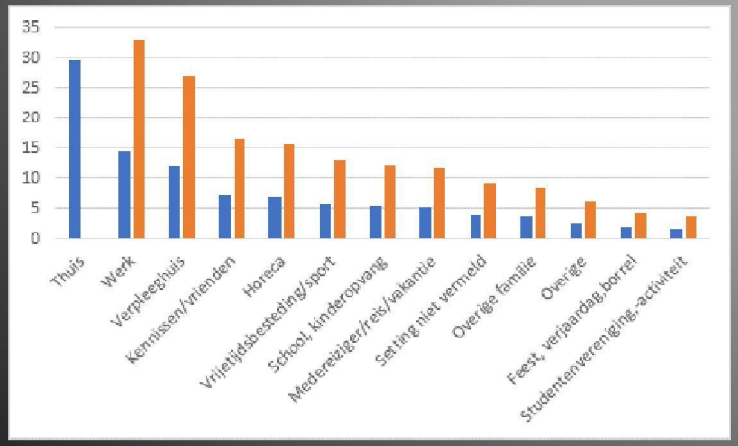

Aantal actieve clusters (leeftijd 18–25)
150
100
50
0
jul
aug
sep
okt
Datum
Proportie actieve clusters (leeftijd 18–25)
1.00
0.75
0.50
0.25
0.00
jul
aug
sep
okt
Datum
Cluster setting
2e lijn gezondheidszorg / ziekenhuis
Feest / verjaardag / borrel
Horeca
Kennissen en vrienden
Medereiziger / reis / vakantie
Onbekend
Overig
Overige familie
Overige woonvoorziening
School en kinderopvang
Setting niet vermeld
Studentenvereniging/−activiteiten
Thuissituatie (huisgenoten)
Vrijetijdsbesteding, zoals sportclub
Werksituatie


Aantal actieve clusters (leeftijd 26–39)
80
60
40
20
0
jul
aug
sep
okt
Datum
Proportie actieve clusters (leeftijd 26–39)
1.00
0.75
0.50
0.25
0.00
jul
aug
sep
okt
Datum
Cluster setting
Dagopvang voor verstandelijk beperkten
Feest / verjaardag / borrel
Horeca
Kennissen en vrienden
Medereiziger / reis / vakantie
Onbekend
Overig
Overige familie
Overige gezondheidszorg
School en kinderopvang
Setting niet vermeld
Thuissituatie (huisgenoten)
Verpleeghuis
Vrijetijdsbesteding, zoals sportclub
Werksituatie
Woonvoorziening voor verstandelijk beperkten


Aantal acteve clusters (leeftijd 40−64)
100
75
50
25
0
aug
sep
okt
Datum
Proportie actieve clusters (leeftijd 40−64)
1.00
0.75
0.50
0.25
0.00
aug
sep
okt
Datum
Cluster setting
1e lijn gezondheidszorg / huisarts
2e lijn gezondheidszorg / ziekenhuis
Feest / verjaardag / borrel
Horeca
Kennissen en vrienden
Koor
Medereiziger / reis / vakantie
Overig
Overige familie
Overige gezondheidszorg
Religieuze bijeenkomsten
School en kinderopvang
Setting niet vermeld
Thuissituatie (huisgenoten)
Verpleeghuis
Vrijetijdsbesteding, zoals sportclub
Werksituatie
Woonvoorziening voor lichamelijk beperkten
Woonvoorziening voor verstandelijk beperkten


Aantal actieve clusters (leeftijd 65−115)
100
75
50
25
0
jul
aug
sep
okt
Datum
Proportie actieve clusters (leeftijd 65−115)
1.00
0.75
0.50
0.25
0.00
jul
aug
sep
okt
Datum
Cluster setting
Horeca
Kennissen en vrienden
Koor
Medereiziger / reis / vakantie
Overig
Overige dagopvang
Overige gezondheidszorg
Overige woonvoorziening
Setting niet vermeld
Thuissituatie (huisgenoten)
Verpleeghuis
Vrijetijdsbesteding, zoals sportclub
Woonzorgcentrum voor ouderen

Clusters: aantallen en grootte – 19-10-2020

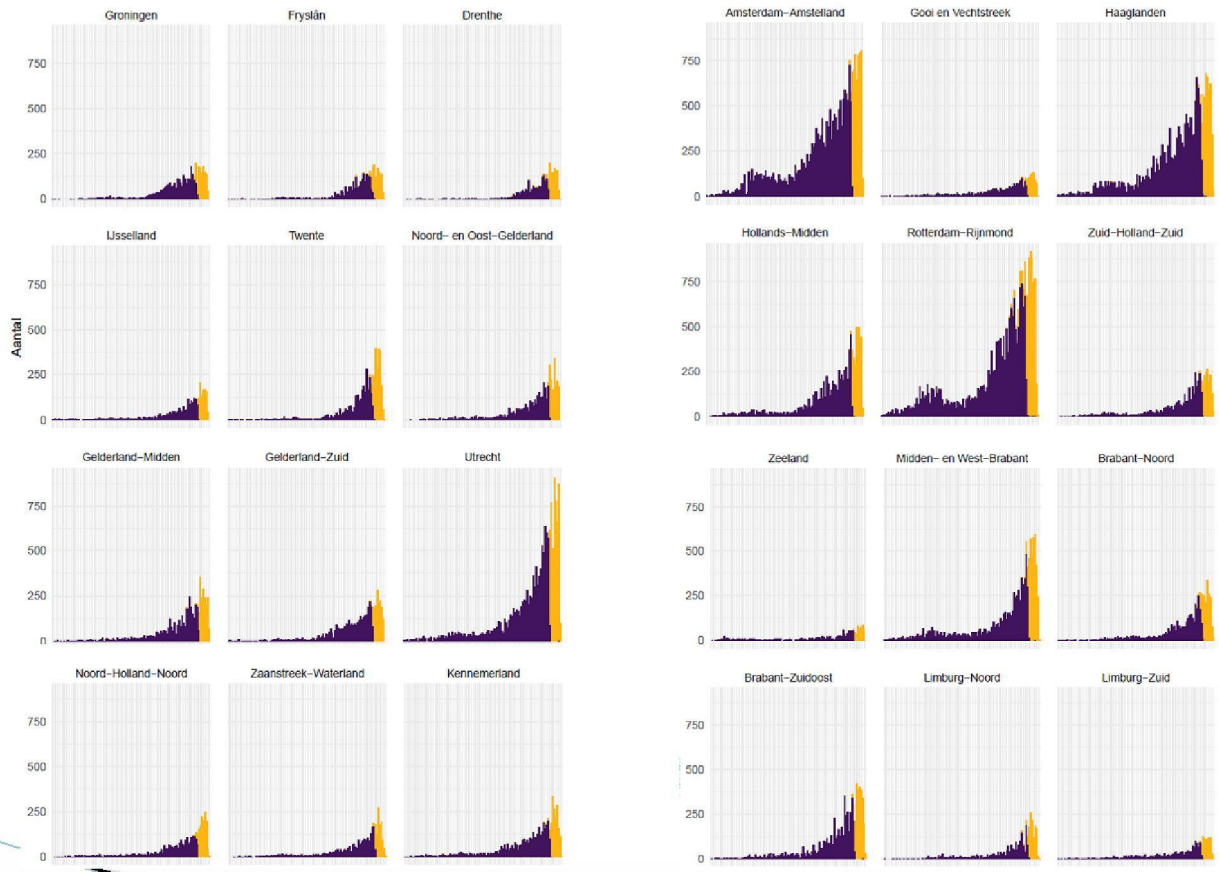


Blauw: relatief aandeel verschillende clusters
Oranje: exclusief thuissituatie

* Minder zicht door onvolledig BCO

Setting*	aantal clusters vanaf 1 juni	gemiddelde cluster grootte (min – max)
Thuissituatie	**2251**	3.7 (3–19)
Werksituatie	**796**	5.1 (3–45)
Kennissen en vrienden	395	5.1 (3–34)
Medereiziger / reis / vakantie	198	7.3 (3–311)
Overige familie	257	4.0 (3–17)
Setting niet vermeld	339	3.3 (3–6)
Verpleeghuis	287	**11.6 (3–138)**
Horeca	189	**10.2 (3–456)**
Vrijetijdsbesteding, zoals sportclub	259	6.2 (3-41)
Overig	143	5.3 (3–39)
School en kinderopvang	245	6.1 (3–36)
Feest / verjaardag / borrel	77	6.6 (3–23)
Studentenvereniging/–activiteiten	29	**15.1 (3–102)**

Bron: RIVM/CIb



Aantal meldingen per veiligheidsregio, 6 juli–18 okt 2020

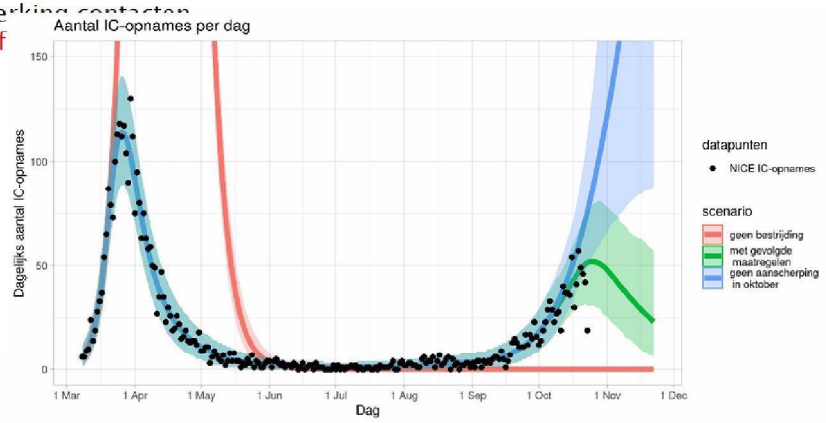
Toename in afgelopen week 38% vs 60% vorige week

GOLFBREKERS: MAATREGELEN OM VERDERE TRANSMISSIE TE VOORKOMEN

- BRONNEN:
  - Opvolging isolatie-adviezen door de positief geteste mensen (communicatie!)
  - Thuisblijven bij klachten

- TRANSMISSIE
  - 1,5 afstand
  - Efficientie transmissie binnen/ buiten (luchten, ventilatie)
  - Groepsgrootte, duur contact
  - Thuiswerken
  - Beperkt aantal bezoekers,
  - Advies niet noodzakelijke reizen,
  - Sluiting horeca

- KWETSBARE PERSONEN
  - Direct: bescherming door drukte te mijden, beperking contacten
  - Indirect: niet-medische mondmaskers preventief

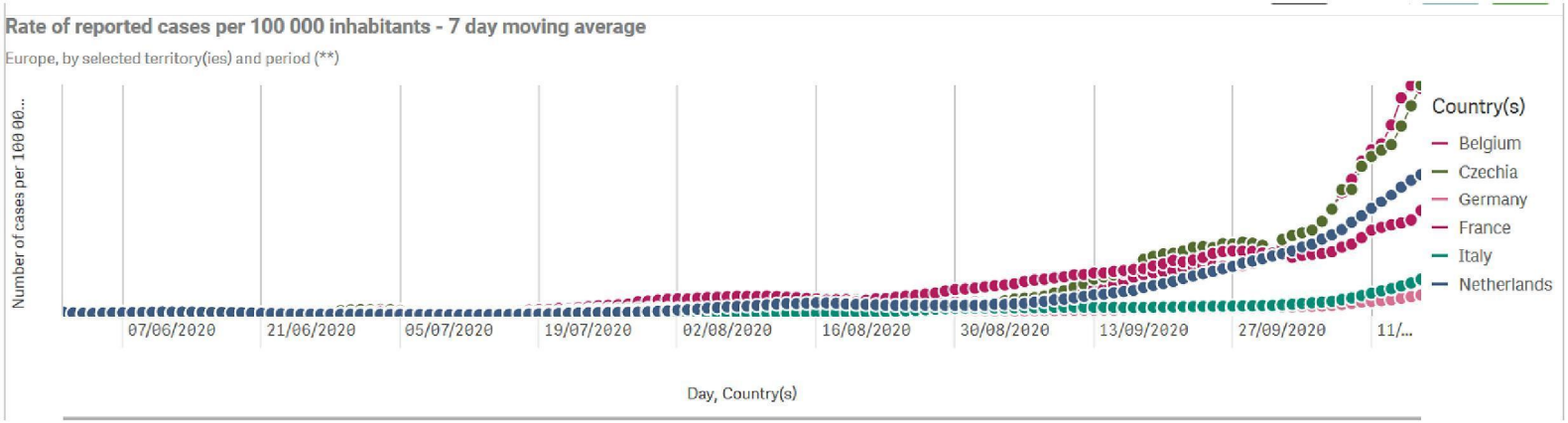


Wallinga. RIVM/EPI

Veiligheidsregio	Aantal wk >50/100K	Aantal meldingen per 100K			% positief (teststraat)	
		2 wk geleden	afgelopen wk	% stijging	2 wk geleden	afgelopen wk
Rotterdam-Rijnmond	7	473	553	17%	19	21
Amsterdam-Amstelland	12	496	541	9%	18	19
Twente	5	345	518	50%	17	19
Zaanstreek-Waterland	6	317	504	59%	16	19
Zuid-Holland-Zuid	6	341	473	39%	15	18
Haaglanden	8	387	463	20%	16	17
Hollands-Midden	6	359	457	27%	7	16
Utrecht	6	381	438	15%	14	15
Midden- en West-Brabant	5	316	378	20%	15	16
Gooi en Vechtstreek	6	322	368	15%	13	15
Brabant-Zuidoost	5	315	365	16%	15	15
Brabant-Noord	5	289	353	22%	14	15
Kennemerland	7	299	336	12%	14	15
Gelderland-Zuid	6	272	303	11%	13	13
Gelderland-Midden	5	255	296	16%	12	12
Flevoland	6	226	296	31%	14	13
Limburg-Noord	4	242	291	21%	14	15
Noord-Holland-Noord	5	205	261	27%	10	13
IJsselland	4	191	241	26%	10	11
Drenthe	5	233	218	-6%	11	11
Noord- en Oost-Gelderland	5	197	216	9%	10	12
Limburg-Zuid	3	135	177	31%	8	8
Fryslân	4	190	152	-20%	10	9
Groningen	6	207	145	-30%	9	9
Zeeland	3	123	123	0%	7	10

HOOFDBREKERS: verschil landen

VERGELIJKING MET EUROPESE LANDEN



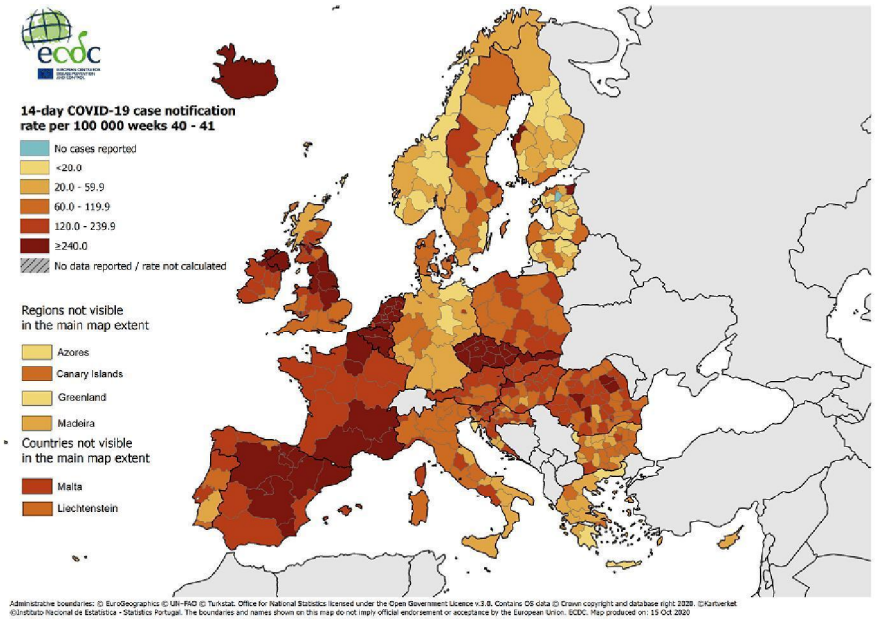
https://qap.ecdc.europa.eu/public/extensions/COVID-19/COVID-19.html#country-comparison-tab

Mei 2016

14-day COVID-19 case notification rate per 100 000 weeks 40-41

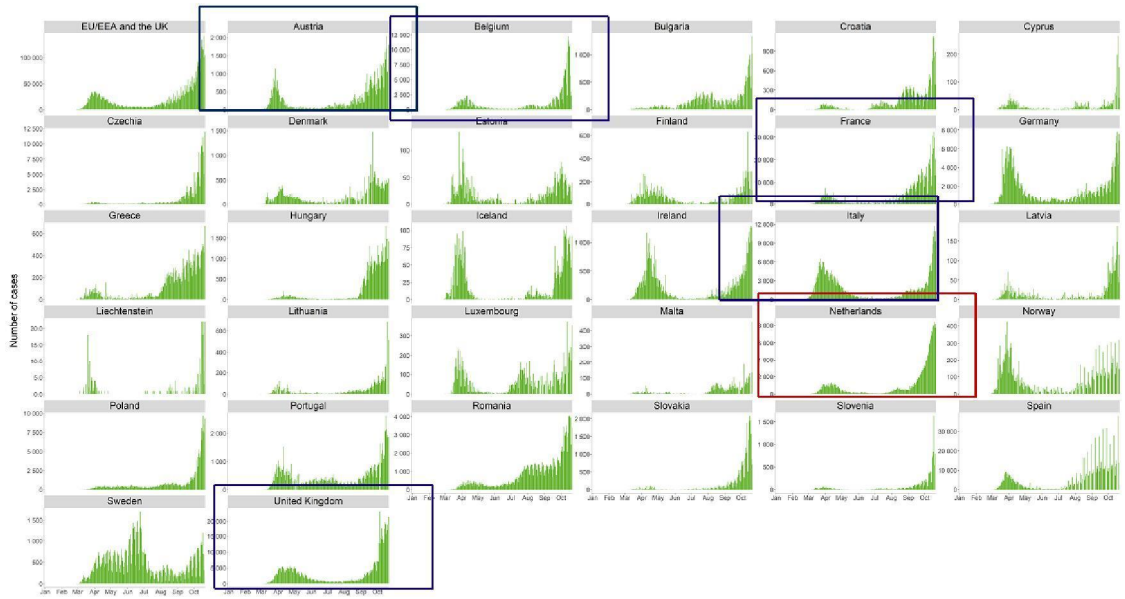
HOOFDBREKERS

Toename incidentie in meeste landen in de EU



Bron: ECDC
21/10/2020

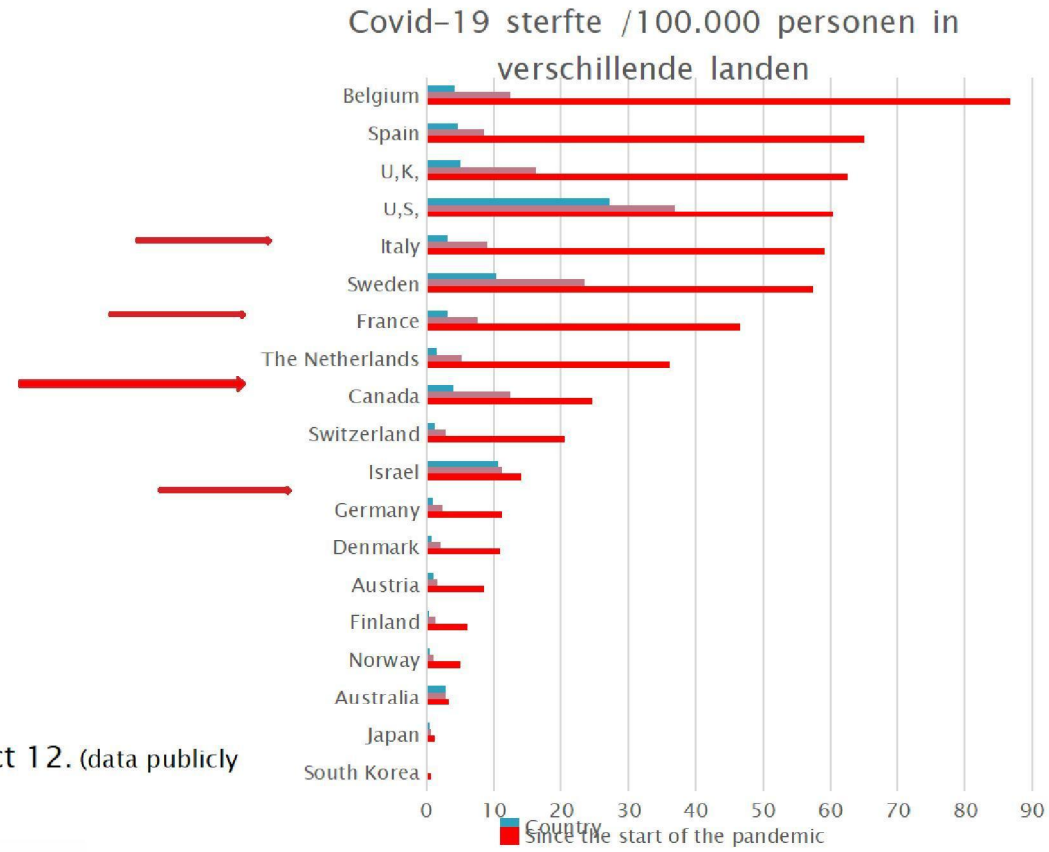
Distribution of laboratory-confirmed cases of COVID-19 in EU/EEA and the UK, as of 21 October 2020



NB: Y-schalen verschillen

Bron: ECDC 21/10/2020

HOOFDBREKERS
Verschil in sterfte



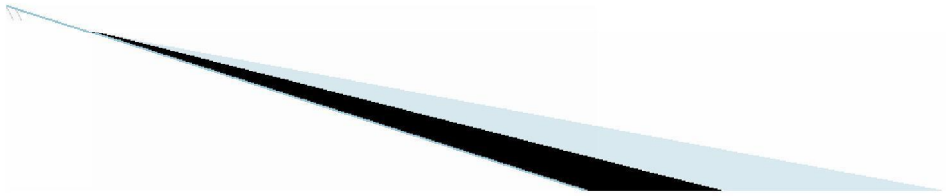
Bron:
Bilinski & Emanuel, JAMA, Oct 12. (data publicly available of Github)
Eliah Wolfson, Time, Oct 14

DANK VOOR UW AANDACHT!

CONCLUSIES

- Toename in aantal bevestigde COVID-gevallen, ingezet eind augustus
- Meest geprononceerde stijging aantal gevallen (maar ook incidentie) in jongere leeftijdgroepen (20-29 jaar)
- Aanzienlijke representatie van jongeren in de geïdentificeerde clusters, ook relatief grote clusters
- Vermindering naleving van maatregelen gericht op afstand, groepsgrootte
- Verminderde capaciteit BCO bij alsmaar stijgende incidentie
- Zomervakantie lijkt een catalysator voor de toename
- Toename aantal gevallen later ook in andere leeftijdsgroepen en bij ouderen (inclusief in verpleeghuizen)
- Toename zichtbaar in de meeste Europese landen (rol reisbewegingen? seizoen?)
- Aannvullende maatregelen gericht op terugdringen epidemie en daling Rt naar waarden <1
- Het effect daarvan is nog niet met zekerheid aan te tonen

Breakout session 2: exercise



COVID-19: what have we learned so far?

- Optimal detection systems
- Laboratory capacity
- Surveillance and high capacity for source and contact tracing
- (real-time) analysis
- Comprehensive monitoring
- Stepwise approach to relaxation of measures
- Clarity about required behavior (hygiene, social distancing, teleworking, testing, isolation, quarantine)
- Continuous monitoring of compliance and behavior
- Clear command and control structure
- Communication
- Protection of the vulnerable groups/people
- Access to hospital care
- Availability of medical countermeasures (treatment, antivirals)
- Availability of non-medical countermeasures
- Vaccines

Wrap-up!

- Prominent place in history
- Lessons learnt
- Successes and failures of containment

Time for coffee!