



DANIEL K. INOUE ASIA-PACIFIC CENTER FOR SECURITY STUDIES

COVID-19 in the Indo-Pacific Region

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Educate Connect Empower



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Overview

- What we know
- What we don't know – but need to know for effective response
- How to respond now
- The way ahead

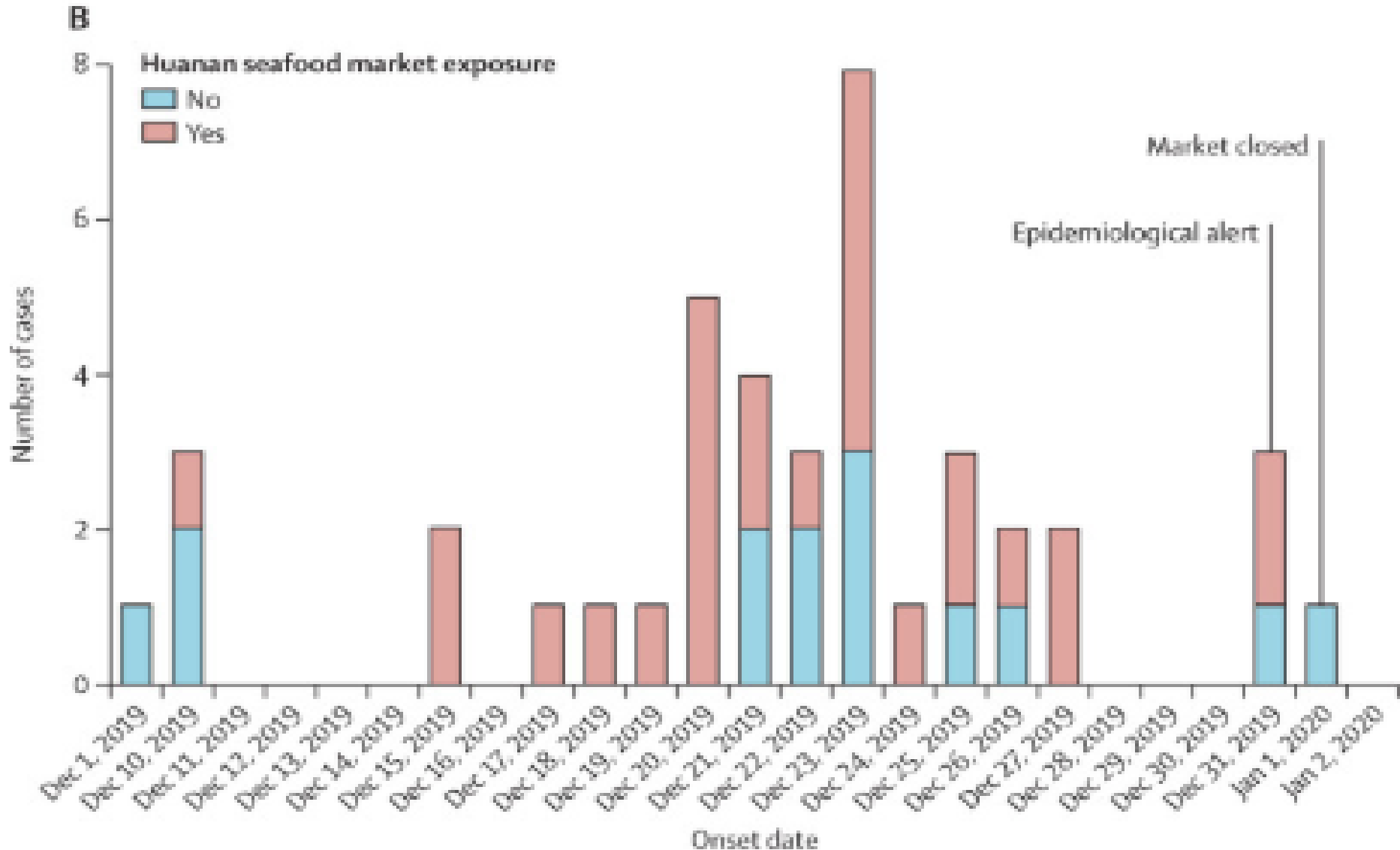


COVID-19 Origins

- 31 December 2019, China reported 27 cases of viral pneumonia in Wuhan to the WHO
 - Most cases associated with the seafood market
 - Market closed the next day
- 2 January 2020, 41 patients admitted to hospital, 1/3 severe, 15% mortality
 - 2/3 with Market exposure
 - NOT SARS, MERS, Influenza
- 9 January 2020, scientists in Wuhan identified a novel coronavirus
 - Next they published the gene sequence (RNA)
- 16 January 2020, diagnostic tests distributed to 6 hospitals in Wuhan



First 41 Cases





COVID-19 Origins

- Coronaviruses ordinarily associated with bats
- Likely mutated and jumped species to humans
 - Current suspect is the pangolin
- Cases highly associated with the Wuhan wet market
 - Poorly regulated, crowded
 - Domestic and wild animals





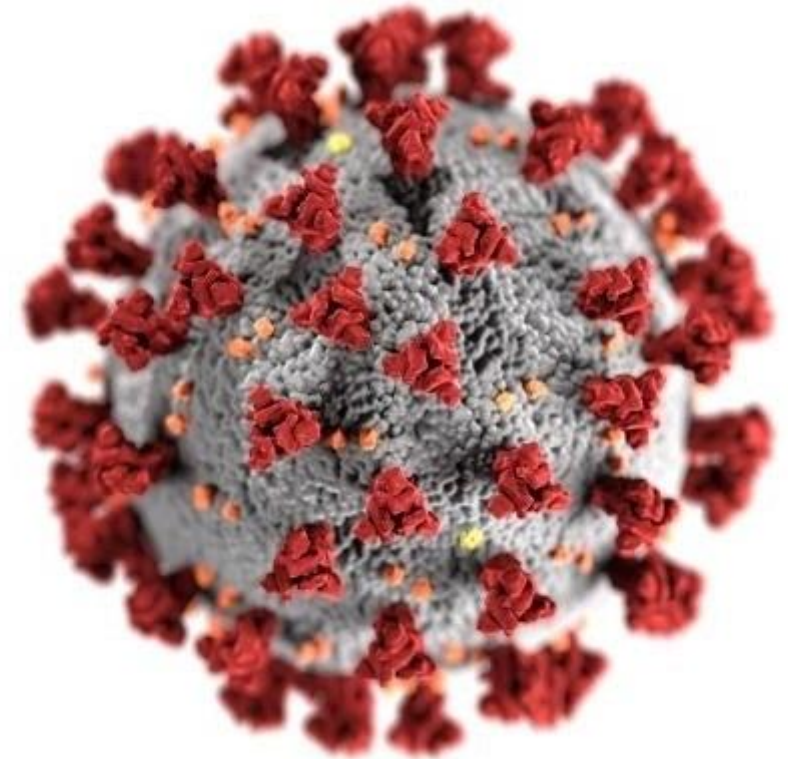
Terminology

- SARS-CoV-2 = the virus that causes the disease
- COVID-19 = the disease
- “Coronavirus” technically includes the entire family of viruses
- CDC uses “The virus that causes COVID-19” to minimize public confusion w/ SARS



SARS-CoV-2

- Enveloped, single-strand RNA virus
- Distinctive corona or 'crown' of sugary proteins
- Family includes SARS, MERS
- Also includes four well known types that cause 1/4 of routine “colds”
- Genetics of SARS-CoV-2 are most closely aligned to SARS (78% homology)





COVID-19 Symptoms

CORONAVIRUS DISEASE 2019 (COVID-19)

Patients with COVID-19 have reportedly had mild to severe respiratory illness. Symptoms can include

- Fever
- Cough
- Shortness of breath

***Symptoms may appear 2-14 days after exposure.**

Seek medical advice if you develop symptoms, and have been in close contact with a person known to have COVID-19 or if you live in or have recently been in an area with ongoing spread of COVID-19.



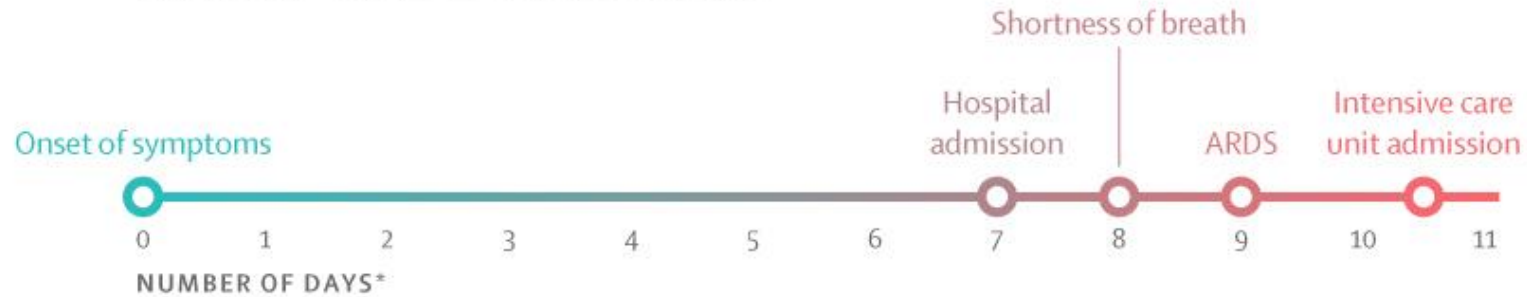
cdc.gov/COVID19-symptoms



COVID-19 Clinical Course

This information reflects findings presented in a research article published on February 15 2020, and reflects a small number of early cases from Wuhan, China. More recent information with updated figures may be available.
Visit thelancet.com/coronavirus for the latest research.

Timeline of coronavirus onset



ARDS=Acute respiratory distress syndrome

*Median time from onset of symptoms, including fever (in 98% of patients), cough (75%), myalgia or fatigue (44%), and others.

For more, see:

Huang C, Wang Y, Xingwang L, et al.
Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China
The Lancet 2020; published online February 15

THE LANCET



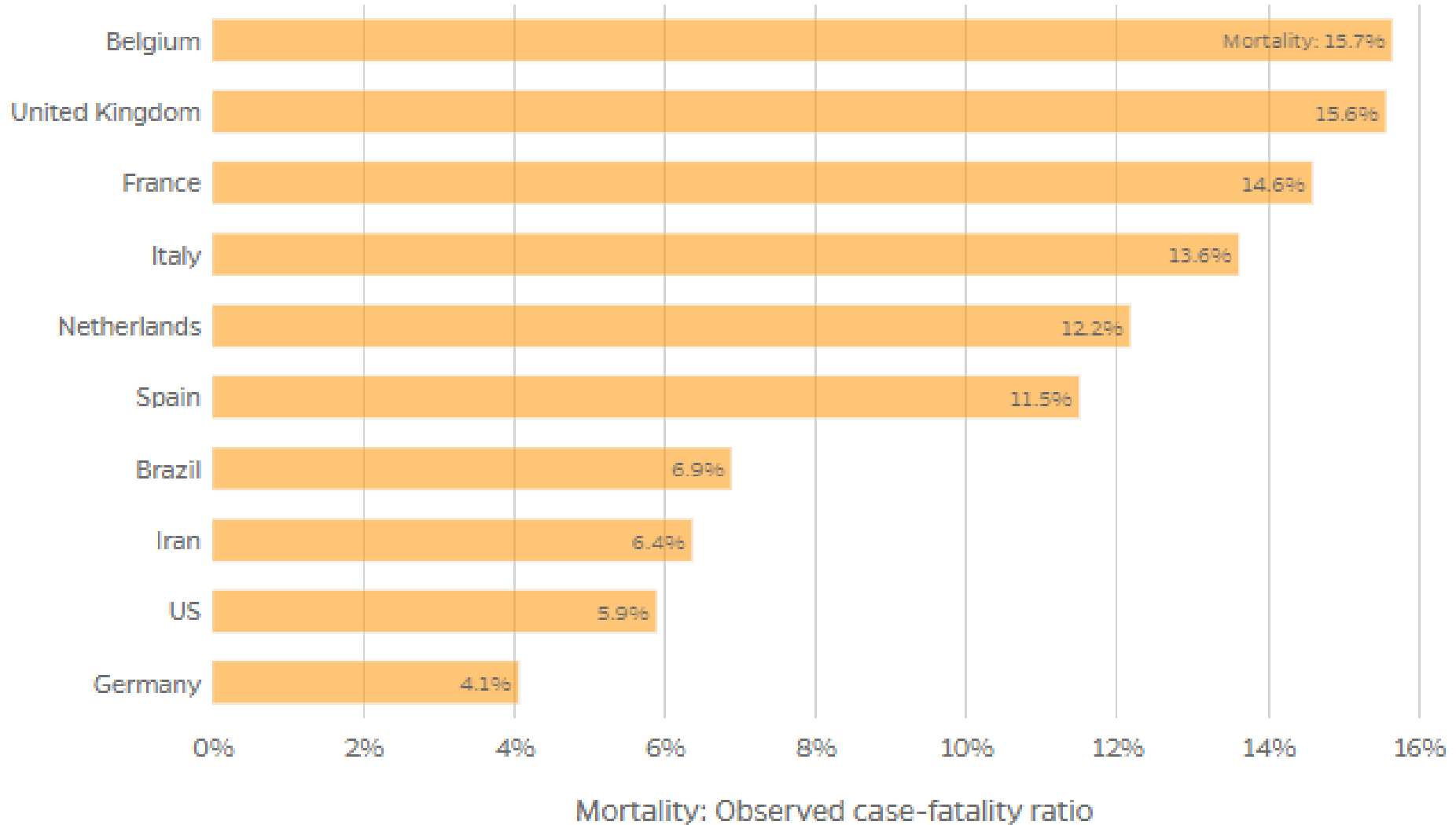
COVID-19 Mortality Rate

- **Fatality Rate based on diagnosed cases ***
 - Indonesia – 7.8%
 - United States – 5.9%
- **Perspective:**
 - SARS 14%
 - 1918 Influenza 2.5% (killed 50M globally)
 - Seasonal influenza <0.1%

* Johns Hopkins University estimate as of May 1, 2020



Est COVID-19 Mortality by Country

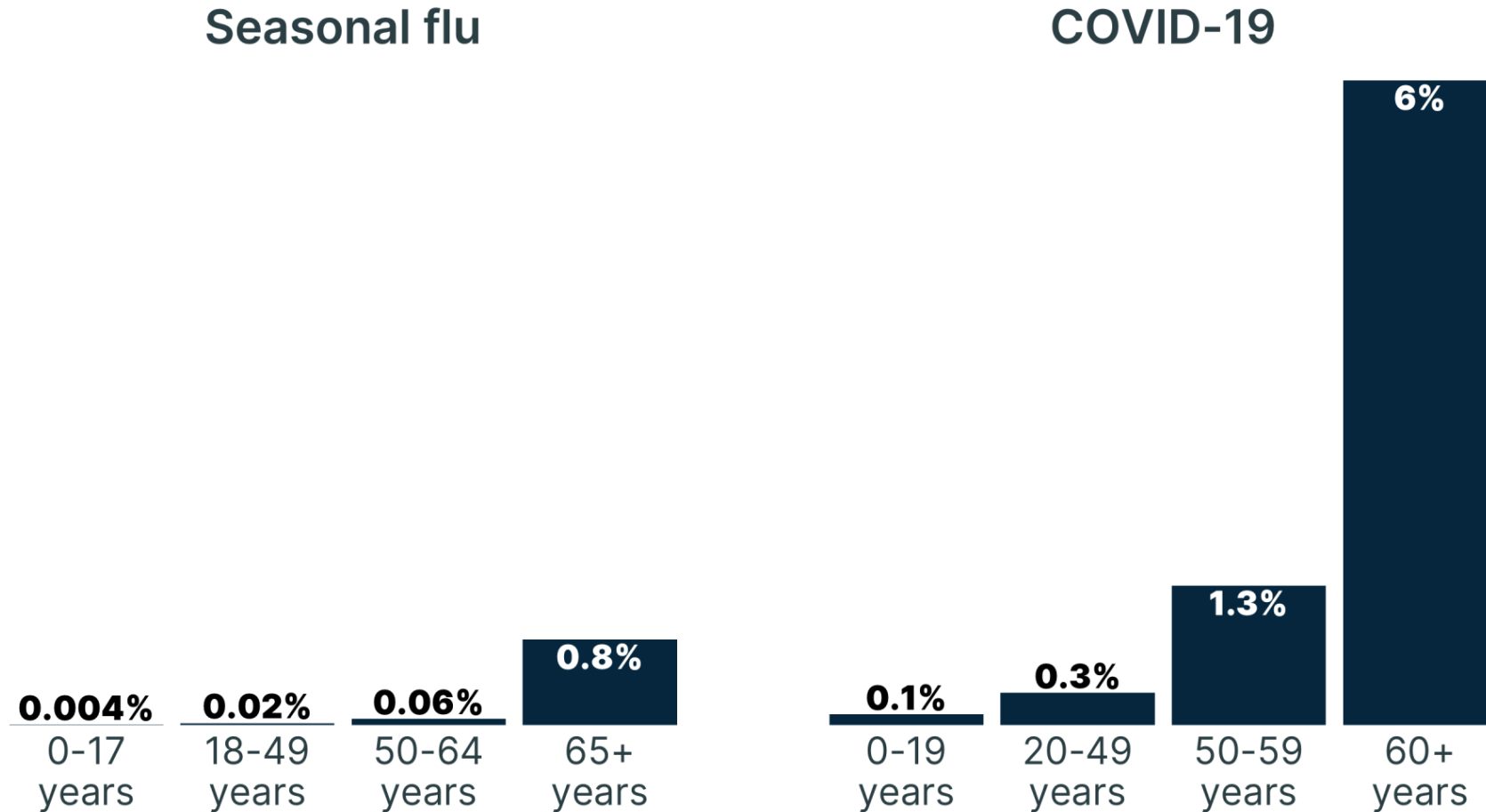


Source: Johns Hopkins University as of May 1, 2020



Deadliness of COVID-19 vs. the seasonal flu

Chart compares COVID-19 mortality rate from China with seasonal flu mortality in the United States by age group.



Source: Novel Coronavirus Pneumonia Emergency Response Epidemiology Team, "Viral surveillances: the epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19)— China, 2020," *China CDC Weekly*; U.S. Centers for Disease Control and Prevention. Via Our World in Data.

Graphic by David H. Montgomery | MPR News

What we don't know

True infection rate?

True mortality rate?

Effect on other medical conditions?

How will immunity work?

Why are the effects different for different demographics

Infection rate?

Problem with test sensitivity – unknown but high number people give false negative

[MIT description of testing problem 29 Apr 2020](#)

SECDEF: Majority of Roosevelt sailors with COVID-19 are asymptomatic

Diana Stancy Correll

📅 April 16




350 out of 600 infected sailors showed no symptoms

[Source: Navy Times 16 Apr 2020](#)

Mortality Rate

**Global coronavirus death toll could be 60%
higher than reported | Free to read**

Mortality statistics show 122,000 deaths in excess of normal levels across 14 countries analysed by the FT



Excess Deaths?

Global coronavirus death toll could be 60%
higher than reported | Free to read

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Excessive Deaths

How reported coronavirus deaths compare with deaths above normal

Numbers are from March 8 to April 11, 2020.

AREA	PCT. OF NORMAL	EXCESS DEATHS	-	REPORTED COVID-19 DEATHS	=	GAP
New York City	325%	11,900	-	10,261	=	1,700
New Jersey	172%	5,200	-	2,183	=	3,000
New York (excluding N.Y.C.)	142%	4,200	-	2,425	=	1,700
Michigan	121%	2,000	-	1,391	=	600
Illinois	113%	1,400	-	682	=	700
Massachusetts	120%	1,200	-	686	=	500
Maryland	115%	700	-	207	=	500
Colorado	116%	600	-	274	=	300

[Source: NY Times 28 Apr 2020](#)

So what to do?



COVID-19 Treatment

- Some effectiveness
 - Remdesivir (for Ebola) - first USDA-approved treatment
 - Other antivirals not shown to be effective
 - Antibody plasma treatment?
- Not effective
 - Influenza treatments: e.g. oseltamivir
 - Steroids
 - Antibiotics
- **There is NO cure – may never be**
- **Immunity?**

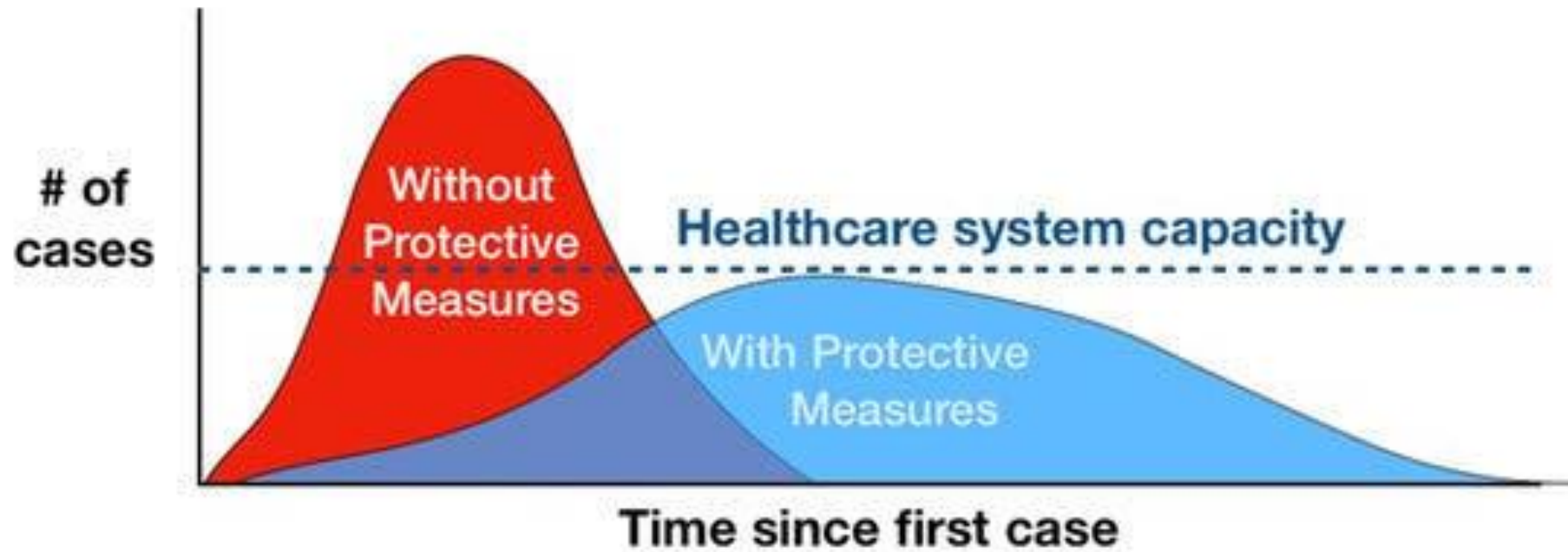


Mitigation Strategies

- Containment Strategies
 - Quarantine and Isolation
 - Travel restrictions and border closures
- Personal Protection Strategies
 - Handwashing, Disinfection, PPE and masks
- Social Distancing
 - Closure of schools, workplaces, recreational venues
 - Telework, virtual meetings
 - Social norms (e.g. elbow shake)
- **Current Goal is to Flatten the Curve**



Flattening the Curve



Adapted from CDC / The Economist

COVID Virus durability

Increased temperature, humidity, and sunlight are detrimental to SARS-CoV-2 in saliva droplets on surfaces and in the air

CONDITION	Temp	Humidity	Solar	HALF LIFE
Surface	70-75°F	20%	None	18 hours
Surface	70-75°F	80%	None	6 hours
Surface	95°F	80%	None	1 hour
Surface	70-75°F	80%	Summer	2 minutes
Aerosol	70-75°F	20%	None	~60 minutes
Aerosol	70-75°F	20%	Summer	~1.5 minutes



LIVE

abc NEWS LIVE
COVID-19

PRES. TRUMP HOLDS COVID-19 BRIEFING

WHITE HOUSE TASK FORCE DISCUSSES NOVEL CORONAVIRUS

abc
NEWS LIVE



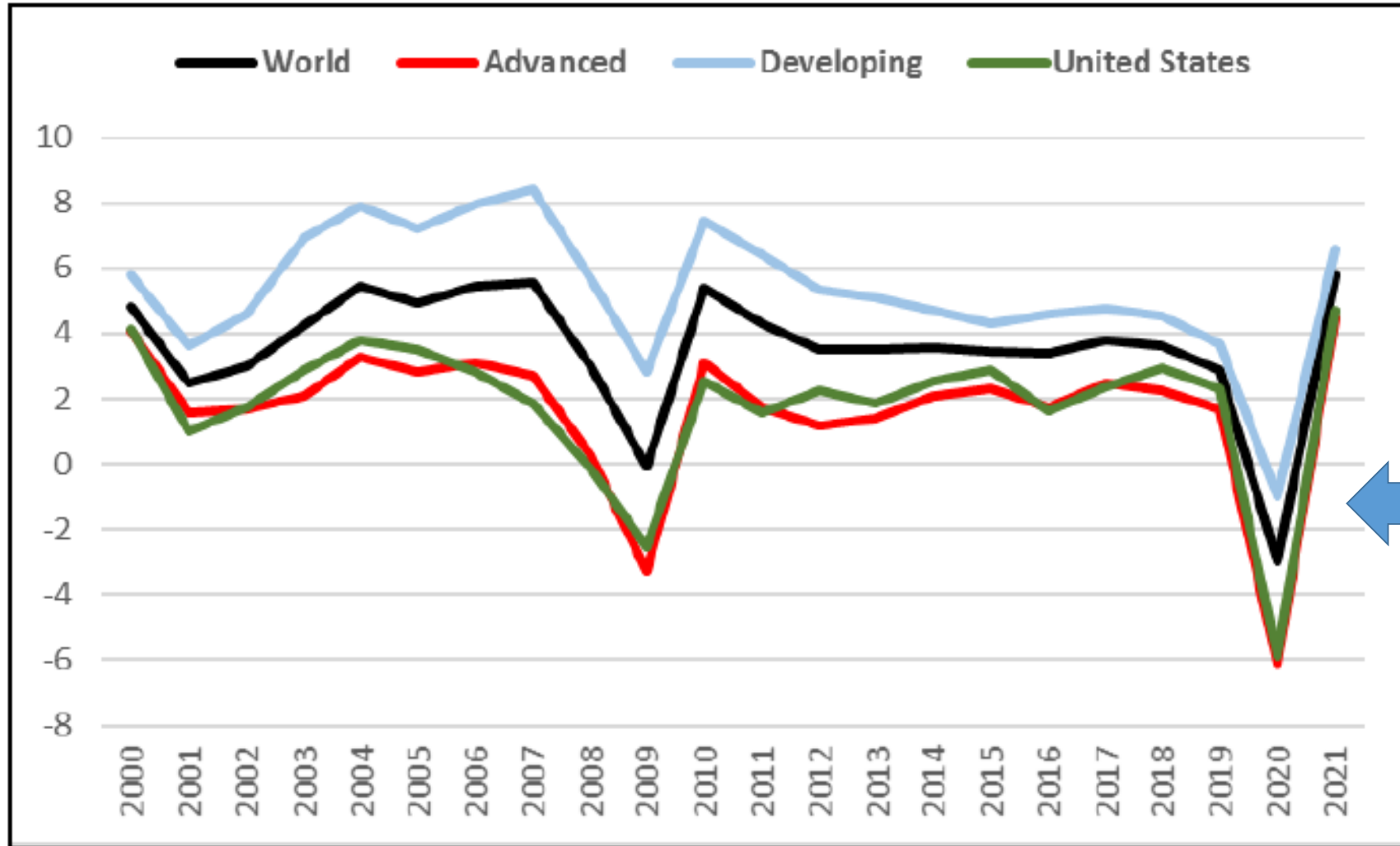
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Global Economic Impact

Figure 2. Gross Domestic Product, Percent Change



Source: *World Economic Outlook*, International Monetary Fund, April 14, 2020.



The Way Ahead

- Now – travel restrictions, social distancing
 - **Flatten the Curve**
- Near-term – Re-opening of society with risk
 - Avoid economic collapse
 - **Risk of recurrence**
- Long-term - **Vaccine**
 - Numerous organizations working on it
 - Months to a year + away



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A thought from history

- 2001
- 1998
- 1965
- 1918



A thought from history

- 2001

While it is unclear exactly how long it will take to recover

- 1998

We Will Recover!

- 1965

And Science SAVES lives

- 1918



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Discussion

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