

COVID -19 & Canadian Manufacturing

June 18, 2020

What Next?

NGen Next Generation
Manufacturing Canada

NGen Thought Leaderships Series

Introduction (followup: jo@malaikavx.com)

1. **Primer on viruses**

- a. What are coronaviruses?
- b. What is SARS COV2?

1. **COVID-19 trends and rates of infection**

- a. What is the epidemiology of COVID-19?
- b. What can we expect over next 12 months?
- c. How contagious is COVID-19?
- d. Can it be eliminated? Why was New Zealand successful?

1. **How has COVID-19 impacted enterprises?**

- a. Have there been outbreaks in Canada, US ?
- b. What is the risk in the manufacturing sector?
- c. Case studies: restaurant & call centre
- d. What are enterprise hotspots for contagion?
- e. How can CEOs and enterprises prepare and respond to cases?

1. **What tools are available to assist CEOs ?**

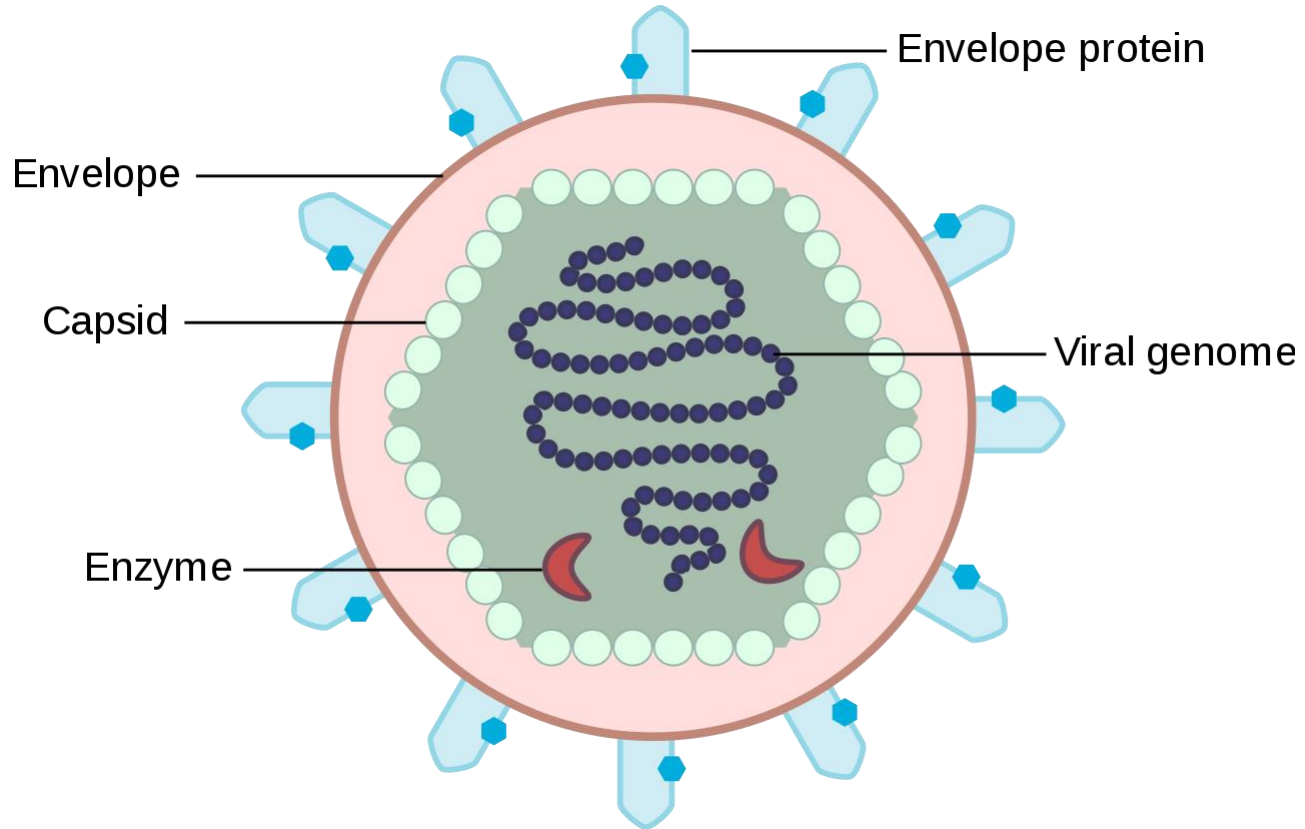


Dr. Anand Kumar

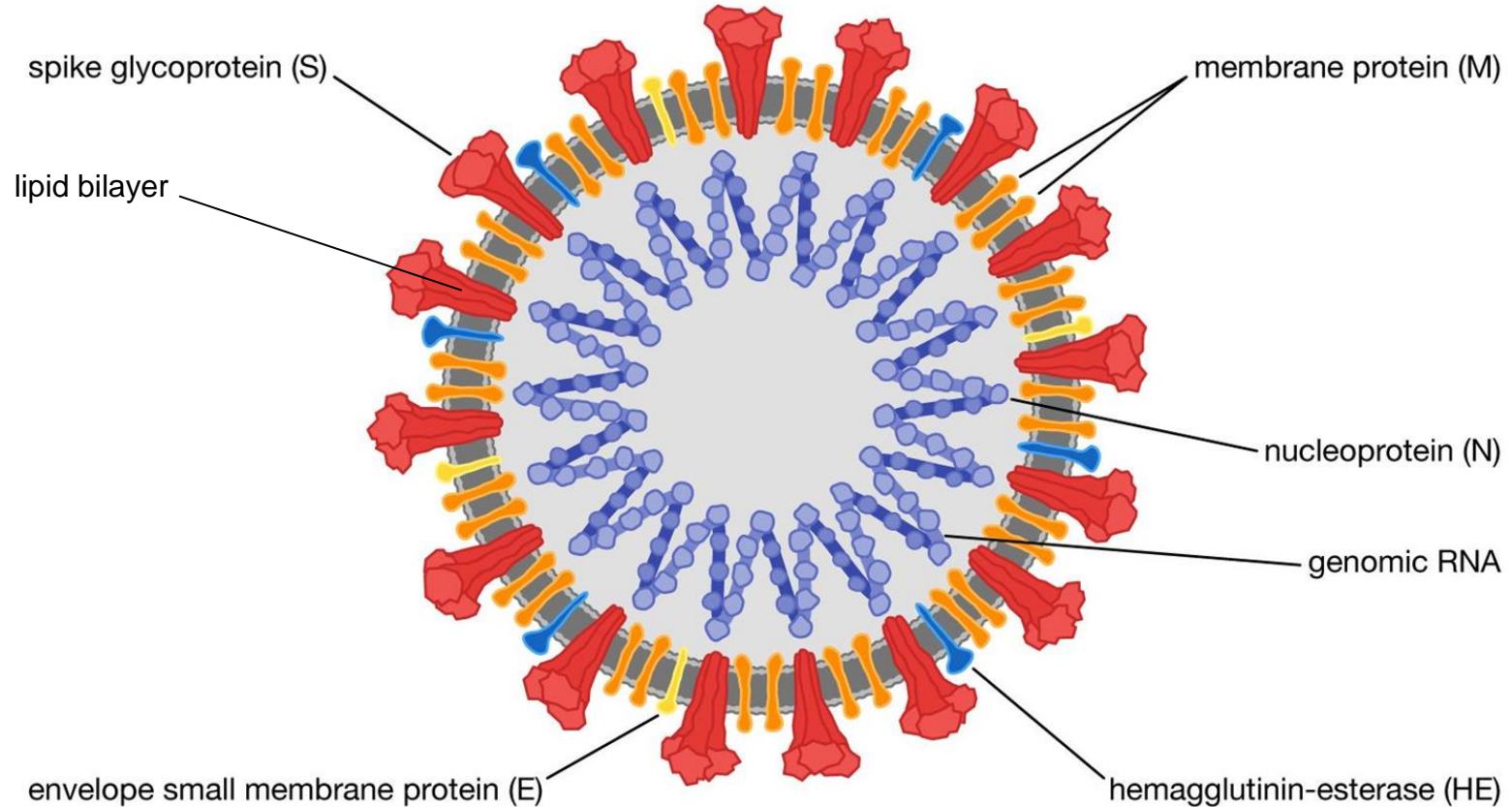


Dr. Jo Kennelly with Dr. Frank Plummer (late), and Dr. Tony Fauci NIH

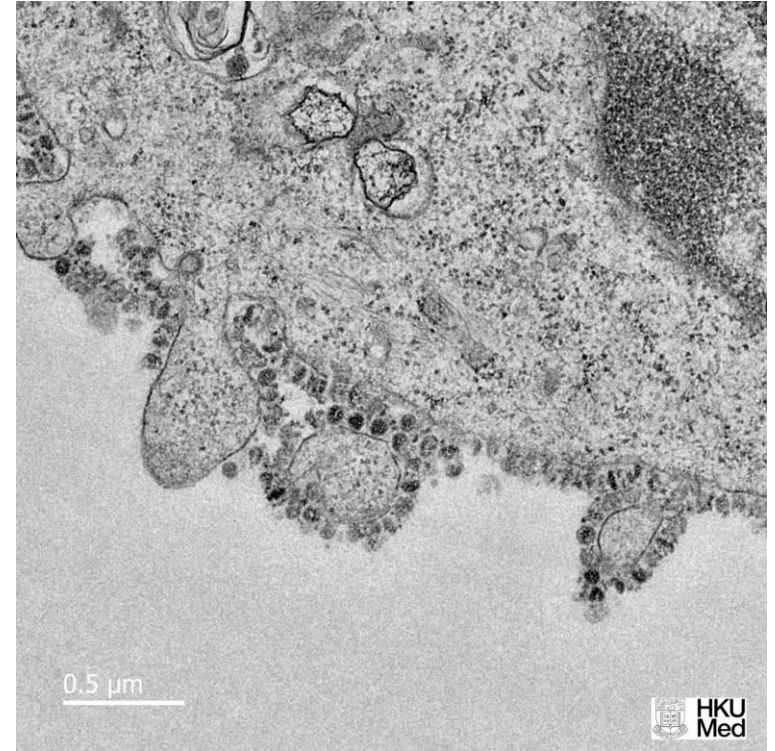
What is a virus?



Generic virus structure



SARS-CoV-2: Electron Microscope



SARS-CoV-2: Is a virus alive?

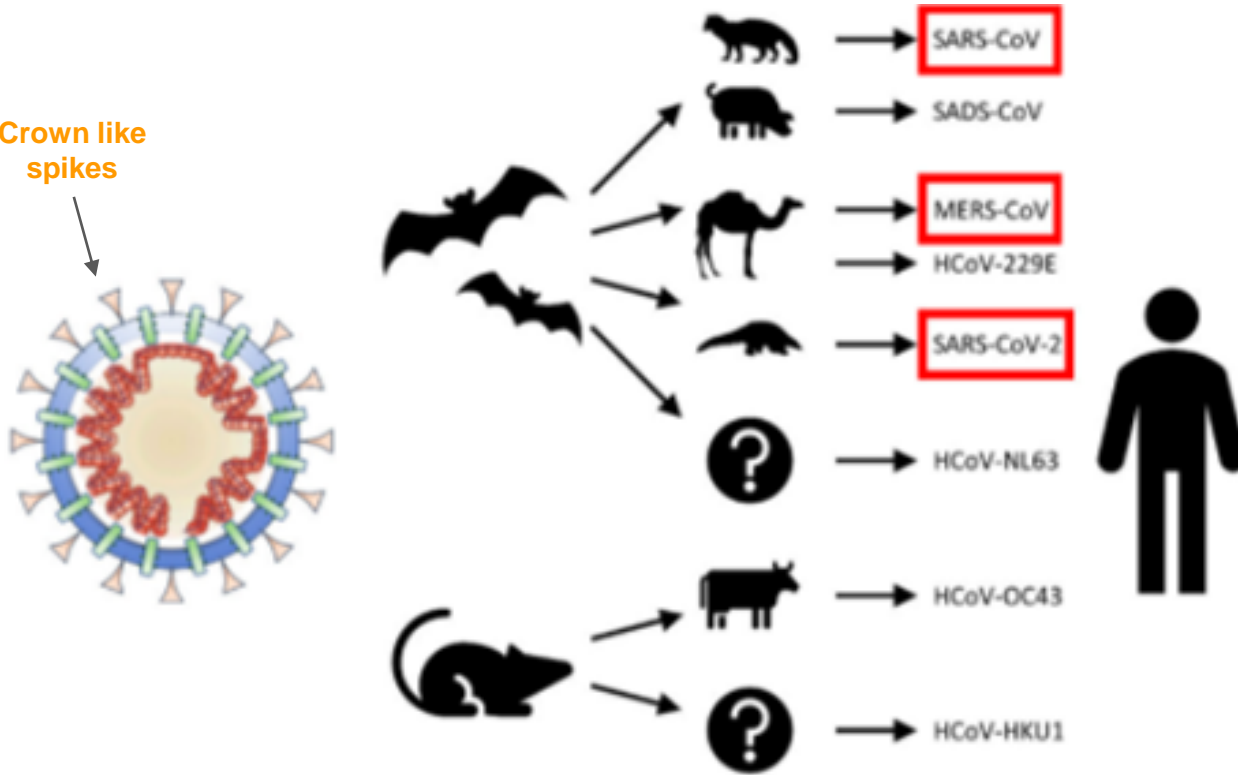
The seven characteristics of life include	virus	bacteria	animal
ability to reproduce	?	✓	✓
pass traits to progeny	✓	✓	✓
grow and change	X	✓	✓
consume energy and generate waste	X	✓	✓
maintain homeostasis	X	✓	✓
responsive to the environment	X	✓	✓
made of cells?	X	✓	✓

SARS-CoV-2 vs COVID-19

- Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the virus
- Coronavirus (CO) virus (VI) disease (D) 2019 ie COVID-19 is the severe disease caused by SARS-CoV-2
- closely related SARS-CoV which caused SARS epidemic in 2003
- also related to Middle Eastern Respiratory Syndrome (MERS) virus in 2012
- 4 other known human coronaviruses endemic in human population that cause colds – all have a degree of **seasonality**
- all coronaviruses thought to originate in bats but have established themselves in a wide variety of animal hosts including virtually all livestock and many wild animals

SARS-CoV-2

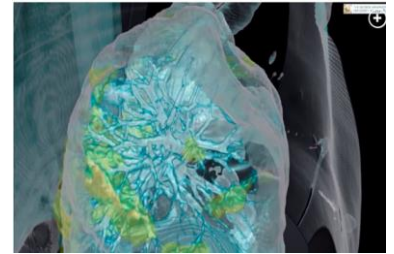
Crown like
spikes



Droplet spread



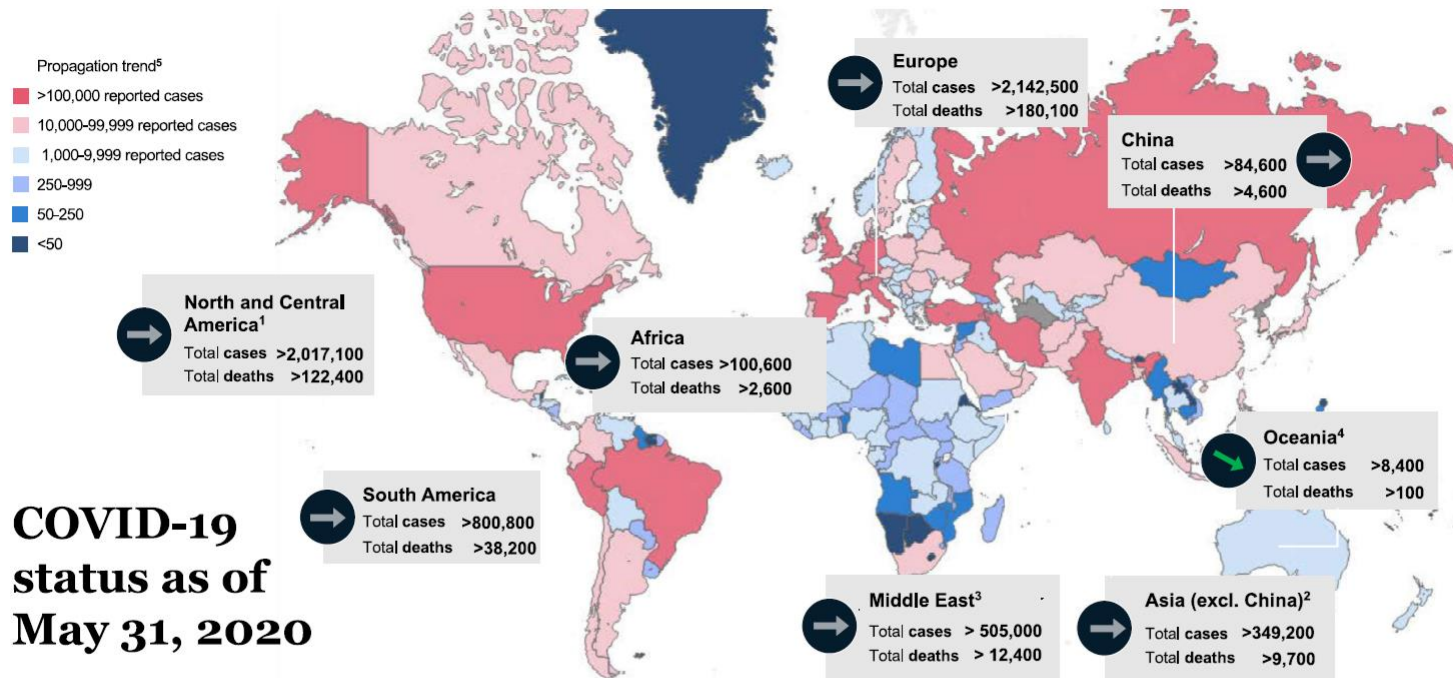
Lung target organ



COVID-19 Epidemiological Trends

Rates of Infection, Future Uncertainties

SARS-CoV-2: Case and Death Distribution



1. Johns Hopkins data used for U.S., all other North America countries reporting from WHO

2. Includes Western Pacific and South-East Asia WHO regions; excludes China; note that South Korea incremental cases are declining, however other countries are increasing

3. Eastern-Mediterranean WHO region

4. Includes Australia, New Zealand, Fiji, French Polynesia, New Caledonia, Papua New Guinea

5. Increasing: > 5% increase in incremental cases over last 7 days, compared to incremental cases over last 8-14 days; stabilizing: -5% ~ 5%; decreasing: < -5%

SARS-CoV-2: Flatten the Curve

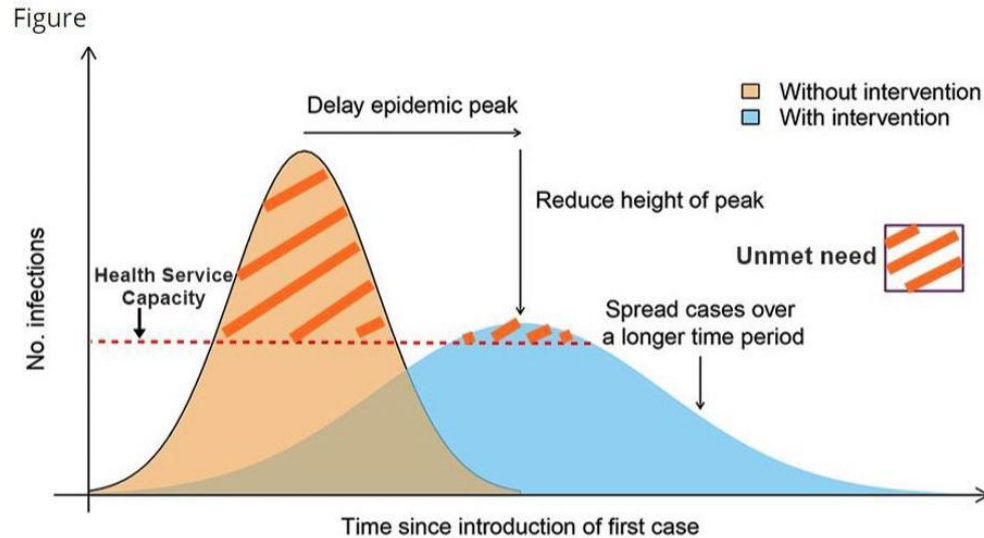
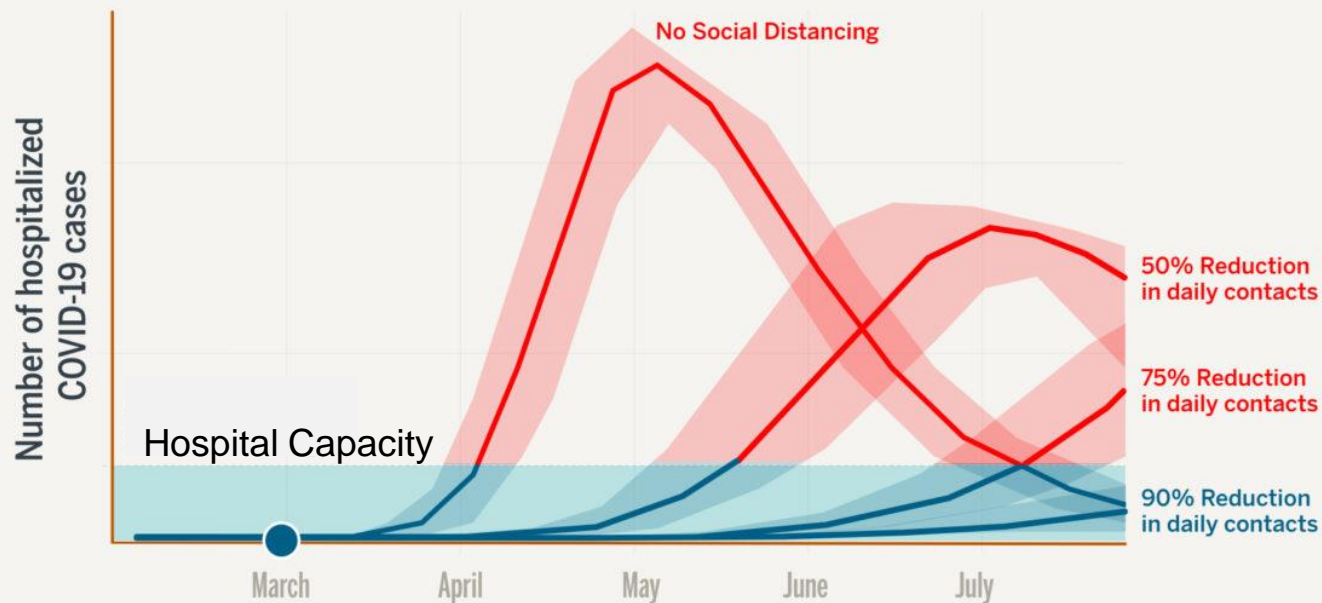


Figure 1: Intended impact of enhanced hygiene and social distancing measures on the COVID-19 pandemic adapted from Fong.⁸

Enhanced hygiene and social distancing measures may reduce both numbers of cases and severity of cases through several mechanisms.

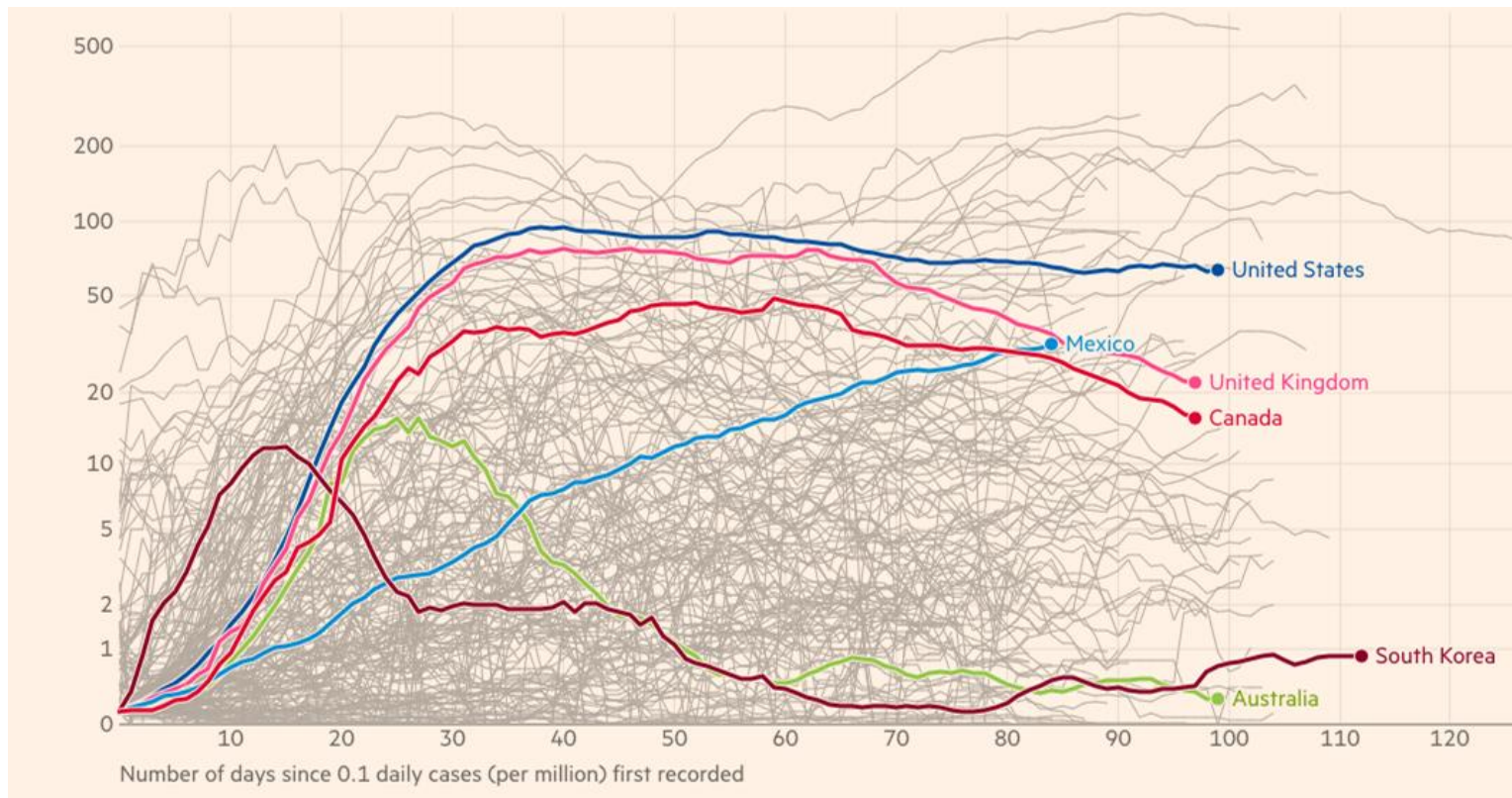
SARS-CoV-2: Flatten the Curve

COVID-19 HOSPITALIZATIONS



Global: Canada Compared to Trading Partners

New Daily COVID-19 Cases (seven day rolling average per million), Jan to June, 2020



Death Rate
(per 1000,000)

35.49

62.90

22.20

13.93

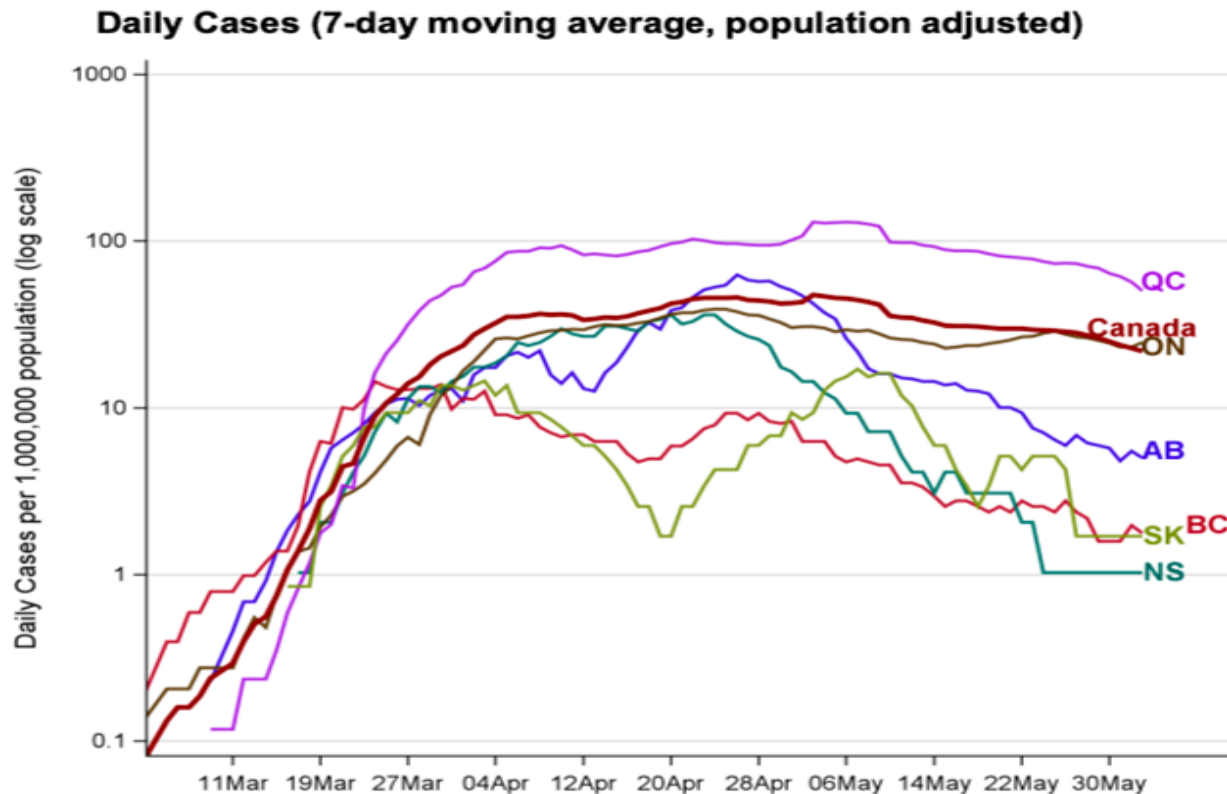
0.54

0.41

Data Source: Financial Times (seven day rolling average per million)

Canada: Series of Regional Epidemics

*Go to look at
manufacturing
sector % by
PTs*



Quebec & Ontario
account for 90% of
cases last 14 days

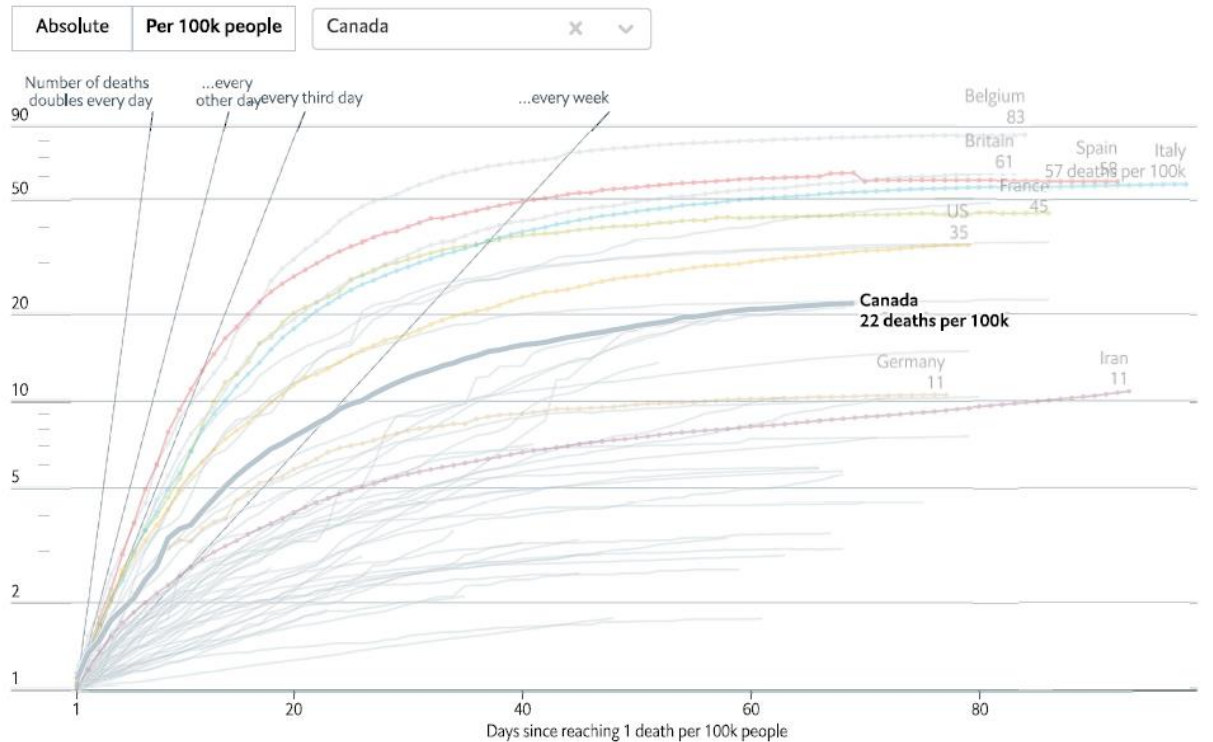
No community
transmission PEI,
NWT or Yukon

No cases in
Nunavut

SARS-CoV-2: Deaths per 100,000

A deadly trajectory

Confirmed covid-19 deaths, to 11:56 UTC June 16th, log scale



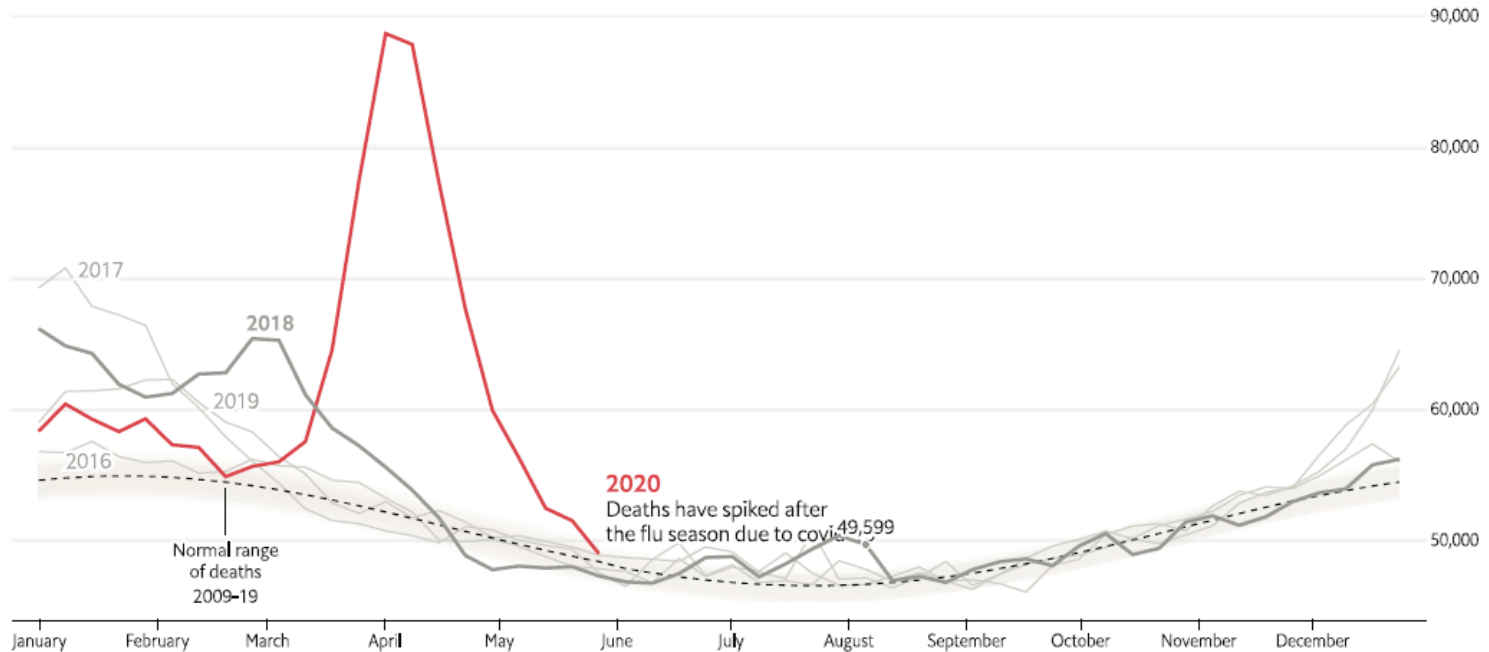
Source: Johns Hopkins CSSE

*Includes Diamond Princess deaths

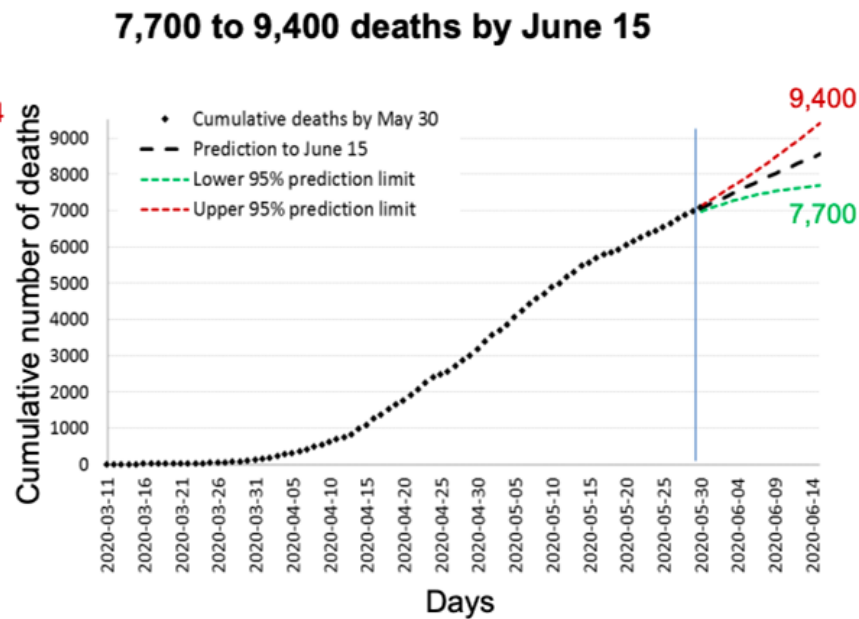
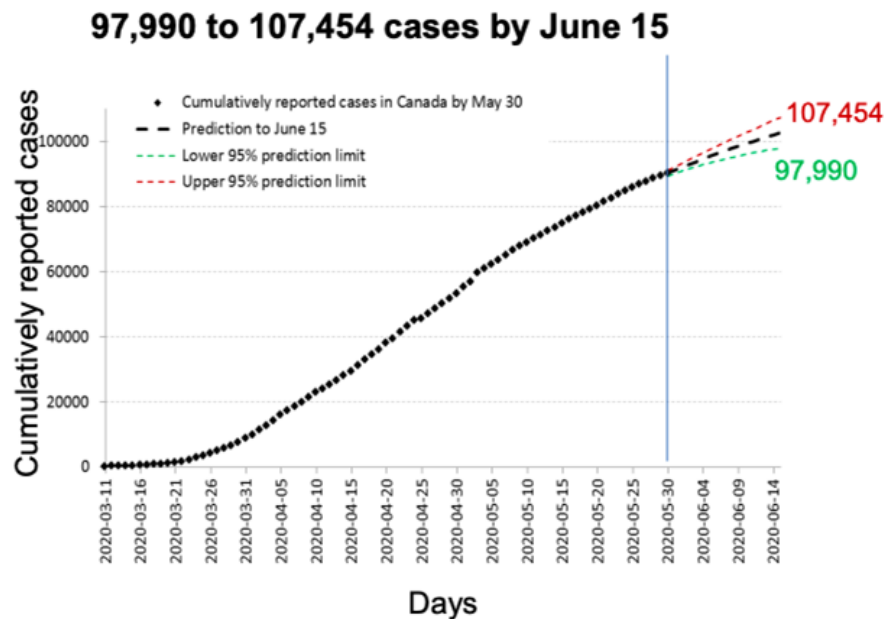
SARS-CoV-2: euroMOMO (European epidemiology consortium of 24 countries)

Weekly estimated number of deaths

Aggregate of EuroMOMO participating countries*, to week ending May 30th

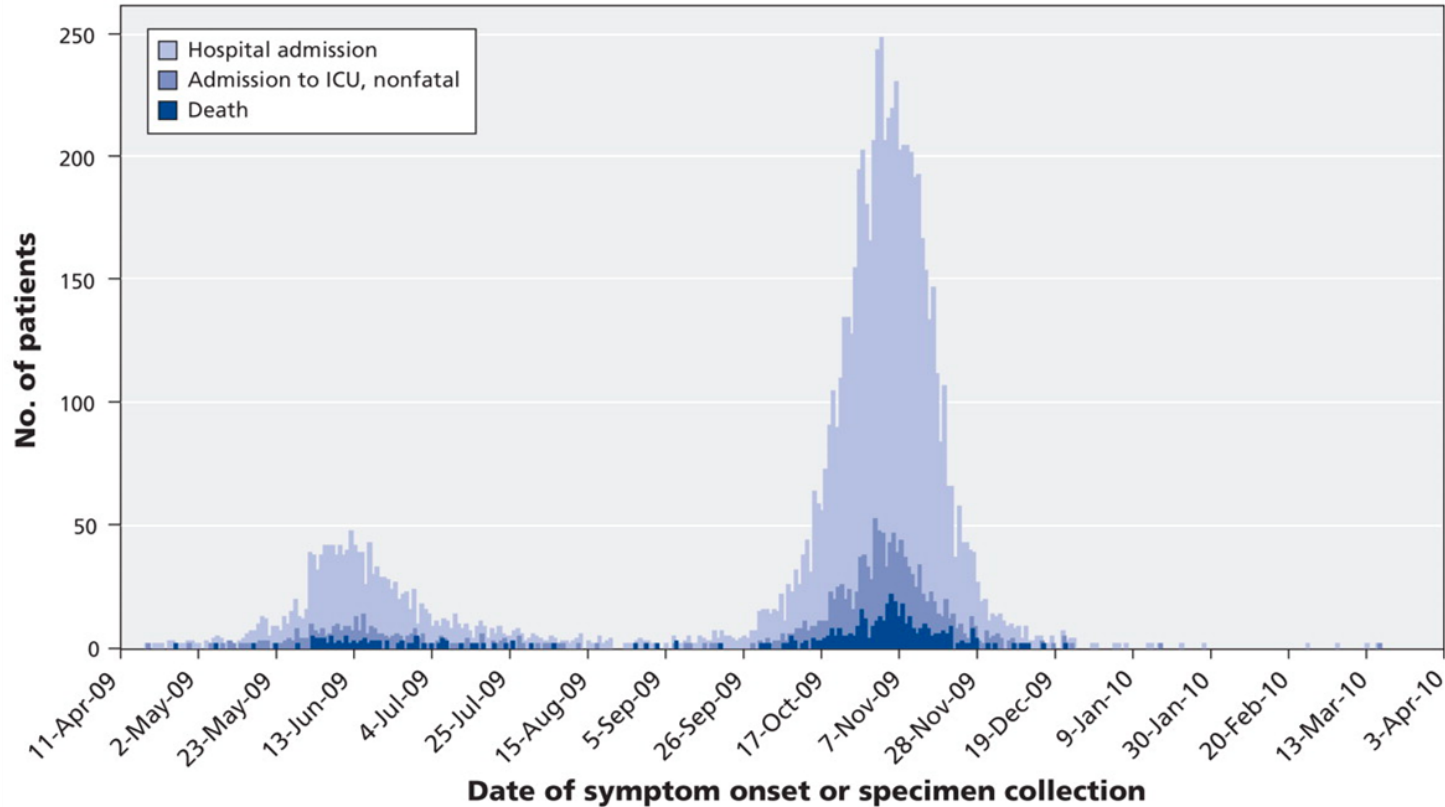


PHAC Forecasts: Cumulative Cases & Deaths



Extrapolation based on recent trends
using a forecasting model (with ranges of uncertainty)

What is meant by a Wave? H1N1 First & Second Waves

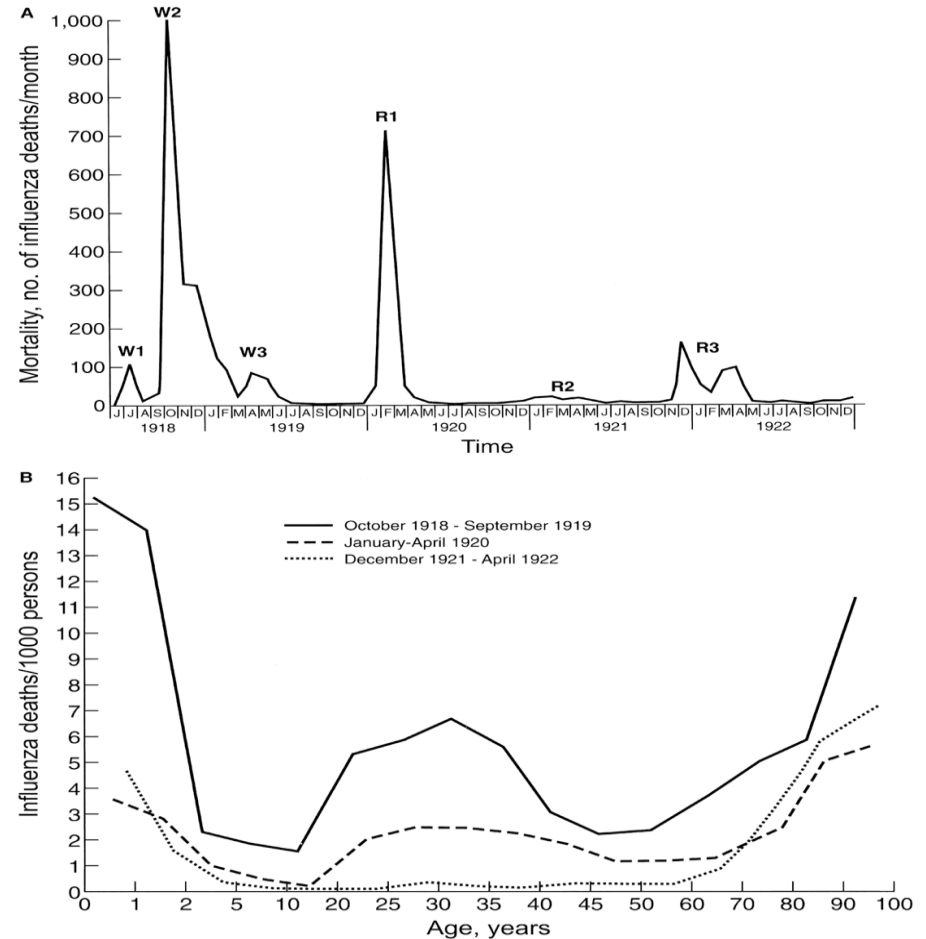


Hospitalization,
ICU, Death

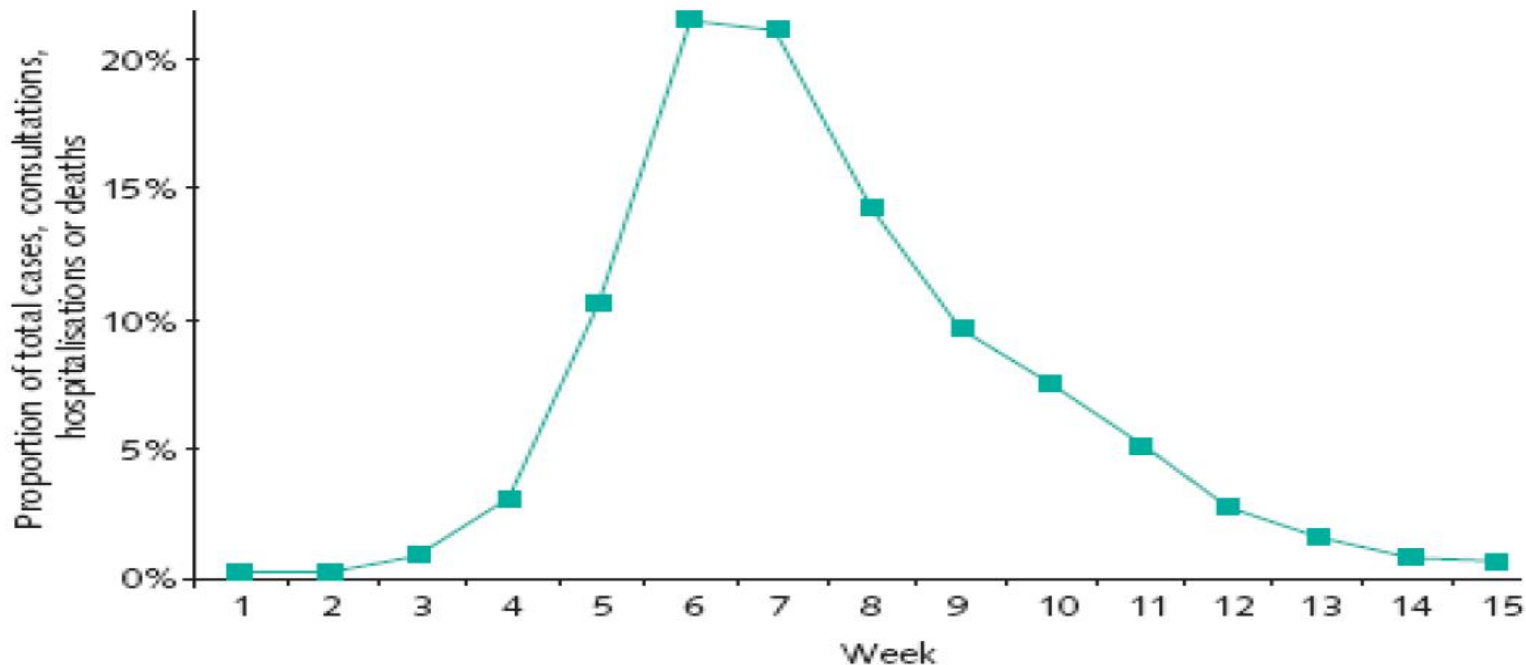
Second > First

Influenza Pandemic 1918-1919

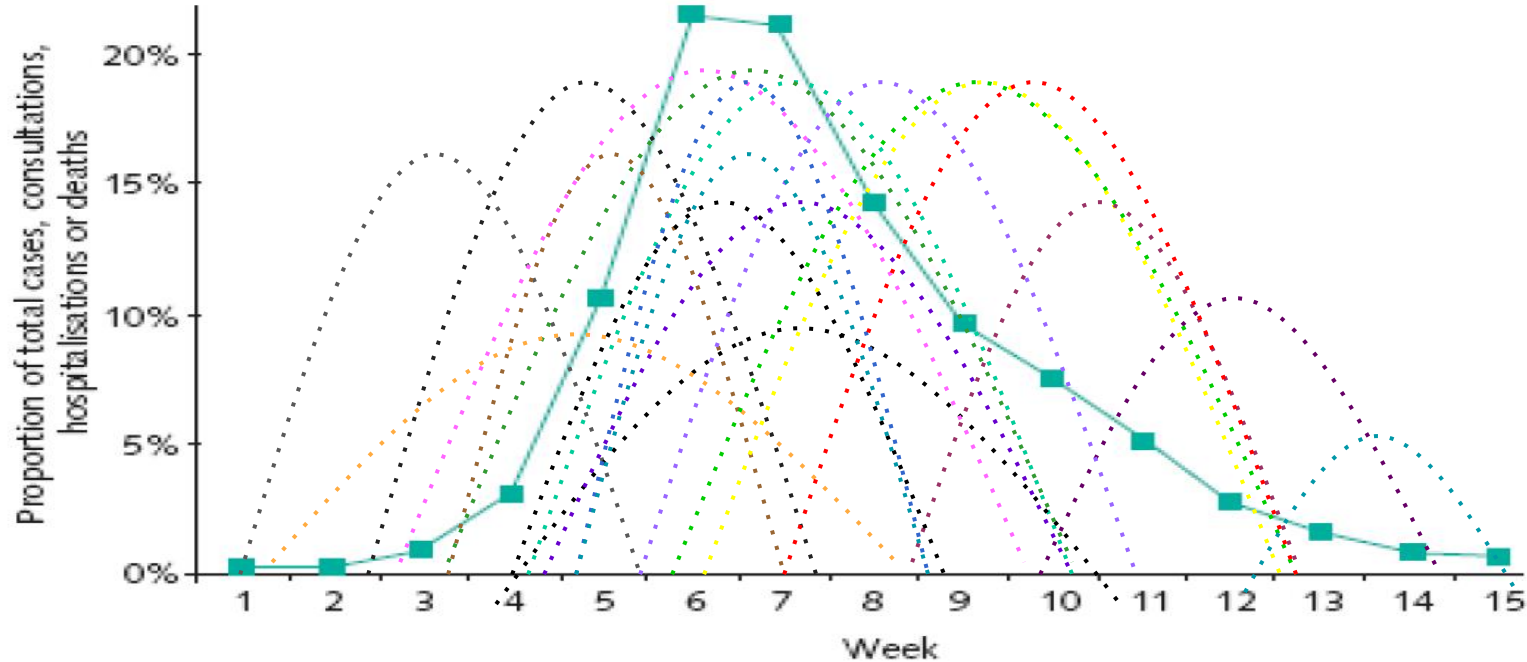
Morens and Fauci, JID 2007;195:1018-1028



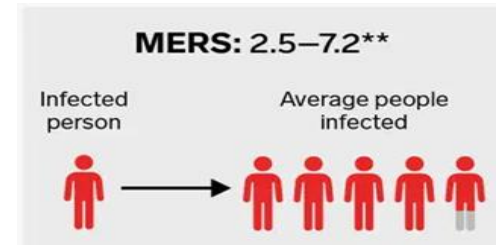
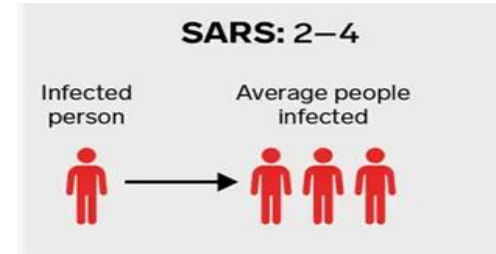
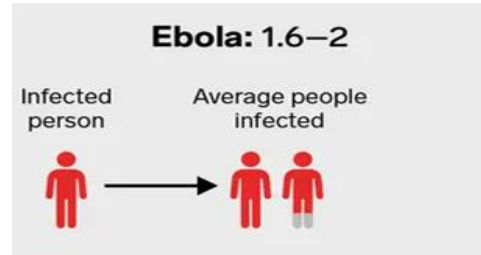
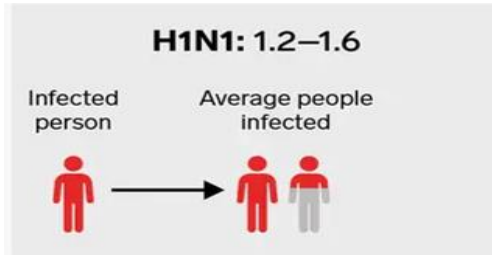
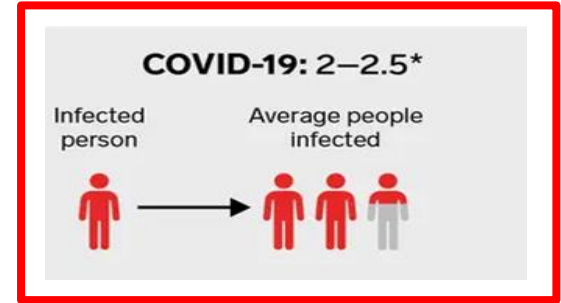
Pandemic Wave Putative National Profile (Proportion by Week)



Pandemic Wave Putative National Profile (Proportion by Week)



Contagion: COVID-19 > H1N1 & Ebola. Not as bad as SARS or MERS



SARS-CoV-2: R_0 depends on social factors

- Social distancing measures reduce the value of the effective reproduction number R .
- With an early epidemic value of R_0 of 2.5, social distancing would have to reduce transmission by about 60% or less, if the intrinsic transmission potential declines in the warm summer months in the northern hemisphere

M Anderson. How will country-based mitigation measures influence the course of the COVID-19 epidemic? Lancet ; Mar 9,2020.

SARS-CoV-2: Problem

- Most patients (80%) are asymptomatic or minimally symptomatic
- Transmission starts 1-3 days BEFORE symptoms and continues for up to 8 days (by culture), perhaps longer by PCR (upto 4 weeks)
- 71% of samples from presymptomatic persons had viable virus by culture 1 to 6 days before the development of symptoms

(NEJM April 24, 2020. DOI: [10.1056/NEJMoa2008457](https://doi.org/10.1056/NEJMoa2008457))

Asymptomatic Transmission, the Achilles' Heel of Current Strategies to Control Covid-19

Monica Gandhi, M.D., M.P.H., Deborah S. Yokoe, M.D., M.P.H., and Diane V. Havlir, M.D.

Article

Metrics

April 24, 2020

DOI: 10.1056/NEJMe2009758

- high level of SARS-CoV-2 shedding in the upper respiratory tract among presymptomatic patients
- distinguishes it from SARS-CoV-1, where replication occurs mainly in the lower respiratory tract and is associated with symptom onset, peak a median of 5 days later
- Presymptomatic influenza: lower viral load, shorter duration of shedding

Help Prevent the Spread of Infection

If you have a **fever, cough** or **difficulty breathing**, please **do not remain onsite** and contact your health care provider or Telehealth Ontario (1-866-797-0000).

Please observe the following practices while participating in any IHSA course.



Use Hand
Sanitizers
in the Building



Wash Your Hands



Cough or Sneeze
into

Your Arm or
Tissue



Avoid Close Contact with
People Who Sneeze or
Cough

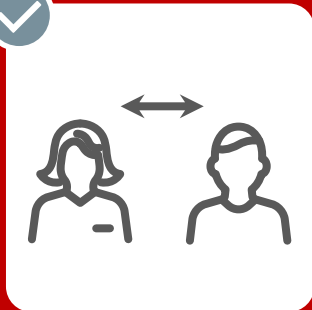


Avoid Touching
Your Eyes, Nose,
and Mouth



Avoid Coughing or
Sneezing into Your
Hands

How to Protect yourself and others



Keep distance

Protect older people
with sufficient distance

Keep your distance
when standing in line

Keep away from events
and meetings



Wash hands thoroughly

Wash your hands for
20 seconds

Soap and water are
most effective

Use hand disinfectant
if soap and water are
not available



Avoid shake hands and contact

Even if it seems
rude or unusual to
you



Sneeze into the crook of your arm or into a tissue

Discard paper tissues
immediately after use
AND wash your hands
afterwards



Stay at home with fever and cough

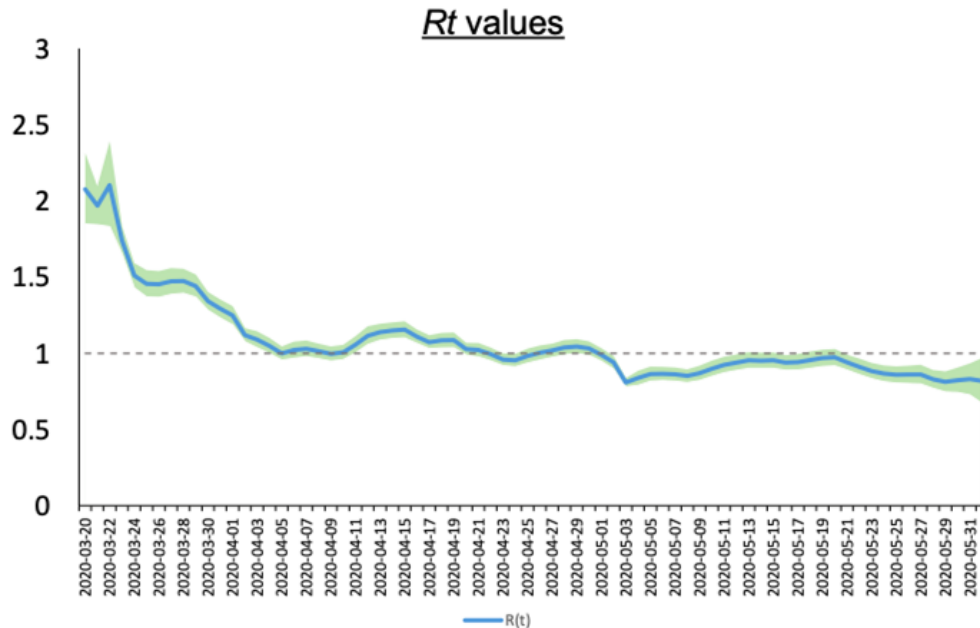
Contact your family
doctor by telephone

Public Health Measures Canada: Reproductive Rate Close to One



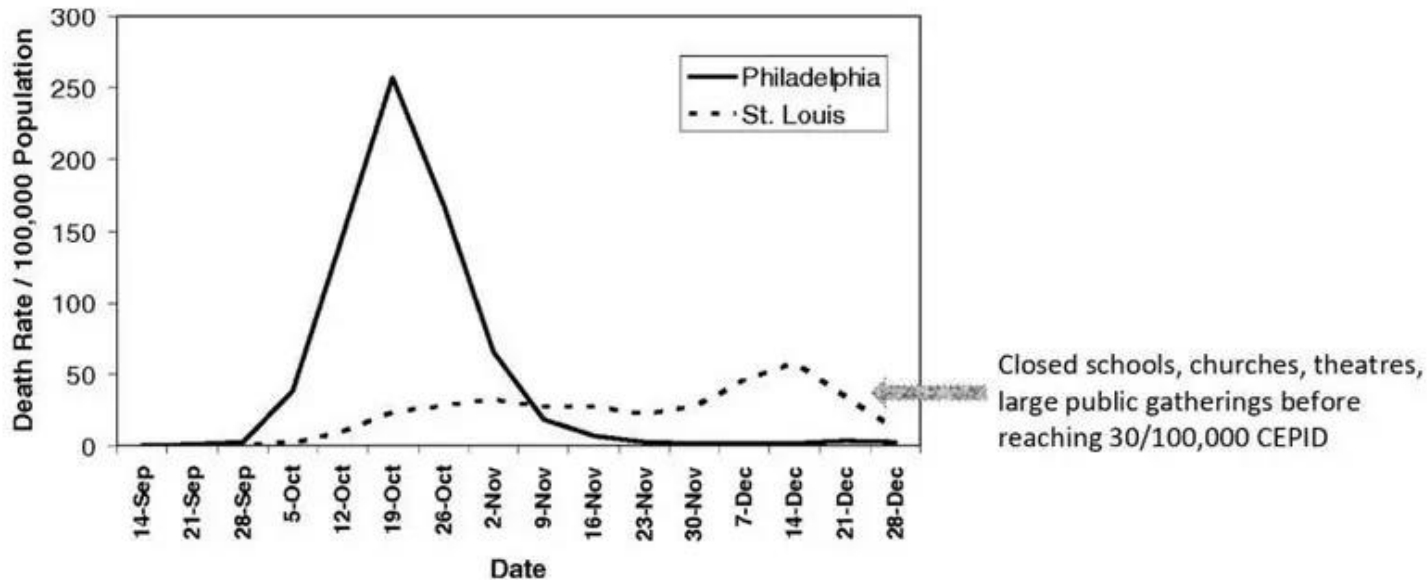
If each person infects fewer than one person on average; epidemic dies out.

Only takes one missed case to start all over again



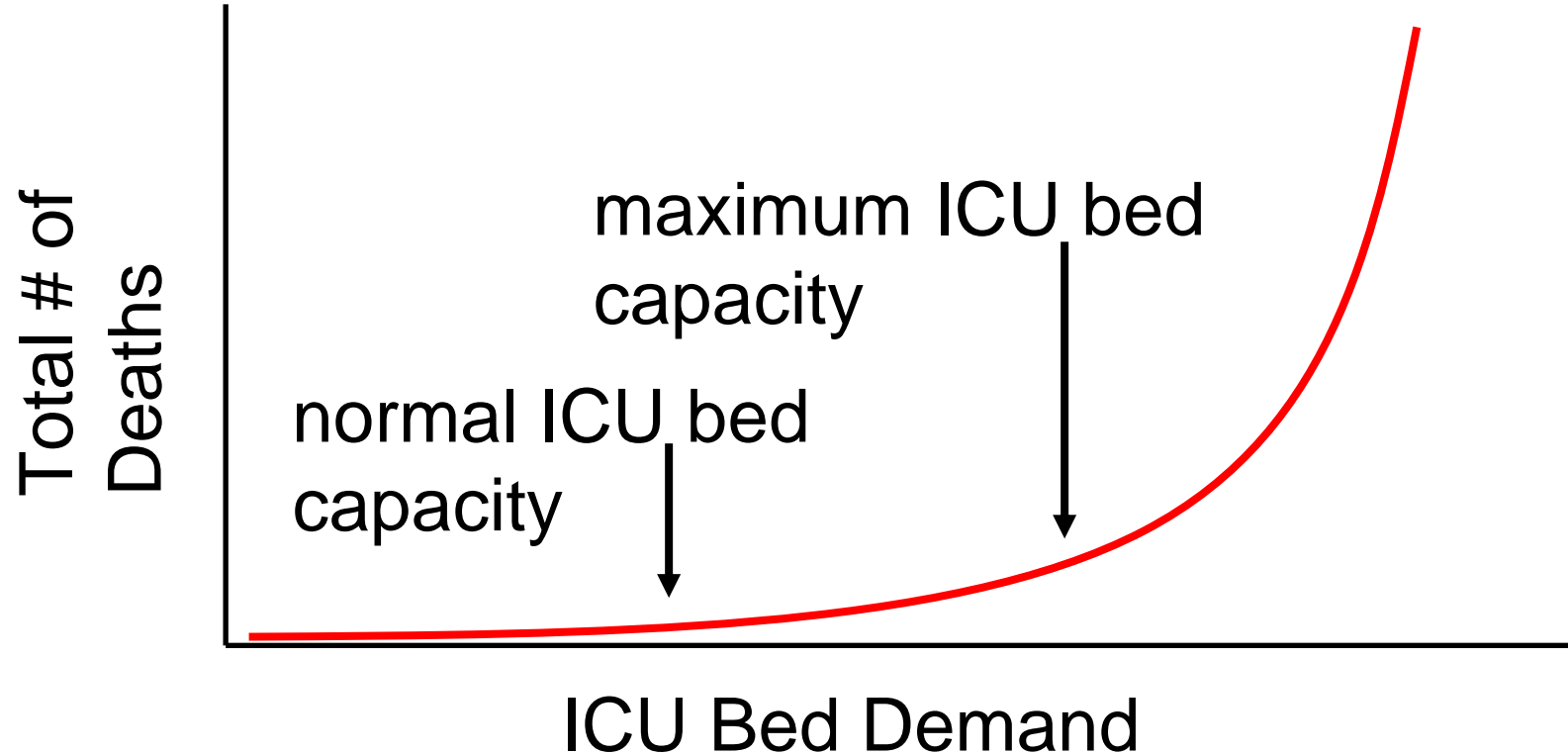
1918 Flu: Early Interventions Work

Effect of Early Interventions on Epidemic Spread in 1918



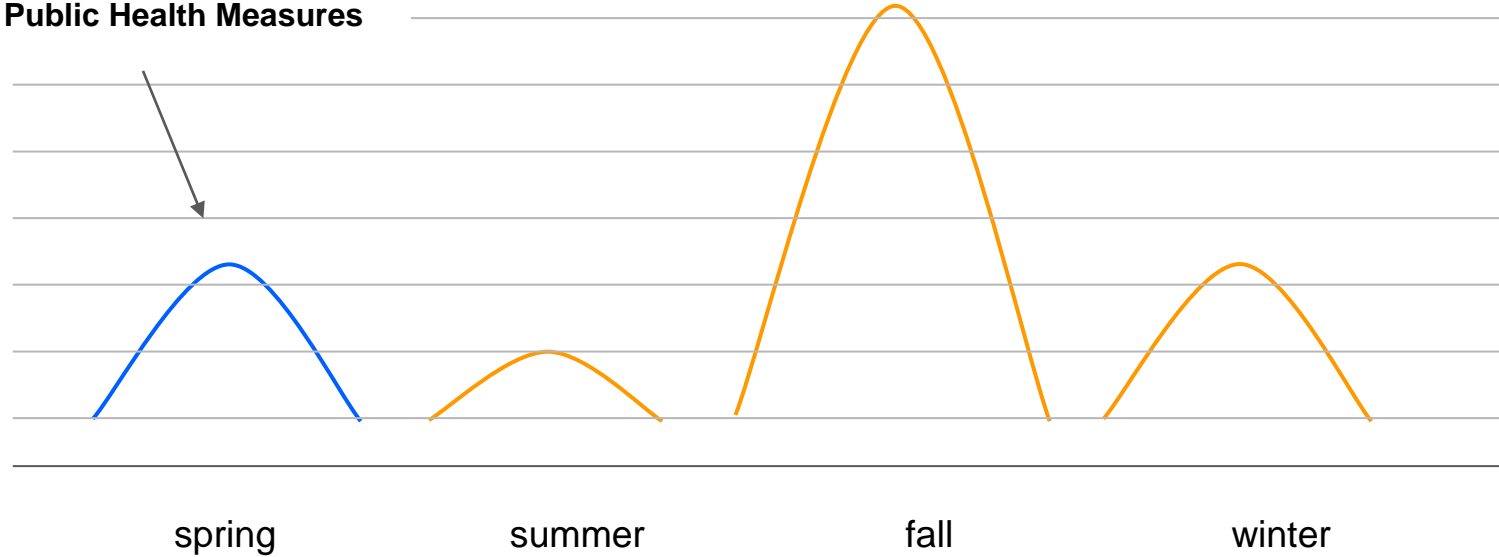
<https://www.pnas-org.stanford.idm.oclc.org/content/104/18/7582>

Deaths vs ICU Demand



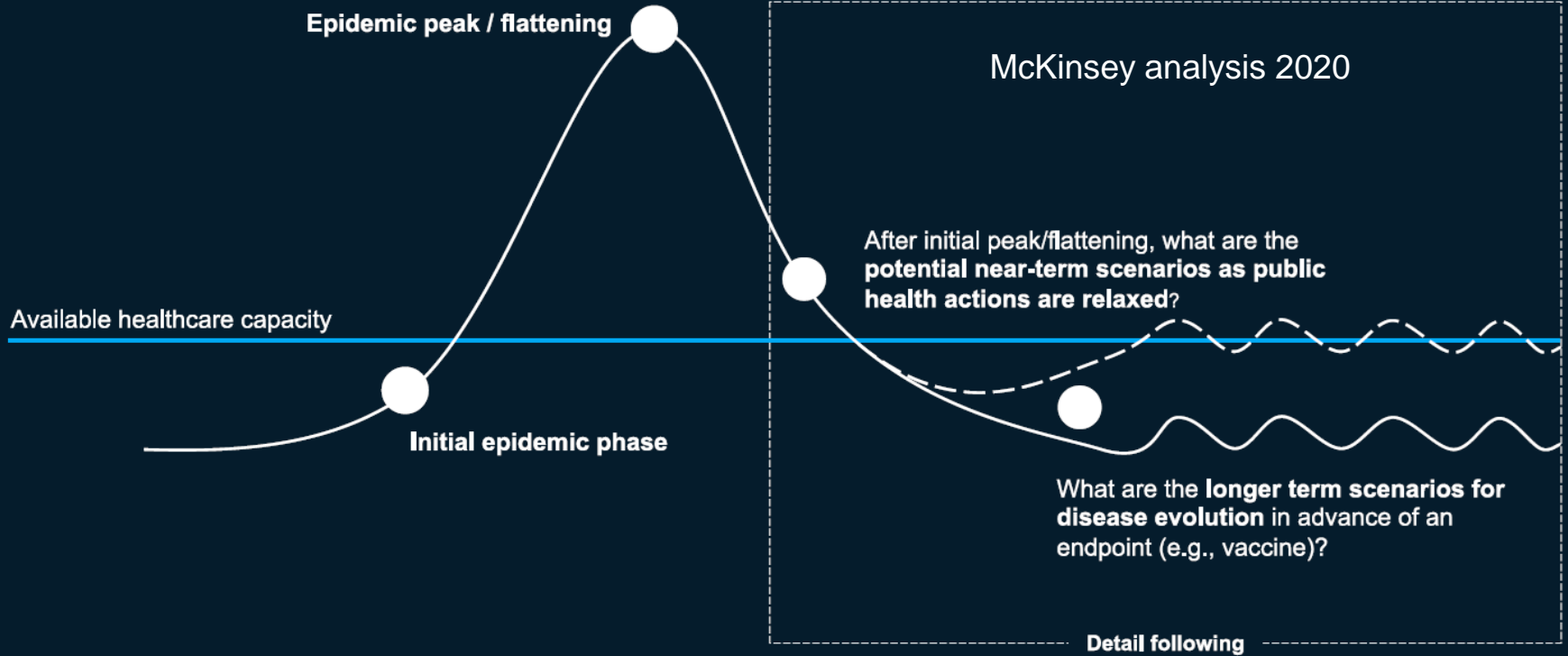
Future: Bounce Back in the Fall. Question is How Much?

Public Health Measures

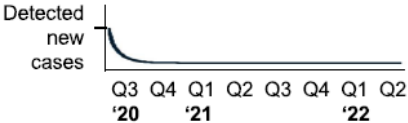



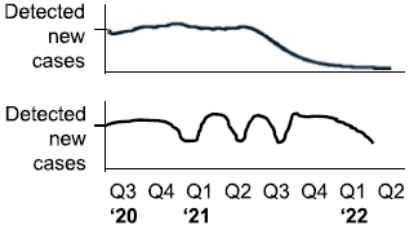



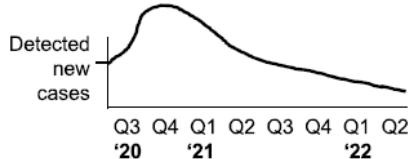


SARS-CoV-2: Uncertainty re Longer Term Trajectory

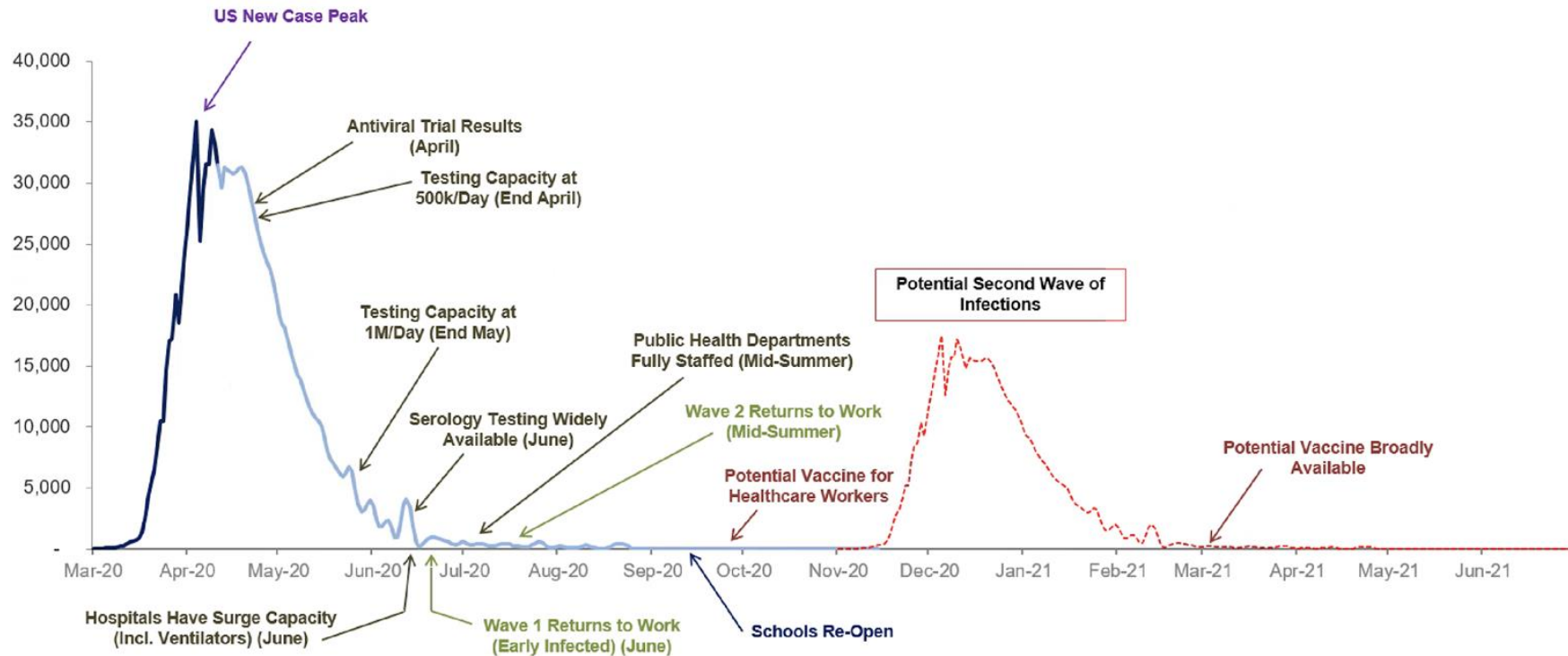
Illustrative



SARS-CoV-2

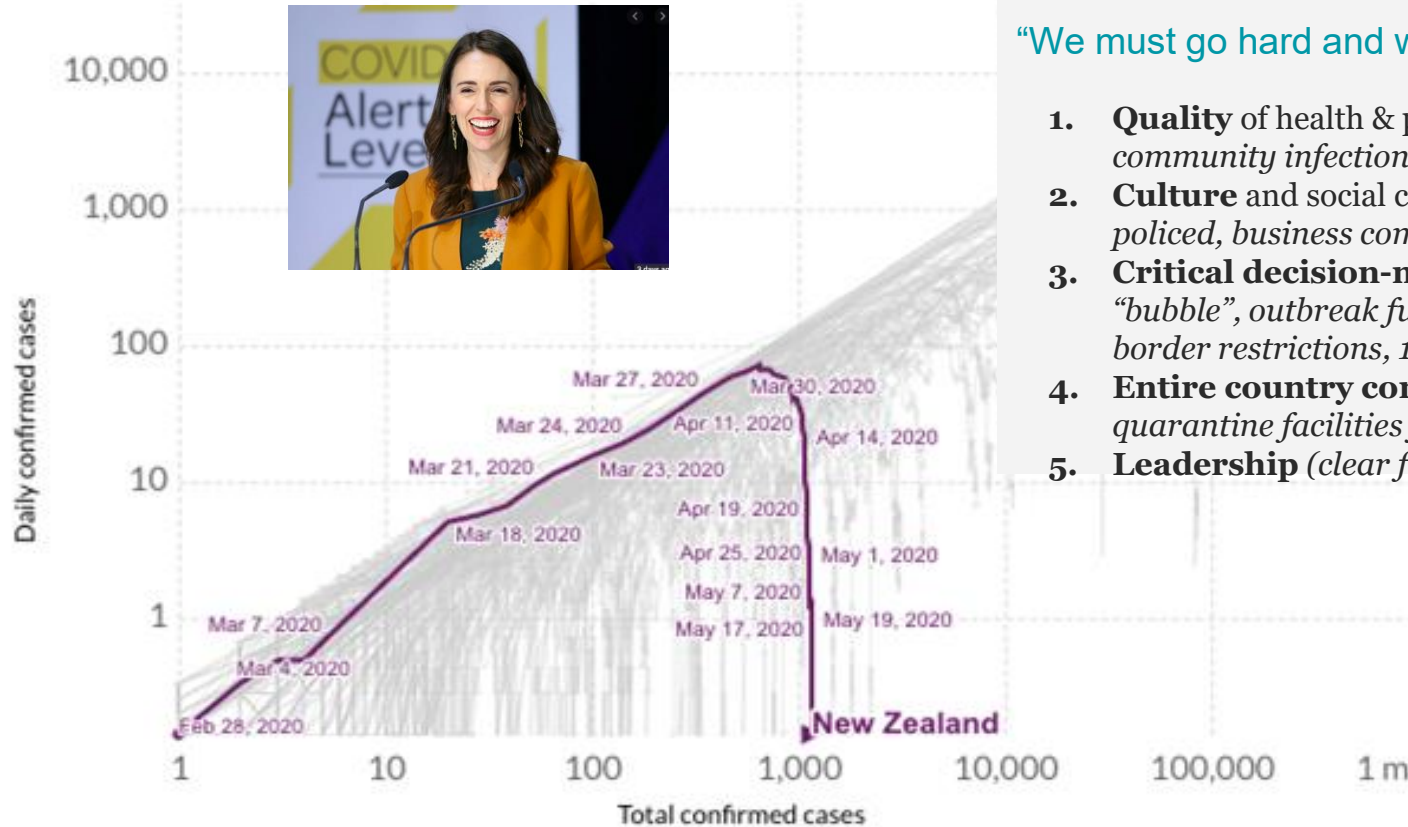
Paths forward	Description	Assumptions	Geographies that seem to follow these paths
Near-zero virus 	Lifting lockdown while implementing a collection of effective measures that eliminate transmission quickly and keep the number of cases near zero	<ul style="list-style-type: none"> Governments consistently implement and enforce control measures that able to eliminate transmission across their entire geography Governments seek to eliminate transmission quickly as opposed to achieving herd immunity 	 South Korea  Iceland  New Zealand
Balancing act: gradual or cycles 	Lifting lockdown gradually while implementing measures that keep the number of cases at a moderate level (well within the capacity of healthcare systems) but do not completely eliminate transmission Leads to persistent or oscillating transmission until herd effects are seen	<ul style="list-style-type: none"> Measures that eliminate transmission are too costly to be implemented over time, so governments relax the measures to support social and economic activity The magnitude of oscillations depend upon the speed of response to upsurge in cases 	 Germany  USA  UK
Limited response 	Lifting lockdown without effectively implementing measures that control or eliminate transmission, leading to a large resurgence and healthcare system overload	<ul style="list-style-type: none"> The measures employed by governments are not able to control transmission For instance, measures that control or eliminate transmission are too costly or unfeasible to be implemented over time and/or are not socially or politically acceptable, so governments relax the measures 	May be applicable to some low and middle income countries where lockdowns are not a feasible tool and other measures cannot be implemented effectively

SARS-CoV-2: Potential Timeline



Harrison, Morgan Stanley 2020

NZ Eliminated COVID -19: Zero New Cases, Zero Active Cases



“We must go hard and we must go early”

1. **Quality** of health & public health system (<5% community infections)
2. **Culture** and social cohesion (*strict lockdown, policed, business community called for LD*)
3. **Critical decision-making** (*24 hrs to move to “bubble”, outbreak fundamentals, escalated border restrictions, 14 day quarantine*)
4. **Entire country considered** (*test, trace, track, quarantine facilities for travellers*)
5. **Leadership** (*clear fact based, empathy, science*)

Not just a “tiny island”



SARS-CoV-2: Epidemiologic Uncertainties → Projection Uncertainty

Major Uncertainties



1. True number of cases to date

The true number of cases is only partly unknown due to asymptomatic or otherwise undetected cases. High quality seroprevalence studies are forthcoming, which will help answer this question



2. Pathways to herd immunity

Uncertainty remains regarding whether antibody presence equates to immunity, and how long this immunity to COVID-19 lasts



3. Seasonality of transmission

While some studies show a modest decrease in transmissibility of COVID-19 during warmer, more humid months¹, seasonality does not currently appear to significantly contribute to stopping the spread



4. Effectiveness and implementation of public health interventions over the medium-term

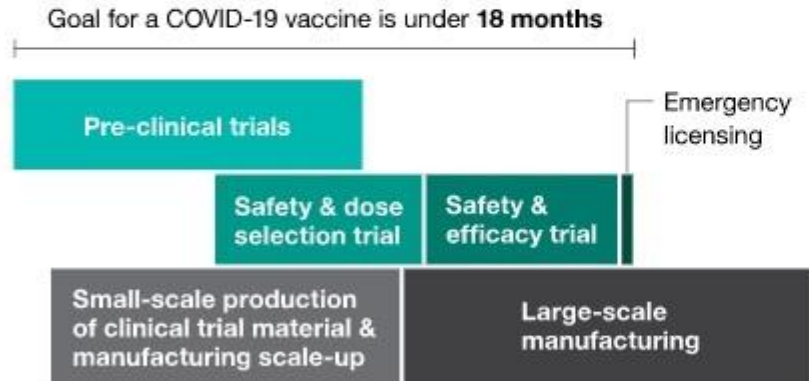
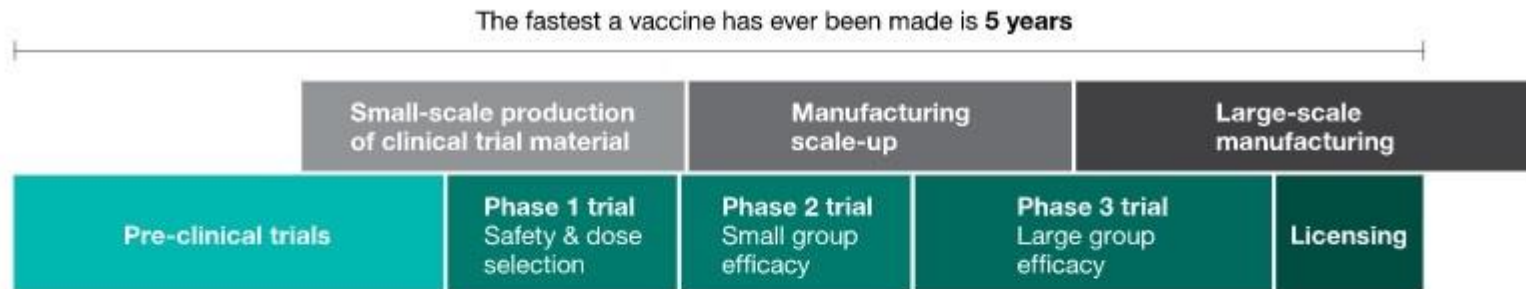
The medium-term effect of public health measures, as well as the ability to implement and maintain these measures in specific geographies, are not yet fully understood



5. Adherence to public health measures

We are still learning how people's adherence to public health interventions changes over time, which can affect the effectiveness of these interventions

SARS-CoV-2: Vaccine development to deployment



Governments will need to expedite their usual drug approval processes in order to deliver the vaccine to over 7 billion people quickly.

**How has COVID-19
impacted enterprises?**

Canada & USA Enterprise & Workplace Outbreaks

Canada Headlines

- **Montréal** farm struggles to contain COVID outbreak among migrant workers
- **Manufacturing plants**, grocery stores, delivery companies all have COVID-19 outbreaks in GTA
- How **Cargill** became the site of Canada's largest single outbreak of COVID-19
- Almost 50 workers at 3 **Vaughan** companies test positive for coronavirus

Canada Mining Sector

- **Impala Canada**, Northern Ontario mine: at least 25 workers infected and 1 worker has died
- **Imperial Oil**, Northern Alberta: at least 45 tested positive, spread to four provinces

United States Manufacturing

- **TPI Composites Iowa**, a manufacturer of wind blades: 20 percent of employees tested positive for the coronavirus. At least one worker has died.
- **LM Wind Power North Dakota**, a General Electric-owned plant that produces wind turbine blades: 145 people tested positive for COVID-19. At least one worker has died.

Manufacturing Risk: Italian Workers at Risk During COVID-19

“Disease Exposure” Risk by Sector

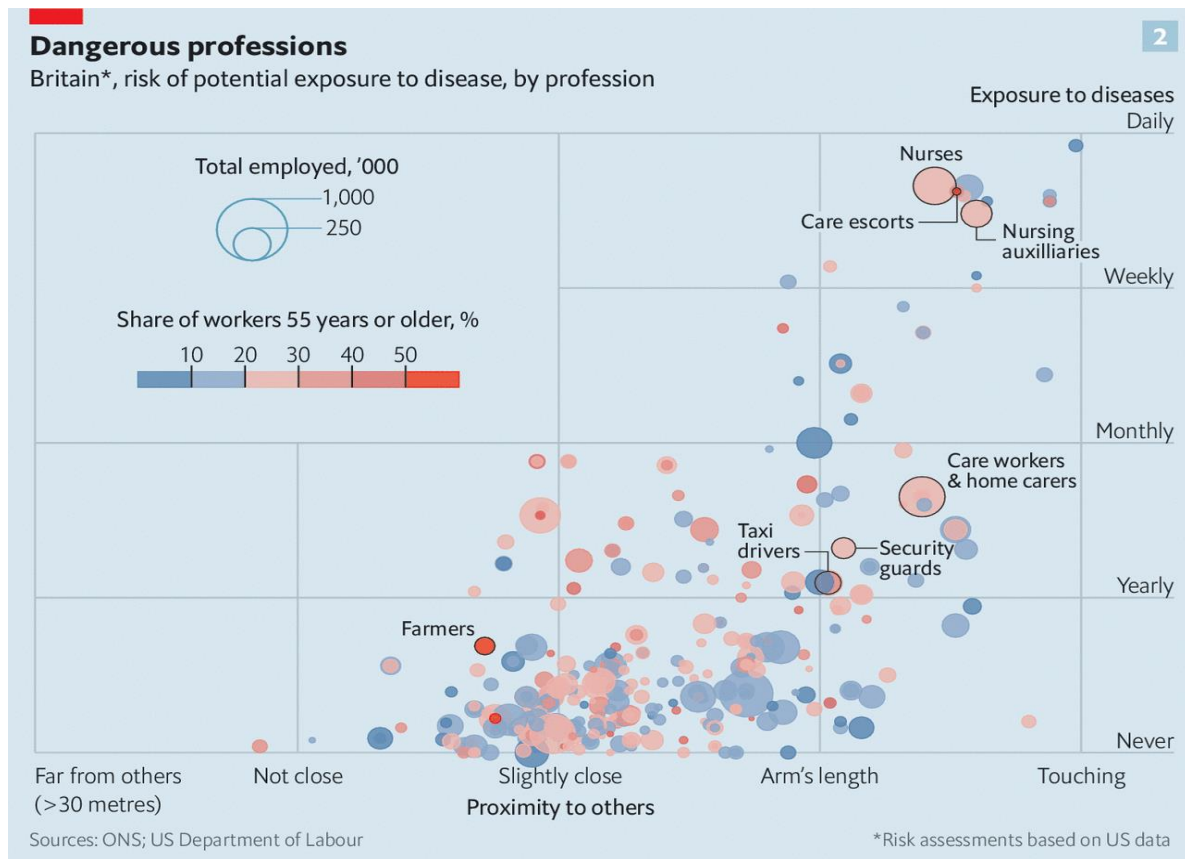
• Health	54.2
• Education	15.5
• Water/waste	13.7
• Agriculture	4.9
• Transportation	4.2
• Hotel/restaurants	2.6
• Manufacturing	1.2
• Construction	1.0
• ICT	0.3
• Total economy	8.8

Table 1. Sectoral distribution: workers' demographics composition, disease exposure and physical proximity

Sectors	Physical proximity index	% workers > 66th pct	Disease exposure index	% workers > 66th pct	Workers	% male >50 y.o.	%female >50 y.o.	% male <50 y.o.	%female <50 y.o.
A - Agriculture	30.6	5.0	4.9	50.7	887,192	31.7	11.5	42.6	14.2
B - Extraction	45.7	6.1	1.6	35.0	24,965	31.4	2.6	57.9	8.0
C - Manufacturing	52.0	10.0	1.2	8.0	4,318,814	24.4	8.0	49.5	18.0
D - Energy, gas	50.9	11.2	1.3	10.3	113,241	33.9	7.1	40.0	19.0
E - Water, waste	44.2	3.2	13.7	66.6	241,209	39.3	5.4	45.6	9.6
F - Construction	52.6	8.5	1.0	8.8	1,331,231	33.0	1.9	60.6	4.4
G - Trade	62.0	56.1	3.1	13.1	3,283,268	20.6	11.7	38.3	29.4
H - Trasportation	47.2	17.8	4.2	38.8	1,137,764	30.5	7.7	48.9	12.9
I - Hotel, restaurants	71.2	85.5	2.6	50.5	1,510,283	11.8	12.4	37.4	38.4
J - Information, comm.	50.5	8.0	0.3	1.3	619,220	21.7	9.6	48.1	20.6
K - Finance, insurance	50.4	13.5	1.0	12.8	635,502	24.9	14.5	30.4	30.2
L - Real estate	46.1	1.2	0.3	2.0	164,294	25.8	14.6	27.6	32.0
M - Professional serv.	45.3	1.5	2.2	8.9	1,512,434	20.8	12.3	31.8	35.2
N - Other business serv.	47.0	15.8	7.1	54.4	1,034,091	16.5	17.6	31.4	34.6
O - Public administr.	54.1	39.8	10.8	46.8	1,244,711	33.1	23.1	31.4	12.4
P - Education	69.3	73.1	15.5	81.2	1,580,162	13.0	39.7	11.6	35.7
Q - Health	67.0	66.4	54.0	86.7	1,923,859	15.7	27.1	14.6	42.6
R - Sports, recreational	59.7	32.5	3.6	34.0	317,876	17.5	11.3	40.6	30.6
S - Other services	57.9	42.9	13.6	67.2	709,981	14.9	19.9	22.8	42.4
T - Household activities	41.0	40.1	12.4	41.9	747,521	4.5	42.0	7.6	46.0
U - International org.	46.8	6.9	1.6	12.9	14,442	16.1	16.6	35.5	31.8
Total economy	55.2	34.9	8.8	34.1	23,352,062	21.6	15.5	36.1	26.8

Note. Authors' elaborations on ICP survey and LFS data. The table reports the size of the sectors in terms of employment, as reported by the ISTAT LFS as of the first three quarters of 2019. The average physical proximity and disease indexes reported are weighted by the 4-digit employment in each sector. The average sectoral indexes go from 0 to 100 according to the definition in section 2, where 100 means the most exposed sector. The percentage of workers exposed to physical proximity and disease exposure is calculated as described in equation (1).

SARS-CoV-2: Risk Professions



SARS-CoV-2: Possible Workplace Transmission

- Currently, respiratory droplets and contact transmission are considered to be the main transmission routes.

Jin, Y.; Yang, H.; Ji, W.; Wu, W.; Chen, S.; Zhang, W.; Duan, G. Virology, Epidemiology, Pathogenesis, and Control of COVID-19. *Viruses* 2020, 12, 372.

- Infection can also occur if a person touches an infected surface and then touches his or her eyes, nose, or mouth.
- Droplets typically do not travel more than six feet (about two meters).
- No definite evidence for aerosol transmission in community or in hospital in the absence of aerosol generating procedures

SARS-CoV-2: Possible Transmission – relatively stable on surfaces

- More stable on plastic and stainless steel than on copper and cardboard, and viable virus was detected up to 72 h after application to these surfaces
- On cardboard, the half-life of SARS-CoV-2 was longer than that of SARS-CoV and the longest viability of both viruses was on stainless steel and plastic.

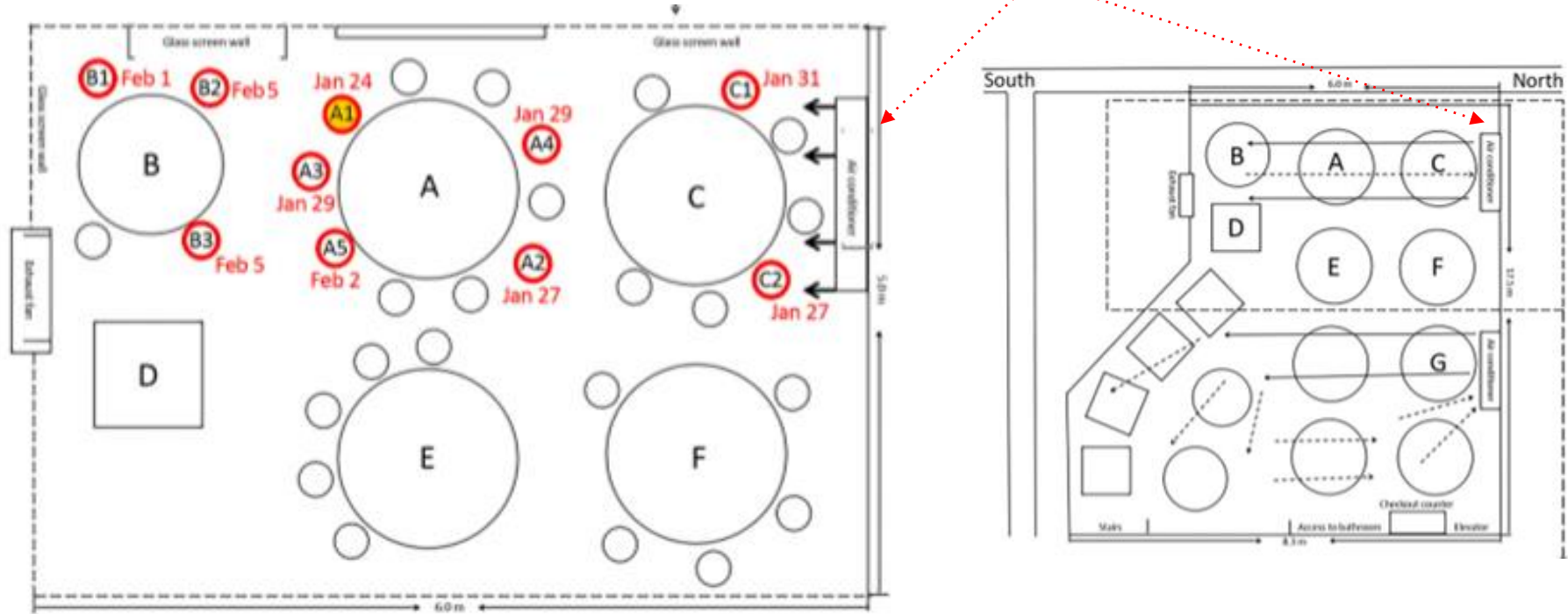
Van Doremalen, et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. *N. Engl. J. Med.* **2020**

Restaurant: Contagion associated with air conditioning, 145m²

A & B overlap: 53 minutes

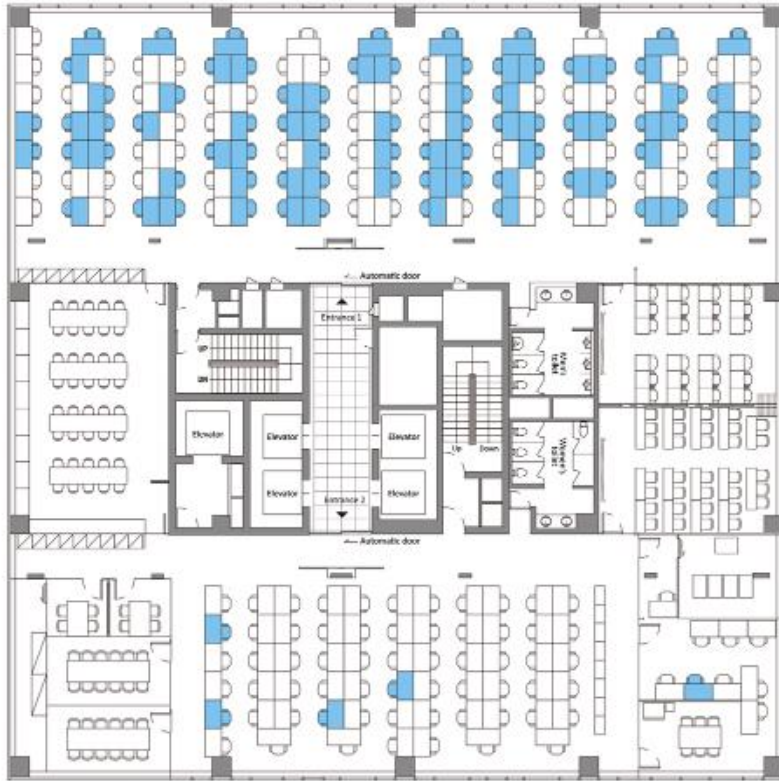
A & C overlap: 73 minutes

AC, Return Air



Source: CDC, EID Journal: *COVID-19 Outbreak Associated with Air Conditioning in Restaurant, Guangzhou, China, 2020*: Sketch showing arrangement of restaurant tables and air conditioning airflow at site of outbreak of 2019 novel coronavirus disease, Guangzhou, China, 2020. Red circles indicate seating of future case-patients; yellow-filled red circle indicates index case-patient.

Call Centre: Exceptionally contagious in crowded office setting



Of these, 94 were working in an 11th-floor call center with 216 employees, translating to an attack rate of **43.5%** (95% CI 36.9%–50.4%).

The household secondary attack rate among symptomatic case-patients was **16.2%** (95% CI 11.6%– 22.0%).

Of the 97 persons with confirmed COVID-19, only 4 (**1.9%**) remained asymptomatic within 14 days of quarantine, and none of their household contacts acquired secondary infections.

Extensive contact tracing, testing all contacts, and early quarantine blocked further transmission and might be effective for containing rapid outbreaks in crowded work settings.

Source: CDC, EID Journal: *Coronavirus Disease Outbreak in Call Center, South Korea*. Floor plan of the 11th floor of building X, site of a coronavirus disease outbreak, Seoul, South Korea, 2020. Blue coloring indicates the seating places of persons with confirmed cases

Hot spots for contagion within a manufacturing environment

Toilets: SARS-CoV-2 present in stools; potential for aerosol

Floors: SARS-CoV-2 virus droplets float to the ground

Changing rooms: brought in on soles of shoes

Shared eating places: droplet transmission and AC airflow

Air outlets: air up or downstream from case

Object surfaces: partitions, window handles, counters, door frames, computer mice, garbage cans, handrails, door knobs, elevator buttons, light switches, touch screens, key pads, toilet handles, water fountain handles; coffee pot, fridge handle

Masks: PPE requires training to be effective (autoclave or dispose effectively); surgical masks 50% effective; mask external surface should be assumed to be contaminated

Risk Mitigation

Mitigate Risks: Ahead of COVID-19, Preventative Measures

Universal Infection control policies and procedures

- Cough and hand hygiene
- Masks, other PPE (*efficacy requires proper training)
- Reduction in working across multiple sites, casualization
- Changing flow patterns, spacing/partitions
- Decontamination of high use areas (disinfectant sprays/UV light)
- Risk communications, monitoring and reinforcement of control policies
- Decrease work density –shifts?
- Sick leave and policies on “when to stay home”, “how long” *[see UMan/NML study 8 days]*

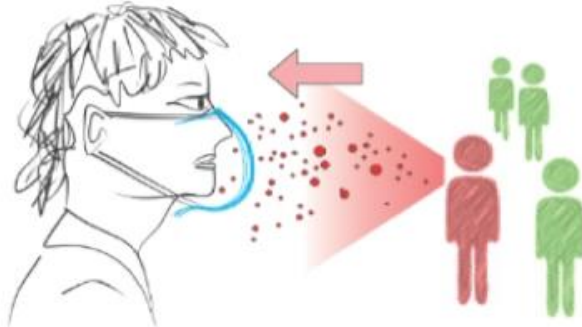
Don't wait for
public health, but
contribute to
provincial
response

Rapid Response Capabilities in Place

- Isolation systems and processes
- Contact tracing systems and processes, including visitors to workplace
- Enterprise risk communications
- Stockpiling PPE

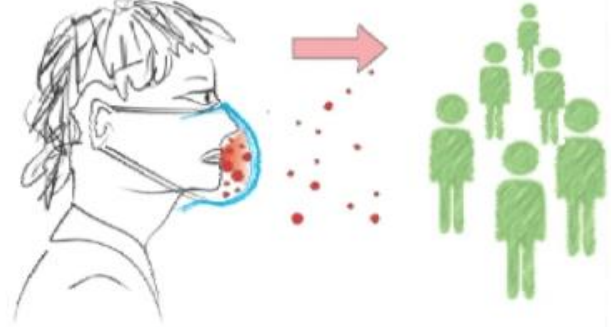
Mask and their uses

protecting yourself
(inward protection)



particles leaked through mask	particles produced in environment
TEA CLOTH (home made)	100 (reference value)
33	
SURGICAL MASK	
25	
FFP2 (=N95 equivalent)	
1	

protecting others
(outward protection)



particles produced by coughing	particles leaked into environment
100 (reference value)	TEA CLOTH (home made)
	90
	SURGICAL MASK
	50
	FFP2 (=N95 equivalent)
	30

SARS-CoV-2: Very sensitive to disinfectants

- SARS-CoV-2 can be inactivated by UV or heated at 56 °C 30 min
- Also sensitive to most disinfectants such as diethyl ether, 75% ethanol, chlorine, peracetic acid, and chloroform, vaporized hydrogen peroxide, peracetic acid fogging

General Office of National Health Commission; General Office of National Administration of Traditional Chinese Medicine. *Diagnostic and treatment protocol for Novel Coronavirus Pneumonia*; (Trial version 6). Available online.

Mitigate Risks: Ahead of COVID-19, Preventative Measures (cont)

Advanced Engineering Measures

- Create isolation rooms, oxygen therapy
- Autoclaving N95 respirators for reuse
- Partitions to prevent spread of droplets
- Prevent aerosolization from plumbing (toilets)
- High efficiency AC changes with directed airflow
- High-efficiency particulate air filtration
- Ultraviolet germicidal irradiation (**via robots**)

Detection (*for large corporations*)

- Infrared Fever Detection Systems: predict fever better than self reports [check]
- ??? rapid DNA testing
- Seroprevalence analysis (when available)
- Remote workforces

Mitigate Impact: Once COVID-19 +ve identified

- **Quick response is critical to limit impact**
 - Rapid identification and triage procedures
 - Isolation of cases
 - Effective contact tracing
- **Isolation support**
 - Regular contact : “How are you?”: reduction in anxiety, fear, suicide ideation
 - Mental health supports for HR
 - Monitoring & tracking clinical symptoms, oximeter
 - Supports, access to groceries, pharmacies etc
- **Return to work**
 - Sanitize environments
 - Occupational health supports
 - Immunity, front of house
 - Vaccination readiness

**Limit
spread
and
enterprise
impact**

Tools Available to Help CEOs

SARS-CoV-2: Manufacturers Tips

HR policies

Staff who choose to go home and are not ill are given unpaid leave

HR policies

Corporate developed a COVID-19 playbook for step-by-step instructions which is updated every couple of days

HR policies

All employees are required to sanitize their hands when entering the facility and fill out health declaration forms

HR policies

Requested staff avoid carpooling when possible

HR policies

All employees have been trained on this disease and are well aware of the issues if someone they know or a family member becomes infected

Training and monitoring

Embarked on an education campaign for all our employees – weekly updates and notices covering how the virus is spread, ways to protect oneself, preventative measures, and what to do if symptoms are experienced, etc.

Training and monitoring

Education and practice on physical distancing

Training and monitoring

All employees are trained to know the signs and watch each other

Training and monitoring

Monitor employees and send any employees displaying signs and symptoms of the flu home

Scheduling

Completely segregated all three shifts of production works and management. We leave 20 minutes between shifts so nobody even sees the next shift. Once the first shift is gone, the next shift arrives and carries on. Management is also spread over all three shifts. This would allow us to have two shifts still producing product if one shift goes down

Cleaning and sanitizing
Employees sanitize work station before start and end of shift

Cleaning and sanitizing
Increase in cleaning frequencies and cleaning standards

HR policies

Staff can voluntarily go home if they request

HR policies

Staff who choose to go home and are not ill are given unpaid leave

HR policies

Corporate developed a COVID-19 playbook for step-by-step instructions which is updated every couple of days

Restricted Access and Physical Distancing

Tape directional arrows on the ground for one way entrance into bathroom and one way exit back onto the Plant Floor.

Training and Monitoring

Have a COVID-19 team monitor social distancing practices

Restricted access and physical distancing

Mark areas where crowds normally form with 6 ft (2 m) increments (e.g. punching in and out at the clock)

Restricted access and physical distancing

Only two people at the handwashing stations at a time.

Protective gear and equipment

Production line shields (e.g. plexiglass)

Restricted access and physical distancing

Lunchroom table dividers to physically separate diners.

Training and Monitoring

Thermometer checks at the entrance of the building (with employees permission)

Restricted access and physical distancing

No outside visitors; only employees allowed in the plant

Restricted access and physical distancing

Blocking doors open so that the handles do not need to be touched

Restricted access and physical distancing

6 ft (2 m) of separation between people at ALL times.

Restricted access and physical distancing

Stopped all in-person meetings

Restricted access and physical distancing

Only 1 employee allowed in the change room at a time

Restricted access and physical distancing

All employees are asked to participate in physical distancing until further notice

Lunch and breaks

Lunchroom is closed

Lunch and breaks

Only coffee is being provided and signs are up to allow only one person to get coffee at a time. The coffee is wiped down after.

Lunch and breaks

Only five people allowed in the lunchroom at a time and only one per table (physical distancing)

Lunch and breaks

Sanitize lunchroom every two hours

Lunch and breaks

Management eat lunch at their desk

Cleaning and sanitizing

An employee is dedicated to disinfecting all doorknobs, light switches and all equipment.

Cleaning and sanitizing

Increased professional cleaning and sanitization of all areas (outside contractor)

Cleaning and sanitizing

Advising and encouraging frequent hand washing and sanitizing

Cleaning and sanitizing

Provide hand sanitizer, cleaning wipes, cleaning solution, cleaning products to all areas of the plant and office for employees to clean during the shift between workers.

Cleaning and sanitizing

All staff required to wash their hands when entering the facility

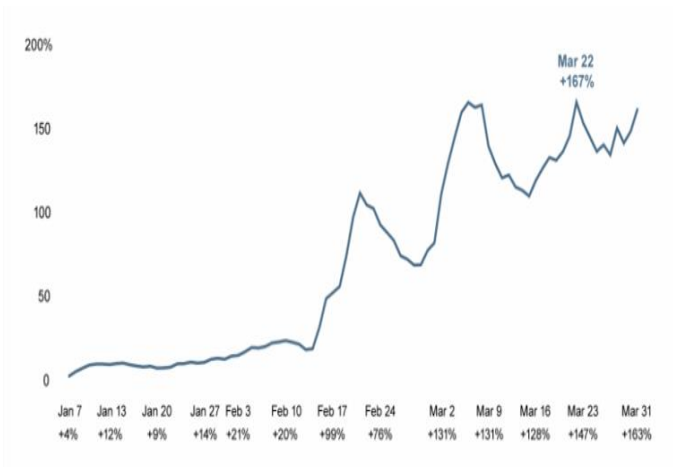
Cleaning and sanitizing

Sanitize lunchroom every two hours

Future: Rise in Virtual Care: Buyer Beware. Products Clinically Disproven Being Pitched.

COVID -19 Accelerate the Adoption of Virtual Care Globally

*Visits to Singapore's MyDoc platform have risen
more than 160% since the beginning of 2020*



People Pitching Products that are Proven in Clinical Studies Not to Work, Evidence Mixed or Experimental (Unproven)

Alarm clock

Symptom checking

Exposure notification /Isle of Wight Results

"The Isle of Wight programme has been enormously successful and take-up rates have been huge. But it did teach us one important lesson: that people wanted to engage with human contact tracing first, and quite reasonably regarded the app as a supplementary and additional automated means of contact tracing

Thank You

Contact for follow up:

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