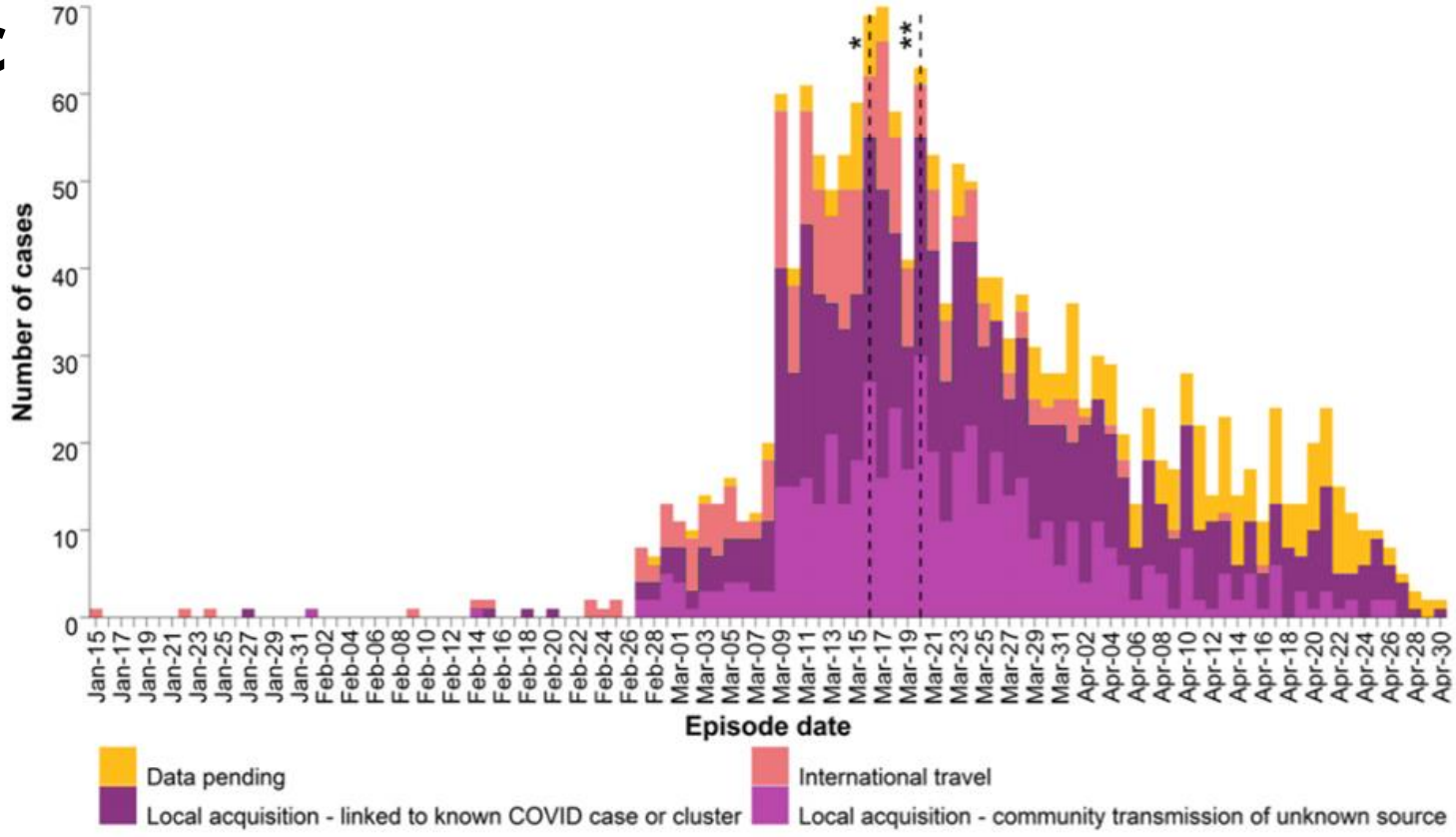
COVID-19: Going Forward

- Prepared for BC Ministry of Health
- May 4, 2020

Epidemiology

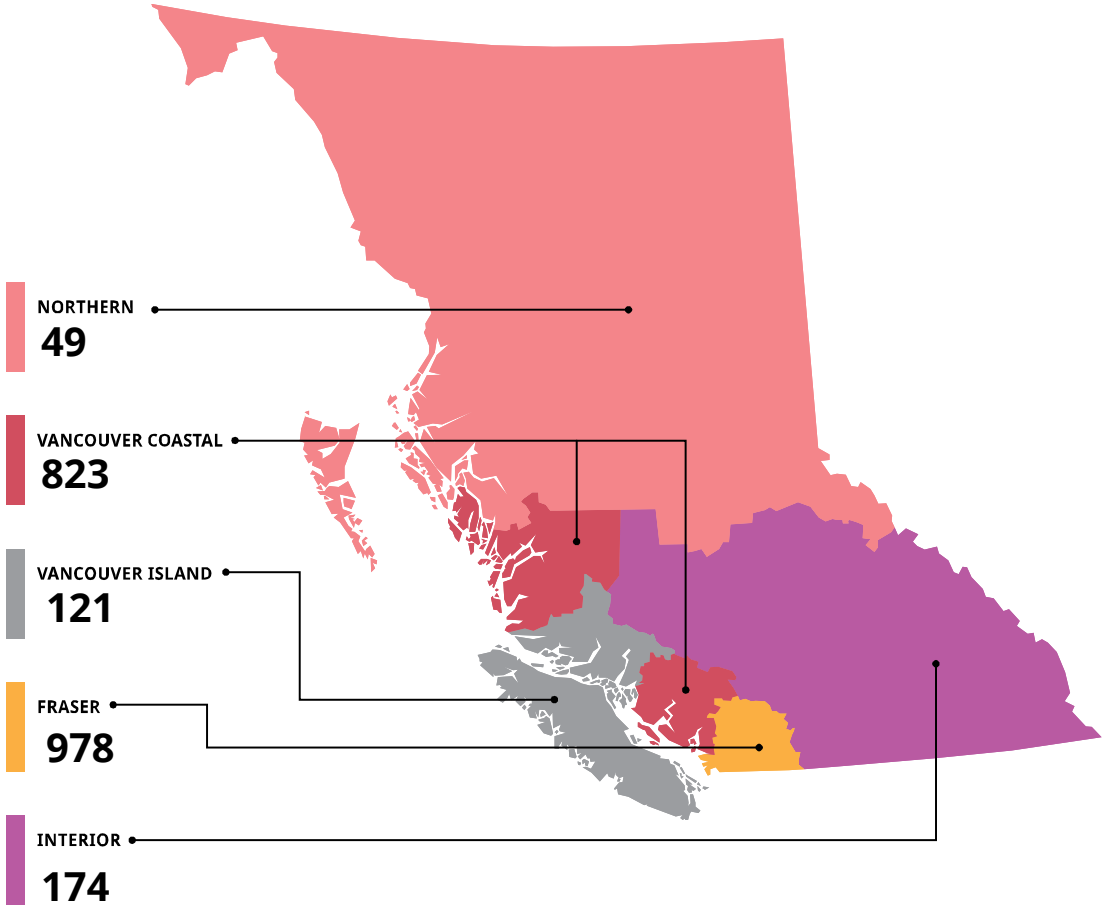
How The Virus Has Affected People in BC

Epidemic Curve



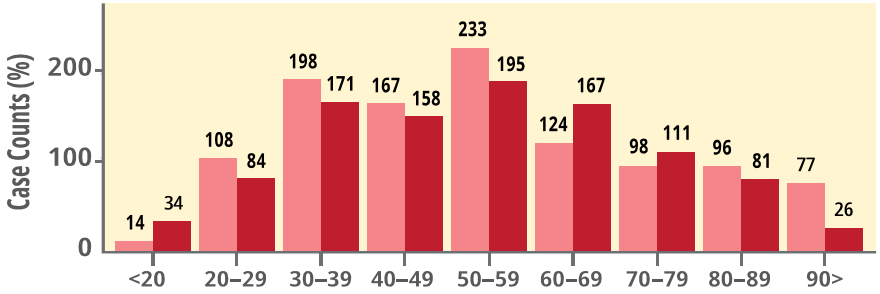
Likely source of infection for COVID-19 cases in BC by episode date, January 1 to April 30, 2020 (N=1,755).

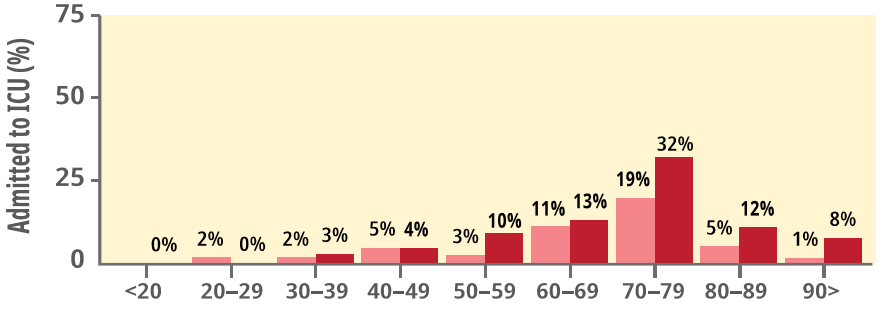
Confirmed COVID-19 cases in BC by Regional Health Authority

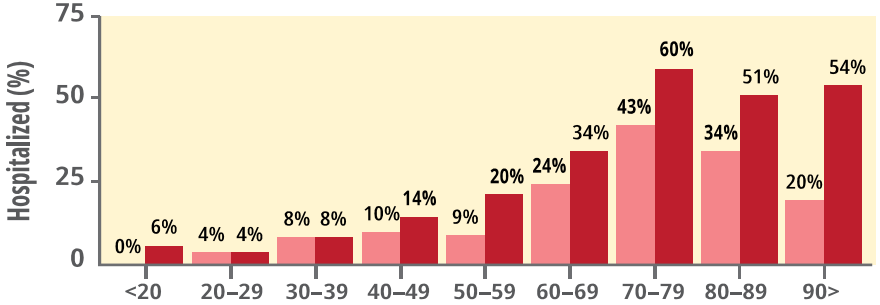


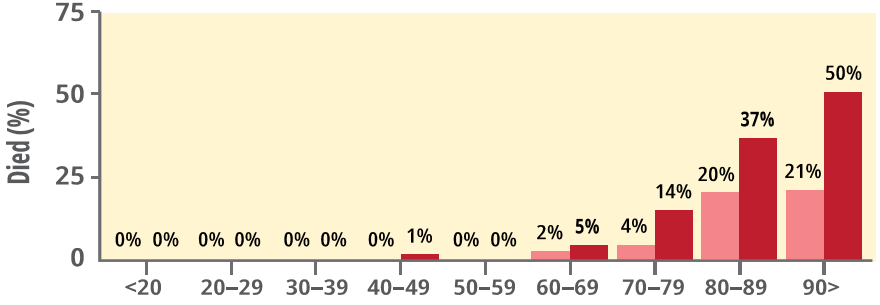
*Data from January 1 to April 29, 2020.

Outcomes By Age And Gender









Age Groups by Years

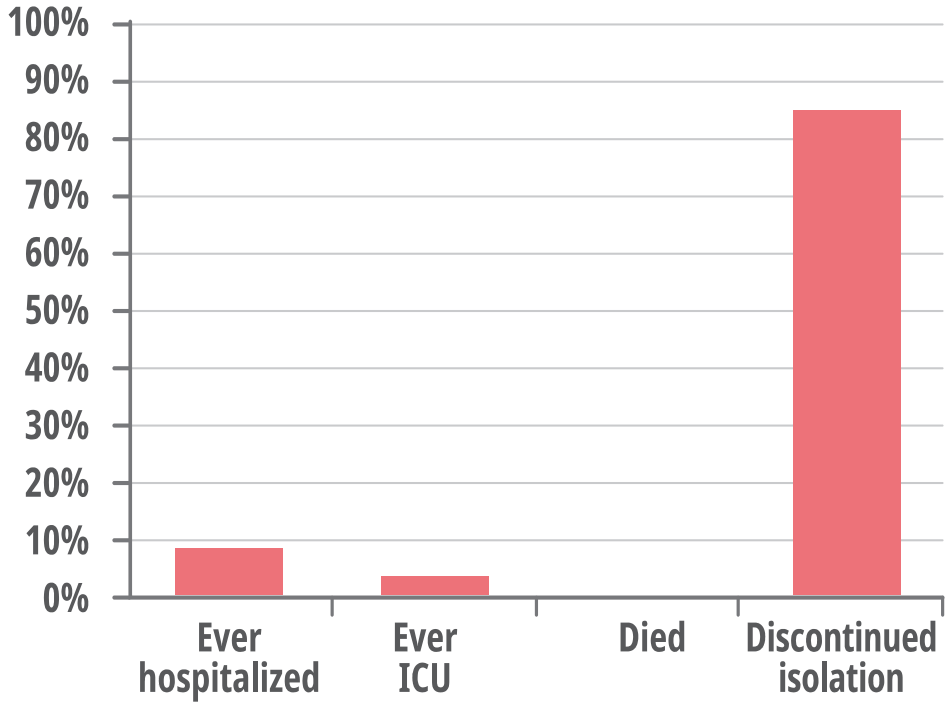
Female Male

*Data from January 1 to April 29, 2020.

Outcomes For Health-care Workers

As of April 28, health-care workers represented 428 (21%) of COVID-19 cases reported in BC.

	Health Care Worker	
	#	%
Ever Hospitalized	33	8%
Ever ICU	13	3%
Died	1	0%
Recovered	364	85%



Outcomes For People With Additional Risk Factors

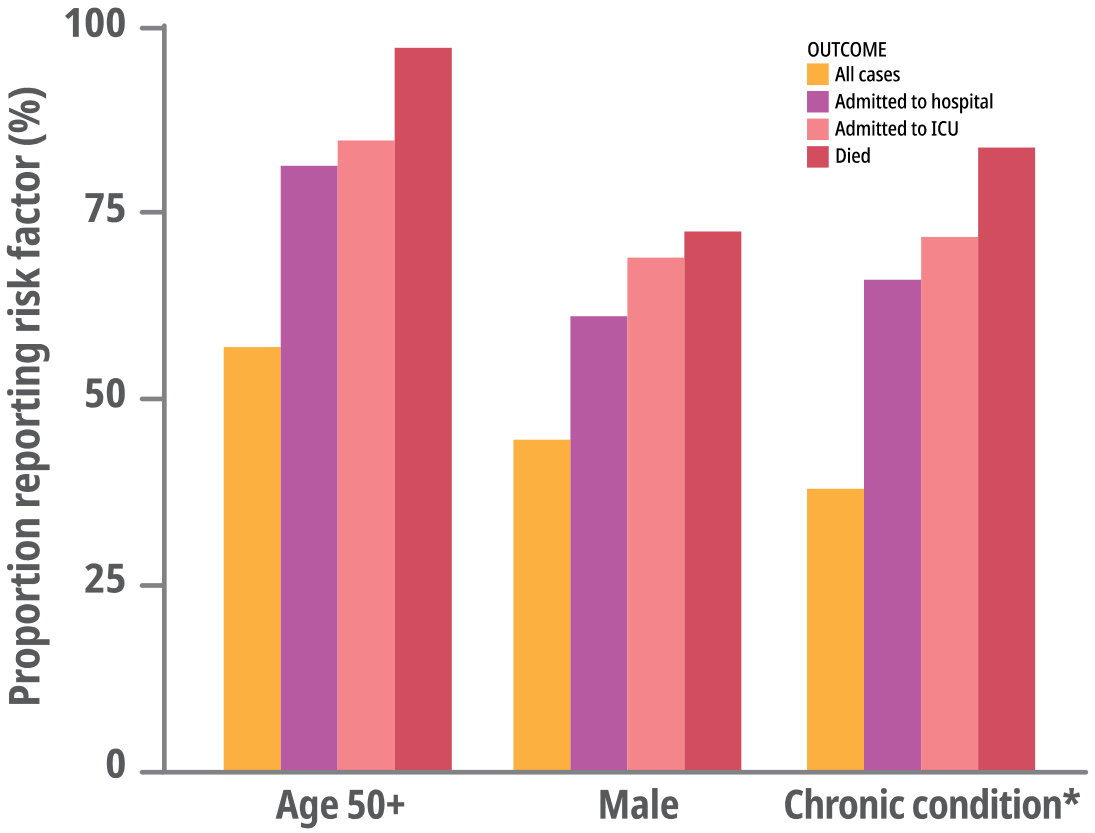
As of April 30, 2020, 1373 of the confirmed COVID-19 cases in BC reported additional risk factors.

	Reported Outcome							
	All Cases		Admitted to Hospital		Admitted to ICU		Death	
Risk Factor	#	%	#	%	#	%	#	%
Age 50+	781	56.9%	253	81.1%	76	84.4%	66	97.1%
Male	617	44.9%	190	60.9%	62	68.9%	49	72.1%
At least one chronic condition†	502	37.7%	198	65.6%	64	71.1%	56	83.6%

Outcomes for People With Additional Risk Factors

As of April 30, 2020, 1373 of the confirmed COVID-19 cases in BC reported additional risk factors.

* Includes cases who reported “Yes” to any of cancer, cardiac disease, diabetes, liver disease, neurological/neuromuscular disorder, renal disease, or respiratory disease.

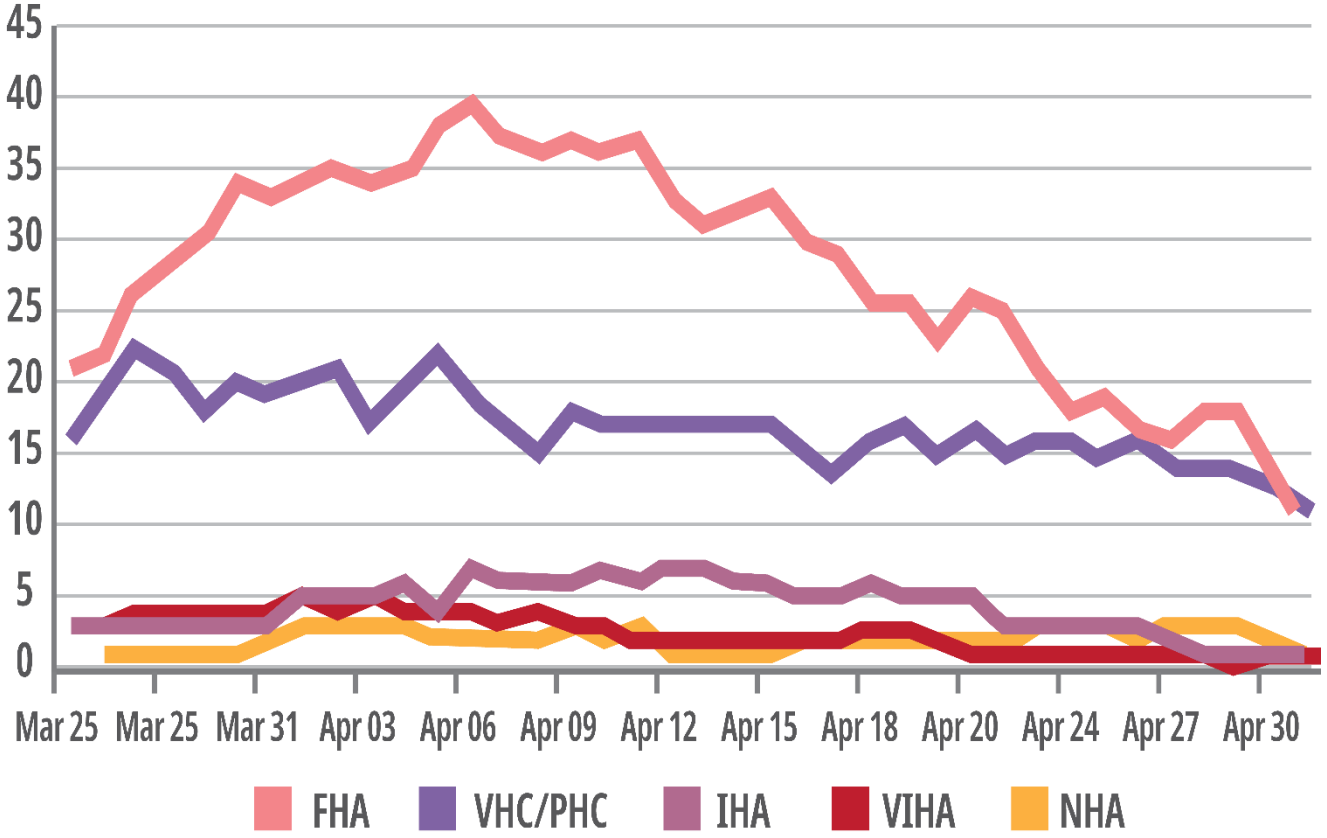


Outcomes for People Who Have Received Critical Care

- Number of COVID-19 cases admitted to critical care = **199**.
- Number of critical care COVID-19 cases that have died in hospital = **28** (14.1%).
- Number of critical care cases that have been discharged from hospital = **110** (55.2%).

Data from January 1 to April 29, 2020.

Number of ICU Cases Per Day Per Health Authority

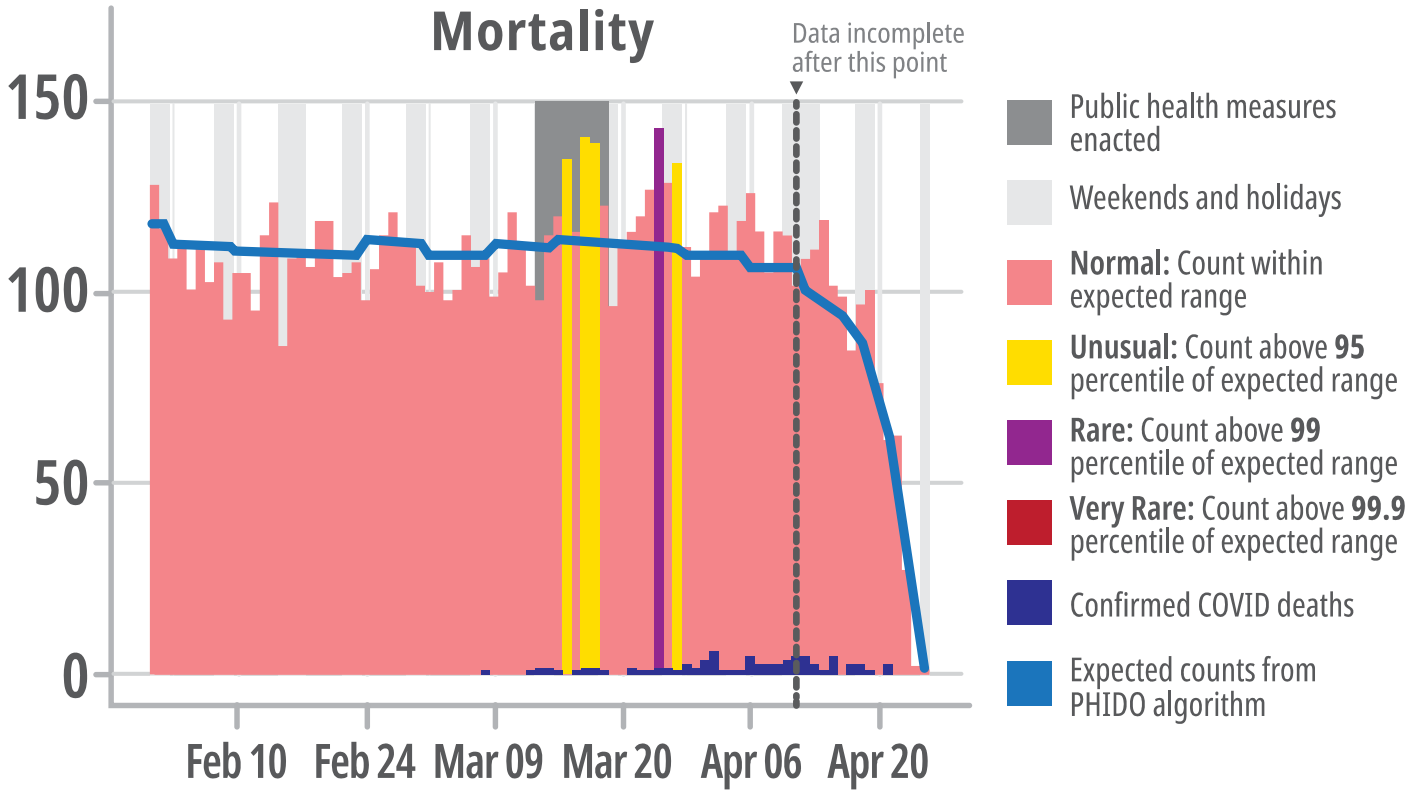


Data from January 1 to April 29, 2020.

Excess Deaths

~170 excess deaths since March, of which 111 have been attributed to COVID-19.

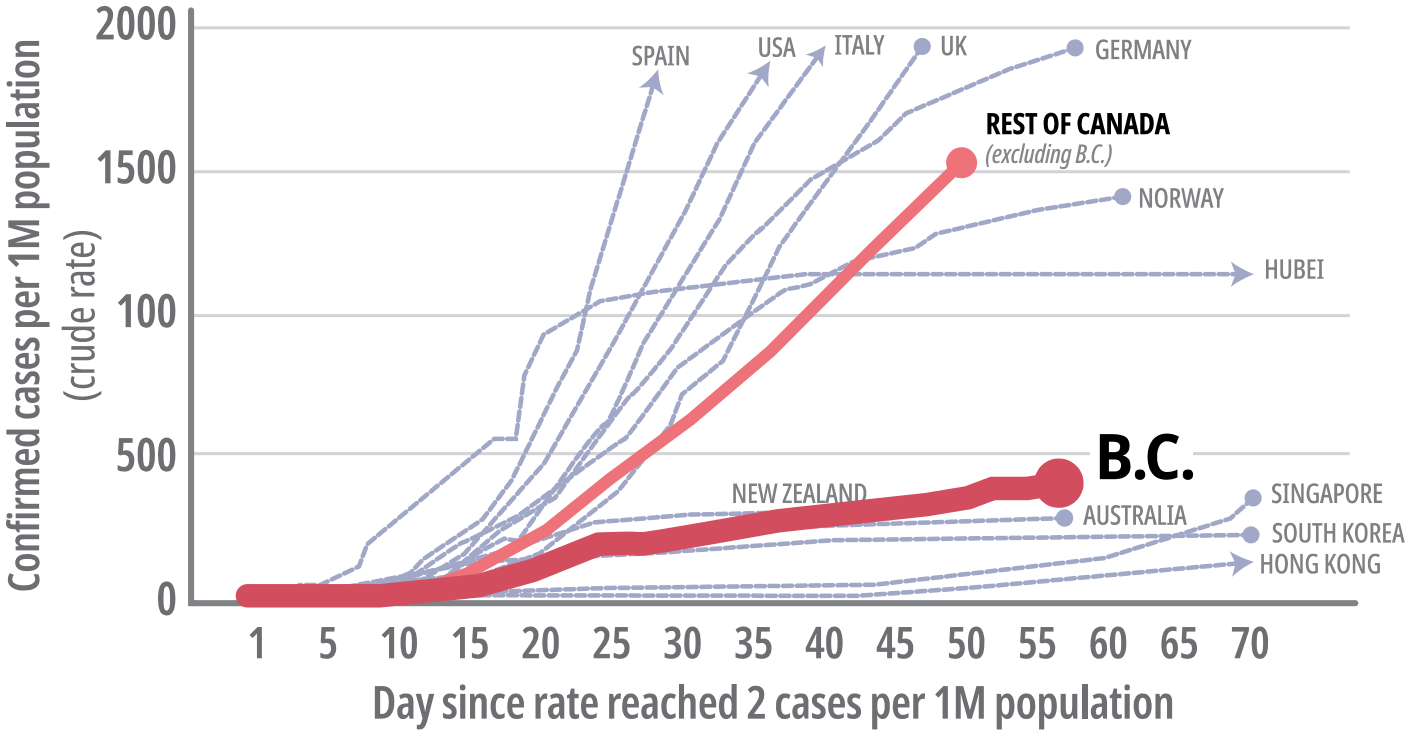
- 170 excess deaths is a 2.7% increase over expected.
- ~60 excess deaths not attributed to COVID-19 in ~60 days.



Case Rates Comparison

Cumulative diagnosed COVID-19 case rates by select countries vs BC and Canada.

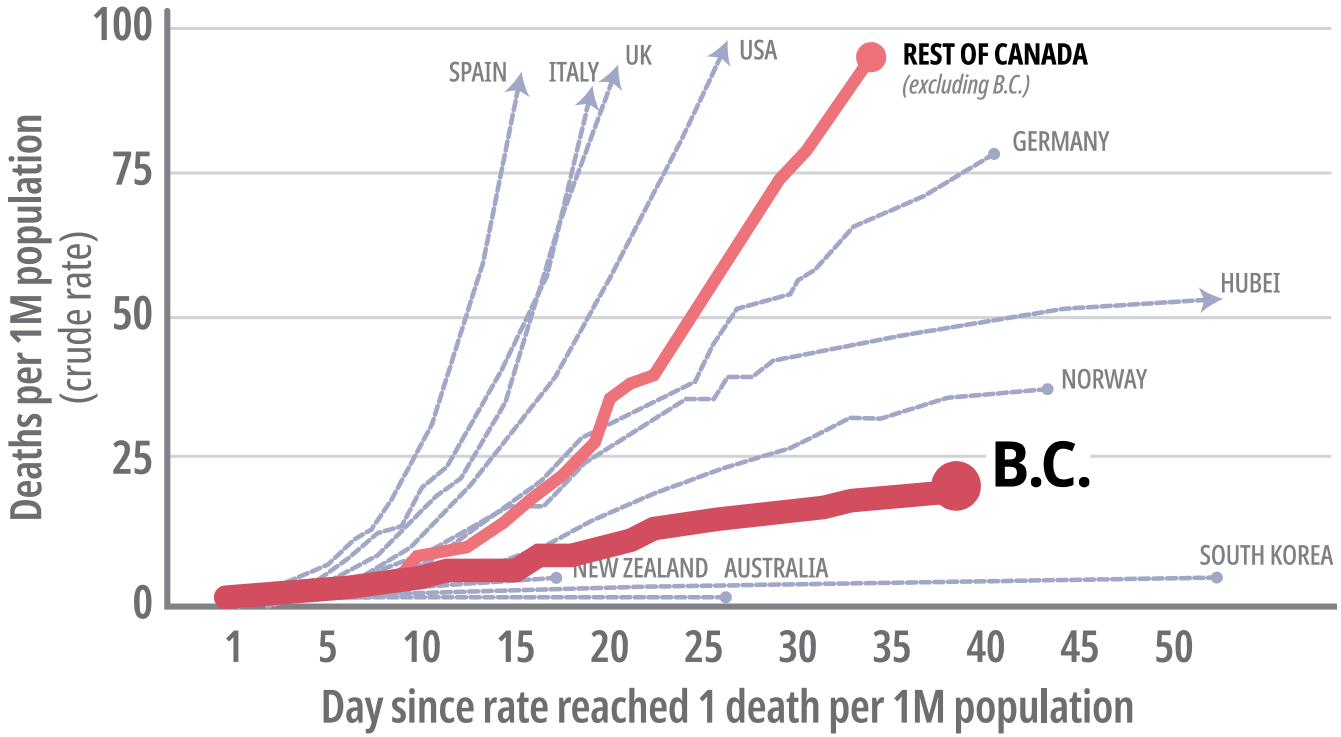
Note: QC, and, to a lesser extent, ON, have the largest impact on the values for the rest of Canada.



Death Rates Comparison

Cumulative COVID-19 death rates by select countries vs BC and Canada.

Note: QC, and, to a lesser extent, ON, have the largest impact on the values for the rest of Canada.



Health System Capacity

Support for Critically-ill COVID-19 Patients

Provincial Bed Capacity - snapshot

All sites (primary/secondary COVID-19 sites and non-COVID-19 sites)

Health Authority	Total Critical Care Beds with Surge Capacity[1]	Critical care COVID-19 Census[2]	Critical care Non-COVID-19 Census	Total Vacant Critical Care Beds	Critical Care Bed Occupancy Rate
IHA	84	1	53	30	64.3%
FHA	265	14	105	146	44.9%
VCHA	184	13	74	97	47.3%
VIHA	85	0	37	48	43.5%
NHA	58	2	10	46	20.7%
PHSA	28	0	5	23	17.9%
BC Total	**704**	**30**	**284**	**390**	**44.6%**

1. Critical care capacity and census of April 30, 2020 midnight.
2. COVID-19 critical care census reported as of May 1, 2020 at 10:00am

- Surge capacity has been reduced from 951 at the time of last reporting in mid-April given that the high level of extra capacity has not been required for COVID-19 patients.

- Even with this downward adjustment in surge capacity, there remains sufficient capacity for COVID-19 and non-COVID-19 patients requiring critical care. The critical care surge capacity (over and above intensive care units and high acuity units) comes from other spaces (e.g., cardiac and cardiac surgical care units, reconfiguring unit)

Provincial Ventilator Capacity

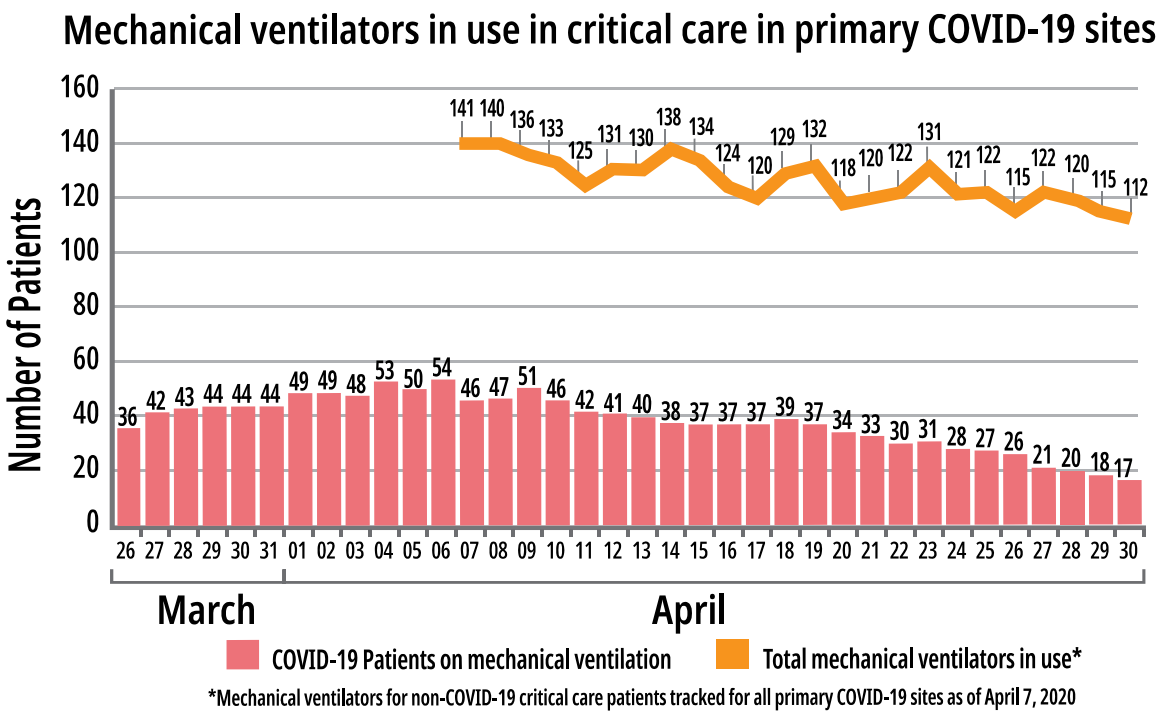
Location of Ventilators	Provincial Pandemic Fleet	Site Pandemic Fleet	Regular Inventory	Total
Available Not Yet Assigned				
No Site Assigned (KGH)	3			3
No Site Assigned (VGH)	37			37
Available				
IHA	8	1	78	87
FHA		8	180	188
VCH		20	115	135
PHC		11	36	47
VIHA		6	102	108
NHA	5		33	36
PHSA		20	27	50
BC Total	53	66	571	690

- Some ventilators have moved between sites since last reporting to enhance readiness.
- There are now 55 portable ventilators available through the pandemic portable fleet. **These are over and above those critical care ventilators noted in the table above.**
- Additionally four new adult critical care ventilators have now arrived and are being assessed prior to being added to the pandemic fleet.

Provincial Mechanical Ventilators in Critical Care

In total, 112 (COVID and non-COVID) patients used ventilators in critical care.

*Mechanical ventilators for non-COVID critical care patients tracked for all Primary COVID-19 sites as of April 7, 2020.



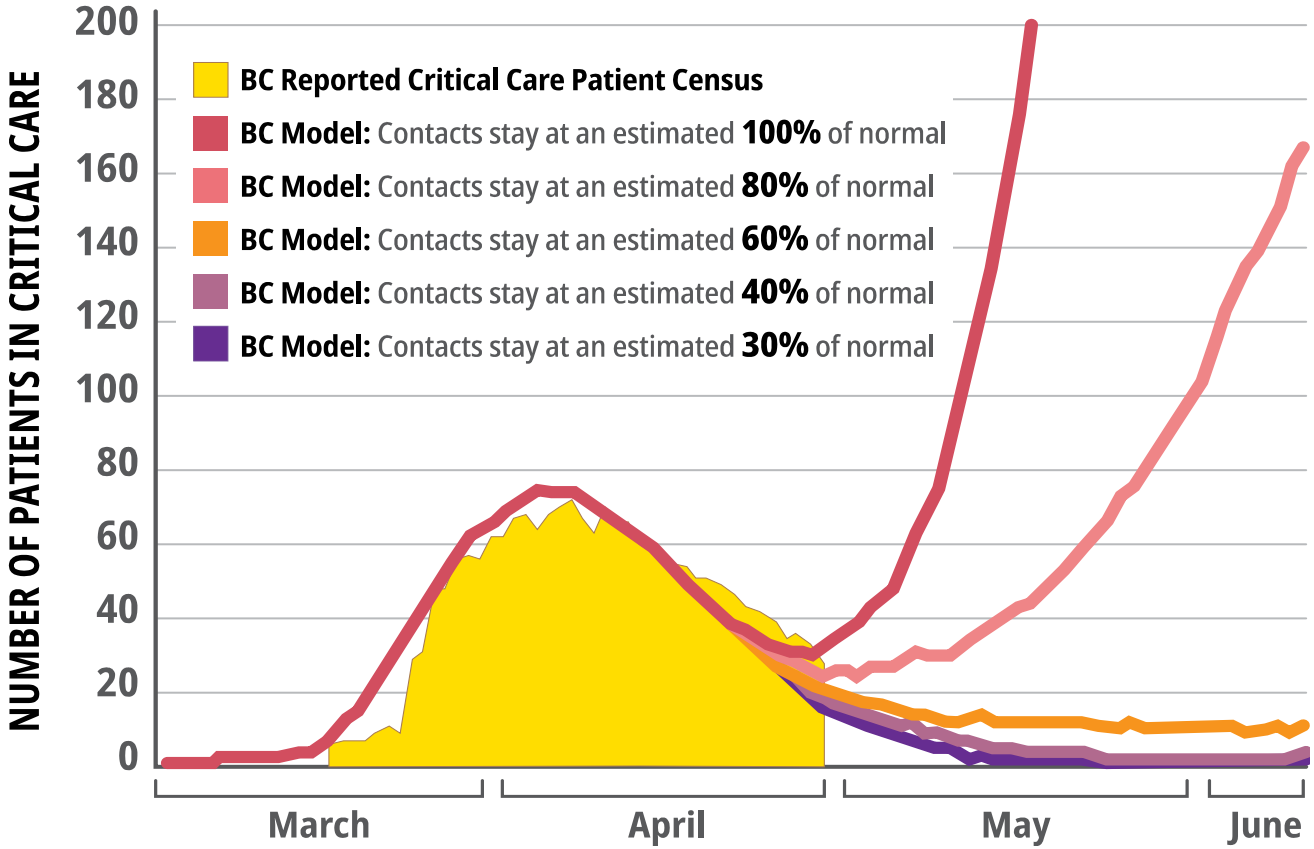
Key Findings Regarding Health System Preparedness For Critically-ill COVID-19 Patients

- Provincial critical care leaders and all health authorities have remained ready for all critical care patients including those with COVID-19.
- The number of patients with COVID-19 in the critical care units has slowly decreased with time although new patients continue to be admitted to the ICU's daily.
- Additional adult-capable critical care ventilators have come into inventory as have additional adult portable ventilators which can easily be moved between sites or with patients. Additional adult ventilators are expected over the weeks and months to come.

Dynamic Compartmental Modelling

Keeping the Curve Flat

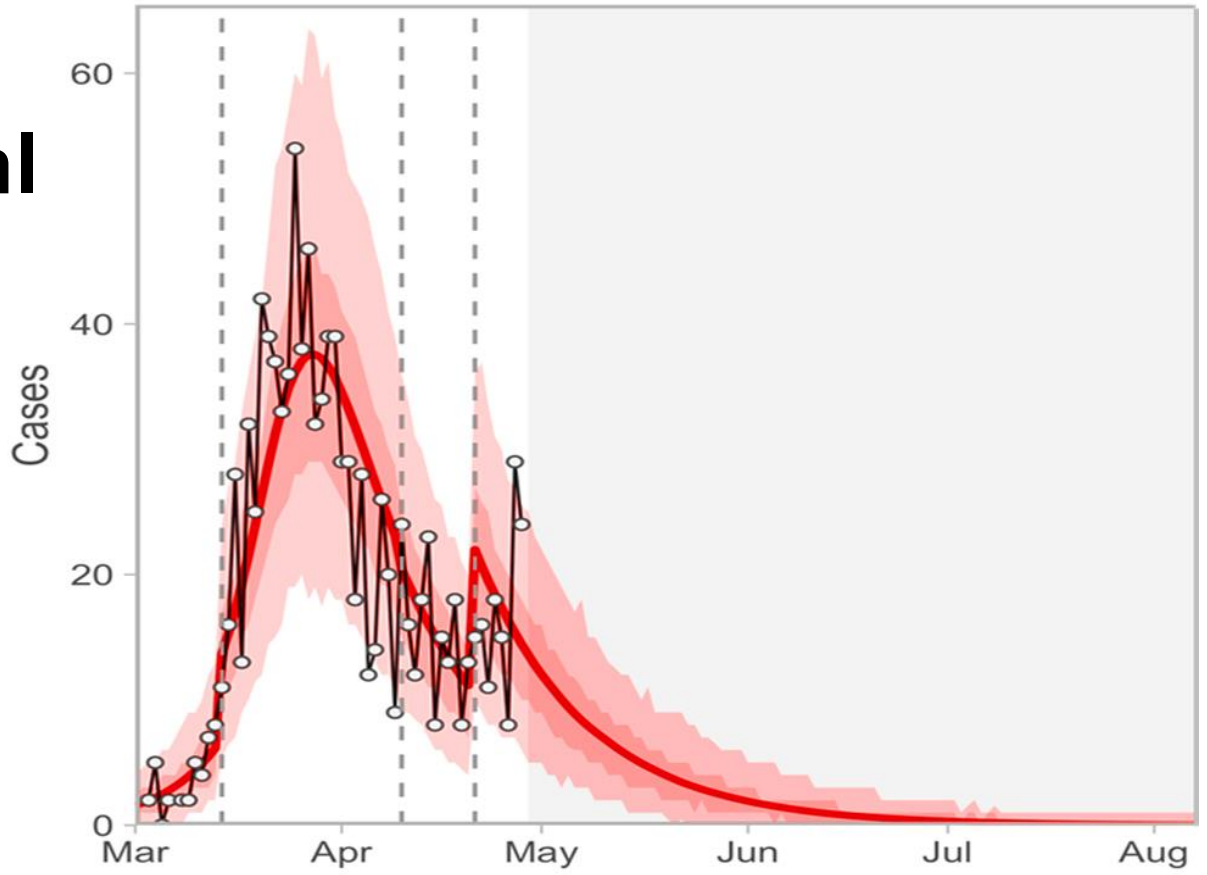
Dynamic Compart-mental Modelling



Data from January 1 to April 29, 2020.

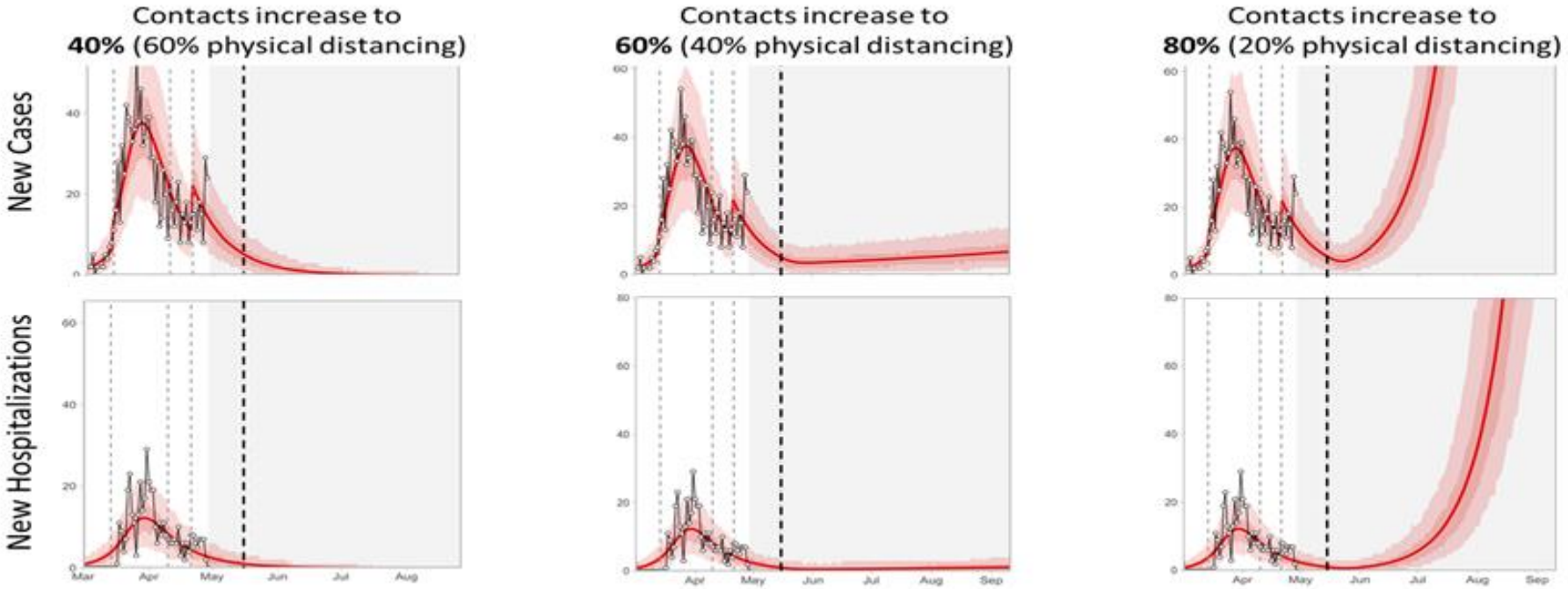
Dynamic Compartmental Modelling

New case estimates with interactions at 35% of normal.



Data from January 1 to April 29, 2020.

Scenarios With Varying Degrees of Relaxed Distancing



Conclusion

Goals For Our Go Forward Plan

Goals For Our Go Forward Plan

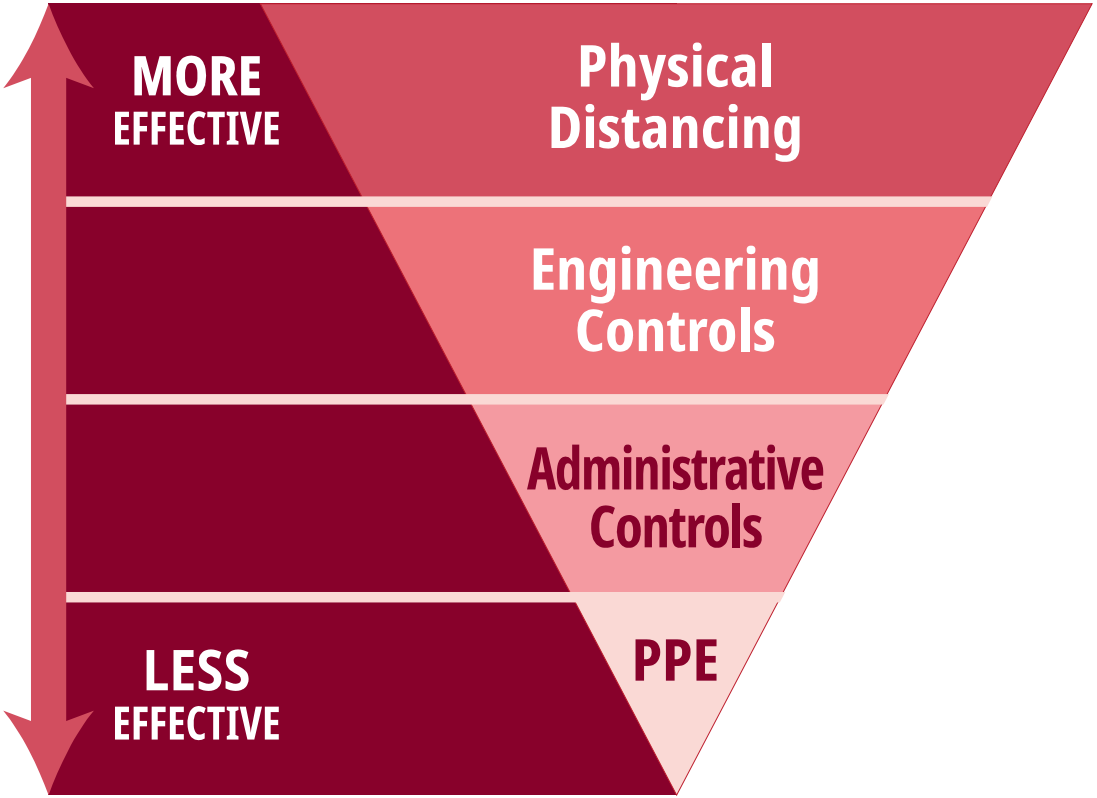
We must find the right balance to:

- Protect lives by suppressing transmission to lowest rate possible for at-risk populations.
- Ensure the health system has capacity to offer quality care to both non-COVID-19 and COVID-19 patients.
- Meet the physical-and-mental health challenges that come with restricting social interaction.
- Rebuild a resilient economy and provide supports for people to safely return to work.
- Strengthen the social fabric of our families and communities.

Hierarchy of Controls For COVID-19

The hierarchy of controls is a framework for reducing transmission hazards. The most effective controls are at the top of the pyramid.

Source: Koehler, K, Rule A. Can a mask protect me? Putting homemade masks in the hierarchy of controls. [Internet] 2020 April 2. Johns Hopkins Education and Research Center for Occupational Safety and Health.



Key Principles Going Forward

- ✓Staying informed, being prepared and following public health advice.
- ✓Practicing good hygiene (hand hygiene, avoid touching face, respiratory etiquette, disinfect frequently touched surfaces).
- ✓Staying at home and away from others if feeling ill – not going to school/work.
- ✓Maintaining physical distancing outside the household (e.g. no hand shaking or hugging, small numbers of contacts and keeping a safe distance).
- ✓Making necessary contact safer with appropriate controls (e.g. plexiglass barriers, room design).
- ✓Increasing environmental cleaning at home and work.
- ✓Considering the use of non-medical masks in situations where physical distancing cannot be maintained (e.g. on transit, shopping).
- ✓Reducing personal non-essential travel.

COVID-19: Going Forward

- Prepared for BC Ministry of Health
- May 4, 2020