

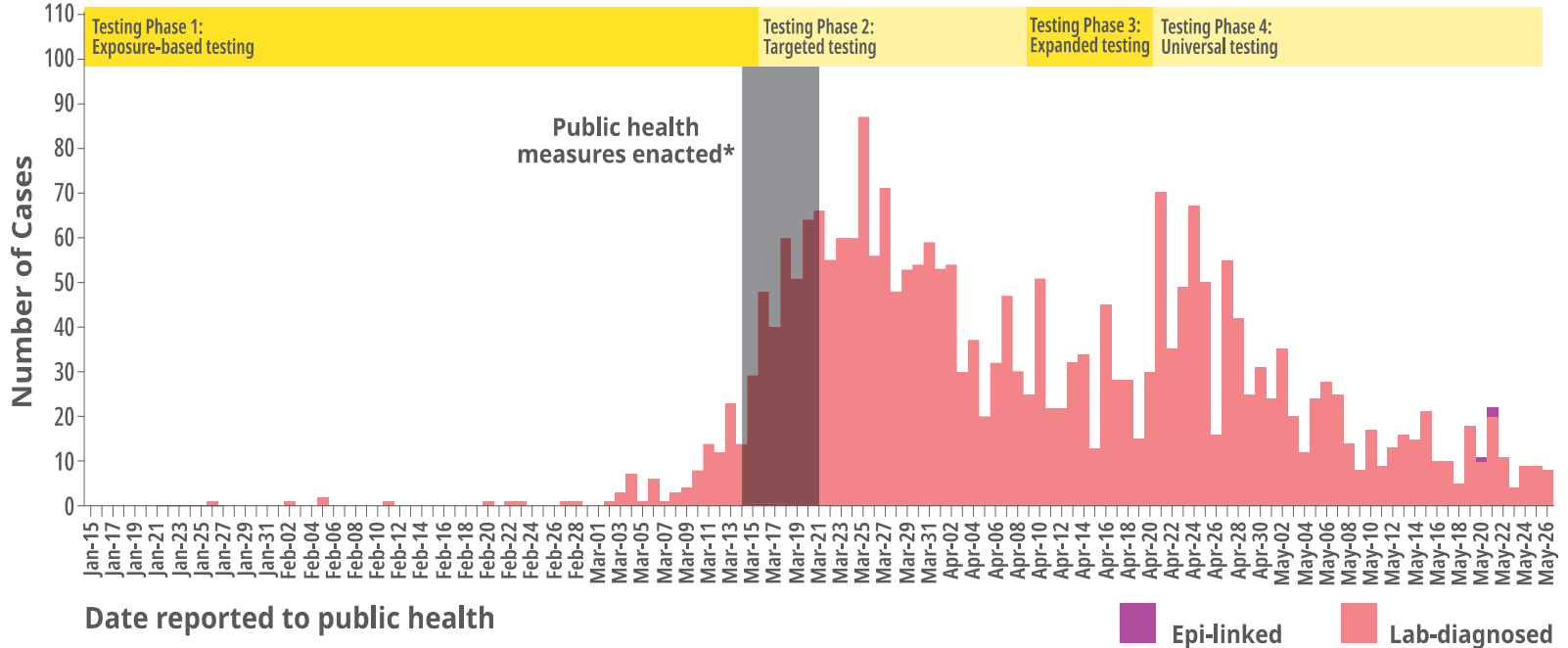
# **COVID-19: Going Forward**

Prepared for BC Ministry of Health  
June 4, 2020

# **Epidemiology**

*How and Where the Virus Has  
Affected People in BC*

# Epidemic Curve: Confirmed COVID-19 cases in BC by reported date January 1 and May 27, 2020 (N=2553).

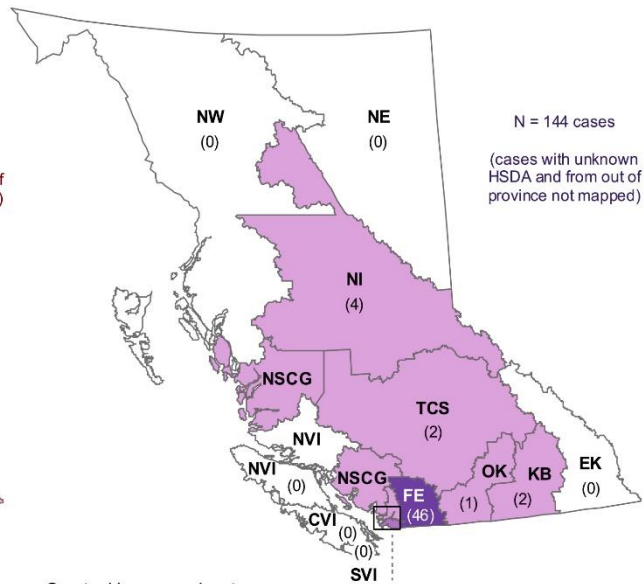
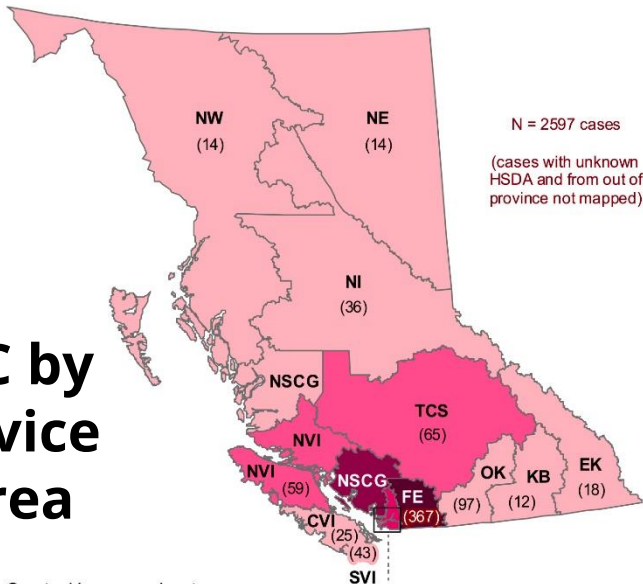


Cases reported on the same day as this report are excluded as only a portion are available at the time the data are extracted. The number of cases reported by day differs from that in Table 1 in previous reports as this figure reflects the date the case was lab-confirmed and reported to the Health Authority.

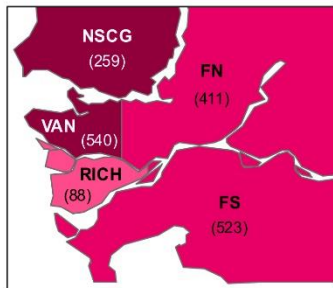
Cumulative total: reported January 22 to May 31, 2020

Past 14 days: reported May 18 to May 31, 2020

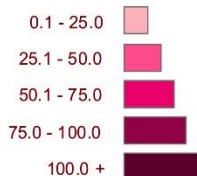
# Confirmed COVID-19 Cases in BC by Health Service Delivery Area



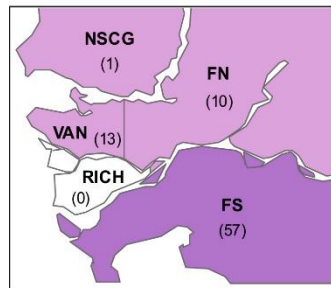
Greater Vancouver Inset



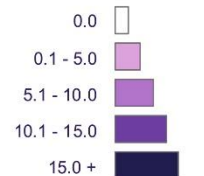
Cumulative rate per 100,000 population of COVID-19 cases



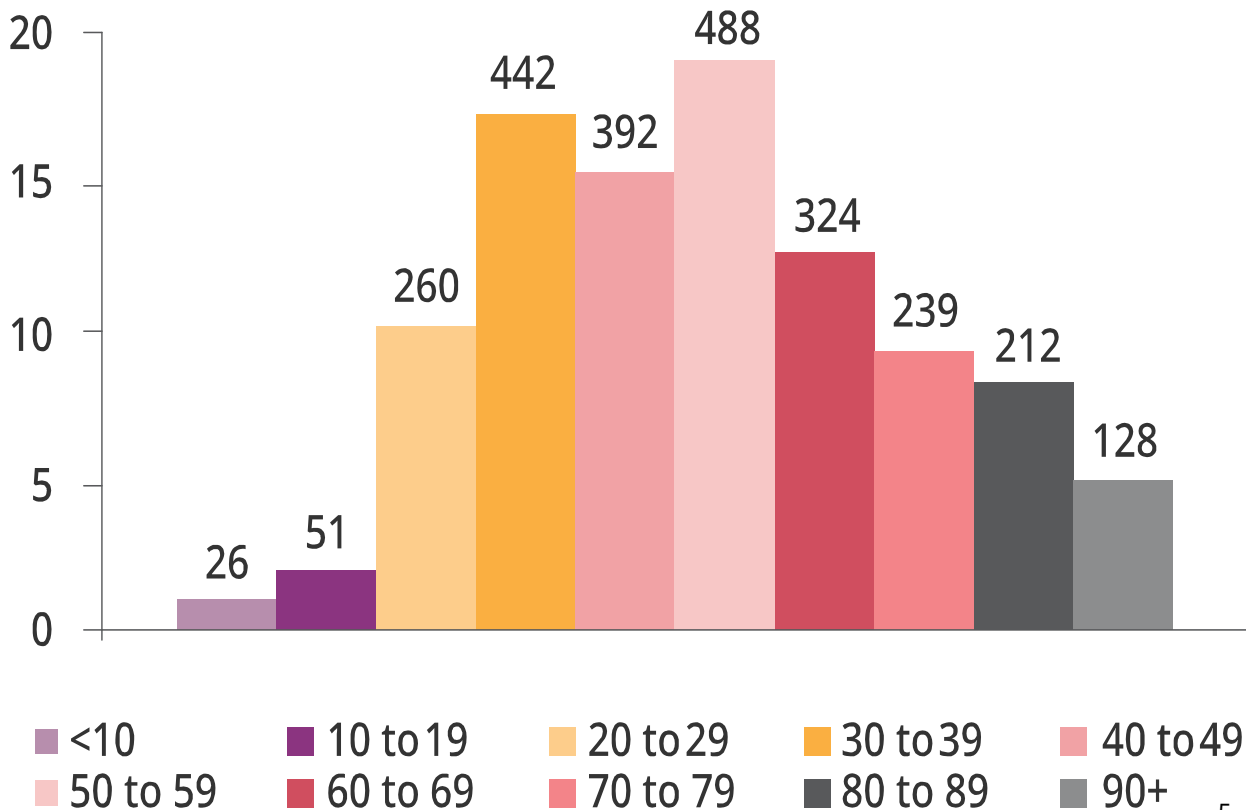
Greater Vancouver Inset



Past 14 days rate per 100,000 population of COVID-19 cases

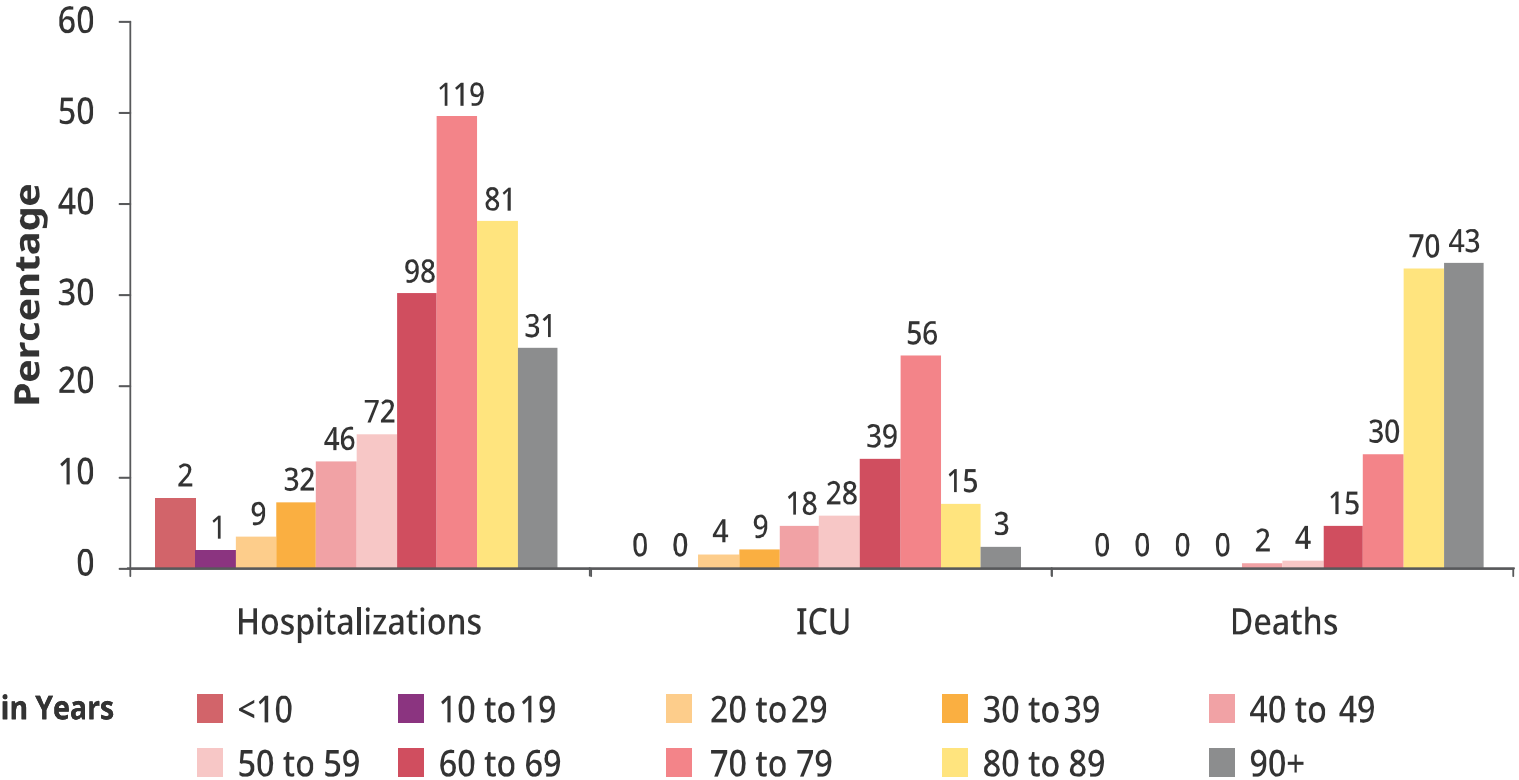


# COVID-19 Cases by Age (Total N=2,562)

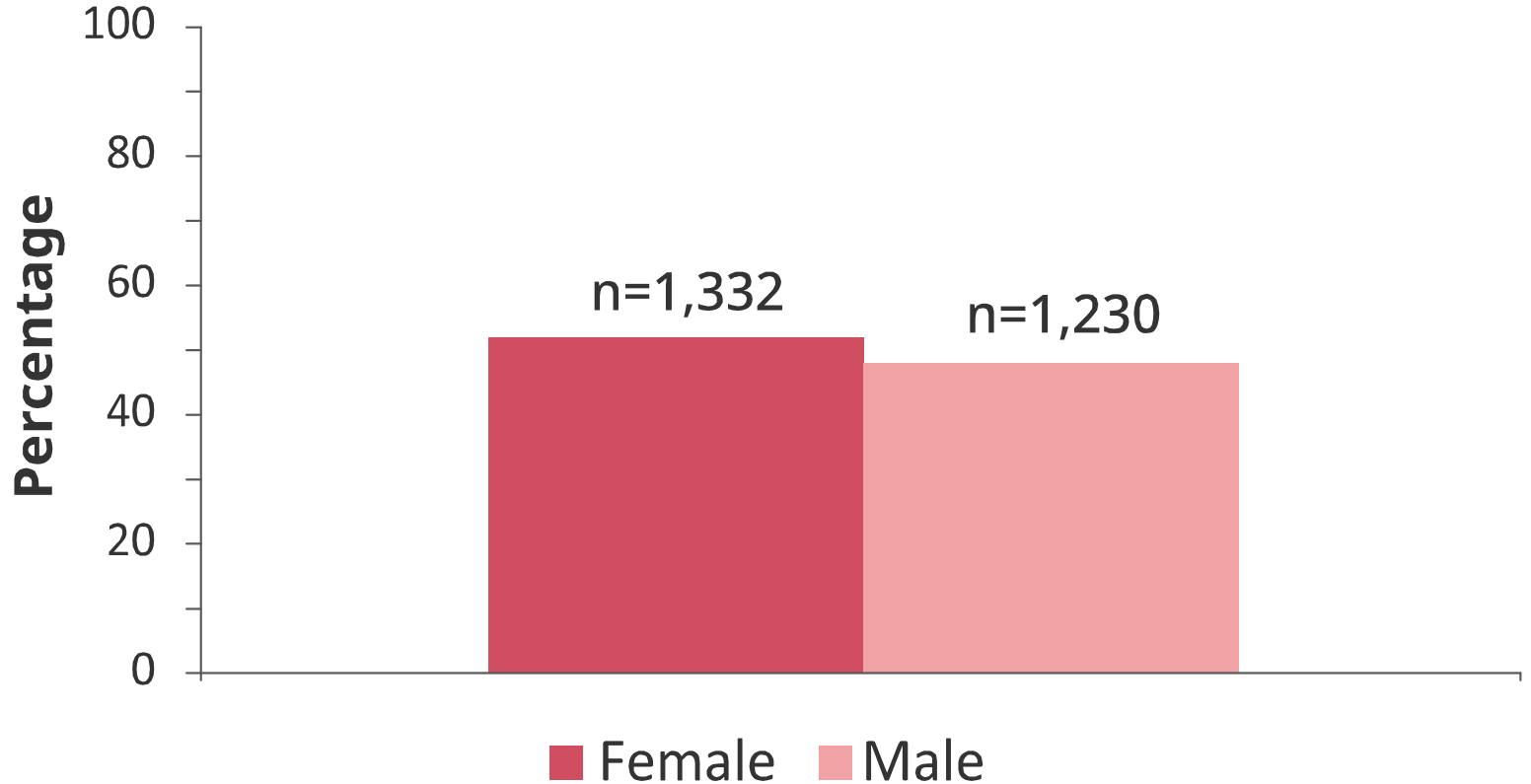


Age in Years

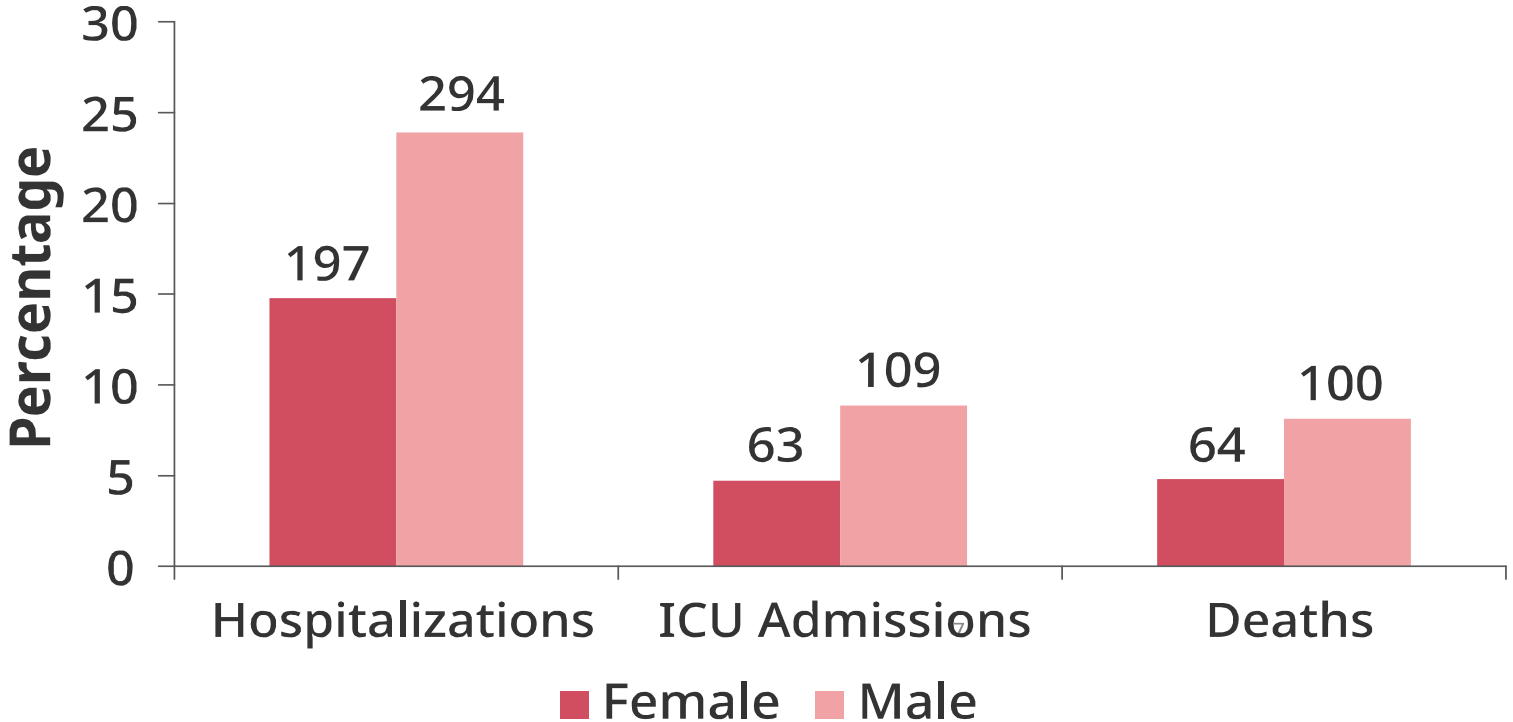
# Percentage of COVID-19 hospitalizations, ICU admissions and deaths by age in BC January 1 – May 29, 2020 (N=2,562).



# COVID-19 Cases by Sex

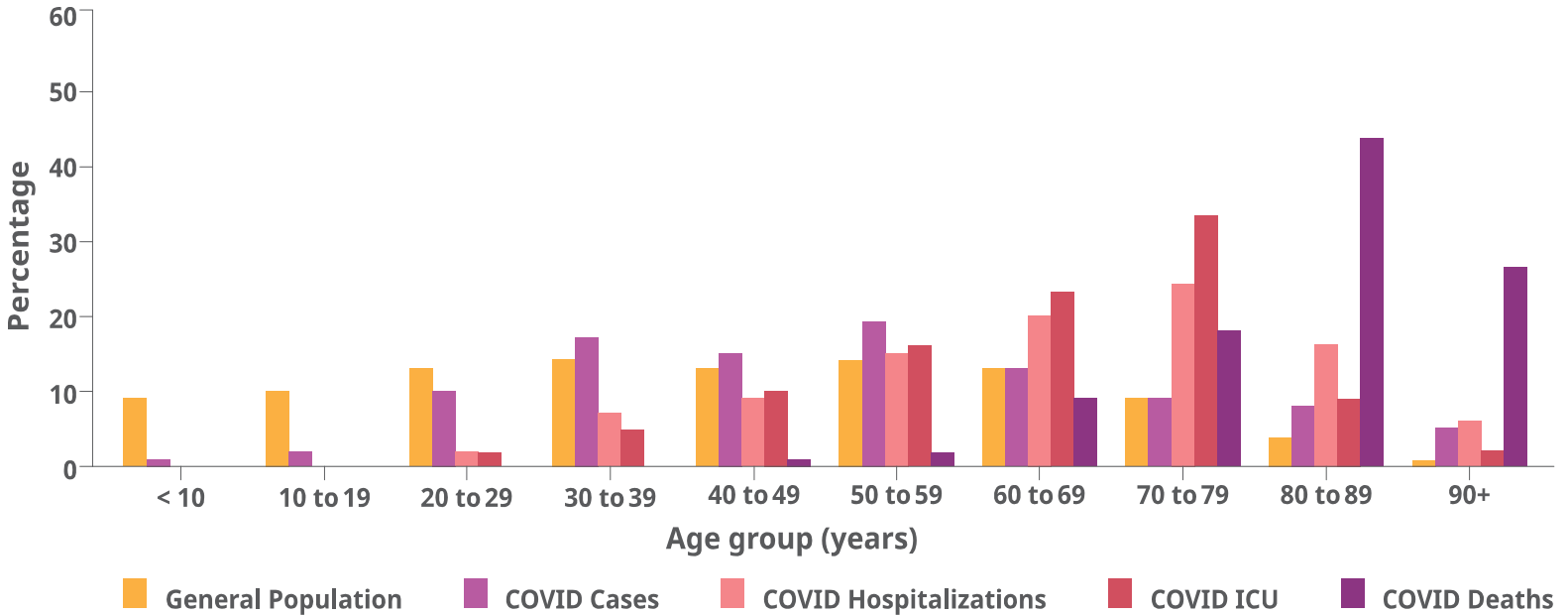


# Percentage of COVID-19 hospitalizations, ICU admissions and deaths by age in BC January 1 – May 29, 2020 (N=2,562 cases).





# Percentage distribution of COVID-19 cases, hospitalization, ICU admissions and deaths by age, compared to the general population† of BC, January 1 – May 29, 2020 (N=2,562\*).



\*Includes 2,562 cases, 491 hospitalizations, 172 ICU admissions, and 164 deceased with age information available. † PEOPLE2019-2020 population estimates. Note: COVID hospitalizations have been reported in the <10y and 10-19y age groups but represent <1% of hospitalizations and are therefore not visible.

# COVID-19 Public Health Investigations Over Time

Before March 15<sup>th</sup>

**1,257**



After March 15<sup>th</sup>

**11,085**



Total  
**12,342**



**10.7** contacts per case

**99.3%** contacts reached

**2.0%** became secondary cases

**3.6** contacts per case

**98.0%** contacts reached

**7.4%** became secondary cases

**1/3** contacts per case before March 15<sup>th</sup>

**High** % of contacts reached both before and after March 15<sup>th</sup>

**3x** higher proportion of secondary cases after March 15<sup>th</sup>



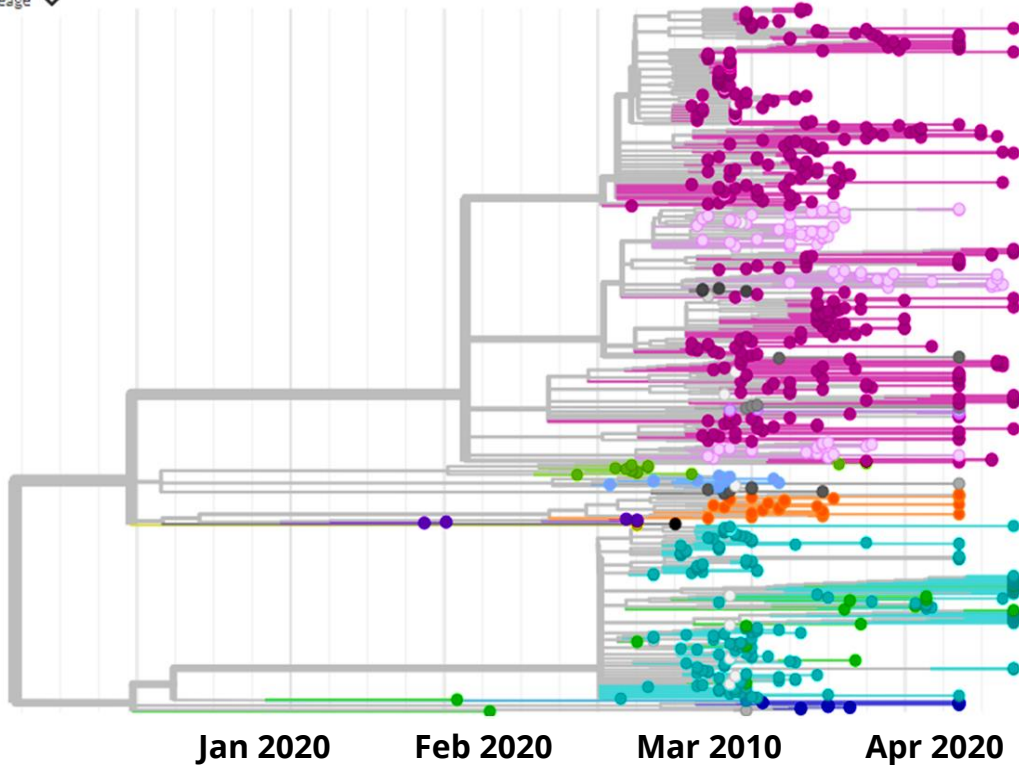
1 day from case notification to contact tracing



1 day from contact tracing to contact notification

# Genomic Epidemiology: Virus Origin

Phylogeny  
lineage ▼



**B.1** *European-like &  
Eastern Canada*

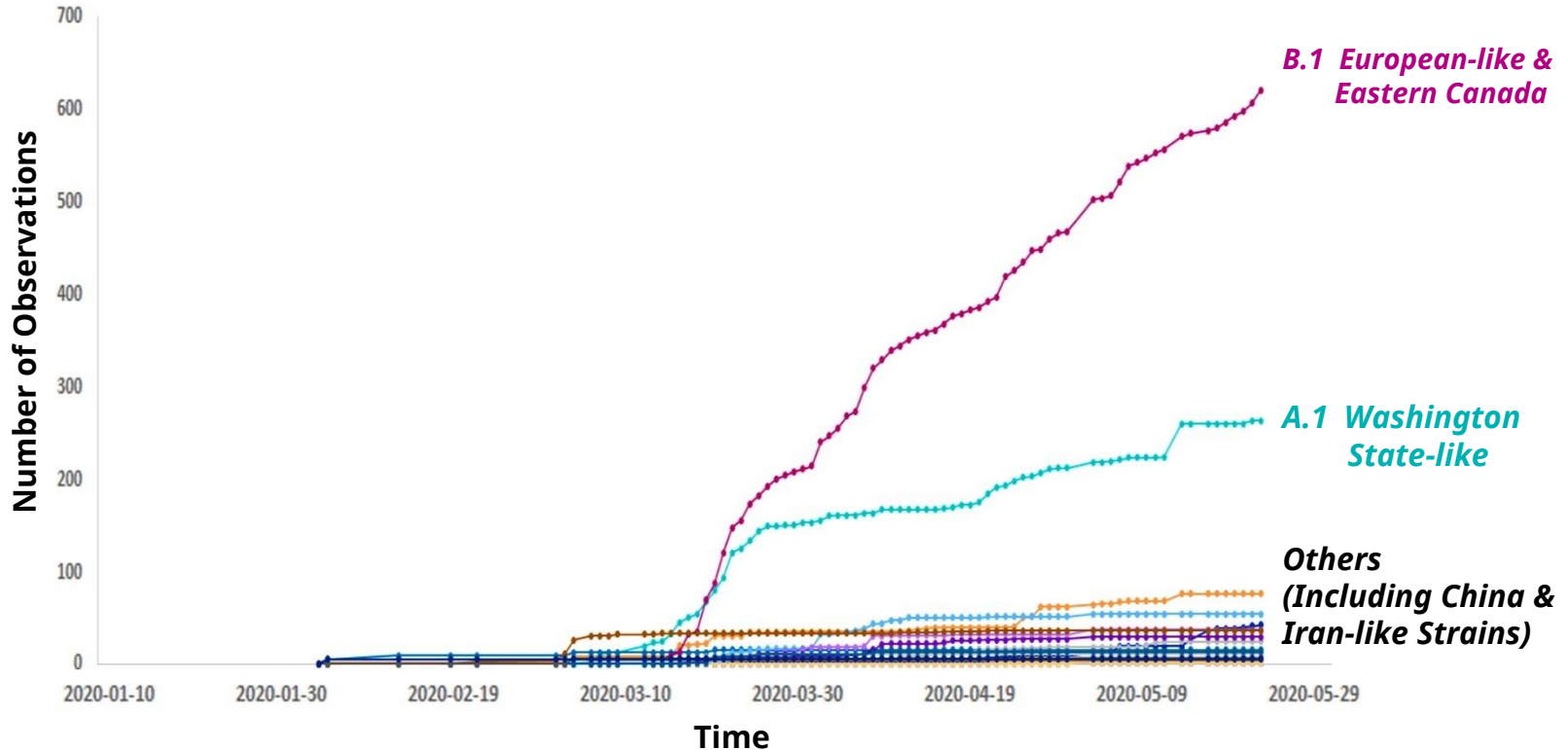
**B.4** *Via Iran*

**B.3** *Mainly China*

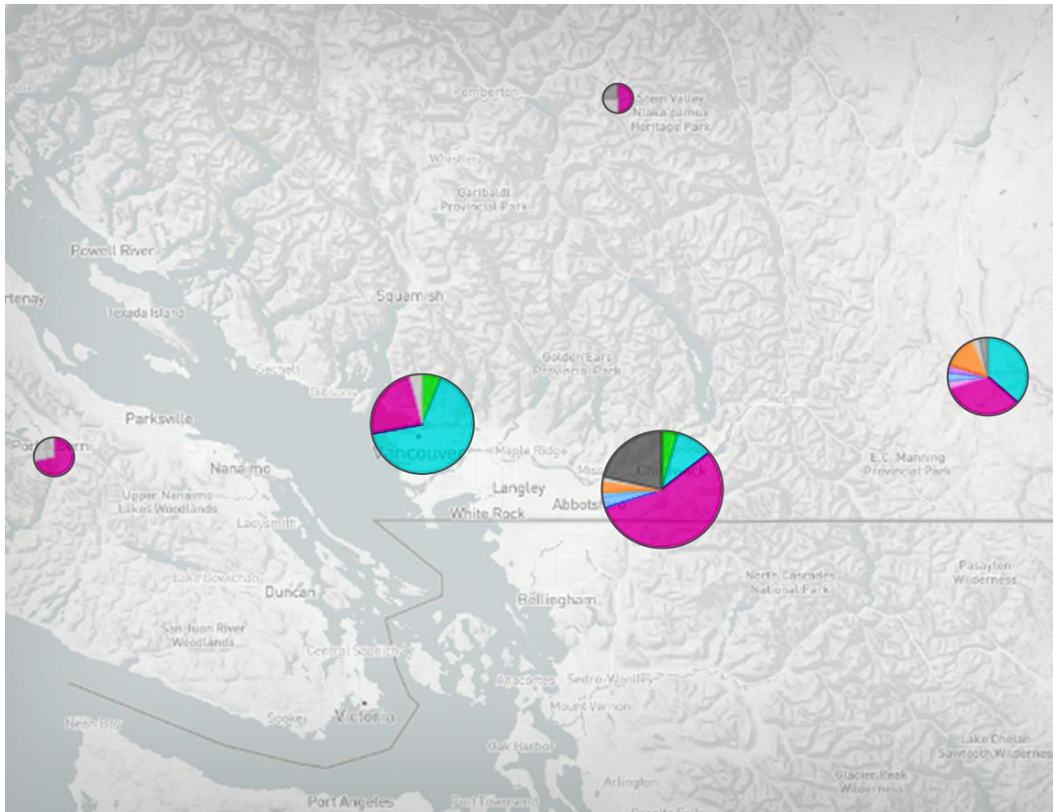
**A.1** *Washington  
State-like*

**B.3** *Mainly China*

# Temporal Distribution of Virus Lineages: Where The Virus Came From Over Time



# Geographic Distribution of Virus Lineages

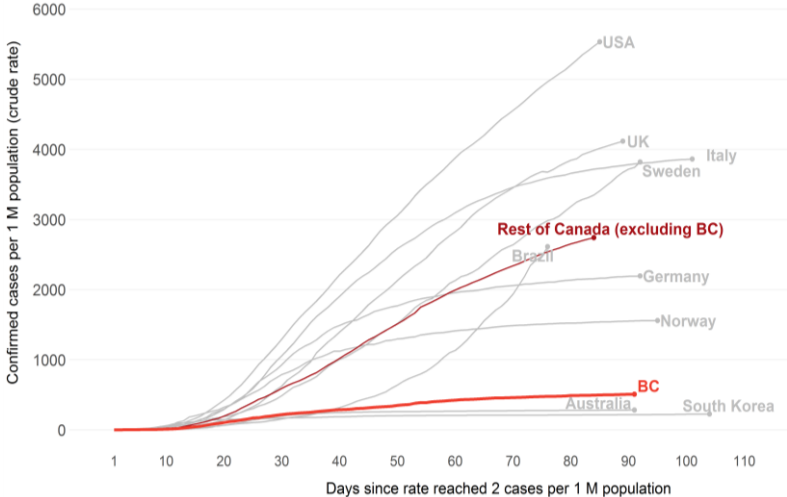


- B.1** *European-like/  
Eastern Canada*
- A.1** *Washington  
State-like*
- B.3** *China-like*
- B.4** *Iran-like*
- B.3** *Others*

# Case Rate Comparison

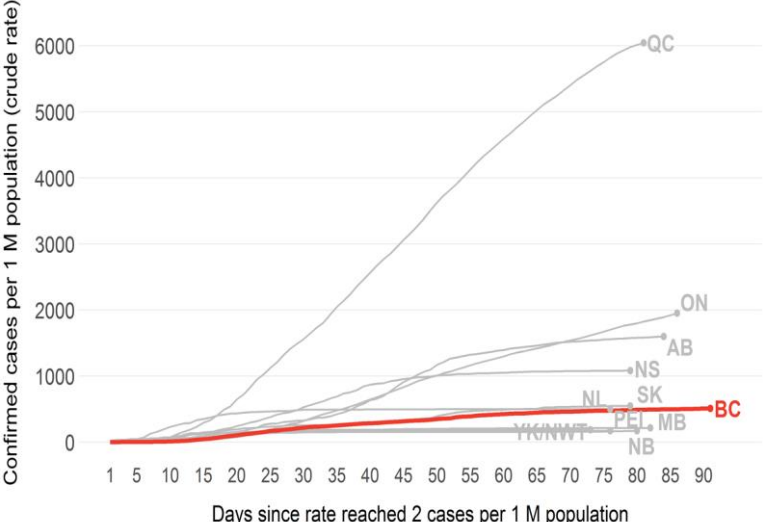
## International Case Rates Comparison:

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



## National Case Rates Comparison:

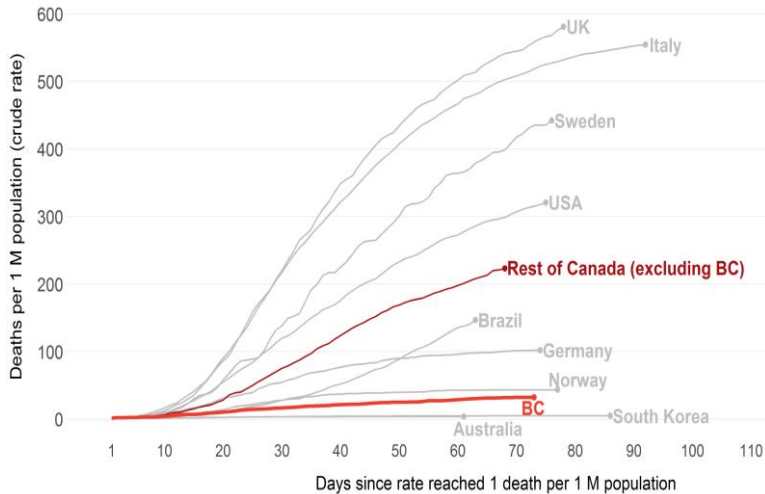
Cumulative diagnosed COVID-19 case rates by Canadian provinces.



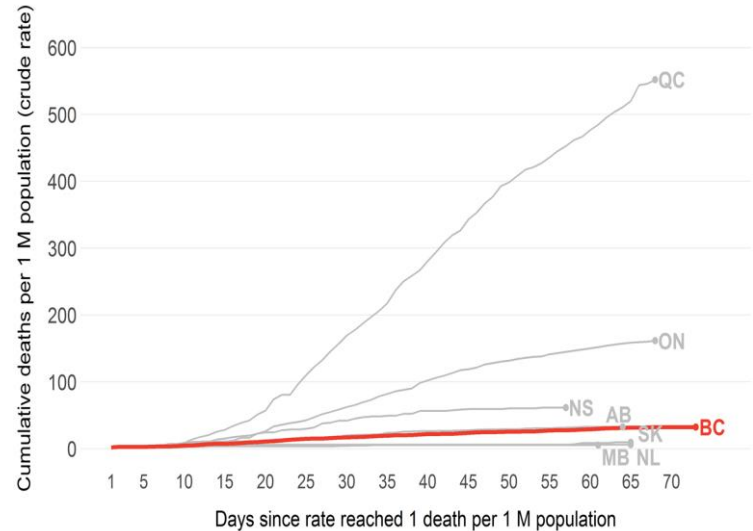
Note: QC, and, to a lesser extent, ON, account for most of the deaths count for the Rest of Canada.

# Death Rate Comparison

**International Death Rates Comparison:**  
Cumulative COVID-19 death rates by select countries vs BC and rest of Canada.



**National Death Rates Comparison:**  
Cumulative COVID-19 death rates by Canadian province.



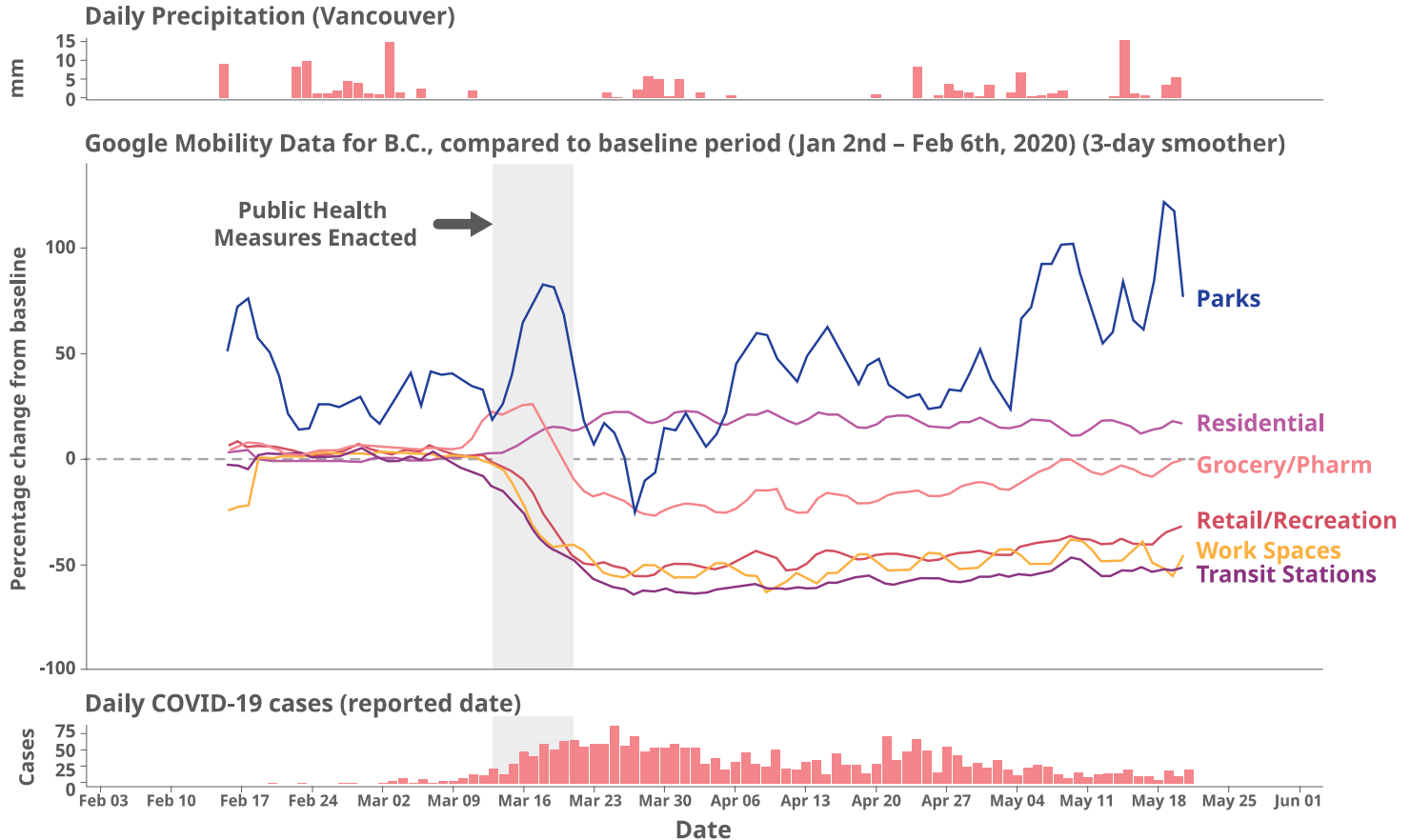
Note: QC, and, to a lesser extent, ON, account for most of the deaths count for the Rest of Canada.

# **Modelling Analyses to Date**

*Keeping the Curve Flat*

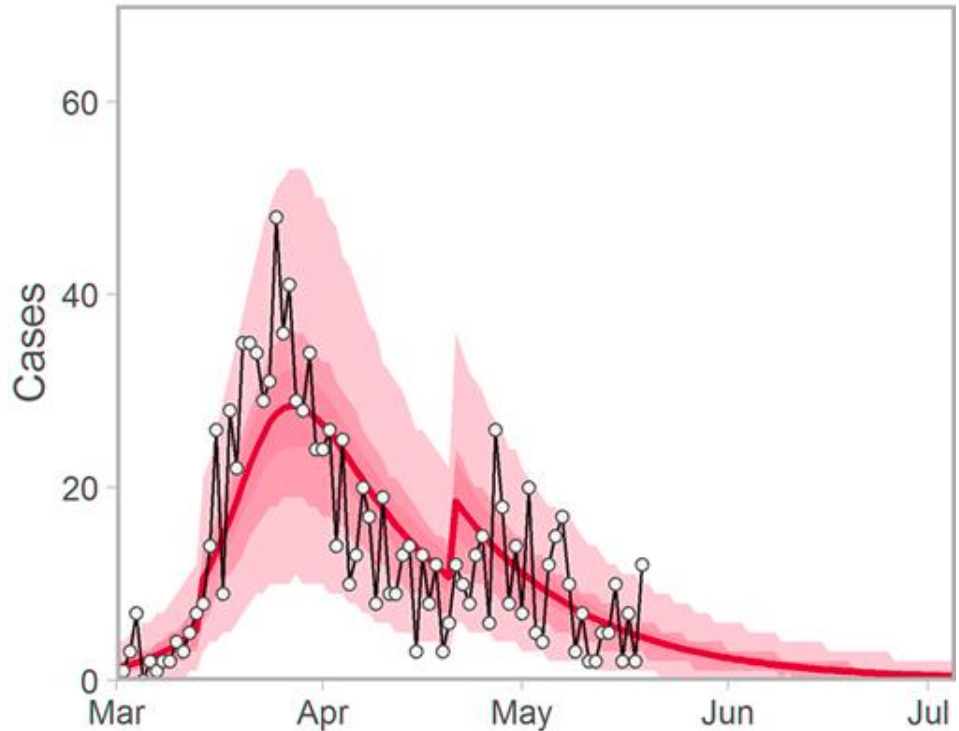


# British Columbians' Mobility



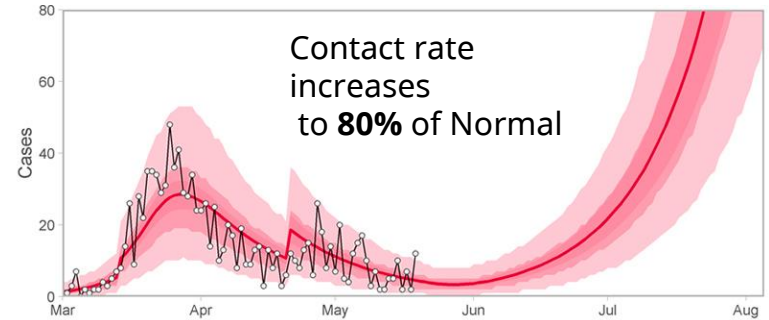
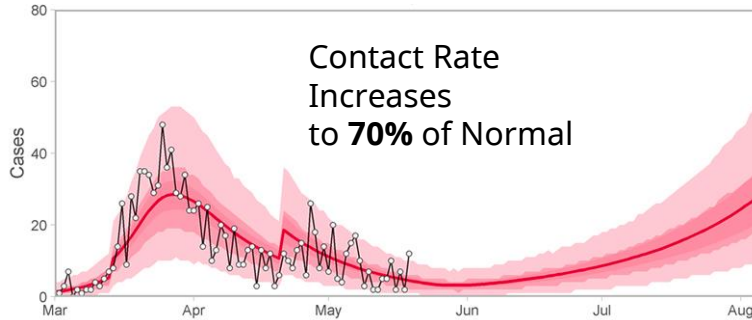
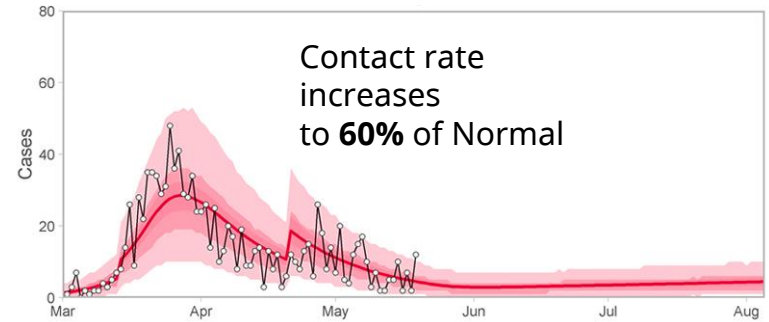
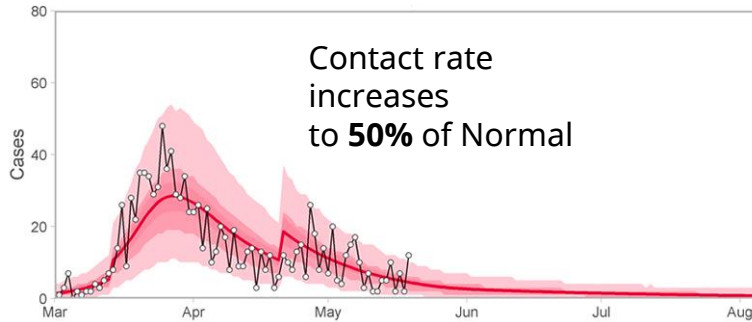
# Dynamic Compartmental Modelling

Our model suggests continued declines in transmission, resulting from ongoing physical distancing.



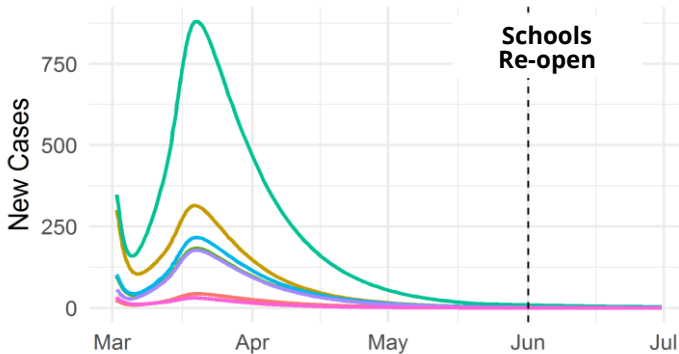
*Solid line: mean; shaded bands: 50% and 90% credible intervals; Open circles: reported cases.  
Cases used for model fitting exclude those attributed to outbreak clusters.*

# Dynamic Compartmental Modelling: If too much relaxation of distancing occurs, it may result in a rapid rebound in transmission.

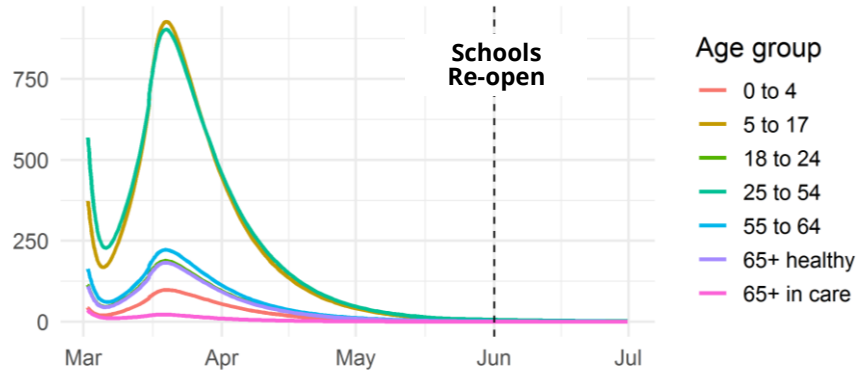


# Age Structured Modelling: The susceptibility of children to infection (50% vs 100% compared to adults).

## Susceptibility of Children = 50%

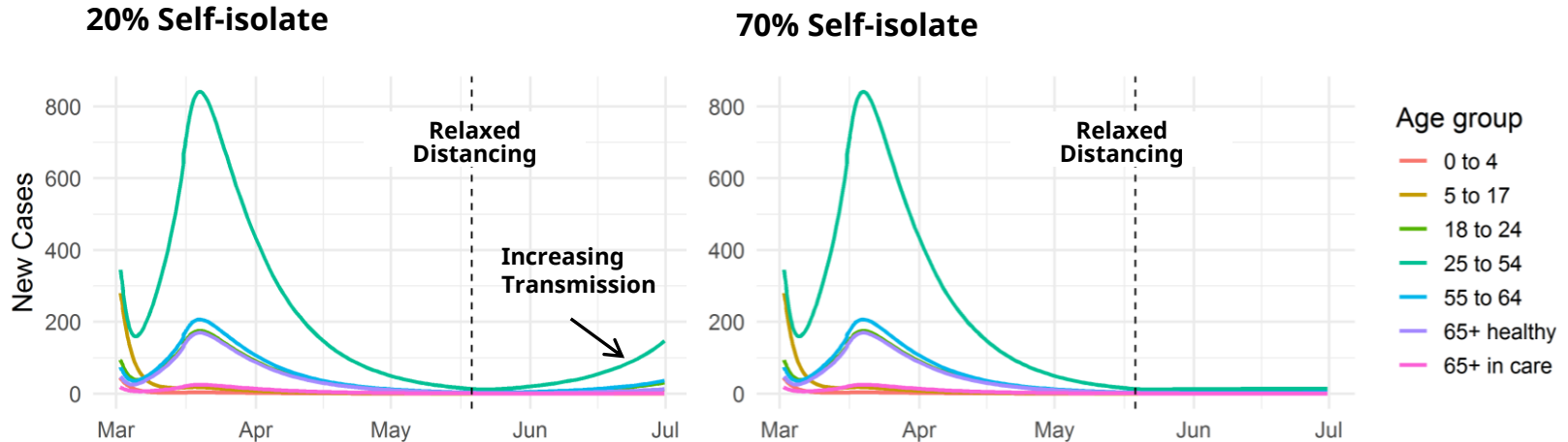


## Susceptibility of Children = 100%



*Partial re-opening of schools in June have minimal impact on transmission in the short-term, provided vulnerable adults maintain physical distancing.*

# Age Structured Modelling: Self-isolation (20% vs 70%).



*As schools re-open and distancing measures relax, self-isolation by sick individuals can prevent renewed epidemic growth of cases.*

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