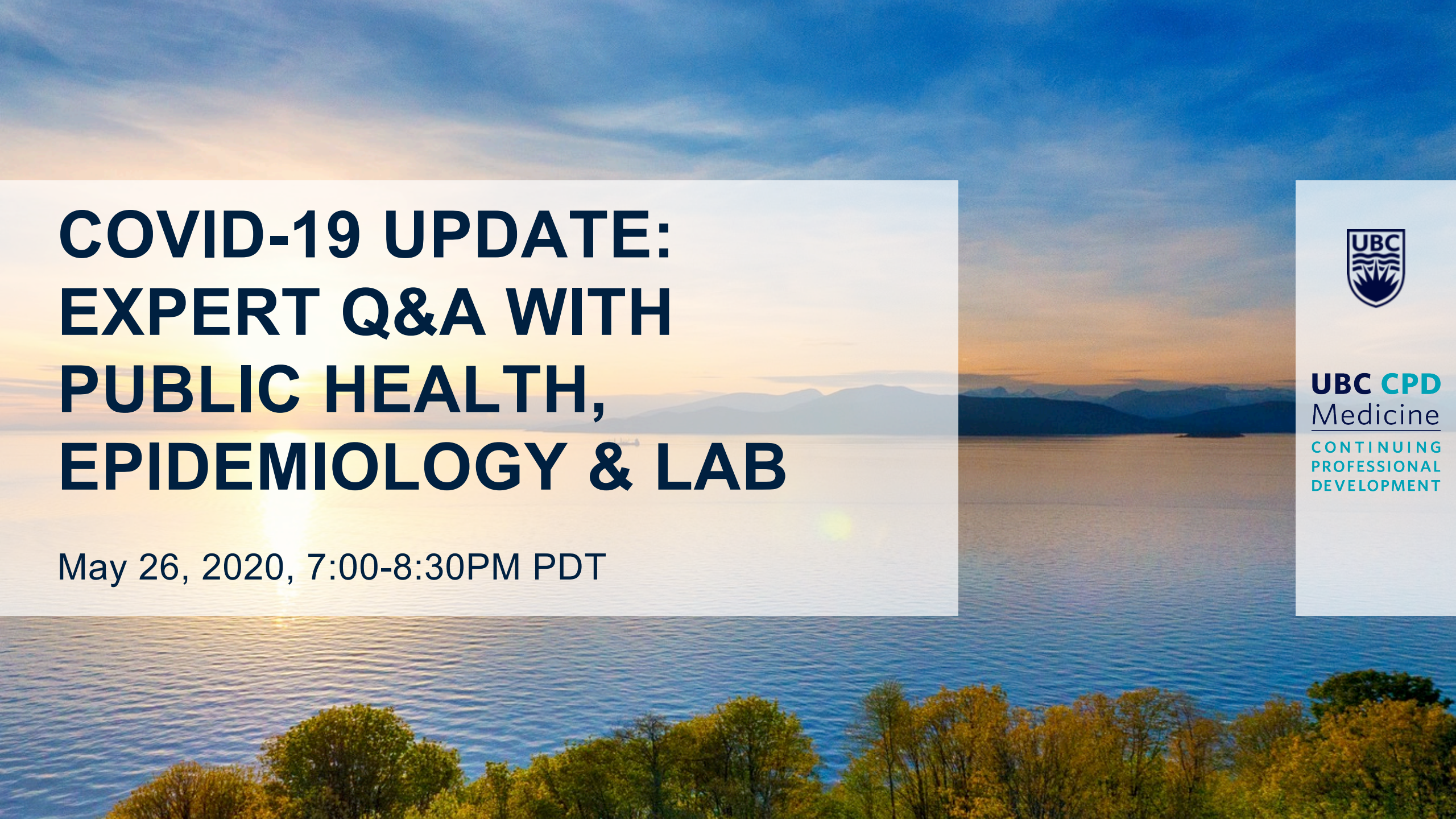

# COVID-19 UPDATE: EXPERT Q&A WITH PUBLIC HEALTH, EPIDEMIOLOGY & LAB

May 26, 2020, 7:00-8:30PM PDT

UBC CPD
Medicine
CONTINUING
PROFESSIONAL
DEVELOPMENT

# DISCLOSURES AND INTRODUCTIONS

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Disclosures: Infectious Diseases Specialist, BCCDC

**Dr. Mel Krajden**

Disclosures: BCCDC Public Health Laboratory, research contracts/grants from: Roche, Siemens, Hologic

**Dr. Bonnie Henry**

Disclosures: Provincial Health Officer

UBC CPD Medicine
CONTINUING PROFESSIONAL DEVELOPMENT

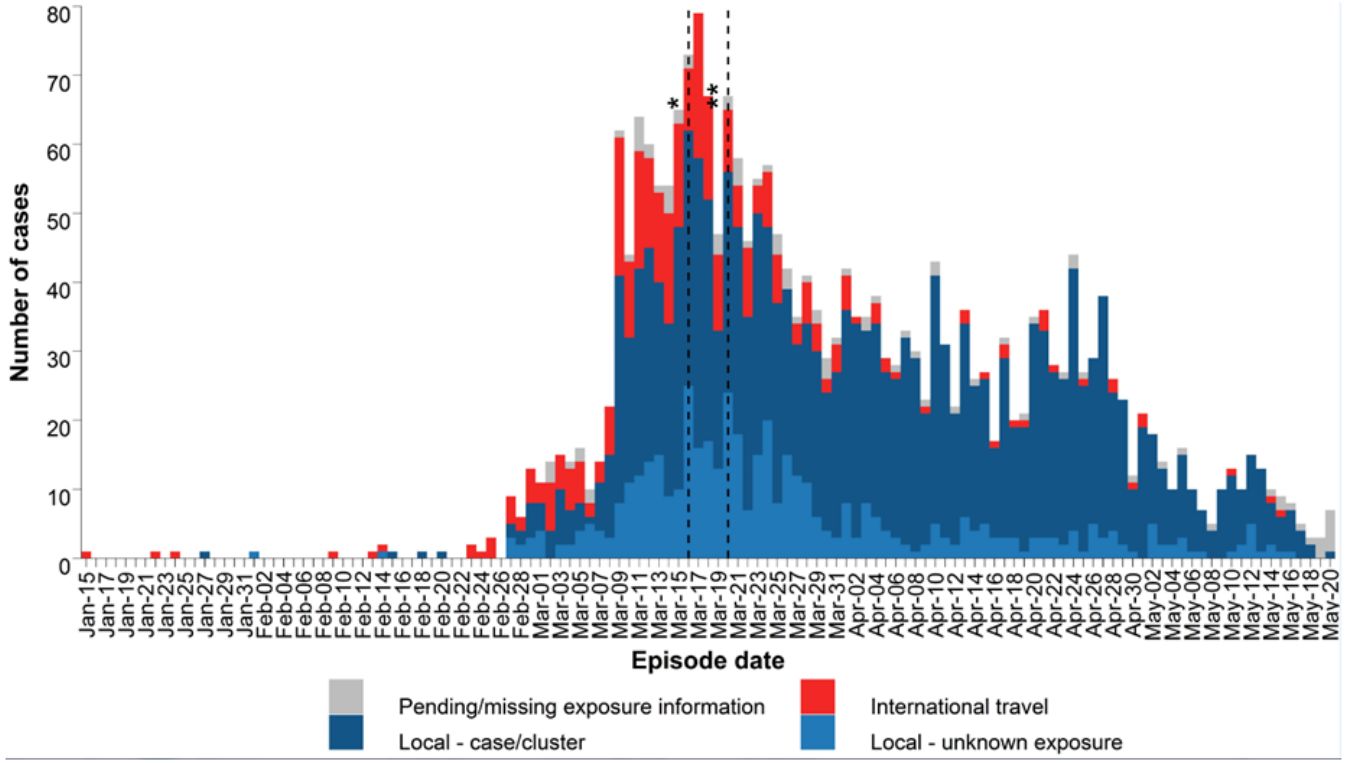
# Epidemiology and Modeling COVID-19 Epidemic in BC

May 26, 2020

David M. Patrick, MD, FRCPC, MHSc

# The number of reported cases remains low. Recent increases have been related to outbreaks. The majority of cases are related to local acquisition through a known case or cluster.

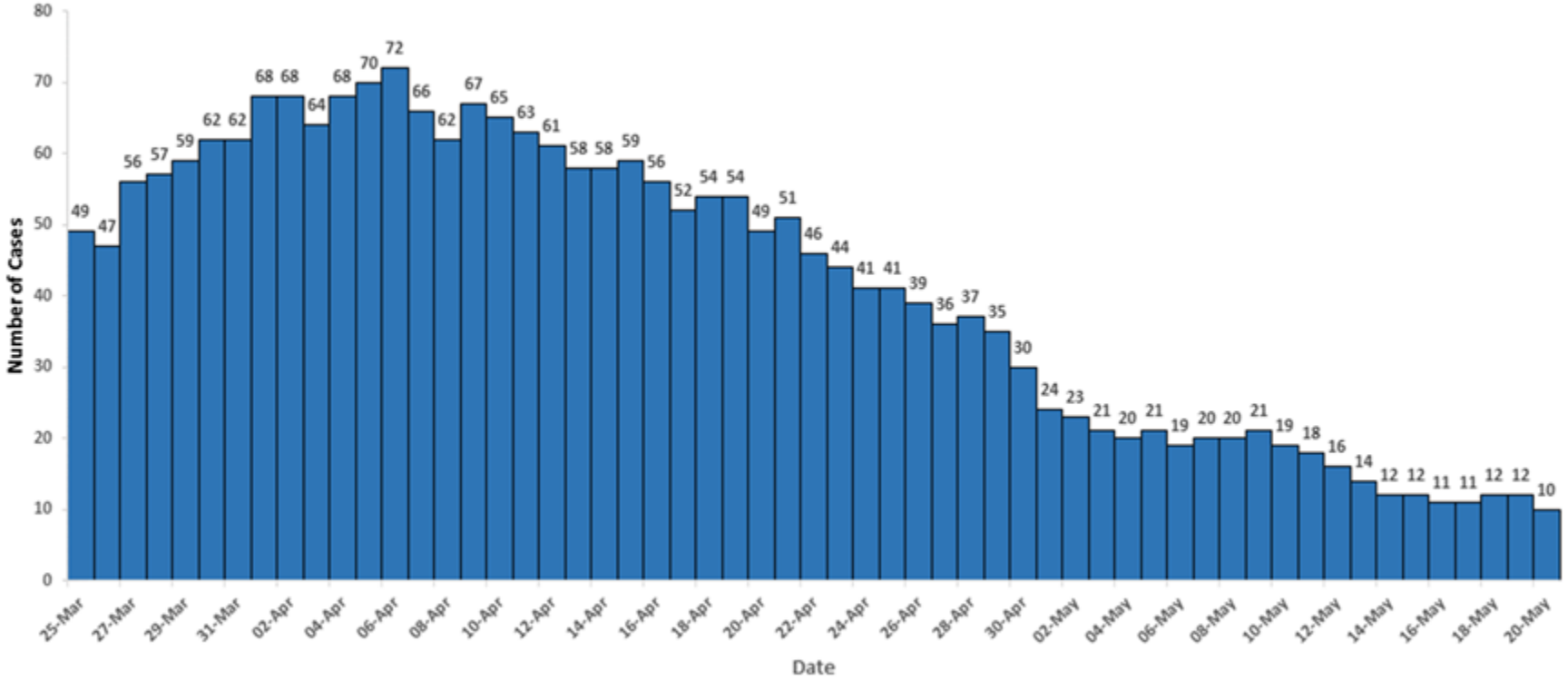
**Figure 4:** Likely source of infection for COVID-19 cases in BC by episode date[§], January 15 - May 20, 2020 **(N=2,478)**




§ Episode date is based on symptom onset date (n=2,305), if not available then date COVID-19 was reported to health authority (n=160).
* March 16: Entry of foreign nationals banned; symptomatic individuals banned from flights to Canada; international flights restricted to four national airports.
** March 20: US/Canada border closed to non-essential travel.

# The number of cases in hospital and critical care continues to decrease.

**Figure 9:** Total positive COVID-19 cases in critical care by day, BC, March 25 - May 21, 2020




Data source: PHSA May 21. Note: critical care data may change over time due to small adjustments and improvements in data quality.

# Biological sex distribution among cases is equal, however males have a higher proportion of hospitalization, ICU admission and deaths.

**Figure x:** Percentage distribution of COVID-19 cases, hospitalization, ICU admissions and deaths by sex compared to the general population† of BC, January 1 – May 20, 2020 (**N=2,460***)

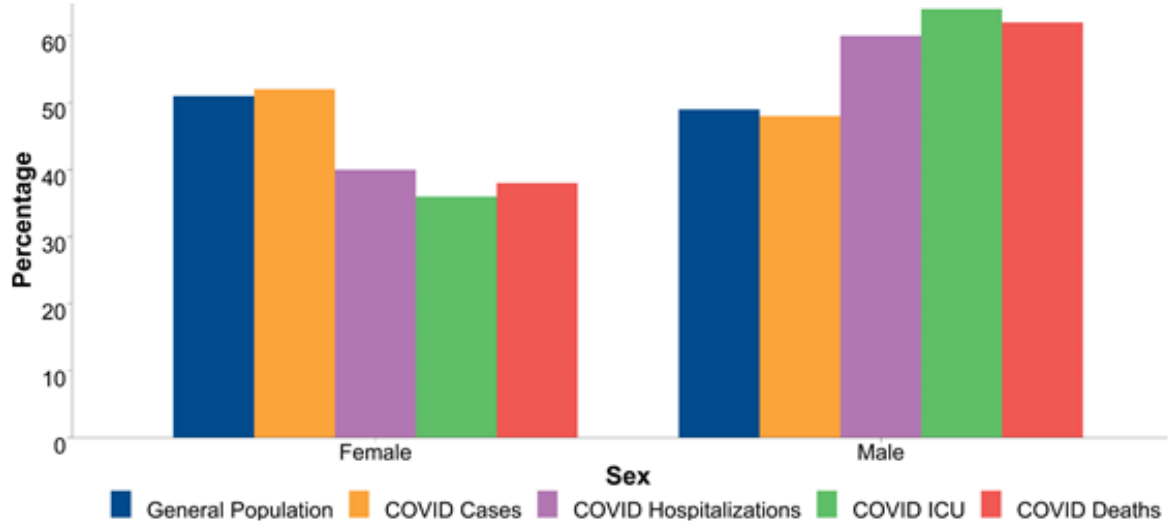


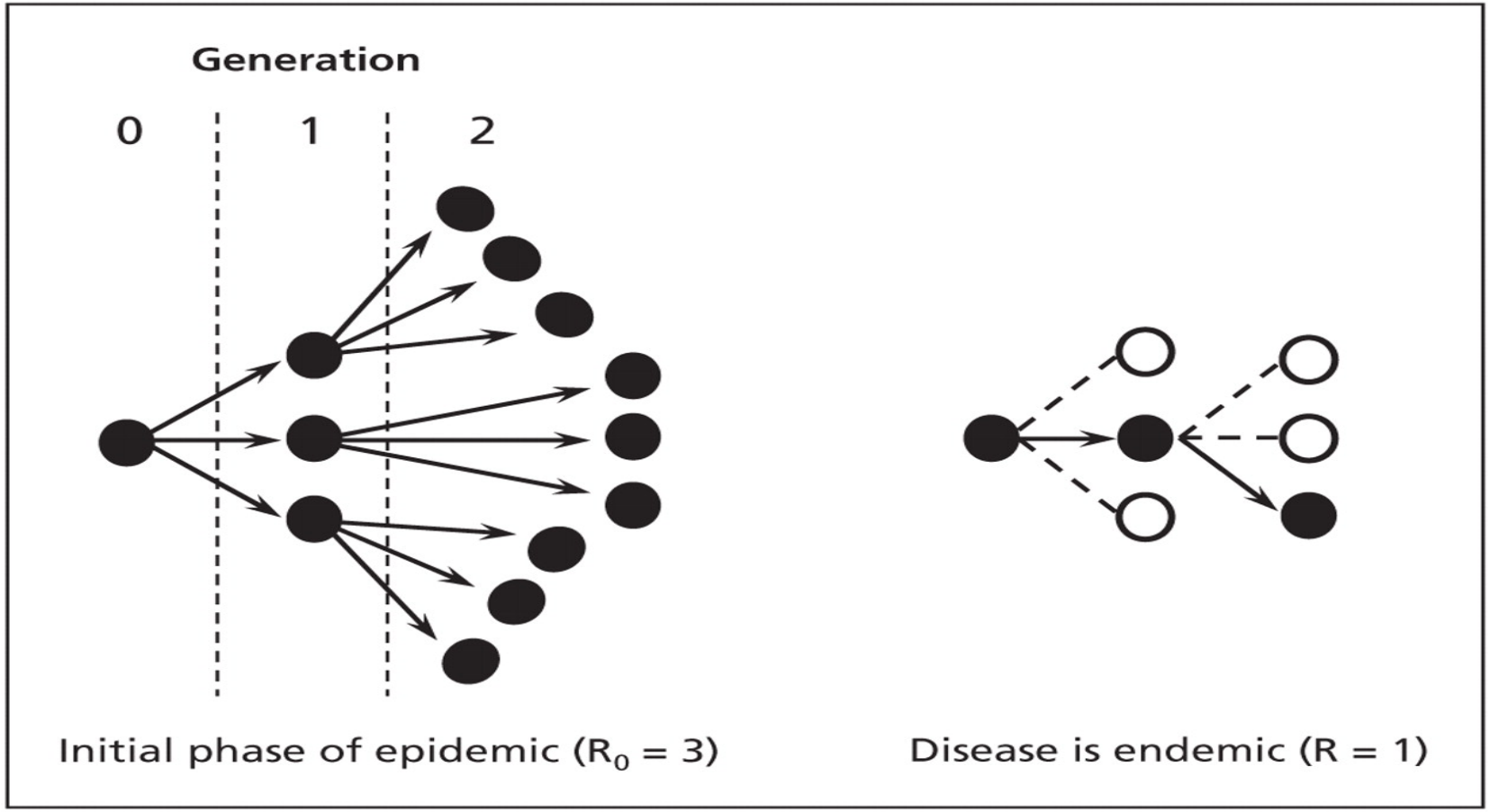

**Table x:** Number and percentage distribution of COVID-19 cases, hospitalization, ICU admissions and deaths by sex, compared to the general population of BC, January 1 – May 20, 2020 (**N=2,460***)

| Sex groups | COVID cases n (%) | Cases ever hospitalized n (%) | Cases ever in ICU n (%) | COVID deaths n (%) | General population† n (%) |
|---|---|---|---|---|---|
| Female | 1,287 (52) | 193 (40) | 63 (36) | 57 (38) | 2,584,486 (51) |
| Male | 1,173 (48) | 293 (60) | 110 (64) | 92 (62) | 2,526,037(49) |
| **Total** | **2,460** | **486** | **173** | **149** | **5,110,523** |

*7 cases had unknown sex

† PEOPLE2019-2020 population estimates

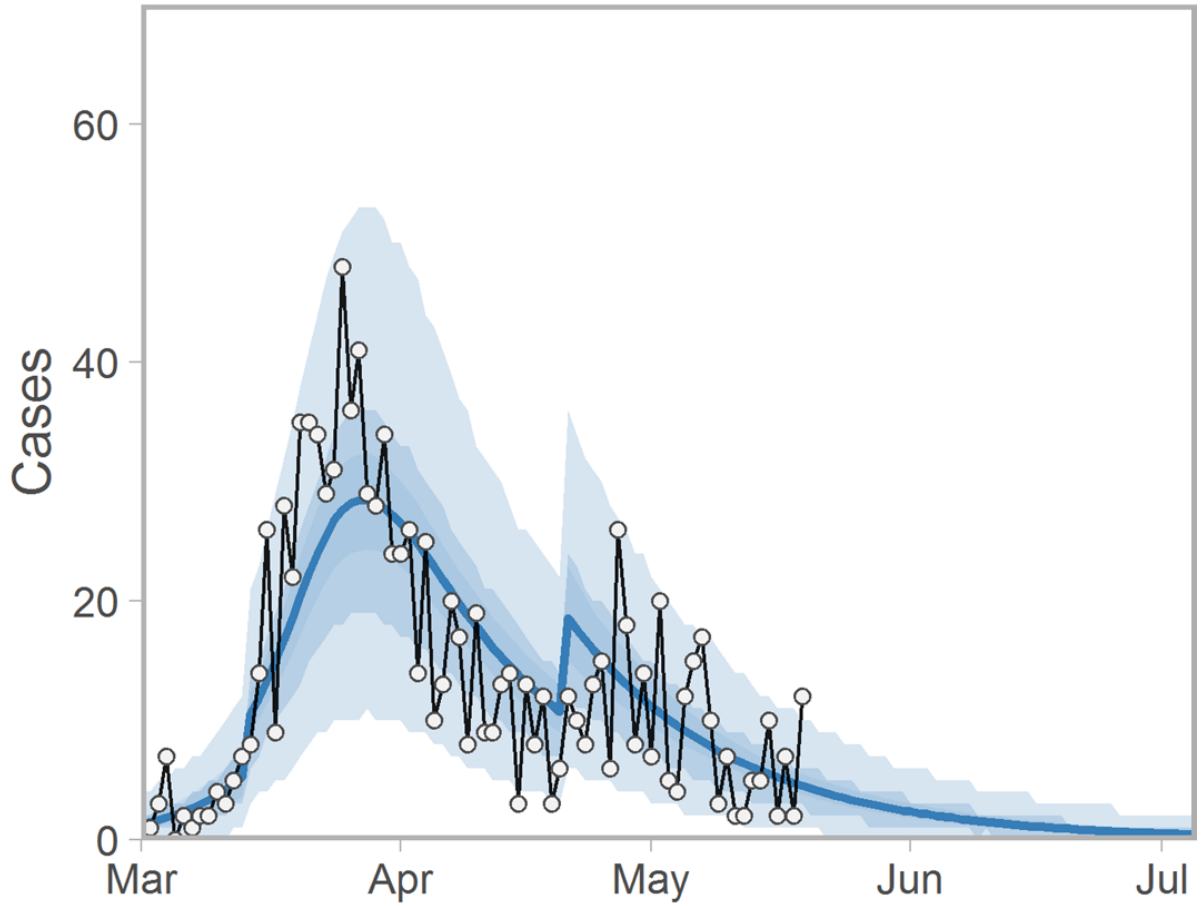
# Ro ~(Contact Rate) X (Transmission Risk Per Contact)




http://www.infectionlandscapes.org/2011/07/measles-part-1-virus-disease-and.html

# Estimated contact rate is at 38% of normal, suggesting strong physical distancing has largely been maintained

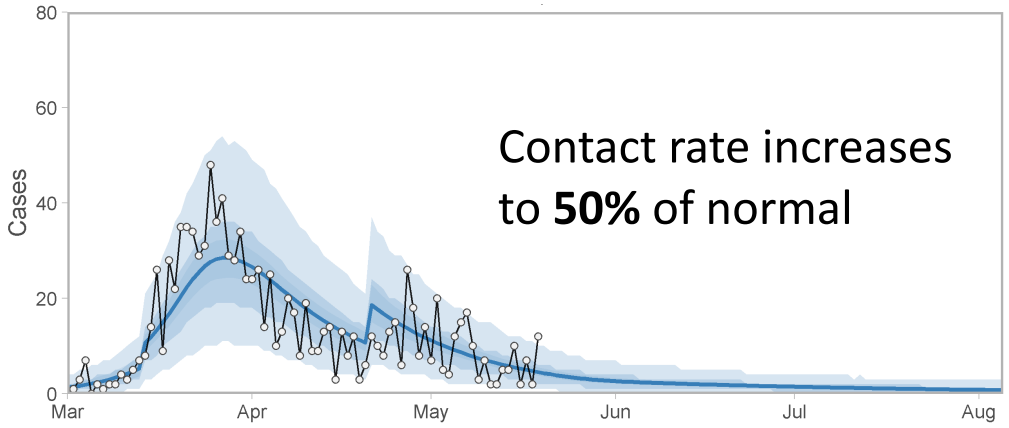
The model estimates that the rate of close contacts (that could lead to transmission) has declined to 38% of normal (95% credible interval: 34% - 43%).

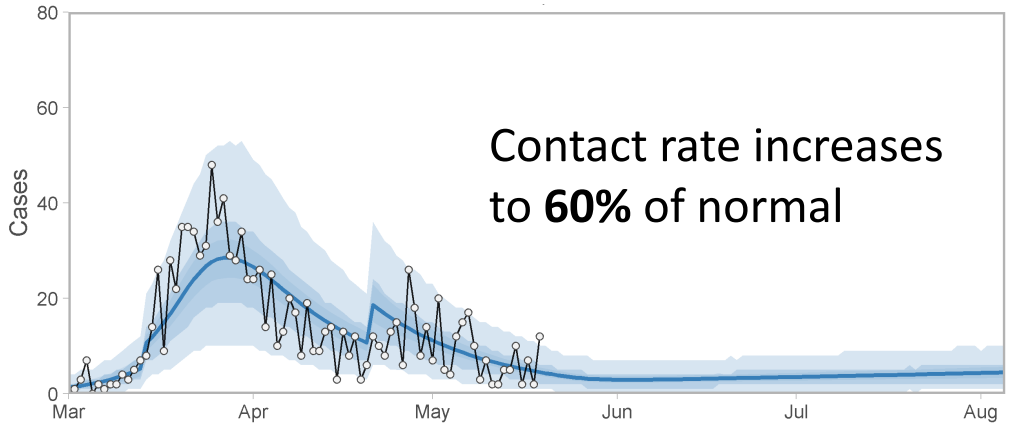


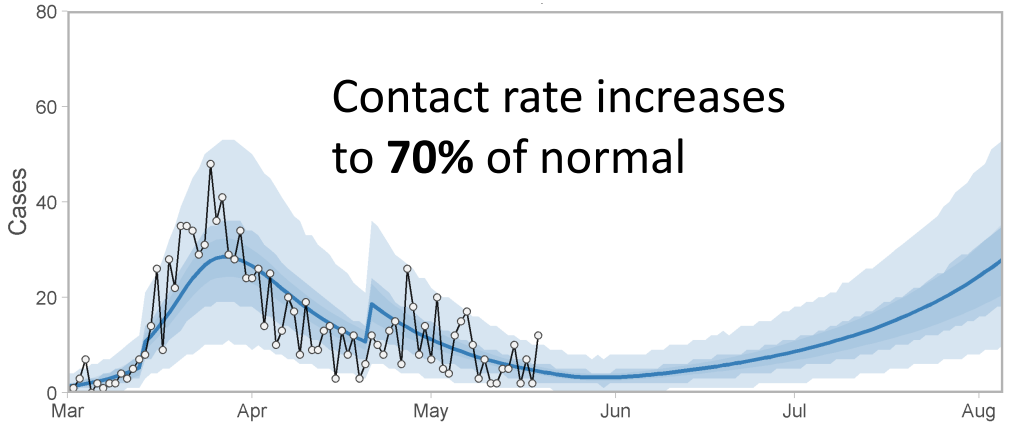

Solid blue line: mean; shaded bands: 50% and 90% credible intervals; Open circles: reported cases
Cases used for model fitting exclude those attributed to outbreak clusters

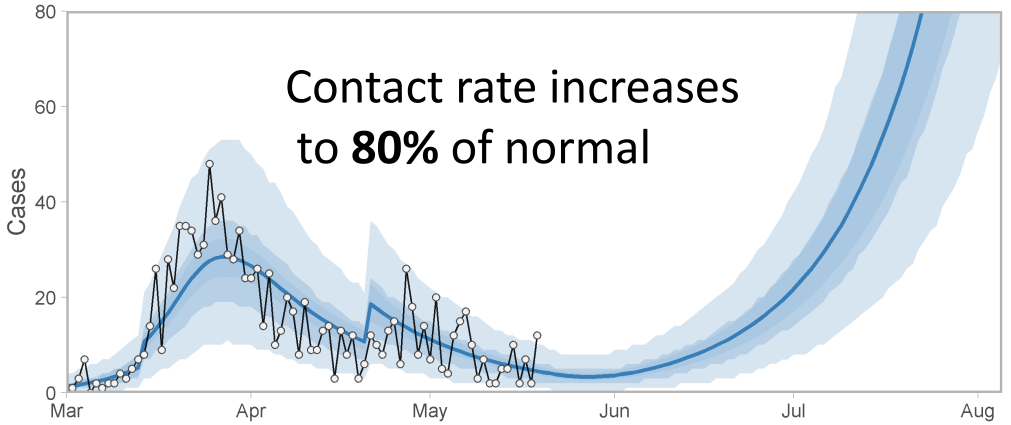
# As relaxation of distancing occurs, too much may result in a rapid rebound in transmission

Where just above threshold, reducing transmission risk per contact will be important.

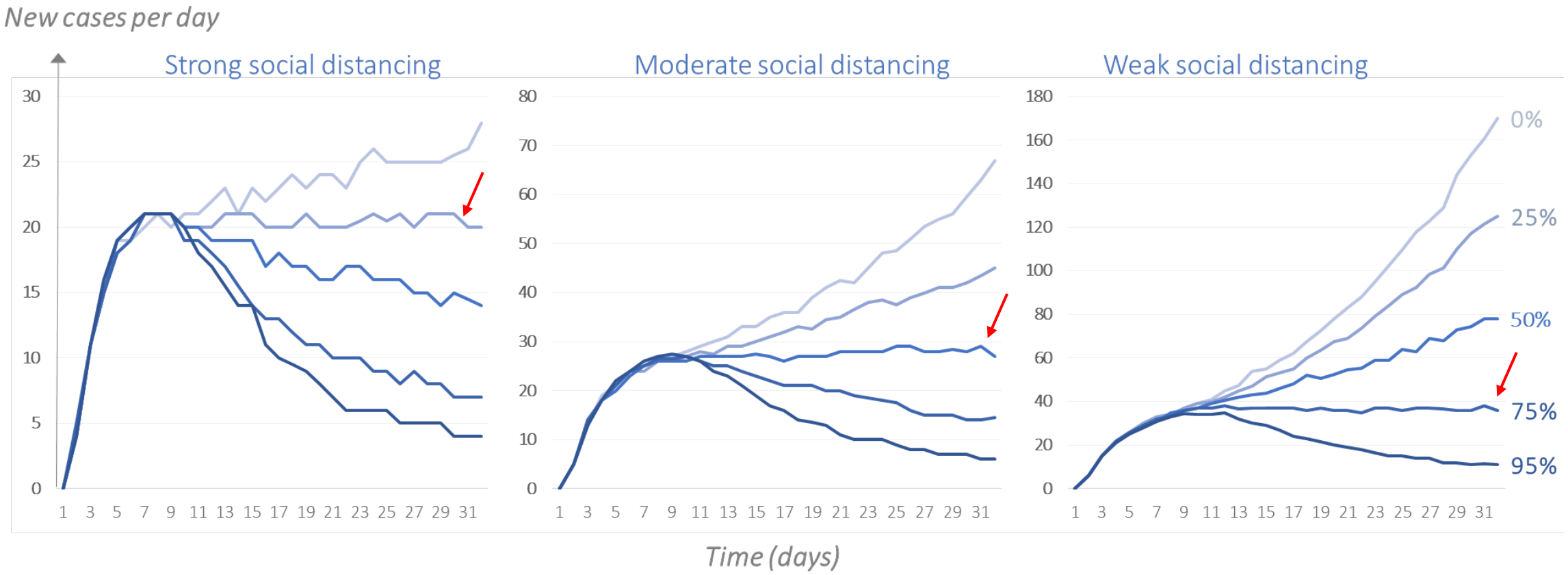


# Contact Tracing: Completeness Must Remain High




Minimum ~25% contact tracing needed to prevent growth

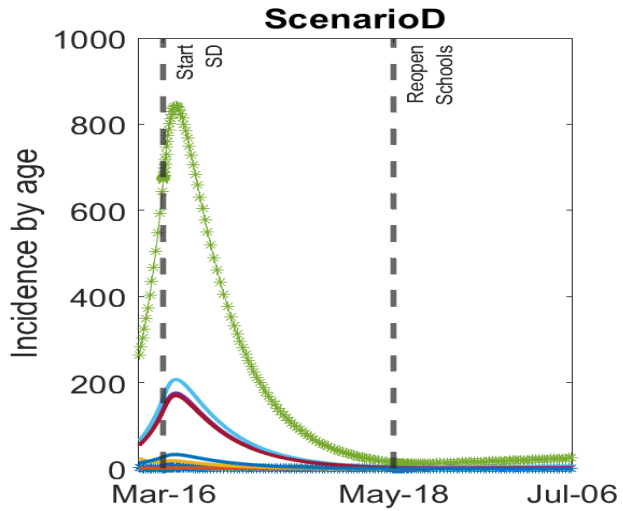
Minimum ~50% contact tracing needed to prevent growth

Minimum ~75% contact tracing needed to prevent growth

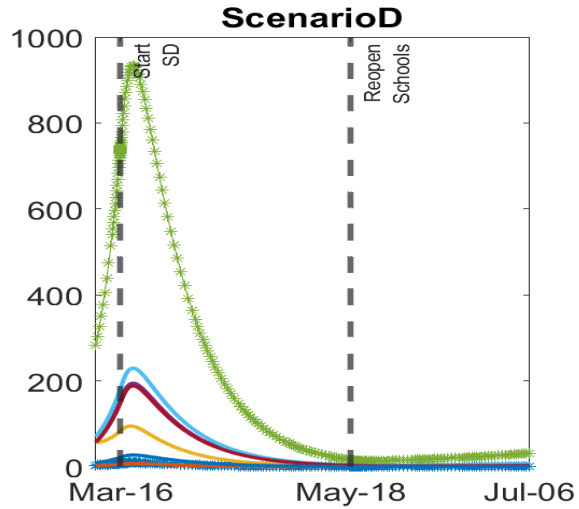
**Assuming Ro=2.05, importation=1, and 1-2 days to trace contacts*

# If transmission from children is lower than that from adults, risk of rebound associated with school opening is smaller

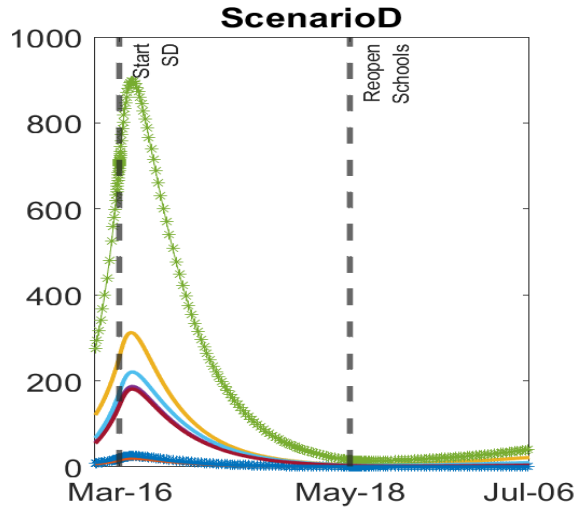
**Susceptibility = 5%**



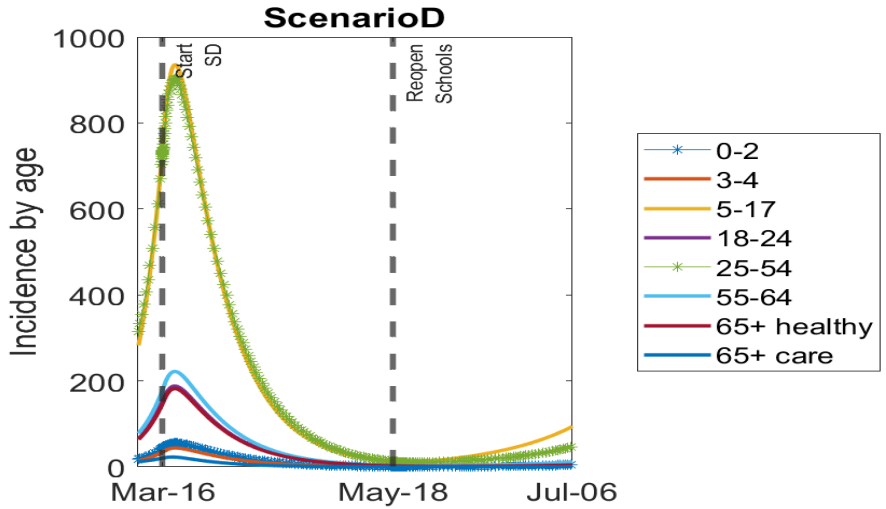

**Susceptibility = 20%**




**Susceptibility = 50%**




**Susceptibility = 100%**

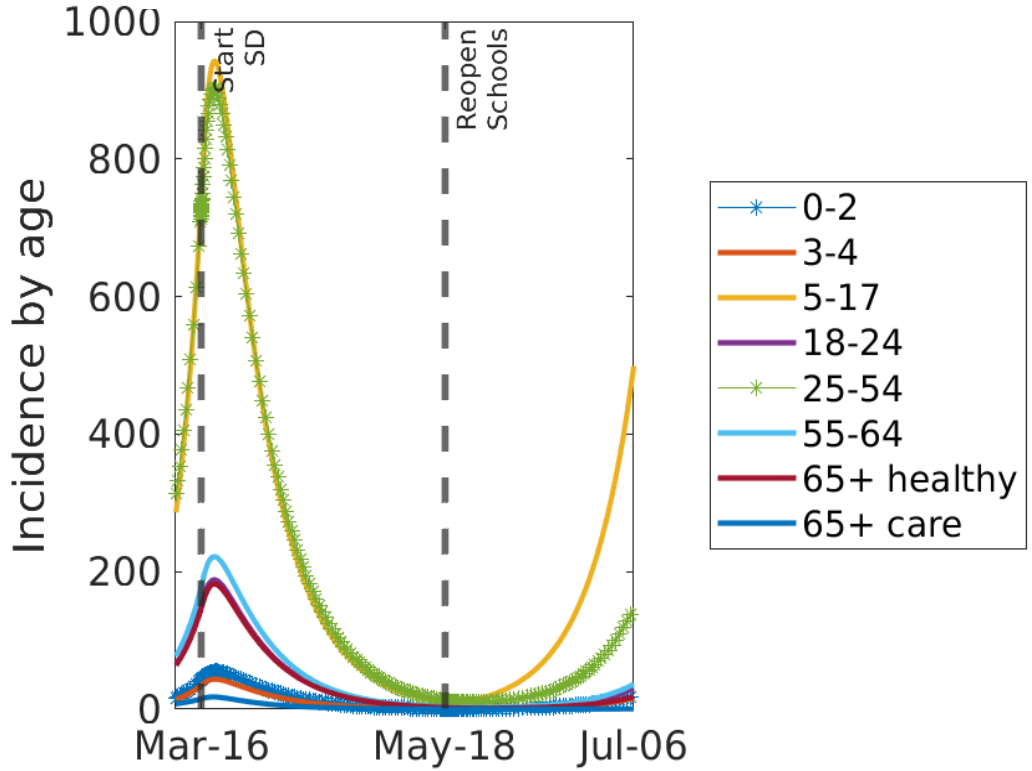



Greater susceptibility among children results in more rapid transmission with schools reopened, but mostly within this age group

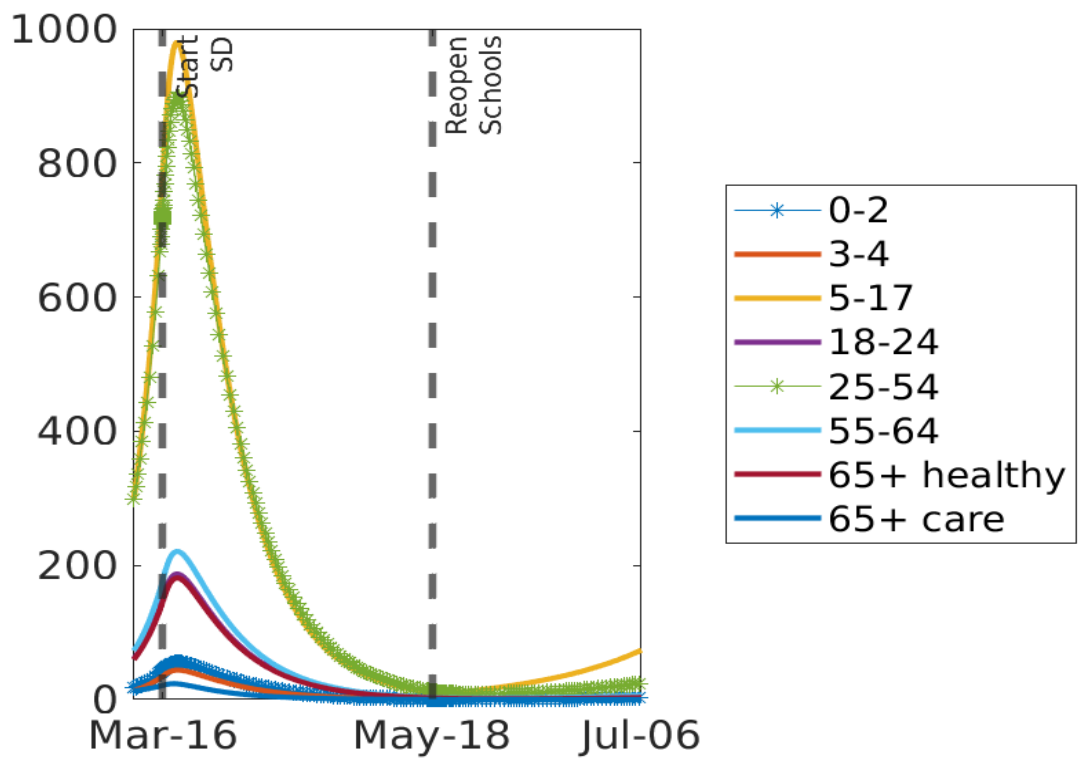
# Importance of Self-Isolation

- Self-isolation by symptomatic individuals greatly reduces transmission in these school opening scenarios

**20% self-isolate**




**50% self-isolate**



# Key Messages

1. The number of reported cases and hospitalizations remain low.
2. The majority of cases are related to local acquisition through a known case or cluster.
3. Sex distribution among cases is equal, however males have a higher proportion of hospitalization, ICU admission and deaths.
4. **To keep Ro below 1 we must:**
   - **Avoid increasing contact rates too much**
   - **Stay home when sick**
   - **Embrace measures to reduce transmission when contact cannot be avoided**
   - **Assure that testing and contact tracing perform well (Push for 95% Completeness)**
5. We need to learn more about childhood susceptibility. If transmission from children is truly lower than that from adults, risks associated with school opening are smaller