

BCCDC Data Summary

17 June 2021

Purpose

The surveillance deck is a summary of COVID-19 related indicators that can help inform the pandemic response in British Columbia. This surveillance monitoring constitutes the medical chart for population health assessment that guides the public health community of practice. As such this is a working document that reflects a snapshot in time and may differ from other published reports.

Data Sources

The collection, use and disclosure of case data is subject to the Public Health Act. COVID-19 cases are reported under the Public Health Act to the health authority of residence. Public health case notification, clinical management, contact tracing and follow-up contributes surveillance data for regional and provincial COVID-19 monitoring. Each regional health authority have their own workflows and information systems for capture of relevant data. This data foremost serves the public health and clinical management of the case and their contacts.

Disclaimer

- Data and key messages within these documents are not finalized and considered to be work in progress that is subject to retroactive changes as more data and information become available.
- Accurate interpretation of figures may be difficult with the limited inclusion of data notes and methodology descriptions in this document.

Table of Contents

Overall Summary	4
Surveillance	5
BC Epidemiology.....	5
Vaccinations.....	15
Labs/Genomics.....	21
Modelling.....	29
NEW Assessment of the UK epidemiological situation.....	31
Additional Resources.....	46

Overall Summary

- **Case rates** are declining in all HAs, and provincially cases are back to September 2020 levels; **test positivity** continues to decline, ~3.7% provincially for publicly funded tests and 2.7% for all tests.
 - Percent positivity $\leq 5\%$ in all HAs and age groups is declining
- **New hospitalizations** continue to decline; **hospital/critical care census** is declining across BC (at April 2020 level); **new deaths** are stable and low.
 - Majority of hospitalizations continue to be among individuals aged >40 years
- The share of **VOCs** among all positive tests in BC is ~90% from June 6 to 12. Among sequenced samples provincially based on information for June 6 to 12, P.1(Gamma) (~45%) and B.1.1.7 (Alpha) (~49%) remain two dominant VOCs, with B.1.617.2 (Delta) representing ~6% of VOCs.
- **Vaccine** coverage in BC by age, June 17th: ~3/4 of 12+ and ~2/3 total population vaccinated. Vaccination rates among 30-39 years have slowed down, early signs of slowing among 20-29 years; ~1/4 of adults 50+ have their 2nd dose.
- Recent **case resurgence in the UK** is largely driven by infections in younger individuals, most of whom are not yet vaccinated. The UK situation is not directly comparable to BC, in part due to the differences in the distribution across age and geography of the unvaccinated susceptible population.

Jun 11 to Jun 17: BC COVID-19 Profile



146,794 total cases
798 new this week



1,739 total deaths
10 new this week

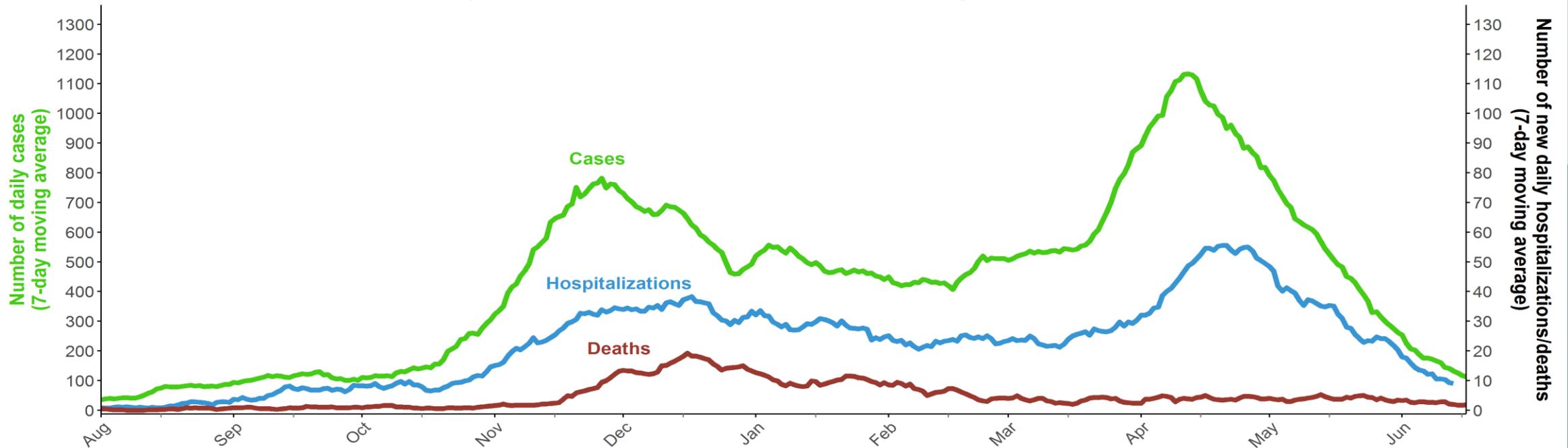


7,879 ever hospitalized
69 new this week



143,579 removed from isolation
1,265 new this week

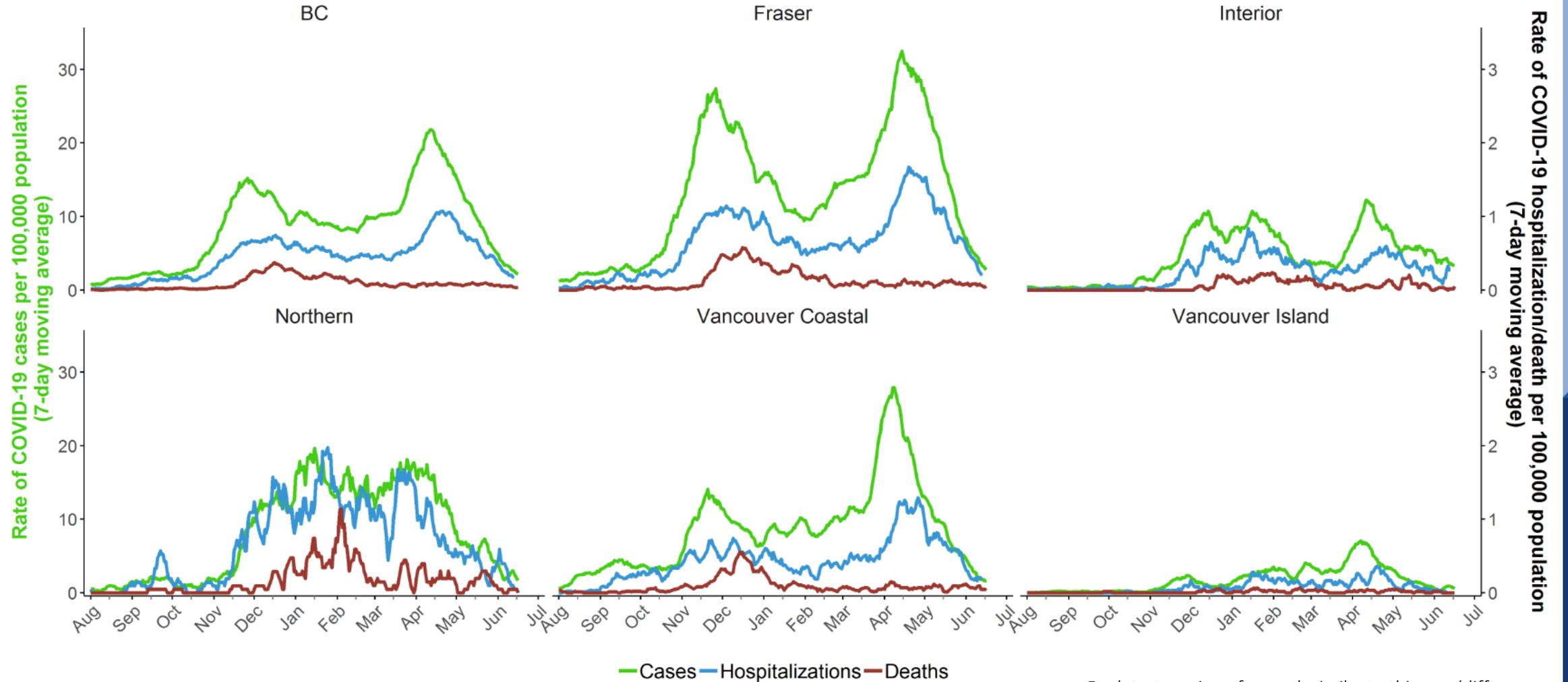
New daily COVID-19 cases, hospitalizations and deaths, Aug 01 2020 - Jun 16 2021



* Data are by surveillance date for cases and deaths, and admission date for hospitalizations
Data source: PHRDW Jun-17-2021

Case rates are declining in all HAs; new hospitalizations are declining or stable in all HAs; new deaths are stable and low.

Rate of COVID-19 case, hospitalization and death, Aug 01 2020 - Jun 16 2021



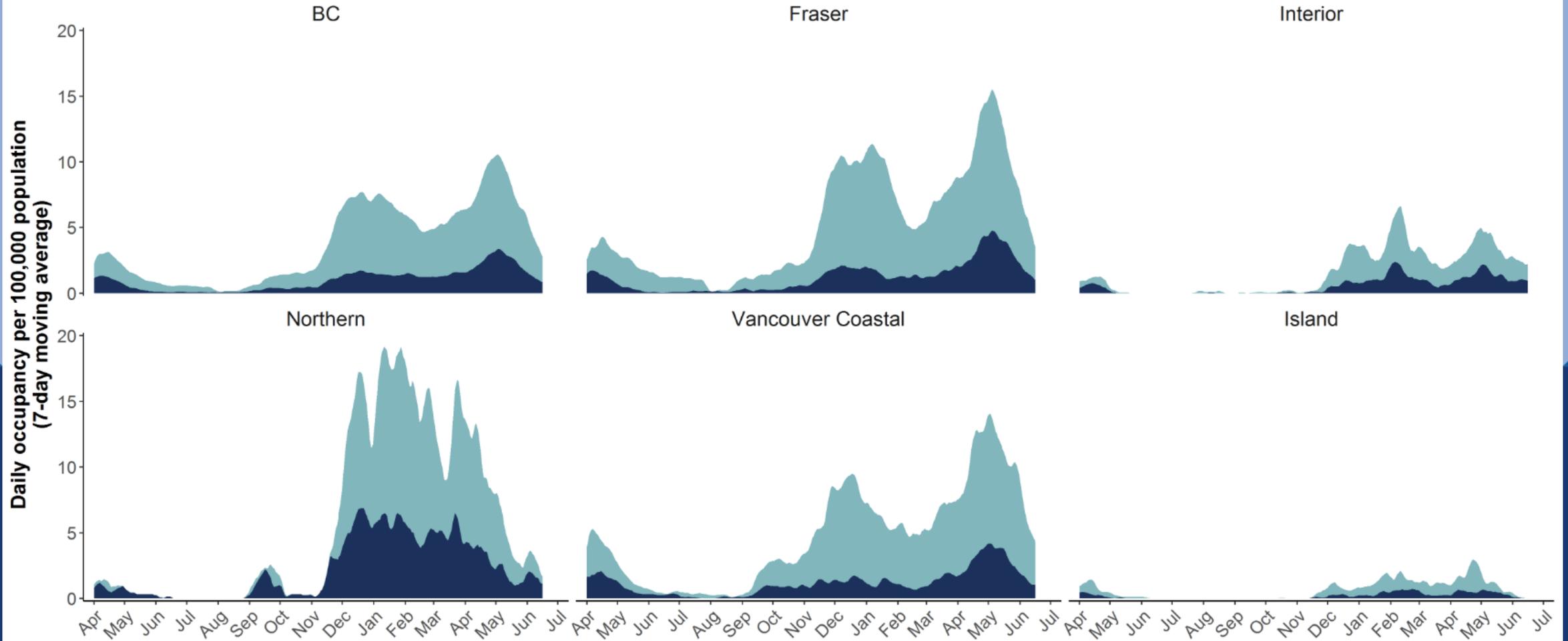
* Data are by surveillance date for cases and deaths, and admission date for hospitalizations
Data source: PHRDW Jun-17-2021

For latest version of a graph similar to this one (difference: hospital census, not new hospitalizations), see the [Epi App](#)

Hospital and critical care census is declining or stable in all regions.

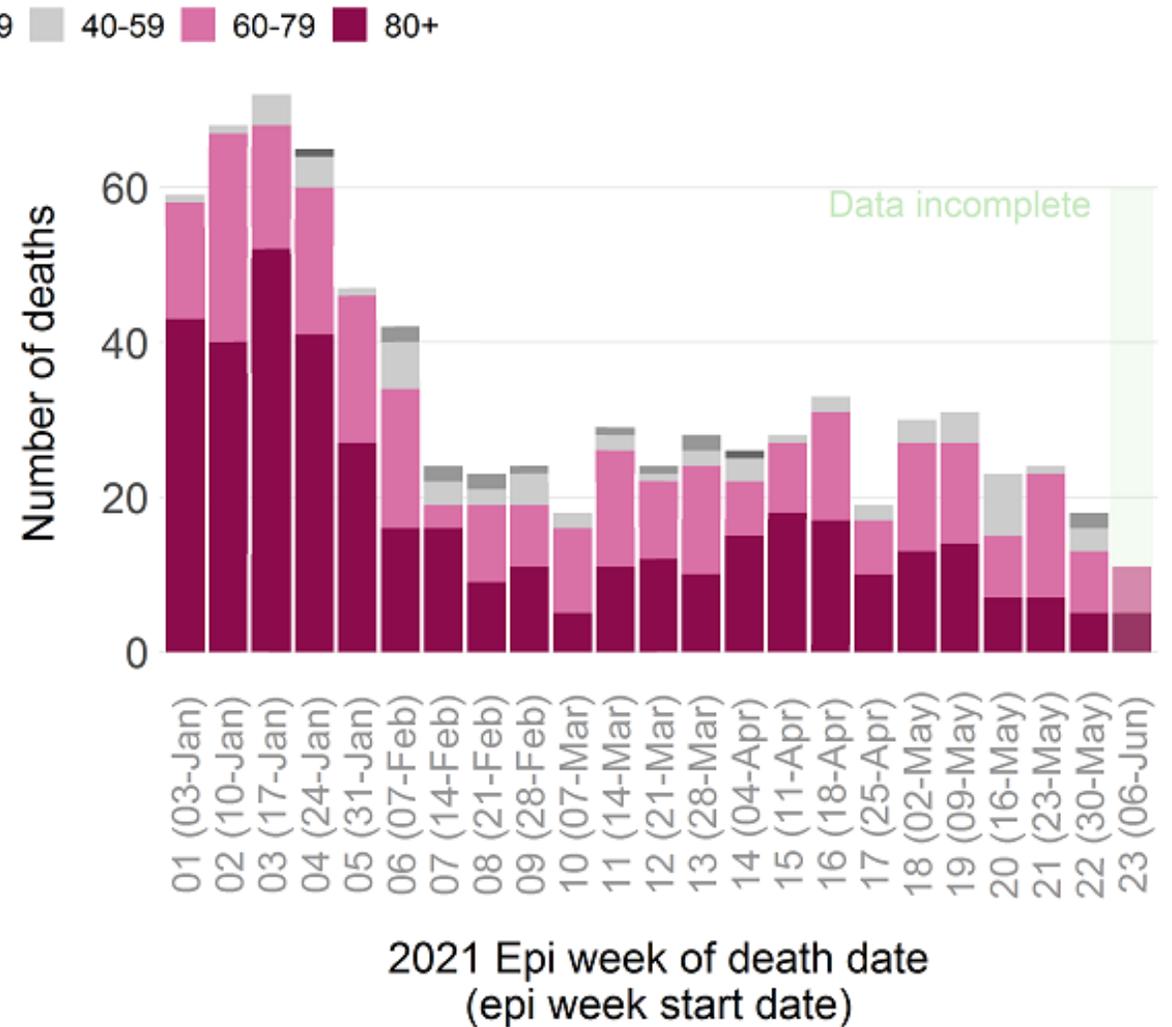
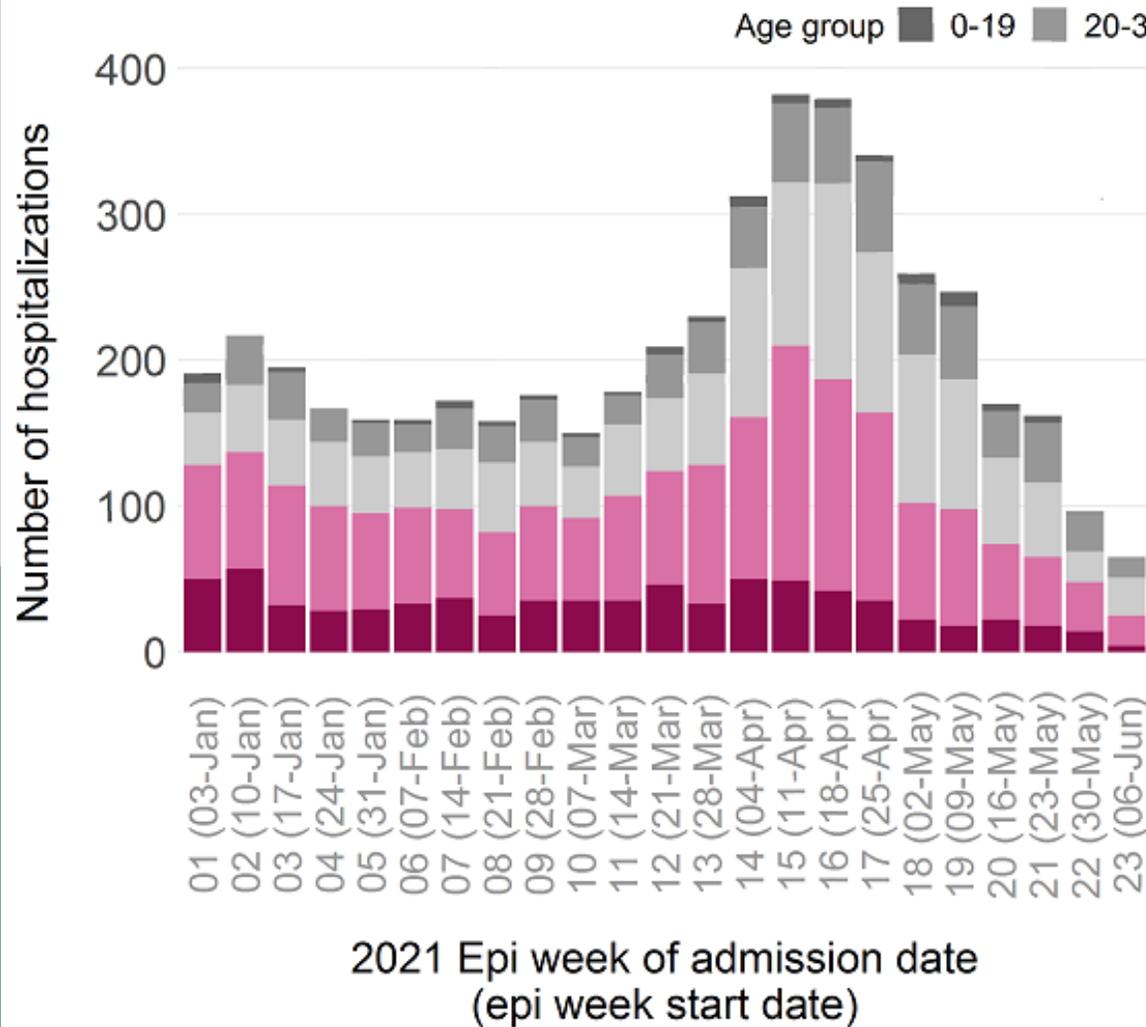
Current COVID-19 hospitalizations, Apr 01 2020 - Jun 16 2021

■ In the hospital but not in critical care ■ In critical care

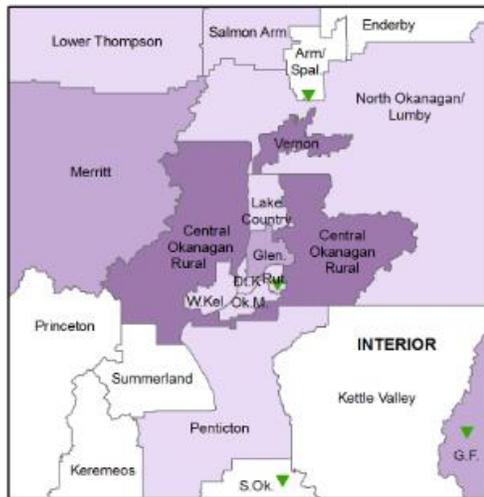


* Data are by census date for hospitalizations
Data source: PHSa Provincial COVID19 Monitoring Solution (PCMS) Jun-17-2021

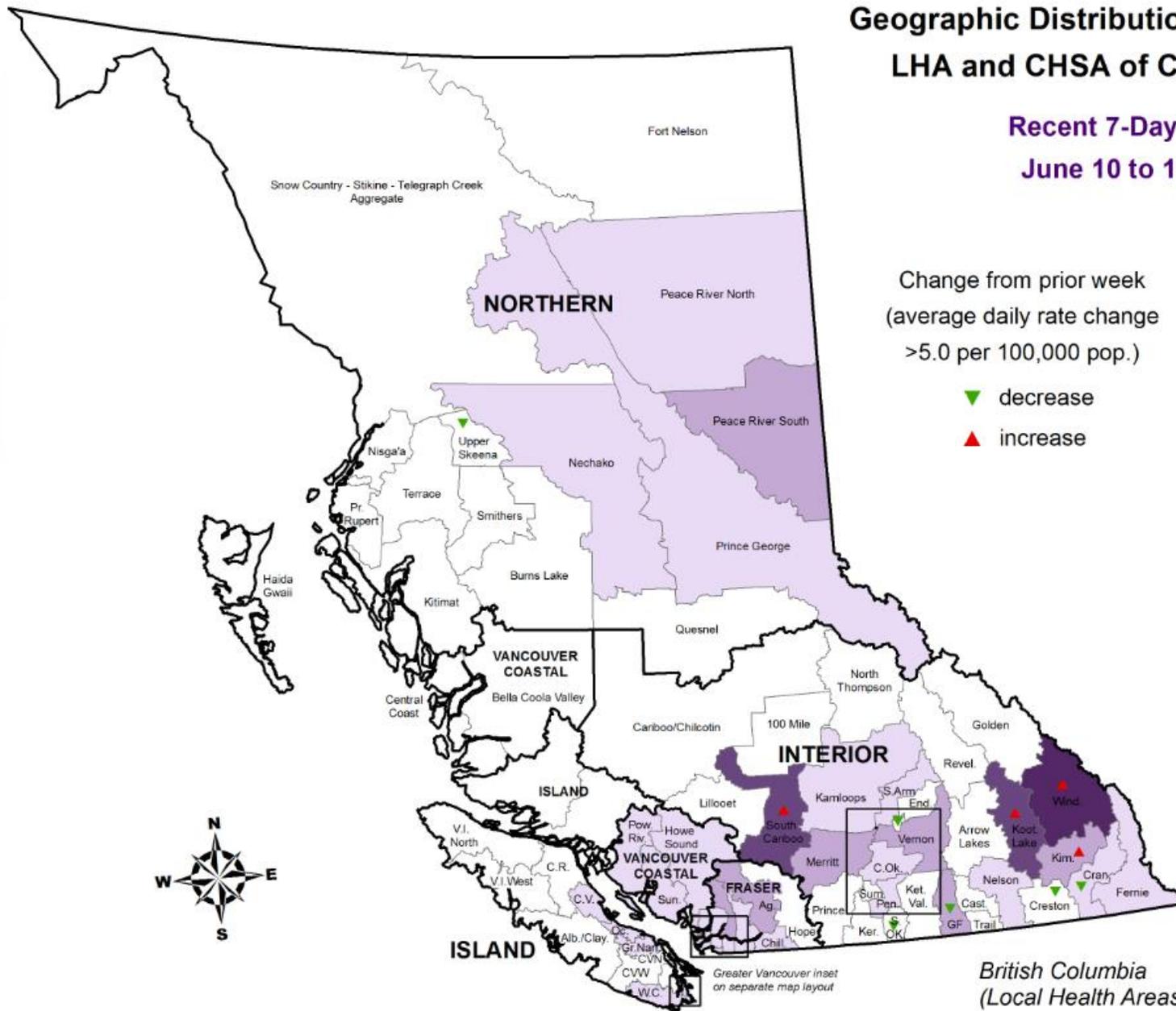
Number of new hospital admissions continues to decrease. The number of hospitalizations among individuals <40 years is low. Deaths are low and mostly among individuals ≥ 60 years.



Okanagan Inset
(Community Health Service Areas)



Greater Victoria Inset
(Community Health Service Areas)



Geographic Distribution of COVID-19 by LHA and CHSA of Case Residence

Recent 7-Days Cases
June 10 to 16, 2021

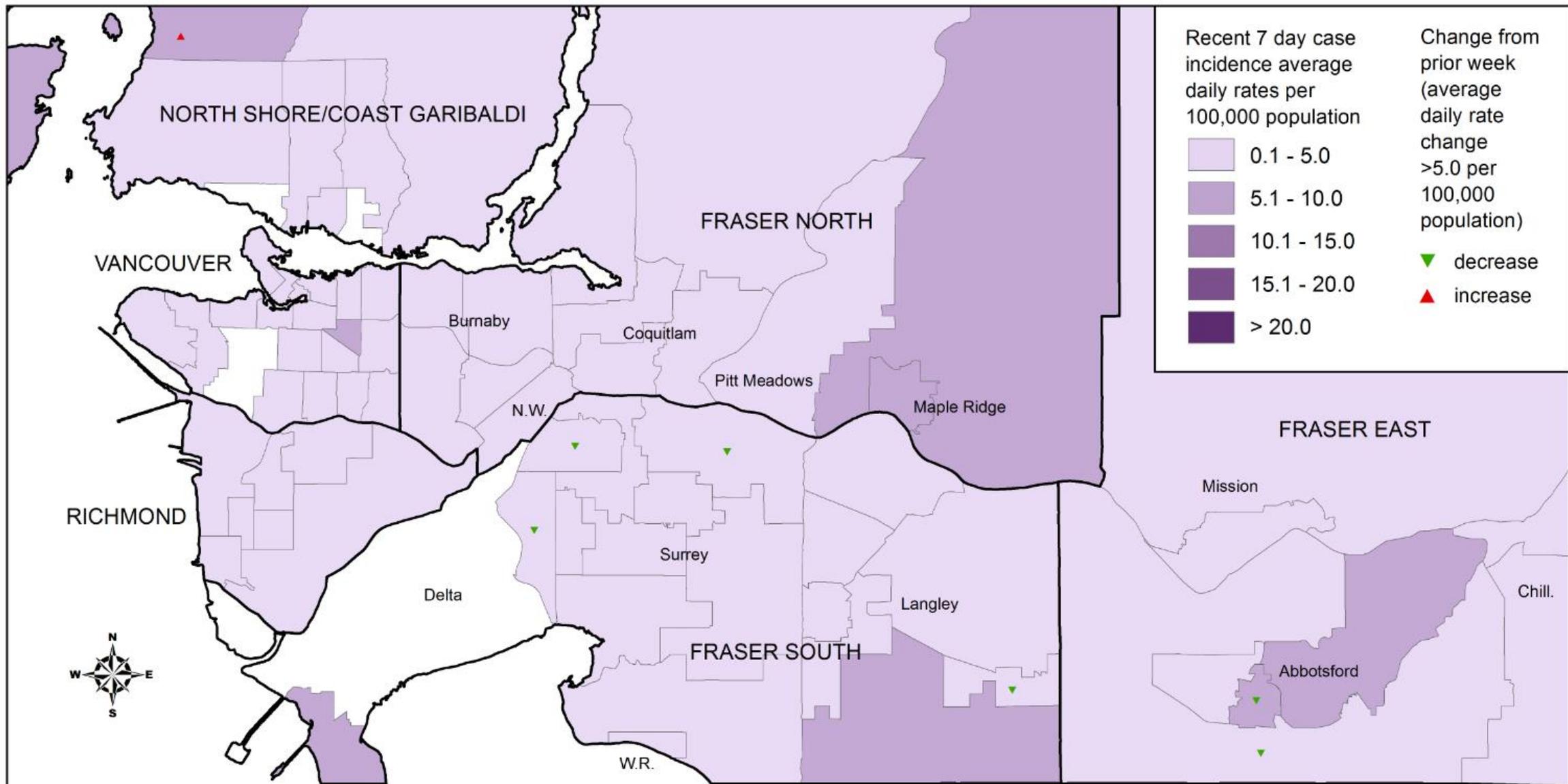
Change from prior week
(average daily rate change
>5.0 per 100,000 pop.)

- ▼ decrease
- ▲ increase

Average daily rate per
100,000 population

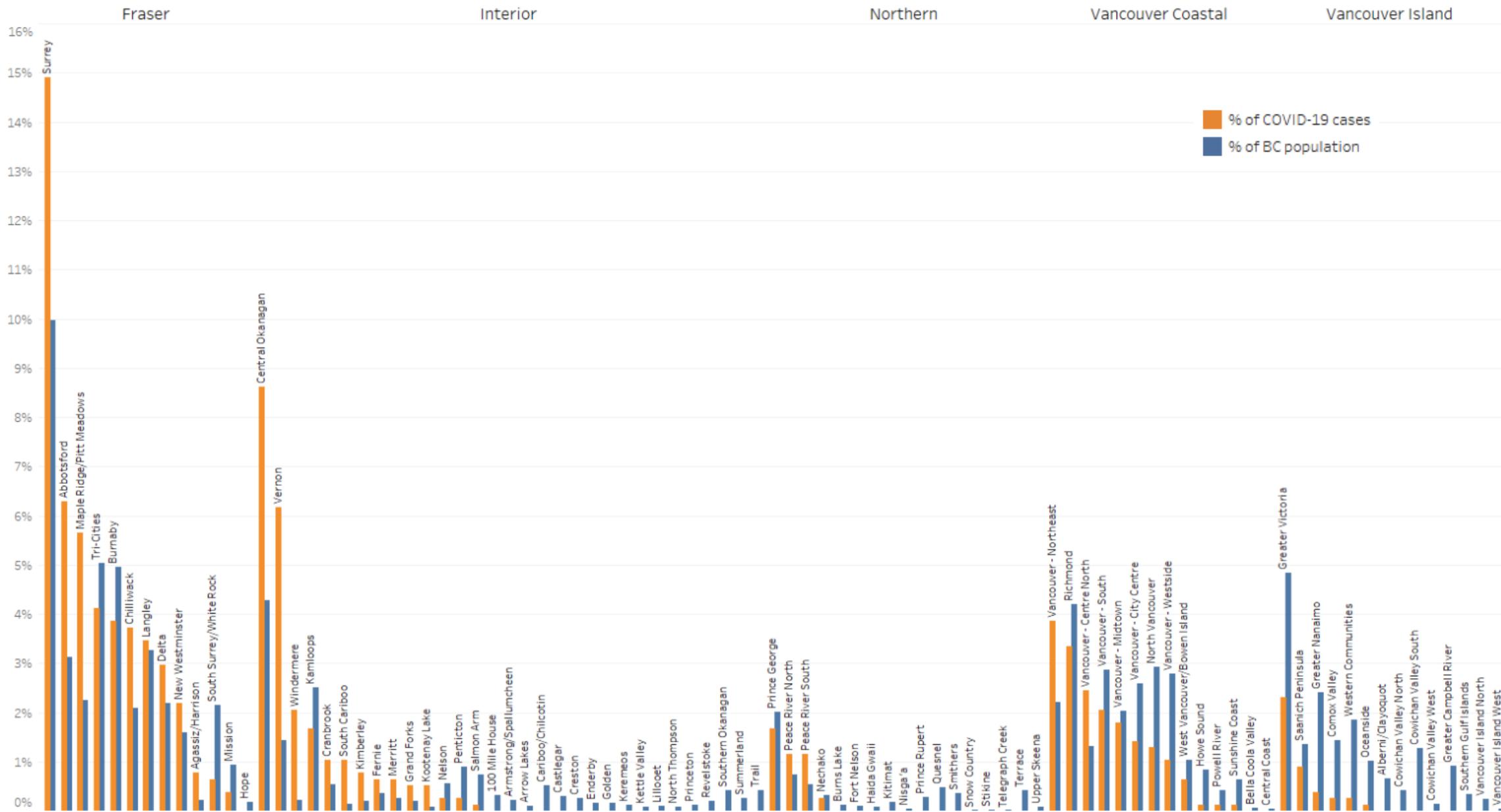
- 0.0
- 0.1 - 5.0
- 5.1 - 10.0
- 10.1 - 15.0
- 15.1 - 20.0
- > 20.0

Data source: Public Health Reporting Data Warehouse (PHRDW) integrated COVID dataset; we operate in a live database environment and case information is updated as it becomes available. Cases are mapped by location of residence; cases with unknown residence and from out of province are not mapped. Data are by date of first positive test, or date reported to public health for epi-linked cases. Population denominator from BC Stats PEOPLE estimates for 2021.

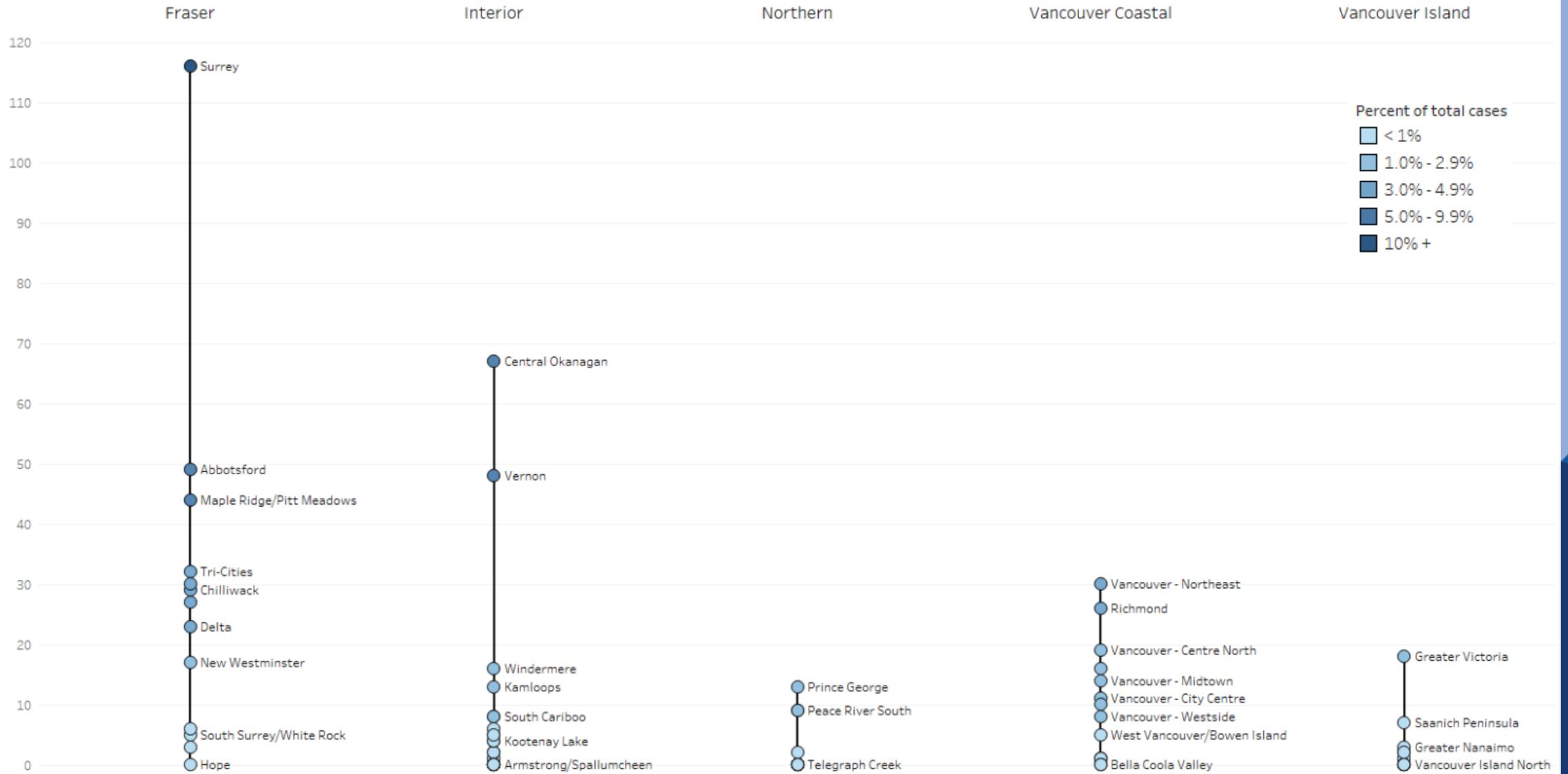


COVID-19 Recent 7-Day Case Incidence Rates by CHSA (June 10 to 16, 2021)

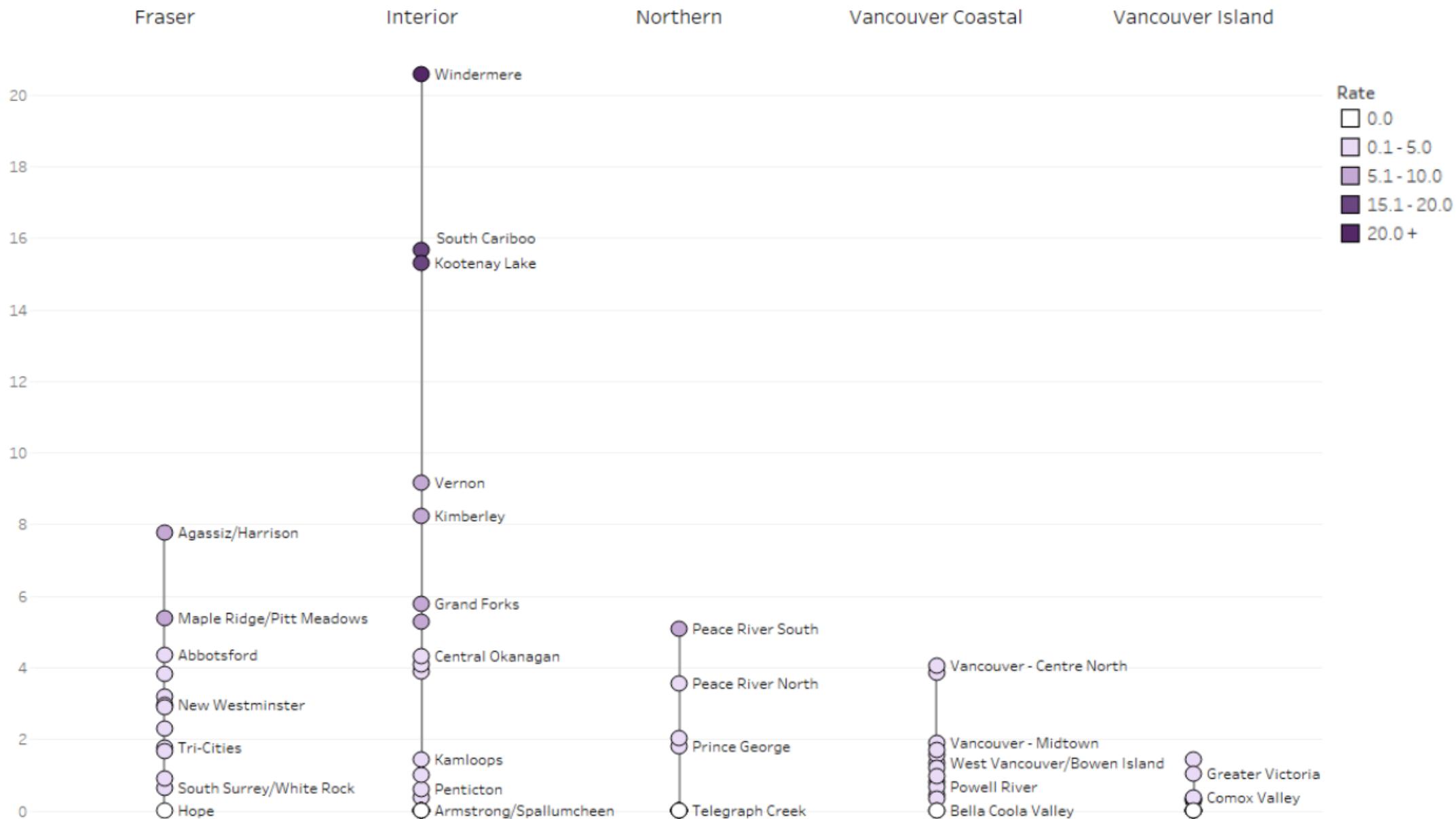
Proportion to total cases & population by local health area, Jun 10 - Jun 16, 2021



Total cases by local health area, Jun 10 - Jun 16, 2021

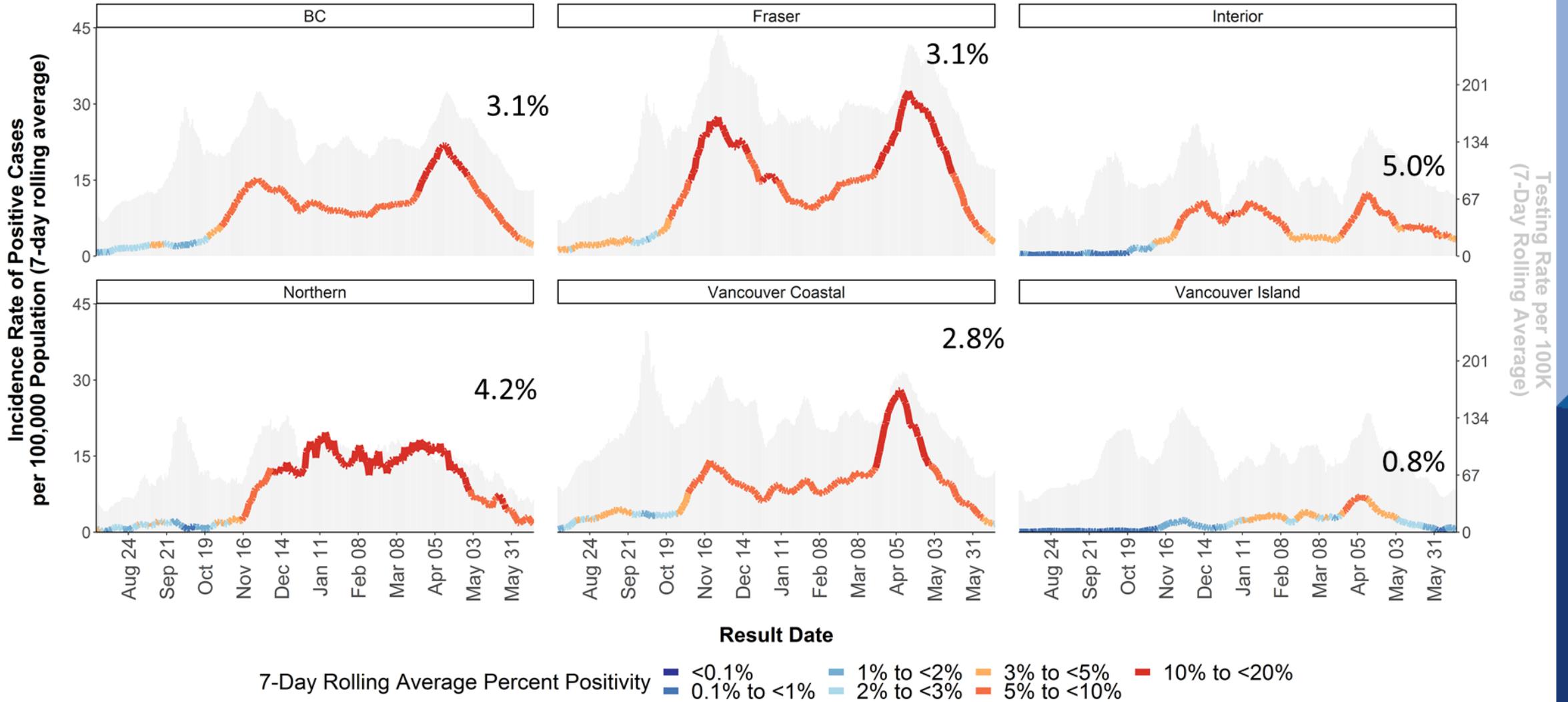


Average daily **rate** of new cases per 100,000 population, by local health area, Jun 10 - Jun 16, 2021



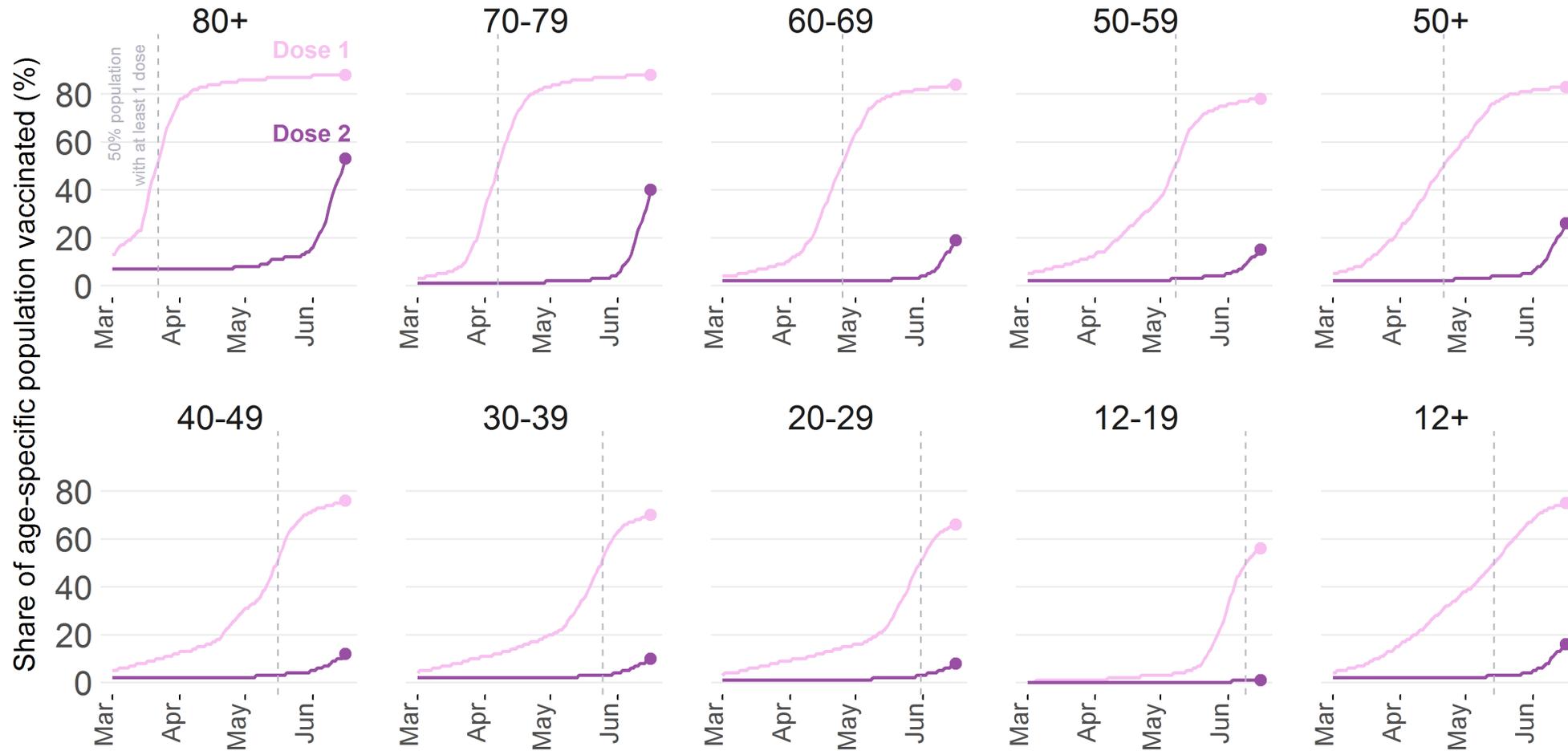
Case incidence decreasing or stable in all HAs. Percent positivity $\leq 5\%$ in all HAs.

Case incidence rate, test percent positivity, and testing rate (Public Payers Only). Aug 1 2020 - Jun 16, 2021.



Data source: PLOVER 16-Jun-2021

Vaccine coverage in BC by age, June 17th: ~3/4 of 12+ and ~2/3 total population vaccinated. Vaccination rates among 30 year olds have slowed down, early signs of slowing among 20 year olds; ~1 in 4 of adults 50+ have their 2nd dose.

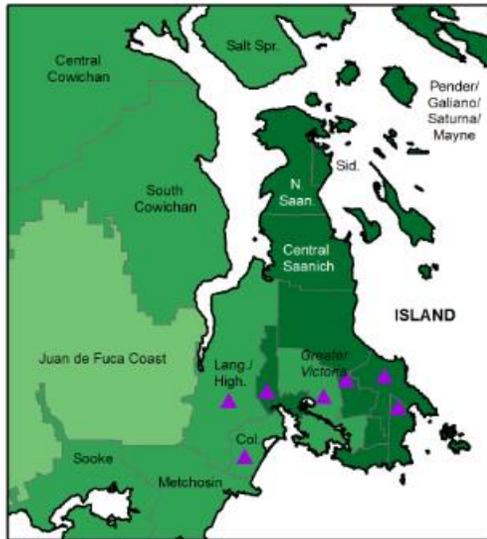


Data updated 2021-06-17
Data Source: Provincial Immunization Registry, PHSA

Okanagan Inset
(Community Health Service Areas)

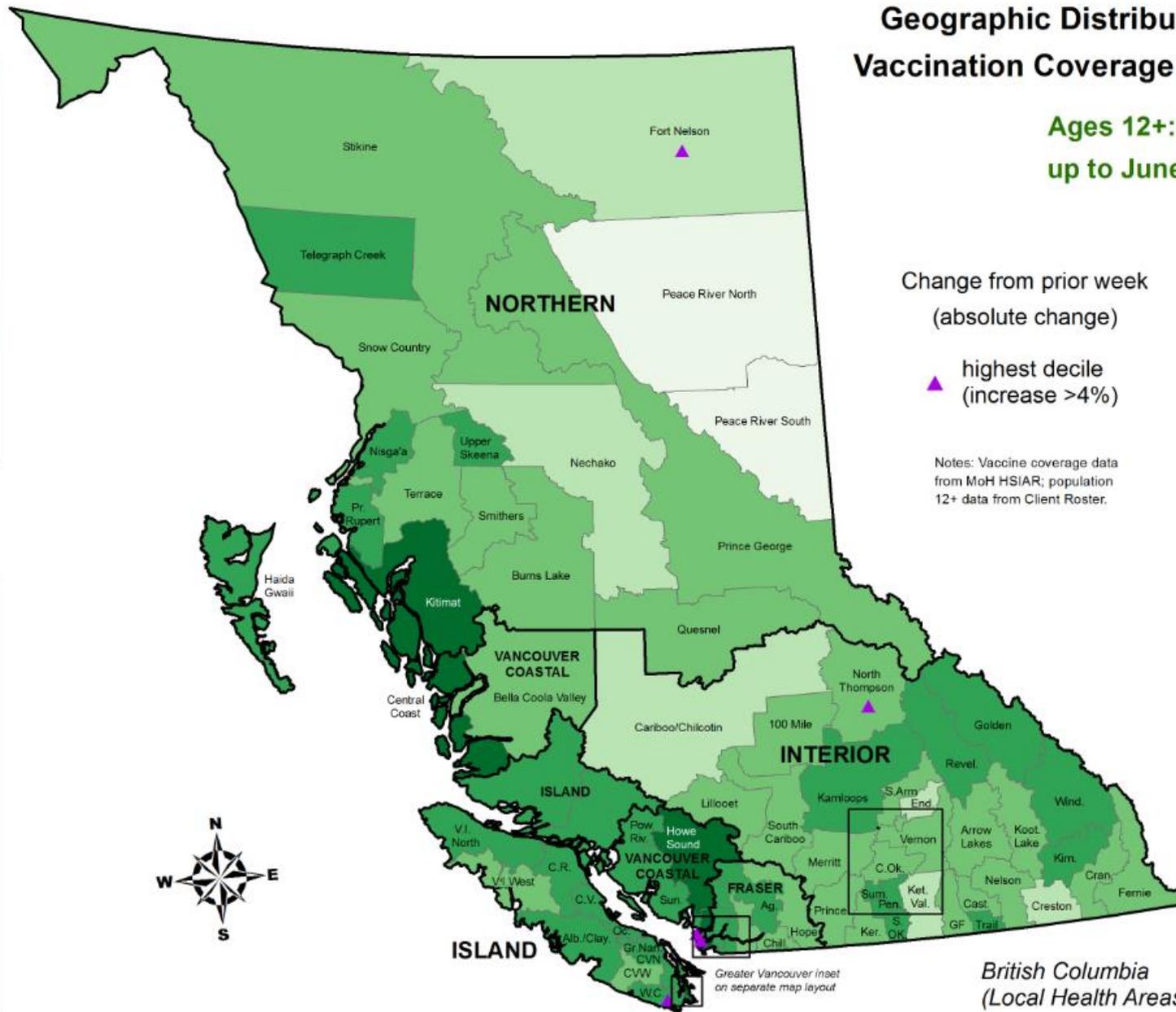


Greater Victoria Inset
(Community Health Service Areas)



Geographic Distribution of COVID-19 Vaccination Coverage by LHA and CHSA

Ages 12+: 1st Dose up to June 14, 2021



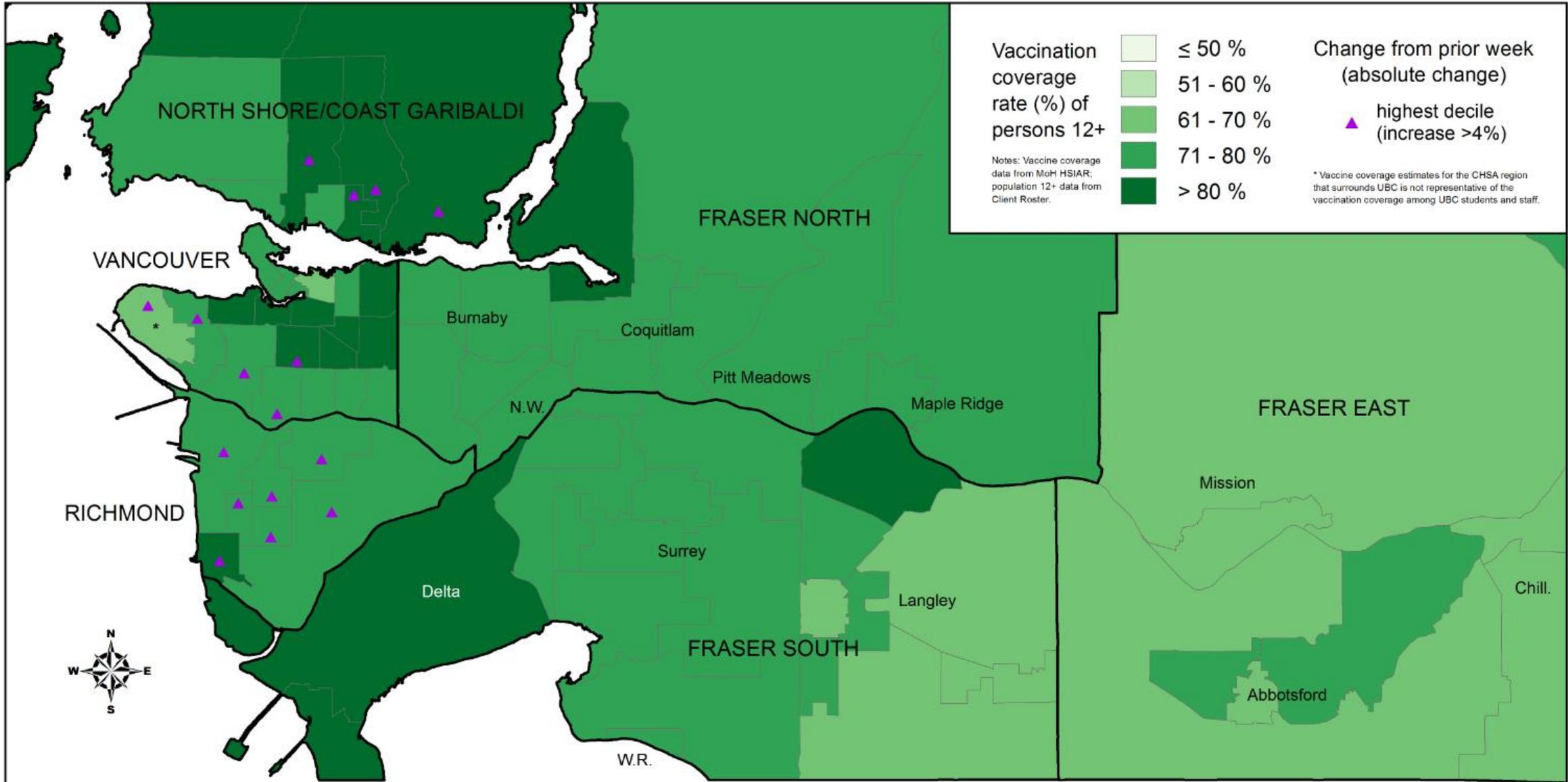
Change from prior week (absolute change)

▲ highest decile (increase >4%)

Notes: Vaccine coverage data from MoH HSIAR; population 12+ data from Client Roster.

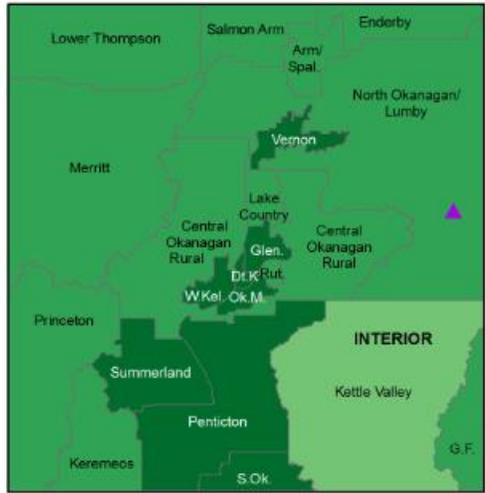
Vaccination coverage rate (%) of persons 12+

- ≤ 50 %
- 51 - 60 %
- 61 - 70 %
- 71 - 80 %
- > 80 %



COVID-19 Vaccination Coverage by CHSA: Ages 12+ 1st Dose (up to June 14, 2021)

Okanagan Inset
(Community Health Service Areas)

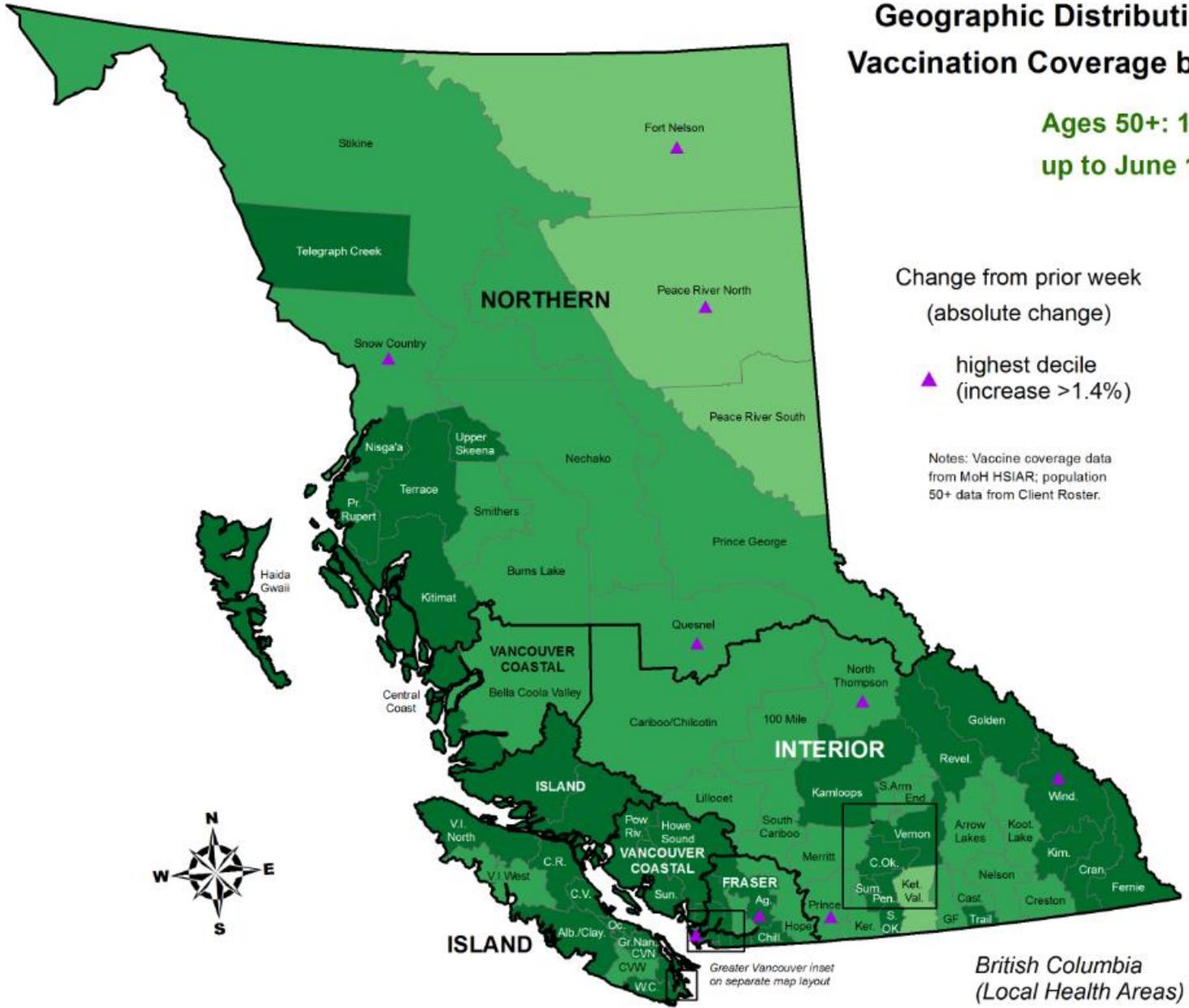


Greater Victoria Inset
(Community Health Service Areas)



Geographic Distribution of COVID-19 Vaccination Coverage by LHA and CHSA

Ages 50+: 1st Dose up to June 14, 2021



Change from prior week (absolute change)

▲ highest decile (increase > 1.4%)

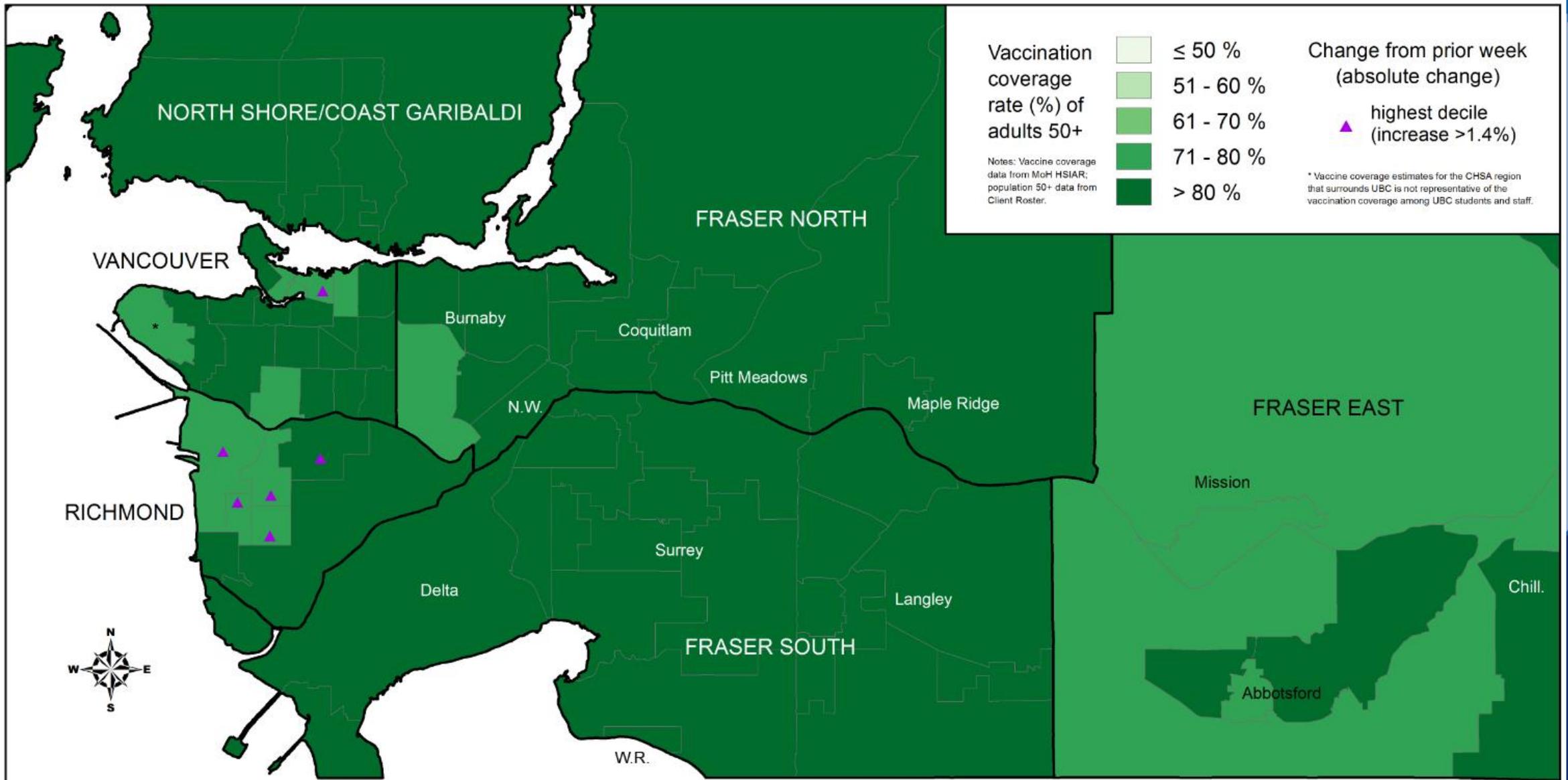
Notes: Vaccine coverage data from MoH HSIAR; population 50+ data from Client Roster.

Vaccination coverage rate (%) of adults 50+

- ≤ 50 %
- 51 - 60 %
- 61 - 70 %
- 71 - 80 %
- > 80 %

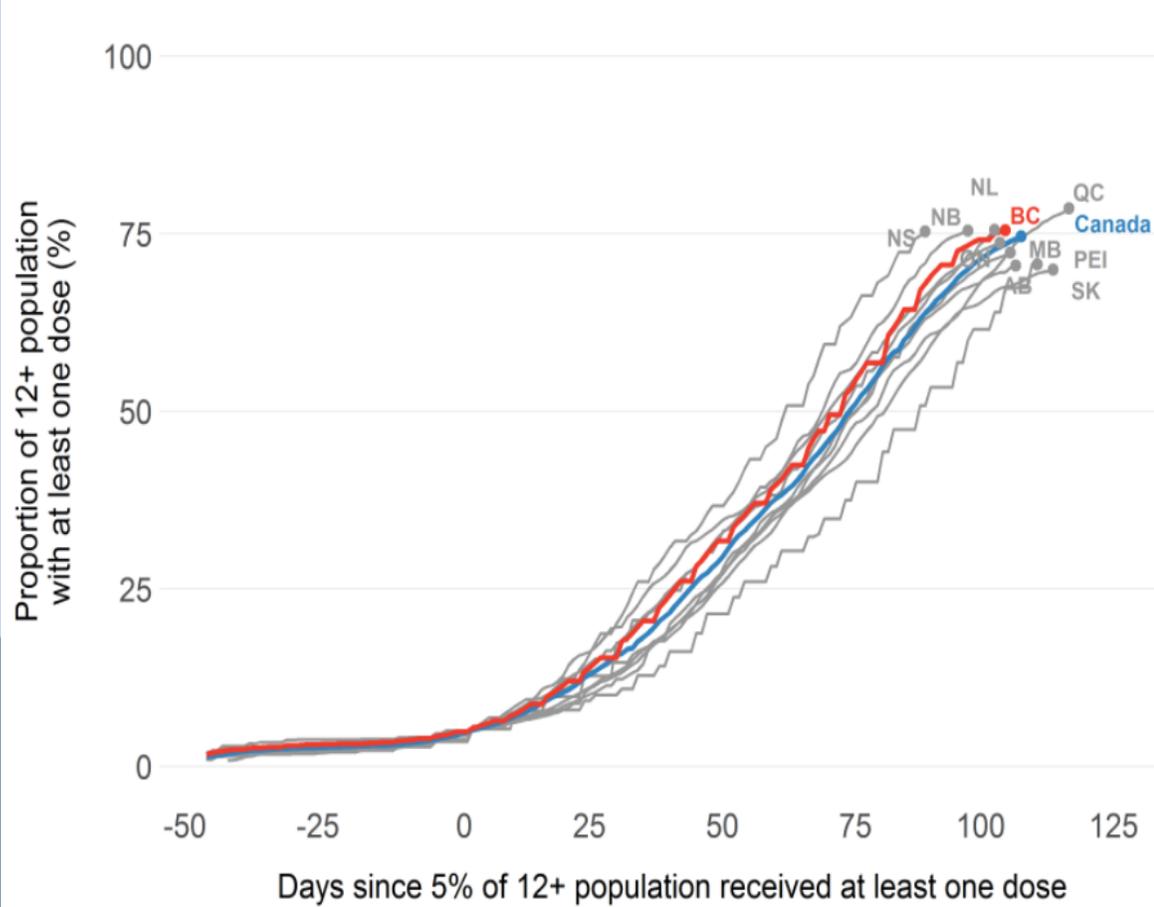


British Columbia
(Local Health Areas)

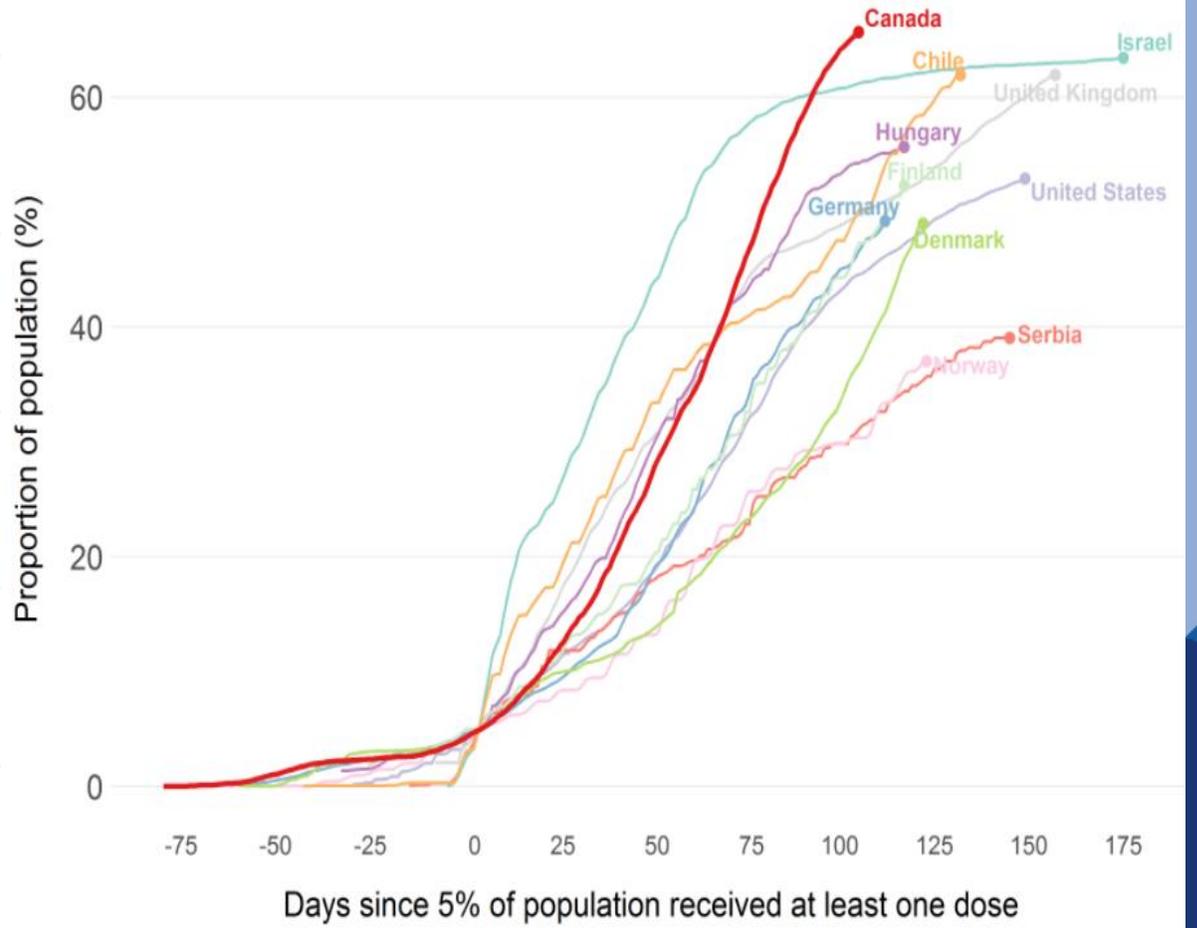


COVID-19 Vaccination Coverage by CHSA: Ages 50+ 1st Dose (up to June 14, 2021)

Nationally, BC's vaccination rate is very close to Canadian average; internationally, Canada is one of the countries with the highest proportion of the population with at least one dose.



Data from COVID-19 Canada Open Data Working Group and extracted 2021-06-17
Population denominator from Statistics Canada table 17-10-0005-01; 12-14 year old age group estimated



Data from Our World in Data and extracted on 2021-06-17

Data source: [Open Data](#)
Visualization: BCCDC

Data source: [Our World in Data](#)
Visualization: BCCDC

Lab - Key Messages

1. **Percent positivity** among publicly funded tests is 3.7% and among all tests it is 2.7%.
 - Testing rates decreased 4% this week (~38,000 total tests June 6 to June 12)
2. There are regional differences in percent positivity, ranging from 0.8% in VIHA to 5.0% in IH.
3. Incidence continues to decline in all age groups; percent positivity is $\leq 5\%$ in all age groups.
4. The provincial weekly median **turnaround time** (time from specimen collection to lab result) is 13 hours, indicating good testing capacity; only 1 in 4 tests took ≥ 24 hours to result.
5. The share of **VOCs** among all positive tests in BC is ~90% from June 6 to 12.
6. Sequencing-based VOC prevalence for June 6 to 12 shows distribution of lineages: P.1 (Gamma)~45%, B.1.1.7 (Alpha)~49% and B.1.617.2 (Delta) ~6%.

Weekly Summary of ALL lab tests performed

2,820,994	total specimens tested
37,928	new this epi week
154,184	total positive specimens
1,021	new positive this epi week
15 hr	mean turnaround time (TAT)
13 [9-24]	Median [Q1 – Q3] TAT

↓ 4% relative to last week

2.7% positivity
↓ 0.9% absolute change from last week

↑ 4% TAT relative to last week

Weekly Summary of Lab tests paid Publicly

2,315,634	total specimens tested
27,536	new this epi week
152,789	total positive specimens
1,008	new positive this epi week

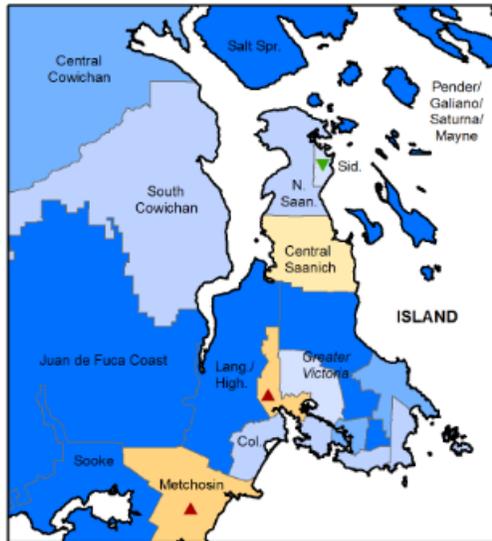
↓ 3% relative to last week

3.7% positivity
↓ 1.3% absolute change from last week²²

Okanagan Inset
(Community Health Service Areas)

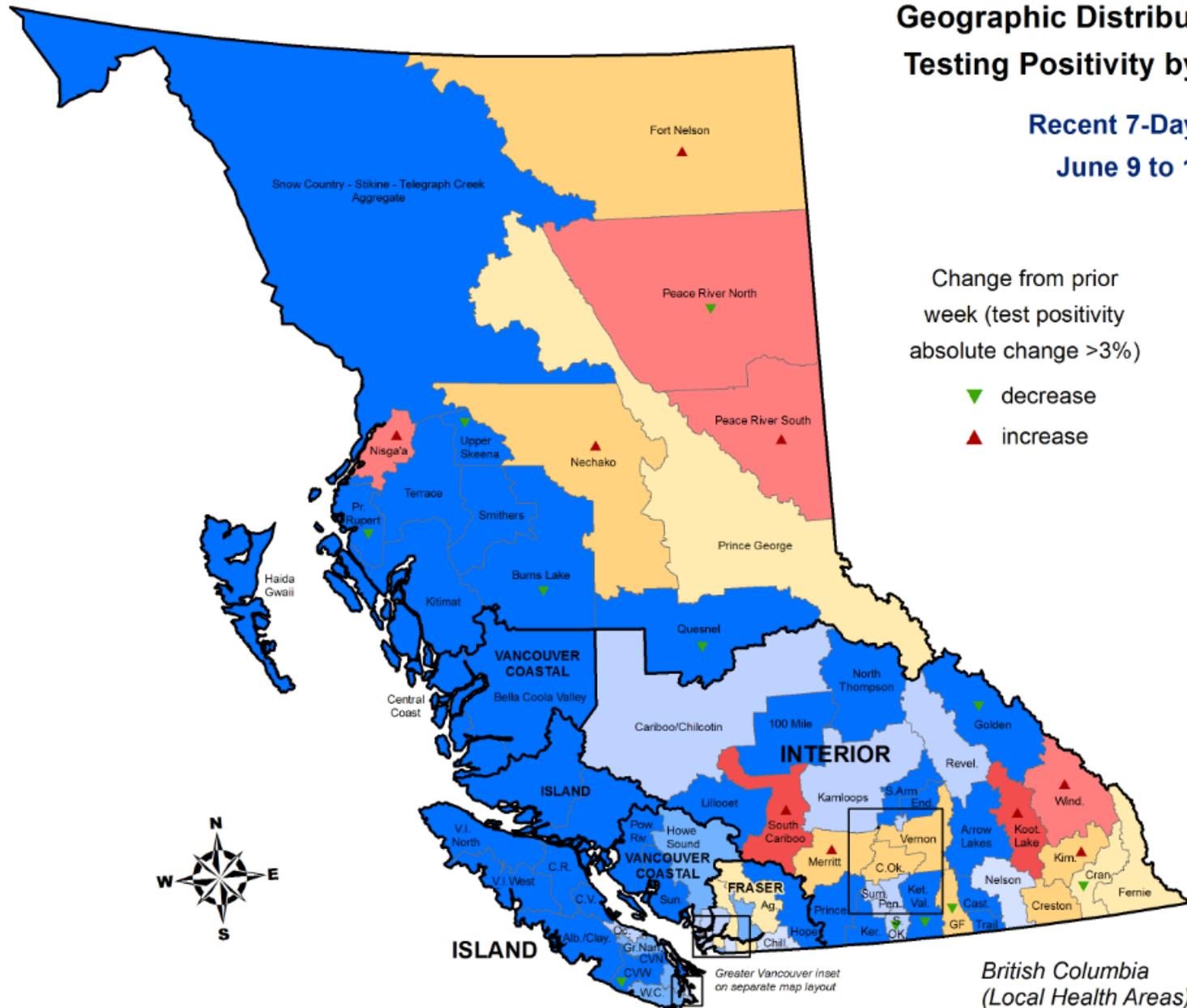


Greater Victoria Inset
(Community Health Service Areas)



Geographic Distribution of COVID-19 Testing Positivity by LHA and CHSA

Recent 7-Days Testing
June 9 to 15, 2021



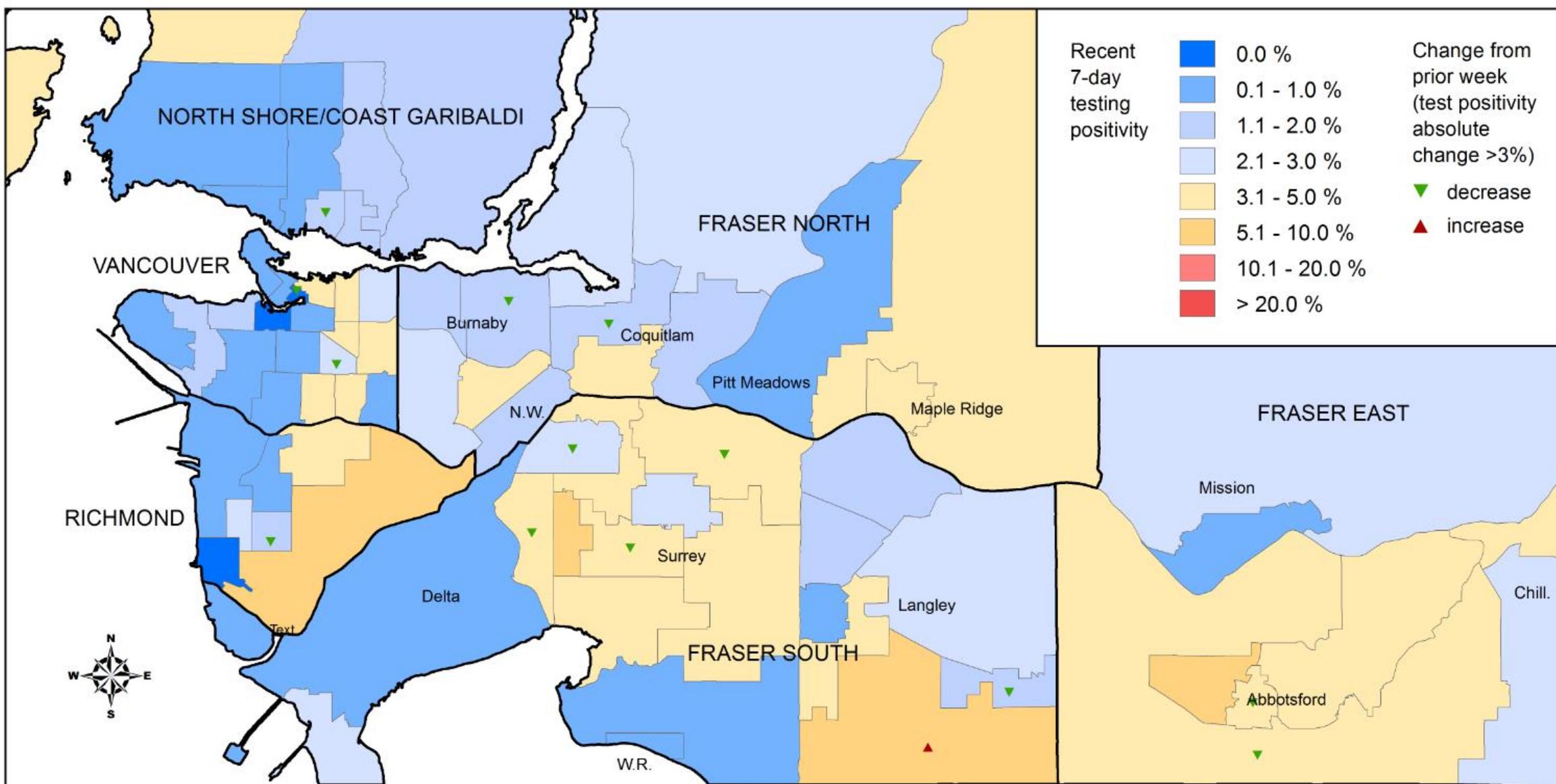
Change from prior week (test positivity absolute change >3%)

- ▼ decrease
- ▲ increase

Test positivity rate

- 0.0 %
- 0.1 - 1.0 %
- 1.1 - 2.0 %
- 2.1 - 3.0 %
- 3.1 - 5.0 %
- 5.1 - 10.0 %
- 10.1 - 20.0 %
- > 20.0 %

Data source: BCCDC Public Health Laboratory PLOVER system (all tests performed). Data are by testing result date, and location of client's residence or if missing, physician's address.

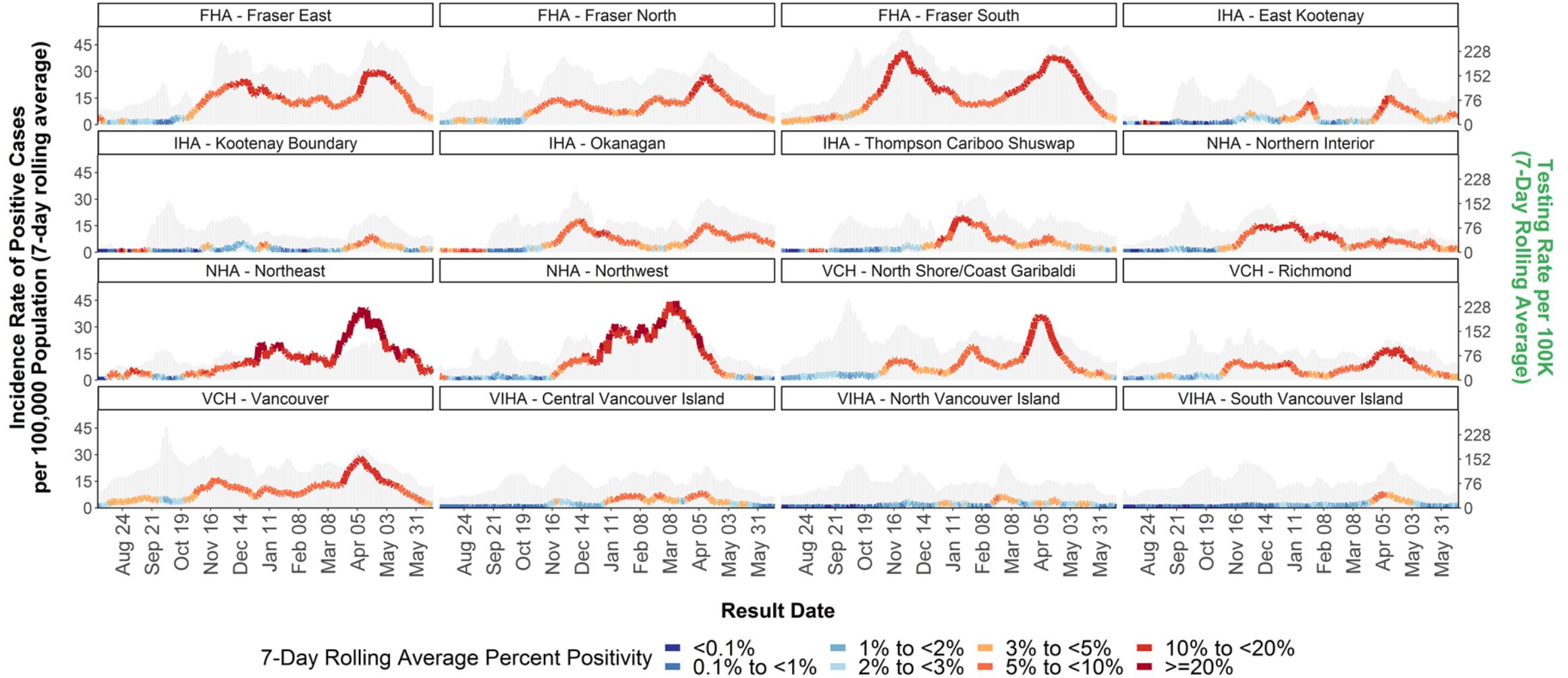


COVID-19 Recent 7-Day Test Positivity by CHSA (June 9 to 15, 2021)

Includes all tests

Incidence is stable or decreasing across regions; positivity is >5% in Northeast and East Kootenay HSDAs.

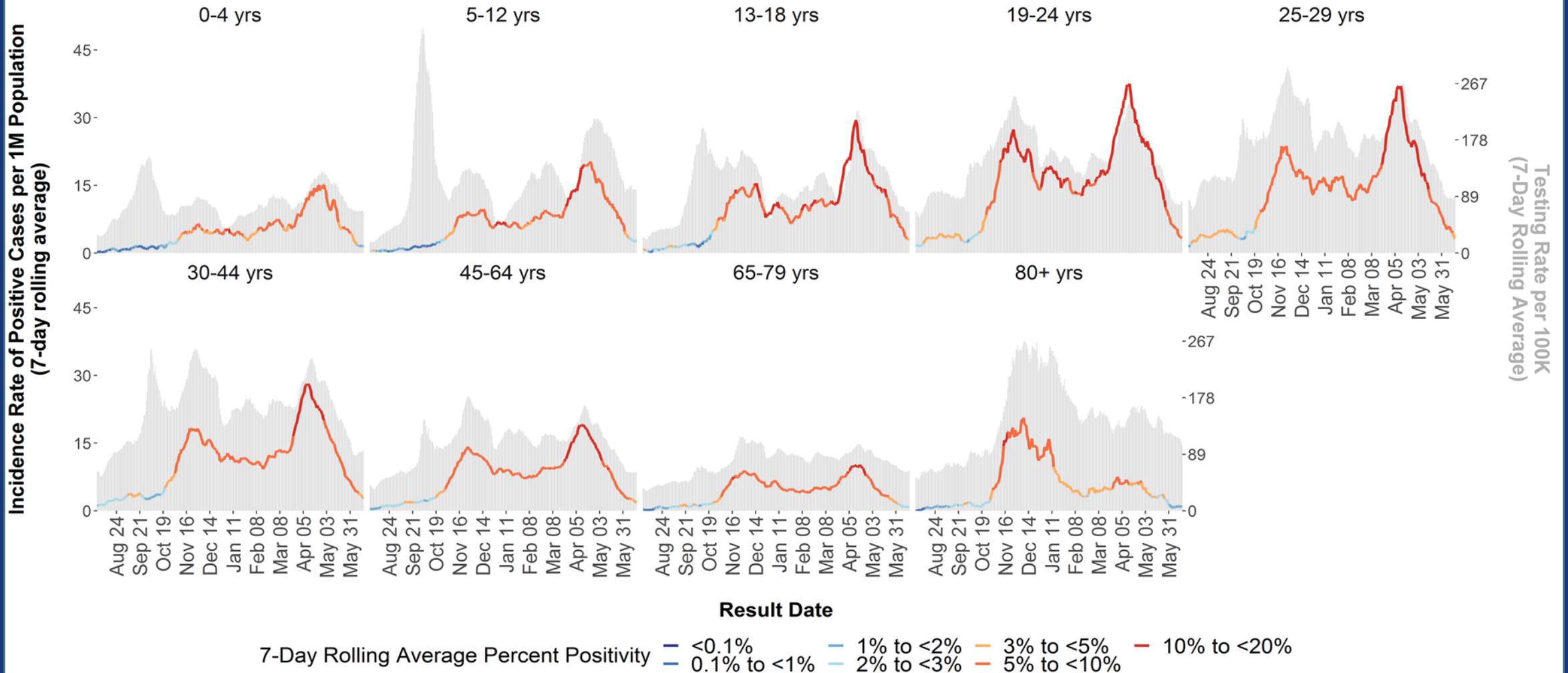
Case incidence rate, test percent positivity, and testing rate by HSDA (Public Payers Only).
Aug 1 2020 - Jun 16, 2021.



Data source: PLOVER 16-Jun-2021

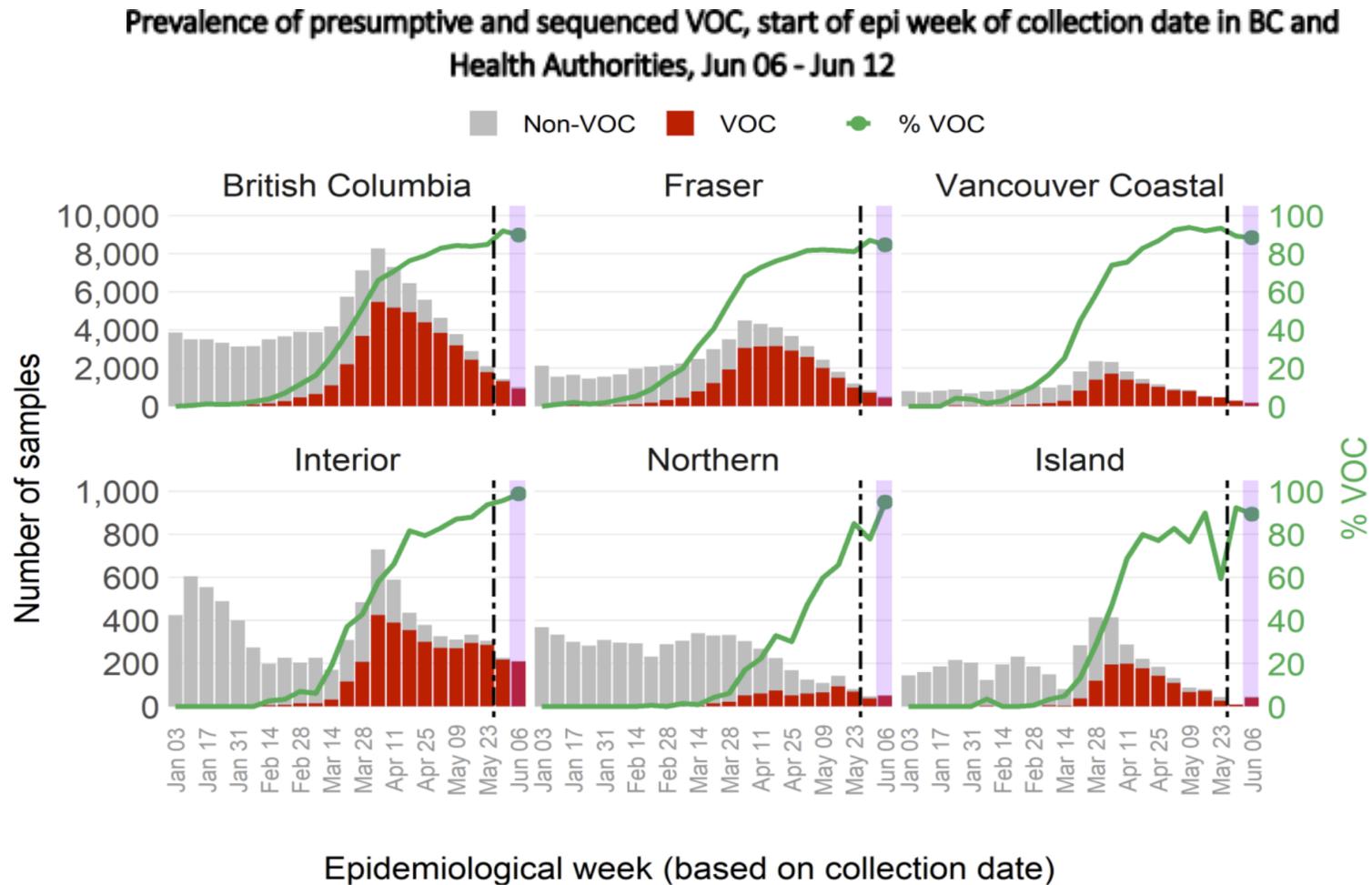
Incidence continues to decline in all age groups; percent positivity is $\leq 5\%$ in all age groups.

Case incidence rate, test percent positivity, and testing rate by age (Public Payers Only). Aug 1 2020 - Jun 16, 2021.



Data source: PLOVER 16-Jun-2021

Of all COVID-19 positive test samples June 6 to June 12 in BC, ~90% were confirmed VOCs.



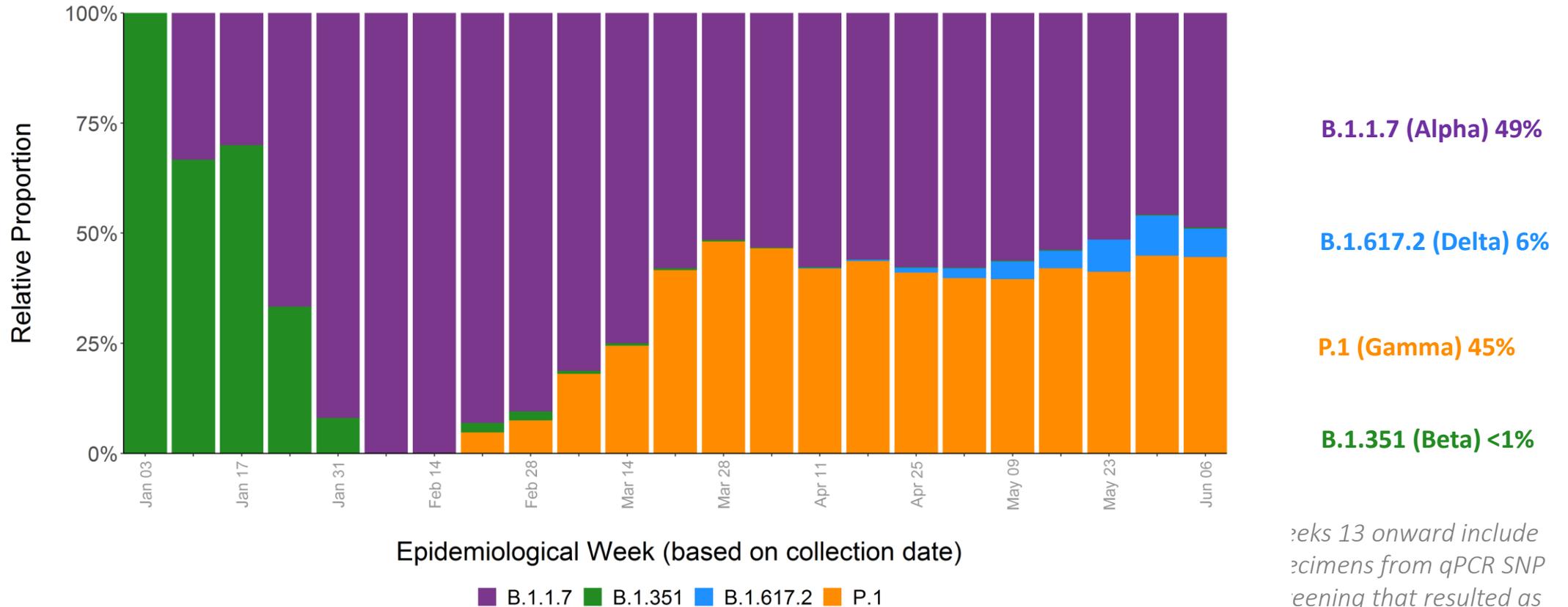
Shaded area reflects partial data and is subject to change

Data from the Plover system at the BCCDC Public Health Lab

This figure can also be found in the [weekly VOC report](#)

Among sequenced samples provincially based on information for June 6-12, P.1 (~45%) and B.1.1.7 (~49%) remain two dominant VOCs. B.1.617 increasing, currently represents ~6% of VOCs

Relative Proportion of VoCs in BC Detected through Quasi-Random Sample Selection by Epiweek of Collection Date

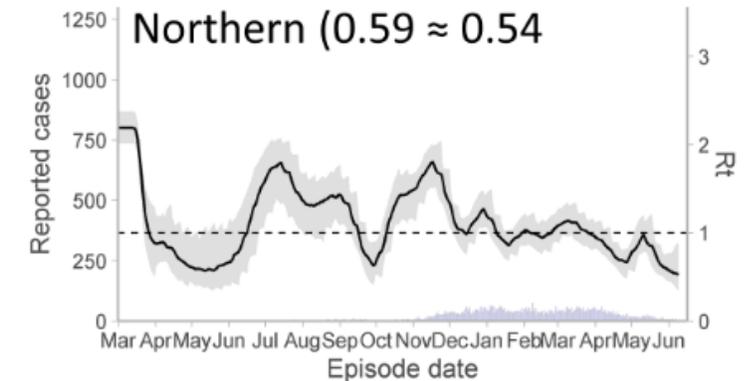
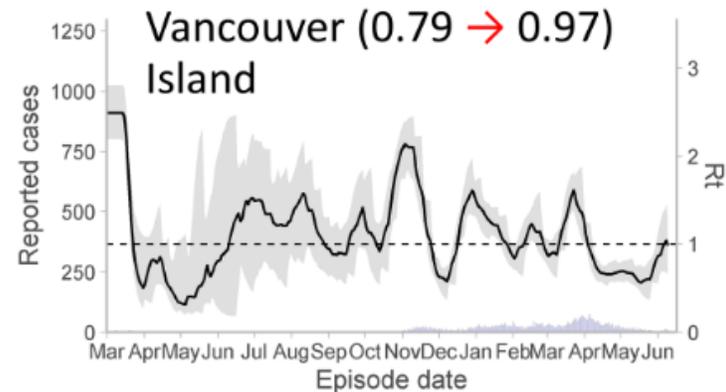
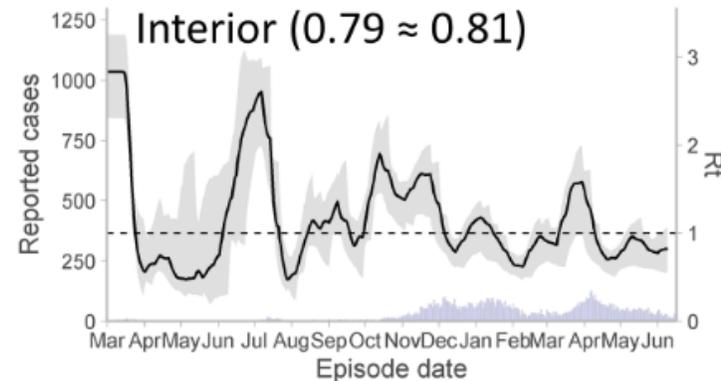
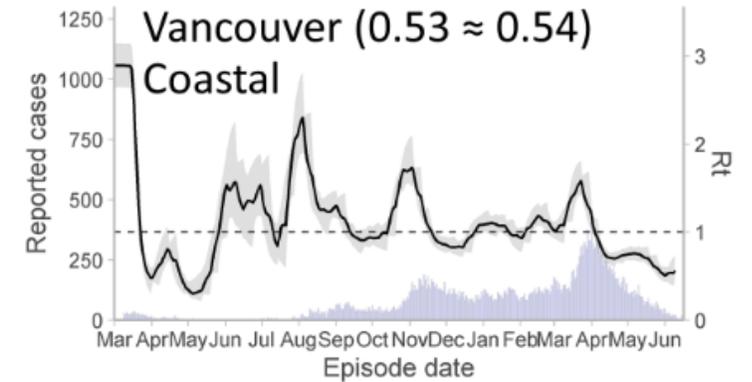
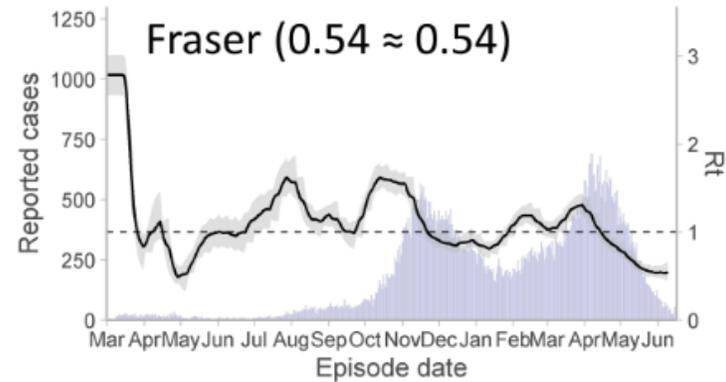
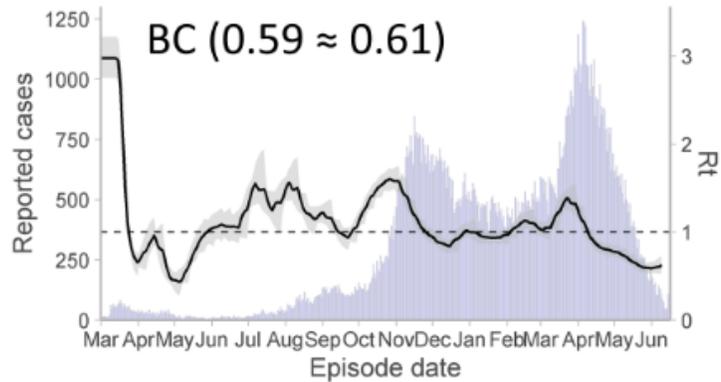


* the B.1.1.7 and P.1 VoC lineages are captured either by qPCR SNP screen or WGS for randomly selected samples up to epiweek 21; all other circulating VoCs are WGS confirmed and exclude samples sequenced for cluster and/outbreak investigation. In week 12, we used a qPCR SNP that is comprised of a dual N501Y and E484K assay

Weeks 13 onward include specimens from qPCR SNP screening that resulted as presumptive positive for B.1.1.7 and P.1.

Dynamic compartmental modeling: recent trends

Our model shows that R_t remains below 1 and is stable in most regions of BC



Solid black line: median R_t , modeled using all reported cases up to June 16, 2021; Grey band: 5%-95% credible interval; Purple bars: all reported cases. Due to lag from symptom onset to reporting, most recent case counts and R_t are not shown. Recent trend shown comparing 7 day average R_t from (last week → this week). Data source: BCCDC HA linelist.

Model notes and assumptions

- **R_t modelling:** a dynamic compartmental model was fit to COVID-19 data for BC using a Bayesian framework (Anderson et al. 2020. PLoS Comp. Biol. 16(12): e1008274). Results are presented as provincial and regional time-varying estimates of average daily transmission rate (R_t).
 - the model does not consider importation of cases, hence all transmission is assumed to arise from local cases
 - the model does not distinguish cases arising from variants of concern (VoCs) versus 'wild-type' COVID-19, hence model estimates represent average rates of transmission

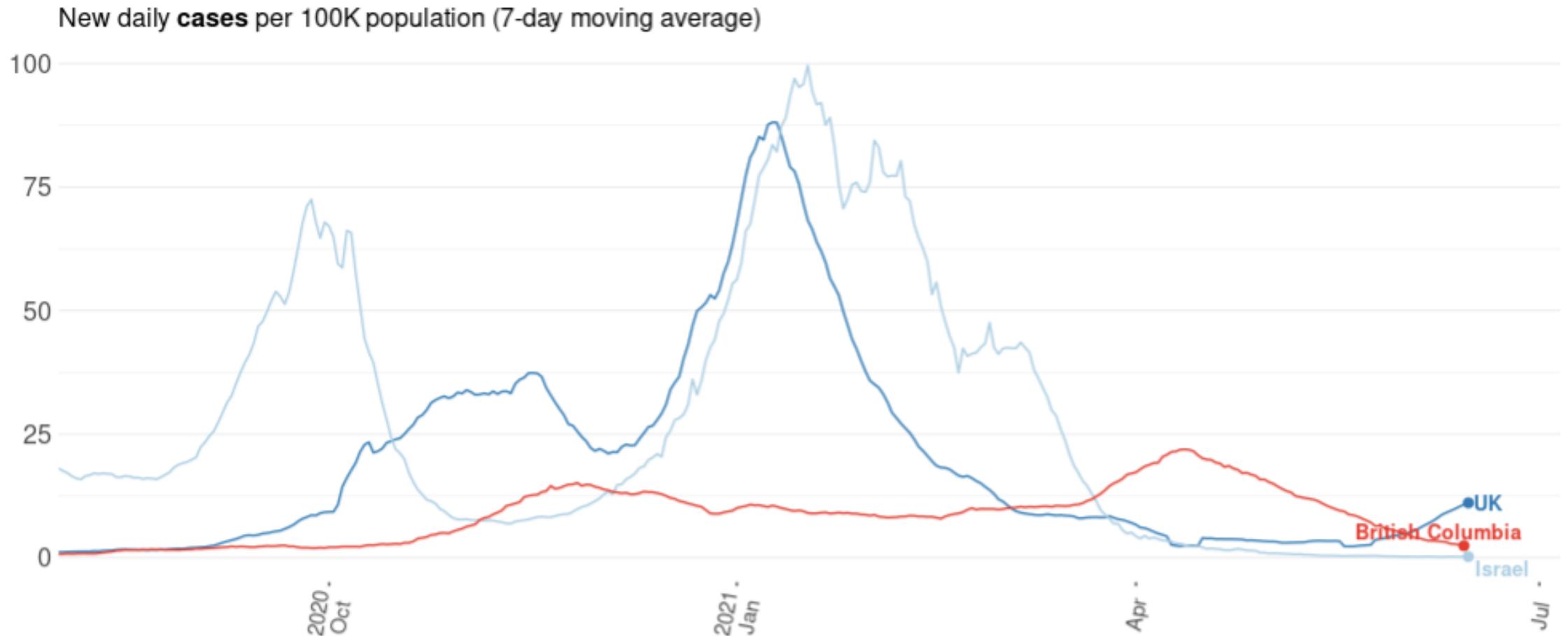
Addendum: assessment of the UK epidemiological situation and comparisons with BC

June 17, 2021

Assessment of the situation in the UK

- UK is experiencing a resurgence in cases after ~2 months of low and stable rates. Current case incidence in the UK is higher than BC and overall % population with at least 1 dose is slightly lower than in BC.
- Most of the new infections are attributed to the Delta (B.1.617.2) variant. It took the Delta variant ~2 months to become dominant in the UK, a similar time frame to Alpha variant.
- Current resurgence in the UK is largely driven by infections in individuals <30, most of whom have not been vaccinated yet. The majority of recent hospitalizations are also among unvaccinated individuals.
- Prioritizing administration of 2nd doses in the UK over 1st doses for younger individuals did not prevent a 4th resurgence in cases. It is too early to tell how it impacted hospitalizations and deaths.
- UK situation is not directly comparable to BC, in part due to the differences in the distribution across age and geography of the unvaccinated susceptible population.
- BC has a higher proportion of the population vaccinated than UK did at the similar point on their epidemic trajectory. There is a large difference between UK and BC in % young people vaccinated.
- With respect to the Delta variant, both Pfizer and AstraZeneca vaccines are very effective against severe outcomes after 1 dose, and offer excellent protection after 2 doses.

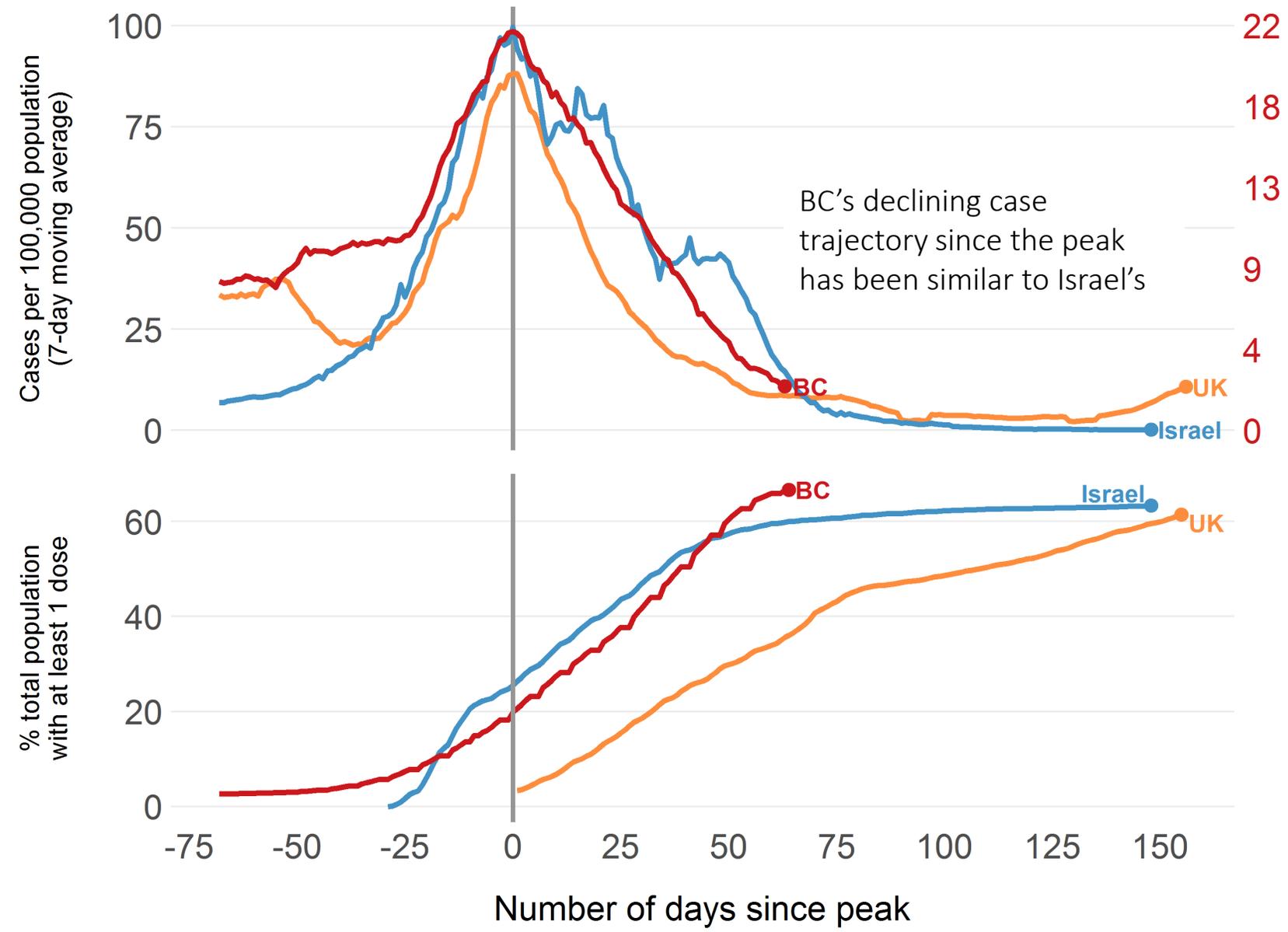
UK is experiencing a resurgence in cases after ~2 months of low and stable rates. Current overall incidence in the UK is higher than in BC.



For latest version of this graph, see the [Epi App](#)

Data up to 2021-06-16

Scale for UK & Israel curve →



← Scale for BC curve

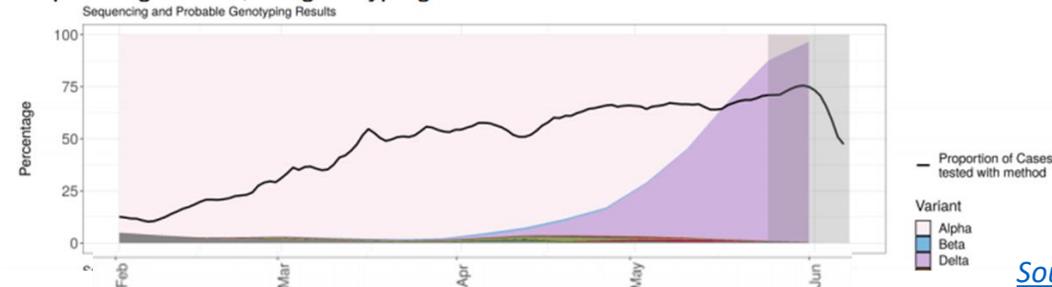
Scale for BC curve

Data from BCCDC and Our World in Data and up to and including 2021-06-15

Most of the new infections in the UK are attributed to the Delta (B.1.617.2) variant. It took the Delta variant ~2 months to become dominant in the UK, a similar time frame to Alpha variant.

B.1.617.2 (Delta):
became dominant
between early April and
early June (~2 months)

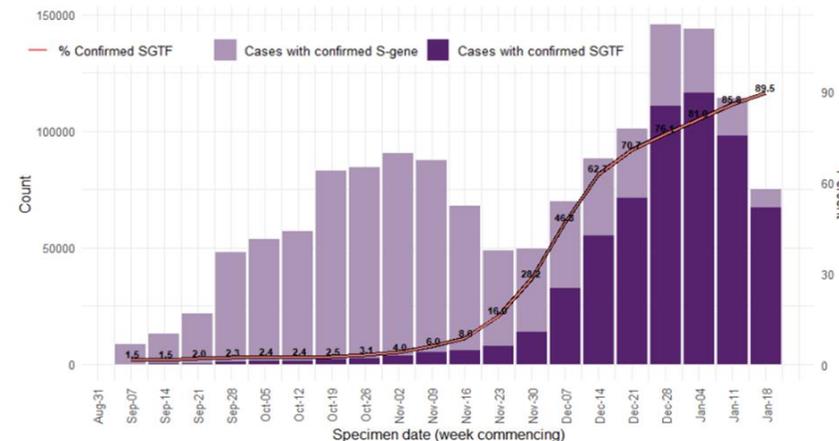
Figure 3. Variant prevalence for all England available case data from 1 February 2021 as of 7 June 2021
(excluding 50 cases where the specimen date was unknown). This includes 162,992 sequencing and 21,825 genotyping results.



[Source](#)

Please note that the way samples were identified for these two variants were different (screening for Alpha and sequencing for Delta) and for Alpha, may have captured other lineages.

Figure 3. Weekly number (bars) and proportion (line) of England Pillar 2 COVID-19 cases with SGTF among those tested in TaqPath laboratories and with S gene detection results (7 September 2020 to 24 January 2021).



SGTF was used as proxy for Alpha

[Source](#)

B.1.1.7 (Alpha):
became dominant
between early Nov and
early Jan (~2 months)

UK: which areas are hardest hit?

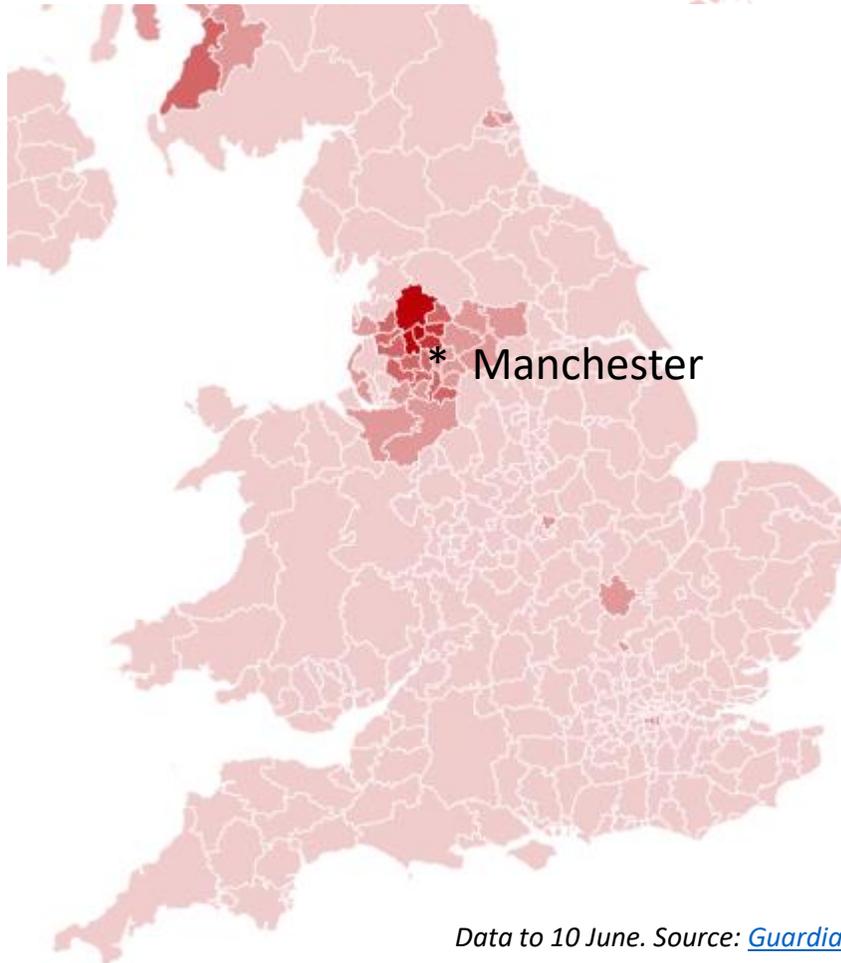
Click to show data for each area, double click or pinch to zoom in

Hotspots

Change

Vaccinations

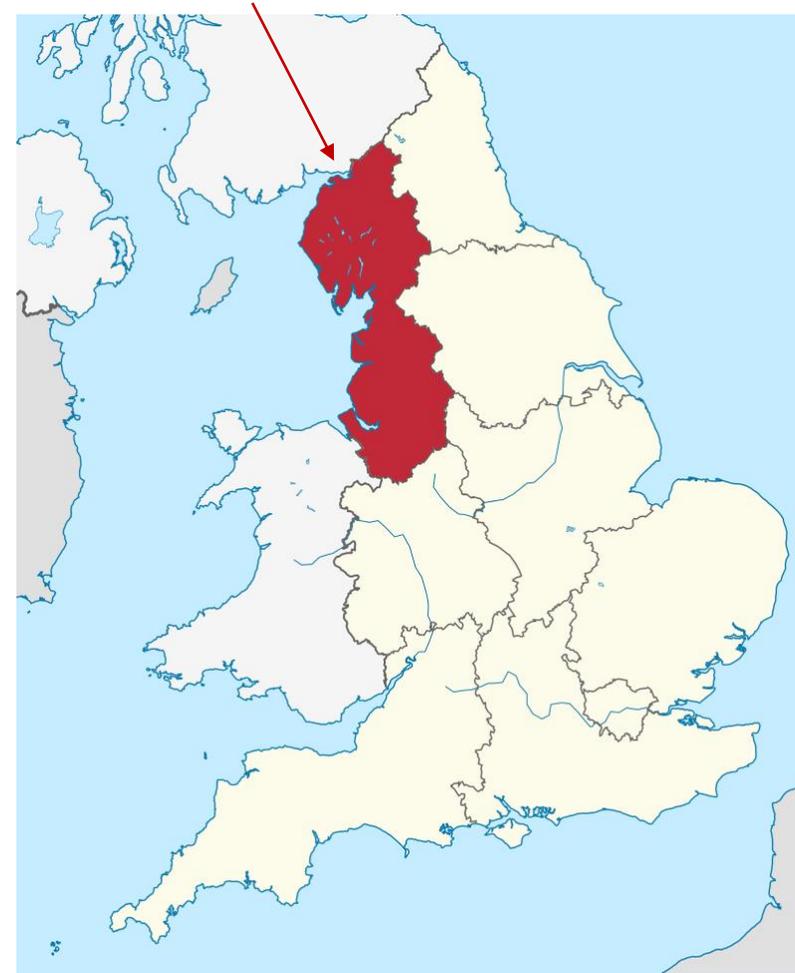
0 110 220 330 440+ Rate per 100k last week



Data to 10 June. Source: [Guardian](#)

Current resurgence has been largely concentrated in North West of England initially, but has recently spread to other parts of the country

North West England



Visualization source: [Wikipedia](#)

Cases are rising steeply in **North West England**, and hospital metrics are now also accelerating upwards. Deaths so far show no sign of a sustained rise

Source: Financial Times

Each metric as a share of its January peak (log scale), by number of days since it began to rise. Showing current wave compared to last autumn



Source: FT analysis of UK government Covid-19 dashboard © FT

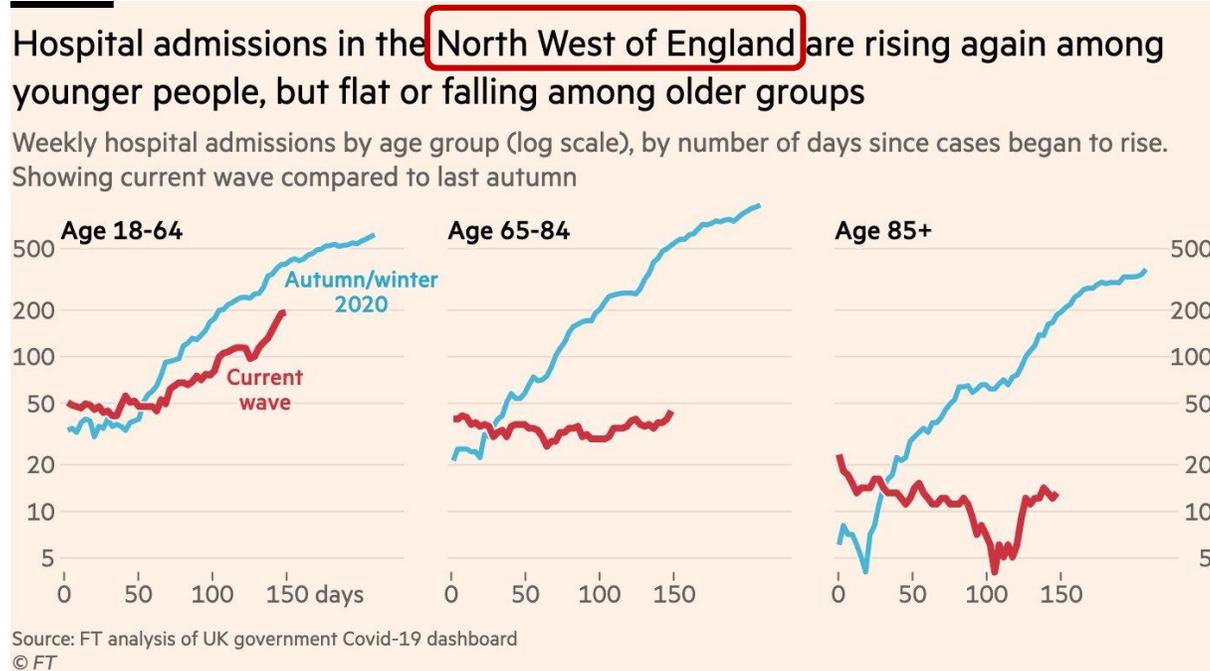
Cases are rising steeply in **England**, and hospital metrics are now also accelerating upwards. Deaths so far show no sign of a sustained rise

Each metric as a share of its January peak (log scale), by number of days since it began to rise. Showing current wave compared to last autumn



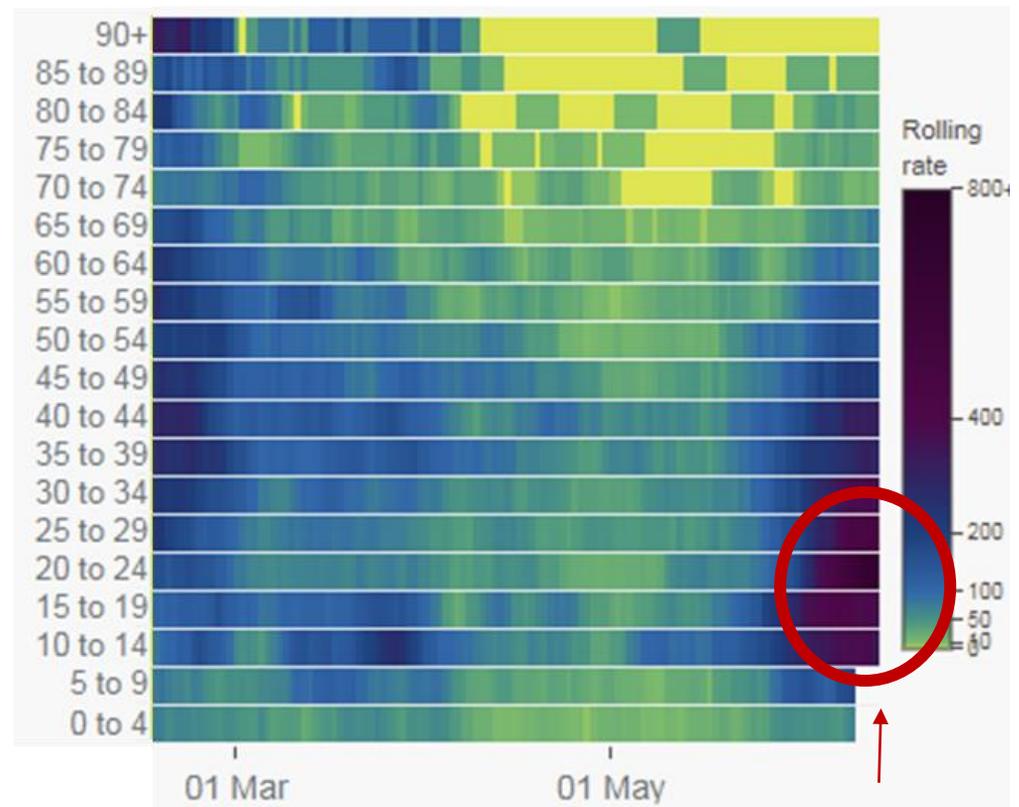
Source: FT analysis of UK government Covid-19 dashboard © FT

Current resurgence is largely driven by infections in individuals <30



Source: Financial Times

Heat map of cases in Manchester over time



Note the concentration in the 10-24 age groups

Source: UK Coronavirus Dashboard

This pattern is observed at the national level as well. However, it is important to note that new resurgences generally begin in that age group, a phenomenon consistently observed in various jurisdictions. One of the reasons for this is a [very high contact rate in <30 year olds with each other](#).

England: coronavirus case rates by age group

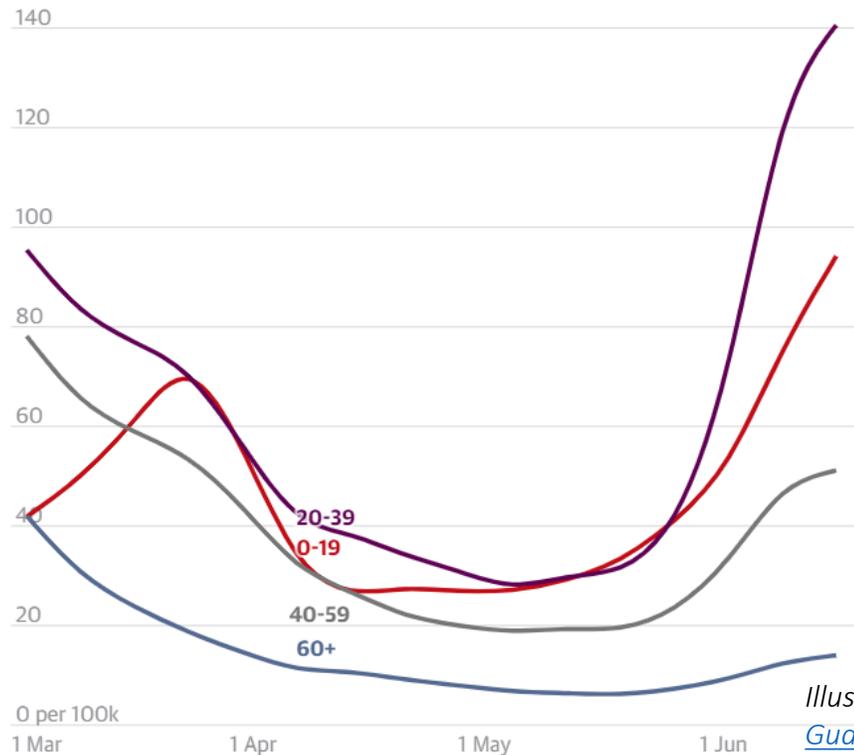
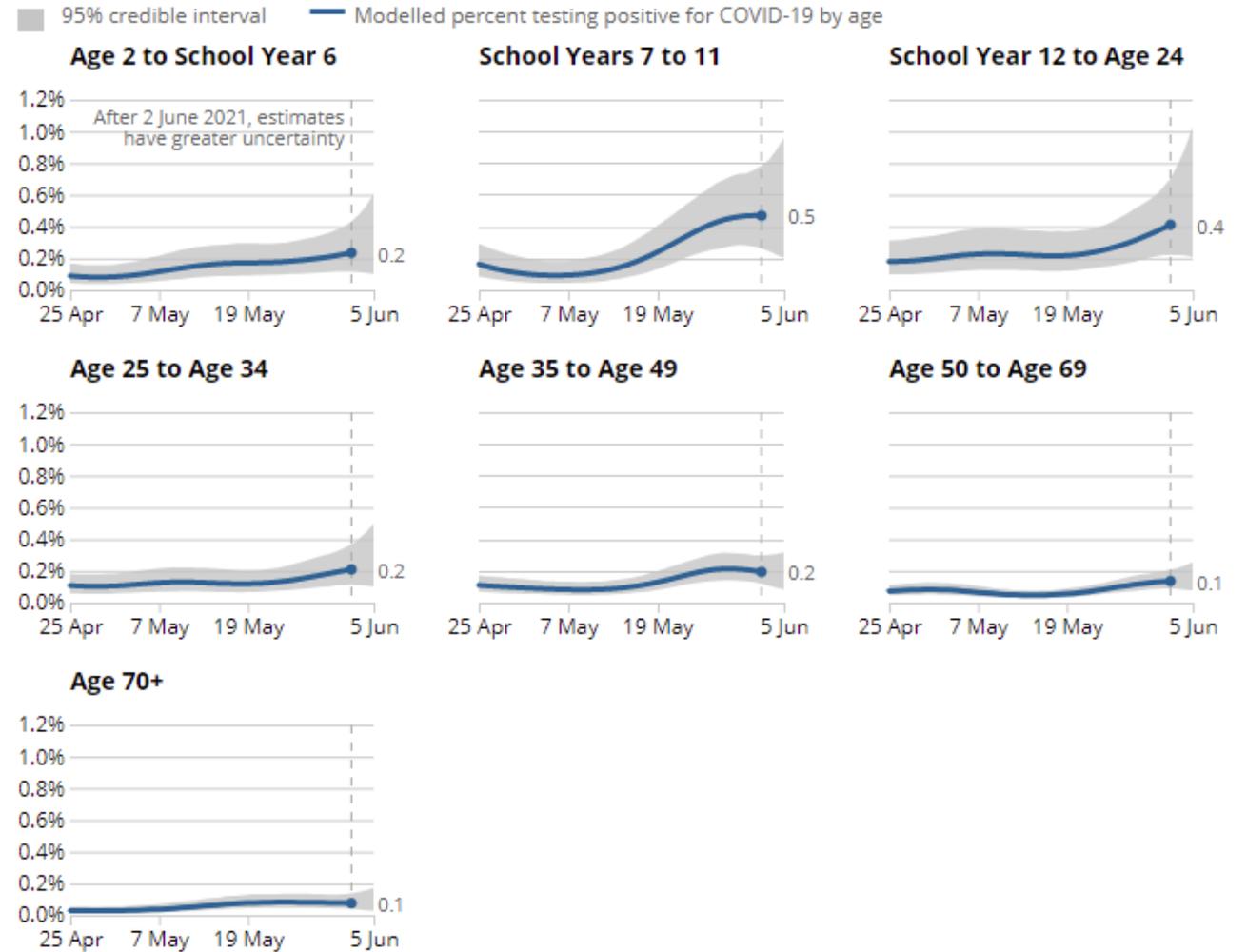


Illustration: [Guardian](#)

Weekly coronavirus case rate per 100,000 people by age group in England. Data.gov.uk, latest 15 June, 2021

Estimated percentage of the population testing positive for the coronavirus (COVID-19) on nose and throat swabs, daily, by age group since 25 April 2021, **England**

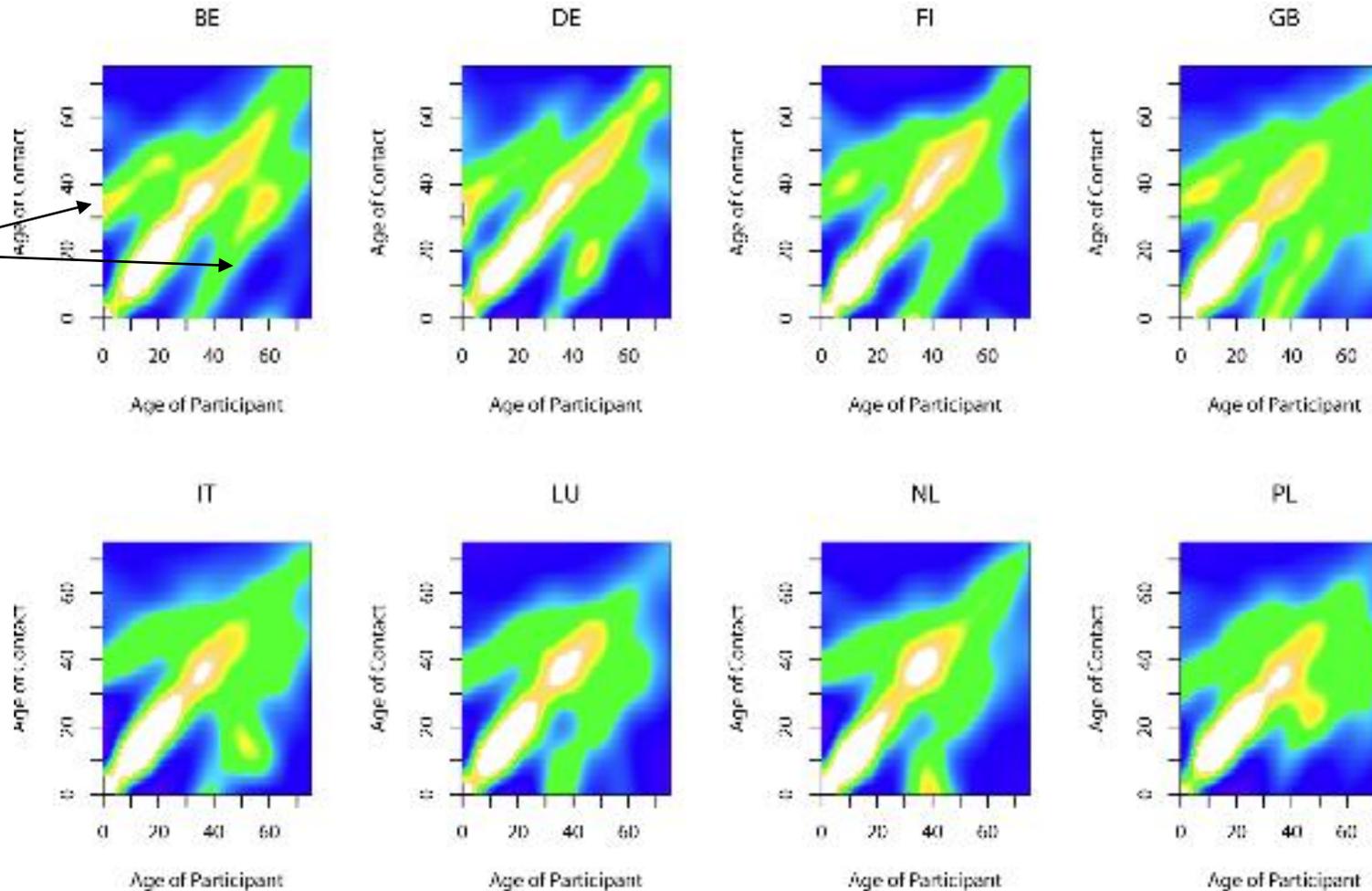


Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

Source: [ONS](#)

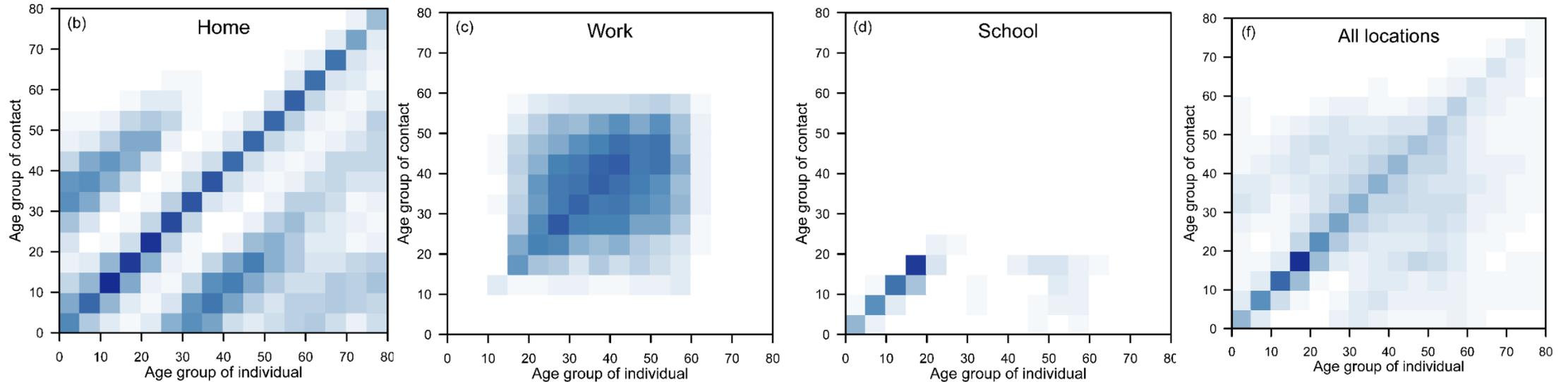
The same key contact patterns are consistent across countries: people tend to interact the most with people who are the same age, and children and young adults have the highest contact rates.

The other two heat lines on these graphs are parents/grandparents/teachers interacting with children/grandchildren/students



Source: [Mosson et al.](#), *PLOS Medicine*

We observe these patterns in Canada as well. Note how contact patterns also differ by [setting](#).

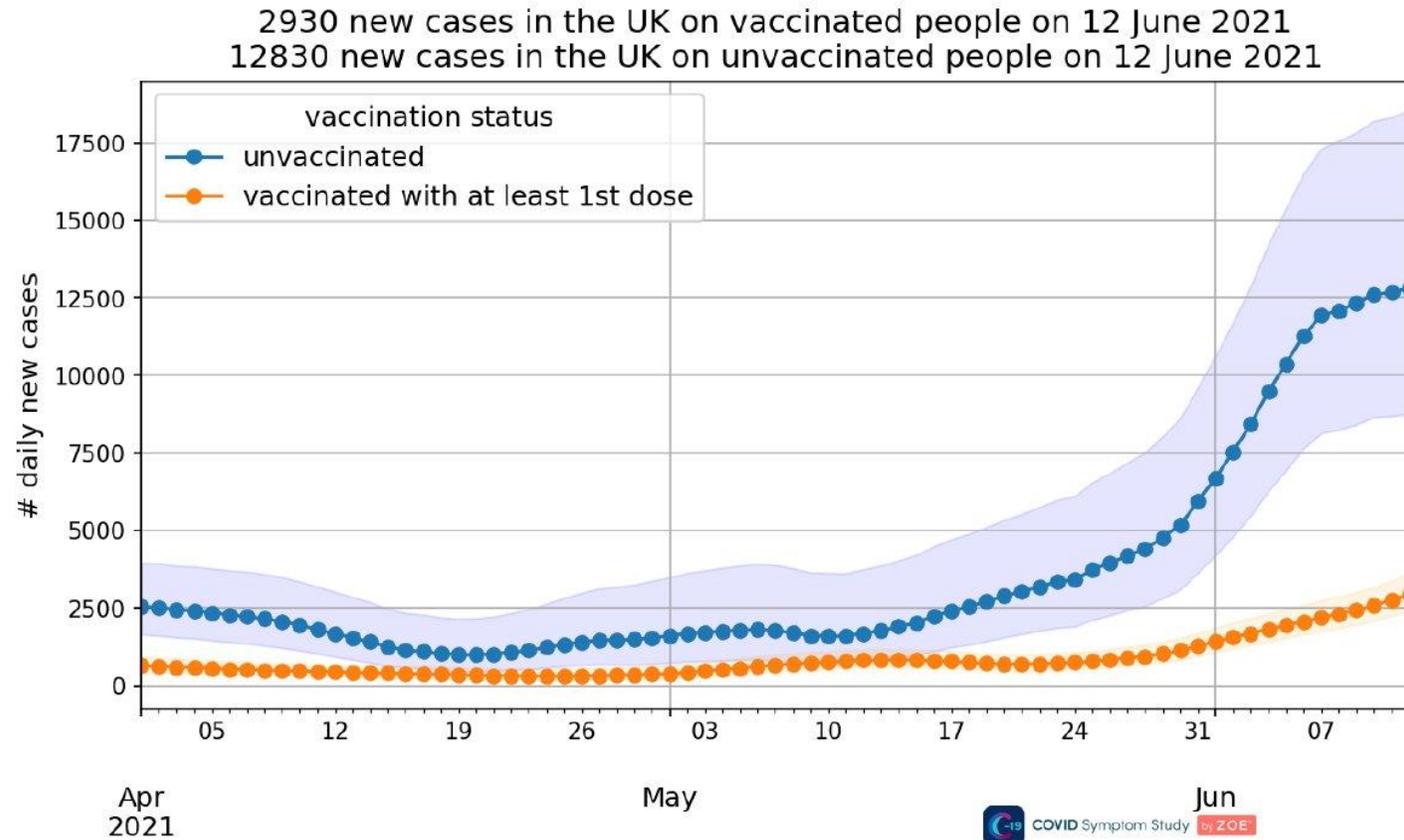


Darker colors in the figures shows higher frequency of contacts
Similar to European countries, assortative age mixing and higher contacts in children 9-19 yrs
As expected work place contacts are higher between age 25- 55 yrs.

Prem K, Cook AR, Jit M (2017) Projecting social contact matrices in 152 countries using contact surveys and demographic data. PLOS Computational Biology 13(9): e1005697.
<https://doi.org/10.1371/journal.pcbi.1005697> <https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1005697>

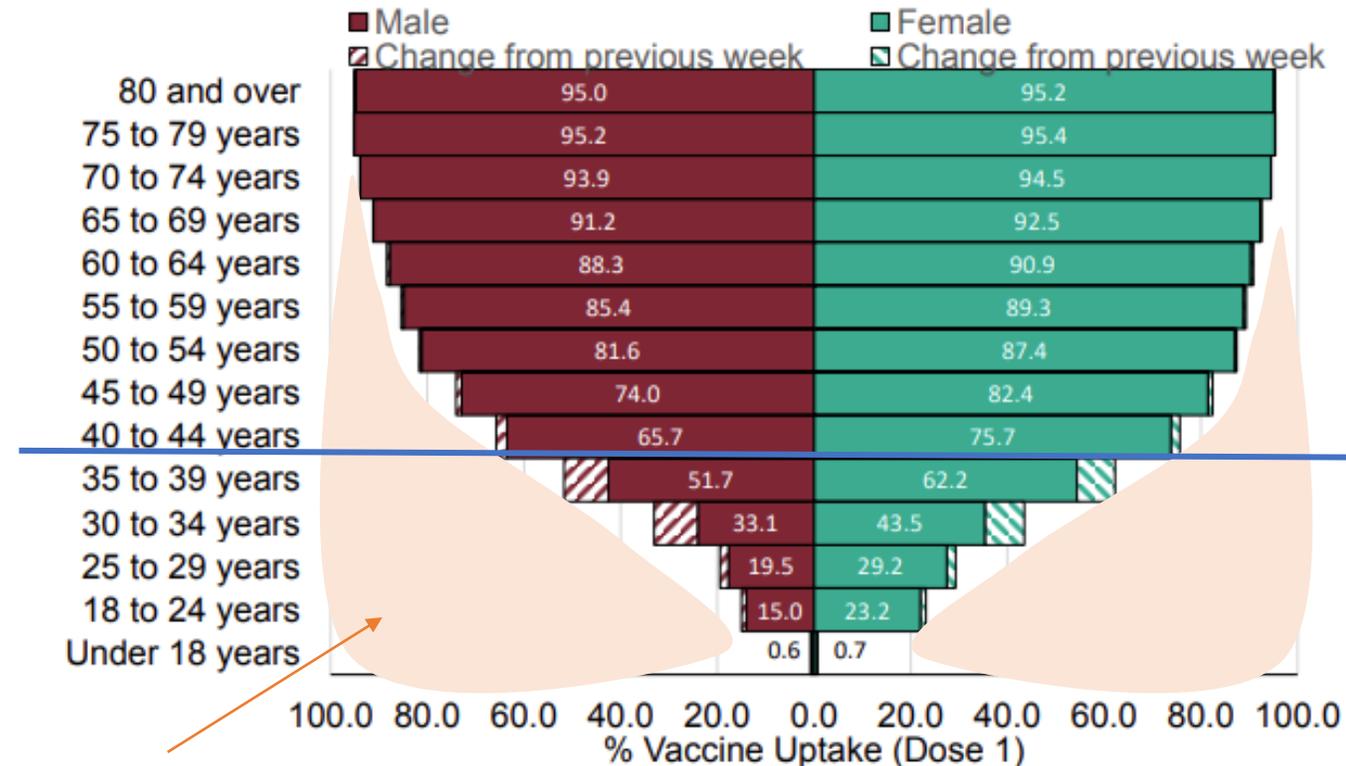
Daily new cases of COVID in UK by vaccination status

Data from [Zoe COVID Symptom Study](#), which uses smartphone real time self-reported data based on positive tests from over 4.6 million UK participants, also suggest that a lot of the new infections in the UK are among the unvaccinated individuals.



At the end of May, just when the resurgence of cases was beginning, ~93% of unvaccinated individuals in the UK were under 40 years of age

Figure 55: Age/Sex pyramid for COVID-19 vaccine uptake by age in England for Dose 1



Among those under 40 years old, ~80% have not had 1 dose yet at the end of May

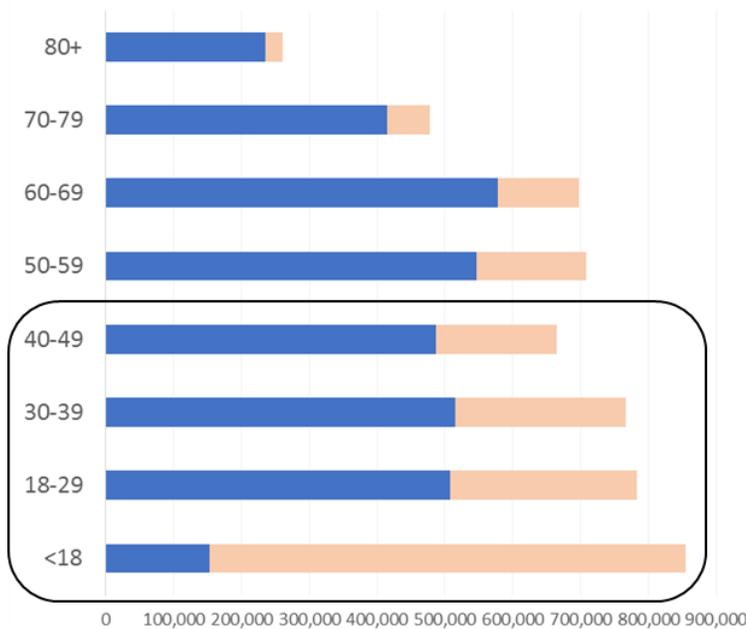
Not vaccinated

Source: [Public Health England](#)

England had a different age-specific vaccination status of the population back in mid-April, a comparable point in time to where BC is at now in terms of incidence rate, # months since vaccination campaign began, and Delta prevalence. But even today, significantly lower share of younger individuals in the UK have received at least 1 dose compared with BC – but a much higher share of older adults have a 2nd dose.

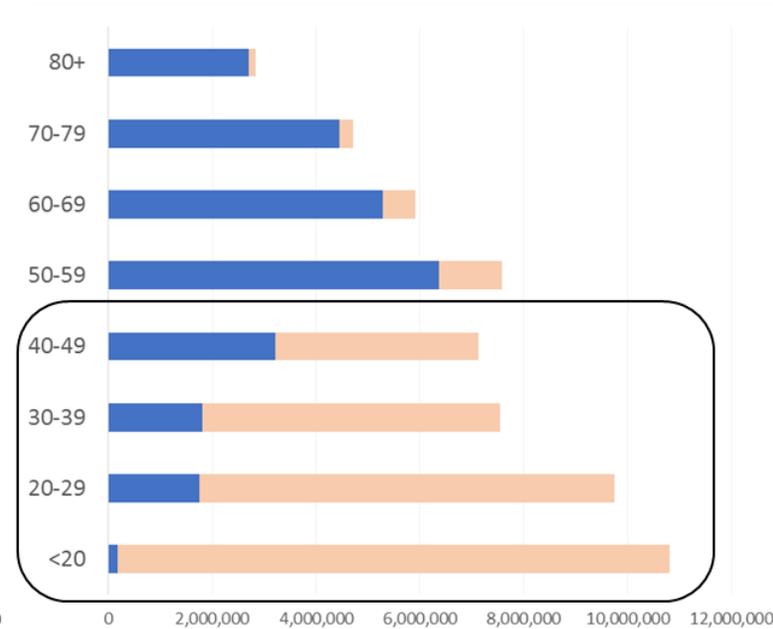
BC: mid-June

3 months since start of vaccination campaign
% Delta: ~9%



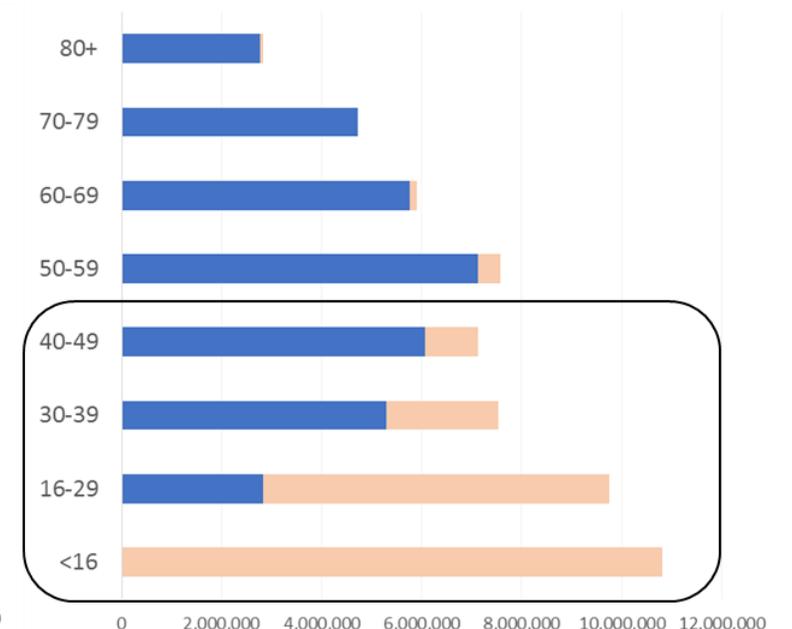
England: mid-April

3 months since start of vaccination campaign
% Delta: ~10%



England: mid-June

5 months since start of vaccination campaign
% Delta: >90%



Vaccine effectiveness against the Delta variant

Another consideration, which may or may not end up being an important factor in the most recent resurgence in the UK, is the difference in the types of vaccines distributed to the population. In the UK, ~2/3 of 1st doses were AZ and ~1/3 were Pfizer.* In BC and Canada, the majority of 1st doses were Pfizer/Moderna. [*Source](#)

Data from England and Scotland suggest that both vaccines are effective against the Delta variant:

Symptomatic infection: 1 dose of vaccine is not as effective against Delta as 2 doses, and AZ not as effective as Pfizer

Severe outcomes: Both vaccines are very effective after 1 dose, and offer excellent protection after 2 doses

Effectiveness estimates against symptomatic disease

Vaccine	1 dose		2 doses	
	Alpha*	Delta	Alpha	Delta
Pfizer	27-49%	~ 33%	92-93%	83-88%
Astra-Zeneca	39-51%	~ 33%	73-81%	60-61%

Sources: [PHE](#) [Lancet](#)

Effectiveness estimates against hospitalizations

Vaccine	1 dose**		2 doses	
	Alpha	Delta	Alpha	Delta
Pfizer	83%	94%	95%	96%
Astra-Zeneca	76%	71%	86%	92%

[Source](#)

*Note how VE estimates for Alpha for both Pfizer and Astra-Zeneca are lower than what was estimated based on [BC data](#) and on the lower end of the range reported in other studies (46-60% for Pfizer and 70% for Astra-Zeneca).

Additional Resources

- BCCDC COVID-19 Surveillance Dashboard showing maps, vertical plots, and trends by LHA can be found [here](#)
- More BC COVID-19 data, including the latest Situation Report, maps, and BC COVID-19 public dashboard, can be found [here](#)
- For more information on variants of concern and whole genome sequencing, the latest report is posted [here](#)
- To put BC provincial, Health Authority, and HSDA trajectories into national and international context, see [BCCDC COVID-19 Epidemiology app](#)
- [COVID SPEAK 2020 Round 1 Survey results](#)
- Slides for previous public and modelling briefings by Dr. Bonnie Henry can be found [here](#)
- PHAC's COVID-19 Epidemiology update can be found [here](#)