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.
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Overall Summary for surveillance data to Oct 21

- **Case rates** are elevated and increasing across NH, decreasing in IH, and stable in VCH, FH and VIHA.
- **Test positivity** among public tests is stable (~6% provincially), and is high and increasing in NH (22%).
  - Testing rates are high but decreasing in children
- **New hospitalizations** are elevated and rising slowly provincially; hospital/critical care census is stable provincially, but there is variation across BC; **new deaths** are low but slowly increasing.
- Hospitalization rates among **children** continue to remain very low.
- The **majority of new cases and hospitalizations** continue to be among **unvaccinated** individuals.
- **Vaccine** coverage in BC, 19 Oct, 1 dose (2 doses): ~80% (75%) of total population, ~89% (83%) of 12+ eligible population. Lower vaccine coverage in Interior and Northern and among younger individuals.
- The Delta **variant** continues to account for ≈100% of all positive tests in BC.
Oct 14 to Oct 19: BC COVID-19 Profile

- Total cases: 199,534
  - New this week: 4,348

- Ever hospitalized: 10,740
  - New this week: 272

- Total deaths: 2,092
  - New this week: 59

- Removed from isolation: 192,189
  - New this week: 4,625

New daily COVID-19 cases, hospitalizations and deaths, Jan 01 2021 - Oct 19 2021

* Data are by surveillance date for cases and deaths, and admission date for hospitalizations

Data source: PHRDW Oct-202021
Case rates are elevated and stable and new hospitalizations are elevated and rising slowly at provincial level, but trends differ by HA; new deaths are low but slowly increasing.

For latest version of a graph similar to this one (difference: hospital census, not new hospitalizations), see the Epi App.
The majority of new cases and hospitalizations continue to be among unvaccinated individuals.

For latest version of this figure, see COVID-19 Regional Surveillance Dashboard.
Number of new hospital admissions is elevated and rising slowly, most increase among 60-79 years. Deaths are low, but slowly increasing, majority are in individuals ≥ 60 years.
Trends in number and rate of new hospitalizations by age group, BC, 1 Jan – 16 Oct 2021

Hospitalization counts and rates increasing among 60-79 years

Hospitalization counts and rates among children (0-19 years) continue to remain very low

*Data based on admission date for hospitalizations
Critical care census is stable across province. Hospital census is elevated in NH, elevated and stable in IH, low and increasing in VIHA, and stable in FH and VCH. (note: census captures the location of hospitalization, not residence of individual cases)

Data source: PHSA Provincial COVID19 Monitoring Solution (PCMS) Oct-20-2021
Deaths are slowly increasing provincially; elevated per capita rate of death in Northern, followed by Interior and Fraser Health.
Excess mortality in BC can be attributed to different factors at different times.

In the context of strong public health interventions, monthly peak excess mortality due to COVID in those aged 60+ was comparable with monthly peak excess mortality due to influenza in prior years in the absence of such interventions.

Excess mortality attributed to the heat dome in those aged 60+ was comparable with monthly peak mortality due to respiratory viruses.

There was a significant increase in excess mortality in those <60 years at the beginning of the pandemic that corresponds with a significant increase in drug toxicity deaths.
Top 15 causes of death (ranking) in British Columbia from March 2020 to July 2021

Underlying cause of death (median age of death) vs. Percentage of total deaths vs. Percentage of total potential years of life lost

1. Malignant cancers (75 years)
2. Heart diseases (85 years)
3. Stroke (85 years)
4. Illicit drug toxicity (44 years)
5. Diabetes (79 years)
6. Lower respiratory diseases (80 years)
7. COVID-19 (84 years)
8. Alzheimer's disease (86 years)
9. Influenza and pneumonia (87 years)
10. Accidents (83 years) (Data incomplete)*
11. Liver disease (62 years)
12. Parkinson's disease (82 years)
13. Hypertension (69 years)
14. Kidney disease (87 years)
15. Pneumonitis due to solids and liquids (87 years)

*External causes of death (other than illicit drug toxicity) incomplete due to reporting delay and will rise in ranking as data become complete.

Data sources: 1) BC Vital Statistics; 2) Data on illicit drug toxicity deaths provided to BCCDC by BC Coroners Service; 3) Statistics Canada Table 13-10-0114-01 Life expectancy and other elements of the life table, Canada, reference period 2017-2019.

Cause unknown or pending: 11.6%
Incidence among 0-11 year olds is elevated and stable. Note: testing rates among children are high, see slides 44 and 45.
For all age groups, those who are vaccinated have very low case rates. Among those unvaccinated, case rate is the lowest in the 0-11 age group even with higher testing rates.

***NEW*** For latest version of this figure, see COVID-19 Regional Surveillance Dashboard
COVID-19 Recent 7-Day Case Incidence Rates by CHSA (October 13 to 19, 2021)

For latest version of this map, (note: change symbols not included), see COVID-19 Regional Surveillance Dashboard
Total cases by local health area, Oct 13 - Oct 19, 2021

For latest version of this graph, see COVID-19 Regional Surveillance Dashboard
Average daily case rate of new cases per 100,000 population, by local health area, Oct 13 - Oct 19, 2021

For latest version of this graph, see COVID-19 Regional Surveillance Dashboard
Most of the recent cases and hospitalizations continue to be among unvaccinated individuals.

Based on data over the last 4 weeks, compared with fully vaccinated individuals and after adjusting for age differences, unvaccinated individuals are

- ≈ 9x more likely to become a case
- ≈ 43x more likely to be hospitalized
- ≈ 36x more likely to die
- NB: relative rates fluctuate over time and do not represent vaccine effectiveness

Unvaccinated: no dose or not yet protected (<3 weeks since receipt of 1st dose; <10% of unvaccinated cases)

Partially vaccinated = 1 dose: ≥3 weeks since receipt of 1st dose and <2 weeks after 2nd dose

Fully vaccinated = 2 doses: 2 weeks or more after receipt of 2nd dose
Over the past week, fully vaccinated individuals represented 73% of BC’s total population, but accounted for only 33% of cases and 21% of hospitalizations.

These % fluctuate over time. There are many more vaccinated individuals than unvaccinated individuals, and thus it is important to take the denominator into account. These figures do not represent vaccine effectiveness.

We operate in a live database environment and data get updated retrospectively. These figures were run on Thursday Oct 14 and may differ slightly from previously reported counts. Cases are captured based on surveillance date. Hospitalizations are by admission date. Please note that there is often a multiple-days lag in recording hospitalizations, e.g. some hospital admissions that occurred on Sept 24th may not be captured by our surveillance system until Sept 29th.
Over the past month, fully vaccinated individuals accounted for 30% of cases and 20% of hospitalizations.

These % are expected to increase over time as more people get fully vaccinated and there are fewer unvaccinated people. If 100% of population gets fully vaccinated (which is almost the case for many long term care residents for example), then any new cases, hospitalizations, or deaths will be among vaccinated people.

We operate in a live database environment and data get updated retrospectively. These figures were run on Oct 14th and thus will differ slightly from previously reported counts. Cases are captured based on surveillance date. Hospitalizations are by admission date. Deaths are by date of death. Please note that there is often a multiple-days lag in recording hospitalizations and deaths, e.g. some hospital admissions that occurred on Sept 24th may not be captured in our surveillance system until Sept 29th.

A large proportion of deaths is among older (80+) individuals, >90% of whom are fully vaccinated, which explains the higher relative % of deaths among the fully vaccinated.
COVID-19 health outcomes by vaccination status and age, BC, Sep 21 – Oct 18, 2021

- Trend in % total population vaccinated with at least 1 dose
- Trend in daily cases per 1M
- Trend in daily hospitalizations per 1M
- Trend in daily deaths per 1M

*Figures include cases from Sep 21-Oct 18, and hospitalizations and deaths from Sep 18-Oct 15, 2021*
COVID-19 case rate by vaccination status and Health Authority, July 1 – Oct 19, 2021

Denominators for each vaccine status group are dynamic and change daily as people flow from being unvaccinated to protected by 1 dose to protected by 2 doses. Therefore, the denominators are different across groups and over time.

For latest version of this figure, see COVID-19 Regional Surveillance Dashboard

*Unvaccinated includes cases who have received 1 dose but not yet protected (episode date <21 days after 1st dose administration date); These represent 7% of the total unvaccinated cases since 1 July 2021.
Data extracted from health authority case line list on 19 Oct 2021
COVID-19 case rate by vaccination status and age, July 1 – Oct 19, 2021

Denominators for each vaccine status group are dynamic and change daily as people flow from being unvaccinated to protected by 1 dose to protected by 2 doses. Therefore, the denominators are different across groups and over time.

*Unvaccinated includes cases who have received 1 dose but not yet protected (episode date <21 days after 1st dose administration date); These represent 7% of the total unvaccinated cases since 1 July 2021.

Data extracted from health authority case line list on 19 Oct 2021

For latest version of this figure, see COVID-19 Regional Surveillance Dashboard
COVID-19 hospitalization rate by vaccination status, July 1 – Oct 15, 2021

Data by hospital admission date. Denominators for each vaccine status group are dynamic and change daily as people flow from being unvaccinated to protected by 1 dose to protected by 2 doses. Therefore, the denominators are different across groups and over time.

*Unvaccinated includes cases who have received 1 dose but not yet protected (episode date <21 days after 1st dose administration date); These represent 5% of hospitalized unvaccinated cases since 1 July 2021. Data extracted from health authority case line list and up to 15 Oct 2021.

For latest version of this figure, see COVID-19 Regional Surveillance Dashboard
COVID-19 hospitalization rate by vaccination status and age, July 1 – Oct 15, 2021

Denominators for each vaccine status group are dynamic and change daily as people flow from being unvaccinated to protected by 1 dose to protected by 2 doses. Therefore, the denominators are different across groups and over time.

*Unvaccinated includes cases who have received 1 dose but not yet protected (episode date < 21 days after 1st dose administration date); These represent 5% of hospitalized unvaccinated cases since 1 July 2021.

Data extracted from health authority case line list and up to 15 Oct 2021

For latest version of this figure, see COVID-19 Regional Surveillance Dashboard
After adjusting for age, unvaccinated individuals continue to be at a significantly higher risk of infection, hospitalization, and death from COVID-19 compared with fully vaccinated.

Relative rate fluctuates over time. These figures do not represent vaccine effectiveness.
Vaccination progress in BC over time by age group and dose number up to Oct. 19, 2021

~90% of adults 50+ have at least 1 dose – of this group, almost all have their 2nd dose too

~80% of total BC population has 1 dose

Data updated 2021-10-19
Data Source: Provincial Immunization Registry, PHSA
Vaccination progress in BC and by Health Authority as of Oct 19, by age group and dose number (%)

Denominator for this graph is Client Roster maintained by the BC Ministry of Health. Client Roster population data are sourced from a list of all residents registered with Medical Services Plan as of March 12, 2021. Since this date, people may have moved, permanently or temporarily, and have been vaccinated or reported their vaccination status. As a result, there are areas in BC where there will be more people vaccinated than there were living in that area in March 2021. The Client Roster likely underrepresents new arrivals into a region such as young adults relocating to attend post-secondary institutes and workers at major construction project areas. An alternative denominator would be based on projections derived from Census 2016, which is also not representative of the current BC population. There is no perfect denominator.

Blue line is for visual reference only

For latest version of this figure, see COVID-19 Regional Surveillance Dashboard
Geographic Distribution of COVID-19 Vaccination Coverage by LHA and CHSA

Ages 12+: 2nd Dose up to October 18, 2021

Change from prior week (absolute change)

- highest decile (increase ≥1.3%)

Vaccination coverage rate (%) of persons 12+

- ≤ 50%
- 51 - 60%
- 61 - 70%
- 71 - 80%
- 81 - 90%
- > 90%

Notes: Vaccine coverage data from MoH HISAR, population 12+ data from Client Roster.

For latest version of this map, see COVID-19 Regional Surveillance Dashboard
COVID-19 Vaccination Coverage by CHSA: Ages 12+ 1st Dose (up to October 18, 2021)

For latest version of this map, see COVID-19 Regional Surveillance Dashboard
COVID-19 Vaccination Coverage by CHSA: Ages 12+ 2nd Dose (up to October 18, 2021)

For latest version of this map, see [COVID-19 Regional Surveillance Dashboard](https://www2.gov.bc.ca/gov/content/health/vaccines-and-immunity/states-of-emergency/management-covid-19-panpandemic-regionalsurveillance-dashboard).
Lab - Key Messages

• **Test positivity** among publicly funded tests was stable this week (current ~6%)
  - Test positivity varies by HA, ranging from 4% in VCH to 22% in NH.
  - Test positivity is high in Fraser East and most HSDAs in NH and IH

• Publicly funded **testing** decreased 15% this week (~67K total public tests)
  - Testing rates elevated but decreasing in children (<19 years) and adults (30-44 years)

• The provincial weekly median **turnaround time** (time from specimen collection to lab result) remains low at 17 hours, indicating good testing capacity; 3 in 4 tests took ≤ 25 hours to result.

• **Delta** is the most prevalent COVID-19 variant in BC representing ~100% of all sequenced specimens in most recent week.

• Wastewater samples can act as a population-level sentinel surveillance tool
  - Viral signals in Metro Vancouver wastewater plants have plateaued or are declining slowing, consistent with case-counts in these regions
### Weekly Summary of ALL lab tests performed

<table>
<thead>
<tr>
<th>Total Specimens Tested</th>
<th>Total Positive Specimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,094,889</td>
<td>208,330</td>
</tr>
<tr>
<td>92,908</td>
<td>4,178</td>
</tr>
</tbody>
</table>

- **New this epi week**
  - Total specimens tested: 92,908
  - Total positive specimens: 4,178

- **Positivity**
  - 4.5% absolute change from last week
  - 9% relative to last week

### Weekly Summary of Lab tests paid Publicly

<table>
<thead>
<tr>
<th>Total Specimens Tested</th>
<th>Total Positive Specimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,095,754</td>
<td>205,734</td>
</tr>
<tr>
<td>66,956</td>
<td>4,120</td>
</tr>
</tbody>
</table>

- **New this epi week**
  - Total specimens tested: 66,956
  - Total positive specimens: 4,120

- **Positivity**
  - 6.2% absolute change from last week
  - 15% relative to last week

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**Data source:** PLOVER extract at 10:30am on October 20, 2021.
Epi week 41 (Oct 10 – 16)
Geographic Distribution of COVID-19 Testing Positivity by LHA and CHSA
Recent 7-Days Testing
October 13 to 19, 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.

For latest version of this map, see the new (note: change symbols not included) COVID-19 Surveillance Dashboard

BC Centre for Disease Control
COVID-19 Recent 7-Day Test Positivity by CHSA (October 13 to 19, 2021)

Includes all tests
Among publicly funded specimens, percent positivity is stable (~6%), and testing rates have decreased 15% in the last week.

Note: Invalid (n = 1609) and indeterminate (n = 6455) results have been excluded.

Data source: PLOVER 20-Oct-2021
Percent positivity is stable provincially, but elevated and increasing in NH. Testing rates are elevated and declining across the province (highest in Fraser Health and Northern Health).
Test positivity and incidence are elevated in NH; incidence remains high in Fraser East.
Testing rates elevated but decreasing for individuals <19 years, and individuals 30-44 years.


Data source: PLOVER 19-Oct-2021
Among sequenced VOC samples provincially based on information for Oct 10 to 16, the dominant VOC continues to be Delta ~100%.
In FHA, the viral signal from wastewater reflects the trends in case counts in this region.

Time-series plots show weekly or bi-weekly viral signals from each wastewater plant (right y-axis), overlaid with rolling 7-day mean of daily new cases within wastewater catchment area (left y-axis). Plot title shows wastewater plant name, followed by approximate catchment area.
In VCH, the viral signal from wastewater reflects the declining trends in case counts in this region.

Time-series plots show viral signals from each wastewater plant (right y-axis), overlaid with rolling 7-day mean of daily new cases within wastewater catchment area (left y-axis). Plot title shows wastewater plant name, followed by approximate catchment area.
Dynamic modeling: recent trends

Modelling indicates that $R_t$ remains near 1 in all regions. Estimates are shown for last week → this week, with 90% range of possible values given next to most recent estimate.

**BC** 1.00 → 0.99 [0.8–1.2]

**Fraser** 1.05 → 1.08 [0.9–1.3]

**Vancouver Coastal**
0.95 → 0.92 [0.7–1.2]

**Interior**
0.97 → 0.98 [0.7–1.4]

**Vancouver Island**
0.95 → 0.95 [0.7–1.4]

**Northern**
1.02 → 1.00 [0.7–1.4]

Solid line: median $R_t$ modeled using all reported cases up to Oct 23, 2021. Red band: 90% credible interval. Green band: estimate based on partial data — each week, current estimates are updated with new data to provide a clearer understanding of the trend. Purple bars: all reported cases. Recent trend shown comparing median $R_t$ estimate from (last week → this week; 90% credible interval).

Only January 2021 onward shown here. Data source: BCCDC HA line list.
Pediatric Report - Key Messages

• Case numbers in <18 years remain elevated, but are beginning to decrease
  • Incidence varies regionally: decreasing in IH, elevated in NH and FE; low in VIHA and VCH
  • Incidence highest among elementary school age 5 to 11 years, but declining
• Rates are highest in regions with lower 12+ vaccine coverage
• Severe outcomes are very rare in children
• Testing rates elevated but decreasing for pediatric age groups

See the Data for K-12 Schools report posted on the BCCDC website
## Oct 14 to Oct 20: Pediatric COVID-19 Profile

<table>
<thead>
<tr>
<th>Age group: 0-4</th>
<th>Age group: 0-4</th>
<th>Age group: 0-4</th>
<th>Age group: 0-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,245 total cases</td>
<td>114 ever hospitalized</td>
<td>11 ever in critical care</td>
<td>2 total deaths</td>
</tr>
<tr>
<td>164 new this week</td>
<td>1 ever hospitalized</td>
<td>0 new this week</td>
<td>0 new this week</td>
</tr>
<tr>
<td>Age group: 5-11</td>
<td>Age group: 5-11</td>
<td>Age group: 5-11</td>
<td>Age group: 5-11</td>
</tr>
<tr>
<td>13,335 total cases</td>
<td>50 ever hospitalized</td>
<td>3 ever in critical care</td>
<td>0 total deaths</td>
</tr>
<tr>
<td>578 new this week</td>
<td>0 ever hospitalized</td>
<td>0 new this week</td>
<td>0 new this week</td>
</tr>
<tr>
<td>Age group: 12-17</td>
<td>Age group: 12-17</td>
<td>Age group: 12-17</td>
<td>Age group: 12-17</td>
</tr>
<tr>
<td>12,015 total cases</td>
<td>48 ever hospitalized</td>
<td>7 ever in critical care</td>
<td>0 total deaths</td>
</tr>
<tr>
<td>218 new this week</td>
<td>2 ever hospitalized</td>
<td>0 new this week</td>
<td>0 new this week</td>
</tr>
</tbody>
</table>

* New hospitalizations and critical care census numbers are as of Oct 19 2021
* New cases and new deaths are net new between Line lists of Oct 13 and Oct 20
Incidence in children has decreased in Interior and Fraser, remains elevated in Northern Health, and is low in Vancouver Coastal and Island.
Incidence has decreased among unvaccinated children <11 years, and is stable in unvaccinated children 12 to 17 years. Elevated case rates in children and youth have not translated into more hospitalizations.

***NEW*** For latest version of this figure, see COVID-19 Regional Surveillance Dashboard
Hospitalization rates remain very low and stable; deaths are extremely rare

Note: Absolute number of new hospitalizations still low (see y-axis on right)

* Data are by surveillance date for cases and deaths, and admission date for hospitalizations
Data source: PHRDW + BCCW Oct-20-2021
COVID-19 vaccination coverage with 1st dose among 12-17 year olds, by Local Health Area, up to 18 Oct 2021: there is more variation in this age group compared with older age groups.

For latest version of this map, see COVID-19 Regional Surveillance Dashboard.
Testing rates among all pediatric age groups have recently decreased but remain high.


- **0-4 yrs**
- **5-8 yrs**
- **9-11 yrs**
- **12-17 yrs**

**Result Date**

7-Day Rolling Average Percent Positivity:
- 0.1% to <1%
- 1% to <2%
- 2% to <3%
- 3% to <5%
- 5% to <10%
- 10% to <20%

Data source: PLOVER 19-Oct-2021
Testing rates among **0-17 years** remain high in all HSDAs. Percent positivity is high in NH. Incidence is elevated in Fraser East, and across NH; incidence is decreasing in IH.

Case incidence rate, test percent positivity, and testing rate by HSDA (Public Payers Only).
Additional Resources

- BCCDC COVID-19 Regional 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