BCCDC Data Summary

1 October 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.
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Overall Summary for surveillance data to Sept 28

- The majority of new cases (7 in 10) and hospitalizations (4 in 5) are among unvaccinated individuals.

- New hospitalizations are elevated and stable 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.

- Case rates are increasing in NH and FH, stable and elevated in IH, and stable in VCH and VIHA.

- Test positivity among public tests is stable (~7% provincially), and high but declining in IH (10%) and NH (17%).
  - Testing rates are high and continue to increase in children (<18 years) and adults 30-44 years.

- Vaccine coverage in BC, 28 Sep, 1 dose (2 doses): 78% (72%) of total population, 88% (81%) 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.
Sep 23 to Sep 28: BC COVID-19 Profile

- Total cases: 186,245
  - New this week: 5,308
- Ever hospitalized: 9,873
  - New this week: 283
- Total deaths: 1,953
  - New this week: 43
- Removed from isolation: 177,729
  - New this week: 4,514

New daily COVID-19 cases, hospitalizations and deaths, Jan 01 2021 - Sep 28 2021

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

Data source: PHRDW Sep-29-2021
Case rates and new hospitalizations are elevated and stable at provincial level, but trends differ by HA (increasing in NH and FH, stable in IH, VCH and VIHA); new deaths are low but slowly increasing.

* Data are by surveillance date for cases and deaths, and admission date for hospitalizations
Data source: PHRDW Sep-29-2021

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.

***NEW*** For latest version of this figure, see COVID-19 Regional Surveillance Dashboard.
Number of new hospital admissions elevated and relatively stable. Deaths are low, but increasing - the majority are among individuals aged ≥60 years.
Trends in number and rate of new hospitalizations by age group, BC, 1 Jan – 25 Sept 2021

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

*Data based on admission date for hospitalizations
Hospital and critical care census is increasing in NH, VCH and VIHA; stable in IH and FH.

Current COVID-19 hospitalizations in BC, Jan 01 2021 - Sep 28 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) Sep-29-2021
Reported case rate among 0-11 year olds continues to increase. Note: testing rates among children are very high, see slides 42/43.
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.
In regions with highly vaccinated adult populations, incidence is lower in children. Some of the recent increase in incidence among <17 years started before schools opened.
Rising case rates in children and youth have not translated into more hospitalizations

0-11 years

12 to 19 years

***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).
For latest version of this map, (note: change symbols not included), see COVID-19 Regional Surveillance Dashboard.
Average daily rate of new cases per 100,000 population, by local health area, Sep 22 - Sep 28, 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 last month’s data, compared with fully vaccinated individuals and after adjusting for age differences, unvaccinated individuals are approximately 11x more likely to become a case, 58x more likely to be hospitalized, and 53x more likely to die. NB: relative rates fluctuate over time and do not represent vaccine effectiveness.

Hospitalization rates among children continue to remain very low.

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 70% of BC’s total population, but accounted for only 29% of cases and 15% 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 Tuesday Sep 21st 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 21st may not be captured by our surveillance system until Sept 25th.
Over the past month, fully vaccinated individuals accounted for 25% of cases and 14% 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 Sept 21st 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 21st may not be captured in our surveillance system until Sept 25th.
COVID-19 health outcomes by vaccination status and age, BC, Sept 1 – Sept 28, 2021

- **Number of people**
  - Unvaccinated
  - Vaccinated, 1 dose
  - Vaccinated, 2 doses

- **Number of cases**
  - Unvaccinated
  - Vaccinated, 1 dose
  - Vaccinated, 2 doses

- **Number of hospitalizations**
  - Unvaccinated
  - Vaccinated, 1 dose
  - Vaccinated, 2 doses

- **Number of deaths**
  - Unvaccinated
  - Vaccinated, 1 dose
  - Vaccinated, 2 doses

- **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**

January, February, March, April, May, June, July, August, September, October
COVID-19 case rate by vaccination status and Health Authority, July 1 – Oct 1, 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 01 Oct 2021

***NEW*** For latest version of this figure, see COVID-19 Regional Surveillance Dashboard
COVID-19 case rate by vaccination status and age, July 1 – Oct 1, 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 01 Oct 2021

***NEW*** For latest version of this figure, see COVID-19 Regional Surveillance Dashboard
COVID-19 hospitalization rate by vaccination status and Health Authority, July 1 – Sept 26, 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.

For latest version of this figure, see COVID-19 Regional Surveillance Dashboard
**COVID-19 hospitalization rate by vaccination status and age, July 1 – Sept 26, 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.

***NEW*** 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 (see graph to the right). These figures do not represent vaccine effectiveness.

Note the bar graph was switched to monthly time frame and now includes confidence intervals.

Data include cases from Sep 01-Sep 28, and hospitalizations and deaths from Aug 29-Sep 25, 2021
Vaccination progress in BC over time by age group and dose number up to Oct. 1, 2021

Data updated 2021-10-01
Data Source: Provincial Immunization Registry, PHSA
Vaccination progress in BC and by Health Authority as of Sept 28, 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; note the change to 90%
BC communities with higher vaccination rates generally had lower total number of cases per capita between July 1 and Sep 28.
Geographic Distribution of COVID-19 Vaccination Coverage by LHA and CHSA

Ages 12+: 1st Dose
up to September 27, 2021

Change from prior week (absolute change) Vaccination coverage rate (%) of persons 12+

highest decile (increase >1.1%) ≤ 50 %

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

81 - 90 %

> 90 %

For latest version of this map, see COVID-19 Regional Surveillance Dashboard
COVID-19 Vaccination Coverage by CHSA: Ages 12+ 1st Dose (up to September 27, 2021)

For latest version of this map, see COVID-19 Regional Surveillance Dashboard
COVID-19 vaccination coverage with 1st dose among 12-17 year olds, by Local Health Area, up to Sept 27, 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
Lab - Key Messages

• **Test positivity** among publicly funded tests is stable ~7%
  - Test positivity varies by HA, ranging from 4.7% in VCH to 16.8% in NH.
  - Test positivity is high in Fraser East and most HSDAs in NH and IH

• Publicly funded **testing rates** were stable this week
  - Testing rates increasing in children (<19 years)

• The provincial weekly median **turnaround time** (time from specimen collection to lab result) remains low, at 14 hours indicating good testing capacity; 3 in 4 tests took ≤ 26 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 Results</th>
<th>New This Epi Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimens</td>
<td></td>
</tr>
<tr>
<td>Tested</td>
<td>3,794,298</td>
</tr>
<tr>
<td></td>
<td>98,958</td>
</tr>
<tr>
<td>Positive</td>
<td>194,313</td>
</tr>
<tr>
<td></td>
<td>5,264</td>
</tr>
</tbody>
</table>

- **Total Specimens Tested:** 3,794,298
- **New This Epi Week:** 98,958
- **Total Positive Specimens:** 194,313
- **New Positive This Epi Week:** 5,264

- **Positivity:** 5.3%
- **Relative Change from Last Week:** 14%
- **Absolute Change from Last Week:** 0.2%

- **Mean Turnaround Time (TAT):** 19 hours
- **Median [Q1 – Q3] TAT:** 18 [11-26] hours

## Weekly Summary of Lab tests paid Publicly

<table>
<thead>
<tr>
<th>Total Results</th>
<th>New This Epi Week</th>
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</thead>
<tbody>
<tr>
<td>Specimens</td>
<td></td>
</tr>
<tr>
<td>Tested</td>
<td>2,869,409</td>
</tr>
<tr>
<td></td>
<td>74,386</td>
</tr>
<tr>
<td>Positive</td>
<td>191,907</td>
</tr>
<tr>
<td></td>
<td>5,186</td>
</tr>
</tbody>
</table>

- **Total Specimens Tested:** 2,869,409
- **New This Epi Week:** 74,386
- **Total Positive Specimens:** 191,907
- **New Positive This Epi Week:** 5,186

- **Positivity:** 7.0%
- **Relative Change from Last Week:** 23%
- **Absolute Change from Last Week:** 0.8%

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**Data source:** PLOVER extract at 10:30am on September 21, 2021.  
Epi week 38 (Sep 19 – Sep 25)
For latest version of this map, see the new (note: change symbols not included) COVID-19 Surveillance Dashboard
Percent positivity decreased slightly in the most recent week (~8%), in parallel with an increase in the number of publicly funded specimens tested.
Test positivity remains high in NH and IH


- BC: 6.8%
- Fraser: 6.0%
- Interior: 10.2%
- Northern: 16.8%
- Vancouver Coastal: 4.7%
- Vancouver Island: 5.7%

Data source: PLOVER 28-Sep-2021
Test positivity high in NH and Kootenay Boundary; incidence is increasing in Fraser East and Kootenay Boundary and remains elevated in Interior Health, NH and Fraser East.

Case incidence rate, test percent positivity, and testing rate by HSDA (Public Payers Only).
Jan 1 2021 - Sep 28, 2021.
Testing rates continue to increase for individuals <19 years, and individuals 30-44 years.
Increase in testing is seen in all pediatric age groups

Case incidence rate, test percent positivity, and testing rate by age (Public Payers Only). Jan 1 2020 - Sep 29, 2021.
Among sequenced VOC samples provincially based on information for September 19 to 25, the dominant VOC continues to be Delta ~100%
Wastewater samples can act as a population-level sentinel surveillance tool- viral signals found in wastewater are highly correlated with disease incidence in population.

In these regions of Fraser Health, 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 these regions in VCH, the viral signal from wastewater reflects the declining 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.
Recent modeling indicates a stable period of cases with an Rt close to 1 in all regions.

Short-term modelling indicates small increases in vaccination coverage can further decrease cases incidence and subsequent hospitalizations.

Projected rates of hospitalizations are expected to remain at current or similar rates in most scenarios.

Compared with no vaccination, modelling indicates that vaccination is providing a large amount of protection against hospitalizations and cases.

Please note that model outputs are not predictions of what will happen, they are scenarios of what could happen under certain conditions. We present scenarios that are, in our judgement, appropriate to explore, given the context of public health in BC and the available epidemiological data.
Dynamic modeling: recent trends

Modelling indicates that $R_t$ has remained 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** 1.01 → 0.99 [0.8–1.2]

**Fraser** 1.03 → 1.01 [0.9–1.3]

**Vancouver Coastal** 0.96 → 0.96 [0.8–1.2]

**Interior** 1.00 → 0.97 [0.7–1.3]

**Vancouver Island** 1.00 → 0.99 [0.6–1.5]

**Northern** 1.01 → 1.00 [0.7–1.5]

Solid line: median $R_t$, modeled using all reported cases up to Oct 3, 2021; Red band: 5%-95% 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 fit estimate from last week → this week; 5%-95% credible interval. Only January 2021 onward shown here. Data source: BC Centre for Disease Control.
Modeling scenarios - overview

- All scenarios begin October 1st, 2021 with a one-month time horizon. Output is limited to short-term projections only because uncertainty increases greatly over time and it is unrealistic to assume no changes to policies or behaviour.

- Three transmission scenarios are shown based on most recent estimates and range of $R_t$ for BC. A projection of the current vaccination rate is compared to a potential higher vaccination rate for each scenario. Importantly, recent public health measures may further reduce transmission and decrease the likelihood of the upper range scenario.

- Model scenarios are based on a plausible range of vaccine effectiveness including reduction in risk of infection, reduction in risk of onward transmission if infected, and reduction in risk of hospitalization.

- It is assumed that all eligible and willing individuals will have completed their two-dose vaccination schedule and sufficient time has passed such that they are fully immunized.

- Reduction in infection due to vaccination is 80%, reduction in onward transmission ranges from 40-45%, and reduction in hospitalization ranges from 95-99%. Additionally, the increased severity of the delta variant ranges from 0-125%. Initial number of infections also varies over a plausible range. Reduction in reporting infection due to vaccination ranges from 80-95%. Vaccination parameters are comparable with other established models [1], [2], [3]

- Projected vaccination coverage scenarios were compared to where coverage in each age group is additionally increased by a level consistent with individual hesitancy derived from the COVID SPEAK survey, and an additional counterfactual scenario which considers if none of the population were vaccinated.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>12 - 17</th>
<th>18 - 24</th>
<th>25 - 34</th>
<th>35 - 44</th>
<th>45 - 54</th>
<th>55 - 64</th>
<th>65 - 74</th>
<th>&gt; 75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projected</td>
<td>84%</td>
<td>85%</td>
<td>88%</td>
<td>87%</td>
<td>87%</td>
<td>88%</td>
<td>91%</td>
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<td></td>
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<td>Higher</td>
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<td>87%</td>
<td>89%</td>
<td>95%</td>
<td>98%</td>
<td>99%</td>
</tr>
<tr>
<td>vaccination</td>
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</tbody>
</table>
Lower range scenario

Scenario: lower transmission levels, equivalent to an initial $R_t = 0.84$ in the projected vaccination scenario and $R_t = 0.77$ in the potential (higher) vaccination scenario. Currently, $R_t$ for BC is 0.99 (0.84 - 1.2).

Shading indicates uncertainty due to effectiveness of vaccination, showing 90% and 50% confidence intervals.
Mid-range scenario

Scenario: moderate transmission levels, equivalent to an initial $R_t = 0.99$ in the projected vaccination scenario and $R_t = 0.91$ in the potential (higher) vaccination scenario. Currently, $R_t$ for BC is 0.99 (0.84 - 1.2).

Shading indicates uncertainty due to effectiveness of vaccination, showing 90% and 50% confidence intervals.
Upper range scenario

Scenario: moderate transmission levels, equivalent to an initial $R_t = 1.2$ in the projected vaccination scenario and $R_t = 1.1$ in the potential (higher) vaccination scenario. Currently, $R_t$ for BC is 0.99 (0.84 - 1.2). **Note:** scenarios do not include further public health measures that may be implemented to reduce transmission.

Shading indicates uncertainty due to effectiveness of vaccination, showing 90% and 50% confidence intervals.
Mid-range scenario - comparison to no vaccine

Scenario: Comparing mid-range transmission scenario to a no-vaccination scenario (equivalent to an $R_t = 3.02$). Note: scenarios do not include further public health measures that may be implemented to reduce transmission.

Shading indicates uncertainty due to effectiveness of vaccination, showing 90% and 50% confidence intervals.
**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](#).