# Community Respiratory Illness Surveillance Program (CRISP) Situation Report: February 16, 2024 (Reporting Period January 28 - February 10, 2024)

**Summary**

- The number of positive tests for SARS-CoV-2 increased marginally this week compared to the week ending January 27. Test positivity for the most recent surveillance week was 9.0%, an increase from 7.8% for the period ending January 27, 2024.

- 5,701 positive laboratory tests were reported this season, 5353 (93.9%) were Influenza Type A and 348 (6.1%). Of the 93 influenza A viruses subtyped, 84 (90.3%) were H1N1, and 9 (9.7%) were H3N2. Test positivity decreased from 8.0% in the week ending January 27, 2024, to 6.2% in the most recent period.

- The number of Respiratory Syncytial Virus (RSV) cases has been stable over the past four weeks. RSV test positivity for the most recent surveillance week was 6.8%, and 6.5% for the period ending January 27, 2024.

- COVID-19, Influenza, RSV, other respiratory viruses, and co-infections comprised 27.1%, 8.9%, 25.3%, 33.6%, and 5.1%, respectively, of viral respiratory illness hospitalizations in the province, with a 12.3% decrease in total admissions from 244 to 214 over the last two weeks.

- Sentinel surveillance indicators of respiratory transmission in the community continue to fluctuate:
    - Weekly emergency department visits for respiratory-like illnesses (RLI) dropped from 19.6 per 1,000 in the week ending February 3 to 15.0 per 1,000 in the week ending February 10.
    - School absenteeism increased from 9.8% in the week ending February 3, to 12.8% in the week ending February 10, 2024.
    - RLI calls to the HealthLine dropped from 82.4 per 1,000 calls for the week ending February 3, to 77.5 per 1,000 calls in the week ending February 10.
    - Three out of the four samples tested at the sentinel provider sites were positive, one for each of Influenza B, RSV, and Rhinovirus.
    - Current wastewater analysis indicates an upward trend in SARS-CoV-2 levels across multiple surveyed areas of the province, with the exception of the South East area where viral levels have remained low over recent weeks.

**COVID-19**

- The number of positive tests for SARS-CoV-2 increased, with 152 lab detections in the week ending February 10, 2024.
- In the most recent week, the proportions of COVID-19 cases were highest among individuals 20-64 years of age (40.1%), followed by those 65 and older (38.7%).
- From January 28 to February 10, 2024, there were eight COVID-19 outbreaks reported in high-risk settings compared to four in the previous two-week period.

- From December 24, 2023, to February 3, 2024, JN.1 and its sublineages (denoted as JN.1*) were the most commonly detected variants (56.9%), followed by EG.5* (30.4%) and BA.2.86* (4.2%). The proportion of JN.1 and its sublineages (JN.1*) is 80.4% for the week starting January 21.
- COVID-19 hospitalizations have decreased from 87 for the previous two weeks to 58 for the most recent two weeks, reflecting a 33.3% drop. COVID-19 ICU admissions have remained stable for the past four weeks.
- The proportion of staffed inpatient beds occupied by COVID-19 patients decreased to 4.6% for the most recent week.
- In the past two weeks, one COVID-19 death was reported.
- As of February 10, 2024, 17.9% of those aged six months and older have received a COVID-19 vaccine dose. Vaccination coverage is generally below 10% for ages six months to 64 years, except in Saskatoon (14.3%), Regina (14.1%), and North East (10.4%). For those 65 and older, Far North West (33.2%) and Far North Central (20.1%) have less than 40% coverage, while Regina (58.1%), Saskatoon (54.7%), and Central West (51.0%) exceed 50%.

**Influenza**

- The number of positive tests for influenza have decreased from 114 in the week ending February 3, 2024, to 79 in the current surveillance week.
- No influenza-associated deaths were reported in this two-week reporting period.
- Influenza hospitalizations have increased from 10 for the previous two weeks to 19 for the most recent two weeks. Influenza ICU admissions have remained stable at 2 for the previous two weeks and 1 for the most recent two weeks.
- As of February 10, 2024, 24.6% of the Saskatchewan population received influenza vaccine this season. For those aged 65 years and older overall coverage was 59.1%; the highest was in Regina (64.1%) and lowest in Far North Central (41.0%). For those aged less than 65 years the overall coverage was 17.4%; the highest was in Saskatoon (21.0%) and lowest was in Far North West (10.2%).

**RSV and Other Respiratory Viruses[1]**

- Other respiratory viruses decreased to 199 positive lab detections in the current reporting two weeks compared to 214 detections in the previous two-week period. Test positivity in the most recent week decreased to 21.2% from 23.4% in the previous week.
- The number of RSV cases have decreased this surveillance week. The proportion of RSV cases was highest in the under-5-year age group.
- RSV hospitalizations have decreased from 62 for the previous two weeks to 54 for the most recent two weeks. RSV ICU admissions have decreased from 14 for the previous two weeks to 5 for the most recent two weeks. Hospitalizations for 'Other' respiratory viruses have decreased from 83 for the previous two weeks to 72 for the most recent two weeks. 'Other' respiratory viruses ICU admissions have remained relatively stable from 7 for the previous two weeks to 8 for the most recent two weeks.

Notes:
[1] *Other respiratory viruses: Parainfluenza viruses 1 – 4; Adenovirus; Human Metapneumovirus, seasonal Coronavirus and Entero/Rhinovirus;*
** Represents all sublineages of Omicron*

- Outbreaks due to ‘other’ viruses have remained stable. There were six outbreaks reported in high-risk settings over the past two weeks.

**Table 1: Viral indicators by surveillance period, January 14 – February 10, 2024**

| Report date | SARS-CoV-2 positive laboratory test | SARS-CoV-2 test positivity | COVID-19 outbreaks | Influenza positive laboratory test | Influenza test positivity | Influenza outbreaks | RSV positive laboratory test | RSV test positivity | RSV Outbreaks | 'Other'[1] positive laboratory test | 'Other'[1] sample positivity | 'Other'[1] outbreaks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb 04 - Feb 10 | 152 | 9.0% | 5 | 79 | 6.2% | 1 | 77 | 6.8% | 1 | 86 | 21.2% | 1 |
| Jan 28 - Feb 03 | 152 | 8.3% | 3 | 114 | 7.8% | 0 | 127 | 9.8% | 4 | 113 | 23.4% | 5 |
| Jan 21 - Jan 27 | 134 | 7.8% | 1 | 111 | 8.0% | 0 | 79 | 6.5% | 1 | 86 | 23.7% | 1 |
| Jan 14 - Jan 20 | 181 | 10.2% | 3 | 93 | 6.5% | 1 | 102 | 8.0% | 2 | 128 | 26.1% | 6 |

***Notes:*** [1]*Parainfluenza viruses 1 – 4; Adenovirus; Human Metapneumovirus, seasonal Coronavirus and Entero/Rhinovirus. See Technical Notes for details*

[#]*Starting with the week of Oct 22-28, the method for calculating test positivity for "Other" respiratory viruses has changed to more accurately reflect the number of positive results in laboratory samples tested for "other" respiratory viruses. For example, during the week of Oct 22-28, 64 of 347 samples tested for "Other" respiratory viruses were positive for one or more of these viruses, which results in a test positivity of 18.4%. Samples that tested positive for more than one of the "Other" viruses are counted only once.*

**Table 2: Patient-confirmed respiratory illness by age group, February 04 – February 10, 2024**

| Age group (Years) | COVID-19 case count | Influenza case count | RSV case count | 'Other' virus case count[1] |
|---|---|---|---|---|
| 0 – 4 | 20 (14.1%) | 5 (7.0%) | 30 (41.7%) | 86 |
| 5 – 19 | 10 (7.0%) | 18 (25.3%) | 11 (15.3%) | |
| 20 – 64 | 57 (40.1%) | 39 (54.9%) | 11 (15.3%) | |
| ≥65 | 55 (38.7%) | 9 (12.7%) | 20 (27.8%) | |
| **Total** | **142 (100%)** | **71 (100%)** | **72 (100%)** | 86 (100%) |

***Notes:*** *[1]Parainfluenza viruses 1 – 4; Adenovirus; Human Metapneumovirus, seasonal Coronavirus and Entero/Rhinovirus; age-specific data is unavailable for other respiratory pathogens. Individuals with co-infection of "Other" viruses are only counted once. Due to the rounding, total percentage may not add to 100%. See Technical Notes for further details.*

**Table 3: Sentinel* indicators by surveillance period, January 14 – February 10, 2024**

| Report date | School illness absenteeism[1] | RLI** ED visits per 1,000[2] | RLI** 811 calls per 1,000 | SARS-CoV-2 Wastewater indicator[3] | Sentinel provider test positivity[4] | Most commonly detected virus: Sentinel providers[4] |
|---|---|---|---|---|---|---|
| Feb 04 - Feb 10 | 12.8% | 15.0 | 77.5 | Low (n=3), Medium (n=4), Medium-high (n=2) | 75% (n=3) | Influenza B, RSV, Rhinovirus |
| Jan 28 - Feb 03 | 9.8% | 19.6 | 82.4 | Low (n=4), Medium (n=5) | 80% (n=4) | COVID |
| Jan 21 - Jan 27 | 8.8% | 14.9 | 66.4 | Low (n=3), Medium (n=4), Medium-High (n=2) | 57% (n=4) | COVID |
| Jan 14 - Jan 20 | 9.3% | 15.4 | 84.5 | Low (n=4), Medium (n=4), Medium-high (n=1) | 64% (n=7) | COVID |

***Notes:*** **Sentinel surveillance are sampling programs representative of the population; [1]School absenteeism is the proportion of scheduled children who were absent from the class due to illness. The type of illness is not specified. [2]Respiratory-like illnesses (RLI) are based on reports from ten of thirteen reporting areas for the Jan 14 – Jan 20 report date; report date of Jan 21 – Jan 27 are based on reports from nine of thirteen reporting areas. [3]Count of wastewater treatment facilities reporting low, moderate or high levels of viral load causing COVID-19 infection. See Technical Notes and appendix for details. [4]Most commonly detected virus in Sentinel providers: COVID-19, Influenza A/B, RSV, Adenovirus, Metapneumovirus, Rhinovirus, Parainfluenza viruses 1-4, and seasonal Coronaviruses (229E, HKU1, NL63, and OC43).*

**Table 4: Outcome, health care capacity, and immunization coverage indicators by surveillance period, Saskatchewan, January 14 – February 10, 2024[¥]**

| Report date | Hospital admissions – COVID-19[1] | ICU admissions – COVID-19 | Hospital admissions – Influenza | ICU admissions – Influenza | Hospital admissions – RSV | ICU admissions – RSV | % of staffed inpatient beds occupied by COVID-19 patients[2] | Deaths – COVID-19 | Deaths – Influenza[3] | Proportion of population with COVID-19 vaccine administered[4] | Proportion of population immunized for Influenza vaccine[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb 04 - Feb 10 | 29 | 6 | 9 | 1 | 22 | 1 | 4.6% | 0 | 0 | 17.9% | 24.6% |
| Jan 28 - Feb 03 | 29 | 4 | 10 | 0 | 32 | 4 | 4.9% | 1 | 0 | 17.9% | 24.5% |
| Jan 21 - Jan 27 | 31 | 7 | 4 | 0 | 26 | 7 | 5.4% | 1 | 0 | 17.8% | 24.4% |
| Jan 14 - Jan 20 | 56 | 5 | 6 | 2 | 36 | 7 | 5.6% | 2 | 0 | 17.7% | 24.2% |

*[¥]Additional information on hospital admission stratified by respiratory organism and age group is provided below in **Figure 3** and **4** respectively. Viral infection may not be the main reason for the admission.*

**Cases by respiratory organisms across the age groups**

- From January 28 to February 10, there were 214 respiratory illness cases hospitalized with lab-positive COVID-19 (58), influenza (19), RSV (54), other respiratory illnesses (72), and co-infected cases (11). The COVID-19 lab positives were among the age groups of 0-19 (5), 20-59 (13) and ≥60 (40). The Influenza lab positives were among the age groups of 0-19 (5), 20-59 (8) and ≥60 (6). The RSV lab positives cases were among the age groups of 0-19 (23), 20-59 (9) and ≥60 (22). The other respiratory lab positives were in the age group of 0-19 (40), 20-59 (20), and ≥60 (12). The Co-infection lab positives were in the age groups of 0-19 (8) and ≥60 (3).
- From January 28 to February 10, there were 24 respiratory illness cases admitted to the ICU with lab-positive Covid19 (10), influenza (1), RSV (5) and other respiratory illnesses (8).The COVID-19 lab positives were among the age groups of 0-19 (1), 20-59 (3) and ≥60 (6).The Influenza lab positives were among the age group of ≥60 (1). The RSV lab positives cases were among the age groups of 0-19 (3), 20-59 (1) and ≥60 (1). The other respiratory lab positives were in the age groups of 0-19 (5), 20-59 (2) and ≥60 (1).

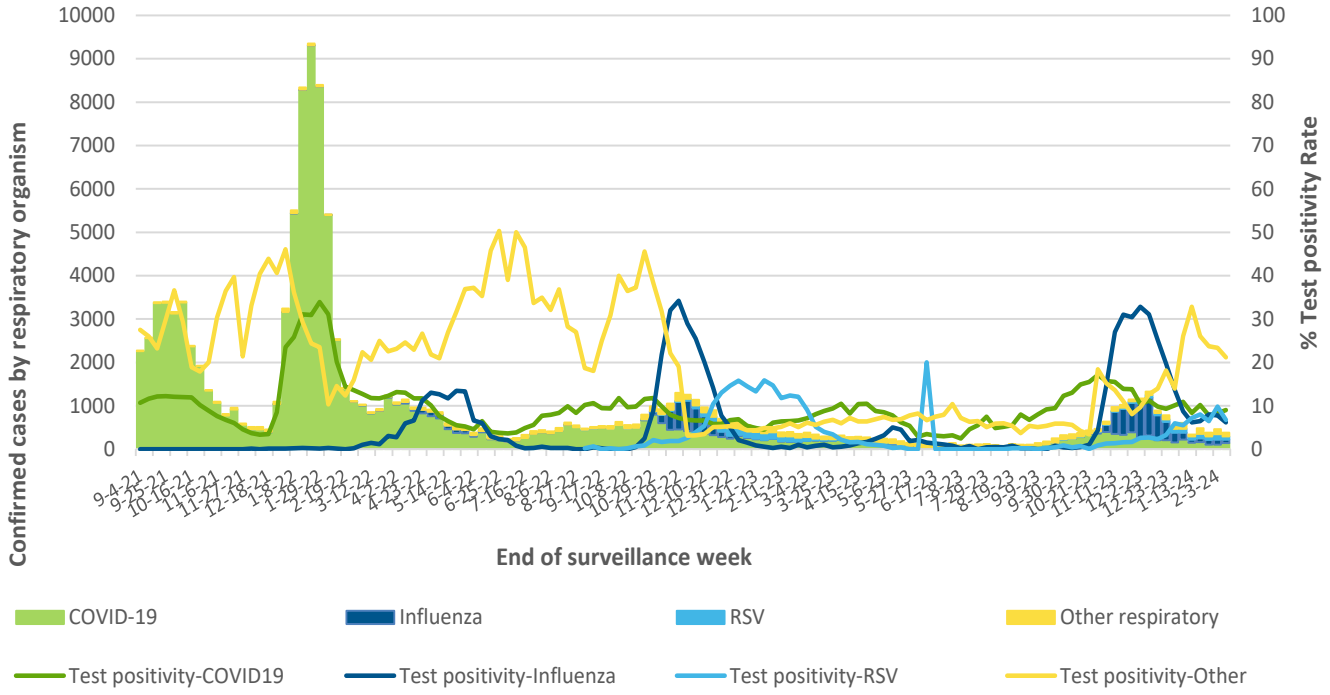
***Notes:*** *[1]The delay in date tested result affects the total number of Influenza (A/B), RSV and other respiratory virus admissions for a particular day. This lag in data impacts mostly the last couple of days from the day the report is updated. The counts for influenza, RSV, and other respiratory virus-associated hospital and ICU admissions refer to individuals with laboratory or point of care tests positive for influenza, RSV, and other respiratory viruses, respectively, occurring within four days before the admission date AND/OR at any point during the hospital stay. The counts for COVID-19 hospital and ICU admissions refer to individuals with laboratory tests positive for COVID-19 virus, occurring within 21 days before the admission date and/or at any point during the hospital stay or 7 days from the discharge. Episodes of care considers patients total movement within the health system related to their condition. It combines 2 or more admission from 2 or more different facilities if they are transfers (No break in care). Transfer: Admission to any other hospital within 24 hours of discharge from previous hospital. Co-infected cases: positive for influenza and RSV or, positive for influenza and other respiratory virus or positive for RSV and other respiratory viruses or, positive for COVID-19 and influenza or, positive for COVID-19 and RSV or, Positive for COVID-19 and other respiratory viruses. Other includes Parainfluenza 1-4, Adenovirus, Enterovirus, Human Metapneumovirus, Rhinovirus, Seasonal Coronavirus (O43, NL63, 229E, HKU1f.)*

*[2]7-day average of percentage of acute inpatient beds staffed and in operation that are occupied by COVID-positive patients as of 8AM census*

*[3] Includes deaths entered into Panorama IOM among lab-confirmed cases. Deaths reported based on the actual date of death. Deaths reported in previous periods subject to change due death reporting data lags. Based on Panorama update, one death was added in week 46; and one death removed from each week from week 47-50.*

*[4]The fall immunization campaign for COVID-19 and influenza started on October 10, 2023. The first doses of COVID-19 and influenza vaccines arrived in SK the week of September 18. Coverage is based on doses administered on or after September 18, 2023.*

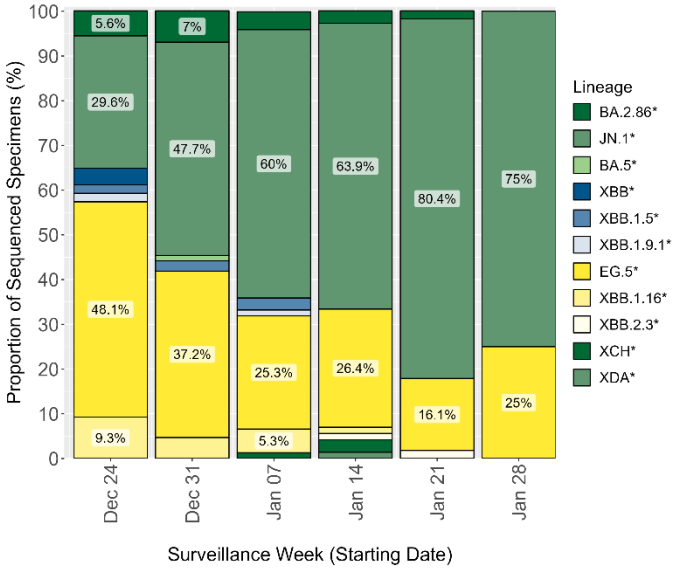
**Figure 1: Epidemic curve, respiratory illness by organism and test positivity, August 29, 2021 – February 10, 2024**




*Data sources: Panorama IOM extracted on February 12, 2024 (COVID-19 cases)*
*Respiratory Virus Detections Surveillance System (influenza and other respiratory) (RRPL extracted February 12, 2024)*
*As of September 4, 2022, COVID-19 cases include new and reinfections.*
*For the two weeks of January 28 to February 10, 2024, there were:*

- *248 COVID-19 cases (63 were 0 to 19 years; 84 were 20 to 59 years; and 101 were 60 years and older).*
- *193 influenza lab detections*
- *204 RSV detections*
- *199 other viral lab detections (parainfluenza, adenovirus, human metapneumovirus, rhinovirus, coronavirus*

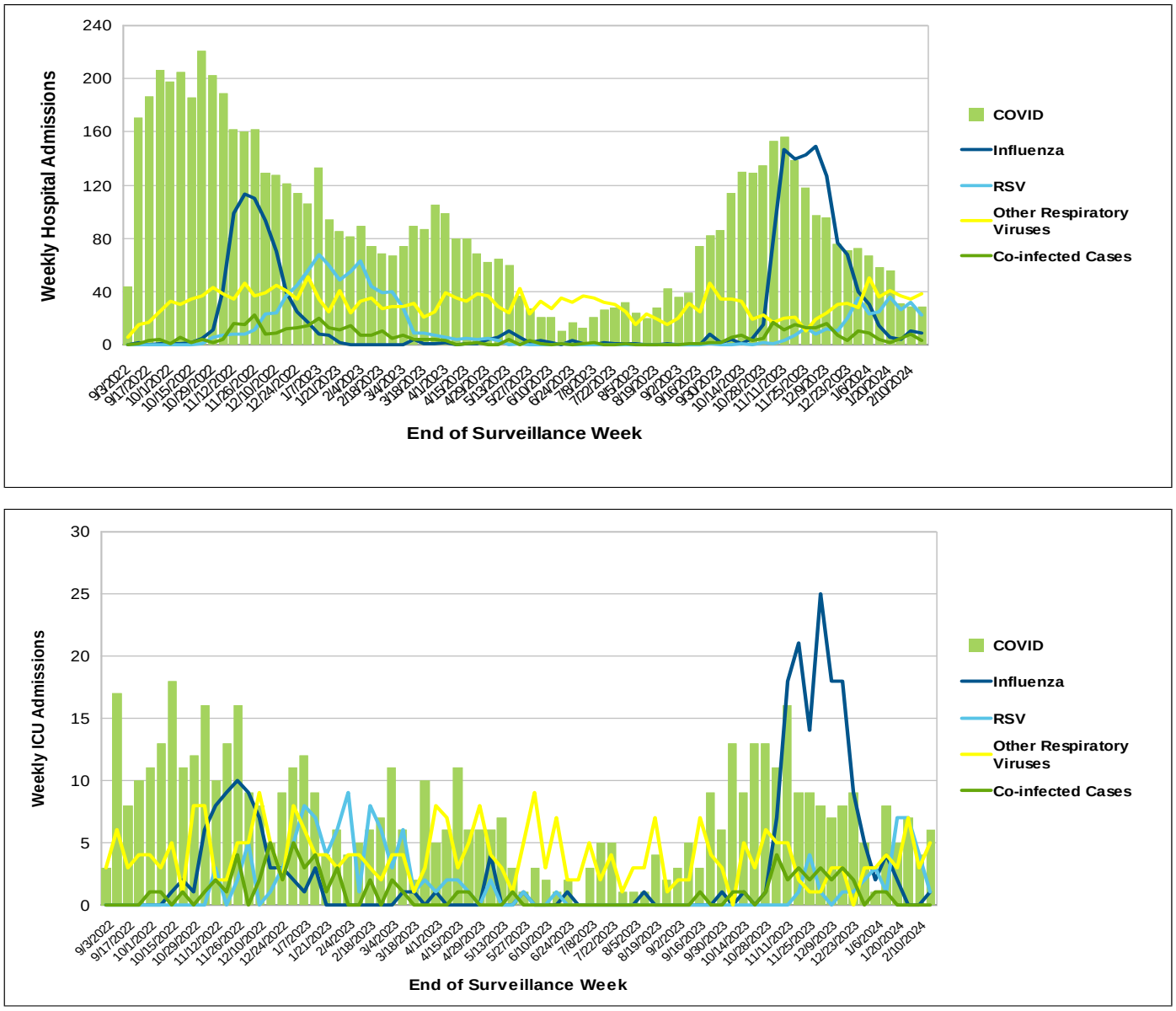
**Figure 2: Percentage of SARS-CoV-2 variants by surveillance week starting¥, December 24, 2023-January 28, 2024***




| Lineage | Dec 24 | Dec 31 | Jan 07 | Jan 14 | Jan 21 | Jan 28 |
|---|---|---|---|---|---|---|
| BA.2.86* | 3 | 6 | 3 | 2 | 1 | 0 |
| JN.1* | 16 | 41 | 45 | 46 | 45 | 9 |
| BA.5* | 0 | 1 | 0 | 0 | 0 | 0 |
| XBB* | 2 | 0 | 0 | 0 | 0 | 0 |
| XBB.1.5* | 1 | 2 | 2 | 0 | 0 | 0 |
| XBB.1.9.1* | 1 | 0 | 1 | 0 | 0 | 0 |
| EG.5* | 26 | 32 | 19 | 19 | 9 | 3 |
| XBB.1.16* | 5 | 4 | 4 | 1 | 0 | 0 |
| XBB.2.3* | 0 | 0 | 0 | 1 | 1 | 0 |
| XCH* | 0 | 0 | 1 | 2 | 0 | 0 |
| XDA* | 0 | 0 | 0 | 1 | 0 | 0 |
| Total | 54 | 86 | 75 | 72 | 56 | 12 |

**Data Source:** *Roy Romanow Provincial Laboratory, Saskatchewan Health Authority, as of February 13, 2024*
The most recent SARS-CoV-2 variants data available from the Provincial database is as of surveillance week ending February 3, 2024
¥ Surveillance weeks correspond to specimen collection date.
* Parent lineage reported also includes all sublineages derived from this parent lineage.

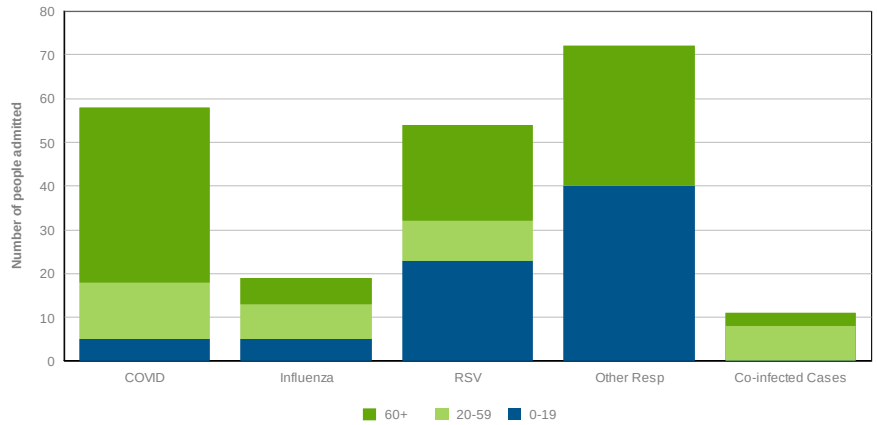
**Figure 3: The number of COVID-19, influenza, RSV, other respiratory viruses, and co-infected cases admitted to hospital and ICU by week of the admission, September 03, 2022 – February 10, 2024***




***Data source:*** *Digital Health Analytics, Saskatchewan Health Authority, Episode of Care methodology (Admission, Discharge, Transfer Database (ADT, RRPL, Panorama); data extracted on February 13, 2024* Viral infection may not be the main reason for the admission.*

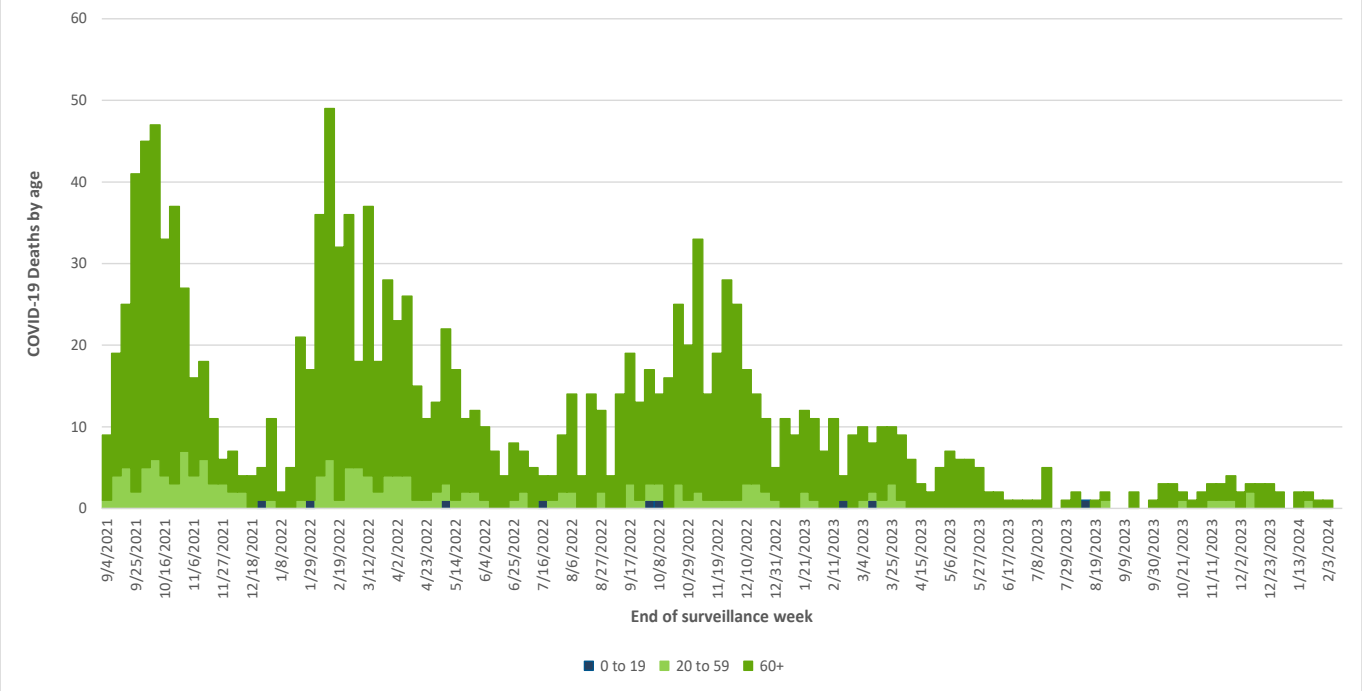
***Note:*** *The delay in date tested result affects the total number of COVID 19 admissions for a particular day. This lag in data impacts mostly the last couple of days from the day the report is updated. Includes lab or point of care positive for influenza, RSV, other respiratory viruses, four days prior to date of admission AND/OR at any point during admission. Episode of Care considers patients total movement within the health system related to their condition. It combines 2 or more admissions from 2 or more different facilities, if they are transferred (no break in care). Transfer = admission to any other hospital within 24 hours of discharge from previous hospital admission. Co-infected cases = positive for Influenza and RSV, or Influenza and 'other', or RSV and 'other', or, COVID-19 and Influenza, or, COVID-19 and RSV, or, COVID-19 and 'other'.*

**Figure 4: The number of COVID-19, influenza, RSV, other respiratory viruses, and co-infected cases admitted to hospital by age group, January 28-February 10, 2024***




***Data source:*** *Digital Health Analytics, Saskatchewan Health Authority, Episode of Care methodology (Admission, Discharge, Transfer Database (ADT, RRPL, Panorama); data extracted on February 13, 2024* Viral infection may not be the main reason for the admission*
***Note:*** *The delay in date tested result affects the total number of COVID 19 admissions for a particular day. This lag in data impacts mostly the last couple of days from the day the report is updated. Includes*
*lab or point of care positive for influenza, RSV, other respiratory viruses, four days prior to date of admission AND/OR at any point during admission. Episode of Care considers patients total movement within the health system related to their condition. It combines 2 or more admissions from 2 or more different facilities, if they are transferred (no break in care). Transfer = admission to any other hospital within 24 hours of discharge from previous hospital admission. Co-infected cases = positive for Influenza and RSV, or Influenza and 'other', or RSV and 'other', or, COVID-19 and Influenza, or, COVID-19 and RSV, or, COVID-19 and 'other'.*

**Figure 5: COVID-19 deaths by age group and week, September 4, 2021 – February 10, 2024***




Source: Panorama February 12, 2024
*In the past two weeks, January 28 to February 10, 2024, there has been one death in COVD-19 cases, in the 60 years or older group.*
**Total COVID-19 deaths from March 2020 to date; n=2,054*

**Table 5: Community Respiratory Infection Surveillance Program Indicators by zone, February 04 – February 10, 2024**

| Location | Test positivity – SARS-CoV-2 [1] (positive lab tests) | Test positivity – Influenza (positive lab tests) | Test positivity – RSV (positive lab tests) | RLI* visits to EDs per 1,000[2] | RLI* 811 calls per 1,000[3] | School illness absenteeism[4] | Wastewater indicator† | Proportion of population with COVID-19 vaccine administered[5] | | Proportion of population with Influenza vaccine adminstered[5] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | <65 Yrs | ≥65 Yrs | <65 Yrs | ≥65 Yrs |
| **Far North West** (Meadow Lake & area) | 4.8% (2) | 23.5% (20) | 12.9% (11) | No data | - | 9.8% | Low | 4.7% | 33.2% | 10.2% | 46.0% |
| **Far North Central** | 0.0% (0) | 0.0% (0) | 0.0% (0) | No data | - | 11.4% | No data | 3.1% | 20.1% | 12.4% | 41.0% |
| **Far North East** (La Ronge & area) | 15.4% (2) | 6.3% (1) | 6.3% (1) | No data | - | 7.8% | Low | 6.8% | 44.4% | 14.4% | 53.2% |
| **North West** (Lloydminster & area/North Battleford) | 13.2% (7) | 1.0% (1) | 6.0% (6) | 9.1 | 75.0 | 14.0% | Medium | 5.9% | 42.8% | 10.9% | 50.9% |
| **North Central** (Prince Albert & area) | 12.0% (11) | 0.0% (0) | 14.3% (9) | 10.4 | - | 12.1% | No data | 9.5% | 49.2% | 15.5% | 57.6% |
| **North East** (Melfort & area) | 20.7% (6) | 2.4 % (1) | 12.2% (5) | 84.5 | 48.8 | 14.0% | No data | 10.4% | 47.1% | 16.2% | 55.6% |
| **Saskatoon** | 8.3% (38) | 5.0% (11) | 4.6% (10) | 14.3 | 73.7 | 12.4% | Medium | 14.3% | 54.7% | 21.0% | 62.0% |
| **Central West** (Kindersley & area) | 9.5% (2) | 4.5% (1) | 9.1% (2) | 89.9 | - | 10.6% | No data | 8.2% | 51.0% | 16.5% | 61.5% |
| **Central East** (Yorkton/Melville & area) | 7.2% (12) | 6.5% (8) | 7.1% (6) | 26.5 | - | 11.5% | Medium-High | 8.4% | 47.1% | 14.4% | 55.6% |
| **Regina** | 6.4% (12) | 8.3% (19) | 5.7% (13) | 9.9 | 88.1 | 13.5% | Medium | 14.1% | 58.1% | 19.3% | 64.1% |
| **South West** (Swift Current/ Maple Creek & area) | 18.0% (11) | 1.3% (1) | 5.6% (4) | 27.9 | 61.3 | 12.5% | Medium | 9.1% | 45.9% | 16.0% | 55.3% |
| **South Central** (Moose Jaw &area) | 11.0% (8) | 1.9% (2) | 5.9% (6) | 2.4 | - | 12.3% | Medium-High | 9.3% | 49.9% | 15.6% | 58.8% |
| **South East** (Weyburn/Estevan & area) | 7.0% (4) | 3.3% (2) | 5.6% (3) | 40.2 | 97.3 | 14.9% | Low | 7.2% | 44.5% | 14.6% | 56.9% |
| **Unknown/Out of Province** | 8.5% (37) | 9.0% (12) | 2.3% (1) | No data | | 14.0% | - | - | - | - | - |
| **SASKATCHEWAN** | **9.0% (152)** | **6.2% (79)** | **6.8% (77)** | **15.0** | **77.5** | **12.8%** | - | **11.2%** | **50.9%** | **17.4%** | **59.1%** |

*Notes: [1]By week of lab detection; effective Oct 30, 2022, includes cases who tested positive more than once >= 90 days apart; ^ [1]For COVID-19 test positivity, all tests reported were performed within the province. *Respiratory-like illness; [2]Based on reports from nine of thirteen reporting areas. [3] 811 data available at the six Integrated Service Areas geographical level; [4] Unknown represents the number of students who were absent from the class due to illness with no known geography for the school. School absenteeism is the proportion of scheduled children who were absent from the class due to illness. The type of illness is not specified. †SK overall estimate is currently unavailable as this metric tends to overestimate and underestimate WW level due to varied patterns across regions, which is difficult to synchronize with the population size of each region.; [5]The fall immunization campaign for COVID-19 and influenza started on October 10, 2023. The first doses of COVID-19 and influenza vaccines arrived in SK the week of September 18. Coverage is based on doses administered on or after September 18, 2023*

# Technical Notes

1. Laboratory surveillance: Conducted through epidemiological analyses and Laboratory surveillance: Conducted through epidemiological analyses and positivity rate monitoring (counts and proportion of positive specimens, week of specimen collection, age category, geographical area, etiological type where applicable) of selected respiratory specimens submitted to the provincial laboratory in SK. Whole genome sequencing is conducted to detect changes (emergence of sub-lineages, variant proportion, etc) of clinical and public health importance among circulating respiratory organisms.

2. Sentinel health providers: Comprise a geographical-based network in practices across the province (n = 13 zones) who submit one to two specimens weekly to the Virology Section of the Roy Romanow Provincial Laboratory (RRPL), Saskatchewan Health Authority, from patients presenting with respiratory-like symptoms. Specimens are tested for a wider complement of respiratory organisms to monitor respiratory illness activity in the community. Assessment of co-infection (infected by more than one respiratory virus organism concurrently) occurs through sentinel provider submissions.

3. Wastewater data: Provided by the Roy Romanow Provincial Laboratory Wastewater Testing Team. Viral load for each zone was used to determine risk levels (Low, Medium, Medium-High, and High) based on viral copies per unit volume and weekly change percentage. Locations sampled include Saskatoon, Regina, Moose Jaw, North Battleford, Swift Current, Yorkton, Weyburn, Estevan, Meadow Lake, Melville, Town of Battleford, La Ronge, Unity, Assiniboia, Maple Creek, Lumsden, Watrous, Île-à-la-Crosse, Birch Hills, Southey, and Pasqua First Nation.

4. Respiratory-Like Illness (RLI) cases in Emergency Departments (EDs) across different regions of Saskatchewan are recorded using two primary systems: the Sunrise Clinical Manager (SCM) and the local public health offices (LPHO).

   The SCM ED data encompasses information from eight zones, namely Central East, North Central, North West, Regina, Saskatoon, South Central, South West, and South East (data received from both systems). On the other hand, the LPHO ED data covers three zones: North East, Central West, and South East (data received from both systems). It's important to note that the Far North West, Far North Central, and Far North East regions do not currently participate in RLI Surveillance for ED.

   Digital Health Analytics (DHA) compiles and summarizes SCM data over a 7-day monitoring period, spanning from Sunday to Saturday. In contrast, the LPHO aggregates raw data received from ED's on the prescribed data collection form. The data is monitored for a minimum of 24 hours, on at least one day each week. The specific timing of this monitoring may vary depending on the ED's schedule.

5. HealthLine 811 callers with Respiratory Symptoms (RLI): This count of response protocols collected by HealthLine nurses specific to callers reporting respiratory-like symptoms. HealthLine data is collected for a seven-day week, Monday to Sunday. Data is transformed into the rate of callers with respiratory symptoms from each Integrated Service Area (ISA) per 1000 calls from that ISA concerning any type of symptom.

6. A confirmed outbreak: Defined as two or more lab confirmed respiratory virus cases in high-risk settings where transmission is evident or there is a high level of suspicion of transmission. Outbreaks are reported by the week they were reported to the local public health office and not necessarily in the week that the outbreak began. For this report outbreaks in high-risk settings comprise long term care facilities, personal care homes and group homes

7. COVID hospitalized admissions is the number of C-19 positive cases that during the surveillance week were admitted as an inpatient to an acute care facility. This includes patients with C-19 related illness, incidental COVID infection, and patients under investigation. COVID ICU admissions is the number of C-19 positive cases that during the surveillance week were admitted to an ICU location in SK. This includes both infectious and non-infectious cases.

8. Influenza, RSV and other respiratory virus admissions: Delays in testing results affect the total number of Influenza, RSV and other respiratory virus admissions for a particular day. This lag in data has the greatest impact on the two days prior to when the report is updated. Counts include individuals who are laboratory positive for influenza, RSV, and other respiratory viruses, within four days prior to date of admission AND/OR at any point during the hospital stay. Episode of Care considers patients' total movement within the health system related to their condition. It combines 2 or more admissions from 2 or more different facilities, if they are transfers (i.e., no break in care). Transfer: Admission to any other hospital within 24 hours of discharge from previous hospital. Co-infected Cases = if positive for Influenza and RSV positive for Influenza and Other Respiratory viruses or, positive for RSV and Other respiratory viruses or, positive for Covid-19 and Influenza or, positive for Covid-19 and RSV or, positive for Covid-19 and Other Respiratory viruses.

9. Variant of Concern (VOC): VOCs are SARS-CoV-2 viruses that have undergone genetic modification or mutation causing altered virus infectivity, replication and pathogenicity. As a result, it can alter host immune response. The Roy Romanow Provincial Laboratory (RRPL) tests for and monitors COVID-19 variants of concern (VOCs) in Saskatchewan. Confirmation of VOC lineages is done by conducting whole genome sequencing (WGS) at RRPL or the National Microbiology Laboratory. It takes one to two weeks to complete WGS from the date a sample is collected. Data sources for VOCs analysis include testing data from the RRPL, and epidemiological information from Panorama. Where geographical zone is missing in RRPL or Panorama data, the Saskatchewan postal code file is used to identify cases' geographical information.

   Lineages BA.2.86, JN.1, BA.5, XBB, XBB.1.5, XBB.1.9.1, XBB.1.9.2, EG.5, XBB.1.16, XBB.2.3, XCH, and XDA are all classified under the WHO label of "Omicron". Lineages that are not explicitly indicated in the analysis are aggregated under their corresponding parent lineage. Percentages are shown when a lineage or variant group constitutes 5% or more of total specimens evaluated for a given surveillance week.

10. COVID-19 cases: Effective September 4, 2022, COVID-19 cases are based on lab detection and include cases who tested positive more than once 90 days, or further, apart. Prior to this, cases include, only, first time cases reported and entered into Panorama.

11. COVID-19 Deaths: Includes deaths entered into Panorama IOM among laboratory confirmed cases. Deaths are reported based on the actual date of death. Deaths in previous periods may be adjusted from previous reports due to data lag.

12. COVID-19 Immunizations: Up-to-date (UTD) COVID-19 vaccination is the proportion of people having completed a primary series and one booster for ages five and older divided by the eligible population found in the Saskatchewan Covered Population, 12-Nov-2022 Ministry of Health version (2022 Version 2). Though vaccinated children six months to four years of age may be technically UTD, this specific definition does not apply to them. In addition, UTD in last six months is calculated by the proportion of people having received one or more boosters within the previous six months.

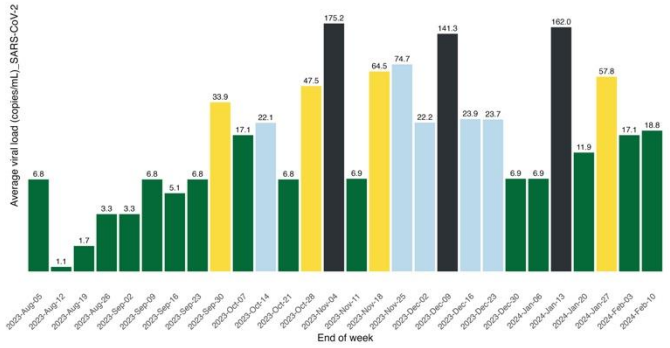
13. Influenza immunizations: UTD Influenza vaccination is the proportion of people, six months and older, having one influenza dose this season divided by the eligible population found in the Saskatchewan Covered Population, 12-Nov-2022 Ministry of Health version (2022Version 2). Vaccination for the current influenza season officially began October 11, 2022. Some doses were administered prior to the start date.

14. Staffed Inpatient beds: Weekly average COVID Occupancy is a 7-Day average percentage of acute inpatient beds staffed and in operation COVID positive patients occupy. The full calculation of this metric is: Average COVID occupance=$\sum$(8am covid census) ÷ $\sum$(8am beds staffed and in operation) × 100%. Where "bed staffed and in operation = "Planned beds" + "Surge Beds" - "Closed" and $\sum$(…) indicates summation over 7-day period from Sunday to Saturday. 8am COVID census is taken from the ADT patient registration, which is fed to the provincial data-mart and archived hourly. 8am planned bed, surge beds, and closed beds is compiled via data feeds from APF (Saskatoon & Regina) and the provincial bed edits interface (INH &IRH).

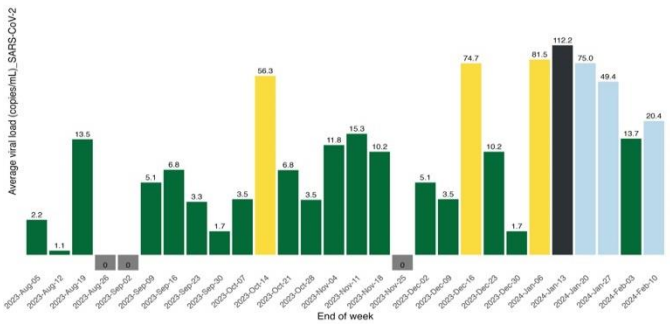
15. Rate of COVID-19 hospitalization (ICU or Death) were calculated by summing the daily number of hospitalizations (ICUs or Deaths) for the period by vaccine status (numerator) divided by the mid period population by respective vaccine status (denominator), multiplied by 100,000. This estimate is further divided by the number of days to obtain the daily rate. Denominator for individuals in the Booster in the past 6-months group are all Saskatchewan residents who have had their booster dose within the last 6 months. To eliminate bias of age all rates are adjusted by age. Direct standardization method is employed using the Saskatchewan population as the standard population. Age at first dose used in the rate calculation. Individuals with unknown age are excluded from age-specific analyses. Estimates of relative risk (i.e., rate ratios) is obtained by comparing vaccinated with 2 doses (Any Booster dose) and unvaccinated. Risk estimates may differ from other reports due to differing methodologies. Relative risk estimates methodology is described elsewhere. See Namrata Bains. *Standardization of Rates* (March 2009).

# Appendix: Wastewater Surveillance for SARS-CoV-2 by cities, Saskatchewan

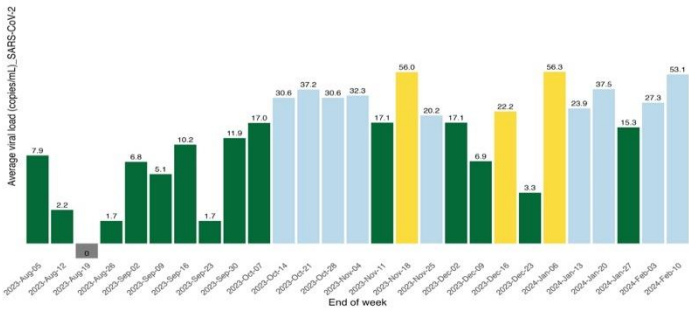
## Meadow Lake



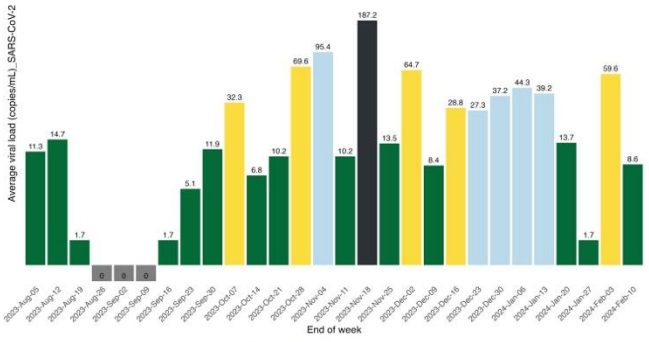

## Ile-a-la-Crosse



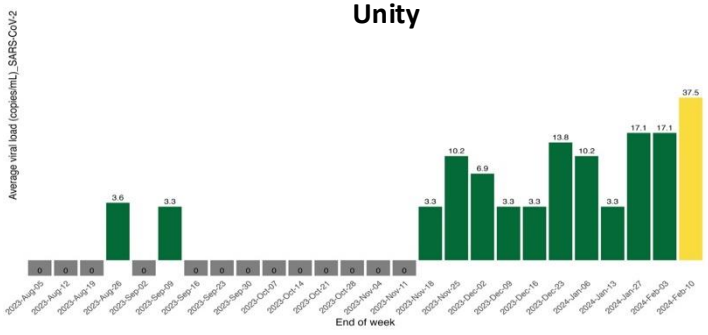

## North Battleford



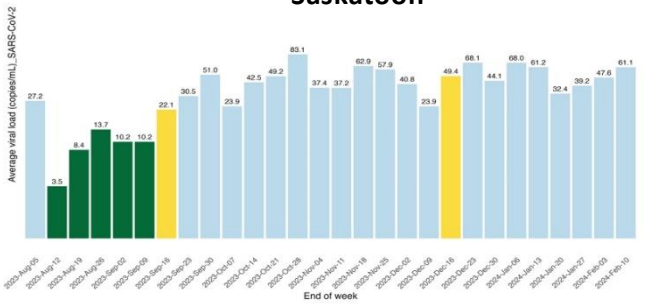

## Battleford



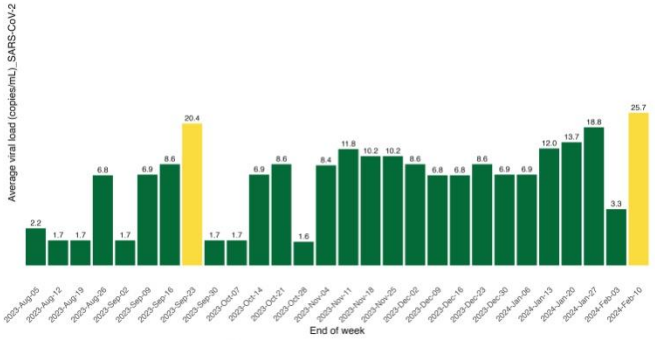

## Unity



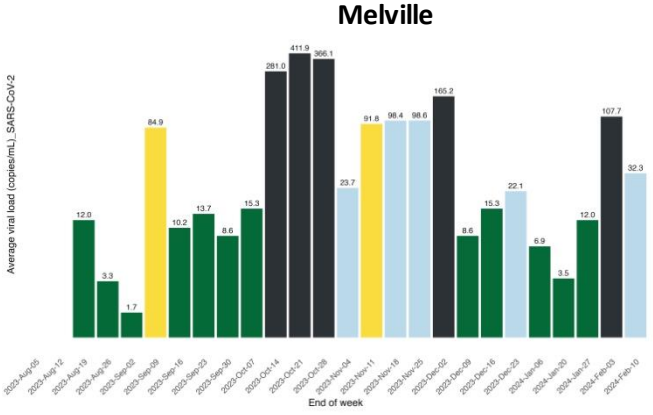

## Saskatoon



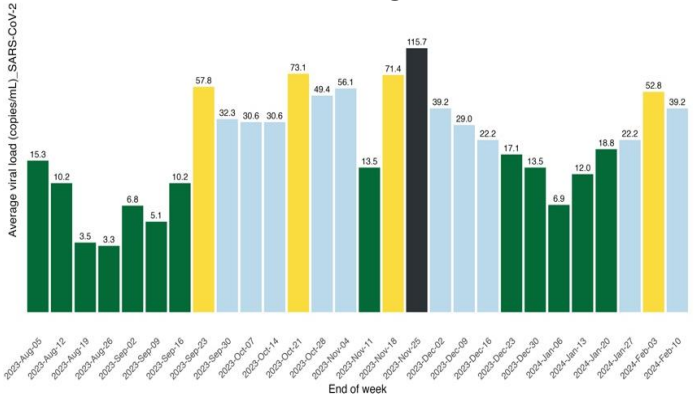

## Yorkton




## Melville




## Regina

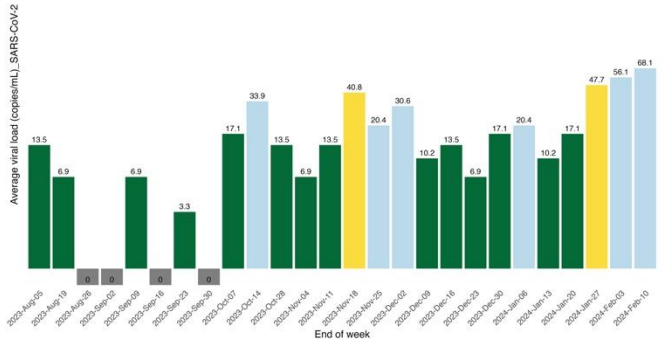



**Quantitative Interpretation**:

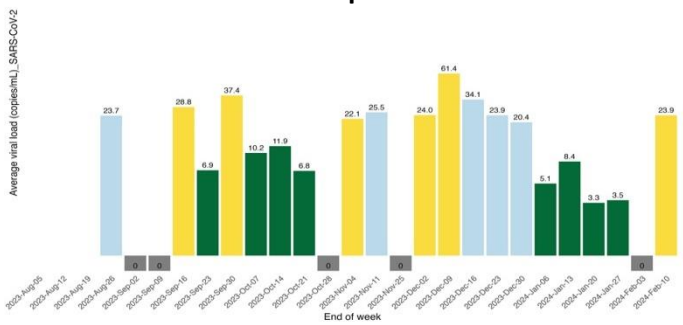
- Low: 0-20 copies per mL.
- Medium: 20-100 copies per mL and weekly change < 100%.
- Medium – High: 20-100 copies per mL and weekly change > 100%.
- High: > 100 copies per mL.

Low Medium Medium-High High

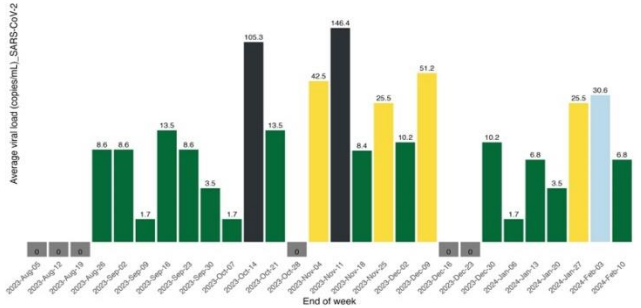
## Swift Current



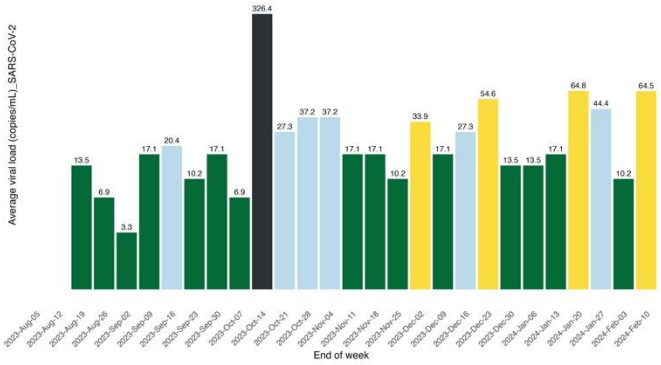

## Maple Creek



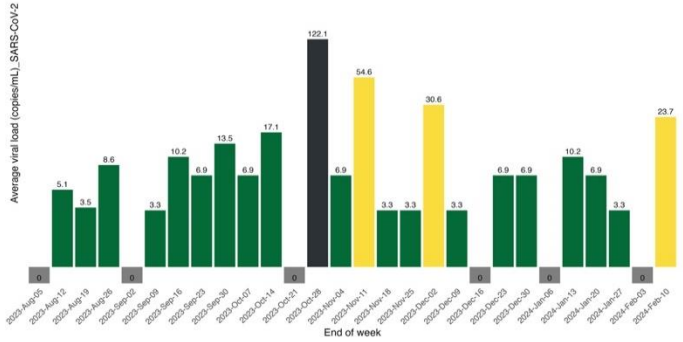

## Assiniboia



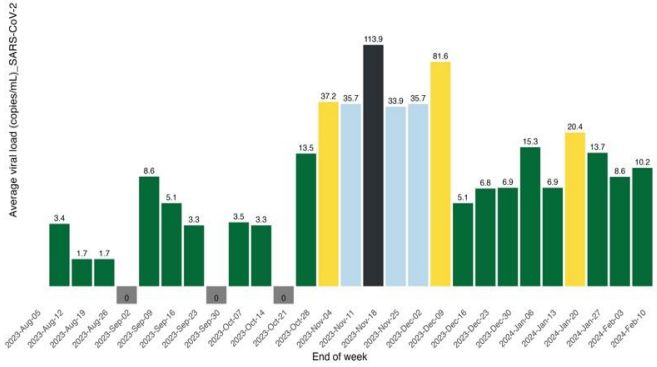

## Moose Jaw



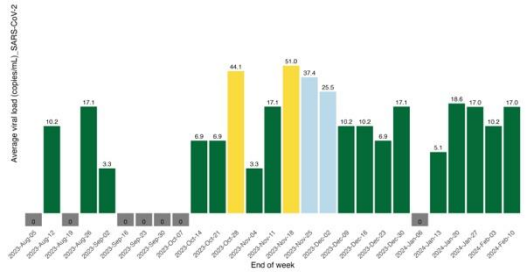

## Lumsden



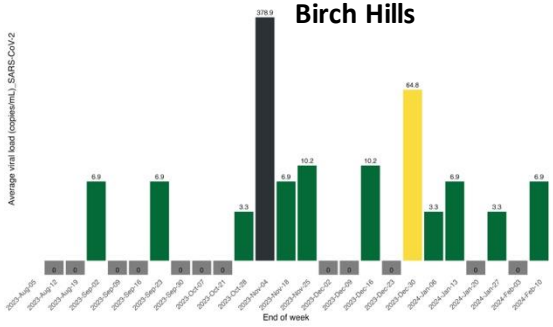

## Weyburn



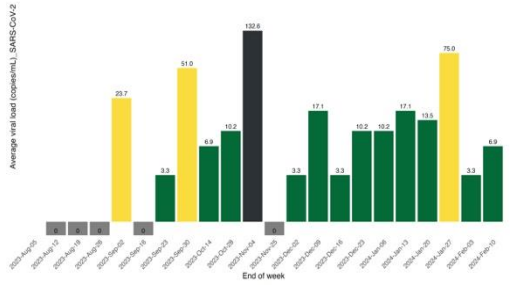

## Estevan



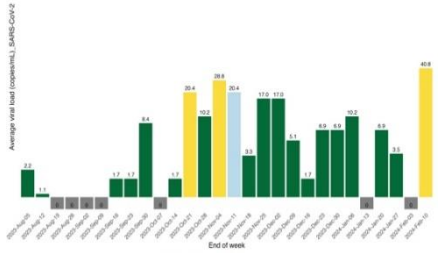

## Birch Hills




## La Ronge




## Southey




**Quantitative Interpretation**:

- Low: 0-20 copies per mL.
- Medium: 20-100 copies per mL and weekly change < 100%.
- Medium – High: 20-100 copies per mL and weekly change > 100%.
- High: > 100 copies per mL.

Low Medium Medium-High High



Saskatchewan