

# Community Respiratory Illness Surveillance Program (CRISP)

## Situation Report: November 24 (Reporting Period Nov 06 – Nov 19, 2022)

### Summary

- Overall, respiratory virus activity is increasing in Saskatchewan – particularly influenza. Influenza case detection increased over the past four weeks from 68 to 635 cases with test positivity of 34.2% - the highest among all respiratory organisms.
- RSV remains stable while COVID-19 is decreasing. Rhinovirus (common cold) and parainfluenza are the most commonly detected organisms in the sentinel program.
- Weekly visits to Saskatchewan emergency departments for respiratory-like illness have doubled this reporting period compared to previous (currently 56.5/1,000 visits from 26.6 in mid-October).
- School absenteeism indicator data is not yet available, due to a data quality issue. Student records of “late” were recorded as “absent” which incorrectly inflated the numbers. The absenteeism indicator information will be included in the report once rectified.

### COVID-19

- Test positivity in Saskatchewan has decreased to 7.2%. The highest COVID-19 test positivity of 10.9% was in the South East (Weyburn/Estevan and area). Saskatoon had the highest viral load in wastewater but the trajectory is decreasing – this decrease occurred in all areas of the province.
- BA.5 is the most commonly detected variant of concern (94.1%). The BA.5 sublineages BQ.1 and BQ.1.1 are dominant.
- COVID-19 hospitalizations have decreased since October 2022. ICU admissions have remained stable with 12 admissions per week for the last four weeks – the majority were 60+ years old. The proportion of staffed inpatient beds occupied by COVID-19 patients remains unchanged at around 11%.
- With the exception of Regina and Saskatoon, all areas of the province have less than 50% of their population up-to-date<sup>1</sup> for COVID-19 vaccines and less than half of individuals aged 50+ have had an additional booster dose (44%).
- Of those five and older, 20% have received their latest booster dose in the last six months. Only 15% of individuals aged 12+ years have received a bivalent booster dose (n = 148,326 doses).

### Influenza

- Influenza increased from 68 cases in late October to 635 in the current week. Test positivity remains over 30% (now 34.2%). North East (Melfort and area) has the highest influenza test positivity and 48% of influenza cases are aged 0 – 19 years (302/631).
- Influenza hospitalizations and ICU admissions increased with the majority cases in the age 0 – 19 (37%) and age 60+ (40%) age groups.
- This report includes the first influenza-related death of the 2022/23 respiratory virus season in Saskatchewan, occurring in the 50 years+ age group.
- The influenza immunization campaign launched October 11, 2022. To date, 19% of the population have received an influenza vaccine, a 4% increase from previous week. This remains an 18% decrease in coverage compared to the same time last year.

<sup>1</sup> Up-to-date = completed a primary series and at least one additional booster, age 5+ years

## Other Respiratory Viruses<sup>2</sup>

- Other respiratory viruses increased marginally from 147 to 185 lab confirmed cases in the current reporting period. RSV detections increased from 22 to 29 cases; the majority of RSV hospitalizations occurred in children aged 0 – 19 years (10/12; 83%).
- Outbreaks of ‘other’ viruses in high-risk settings have increased – from one in previous weeks to five in the most current reporting period.

**Table 1: Viral indicators by surveillance period, Oct 23 – Nov 19, 2022**

Report date	COVID-19 case count	COVID-19 test positivity	COVID-19 outbreaks	Influenza case count	Influenza test positivity	Influenza outbreaks	RSV case count	RSV test positivity	‘Other’ <sup>1</sup> case count	‘Other’ <sup>1</sup> test positivity	‘Other’ <sup>1</sup> outbreaks
Nov 13 - 19	453	7.2%	10	635	34.2%	8	29	1.9%	185	19.1%	5
Nov 06 -12	448	7.9%	18	434	32.0%	7	22	1.9%	147	22.1%	1
Oct 30 – Nov 05	600	9.9%	14	235	21.8%	0	15	1.7%	120	30.7%	1
Oct 23 – 29	800	11.8%	10	68	8.8%	0	12	2.1%	104	38.4%	1

*Notes:* <sup>1</sup>Parainfluenza viruses 1 – 4; Adenovirus; Human Metapneumovirus, seasonal Coronavirus. See Technical Notes page 8 for further details.

<sup>2</sup>Parainfluenza viruses 1 – 4 (PIV 1 – 4); Adenovirus (ADV); Rhinovirus (RV); Human Metapneumovirus (HMPV); NOTE: RSV test positivity now exceeds 1% and reported separately

**Table 2: Sentinel\* indicators by surveillance period, Oct 23 – Nov 19, 2022**

Report date	School illness absenteeism >=10% <sup>1</sup>	RLI** ED visits per 1,000 <sup>2</sup>	RLI** 811 calls per 1,000	COVID-19 Wastewater indicator <sup>3</sup>	Sentinel provider test positivity <sup>4</sup>	Most commonly detected virus: Sentinel providers <sup>4</sup>
Nov 13 - 19	Data pending <sup>1</sup>	56.5	155.1	Low (n=1); Moderate (n=3); Moderate-High (n=2); High (n=1)	18.8%	Parainfluenza virus
Nov 06 -12		41.5	175.4	Low (n=2); Moderate (n=1); Moderate-High (n=1); High (n=3)	39.3%	Rhinovirus
Oct 30 – Nov 05		25.8	155.9	Low (n=2); Moderate (n=4); High (n=1)	30.0%	Rhinovirus
Oct 23 – 29		26.6	108.1	Moderate (n=4); Moderate-high (n=1); High ( n=2)	7.1%	Rhinovirus

**Notes:** \*Sentinel surveillance are sampling programs representative of the population; <sup>1</sup>Unfortunately, a data quality issue ('late' was erroneously coded as 'absent') has delayed the inclusion of this indicator in this week's CRISP report; \*\*Respiratory-like illness (RLI); <sup>2</sup> Based on reports from seven of thirteen reporting areas; <sup>3</sup>Count of wastewater treatment facilities reporting low, moderate or high levels of viral load causing COVID-19 infection (see Technical Notes page 8 for details); <sup>4</sup>Respiratory Virus Panel (RVP) Report covering the period October 23, to November 19, 2022

**Table 3: Outcome, health care capacity and immunization coverage indicators by surveillance period, Oct 23 – Nov 19, 2022**

Report date	Hospital admissions – COVID-19 <sup>1</sup>	ICU admissions – COVID-19	Hospital admissions – Influenza	ICU admissions – Influenza	% of staffed inpatient beds occupied by COVID-19 patients <sup>2</sup>	Deaths – COVID-19 <sup>3</sup>	Deaths – Influenza	Total eligible population up-to-date – COVID-19 vaccine <sup>4</sup>	Total eligible population up-to-date – Influenza vaccine <sup>5</sup>
Nov 13 - 19	140	13	102	8	10.7%	13	1	46%	19%
Nov 06 -12	154	10	91	7	11.1%	12	0	46%	17%
Oct 30 – Nov 05	180	15	35	5	11.7%	28	0	46%	15%
Oct 23 – 29	197	11	8	1	11.9%	20	0	46%	13%

**Notes:**

<sup>1</sup> Because of the delay in date tested result, it affects the total number of Influenza, 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. Includes Laboratory positive for influenza, RSV, and other respiratory viruses, four days prior to date of admission AND/OR at any point during admission.

<sup>2</sup> 7-day average of percentage of acute inpatient beds staffed and in operation that are occupied by COVID-positive patients as of 8AM census

<sup>3</sup> Includes deaths entered into Panorama IOM among laboratory confirmed cases. Deaths reported based on the actual date of death. Deaths reported in previous periods subject to change due to death reporting data lags

<sup>4</sup> Up-to-date = completed a primary series and at least one additional booster, age 5+ years

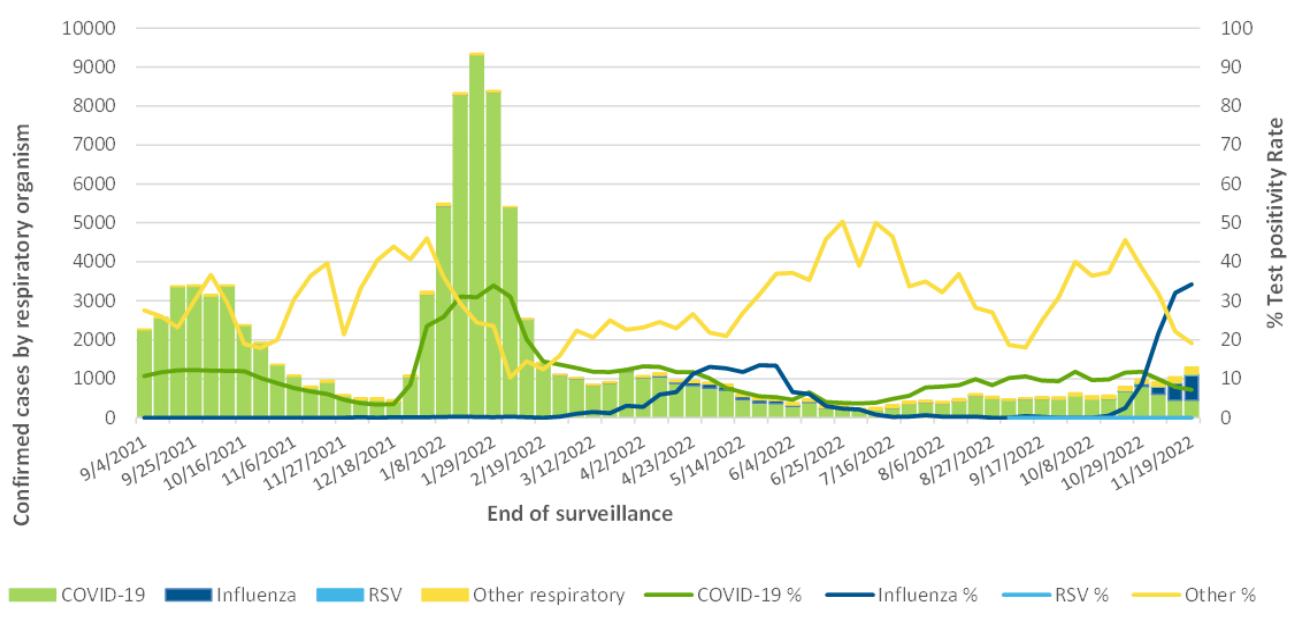
<sup>5</sup> Up-to-date = received a vaccination within the current influenza season, age 6 months+

See Technical Notes page 8 for details

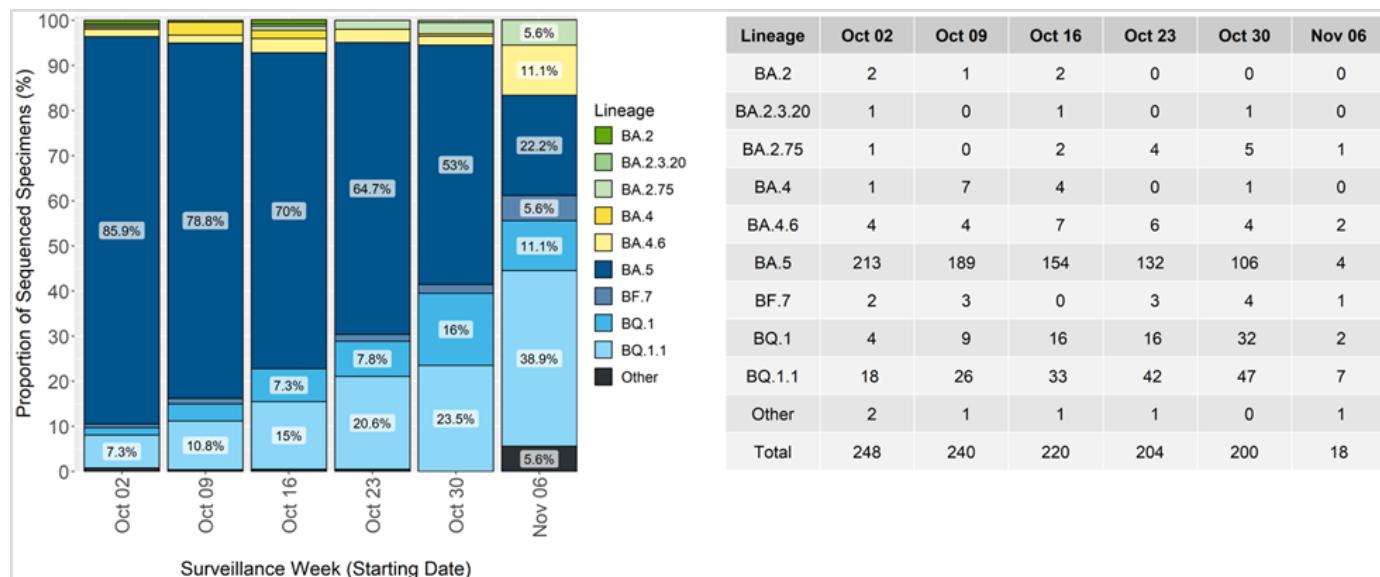
¥ The counts for influenza, RSV, and other respiratory virus-associated hospital and ICU admissions refer to individuals with laboratory tests positive for influenza, RSV, and other respiratory viruses, respectively, occurring within four days before the admission date AND/OR at any point during the 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.

- From November 6 - November 19 2022, there were 290 respiratory illness cases hospitalized with lab-positive influenza (193), RSV (12), other respiratory illnesses (58), and co-infected cases (27). Among the 290 cases, 193 influenza lab positives were among age groups of 0-19 (74), 20-59 (45) and 60+ (74). For RSV lab positives (12), hospitalizations were in the age group of 0-19 (10) and 60+ (2). For other respiratory lab positives (58), cases were in the age group of 0-19 (45), 20-59 (7) and 60+ (6).
- From November 6 - November 19 2022, there were 21 respiratory illness cases admitted to the ICU with lab-positive influenza (15), RSV (2), other respiratory illnesses (2), and co-infected cases (2). Among the 21 cases, 15 influenza lab positives were among age groups of 0-19 (5), 20-59 (3) and 60+ (7). All RSV lab positives (2), cases were in the age group of 0-19. For other respiratory lab positives (2), cases were in the age group of 0-19.

**Figure 1: Epidemic curve - respiratory illness, by organism and test positivity (Aug 29, 2021 to Nov 19, 2022)**



**Figure 2: Percentage of SARS-CoV-2 variants by surveillance week\* starting date, Oct 2 – Nov 12, 2022**

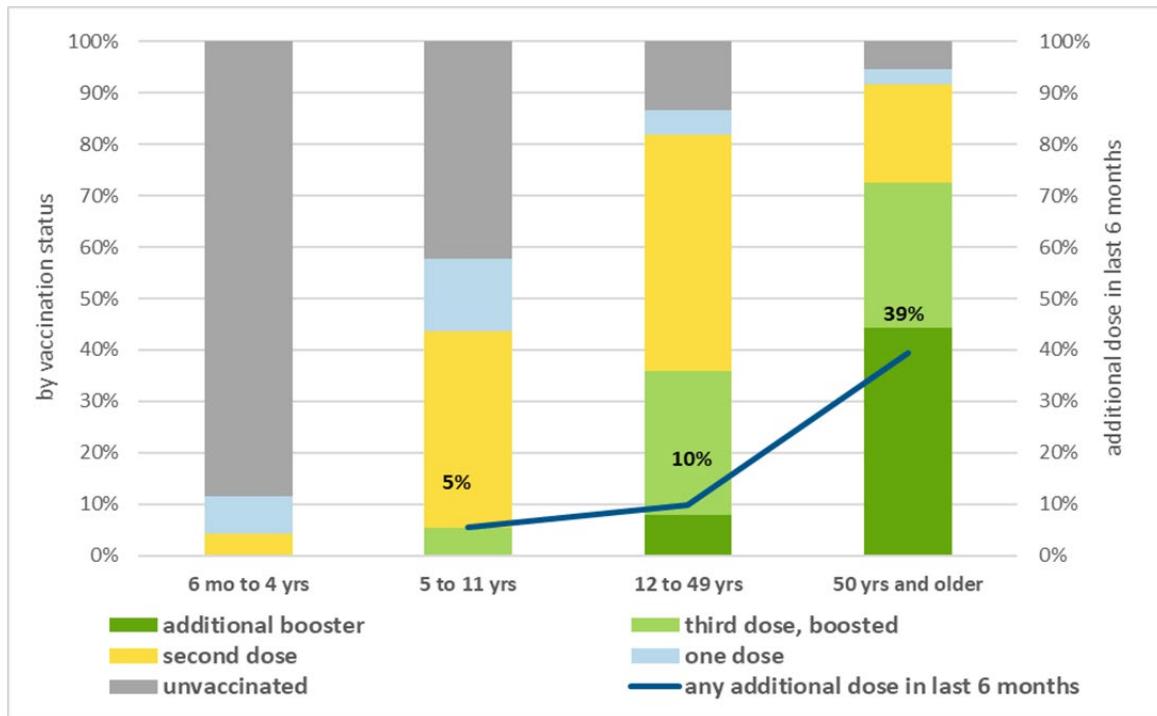


Data Source: Roy Romanow Provincial Laboratory, Saskatchewan Health Authority, as of November 21, 2022

The most recent VOC data available from the Provincial database is as of surveillance week ending November 12, 2022

\* Surveillance week correspond to specimen collection date.

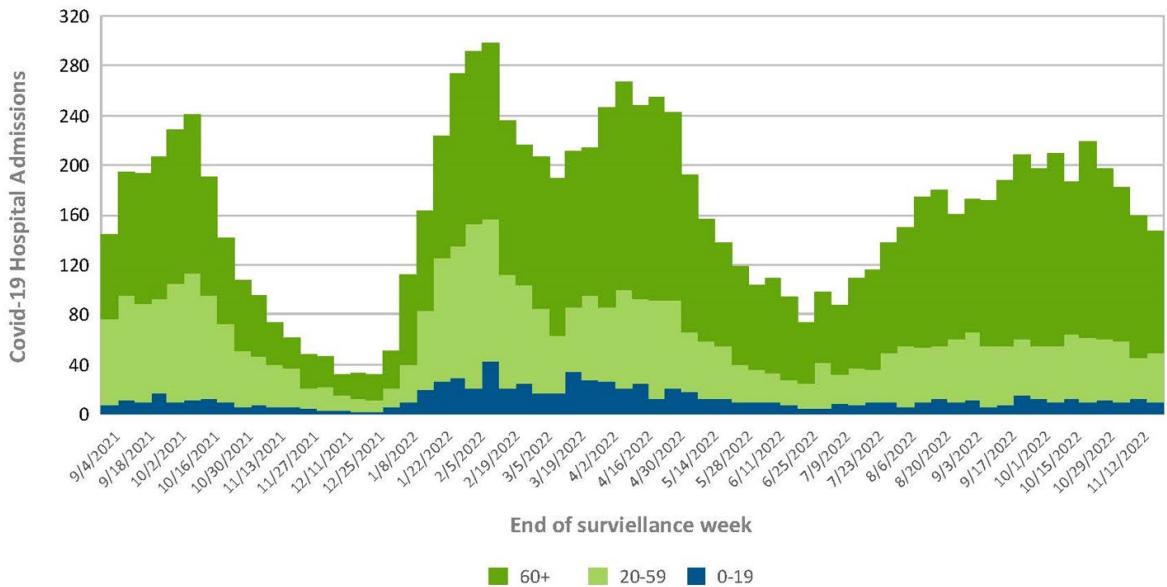
**Figure 3: Proportion of Saskatchewan residents by age group, COVID-19 vaccination status, Nov 19, 2022**



**Data source(s):** Panorama November 21, 2022

**Note:** Of those five years and older: 46% have completed their series and received a booster dose. 20% have received their latest dose in the last six months. 13% were administered a Moderna or a Pfizer bivalent. As of November 19, cumulatively doses administered are as follow: dose 1, n=989,018; dose 2, n=923,949; dose 3, n=525,167; completed plus 2 or more additional doses, n=320,581; total doses = 2,758,715

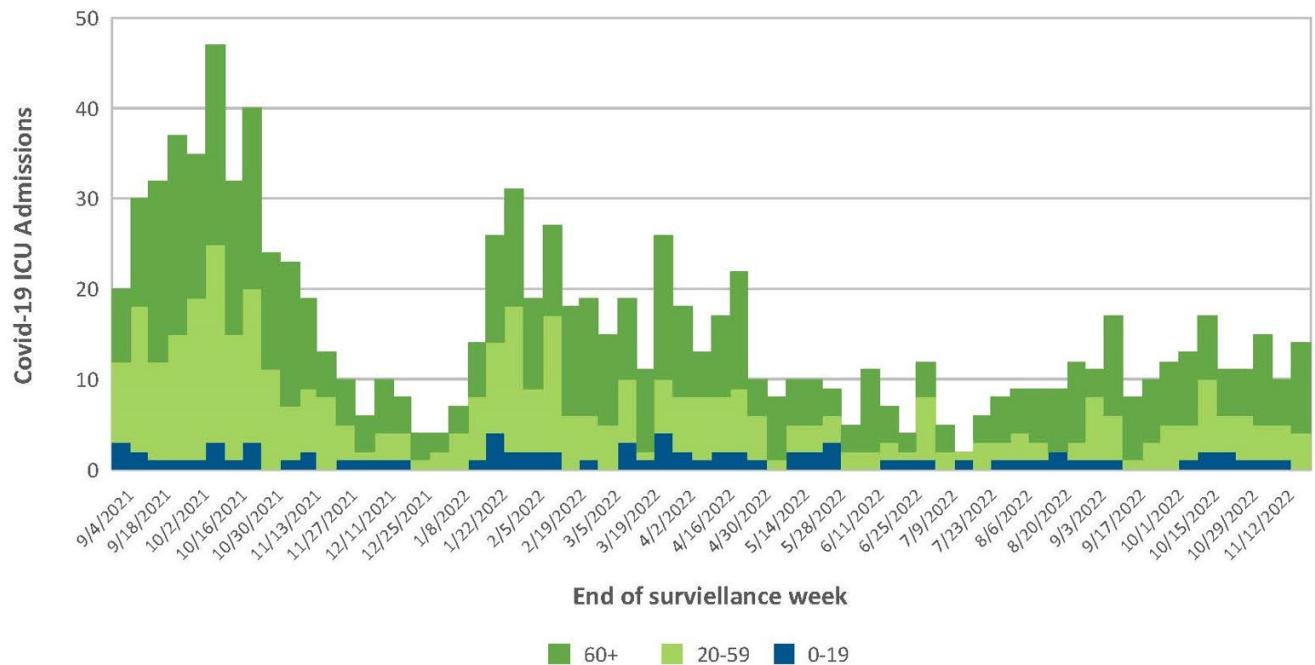
**Figure 4: COVID-19 hospital admissions by age group and week, Aug 29, 2021 - Nov 19, 2022 (N = 10,451)**



**Data source(s):** Digital Health Analytics, Saskatchewan Health Authority, Episode of Care methodology (Admission, Discharge, Transfer Database (ADT, RPPL, Panorama); data extracted on November 21, 2022

**Note:** Because of the delay in date tested result, it 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.

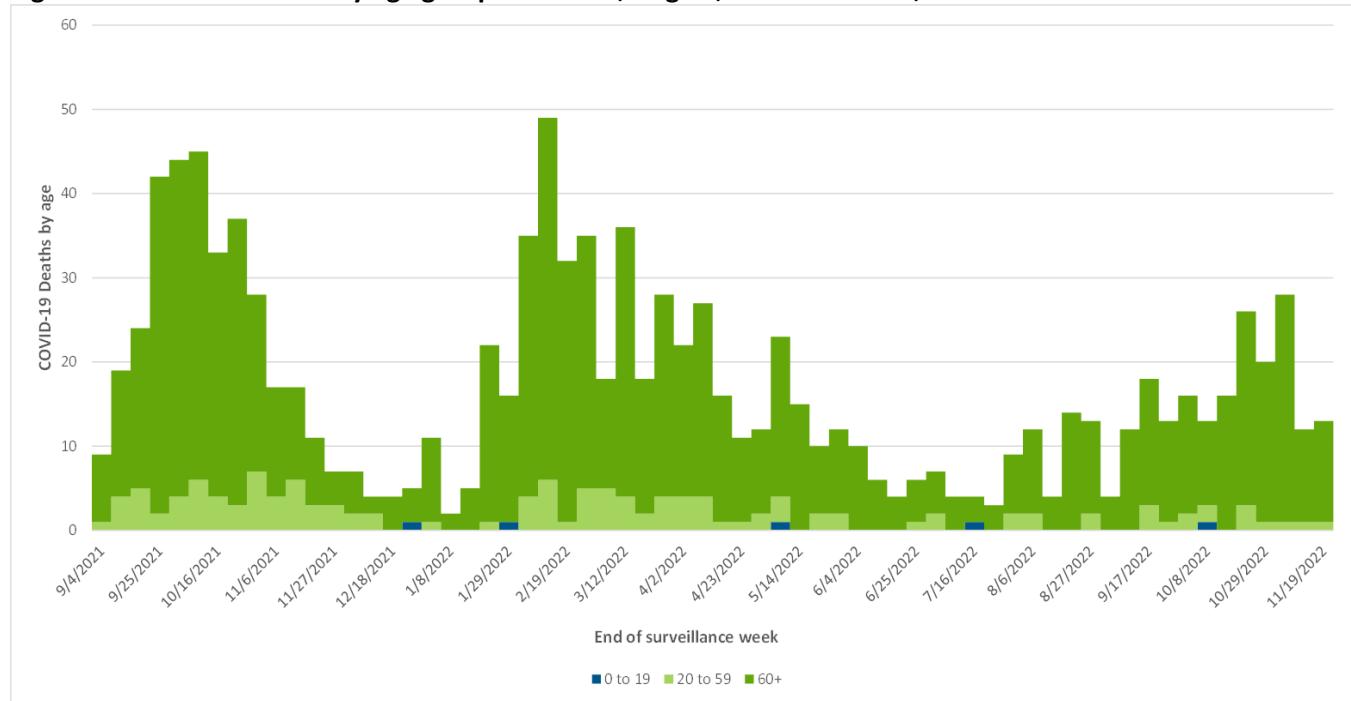
**Figure 5: COVID-19 ICU admissions by age group and week, Aug 29, 2021 - Nov 19, 2022 (n = 991)**



**Data source(s):** Digital Health Analytics, Saskatchewan Health Authority, Episode of Care methodology (Admission, Discharge, Transfer Database (ADT, RPPL, Panorama); data extracted on November 21, 2022

**Note:** Because of the delay in date tested result, it 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.

**Figure 6: COVID-19 deaths by age group and week, Aug 29, 2021 to Nov 19, 2022\***



**Data source(s):** Panorama November 21, 2022

In the past two weeks, November 6 to 19, there have been 25 deaths in COVID-19 cases, two in the 20 to 59 age group, and 23 in the 60 years or older group.

\* Total COVID-19 deaths from March 2020 to November 19, 2022 (n=1,701)

**Table 4: Community respiratory infection surveillance indicators by zone, Oct 23 – Nov 19, 2022**

Location	Test positivity – COVID-19 <sup>1</sup>	Test positivity – Influenza	RLI* visits to EDs per 1,000 <sup>2</sup>	RLI* 811 calls per 1,000 <sup>3</sup>	School illness absenteeism >=10% <sup>4</sup>	Wastewater indicator <sup>5</sup>	Total eligible population up-to-date vaccination – COVID-19 <sup>6</sup>	Total eligible population up-to-date vaccination – Influenza <sup>7</sup>
<b>Far North West</b> (Meadow Lake and area)	4.7%	32.8%	No report	-	Data pending <sup>4</sup>	-	24%	8%
<b>Far North Central</b>	0.0%	0.0%	No report	-		-	15%	3%
<b>Far North East</b> (La Ronge and area)	6.7%	12.1%	No report	-		-	25%	6%
<b>North West</b> (North Battleford/ Lloydminster and area)	8.3%	16.0%	No report	116.7		Moderate	36%	14%
<b>North Central</b> (Prince Albert and area)	7.5%	35.6%	No report	-		Moderate	41%	17%
<b>North East</b> (Melfort and area)	8.3%	88.2%	310.1	139.5		-	44%	19%
<b>Saskatoon</b>	8.9%	37.0%	16.3	160.6		High	50%	19%
<b>Central West</b> (Kindersley and area)	10.3%	38.5%	300.0	-		-	44%	22%
<b>Central East</b> (Yorkton/Melville and area)	10.1%	22.9%	No report	-		Moderate-High	46%	19%
<b>Regina</b>	7.8%	44.5%	87.3	157.6		Moderate - High	52%	20%
<b>South West</b> (Swift Current/Maple Creek and area)	9.1%	19.4%	48.4	148.6		Low	41%	20%
<b>South Central</b> (Moose Jaw and area)	5.7%	34.2%	No data	-		Moderate	45%	21%
<b>South East</b> (Weyburn/Estevan and area)	10.9%	33.8%	184.2	170.4		-	39%	18%
<b>SASKATCHEWAN</b>	<b>7.2%</b>	<b>33.4%</b>	<b>56.5</b>	<b>155.1</b>		-	<b>46%</b>	<b>19%</b>

**Notes:** <sup>1</sup>by week of lab detection; effective Oct 30, 2022 includes cases who tested positive more than once >= 90 days apart; <sup>2</sup>Includes positive tests with pending locations.

<sup>2</sup>Based on reports from seven of thirteen reporting areas; <sup>3</sup>811 data available at the five Integrated Service Areas geographical level; <sup>4</sup>Unfortunately, a data quality issue ('late' was erroneously coded as 'absent') has delayed the inclusion of this data in this week's CRISP report; <sup>5</sup>Respiratory-like illness (RLI); <sup>6</sup>Count of wastewater treatment facilities reporting low, moderate or high levels of viral load causing COVID-19 infection, SK overall estimate currently unavailable as this metric tends to overestimate and underestimate wastewater level due to varied patterns across regions, which is difficult to synchronize with the population size of each region; source: University of Saskatchewan and Regina wastewater research teams; <sup>7</sup>Up-to-date = completed a primary series and at least one additional booster, age 5+ years; <sup>7</sup>Up-to-date = received a vaccination within the current influenza season, age 6 months+; Does not include doses administered through NITHA or FNIHB, therefore some zones underestimated coverage. <sup>8</sup>Includes positive tests with pending locations.

## Technical Notes

1. *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 Saskatchewan. 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 University of Saskatchewan and University of Regina Wastewater Team. Viral load for each zone was used to determine risk level (Low, Medium, Medium-High, High) using a four-bin system based on 100% of early Omicron peak reported. Locations sampled, includes: Saskatoon, Regina, Lumsden, North Battleford, Prince Albert, Yorkton, Swift Current, Moose Jaw, and Weyburn
4. *Data collection from Emergency Departments (ED):* Monitoring is done for a twenty-four hour period on at least one-week day (the exact time vary with the ED schedule). The ED reports to local public health services in their area on Wednesday afternoon and public health report to the Ministry of Health on Thursday each week. The count of Respiratory Like Illness (RLI) patients as a proportion of total ED admissions is captured.
5. *Reporting ED surveillance information:* Because there is no centralized data capture source for ED admissions in the province, each health area sets up a mechanism for EDs to report to public health services. Public health aggregates raw data from their EDs on the prescribed data collection form and sends it to the Ministry of Health for overall provincial monitoring. FNIBH and NITHA will report to the local zone which the ED or health centre is located. This does not preclude monitoring in First Nations health care facilities.
6. *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.
7. *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
8. *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 in Saskatchewan. 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.
9. *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 or, 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.
10. *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. one to two weeks to complete WGS. 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.
11. VOC Lineages BA.1, BA.2, BA.2.3.20, BA.2.75, BA.4, BA.4.6, BA.5, BF.7, BQ.1, and BQ.1.1 are all classified under the WHO Label of "Omicron". Omicron lineages BA.2.3.20, BA.2.75, BA.4.6, BF.7, BQ.1, and BQ.1.1 are emerging global variants that RRPL continues to monitor. Lineages that are not explicitly listed are aggregated under their corresponding parent lineage (BA.1, BA.2, BA.4, or BA.5). Previously, BA.2.3.20 and BA.2.75 were sublineages aggregated with BA.2; BA.4.6 was aggregated with BA.4; BF.7, BQ.1, and BQ.1.1 were aggregated with BA.5. "Other" represents non-Omicron lineages (i.e. 1 case of B.1.1) as well as recombinant genomes – these include 1 case of XAZ, 2 cases of XBB, and 2 cases of recombinant genomes that do not have a designated lineage name at the time of this publication. Percentages are shown when a lineage constitutes 5% or more of total specimens evaluated for a given surveillance week. BA.4 and BA.5 are the most commonly detected variants of concern, with BA.5 dominant (94% of current reporting period).
12. *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.
13. *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
14. *COVID-19 Immunizations:* Up-to-date (UTD) COVID-19 vaccination is considered 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 Covered Population, 08-Jul-2021 Ministry of Health version (2021 Version 1). Though vaccinated children six months to four years of age have received what was recommended for them and would 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 booster within the previous six months of age (five and older divided by the eligible population).
15. *Influenza immunizations:* Up-to-date Influenza vaccination is considered the proportion of people, 6 months and older, having one influenza dose this season divided by the eligible population found in the Covered Population, 08-Jul-2021 Ministry of Health version (2021 Version 1). Vaccination for the current influenza season officially begins October 11, 2022. Some doses have been administered prior to the official clinic start date.
16. *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 occupancy=** $\sum(8\text{am covid census}) \div \sum(8\text{am beds staffed and in operation}) \times 100\%$ . Where "bed staffed and in operation" = "Planned beds" + "Surge Beds" - "Closed" and  $\sum(\dots)$  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).