

FRAMEWORK INDICATORS A REVIEW OF COVID-19 STATISTICS UPDATED TO NOVEMBER 17, 2021

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Risk Indicators for Monitoring COVID-19 Transmission in Saskatoon

Indicator	Green Minimal Risk	Yellow- Caution	Orange High Risk	Red Critical
7 Day Average Weekly Cases Per 100,000 persons	0 to 10	11 to 20	21 to 30	Greater than 30
7-Day Average Test Positivity Rate (%)	0 to 3.0%	3.1 to 6.0 %	6.1% to 10%	Greater than 10%
Effective Reproduction Rate	Less Than 1.0	1.01 to 1.2	1.21 to 1.4	Greater than 1.4
Vaccination Rates of Total Population (%)	90% or greater	75 to 90%	60 to 75 %	Less than 60%

Saskatoon's Status as of November 17, 2021

The data charts and trends on the subsequent slides.

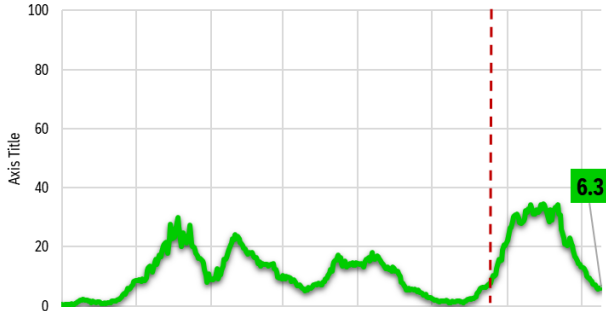
Primary Indicator	Status as of November 17, 2021
7 Day Average Weekly Cases Per 100,000 persons	6.3
7-Day Average Test Positivity Rate (%)	6.3%
Effective Reproduction Rate (Sample Mean)	0.87
Vaccination Rates of Total Population (%)	67.5%
Status	Yellow (Caution)



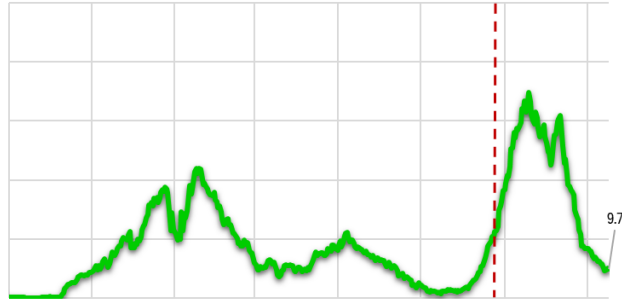
Primary COVID-19 Transmission Risk Indicators - Saskatoon

CASE COUNTS PER CAPITA: This slide shows panel charts using the 7 day average of cases adjusted for 100,000 population. It uses the same y-axis scale so that better comparisons about the COVID-19 impact on each aggregate zone can be made. Note that only the first two charts on each row have the y-axis labelled and the same scale is used on each chart (to a maximum of 100). All zones are experiencing high per capita case counts. The red dotted line indicates when the provincial public health order was lifted on July 11, 2021.

Saskatoon 7 Day Average Per Capita



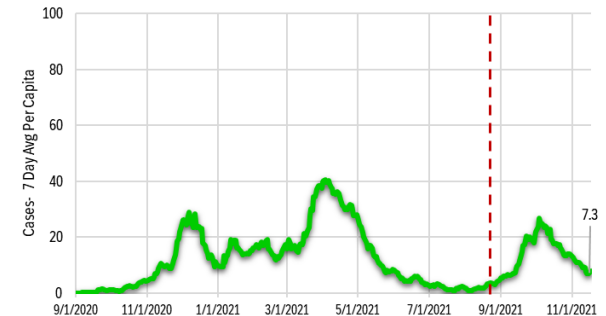
North 7 Day Average Per Capita



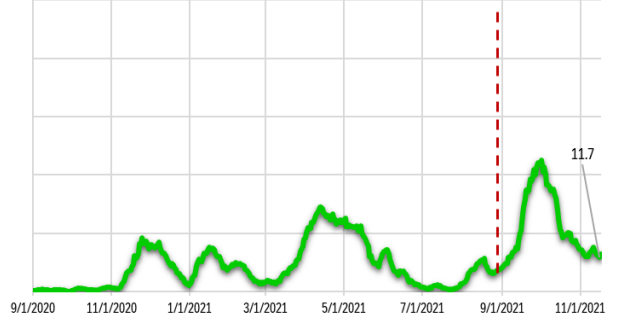
Far North 7 Day Average Per Capita



Regina 7 Day Average Per Capita



South 7 Day Average Per Capita

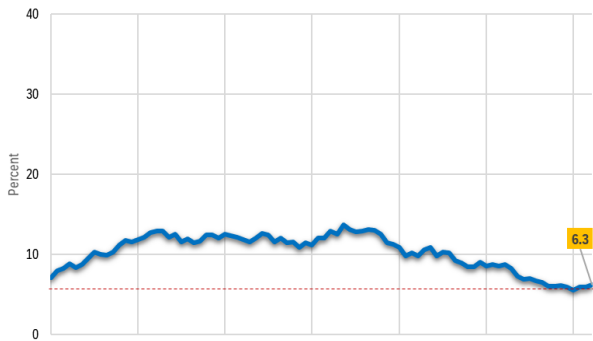


Central 7 Day Average Per Capita

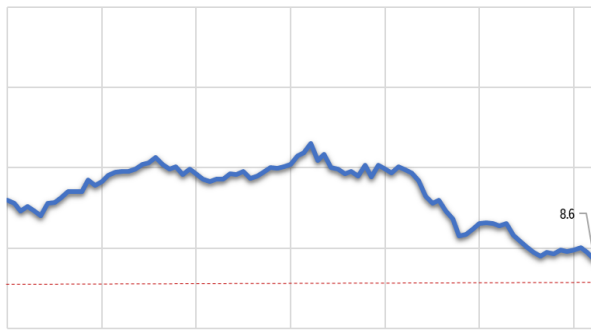


Test Positivity Rates 7 Day Average: This slide shows panel charts using the 7 day average the test positivity rate for each aggregate zone. It is calculated by the 7 day average of new cases divided by the 7 day average of new tests. The data starts on August 22, 2021 because there is no testing data by zone for late June, all of July, and the first two weeks of August. The red line indicates the World Health Organization Standard of 5% for a controlled level of positive cases. A test positivity rate of less than 5% typically means the transmission is under control.

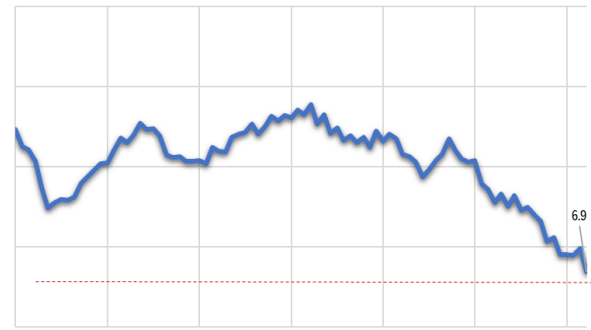
Saskatoon Test Positivity Rate 7-Day Average



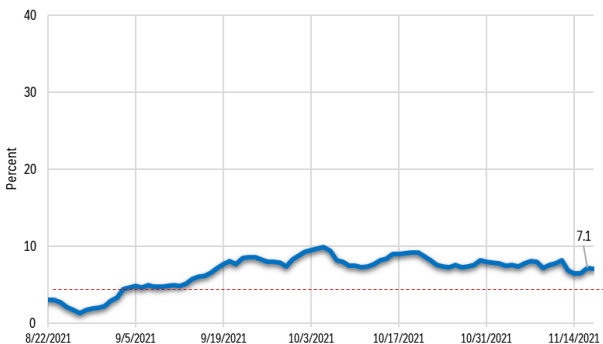
North Test Positivity Rate 7-Day Average



Far North Test Positivity Rate 7-Day Average



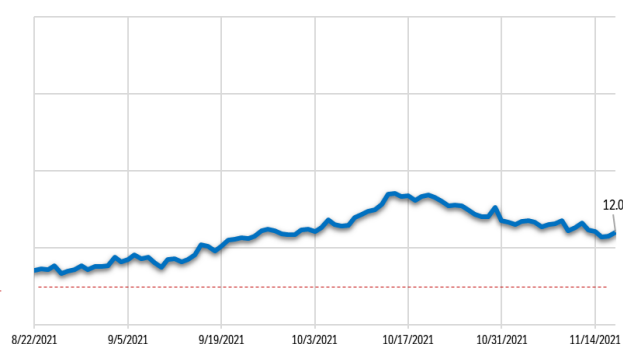
Regina Test Positivity Rate 7-Day Average



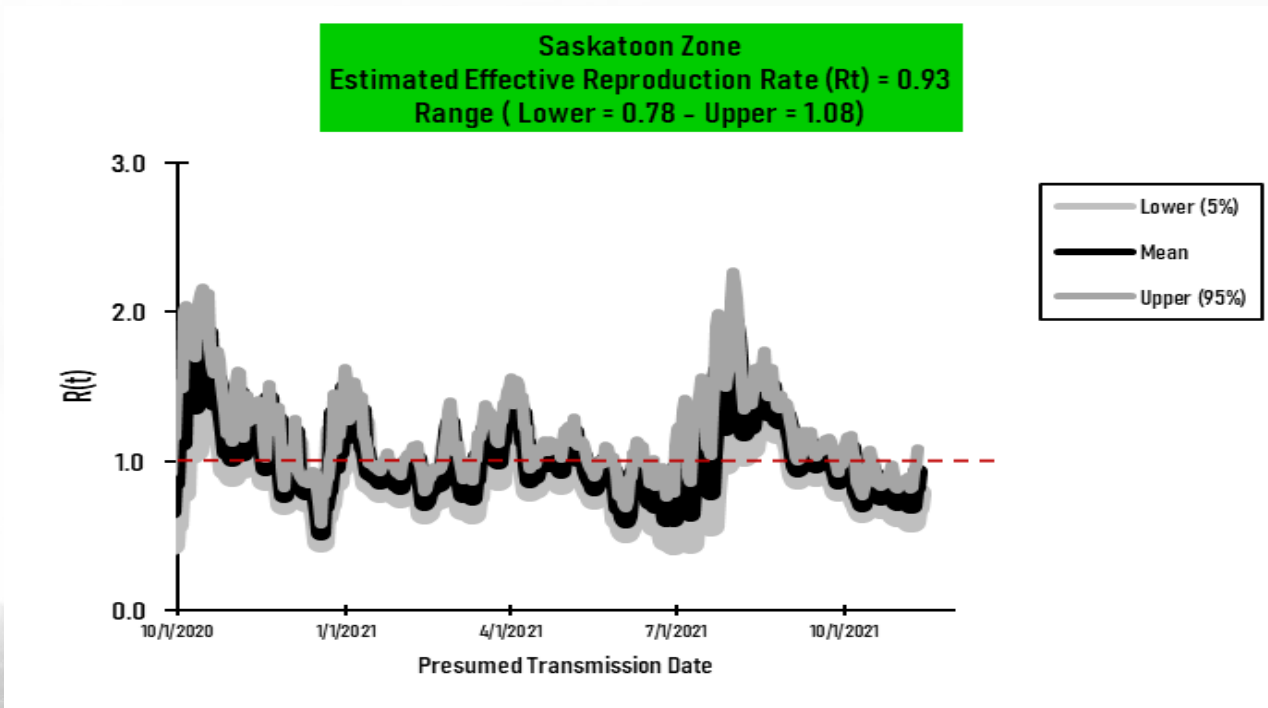
South Test Positivity Rate 7-Day Average



Central Test Positivity Rate 7-Day Average

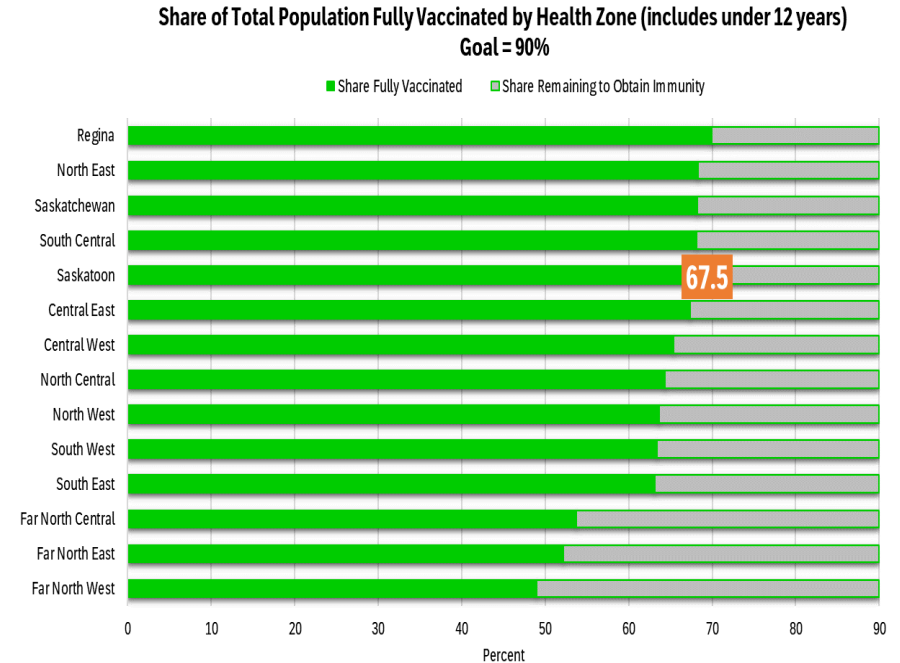


This slide estimates the Effective Reproduction Number (R_t) for Saskatoon. A few points to note here. (1) The dates are lagged because R_t uses recent case history to estimate the infection rate that caused them, referred to as the “presumed transmission date”. This date occurs about 7 days prior to reporting of new cases. (2) An R_t above 1 means that COVID-19 is growing exponentially. An R_t below 1 means that cases will eventually die out. (3) R_t is based on the SEIR epidemiological model with assumptions. I use the Cori, et.al method to determine the R_t (described here: <https://doi.org/10.1093/aje/kwt133>). (4) The R_t is estimated as the mean using 95% confidence intervals.

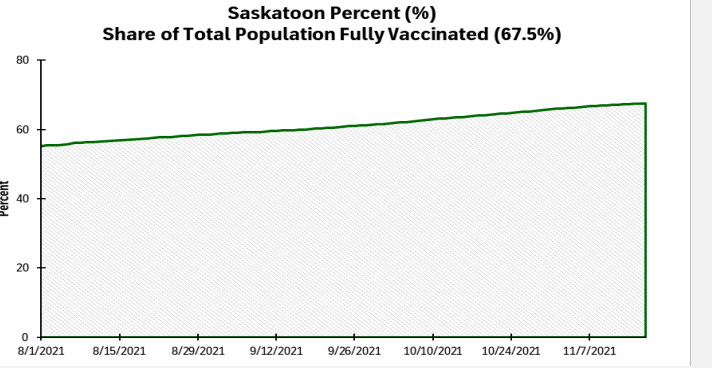
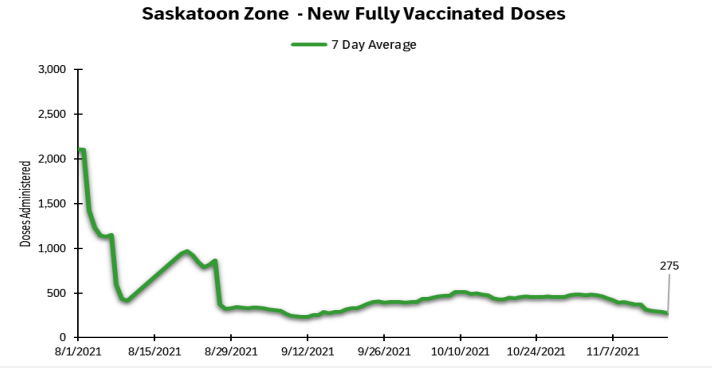
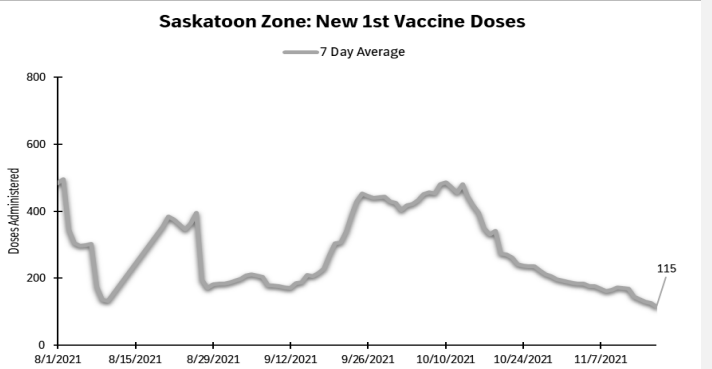
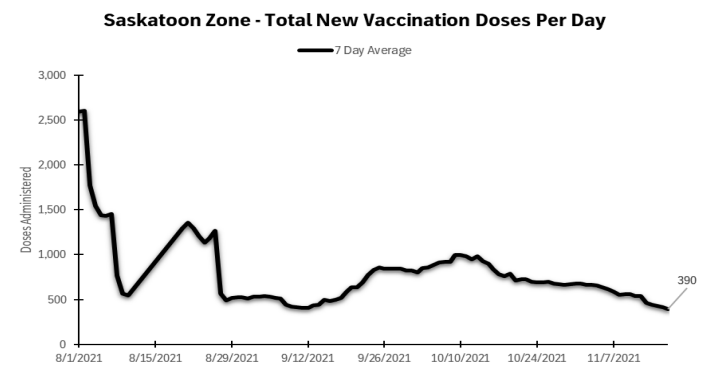


Vaccine Progress by Zone. This slide shows vaccinations by zone in table and chart formats. The table shows counts and first and second doses while the bar chart shows the percentage of the total population fully vaccinated. In Saskatoon, over 228,000 persons are fully vaccinated translating into to 67.5% of the zone's total population. Saskatoon's vaccination rate grew by 0.5 percentage points this week relative to last. The chart on this slide shows the progress to reach immunity, which is suggested to be 90%, given the transmissibility of the Delta Variant of Concern.

Saskatchewan Vaccine Status By Zone (as of November 17 , 2021)					
Location	Vaccines Administered				
Zone Name	1st Dose	Fully Vaccinated	Total Doses	Share (%) of Population With 1st Vaccine	Share (%) of Population Fully Vaccinated
Far North West	16,990	14,600	31,590	57.0	49.0
Far North Central	1,772	1,424	3,196	66.9	53.8
Far North East	14,600	12,643	27,243	60.2	52.1
North West	60,915	52,442	113,357	73.9	63.7
North Central	61,977	57,242	119,219	69.6	64.3
North East	30,263	28,393	58,656	72.8	68.3
Saskatoon	239,653	228,378	468,031	70.9	67.5
Central West	25,563	24,158	49,721	69.2	65.4
Central East	70,340	66,289	136,629	71.5	67.4
Regina	200,491	191,188	391,679	73.3	69.9
South West	26,054	24,499	50,553	67.4	63.4
South Central	43,620	41,200	84,820	72.1	68.1
South East	60,001	56,396	116,397	67.2	63.2
Unassigned	29,875	22,807	52,682	N/A	N/A
Total Saskatchewan	882,114	821,659	1,703,773	73.2	68.2



Vaccines Trends Saskatoon Zone. This slide is revised and shows vaccinations for the Saskatoon zone in a few different ways, since August 1, 2021. The line charts use 7-day averages for vaccination doses. The first chart shows new total vaccination doses. The second chart shows new first vaccination doses and the third chart shows fully vaccinated doses. There is a noticeable uptick in the first dose vaccines in late September, but that has fallen off. Full vaccination doses have fallen to 275 per day, while first doses are averaging 115 per day over that past week. Finally, the fourth chart shows a time series of percent share of the Saskatoon population fully vaccinated, which has slowed.





Secondary COVID-19 Transmission Risk Indicators - Saskatoon

Wastewater Testing: The charts on this slide show the wastewater samples collected in Saskatoon. This is a predictive model that tests wastewater samples to determine the concentration of SARS-COV-2 and its variants. This slide has been revised and now combines the overall wastewater samples and the variants of concern in the wastewater samples. The analysis reveals that the entire wastewater load is of the Delta VOC. The measurement period shows a drop of 25% in the virus load relative to the last sample and a 65% drop in the Delta VOC relative to the last reporting period.

Saskatoon - Current Numbers

SARS-CoV-2



Wastewater Virus Load
(normalized)

13,217 /100 ml

▼ 27%*



Delta Variant

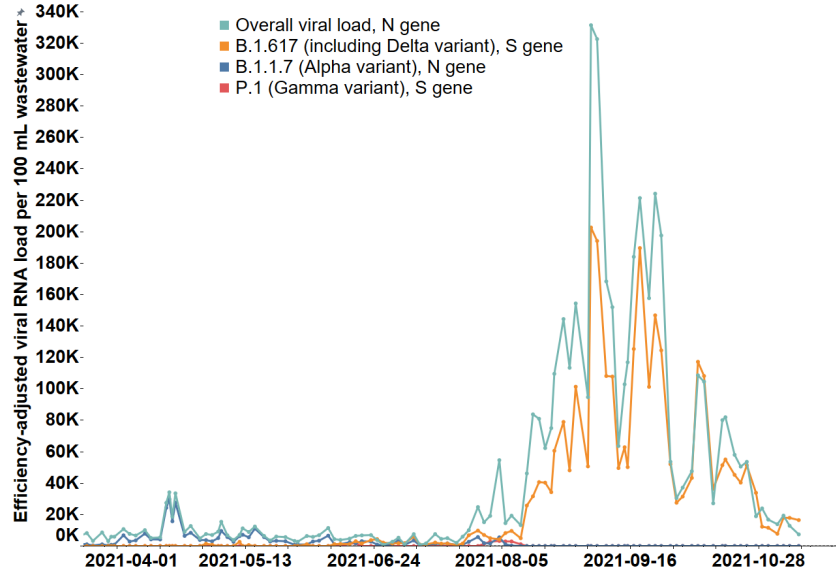
17,468 /100 ml

▲ 65%*

⌚ Average of 3 individual measurements from the period Nov 4 - Nov 10, 2021

* Percentages are relative to average of individual measurements from previous week

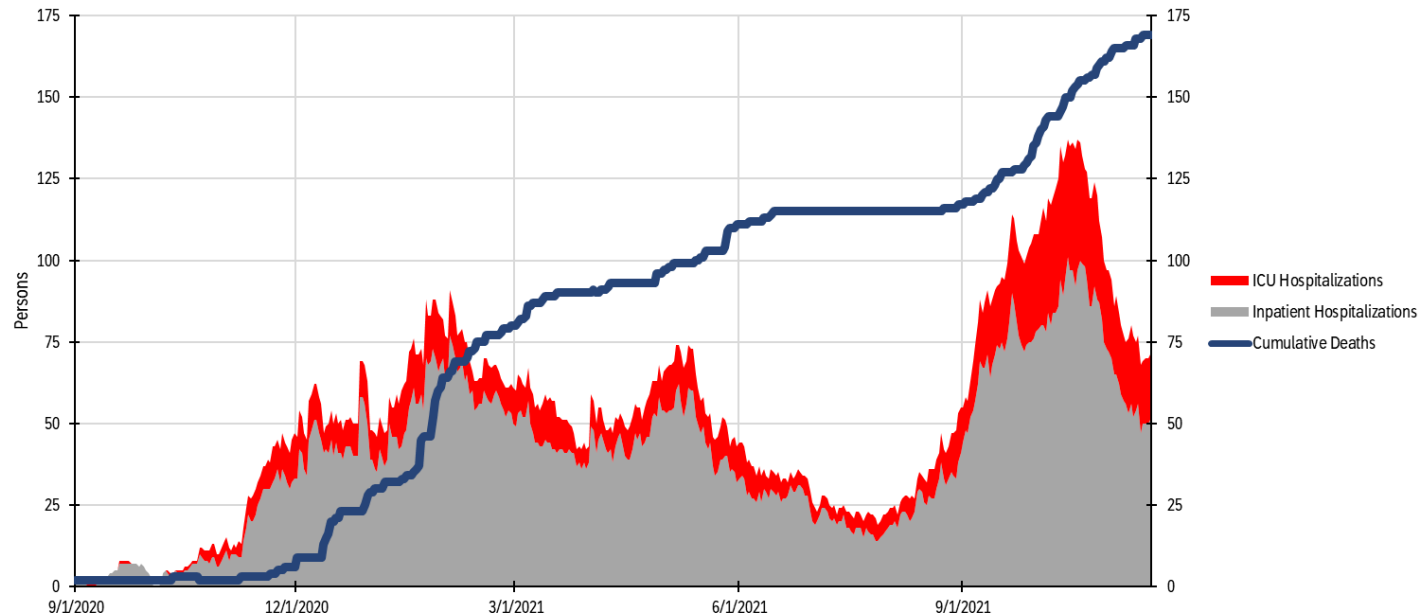
Viral RNA load of key variants in wastewater, City of Saskatoon



Hospitalizations & Deaths. This slide shows total hospitalizations and ICU hospitalizations for the Saskatoon zone. Total hospitalizations and ICU hospitalizations are at record peaks. ICUs are about 28% of total COVID hospitalizations for Saskatoon. Fatalities tend to follow an increase in ICU hospitalizations but lagged by about one week, as shown by the blue line on the chart. Hospitalizations and ICU Census are following a sharp downward trend.

Saskatoon Zone Hospitalizations & Deaths - As reported on November 17, 2021

Source: <https://dashboard.saskatchewan.ca/health-wellness/covid-19/cases>



Vaccine Progress by Age. The table on this slide shows vaccinations by zone and age group in Saskatchewan for persons aged 12 and over (vaccine eligible population). It shows the percent share of the population of those persons fully vaccinated for each age cohort in each zone. The color coding illustrates lower to higher rates with green being highest and red being lowest. For Saskatoon, the lowest rates remain in the 18-29 and 30-39 age cohorts.

Saskatchewan: Percent of Fully Vaccinated Persons 12 Years of Age and Older By Zone As of November 17, 2021									
Zone	12-17	18-29	30-39	40-49	50-59	60-69	70-79	80+	Total
Far North West	51	51	56	62	69	74	81	89	61
Far North Central	51	63	66	74	83	89	84	68	68
Far North East	59	60	64	73	76	86	86	75	68
North West	65	66	66	79	84	86	92	99	76
North Central	69	71	72	74	81	85	89	94	77
North East	73	76	74	79	80	86	88	92	80
Saskatoon	80	76	74	79	82	87	87	86	80
Central West	68	67	67	72	75	86	90	95	76
Central East	68	71	70	74	78	84	89	92	78
Regina	85	77	75	80	84	91	91	91	82
South West	70	64	66	72	75	80	84	84	73
South Central	74	73	70	74	79	86	90	92	79
South East	70	67	65	70	76	82	88	94	74
Saskatchewan	75	74	75	80	83	89	90	92	81

General Monitoring Statistics

Table A shows various COVID statistics by Saskatchewan Health Zones to show the incidence of COVID in various parts of Saskatchewan. The table shows both case counts (the raw numbers as reported) and rates adjusted for 100,000 population in each zone. It also shows testing data, with rates adjusted to 100,000 persons and the cumulative test positivity rate. The reason for the adjustments is to show per capita comparisons on the various indicators and their intensity. A row called "unassigned" means that some cases/tests have not been assigned a location.

Table A: Saskatchewan COVID-19 Data by Health Zone (Cumulative Data, except Hospitalizations, as of November 17, 2021)

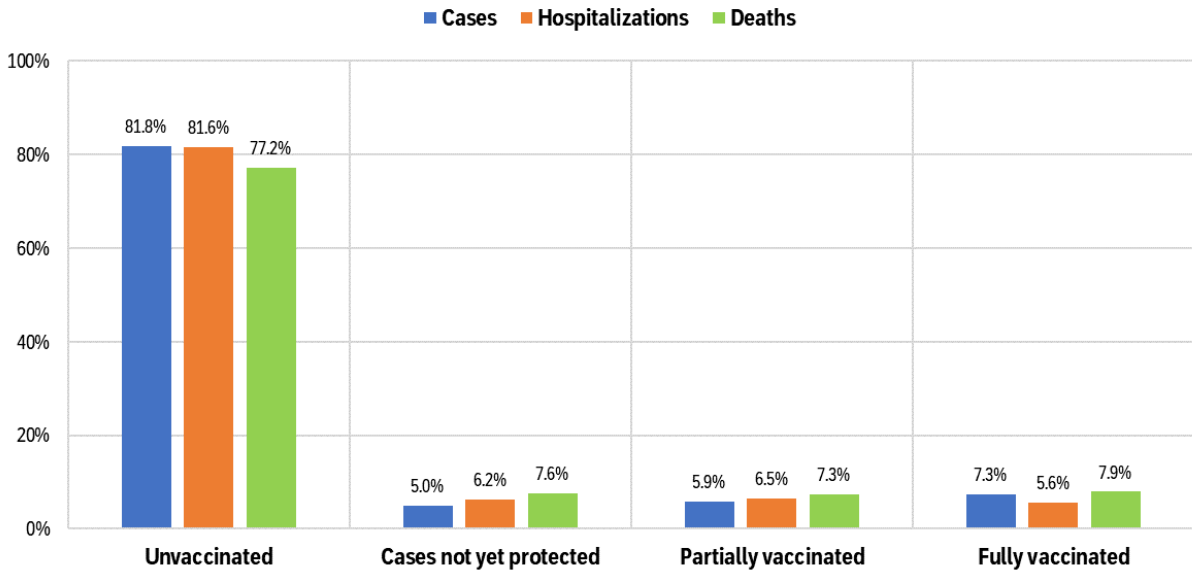
Source: Author Calculations from <https://dashboard.saskatchewan.ca/health-wellness>

Location	Demographics		Cases				Hospitalizations		Recoveries	Fatalities		Tests		
Zone	Population Estimates (2021)	Share of Population	Total Cases	Total Case Rate*	Active Cases	Active Case Rate*	Inpatient	ICU	Count	Deaths	Death Rate*	Total Tests	Test Rate*	Test Positivity Rate (%)
Far North West	29,813	2.5	4,353	14,601	33	110.7	1	0	4,270	50	167.7	30,673	102,885	14.2
Far North Central	2,649	0.2	541	20,423	0	0.0	0	0	535	6	226.5	2,850	107,588	19.0
Far North East	24,249	2.0	4,364	17,997	13	53.6	0	0	4,326	25	103.1	28,152	116,096	15.5
North West	82,386	6.8	8,665	10,518	91	110.5	5	0	8,453	121	146.9	68,194	82,774	12.7
North Central	88,991	7.4	8,016	9,008	112	125.9	8	3	7,818	86	96.6	82,913	93,170	9.7
North East	41,560	3.4	2,810	6,761	9	21.7	1	0	2,767	34	81.8	34,025	81,870	8.3
Saskatoon	338,106	28.1	19,094	5,647	210	62.1	51	20	18,715	169	50.0	330,452	97,736	5.8
Central West	36,962	3.1	1,418	3,836	16	43.3	1	0	1,388	14	37.9	22,489	60,844	6.3
Central East	98,368	8.2	4,437	4,511	166	168.8	9	5	4,217	54	54.9	76,778	78,052	5.8
Regina	273,351	22.7	15,666	5,731	191	69.9	42	13	15,272	203	74.3	255,342	93,412	6.1
South West	38,670	3.2	2,153	5,568	34	87.9	1	1	2,085	34	87.9	26,474	68,461	8.1
South Central	60,459	5.0	2,911	4,815	53	87.7	2	0	2,821	37	61.2	56,689	93,764	5.1
South East	89,294	7.4	4,801	5,377	158	176.9	5	0	4,579	64	71.7	67,958	76,106	7.1
Unassigned (Pending)	0	0.0	554	0.0	18	0.0	0	0	532	4	0.0	173,431	0	0.0
Total Saskatchewan	1,204,858	100.0	79,783	6,621.8	1,104	91.6	126	42	77,778	901	74.8	1,256,420	104,280	6.4

* indicates rates are per 100,000 persons

Cases by Vaccination Status. This slide shows the composition of cases, deaths and hospitalizations by vaccine status as published by the Public Health Agency of Canada. The data clearly shows the vaccine efficacy in preventing cases and serious outcomes. Less than 8% of all cases, hospitalizations, and deaths in Canada recorded since early December 2020 are in fully vaccinated persons aged 12 and over. The data is lagged by about three weeks and the sample size (N) is about 845,000 cases.

National COVID Cases by Vaccine Status (N= 845,177) as of October 30, 2021
Cases are 12 years of age and older.
Source: <https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html#a9>





**QUESTIONS, COMMENTS OR
SUGGESTIONS?
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