# COVID-19 Modeling and Analytics Update

Analysis based on COVID-19 analytics
as of November 16, 2021

Saskatchewan

# Role of Modeling

- Modeling cannot predict what will happen.

- It tells us what 'could' happen over the next six months, based on actions taken.

- It supports decision makers by comparing the potential impact of public health measures and behaviour changes.

- Goal: to make the best policy decisions based on public health information, keeping economic activity stable, children in school and control of health system capacity.
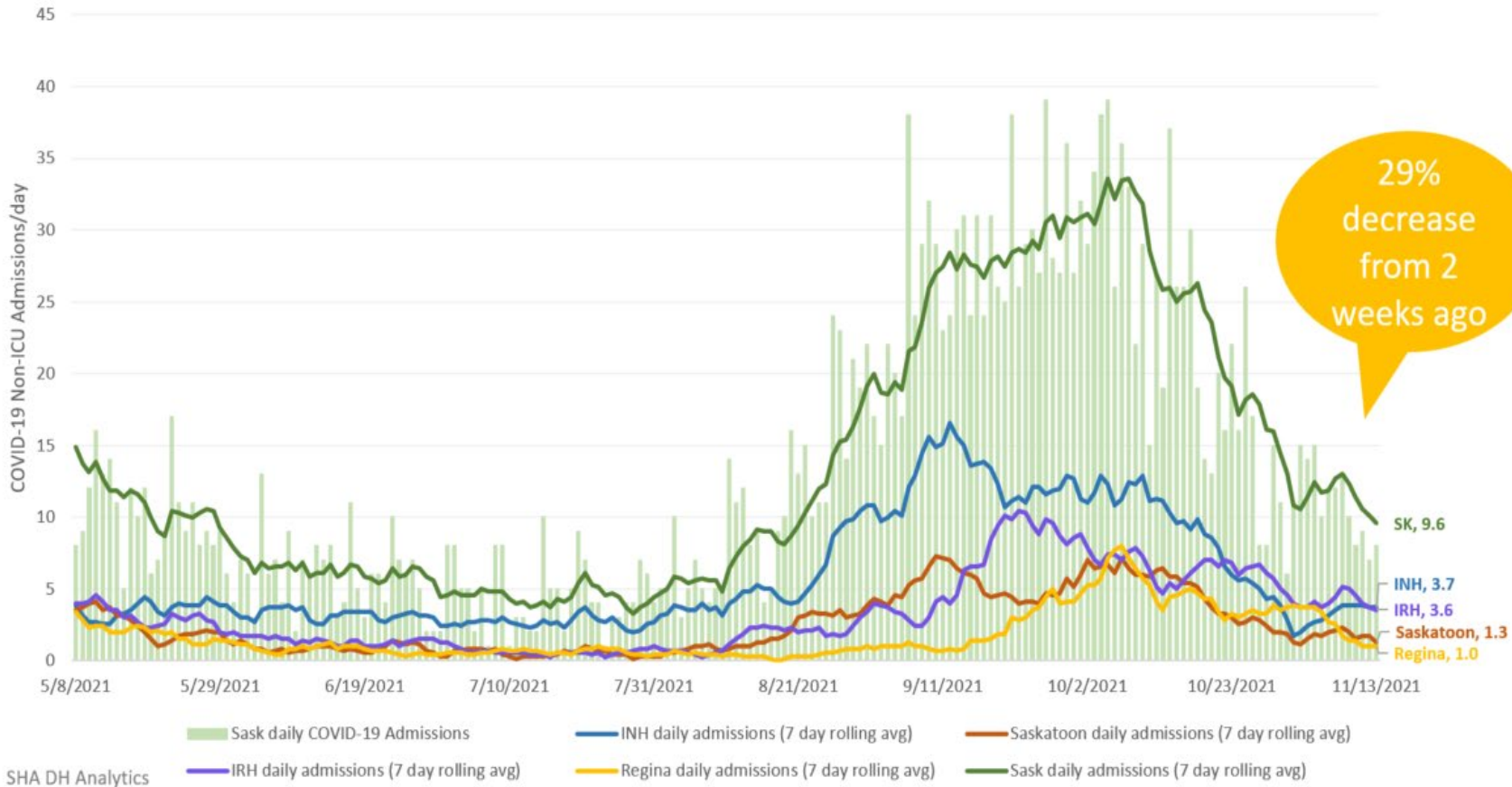
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# COVID-19 Analytics

Highlights:

- Daily hospital and ICU admissions have decreased 29% and 41%, respectively from two weeks ago.

- The non-ICU and ICU census has decreased 30% and 22% respectively from two weeks ago.

- Among western provinces, Saskatchewan remains first for hospitalizations and ICU census per 100,000.

- ~67% of COVID admissions to ICU were within 24 hours of admission to hospital.
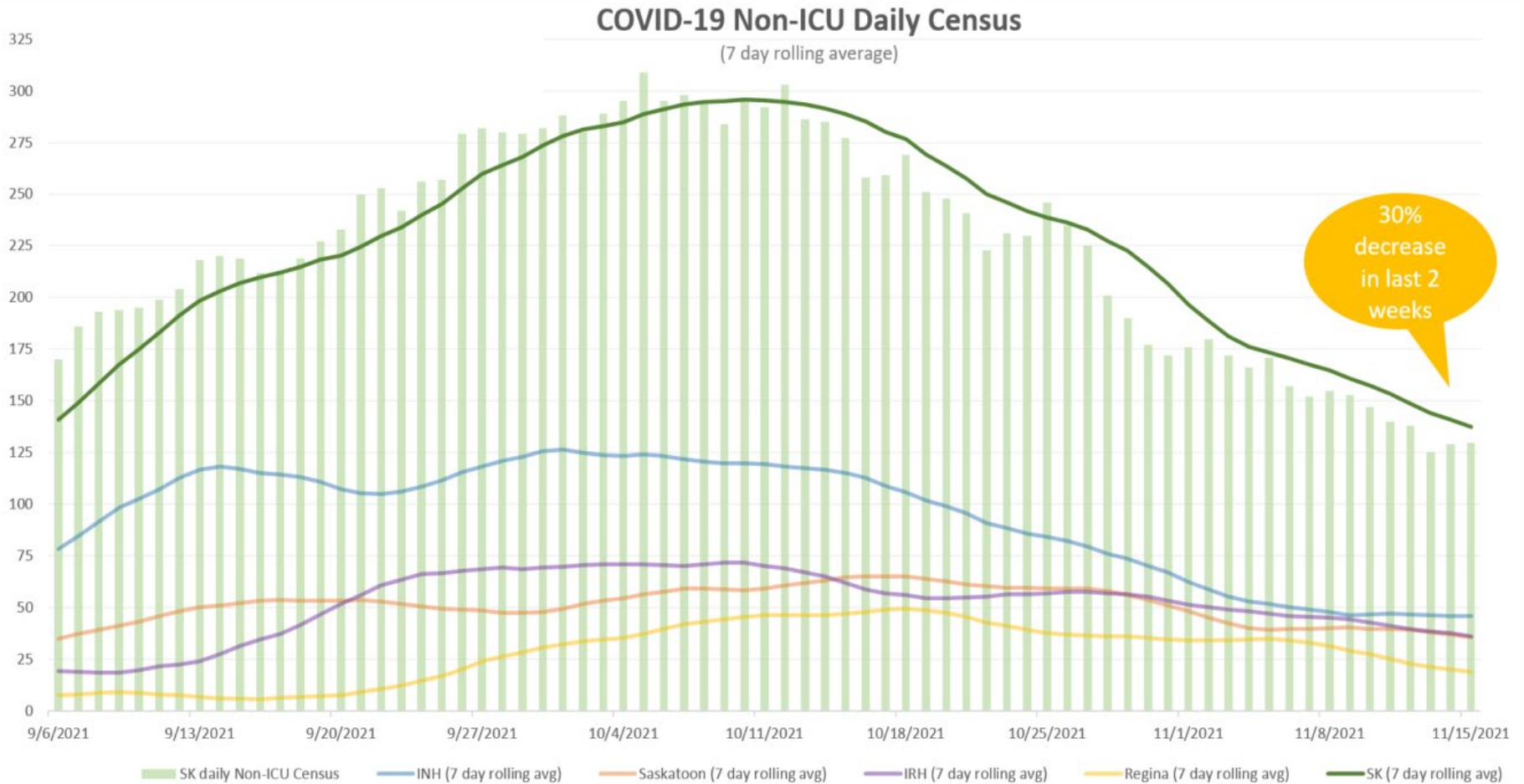
# Daily COVID-19 Hospital Admissions



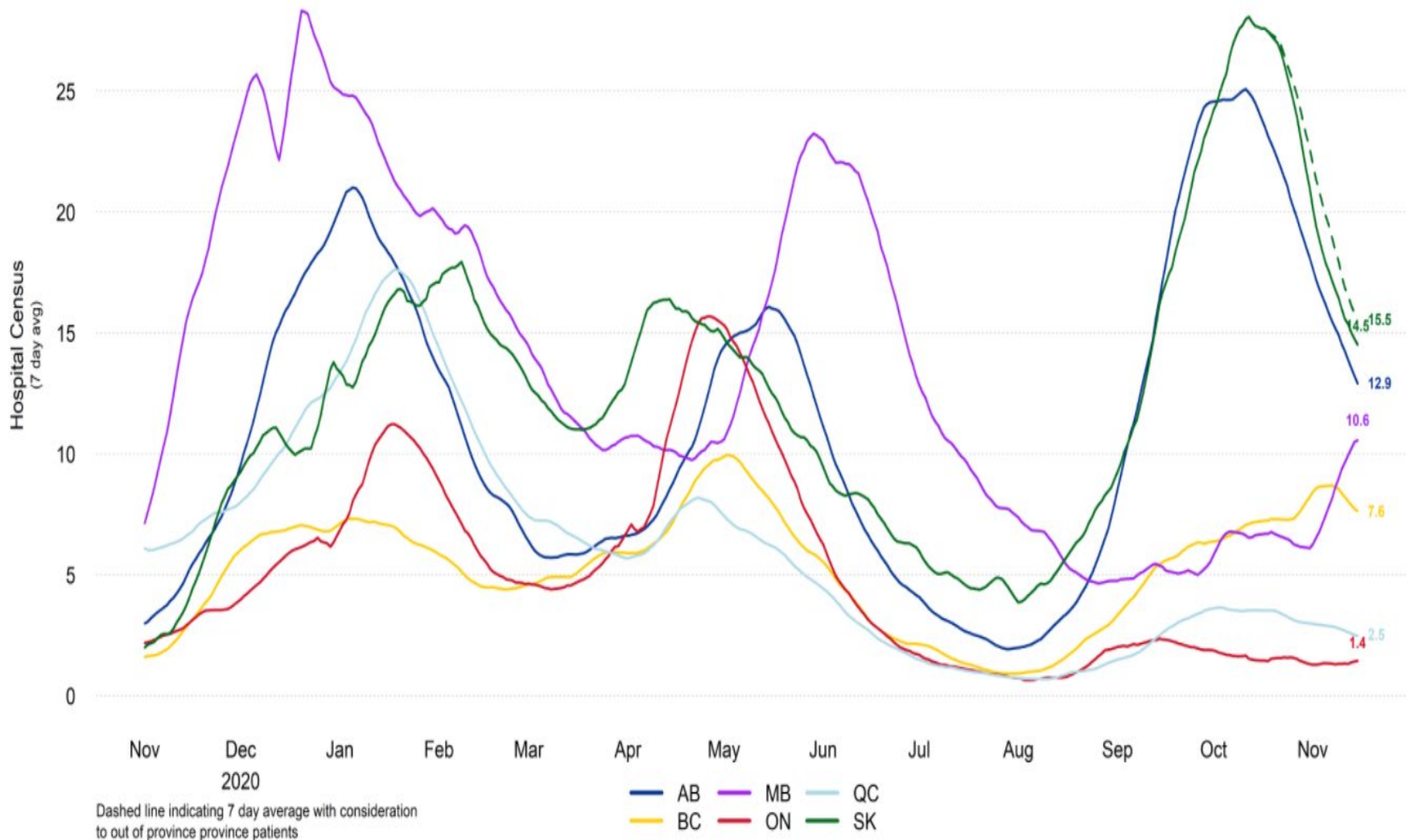COVID-19 Non-ICU Admissions per day
(7 day rolling average)

29% decrease from 2 weeks ago

SK, 9.6
INH, 3.7
IRH, 3.6
Saskatoon, 1.3
Regina, 1.0

SHA DH Analytics

Sask daily COVID-19 Admissions
INH daily admissions (7 day rolling avg)
Saskatoon daily admissions (7 day rolling avg)
IRH daily admissions (7 day rolling avg)
Regina daily admissions (7 day rolling avg)
Sask daily admissions (7 day rolling avg)

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# COVID-19 Hospital Daily Census (Non-ICU)



COVID-19 Non-ICU Daily Census
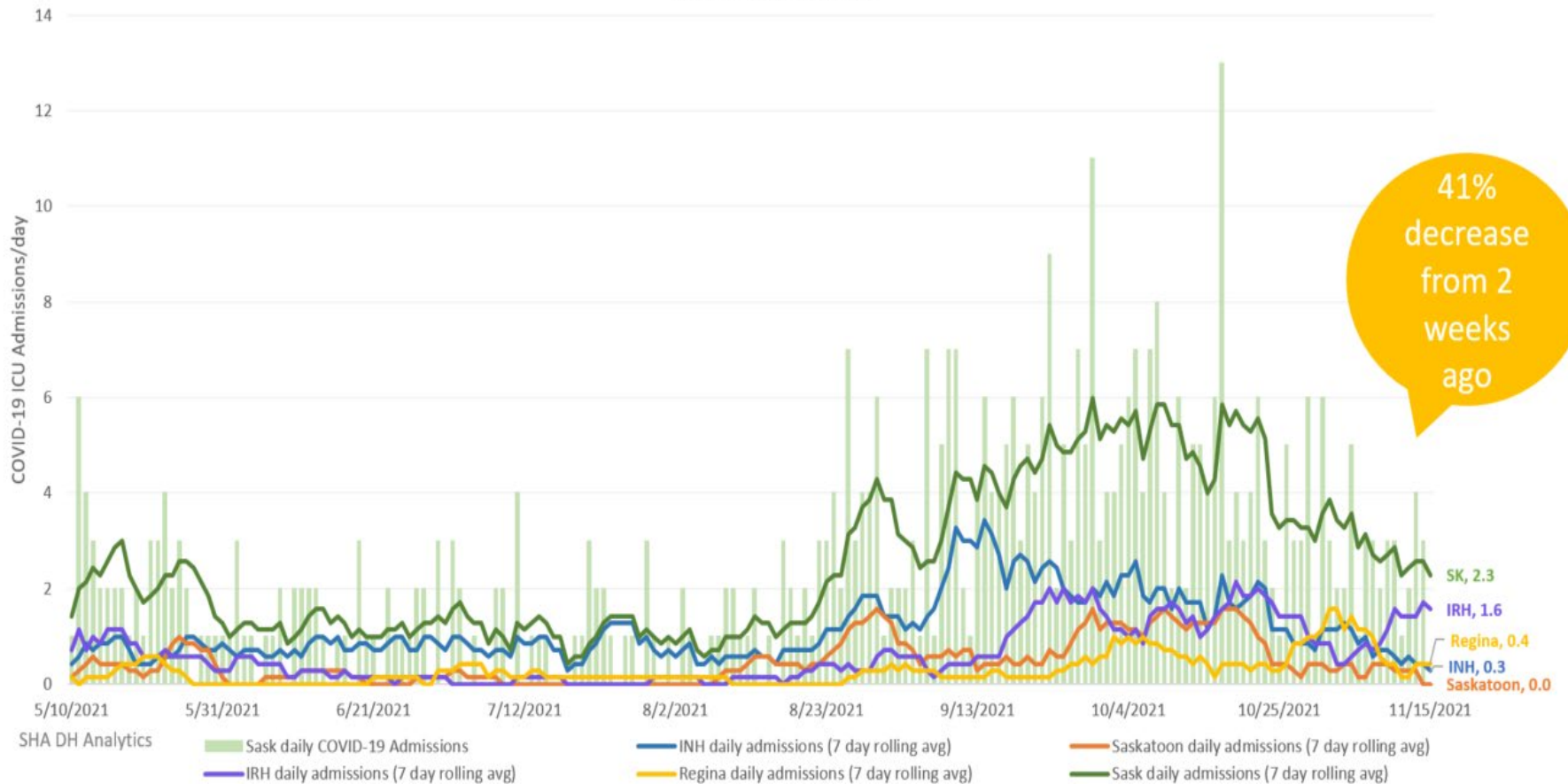(7 day rolling average)

30% decrease in last 2 weeks

SHA DH Analytics. Data source: ADT, RRPL. Based on where patient resides, not admitted. Episode of Care Daily Census represents all COVID patients on a given day, including admissions and discharges; it is not a point in time census..

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# COVID-19 Hospital Census (non-ICU & ICU) per 100,000 – Nov 1, 2020 – Nov 5, 2021



Dashed line indicating 7 day average with consideration to out of province province patients

Legend: AB, BC, MB, ON, QC, SK

# Daily COVID-19 ICU Admissions



COVID-19 ICU Admissions per day
(7 day rolling average)

41% decrease from 2 weeks ago

SK, 2.3
IRH, 1.6
Regina, 0.4
INH, 0.3
Saskatoon, 0.0

SHA DH Analytics

Sask daily COVID-19 Admissions INH daily admissions (7 day rolling avg) Saskatoon daily admissions (7 day rolling avg)
IRH daily admissions (7 day rolling avg) Regina daily admissions (7 day rolling avg) Sask daily admissions (7 day rolling avg)

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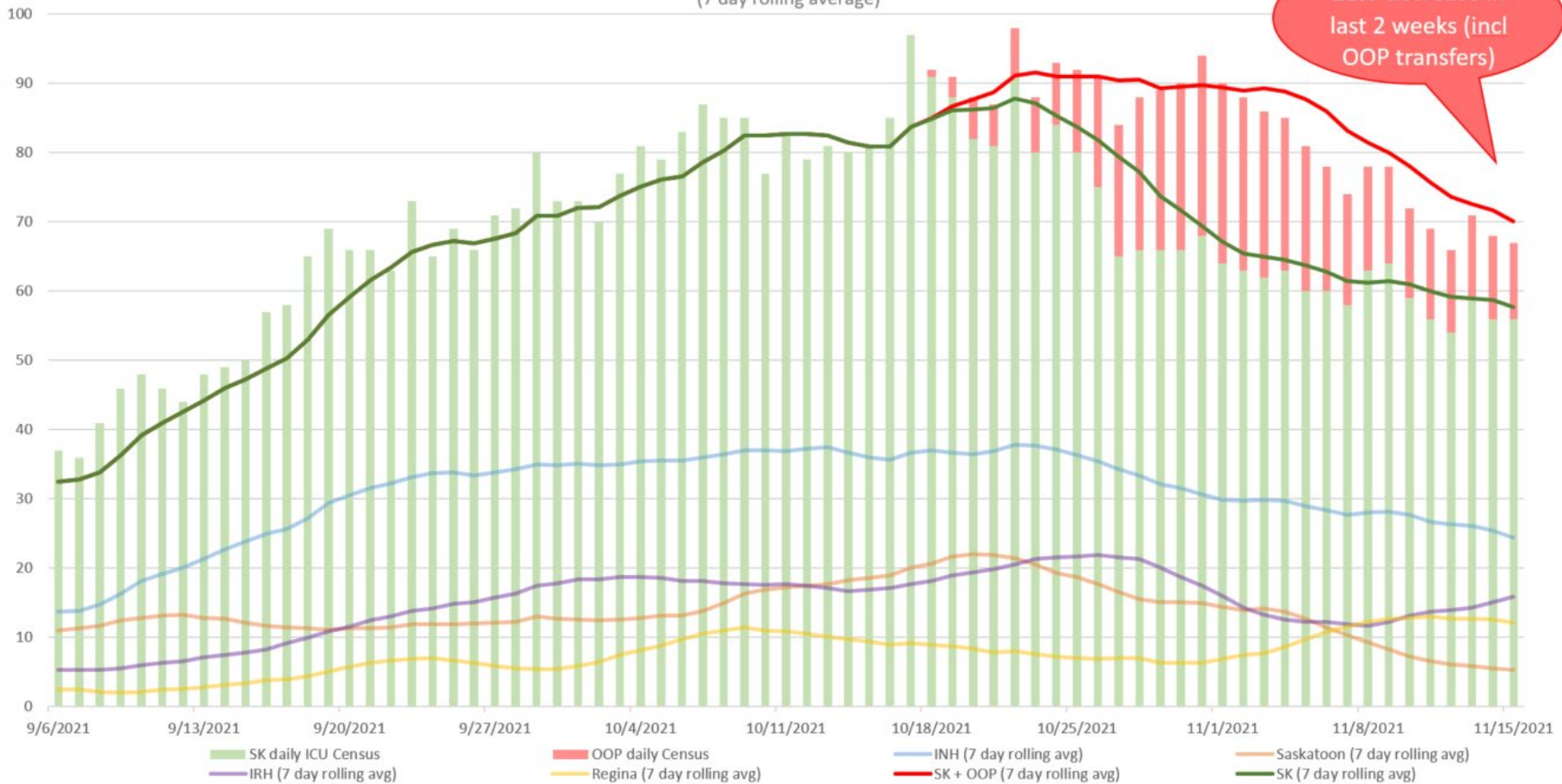
# COVID-19 Admissions to ICU within 24 hour of admission to hospital
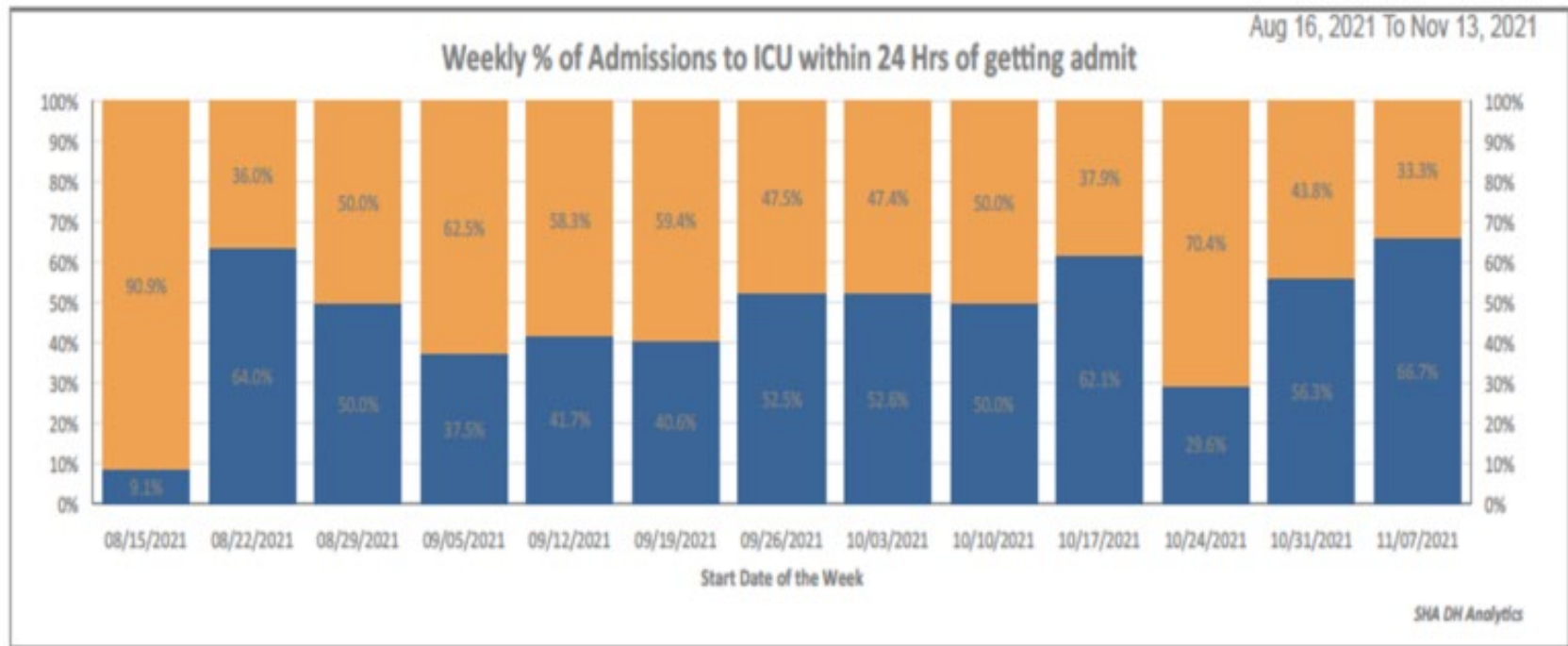


For the Week of Nov 07 to Nov 13, **66.7%** of COVID admissions to ICU were within 24 hours of admission to hospital.
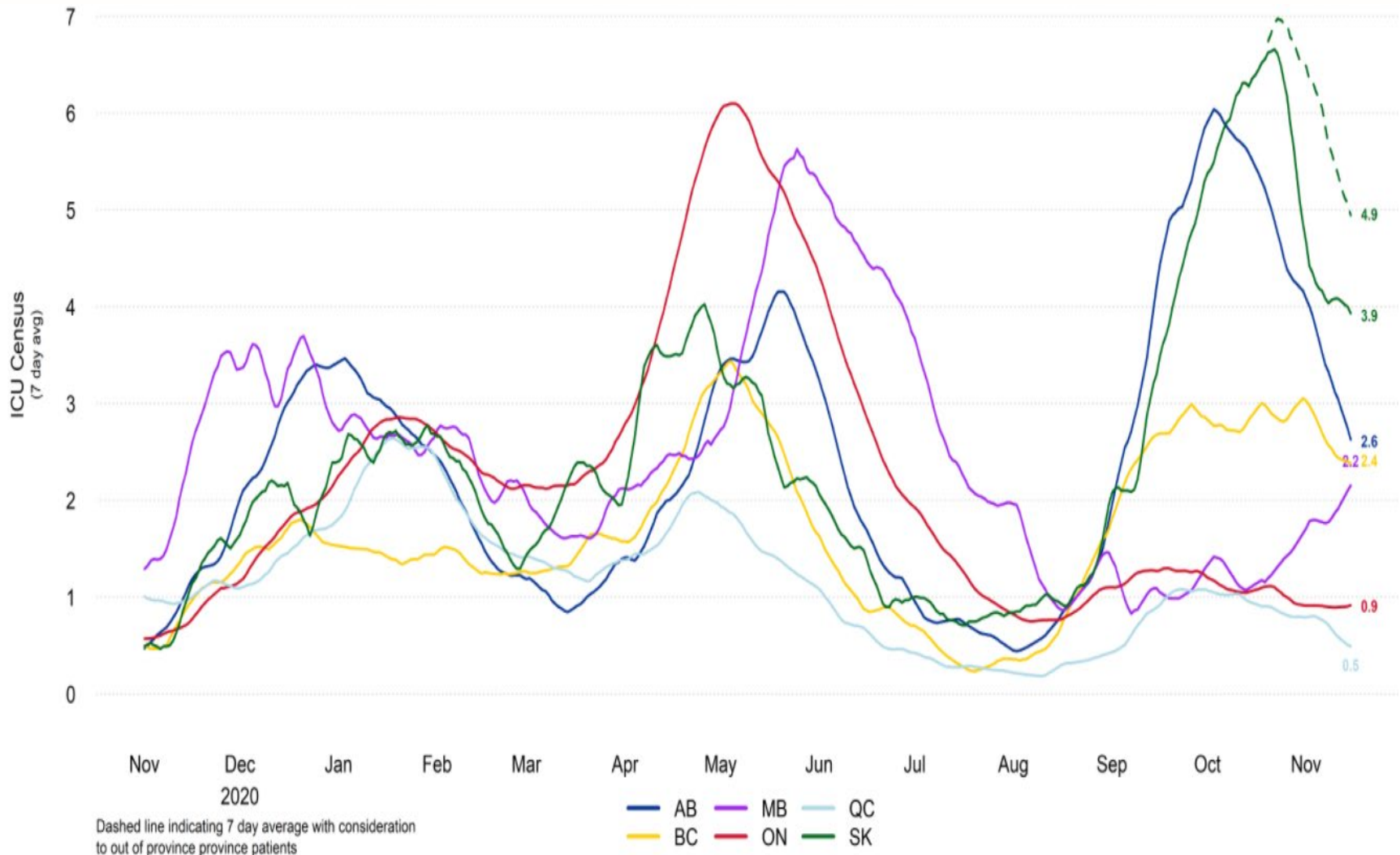
# COVID-19 Daily ICU Census



COVID-19 ICU Daily Census
(7 day rolling average)

22% decrease in last 2 weeks (incl OOP transfers)

SK daily ICU Census — OOP daily Census — INH (7 day rolling avg) — Saskatoon (7 day rolling avg) — IRH (7 day rolling avg) — Regina (7 day rolling avg) — SK + OOP (7 day rolling avg) — SK (7 day rolling avg)
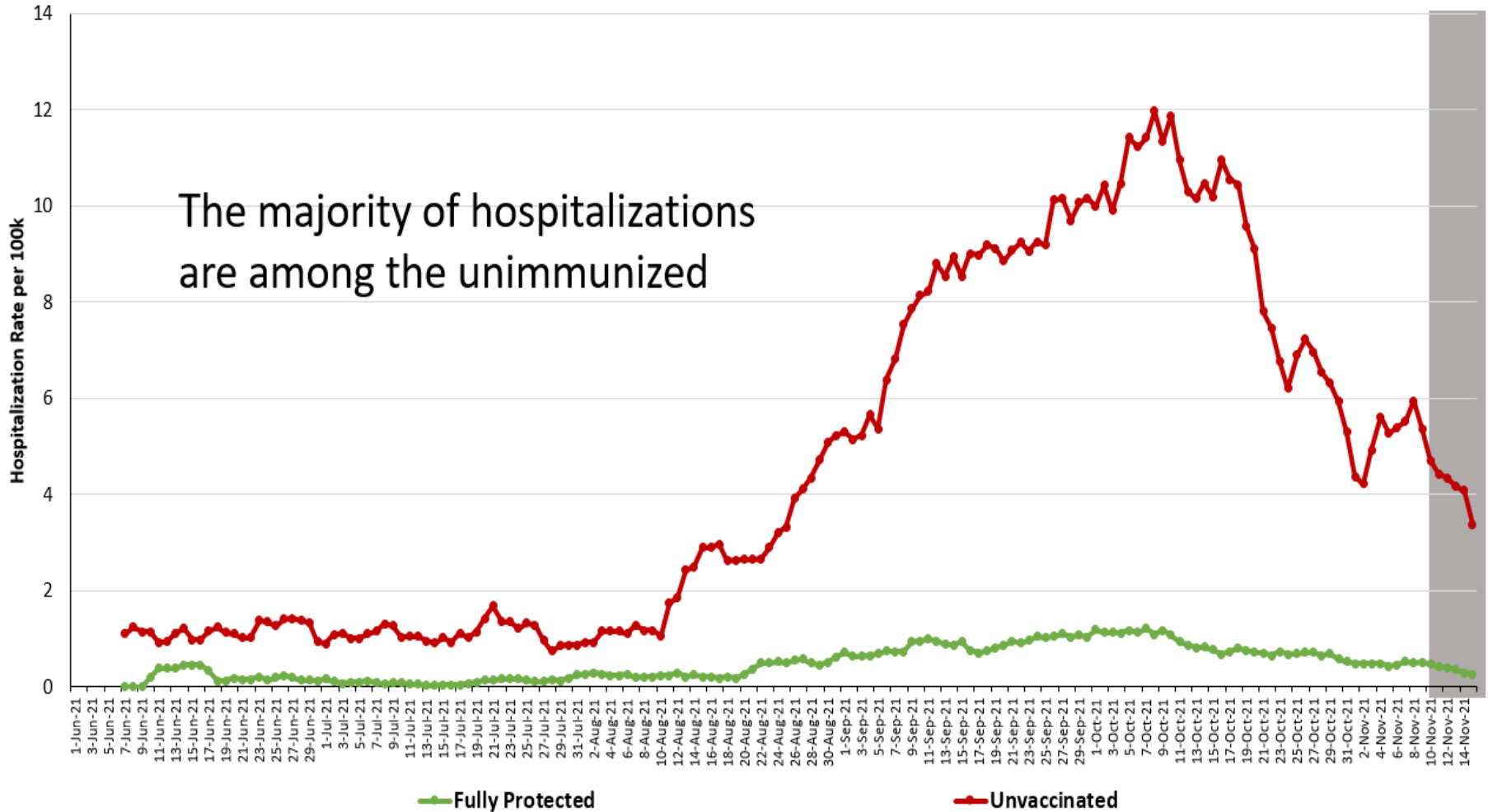
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# COVID-19 ICU Census per 100,000

**(Nov 1, 2020 – Nov 15, 2021)**

ICU Census
(7 day avg)

Nov | Dec 2020 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov

4.9
3.9
2.6
2.2 2.4
0.9
0.5

- AB
- BC
- MB
- ON
- QC
- SK

Dashed line indicating 7 day average with consideration to out of province province patients

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# COVID-19 Hospitalization rate per 100,000 (seven day average) by vaccine status



The majority of hospitalizations are among the unimmunized

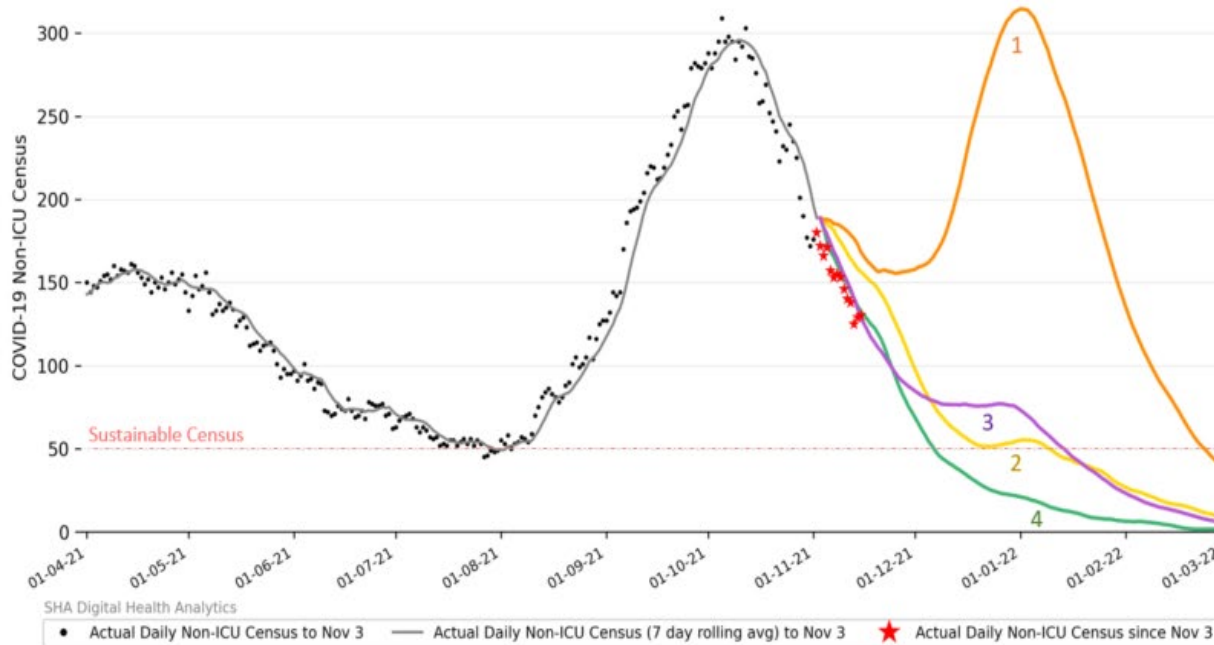Legend: Fully Protected (green), Unvaccinated (red)

†Fully Protected: Have received 2 doses of a two-dose series of approved vaccine or 1 dose of J&J; Unvaccinated: No evidence of 1st dose.

# COVID-19 Modeling: November 3, 2021



## Saskatchewan COVID-19 Non-ICU Census

ABM (Nov 3, 2021): Model uses current vaccination rates and increases all eligible age groups and areas to 70% two dose minimum if this has not been achieved. Waning of immunity to infection in all age groups with rate in under 60 half as fast as over 60 age group; Boosters per approved strategy in SK (Oct 19, 2021); mask mandate and 75% uptake of proof of vaccination remains throughout. Model re-calibrated to reflect current lower level of mixing. Scenarios: Faster vs slower waning of protection against infection (similar waning for symptomatic disease and hospitalization); period of reduced mixing for 28 days starting Nov 5, 2021 for both rates of waning.

**GO FOR GREEN!**

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- Actual Daily Non-ICU Census to Nov 3
- Actual Daily Non-ICU Census (7 day rolling avg) to Nov 3
- ★ Actual Daily Non-ICU Census since Nov 3

**Modelling Scenarios:**
1. Faster waning, lower mixing behaviour continues throughout
2. Faster waning, 28 day period of even lower population mixing starting Nov 5th
3. Slower waning, lower mixing behaviour continues throughout
4. Slower waning, 28 day period of even lower population mixing starting Nov 5th

Actual non-ICU Census since Nov 3 modelling results (★) show trending closely along slow waning scenario.
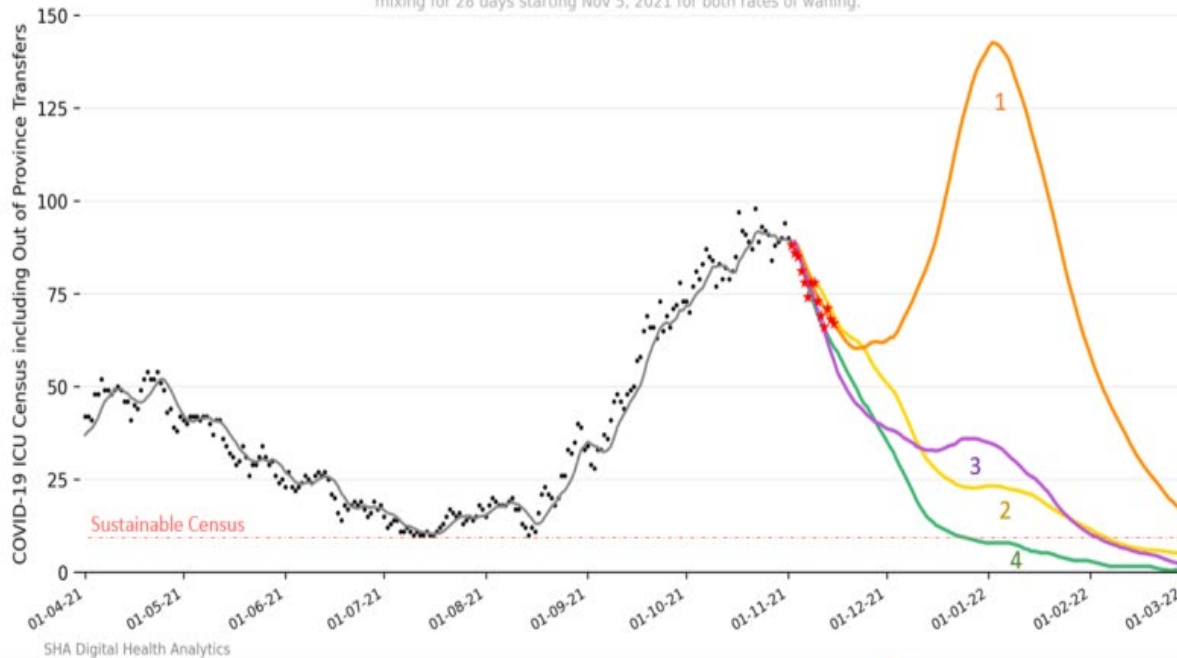
*Caution: Assumes this lower mixing remains. If mixing increases again then will have increase demand. Waning rates estimated from existing evidence, and uncertainty remains.*

Model re-calibrated to reflect the lower mixing behaviour by the public in the last few weeks. If this continues and SK follows the slow waning trajectory, then sustainable non-ICU census could be reached by late Jan 2022. Further reduction in population mixing could mean reaching sustainable levels several weeks earlier.

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# COVID-19 Modeling: November 3, 2021

## Saskatchewan COVID-19 ICU Census

ABM (Nov 3, 2021): Model uses current vaccination rates and increases all eligible age groups and areas to 70% two dose minimum if this has not been achieved. Waning of immunity to infection in all age groups with rate in under 60 half as fast as over 60 age group; Boosters per approved strategy in SK (Oct 19, 2021); mask mandate and 75% uptake of proof of vaccination remains throughout. Model re-calibrated to reflect current lower level of mixing. Scenarios: Faster vs slower waning of protection against infection (similar waning for symptomatic disease and hospitalization); period of reduced mixing for 28 days starting Nov 5, 2021 for both rates of waning.

**GO FOR GREEN!**

**Modelling Scenarios:**

1. Faster waning, lower mixing behaviour continues throughout
2. Faster waning, 28 day period of even lower population mixing starting Nov 5th
3. Slower waning, lower mixing behaviour continues throughout
4. Slower waning, 28 day period of even lower population mixing starting Nov 5th

Actual ICU Census since Nov 3 modelling results (★) show trending closely along both waning scenarios since they have not yet separated.

*Caution: Assumes this lower mixing remains. If mixing increases again or current measures removed, then will have increase demand. Waning rates estimated from existing evidence, and uncertainty remains.*

COVID-19 ICU Census including Out of Province Transfers

Sustainable Census

SHA Digital Health Analytics

• Actual Daily ICU Census (incl OOP) to Nov 3 — Actual Daily ICU Census (incl OOP) (7 day rolling avg) to Nov 3 ★ Actual Daily ICU Census (incl OOP) since Nov 3

Model re-calibrated to reflect the lower mixing behaviour by the public in the last few weeks. If this continues and SK follows the slow waning trajectory, then sustainable ICU census could be reached by Feb 2022. Further reduction in population mixing could mean reaching sustainable levels several weeks earlier.
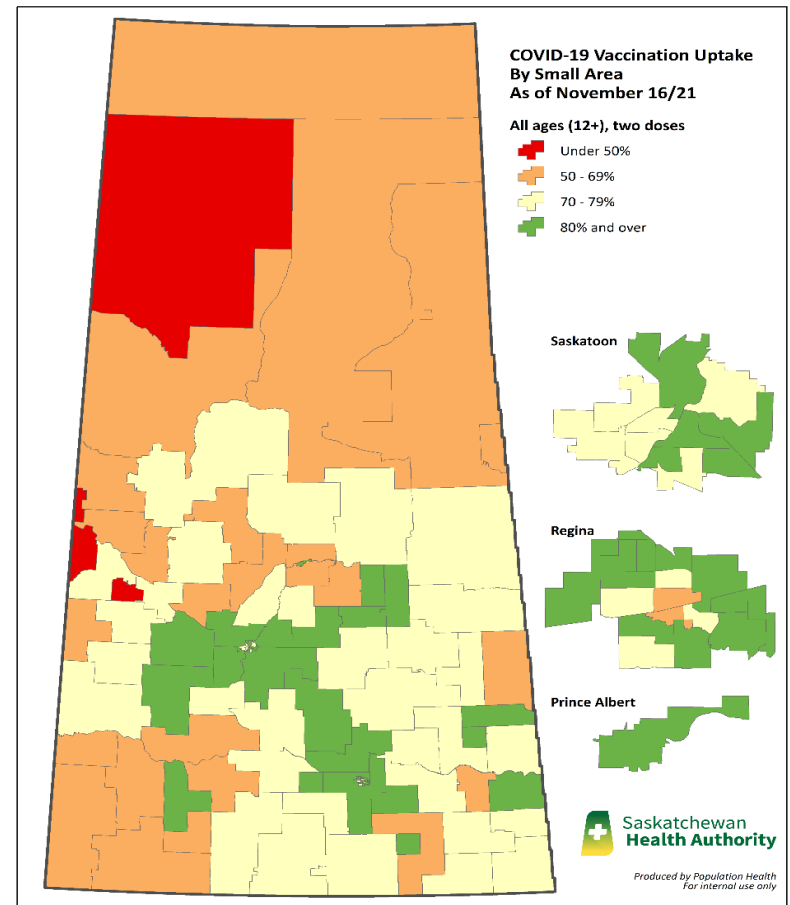
# COVID-19 Vaccine Uptake

**November 16, 2021**

**1st Dose**

**2nd Dose**

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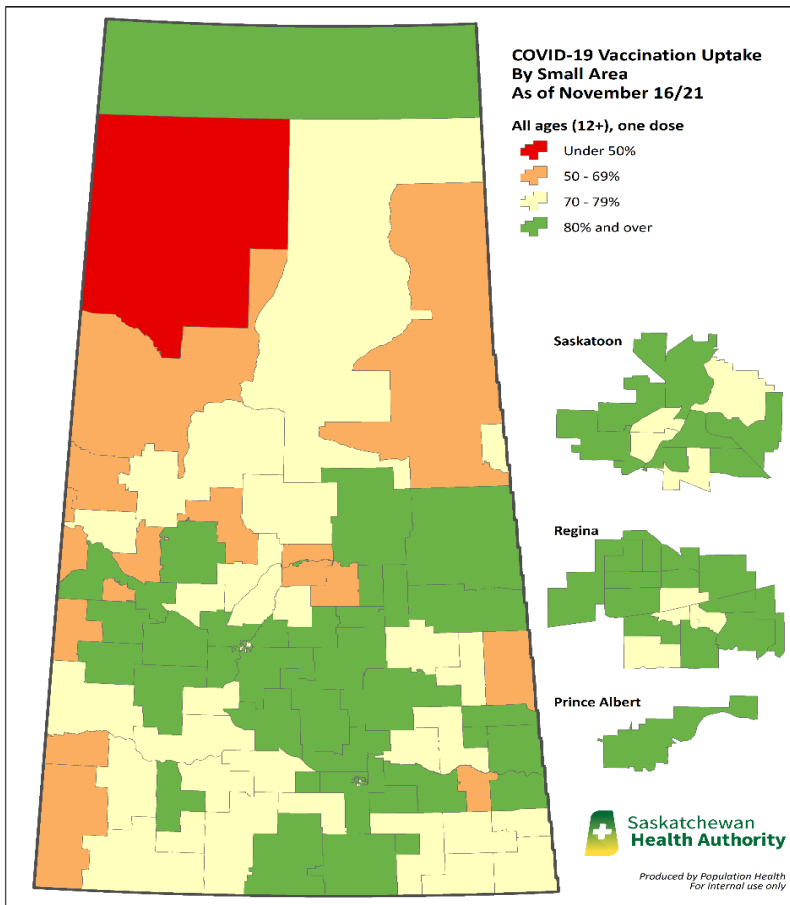
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# The actions taken by the people of Saskatchewan collectively will determine the outcomes.

Simple measures reduce the risk of infection:

- Mask in all public spaces and *wear the best mask possible*
- Reduce close contacts
- Outdoors is better than indoors
- Wash your hands often
- Stay home with even the mildest symptoms and get tested
- Get fully vaccinated as soon as you are eligible

**COVID-19 information available at saskatchewan.ca/COVID19**

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