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Source: Unsplash

# Impact of the COVID-19 pandemic on routine immunizations in Alberta

**Public Health Ontario Rounds**  
*November 2, 2021*

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# Outline

1. Timeline of public health restrictions
2. Recommendations regarding routine vaccine delivery
3. Infant immunization coverage (2019 vs. 2020)
4. School vaccine coverage
5. Strategies for catch-up

# Learning Objectives

By the end of this session, participants will be able to:

1. Understand the extent to which routine vaccine coverage (infant and school vaccines) declined during the pandemic compared to pre-pandemic period.
2. Understand whether those who missed getting vaccinated during the early pandemic were caught up later during the pandemic.
3. Understand the strategies adopted by the province for catch-up.

# The start of the COVID-19 pandemic



**December 2019<sup>1</sup>**



**March 11, 2020<sup>2</sup>**



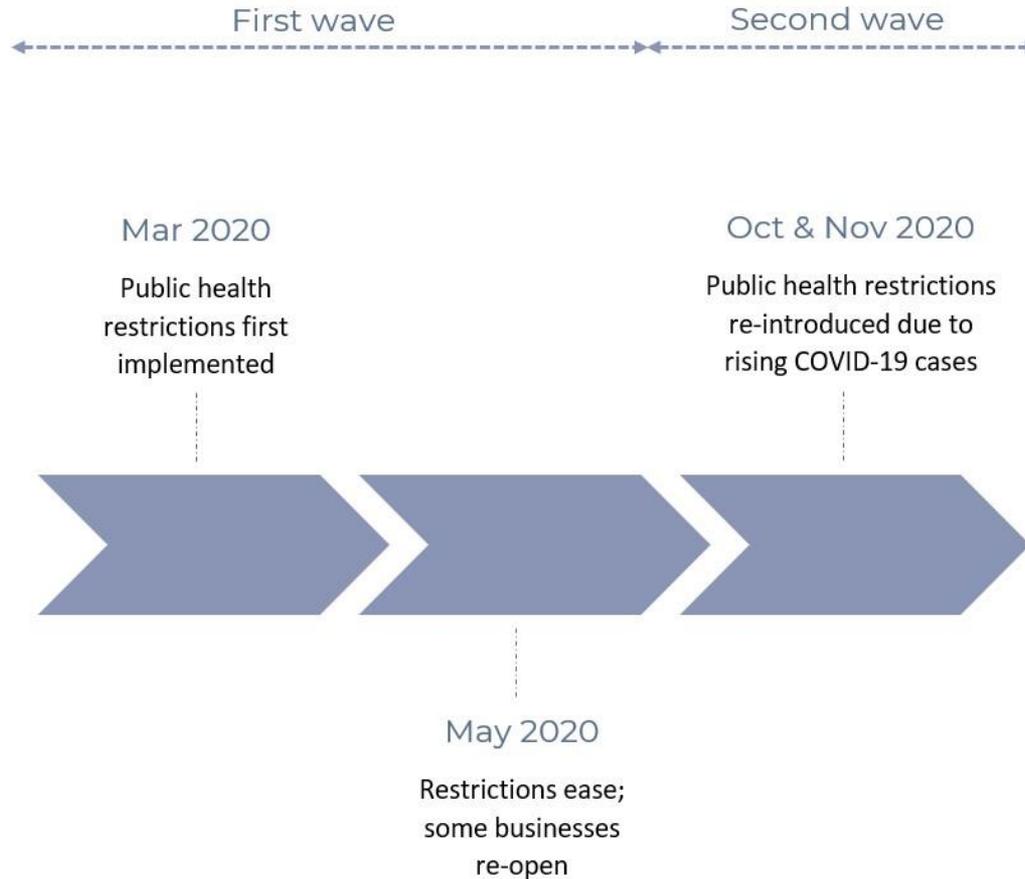
**March 17, 2020<sup>3</sup>**

<sup>1</sup> Mahase E (2020)

<sup>2</sup> WHO (2020)

<sup>3</sup> Mahsin M (2020)

# Timeline of public health restrictions in Alberta: 2020



# Recommendations for routine immunizations during the pandemic

## Infants and toddlers

- Prioritize primary immunization series with some modifications to immunization services

## School-aged vaccines

- Can be deferred until schools re-open or full health services are available



Source: Unsplash

Alberta Health & Alberta Health Services, 2020;  
National Advisory Committee on Immunization, 2020

# The COVImm Project

**Vaccination in a pandemic:  
The impact on routine  
vaccinations & COVID-19  
vaccine acceptance**

## **Team:**

Researchers from 6  
provinces

Knowledge users:

- NACI Secretariat
- Provincial public health officials in AB, QC, & BC

## Research team members:

Principal  
Investigator

**Shannon  
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Co-PI

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Julie Bettinger, University of British Columbia

Manish Sadarangani, University of British

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## Knowledge users:

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**National Advisory Committee on  
Immunization (NACI) Secretariat,  
Public Health Agency of Canada**

Nicholas  
Brousseau

**Institut National de Santé Publique du  
Québec**

Céline O'Brien

**Alberta Health**

Monika Naus

**B.C. Centre for Disease Control**

## **A multi-method national study that incorporates data from four complementary approaches:**

1. A pan-Canadian environmental scan of public health leaders and vaccine policy/program documents
2. Two cross-sectional pan-Canadian surveys of the public and healthcare providers
3. Interviews with members of equity-seeking groups
4. Analysis of routine vaccine coverage data in three provinces



Source: SELF x American Academy of Pediatrics

# Impact of the pandemic on infant vaccination coverage

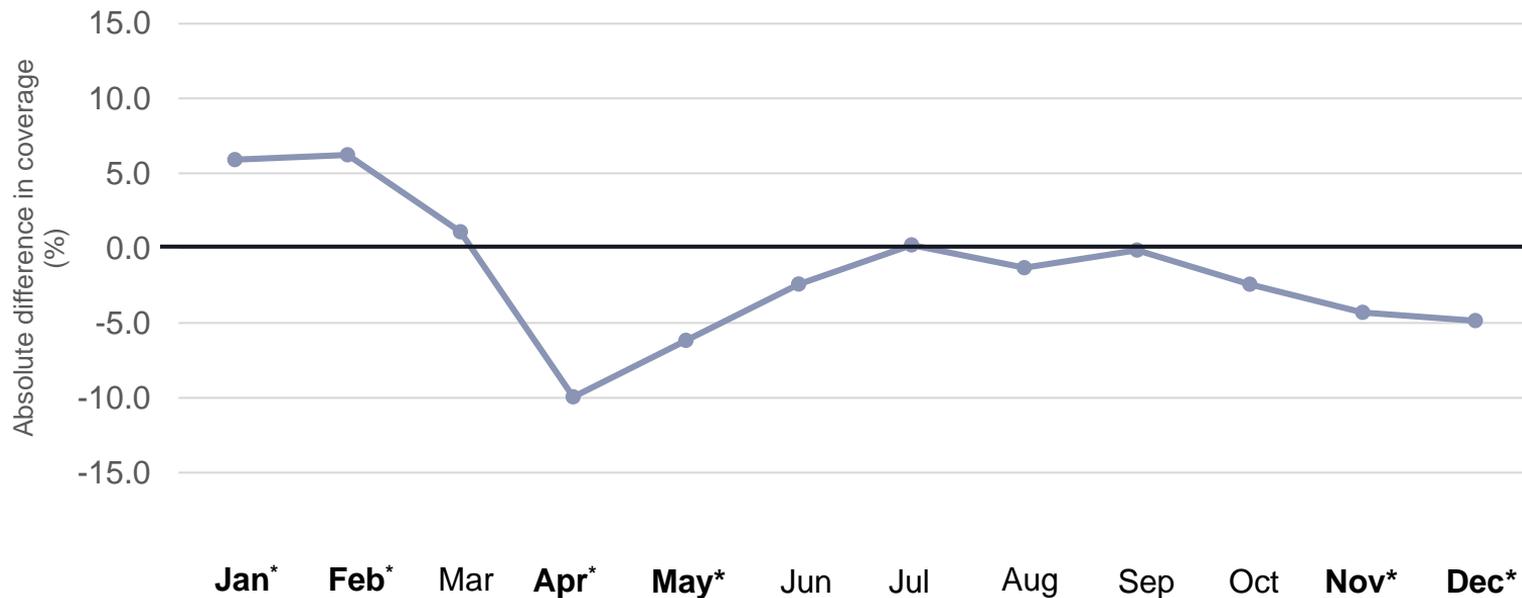
# Infant immunization schedule in Alberta

Vaccine	Number and timing of doses
Measles, mumps, rubella ± varicella vaccine (MMR/MMRV)	1 dose: 12 months
Rotavirus	3 doses: 1st dose: 2 months 2nd dose: 4 months 3rd dose: 6 months
Pertussis-containing vaccine (DTaP-IPV-Hib-HB or DTaP-IPV-Hib)	4 doses: 1st dose: 2 months 2nd dose: 4 months 3rd dose: 6 months 4th dose: 18 months

# Methods

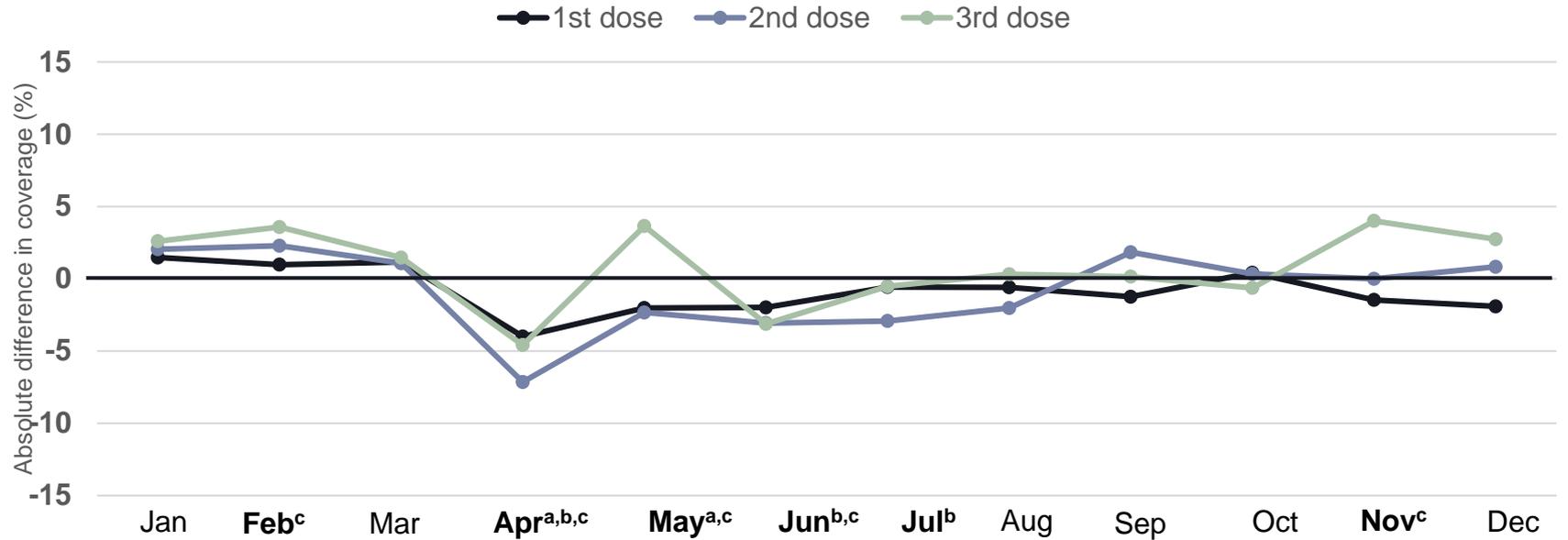
- The impact of the COVID-19 pandemic on vaccine coverage was examined using administrative data available from MoH Alberta.
- Vaccine coverage was defined as the proportion of age-eligible children who were vaccinated by 30 or 31 days following the due date (28 or 29 days following February due dates)
- We measured the impact using two measures
  - a. Monthly coverage
  - b. Cumulative coverage
- Differences in monthly vaccine coverage (2020 minus 2019) was calculated to compare coverage between two periods
- 95% confidence intervals (CI) for binomial proportions calculated and overlap examined

# Difference in monthly coverage: measles (2020 minus 2019)



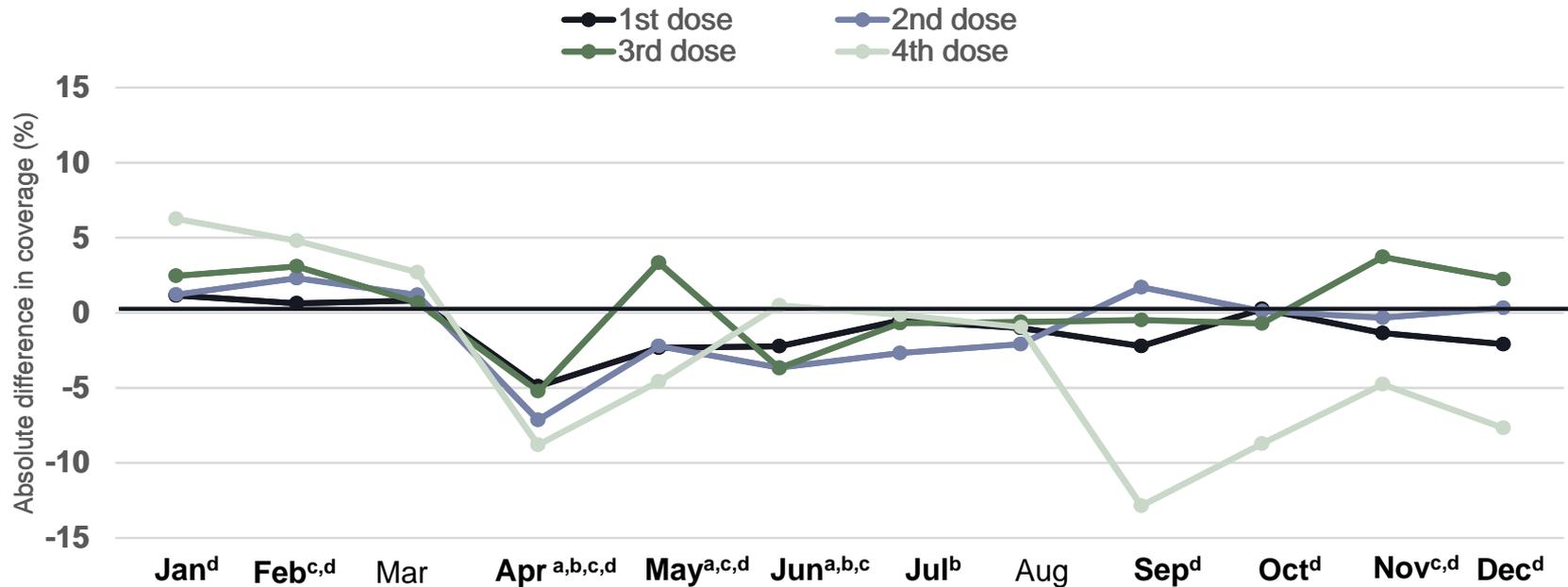
\*Significant difference

# Difference in monthly coverage: rotavirus vaccine (2020 minus 2019)



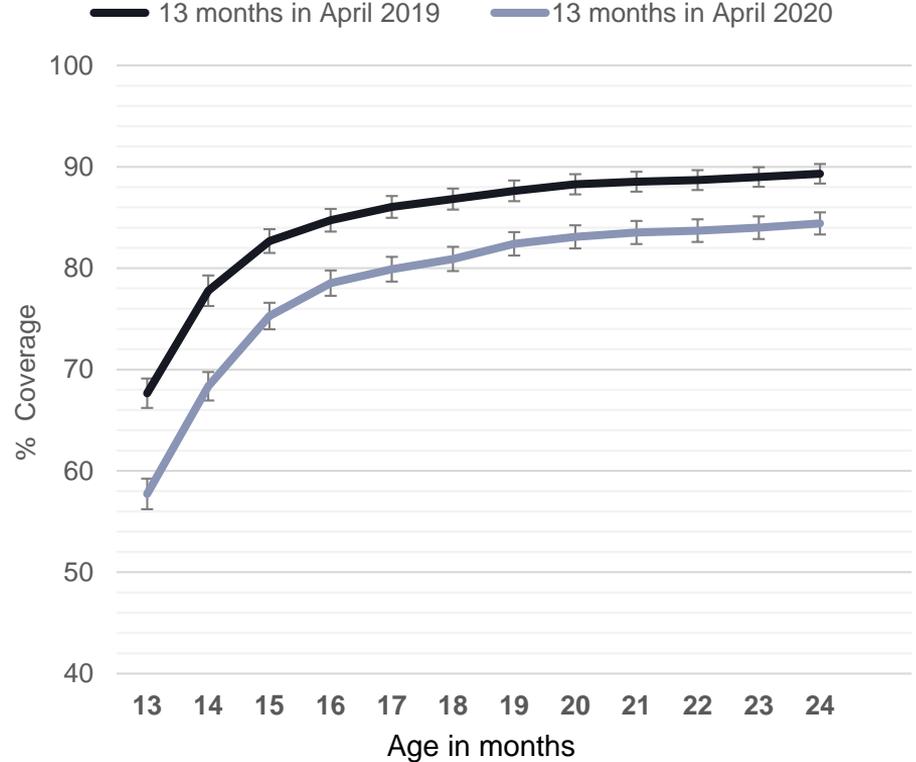
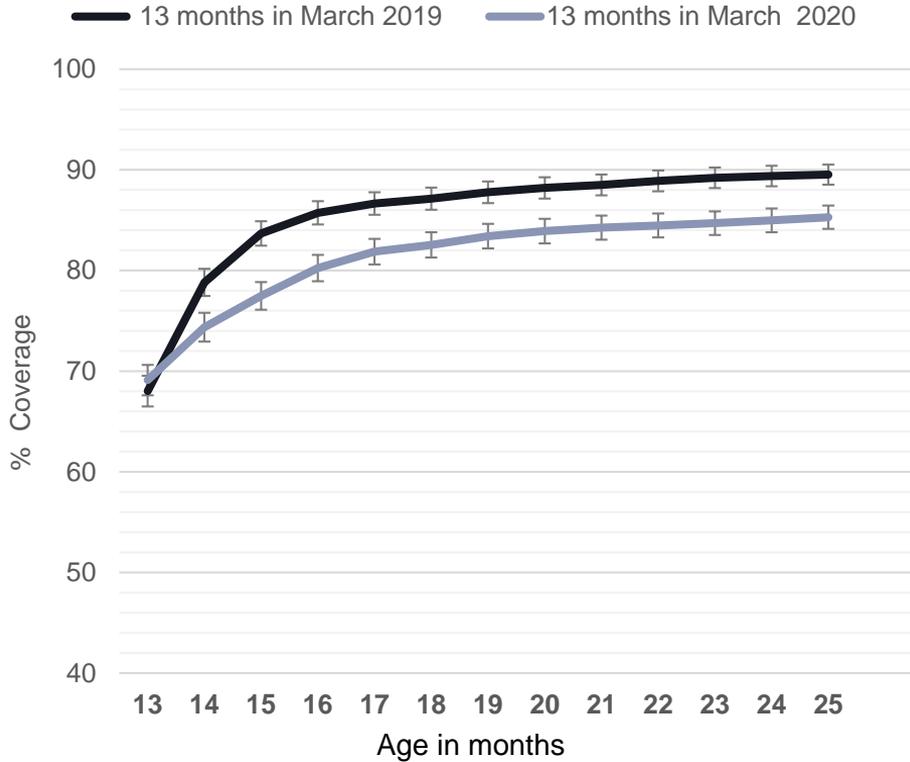
<sup>a</sup>Significant difference for first dose  
<sup>b</sup>Significant difference for second dose  
<sup>c</sup>Significant difference for third dose

# Difference in monthly coverage: pertussis-containing vaccine (2020 minus 2019)

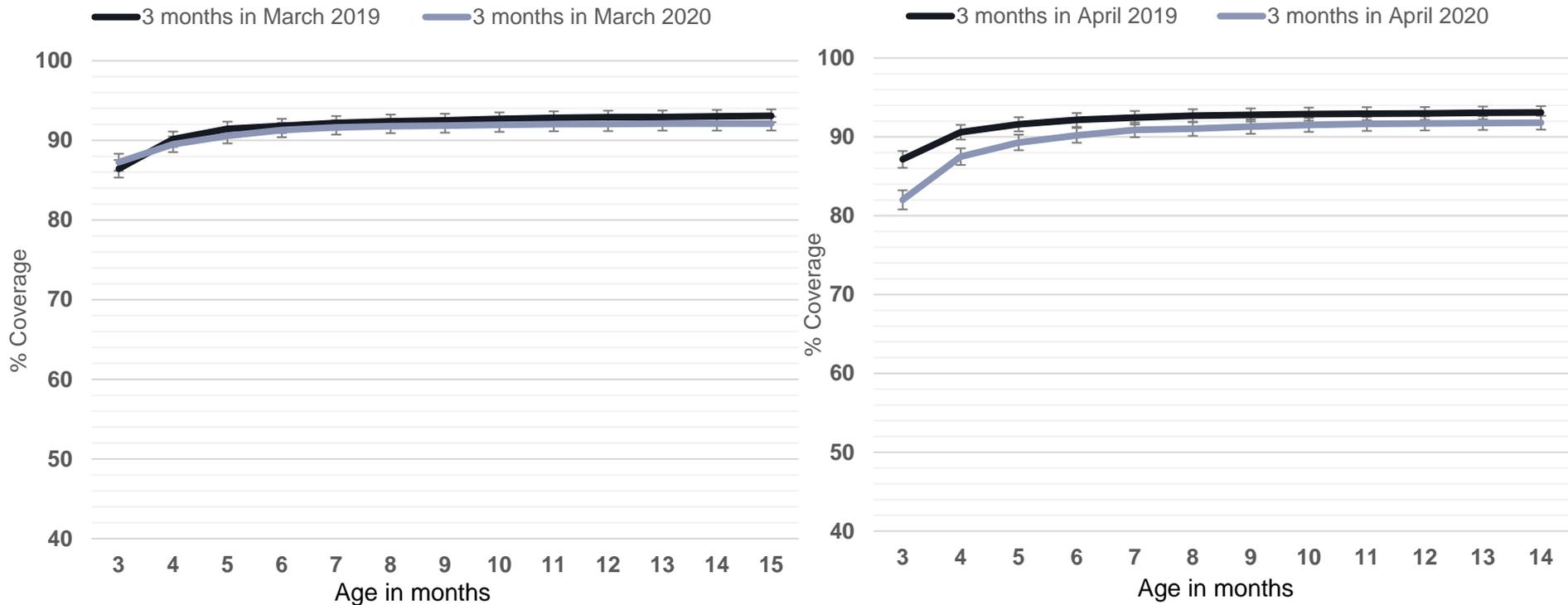


<sup>a</sup>Significant difference for first dose  
<sup>b</sup>Significant difference for second dose  
<sup>c</sup>Significant difference for third dose  
<sup>d</sup>Significant difference for fourth dose

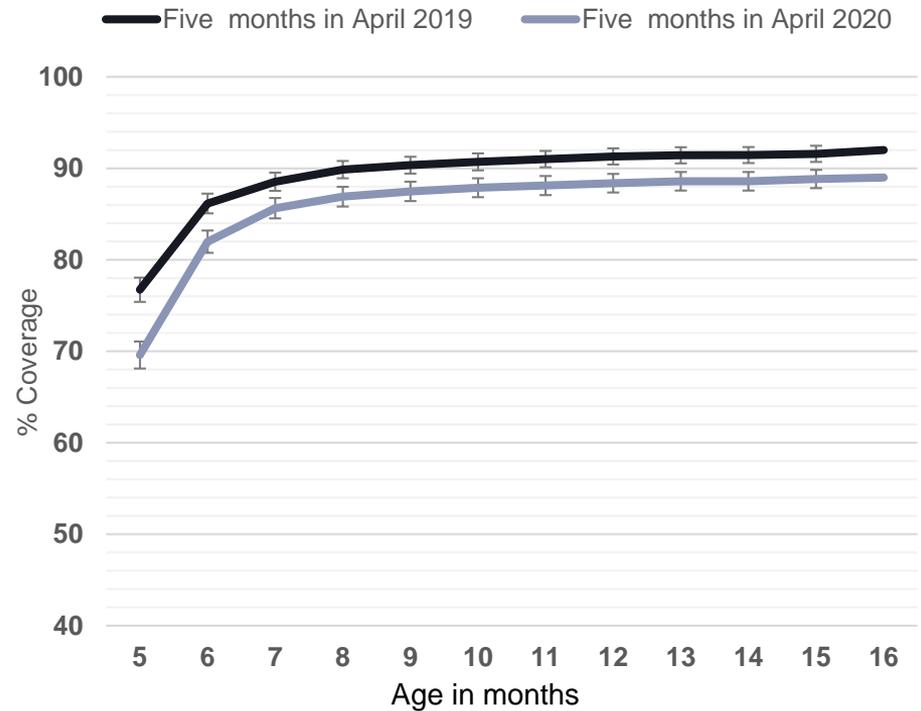
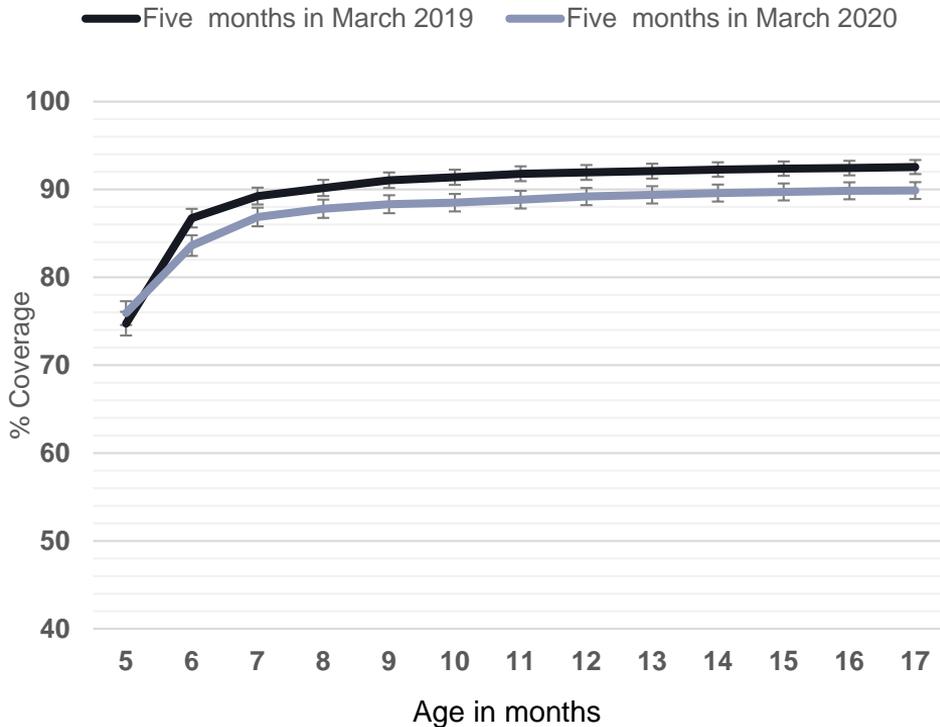
# Cumulative coverage: measles



# Cumulative coverage: pertussis-containing vaccine (first dose)



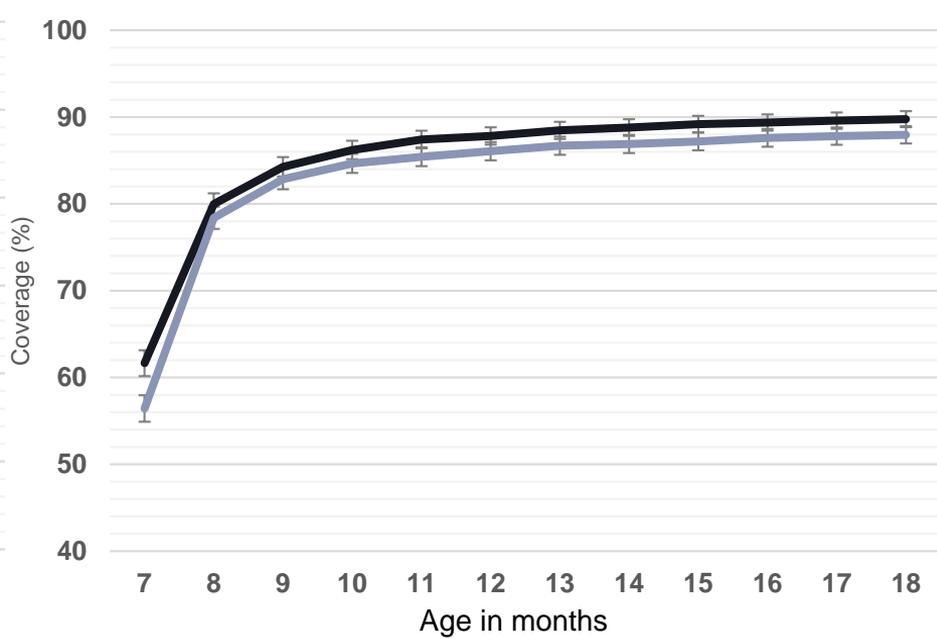
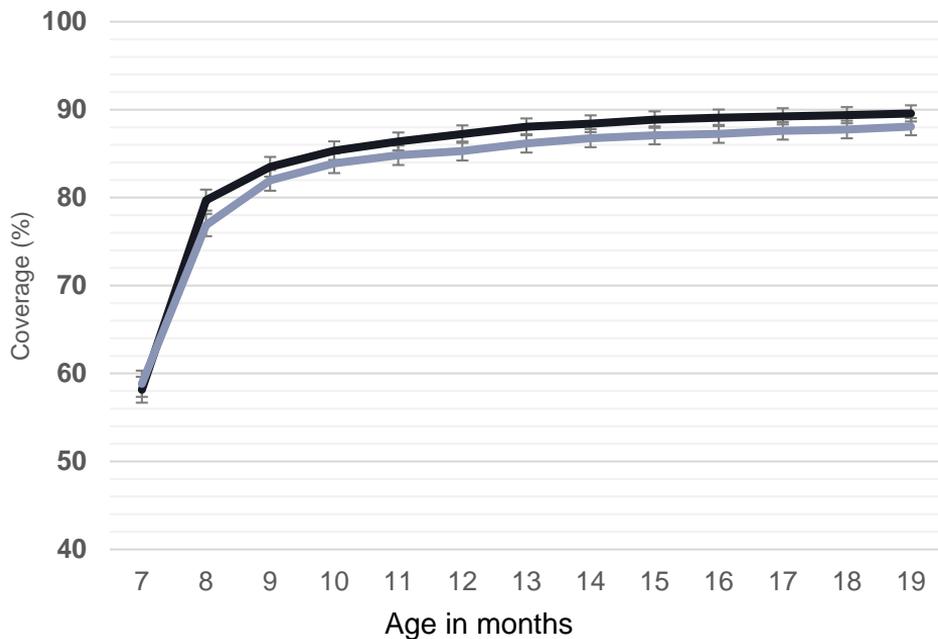
# Cumulative coverage: pertussis-containing vaccine (second dose)



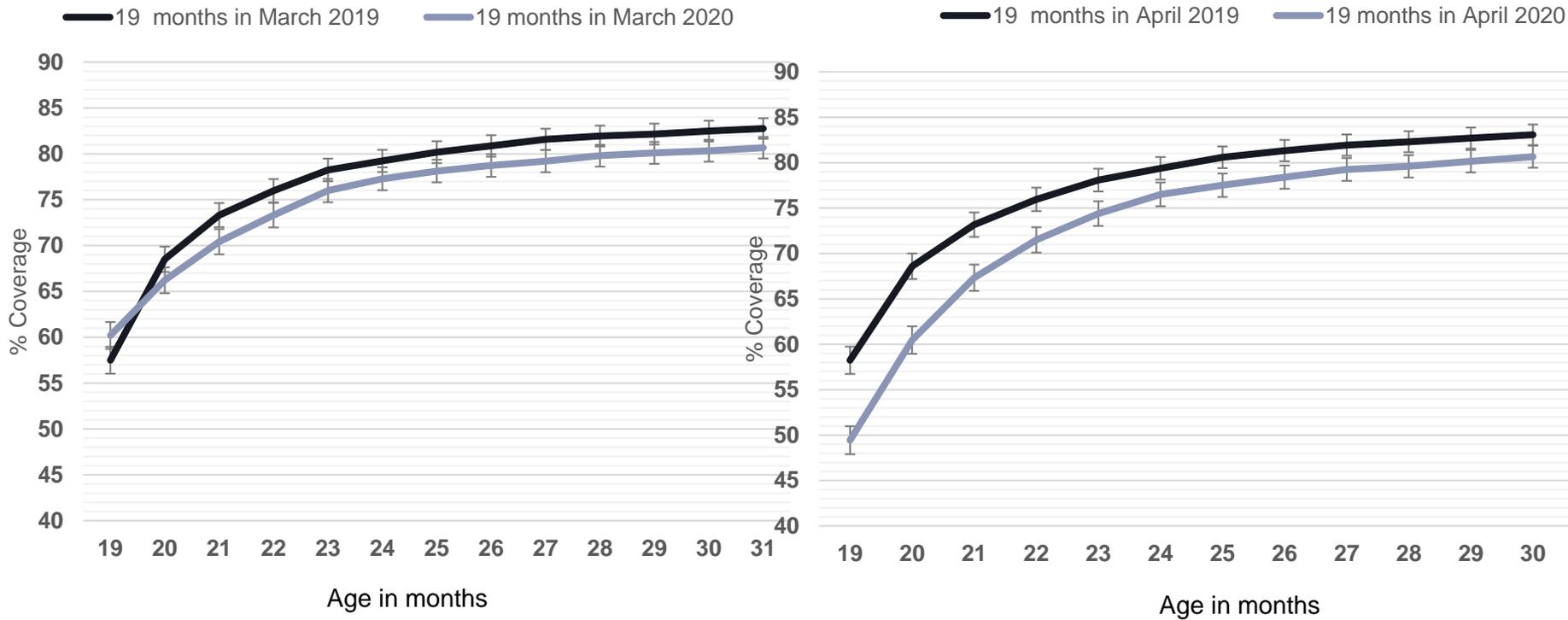
# Cumulative coverage: pertussis-containing vaccine (third dose)

Seven months in March 2019    Seven months in March 2020

Seven months in April 2019    Seven months in April 2020



# Cumulative coverage: pertussis-containing vaccine (fourth dose)

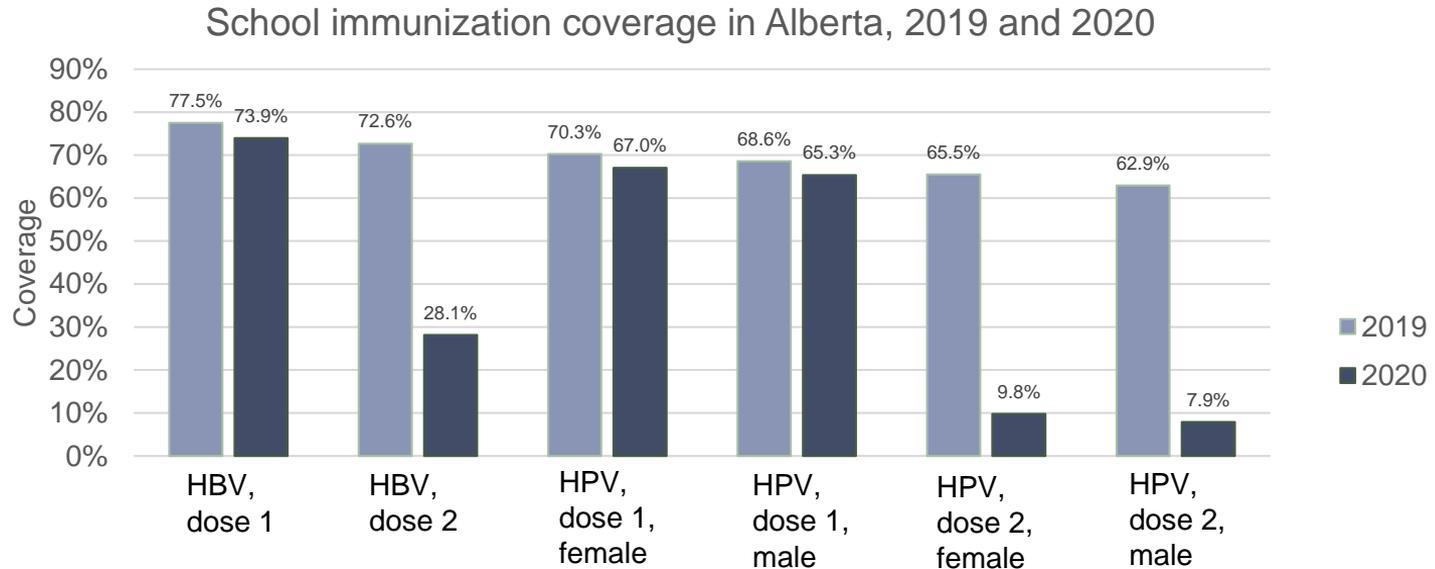


# Poll Questions

What has been the impact of the COVID-19 pandemic on school vaccine uptake?

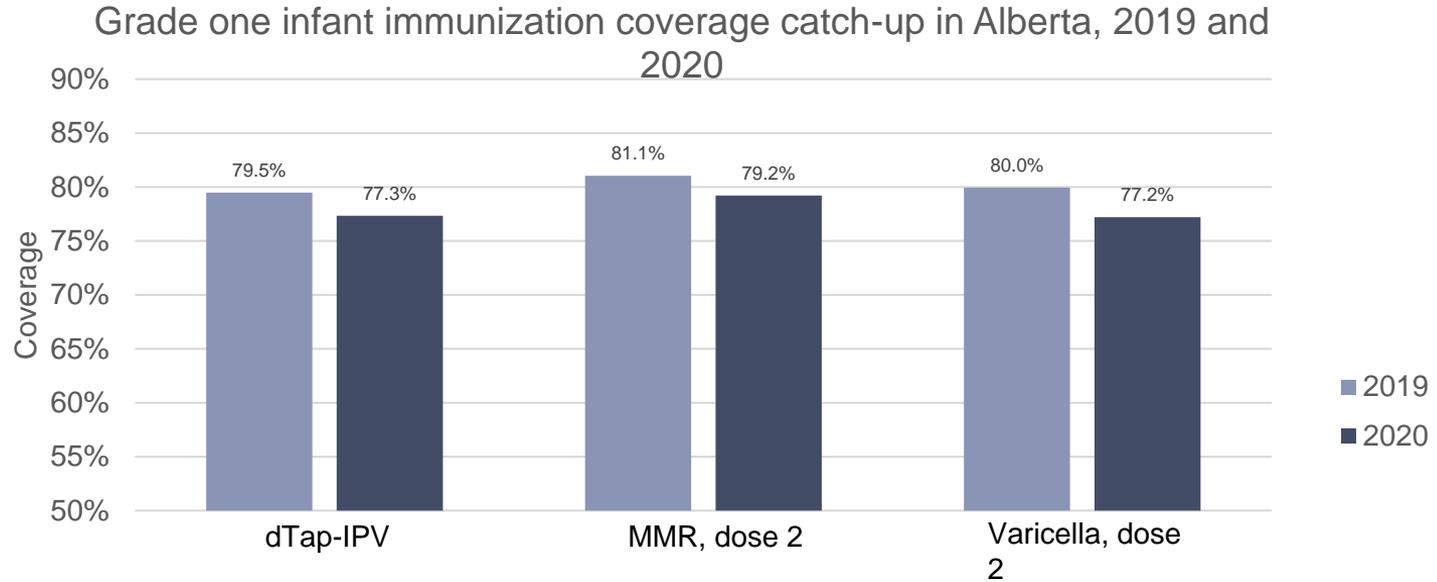


# COVID-19 impact on school vaccine uptake in Alberta: Age 12 years



Notes.  
Received by age 12.  
Data source: Alberta Government, Interactive Health Data Application, June 2021.

# COVID-19 impact on school vaccine uptake in Alberta: Age 7 years



Notes.

Received by age 7.

Data source: Alberta Government, Interactive Health Data Application, June 2021.

# Strategies for catch-up in Alberta



Source: Microsoft Office Stock Images

# Strategies for catch-up

## Infant vaccines:

- After initial reduction of vaccine service delivery at the start of the pandemic, many community health centers were contacting parents of 6-month-old children to get them vaccinated before they aged out of rotavirus vaccine eligibility
- Timely catch-up strategies are now needed



Source: Microsoft Office Illustrations

# 2019-20 school immunization catch-up in Alberta: 2020-21 school year

- Catch-up offered through the regular school-based program, in schools
- Extra clinics held at public health centres and other sites
- Catch-up for 2019-20 school cohort was prioritized
- Catch-up not yet complete



# What happened with the 2020-21 school immunization program in Alberta

- School-based program continued to be offered in schools, depending on whether outbreaks of COVID-19 were present
- Parents could take students to public health clinics to be immunized
- Grade 9 vaccines were prioritized
- Nurses came on alternate days to catch-up some missed students when possible



Source: Microsoft Office Illustrations

# Future catch-up plans for the school immunization program in Alberta

- Some zones held mass catch-up clinics throughout the summer of 2021
- Will push to complete 2019-20 catch-up this fall and continue with catch-up for the 2020-21 cohort
- For the 2020-21 cohort, planning to catch-up missed doses in grades 1-3 first, followed by grades 6-8



## **Thanks to:**

- Hannah Sell, MSc (Epidemiology) student, U of Alberta
- Ali Assi, COVImm Project Coordinator
- The entire COVImm study team



**Shannon MacDonald PhD, RN**  
Lead investigator: Aimm Research Program



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