SPEAKER: DISCLOSURES

Calgary Zone
webinar series
Mental health
& hot topics

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Disclosures

- **Advisory board or equivalent (all volunteer):**
  - Leadership Group, www.COVID19ImmunityTaskForce.ca
  - Alberta Advisory Committee on Immunizations
  - University of Calgary COVID-19 Analytic and Strategy Group
  - Data Safety Monitoring Board VIDO-InterVac COVID-19 vaccine trials
- **Grants:** ***All funding contracted through and paid to University of Calgary to support research operations, no funding to investigator***
  - Granting agencies: CIHR, Genome Alberta, Alberta Children's Hospital Foundation
  - Pharmaceutical companies: Moderna (COVID-19 vaccine clinical trial), Pfizer (pneumococcal surveillance grant), Merck (pneumococcal vaccine clinical trial),
    GSK (rotavirus & meningococcous vaccine clinical trials)

Quick Hits Infectious Diseases: Monkeypox, COVID-19, Influenza, Childhood Vaccines

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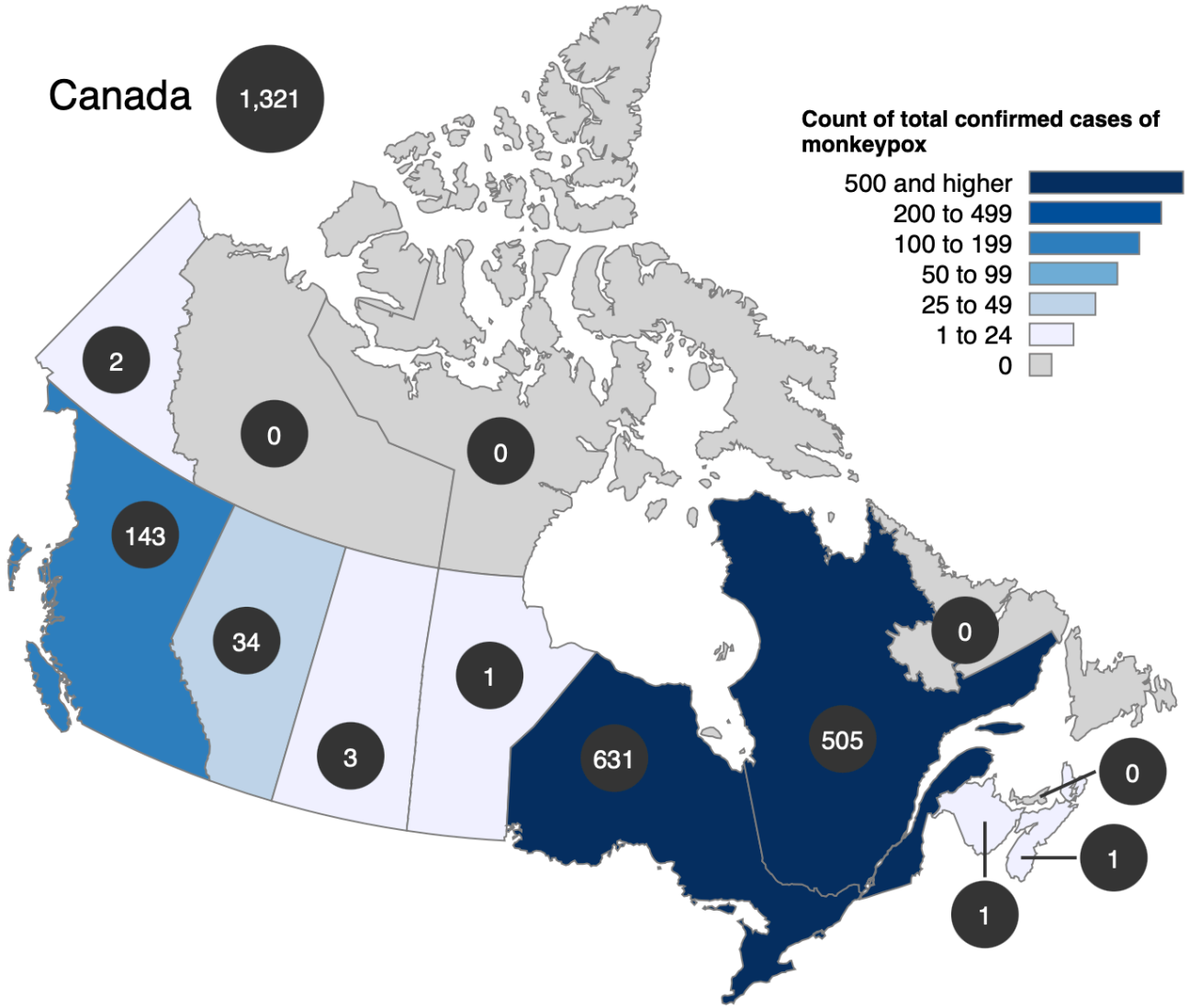
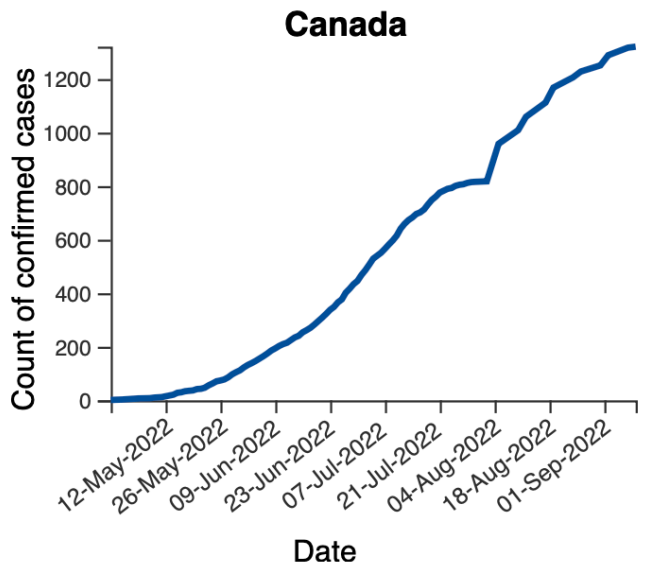
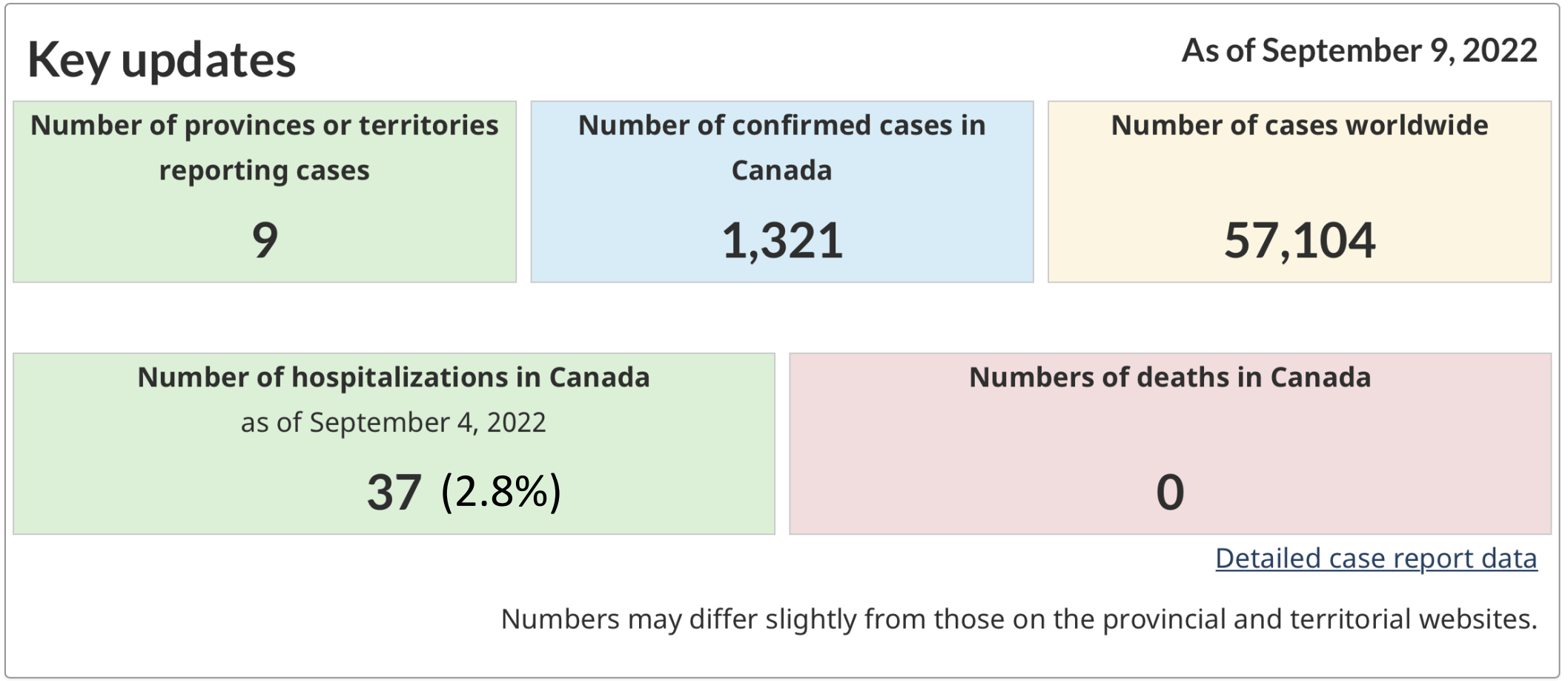
Total count of confirmed cases of monkeypox by province or territory (Last data update September 9, 2022)



The total count of confirmed cases of monkeypox in **Canada** was **1,321** as of **September 9, 2022**.



https://www.canada.ca/en/public-health/services/diseases/monkeypox/outbreak-update.html#a1



NEJM Epi report on 528 infections April-June, 16 countries, 98% MSM

- 95% had rash and 2/3 had <10 lesions
- 5% given antiviral Rx, 13% hospitalized, no deaths

https://www.canada.ca/en/public-health/services/diseases/monkeypox.html, https://www.nejm.org/doi/pdf/10.1056/NEJMoa2207323?articleTools=true

Monkeypox Basics: 1

- Disease caused by infection with monkeypox virus, which is a DNA poxvirus related to variola virus (smallpox)
- Smallpox vaccines have shown to offer protection against monkeypox
- First discovered in 1958 – 2 outbreaks of pox-like disease occurred in research monkeys, 1st human case in 1970 in Democratic Republic of the Congo & now endemic in several western African nations
- Natural reservoir unknown – ? rodents or non-human primates
- Periodic reports of cases outside of Africa in recent years
- Current multinational outbreak caused by **Clade IIb (aka Clade 3 B.1)**, which typically causes less severe disease than Clade I
  - Previously Congo Basin (Clade I) & West African (Clade II, III, with subclades)

https://www.cidrap.umn.edu/monkeypox/about-monkeypox Sep11, 2022, https://onlinelibrary.wiley.com/doi/epdf/10.1002/jmv.28036

*Monkeypox Basics: 2

- Usually mild illness & resolves without treatment, but recovery may several weeks, severe illness can occur in some individuals
- Risk for the general public, including children, is low, no monkeypox cases have been reported among children in Canada so far
- Symptoms can develop 5 to 21 days after exposure, variable and not always in order but generally begin with:
  - Fever, chills, lymphadenopathy, headache, muscle pain, joint pain, back pain, exhaustion
  - Complications include bacterial superinfection, corneal infection, sepsis, pneumonia, encephalitis, death
- Rash may appear 1-3 days after fever starts, starting on face and then spreading elsewhere
  - The rash may occur without flu-like symptoms or flu-like symptoms may occur after the rash appears. Rash can involve mucous membranes in mouth, tongue and genital area, palms and soles
  - Infectious rash can last for 2 - 4 weeks and goes through different before the scabs fall off
- Transmission
  - Direct physical contact, including sexual contact, and contact with monkeypox skin lesions or scabs
  - Prolonged exposure to respiratory droplets of an individual infected with monkeypox
  - Contact with contaminated materials used by an infected person, such as clothing, bedding or towels
  - Transmission can occur from the time symptoms start until the scabs fall off and new skin can be seen, usually 2 to 4 weeks. Scabs contain virus that can spread the illness to others and should be carefully disposed of

www.alberta.ca/monkeypox-virus.aspx, https://ipac-canada.org/monkey-pox, www.canada.ca/en/public-health/services/diseases/monkeypox/health-professionals.html

*Monkeypox Basics: 3

With permission from CMAJ

With permission from UK Health Security Agency

www.canada.ca/en/public-health/services/diseases/monkeypox/health-professionals.html

Monkeypox Extra: Case definitions

Suspected case

- A person of any age who presents with one or more of the following:
  - An unexplained acute rash AND has at least one of the following signs or symptoms
  - Headache, Acute onset of fever (>38.5°C), Lymphadenopathy (swollen lymph nodes), Myalgia (muscle and body aches), Back pain, Asthenia (profound weakness)
- An unexplained acute genital, perianal or oral lesion(s)

Probable case

- A person of any age who presents with an unexplained acute rash or lesion(s) **AND**
- Has one or more of the following:
  - Has an epidemiological link to a probable or confirmed monkeypox case in the 21 days before symptom onset, such as
    - Face-to-face exposure, including health workers without appropriate personal protective equipment (PPE)
    - Direct physical contact, including sexual contact; or contact with contaminated materials such as clothing or bedding
  - Reported travel history to or residence in a location where monkeypox is reported in the 21 days before symptom onset

Confirmed case

- A person who is laboratory confirmed for monkeypox virus by detection of unique sequences of viral DNA either by real-time polymerase chain reaction (PCR) and/or sequencing

www.canada.ca/en/public-health/services/diseases/monkeypox/health-professionals/national-case-definition.html

*Monkeypox Testing in Alberta

- Testing is recommended for individuals of all genders, presenting with **acute rash or ulcers** with or without systemic symptoms (fever, headache, myalgia, arthralgia, back pain, or lymphadenopathy) **AND** in the **last 21 days** had **one or more** of the following risk factors:
  - Sexual contact with new, anonymous or multiple partner(s)
  - Sexual contact with a person(s) who had sexual contact with new, anonymous or multiple partner(s)
  - Significant contact with a person who had skin lesions such as macules, papules, pustules, vesicles, or ulcers with no known alternate cause
  - Contact with a known or probable case of monkeypox
- This criteria should guide clinical decision-making regarding patients presenting to primary care providers, specific to **monkeypox testing**. It is also important to consider **testing for common causes of acute rash** including *varicella zoster, herpes zoster, herpes simplex, syphilis, chancroid, lymphogranuloma venereum, and enteroviruses (e.g., hand-foot-and-mouth disease).* Co-infection is also possible, and therefore Monkeypox testing should be considered in addition to testing for other pathogens in clients with atypical symptoms.
- For individuals without the risk factors above, Monkeypox testing may be indicated once more common causes of acute rash have been ruled out. Consultation with the Virologist on Call is required.

https://www.albertahealthservices.ca/topics/Page18087.aspx, Sep 11, 2022

Monkeypox Testing IP&C Considerations

- If suspecting a patient with monkeypox
- **Provide patient with a surgical / procedure mask & place them in a separate room with the door closed. Mask should be worn by patient for the duration of the appointment.**
- Person-to-person transmission primarily occurs via large respiratory droplets and/or direct contact with infective lesions or material, with theoretical risk of airborne transmission. *But, other infections spread by airborne route that could have similar rash presentations as monkeypox.*
  - If measles or varicella (specifically primary infection/chickenpox, disseminated shingles, or localized shingles in an immunocompromised individual) or other airborne infections **are** included in the differential diagnosis use Airborne Precautions with or without Contact / Contact and Droplet precautions as indicated.
  - Healthcare workers must use a fit tested N95 respirator.
  - After the patient leaves: Air clearance time (i.e., "settle time") required. The room should remain empty with the door closed for 2 hours and then use routine cleaning/disinfection protocols.

https://www.albertahealthservices.ca/topics/Page18087.aspx, Sep 11, 2022

*Monkeypox Testing IP&C Considerations

- If measles or varicella or other airborne infections (i.e., other than Monkeypox) **are NOT** part of the differential diagnosis, then use Modified Respiratory Precautions (N95, eye protection, gown, gloves)

- After the patient leaves: Air clearance time not required
  Routine Practices include cleaning and disinfection of surfaces, and appropriate linen handling, between patients. Do not shake linens when changing.

https://www.albertahealthservices.ca/topics/Page18087.aspx, Sep 11, 2022

Monkeypox Virus (MPXV) Testing Alberta

- Testing for MPXV is available through the Public Health Laboratory (ProvLab) in Alberta.
- Preferred method of diagnosis of MPXV infection:
  - Collect swabs of the fluid/purulent material contained within the skin lesions after deroofing the lesion
  - Collect separate swabs from at least 3 different skin lesions to optimise yield
  - Use the same collection kit that is used for herpes simplex (HSV) / varicella zoster (VZV) skin lesion testing *(Viral locked swab placed in Universal Transport Media (UTM) (red top tube with pink-coloured liquid)*
- At present, clinicians should consult with the Virologist-on-call (VOC) for all suspected cases of MPXV before ordering testing. Approval from the Medical Officer of Health (MOH) on call is no longer required

www.albertahealthservices.ca/assets/wf/lab/if-lab-hp-bulletin-monkeypox-virus-mpxv-testing-updated-from-2022-07-18.pdf, Aug 18, 2022

*Monkeypox Prevention

- **Imvamune** non-replicating smallpox vaccine authorized for use in Canada for active immunization against smallpox, monkeypox and related Orthopoxvirus infections and disease in adults ≥18 yrs at high risk for exposure
- **NACI discretionary recommendations for:**
  - post-exposure prophylaxis ≤14 d post-exposure), with 2nd dose if ongoing exposure; pre-exposure prophylaxis (occupational); & special populations (including immunocompromised, pregnant, lactating, children, severe eczema)
- **Alberta eligible populations:**
  - Transgender, cisgender or two-spirit individuals who self-identify as belonging to the gay, bisexual and other men who have sex with men (gbMSM) community and who meet at least one of the following criteria:
    - have received a recent (in the last 6 months) diagnosis of a sexually transmitted infection
    - are planning to have, or in the past 90 days had, sex outside of a mutually monogamous relationship
    - have attended venues for sexual contact within the past 90 days (for example bath houses, sex clubs) or may be planning to, or who work/volunteer in these settings
  - Any sexual contacts of the individuals described above
  - Staff and volunteers in a social setting or venue or event where sexual activities between men (individuals described above) may take place

www.alberta.ca/monkeypox-virus.aspx, NACI Rapid Response Aug 3, 2022

Monkeypox Drug Treatment

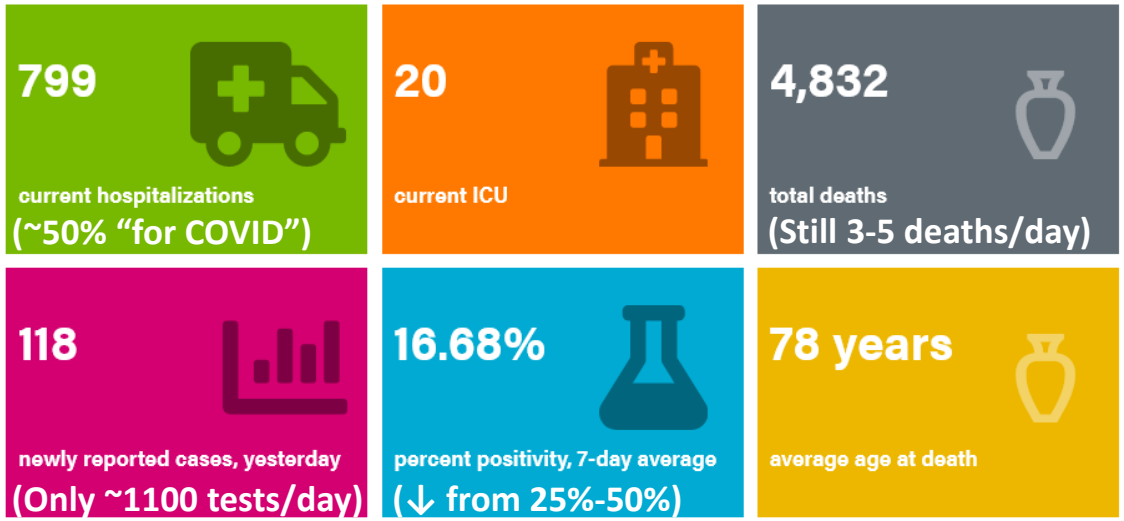
- Existing drugs for smallpox
  - TPOXX (tecovirimat) is an oral antiviral agent indicated for the treatment of human smallpox disease in adults & children weighing at least 13 kg
  - No Health Canada indication for monkeypox but is available in limited amounts for emergency release
- Other possible drugs:
  - Brincidofovir (Tembexa) antiviral, may become available in Canada
  - Cidofovir (CMV antiviral) – no human data but *in vitro* & animal data
  - Vaccinia Immune Globuline IV (VIGIV) use for severe smallpox vaccine reactions

https://www.publichealthontario.ca/-/media/Documents/M/2022/wwksf-multi-jurisdictional-monkeypox-outbreak-2022.pdf?sc_lang=en

Is the COVID-19 Pandemic Over?

- **Personal / Societal**
- *"The definition of a pandemic is that it changes how you live, work or play"*
  - Dr. Paul Offit, Director Vaccine Education Center, Children's Hospital of Philadelphia

- **Epidemiological** – Alberta Sep 5, 2022



- Wastewater levels generally low right now
- Globally, most measures much lower than peaks, but COVID-19 not eliminated
- Few ongoing efforts to reduce transmission – e.g., masking, isolated, ↓ gatherings

What Should We Still Do vs COVID-19?

- **High Risk Citizens**
- **Vaccinations**
  - Lower uptake of boosters in Alberta
  - **2 doses 87%** (12+ y, 37% 5-11y), **3 doses 46%** (12+), **4 doses 11%**
- **Drug and Biological Therapy**
  - Paxlovid
    - Oral antiviral, 18+ yrs, high risk non-hospitalized, given early in course of illness, x 5 days, ~90% effective to prevent progression
  - Remdesivir
    - IV antiviral, 12+ yrs (but can give to infants), high risk non-hospitalized or early hospitalized on O2, daily x 5-10 days, ~90% effective to prevent progression
  - Evusheld
    - IM monoclonal Ab, 12+ yrs, immunocompromised, not vaccinated or no response to vaccine, potentially Q6 months, ~75% effective to prevent COVID-19
- **Masking**
  - Good evidence that masks (any mask) protect both those wearing masks from others as well as others from those wearing masks, magnitude of benefit 15-50% to reduce COVID-19 vs no mask

www.albertahealthservices.ca/topics/Page17753.aspx, www.alberta.ca/stats/covid-19-alberta-statistics.htm#vaccinations, www.acpjournals.org/doi/10.7326/L22-0272

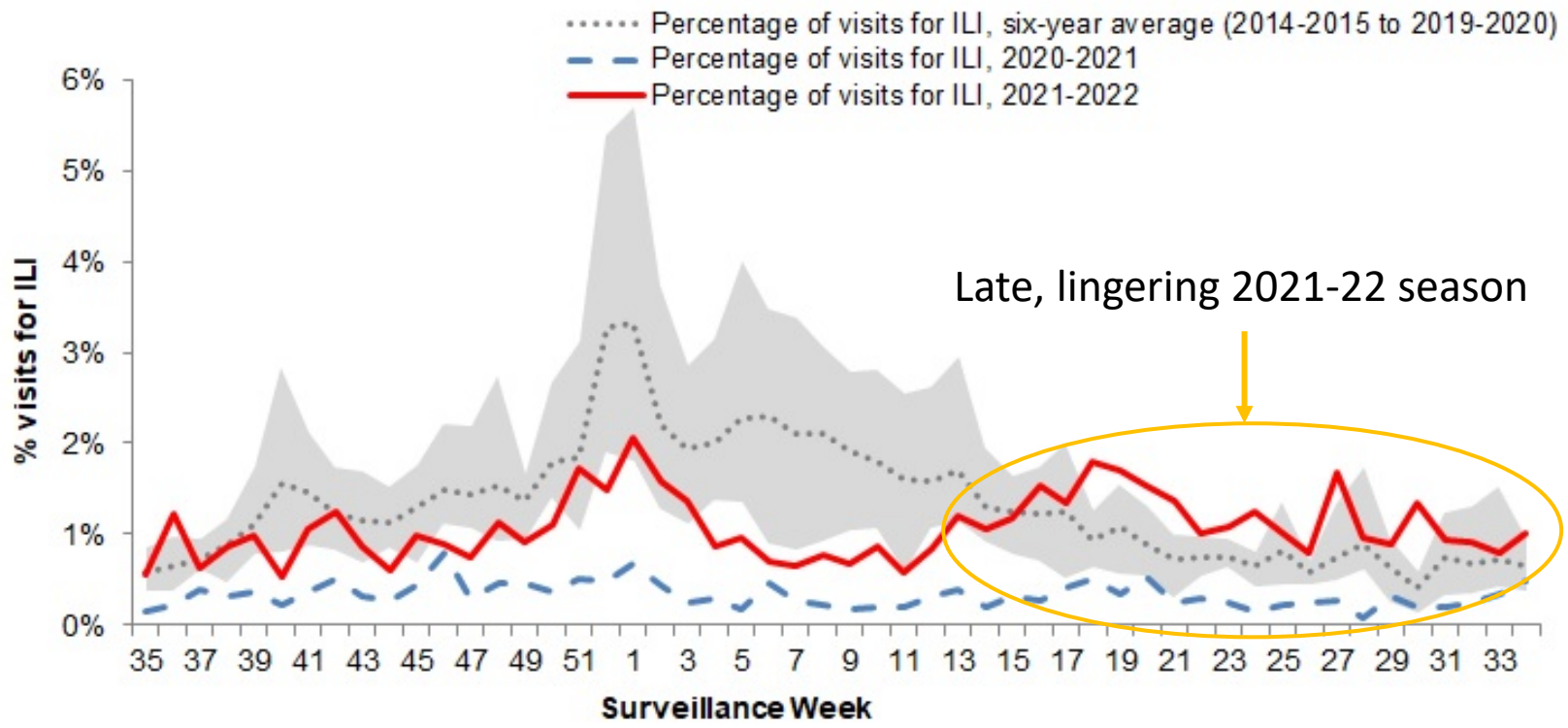
COVID-19 Vaccines in Alberta

- First doses available to children 6 months – 4 years
- First booster (3rd dose) available to everyone 12+ years and younger children with high risk conditions
- Second booster (4th dose) available to everyone 18+ years
- **Autumn Boosters** – NACI recommendations made, AB pending
  - Booster **should be offered** to all 65 y+ and 12+ at increased risk, regardless of prior doses, as short as 3 months since last dose, **may be offered** to all others 12-64 y,
  - Give booster 6 months after last dose, or as little as 3 months if COVID-19 surging and/or program timing warrants it
  - Co-administration with Influenza Vaccine okay
  - Monovalent vs Bivalent (Ancestral& BA.1 vs Ancestral&BA.4/5)

www.alberta.ca/covid19-vaccine.aspx, NACI Interim guidance on planning considerations for a fall 2022 COVID-19 vaccine booster program in Canada

How bad will the flu season be in Canada in 2022-23?

Percentage of visits for ILI reported by **sentinel sites**, Canada, weeks 2021-35 to 2022-34

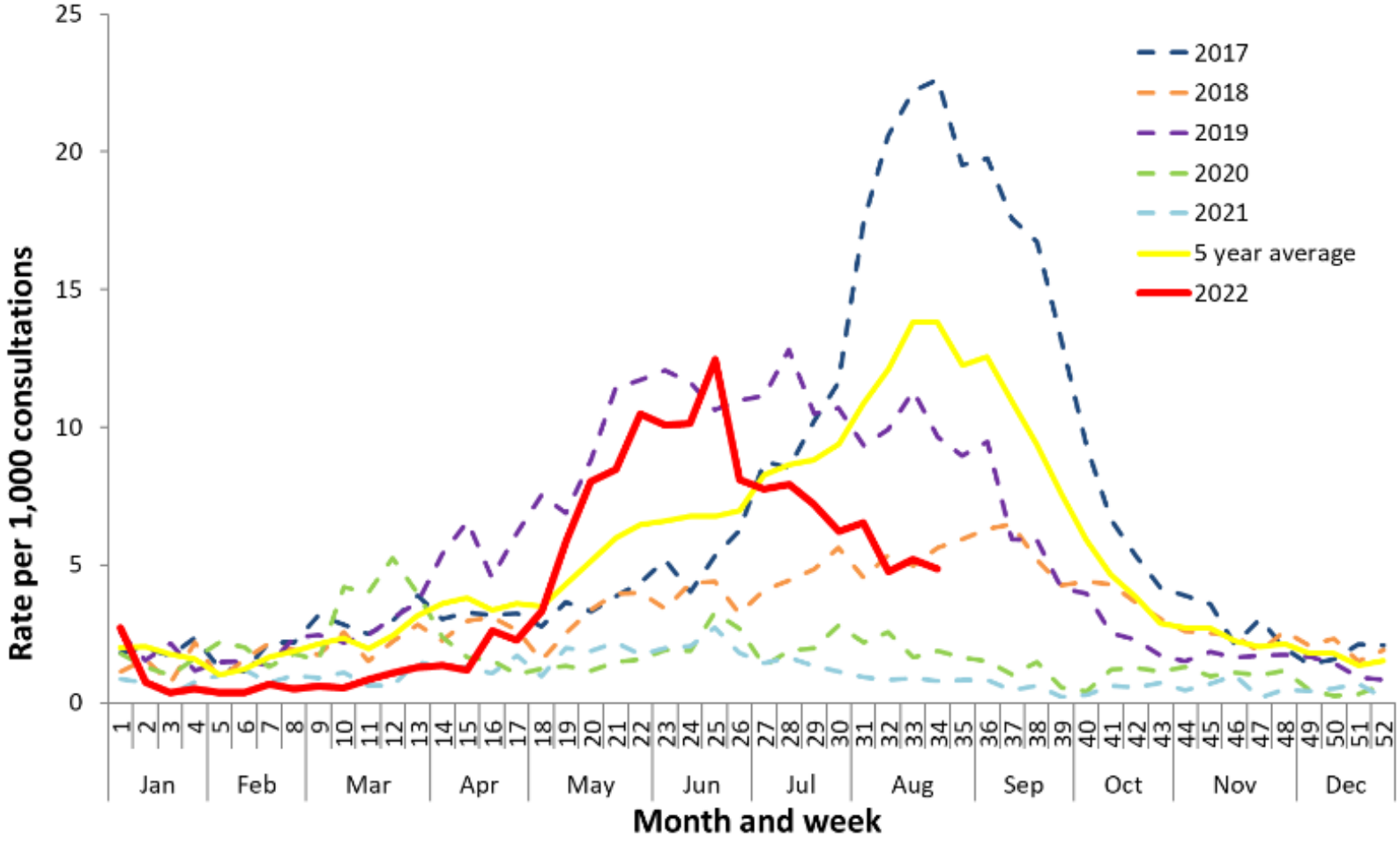


www.canada.ca/en/public-health/services/publications/diseases-conditions/fluwatch/2021-2022/weeks-30-34-july-24-august-27-2022.html,

How bad will the flu season be in Canada in 2022-23?

- What can we learn from Australia?

Percentage of visits for ILI reported by **sentinel sites**, ***Australia***, weeks 2017 – 2022



- Lower than usual flu vaccine uptake
- Assessment of flu impact in 2022: *"The impact for the season to date… is low to moderate."*

www1.health.gov.au/internet/main/publishing.nsf/Content/cda-surveil-ozflu-flucurr.htm#current

Childhood Immunization in Alberta

- Overall vaccine uptake for Alberta infants, toddlers and school age children is good not great
  - Initial timeliness is lower than other jurisdictions, eventual catchup is better
- Some decrease in vaccine uptake in 2020 and 2021
  - ~2-5% lower for most metrics at most ages, especially eventual metrics e.g., 2nd dose of varicella by age 7 years
- Risk of missing catchup windows in community health centres and schools