COVID-19 Community of Practice for Ontario Family Physicians

May 27, 2022

Dr. Jeff Kwong
Dr. Gerald Evans
Dr. Daniel Warshafsky

Vaccine effectiveness, Monkeypox, and more
Vaccine effectiveness, Monkeypox, and more

Moderator: Dr. Tara Kiran

Fidani Chair, Improvement and Innovation
Department of Family and Community Medicine, University of Toronto

Panelists:
• Dr. Jeff Kwong, Toronto, ON
• Dr. Gerald Evans, Kingston, ON
• Dr. Daniel Warshafsky, Toronto, ON

The COVID-19 Community of Practice for Ontario Family Physicians is a one-credit-per-hour Group Learning program that has been certified for up to a total of 32 credits.
Land Acknowledgement

We acknowledge that the lands on which we are hosting this meeting include the traditional territories of many nations.

The OCFP and DFCM recognize that the many injustices experienced by the Indigenous Peoples of what we now call Canada continue to affect their health and well-being. The OCFP and DFCM respect that Indigenous people have rich cultural and traditional practices that have been known to improve health outcomes.

I invite all of us to reflect on the territories you are calling in from as we commit ourselves to gaining knowledge; forging a new, culturally safe relationship; and contributing to reconciliation.
Sudbury, Ont., doctors’ animated videos encourage early cancer screening for Indigenous adults

Dr. Erin Peltier, Family Physician, Regional Indigenous Cancer Lead, Northeast Regional Cancer Program

Changing the way we work

A community of practice for family physicians during COVID-19

At the conclusion of this series participants will be able to:

- Identify the current best practices for delivery of primary care within the context of COVID-19 and how to incorporate into practice.
- Describe point-of-care resources and tools available to guide decision making and plan of care.
- Connect with a community of family physicians to identify practical solutions for their primary care practice under current conditions.

Disclosure of Financial Support

This CPD program has received in-kind support from the Ontario College of Family Physicians and the Department of Family and Community Medicine, University of Toronto in the form of logistical and promotional support.

Potential for conflict(s) of interest:

N/A

Mitigating Potential Bias

- The Scientific Planning Committee has full control over the choice of topics/speakers.
- Content has been developed according to the standards and expectations of the Mainpro+ certification program.
- The program content was reviewed by a three-member national/scientific planning committee.

Planning Committee: Dr. Tara Kiran (DFCM), Dr. Elizabeth Muggah (OCFP); Kimberly Moran (OCFP) and Mina Viscardi-Johnson (OCFP)

Previous webinars & related resources:
https://www.dfcm.utoronto.ca/covid-19-community-practice/past-sessions
Dr. Jeff Kwong – Panelist
Twitter: @DrJeffKwong
Epidemiologist, Family Physician, Toronto Western Family Health Team

Dr. Gerald Evans – Panelist
Infectious Disease Specialist and Chair of the Division of Infectious Diseases, Queen’s University

Dr. Dan Warshafsky – Panelist
Senior Medical Consultant at the Office of the Chief Medical Officer of Health
**Dr. David Kaplan – Co-Host**  
Twitter: @davidkaplanmd  
Family Physician, North York Family Health Team and Vice President, Quality, Ontario Health

**Dr. Liz Muggah – Co-Host**  
Twitter: @OCFP_President  
OCFP President, Family Physician, Bruyère Family Health Team
Speaker Disclosure

• Faculty Name: **Dr. Jeff Kwong**
  • Relationships with financial sponsors: ICES; Public Health Ontario; DFCM, University of Toronto;
    • Grants/Research Support: CIHR; Health Canada; US Centres for Disease Control and Prevention
    • Speakers Bureau/Honoraria: Ontario College of Family Physicians
    • Others: N/A

• Faculty Name: **Dr. Gerald Evans**
  • Relationships with financial sponsors: N/A
    • Grants/Research Support: N/A
    • Speakers Bureau/Honoraria: N/A
    • Others: Ontario Covid-19 Science Advisory Table

• Faculty Name: **Dr. Daniel Warshafsky**
  • Relationships with financial sponsors: N/A
    • Grants/Research Support: N/A
    • Speakers Bureau/Honoraria: N/A
    • Others: N/A
Speaker Disclosure

• Faculty Name: **Dr. David Kaplan**
  
  Relationships with financial sponsors:
  • Grants/Research Support: N/A
  • Speakers Bureau/Honoraria: Ontario College of Family Physicians
  • Others: Ontario Health (employee)

• Faculty Name: **Dr. Liz Muggah**
  
  Relationships with financial sponsors:
  • Grants/Research Support: N/A
  • Speakers Bureau/Honoraria: Ontario College of Family Physicians
  • Others: N/A

• Faculty Name: **Dr. Tara Kiran**
  
  Relationships with financial sponsors:
  • Grants/Research Support: St. Michael’s Hospital, University of Toronto, Health Quality Ontario, Canadian Institute for Health Research, Ontario Ministry of Health, Gilead Sciences Inc (re: Hepatitis C), Staples Canada (re: Patient Engagement)
  • Speakers Bureau/Honoraria: Ontario College of Family Physicians, Ontario Medical Association, Doctors of BC, Nova Scotia Health Authority, Osgoode Hall Law School, Centre for Quality Improvement and Patient Safety, Vancouver Physician Staff Association, University of Ottawa, Ontario Health, Canadian Medical Association
Outline for Today
How to Participate

• All questions should be asked using the Q&A function at the bottom of your screen.

• Press the thumbs up button to upvote another guest’s questions. Upvote a question if you want to ask a similar question or want to see a guest’s question go to the top and catch the panel’s attention.

• Please use the chat box for networking purposes only.
Dr. Jeff Kwong – Panelist  
Twitter: @DrJeffKwong  
Epidemiologist, Family Physician, Toronto Western Family Health Team

Dr. Gerald Evans – Panelist  
Infectious Disease Specialist and Chair of the Division of Infectious Diseases, Queen’s University

Dr. Dan Warshafsky – Panelist  
Senior Medical Consultant at the Office of the Chief Medical Officer of Health
VE in adolescents and children

Jeff Kwong
May 27, 2022
OCFP-DFCM CoP
VE in adolescents (12-17)  (Nov 22, 2021 to Mar 6, 2022)

Large Omicron waves in 2022, especially for those aged 5-11 years

Vaccine coverage, 5-11 years in ON

66% had a dosing interval of ≥56 days.
Only 4% had a dosing interval of 15-27 days.

VE in children (5-11) (Jan 2 to Apr 30, 2022)

A. Symptomatic infection

<table>
<thead>
<tr>
<th>Days after dose 2</th>
<th>Vaccine effectiveness (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥14 days after dose 1</td>
<td>15 ± 5</td>
</tr>
<tr>
<td>0-6</td>
<td>34 ± 5</td>
</tr>
<tr>
<td>≥7</td>
<td>47 ± 5</td>
</tr>
</tbody>
</table>

B. Severe outcomes

<table>
<thead>
<tr>
<th>Days after dose 2</th>
<th>Vaccine effectiveness (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥14 days after dose 1</td>
<td>66 ± 10</td>
</tr>
<tr>
<td>0-6</td>
<td>87 ± 10</td>
</tr>
<tr>
<td>≥7</td>
<td>87 ± 10</td>
</tr>
</tbody>
</table>
VE wanes over time

A. Symptomatic infection

<table>
<thead>
<tr>
<th>Days after dose 1</th>
<th>Days after dose 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-29</td>
<td>30-59</td>
</tr>
<tr>
<td>25%</td>
<td>18%</td>
</tr>
</tbody>
</table>

B. Severe outcomes

<table>
<thead>
<tr>
<th>Days after dose 1</th>
<th>Days after dose 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-29</td>
<td>30-59</td>
</tr>
<tr>
<td>92%</td>
<td>86%</td>
</tr>
</tbody>
</table>

Research in progress
VE varies by dosing interval

Research in progress
VE over time, by dosing interval

Research in progress
COVID-19 Update
May 27, 2022
Ontario 7-Day Running Average of New Cases/Day

- 1,720 on 15-Mar
- 3,591 on 19-Apr
- 995 on 24-May
Effective Reproduction Number R(t) in Ontario

All Variants Combined
(After Dec 23, 2021, R(t) Cannot be Estimated Accurately)
Ontario COVID-19 Hospital Occupancy by Bed Type

- ICU
- Ward
Smoothed (7-Day) Running Average Ontario COVID-19 Hospital & ICU Occupancy

Hospital

ICU
Smoothed (7-Day) Running Average Ontario COVID-19 Hospital & ICU Occupancy

- Hospital
- ICU

Dates:
- 1 Jan 22
- 8 Jan 22
- 15 Jan 22
- 22 Jan 22
- 29 Jan 22
- 5 Feb 22
- 12 Feb 22
- 19 Feb 22
- 26 Feb 22
- 5 Mar 22
- 12 Mar 22
- 19 Mar 22
- 25 Mar 22
- 2 Apr 22
- 9 Apr 22
- 16 Apr 22
- 23 Apr 22
- 30 Apr 22
- 7 May 22
- 14 May 22
- 21 May 22

Occupancy Levels:
- Hospital: 4,025 (max) 992
- ICU: 580 (max) 126
Surrogate Markers for Predicting COVID-19 Trend

- Outbreak numbers
- Test positivity
- Wastewater detection
Ontario Provincial COVID-19 Test Positivity
SARS-CoV-2 RNA in Ontario Wastewater
Ontario Wastewater Testing – May 18, 2022
Current Ontario Predictors

- Outbreak numbers
- Test positivity
- Wastewater detection
Vaccination
COVID-19 Vaccine – 4th Dose
Efficacy of a 4th Dose of COVID-19 mRNA Vaccine against Omicron – Healthy HCWs

• Israeli study in 1,050 HCWs assessing a 4th dose of either Pfizer–BioNTech or Moderna given 4 months after a 3rd dose

• VE to prevent any infection was:
  • 30% (95%CI -9-55) for Pfizer and
  • 11% (95%CI -43-44) for Moderna

Source: G Regev-Yochay et al NEJM 2022; DOI: 10.1056/NEJMc2202542
Efficacy of a 4th Dose of COVID-19 mRNA Vaccine against Omicron – Healthy HCWs

• VE for prevention of symptomatic infection was higher at 43% for Pfizer and 31% for Moderna
• Almost all infected HCWs who received a 4th dose reported negligible symptoms
• A 4th dose of mRNA vaccine is immunogenic, safe, and efficacious primarily against symptomatic disease

Source: G Regev-Yochay et al NEJM 2022; DOI: 10.1056/NEJMc2202542
Vaccination Reduces Transmission

SARS-CoV-2 Viral load value by COVID-19 Vaccination status over time

- The beige dots reflect each observation in the study sample
- The error bars reflect average log_{10} viral load values and associated 95% confidence intervals
- Random jittering was applied along the horizontal axis for visual clarity

Third Doses | Overall progress
As of May 8, 2022

Third doses to people 12+

<table>
<thead>
<tr>
<th>Age Group</th>
<th>% people 12+ with dose 3</th>
<th>New Dose 3 last 7 days</th>
<th>People 12+ with 3 doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>12+</td>
<td>56.7%</td>
<td>17,590</td>
<td>7,328,929</td>
</tr>
</tbody>
</table>

Percentage point Increase last 7 days

<table>
<thead>
<tr>
<th>Age Group</th>
<th>% increase last 7 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>12+</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

Daily Dose 3 (7-day avg)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Daily Dose 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>12+</td>
<td>2,513</td>
</tr>
</tbody>
</table>

People remaining

<table>
<thead>
<tr>
<th>Age Group</th>
<th>People remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>12+</td>
<td>5,603,542</td>
</tr>
</tbody>
</table>

Third doses | by age group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>% Dose 3</th>
<th>Percentage point Increase last 7 days</th>
<th>New Dose 3 last 7 days</th>
<th>Daily Dose 3 (7-day avg)</th>
<th>People remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>70+</td>
<td>89.1%</td>
<td>0.2</td>
<td>2,953</td>
<td>422</td>
<td>195,544</td>
</tr>
<tr>
<td>50to69</td>
<td>70.2%</td>
<td>0.1</td>
<td>4,601</td>
<td>657</td>
<td>1,135,973</td>
</tr>
<tr>
<td>18to49</td>
<td>45.7%</td>
<td>0.1</td>
<td>8,338</td>
<td>1,191</td>
<td>3,463,640</td>
</tr>
<tr>
<td>12to17</td>
<td>15.9%</td>
<td>0.2</td>
<td>1,698</td>
<td>243</td>
<td>808,385</td>
</tr>
</tbody>
</table>
Fourth Doses | Overall progress
As of May 8, 2022

Fourth doses to people 60+

<table>
<thead>
<tr>
<th>Age Group</th>
<th>% Dose 4</th>
<th>New Dose 4 last 7 days</th>
<th>People 60+ with 4 doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>60+</td>
<td>20.7%</td>
<td>123,246</td>
<td>734,238</td>
</tr>
<tr>
<td></td>
<td>3.5%</td>
<td>17,607</td>
<td>2,821,363</td>
</tr>
</tbody>
</table>

Fourth doses | by age group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>% Dose 4</th>
<th>Percentage point Increase last 7 days</th>
<th>New Dose 4 last 7 days</th>
<th>Daily Dose 4 (7-day avg)</th>
<th>People remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>80+</td>
<td>36.5%</td>
<td>4.5</td>
<td>29,547</td>
<td>4,221</td>
<td>416,474</td>
</tr>
<tr>
<td>70 to 79</td>
<td>25.4%</td>
<td>4.7</td>
<td>53,230</td>
<td>7,604</td>
<td>846,395</td>
</tr>
<tr>
<td>60 to 69</td>
<td>11.7%</td>
<td>2.3</td>
<td>40,469</td>
<td>5,781</td>
<td>1,558,494</td>
</tr>
</tbody>
</table>
Children 5 to 11 | First & Second dose progress
As of May 8, 2022

**Provincial 1st Dose Progress age 5-11**

- % people 5 to 11 with at least 1 dose: 56.4%
- New Dose 1 last 7 days: 1,079
- People 5 to 11 with at least one dose: 608,035
- Percentage point Increase last 7 days: 0.1%
- Daily Dose 1 (7-day avg): 154
- People 5 to 11 remaining: 470,492

**Provincial 2nd Dose Progress age 5-11**

- % people 5 to 11 with 2 doses: 35.6%
- New Dose 2 last 7 days: 2,828
- People 5 to 11 with 2 doses: 383,931
- Percentage point Increase last 7 days: 0.3%
- Daily Dose 2 (7-day avg): 404
- People 5 to 11 remaining: 694,596

**Data Source(s):** SAS VA Tool, COVax analytical file, extracted daily at 8:00 pm, CPAD, MOH. Note: analytical file has been processed for data quality checks and results may differ from the COVax live data system. Population Estimates 2020, Statistics Canada, CCM Cases Data, OLIS Testing File, CCSO ICU File.
### Provincial Overview: Immunocompromised Populations

**As of April 24, 2022**

<table>
<thead>
<tr>
<th>Category</th>
<th>Total Population (5+, non-LTCH)</th>
<th># with no doses</th>
<th># With 1&lt;sup&gt;st&lt;/sup&gt; dose only</th>
<th># With 1&lt;sup&gt;st&lt;/sup&gt; and 2&lt;sup&gt;nd&lt;/sup&gt; doses only</th>
<th># with 1&lt;sup&gt;st&lt;/sup&gt;, 2&lt;sup&gt;nd&lt;/sup&gt; and 3&lt;sup&gt;rd&lt;/sup&gt; doses only</th>
<th># with 4&lt;sup&gt;th&lt;/sup&gt; doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunocompromised *</td>
<td>283,510</td>
<td>24,258</td>
<td>3,992</td>
<td>51,661</td>
<td>156,019</td>
<td>47,580</td>
</tr>
<tr>
<td>Other treatment causing immunosuppression</td>
<td>146,292</td>
<td>7,990</td>
<td>1,207</td>
<td>19,028</td>
<td>85,204</td>
<td>32,863</td>
</tr>
<tr>
<td>Hematological malignancy diagnosed &lt; 1 yearago</td>
<td>18,585</td>
<td>1,160</td>
<td>283</td>
<td>2,850</td>
<td>9,421</td>
<td>4,871</td>
</tr>
<tr>
<td>Chronic kidney disease (with recent receipt of dialysis)</td>
<td>9,968</td>
<td>653</td>
<td>126</td>
<td>1,304</td>
<td>5,322</td>
<td>2,563</td>
</tr>
<tr>
<td>Solid organ transplant recipients</td>
<td>19,206</td>
<td>1,613</td>
<td>199</td>
<td>2,633</td>
<td>8,250</td>
<td>6,511</td>
</tr>
<tr>
<td>Hematopoetic stem cell transplant recipients</td>
<td>8,059</td>
<td>753</td>
<td>128</td>
<td>1,254</td>
<td>3,902</td>
<td>2,022</td>
</tr>
<tr>
<td>Other immunocompromising health conditions</td>
<td>120,050</td>
<td>15,147</td>
<td>2,633</td>
<td>30,121</td>
<td>61,246</td>
<td>10,903</td>
</tr>
</tbody>
</table>

**Note:**
Immunocompromised * category is an aggregation of the 6 groups below it: Other treatment causing immunosuppression, Hematological Malignancy, Chronic Kidney Disease (with recent receipt of dialysis), Solid Organ Transplant, Hematopoietic Stem Cell Transplant, and Other immunocompromising health conditions.

**Data Sources:**
How many vaccine doses do I need?

Knowing how many doses of a COVID vaccine to get can be confusing. The number of doses you need depends on your age, whether you have a weakened immune system** and whether you live in a setting where you are at higher risk of getting COVID. In general, experts recommend:

- All children 5+ should get at least 2 doses;
- Teens at higher risk of getting COVID or of getting seriously ill from COVID should get at least 3 doses;
- All adults 18+ should get at least 3 doses;
- Adults 80+ and seniors living in congregate settings should get at least 4 doses;
- People who have a weakened immune system should get an extra dose.

Experts have also said that:
- 3 doses can be considered for all teens;
- 4 doses can be considered for First Nations, Inuit and Métis adults;
- 4 doses can be considered for adults 70–79.

Recommendations change as we learn more. Use the charts on the next page to figure out how many doses you can get in Ontario.
### COVID vaccine recommendations for people who do not have a weakened immune system**

<table>
<thead>
<tr>
<th>Age</th>
<th>Initial doses</th>
<th>First booster</th>
<th>Second booster</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
</tr>
<tr>
<td>5 - 11</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>12 - 17</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>18+ AND living in a group setting</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>18+ and First Nations, Inuit or Métis</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>18+ and live with someone who is First Nations, Inuit or Métis</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>18 - 59</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>60 - 79</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>80+</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

**For weakened immune system, please consult your healthcare provider for personalized recommendations.

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https://www.dfcm.utoronto.ca/confused-about-covid
**COVID vaccine recommendations for people who have a weakened immune system**

<table>
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<tr>
<th>Age</th>
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<th>First booster</th>
<th>Second booster</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 - 11</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>12 - 17</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>18+ and First Nations, Inuit or Métis</td>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>60 - 79</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>80+</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Do I need a COVID booster? When should I get it?

https://www.dfcm.utoronto.ca/confused-about-covid
Monkeypox 2022 Redux
Gerald A Evans, MD FRCPC
Professor & Chair, Division of Infectious Diseases
Queen’s University/Kingston Health Sciences Centre
Monkeypox

• Discovered in monkeys in a Danish research laboratory in 1958

• The first human case was identified in a child in the Democratic Republic of the Congo (DRC) in 1970
  • Since then monkeypox has been reported in 11 countries in Central and West Africa

• The DRC, Cameroon, Central African Republic and Nigeria recently experienced an outbreak involving more than 1,200 cumulative cases between Dec 2021 - May 2022, with at least 57 recorded deaths

• A 2003 outbreak in the U.S. is the only previous time monkeypox infections in humans have been documented outside of Africa
  • This outbreak of monkeypox occurred when a shipment of rodents from Ghana in west Africa, infected prairie dogs that were sold as pets
  • There were 47 confirmed or probable cases of reported from six states
Monkeypox Headlines in 2003

• Monkey-pox count at 37 in three Midwestern states – Seattle Times Tuesday, June 10, 2003

• RISING DEMAND FOR EXOTIC PETS BREEDS DANGER !!!! – National Enquirer, June 2003
Monkeypox – The Agent

• Monkeypox is a viral zoonotic disease caused by the monkeypox virus

• The monkeypox virus is a member of the family *Poxviridae* and the genus *Orthopoxvirus*, which includes variola virus (smallpox), and vaccinia virus (cowpox, used in the smallpox vaccine) making monkeypox related
  - While the reservoir host of monkeypox is still uncertain, it's thought that African rodents play a role in transmission

• Of the two clades of monkeypox referred to as the West African clade and Congo Basin clade, the former has a case fatality rate of up to 3.6% compared to the latter's 10.6%
  - Variola major, the severe form of smallpox, had a case fatality rate of 30%.

1. Mature, oval-shaped monkeypox virions, on left
2. Spherical immature virions, on right
African countries reporting human monkeypox cases 2010–2017

(Reproduced by permission of the World Health Organization, Geneva, Switzerland)
Monkeypox 2022

• As of May 26, 322 laboratory-confirmed cases, 35 suspected cases and 5 probable cases of monkeypox have been reported in 21 countries outside of Central and West Africa.

• These non-endemic countries are chiefly European, including UK, two Middle Eastern and one South American nation plus Australia, Canada and the U.S.

<table>
<thead>
<tr>
<th>Country</th>
<th>Confirmed</th>
<th>Probable</th>
<th>Suspected</th>
<th>Total</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>84</td>
<td>0</td>
<td>0</td>
<td>84</td>
<td>0</td>
</tr>
<tr>
<td>United Kingdom</td>
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Monkey Pox Transmission

• Monkeypox is not as easily spread between humans as was smallpox
  • Human-to-human transmission is thought to primarily occur through direct contact with body fluids or lesions

• Other means of transmission include:
  • Respiratory droplets/aerosols
  • Indirect contact with lesion material through contaminated clothing or bedding, also known as fomites

• Animal-to-human transmission may occur by bite or scratch, bush meat preparation, direct contact with body fluids or lesion material, or indirect contact with lesion material, such as through contaminated bedding
Monkeypox Isolation and IPAC Precautions

Isolation
- Private room or ideally, Airborne infection isolation room (AIIR) preferred
- Dedicate medical equipment and remove all non-essential items from the room
- Cover patient’s skin lesions with sheet or gown
- Post appropriate isolation signage (Contact & Aerosol precautions)

PPE
- Fit-tested & seal-checked N95 or equivalent respirator, hand hygiene, gown, gloves, and eye protection
- Post personnel at door to ensure PPE is donned and doffed appropriately
  - Doff and dispose of all PPE before leaving isolation room.
Monkypox Signs & Symptoms

• The incubation period from exposure to first symptoms is typically between 6-13 days, though it can range from 5-21 days

• The illness typically lasts for 2–4 weeks

• The infection itself can be divided into 2 stages:
  1. **An invasive stage**, with systemic symptoms similar to the flu
     • Invasive stage symptoms are generally non-specific and include:
       • Fever, intense headache, lymphadenopathy, myalgias and fatigue
  2. **A rash stage** characterized by skin eruptions
     • The rash that erupts during the 2nd stage is centrifugal, unlike varicella, which is centripetal, and evolves from macules & papules to vesicles and pustules
Monkeypox – Laboratory Testing (Ontario)

1. Contact PHO Customer Service (416-235-6556/1-877-604-4567) or after hours the on-call Duty Officer (416-605-3113) to consult prior to sample collection and shipment. PHO laboratory will provide the submitter with further direction regarding optimal sample collection methods and special transport requirements for monkeypox.

2. PHO will notify the patient’s local public health unit (PHU) of any suspected monkeypox infection pending testing as per CMOH order 77.6.

3. If other tests are requested, submit additional specimens as the specimens submitted for monkeypox virus testing will not be processed for additional tests. **Note: all other tests ordered for a patient being investigated for monkeypox, including those already received at PHO, will be put on hold until monkeypox virus testing is completed.**

4. Swab samples can be collected as a dry swab or added to a minimum volume of viral transport media (e.g. 1ml) to avoid excessive dilution of the sample. In situations where this collection method is not possible, utilization of currently available virus culture collection kits is accepted.

5. All specimens from a patient being investigated for monkeypox, **including specimens submitted for other tests**, should indicate on the requisition that this patient is suspected of having monkeypox.

Source: [https://www.publichealthontario.ca/en/laboratory-services/test-information-index/monkeypox-virus](https://www.publichealthontario.ca/en/laboratory-services/test-information-index/monkeypox-virus)
Diagnostic specimens for testing by stage of illness:

- Invasive stage: tonsillar tissue swab, nasopharyngeal swab, acute serum and whole blood
- Rash stage: sample >1 lesion from different locations on the body and different looking lesions
  - If macules & papules: tonsillar tissue swab, lesion biopsy, acute serum and whole blood
  - If vesicles or pustules: Lesion fluid, roof, or biopsy, electron microscopy grid, acute serum and whole blood
  - Scabs or crusts: lesion scab or crust, acute serum and whole blood
- Post rash: Convalescent serum
Monkeypox – Risk Factors & Outcomes

- Earlier studies found prior vaccination against smallpox is about 85% effective in preventing monkeypox
  - Since vaccination of the general public against smallpox came to an end in the 1970s in Canada individuals <50 years of age may be more susceptible to monkeypox
- Severe cases have occurred more commonly among children, relating to factors such as the extent of exposure, the patient's health status and any health complications
- It can also be severe in pregnant people and persons with immune suppression

Management of Contacts
- Evaluate people accompanying patient for symptoms
- Give them a separate waiting area, if possible.
- Identify and log persons potentially exposed to patient: staff, other patients, visitor
Monkeypox – Treatment & Prevention

Treatment

• No current treatment for monkeypox specifically, but the smallpox vaccine, or Vaccinia immune globulin (VIG) has been used along with experimental antivirals
  • No Canadian approved antivirals specific to monkeypox
  • In vitro and animal studies of cidofovir and brincidofovir have shown activity against multiple poxviruses
  • Tecovirimat (Tpoxx®), is FDA approved for treating smallpox in an oral and IV form and in the EU, tecovirimat is also indicated for monkeypox
    • It has been shown in animal studies to be effective in treating orthopoxvirus-induced disease, and human trials involving healthy subjects indicated the drug was safe and well tolerated with only minor side effects

Prevention

• A smallpox attenuated, live-virus vaccine Jynneos® (also known as Imvamune® or Imvanex®) is indicated for monkeypox
• Smallpox outbreaks were contained by “ring vaccination”, which involved identifying cases quickly, isolating close contacts, and vaccinating all contacts within 4 days of exposure, which usually prevents infection
Monkeypox
Bottom Line

KEEP CALM AND DON’T PANIC
Monkeypox Virus

May 27, 2022
As of May 26:

Globally:
- 226 confirmed cases in 21 countries, including:
  - UK - 78 confirmed cases
  - Spain - 51 confirmed cases
  - Portugal - 37 confirmed cases
  - US - 9 confirmed cases

Canada:
- 16 confirmed cases (QC)
- 1 confirmed case (ON)
Confirmed Case

- Laboratory confirmation of infection:
- Detection of monkeypox virus DNA by polymerase chain reaction (PCR) from an appropriate clinical specimen, OR
- Isolation of monkeypox virus in culture from an appropriate clinical specimen

Probable Case

- A new onset rash in keeping with monkeypox illness\(^1\), AND
- At least one (1) other acute sign or symptom of monkeypox illness\(^2\), AND
- Meets at least one (1) of the following epidemiological criteria within 21 days of their symptom onset:
  - High-risk exposure\(^3\) to a probable or confirmed human case of monkeypox, OR
  - A history of travel to a region that has reported confirmed cases of monkeypox, OR
  - A relevant zoonotic exposure

Suspect Case

- A new onset rash in keeping with monkeypox illness \(^1\) AND
- At least one (1) other acute sign or symptom of monkeypox illness \(^2\), AND
- An alternative diagnosis cannot fully explain the illness.
• MPX Virus Testing is currently done at the National Microbiology Laboratory in Winnipeg.

• Testing turn-around times currently take 24-48 hours once received.

• PHO is currently advising that because of IPAC considerations, plus current requirements for packaging and transport of the specimens, specimen collection ideally occurs at a healthcare facility with negative pressure ventilation and laboratory capabilities.

• For further information:
  • PHO Testing Information Sheet
  • PHO IPAC Recommendations for Monkeypox in Health Care Settings
• CMOH Order under HPPA to report cases to Public Health Ontario

• Healthcare providers will be required to complete a [Case Report Form](#).

• Local Public Health Units will conduct case and contact management.
Case and Contact Management of Monkeypox

• **Case Management:** self-isolation at home is indicated until the end of the period of communicability for MPX (until lesion scabs have fallen off and new intact skin has formed beneath, typically 2 to 4 weeks).

• **Contact Management:**
  • Exposure risk assessment for contacts.
  • Close contacts will be advised to self-monitor for signs and symptoms for 21 days from last exposure.
  • Immediate self-isolation should any symptom(s) of MPX develop.
    • Contact the local PHU and healthcare provider to facilitate clinical assessment and consideration of testing.
Family Medicine Summit: Current Opportunities

- FMS 2023 Call for Abstracts: ontariofamilyphysicians.ca/fms
- Join the FMS Planning Committee: ontariofamilyphysicians.ca/education-practice-supports/conferences

Deadline for both is June 12, 2022
Questions?

Webinar recording and curated Q&A will be posted soon
https://www.dfcm.utoronto.ca/covid-19-community-practice/past-sessions

Our next Community of Practice: TBD

Contact us: ocfpcme@ocfp.on.ca

Visit: https://www.ontariofamilyphysicians.ca/tools-resources/covid-19-resources

The COVID-19 Community of Practice for Ontario Family Physicians is a one-credit-per-hour Group Learning program that has been certified for up to a total of 32 credits.

Post session survey will be emailed to you. Mainpro+ credits will be entered for you with the information you provided during registration.