City of Hamilton
BOARD OF HEALTH
AGENDA

Meeting #:	23-003
Date:	March 20, 2023
Time:	9:30 a.m.
Location:	Council Chambers (BOH) Hamilton City Hall 71 Main Street West

Matt Gauthier, Legislative Coordinator (905) 546-2424 ext. 6437

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1. CEREMONIAL ACTIVITIES

2. APPROVAL OF AGENDA

   (Added Items, if applicable, will be noted with *)

3. DECLARATIONS OF INTEREST

4. APPROVAL OF MINUTES OF PREVIOUS MEETING

   4.1 February 13, 2023

5. COMMUNICATIONS

   5.1 Correspondence from Carmen McGregor, Chair, Boards of Health Section, and Trudy Sachowski, President, Association of Local Public Health Agencies (alPHa), respecting Boards of Health Order in Council Appointments

   Recommendation: Be received.

   5.2 Correspondence from Dr. Penny Sutcliffe, Medical Officer of Health and Chief Executive Officer, Public Health Sudbury & Districts, respecting Provincial Funding for Consumption and Treatment Services

   Recommendation: Be received.

5.3 Correspondence from Dr. Penny Sutcliffe, Medical Officer of Health and Chief Executive Officer, Public Health Sudbury & Districts, respecting Community Engagement to Address Food Insecurity

Recommendation: Be received.

5.4 Correspondence from Douglas Lawrance, Chair, Board of Health, Northwestern Health Unit, respecting Alcohol Health Warning Labels

Recommendation: Be received.

5.5 Correspondence from Kathryn Wilson, Chair, Board of Health, Peterborough Public Health, respecting Improvements to Funding Streams to Support Small Businesses and Other Organizations to Improve Air Quality

Recommendation: Be received.

5.6 Correspondence from Rick Champagne, Chairperson, Board of Health, North Bay Parry Sound District Health Unit, respecting Food Insecurity in Ontario

Recommendation: Be received.

5.7 Correspondence from Loretta Ryan, Executive Director, Association of Local Public Health Agencies (alPHa), respecting June 2023 AGM Notice and Package

Recommendation: Be Received.

5.8 Correspondence from Loretta Ryan, Executive Director, Association of Local Public Health Agencies (alPHa), respecting the 2022 Chief Medical Officer of Health Annual Report

Recommendation: Be received.

6. DELEGATION REQUESTS

6.1 Kayla Hagerty, respecting Safe Use Spaces and declaring a State of Emergency for Overdose Deaths (for today's meeting)

7. DELEGATIONS

8. STAFF PRESENTATIONS

8.1 Clean Air Hamilton Annual Progress Report 2021 (BOH23010) (City Wide)

8.2 Respiratory Diseases Update

9. CONSENT ITEMS

9.1 Opioid Emergency Response (BOH23008) (City Wide)

Deferred from the February 13, 2023 Board of Health meeting.

9.2 Modelling Morbidity and Mortality using the Hamilton Airshed Modelling System (BOH18016(a)) (City Wide) (Outstanding Business List Item)

10. DISCUSSION ITEMS

10.1 2023 PHS Annual Service Plan & Budget Submission (BOH23011) (City Wide)

11. MOTIONS

12. NOTICES OF MOTION

13. GENERAL INFORMATION / OTHER BUSINESS

14. PRIVATE AND CONFIDENTIAL

15. ADJOURNMENT

BOARD OF HEALTH
MINUTES 23-002

9:30 a.m.
Monday, February 13, 2023
Council Chambers, City Hall, 2nd Floor
71 Main Street West, Hamilton, Ontario

Present:	Mayor A. Horwath (Chair) Councillors J. Beattie, C. Cassar, B. Clark, J.P. Danko, M. Francis, T. Hwang, T. Jackson, C. Kroetsch, N. Nann, T. McMeekin, E. Pauls, M. Tadeson, A. Wilson
Absent with Regrets:	Councillors M. Spadafora, M. Wilson

THE FOLLOWING ITEMS WERE REFERRED TO COUNCIL FOR CONSIDERATION:

1. Consumption and Treatment Services Site Application Process (BOH23007) (City Wide) (Item 9.1)

(a) (Nann/A. Wilson)
That Report BOH23007, respecting Consumption and Treatment Services Site Application Process, be received.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(b) (Horwath/Nann)

(i) That the application from The AIDS Network for a second Consumption and Treatment Services site located at 746 Barton Street, be endorsed;

(ii) That Hamilton Public Health staff partner with community agencies currently applying to operate Consumption and Treatment Services in Hamilton, specifically to provide active support in the areas of community engagement, site confirmation, an evaluative framework, and develop an open data program that demonstrates the community impact of consumption treatment services in Hamilton; and

(iii) That staff be directed to provide an evaluative framework with open data that demonstrates the community impact of Consumption and Treatment Services operations in Hamilton Community Engagement.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

2. Physician Recruitment and Retention Steering Committee Report 23-001 – February 10, 2023 (Item 9.3)

(Tadeson/Nann)

(i) Appointment of Chair and Vice-Chair (Item 1)

(a) Appointment of Chair

That Councillor Tadeson be appointed as Chair of the Physician Recruitment and Retention Steering Committee for the balance of the 2018-2022 term of Council.

(b) Appointment of Vice-Chair

That Councillor Hwang be appointed as Vice-Chair of the Physician Recruitment and Retention Steering Committee for the balance of the 2018-2022 term of Council.

(ii) Working Group of the Physician Recruitment and Retention Steering Committee Report 23-001, February 10, 2023 (Item 10.1)

(a) Summary Report Regarding Proposal to Transfer Program into the Greater Hamilton Health Network (Item 10.1)

That the Summary Report Regarding Proposal to Transfer Program into the Greater Hamilton Health Network, attached hereto as Appendix A, be received.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13

ABSENT	-	Wilson, Maureen	Ward 1

3. Substance Use and Addiction Program Funding – Harm Reduction Outreach Project (BOH23006) (City Wide) (Item 10.1)

(A. Wilson/Nann)
That the Board of Health authorize and direct the Medical Officer of Health to:

(i) Receive, utilize and report on funding from Health Canada's Substance Use and Addictions Program to fund a collaborative Harm Reduction Outreach Project between Public Health Services' Mental Health and Street Outreach Program and The AIDS Network;

(ii) Enter into an agreement between the City of Hamilton, Public Health Services, and Health Canada to receive the funding for the Harm Reduction Outreach Project, satisfactory in form to the City Solicitor; and,

(iii) Enter into a collaborative agreement with The AIDS Network to provide Harm Reduction Outreach staff to implement services in the Harm Reduction Outreach Project, satisfactory in form to the City Solicitor.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

4. Advancing a Whole-Community Harm Reduction Framework (Item 11.1)

(A. Wilson/Nann)

WHEREAS, The geographic analysis of opioid-related deaths across Ontario shows that larger urban centres, including Hamilton, exhibited the largest increase in both rates and in the absolute number of cases of opioid-related deaths during the pandemic;

WHEREAS, Between 2005 and 2021, Hamilton had a higher rate of opioid-related deaths than the provincial average;

WHEREAS, Opioid-related deaths continue to rise year-after-year in Hamilton. In 2019, 106 Hamilton deaths are probable or confirmed to be opioid-related. In 2020, those numbers increased to 128 and in 2021, those numbers increased to 170;

WHEREAS, From June 2021 to May 2022, 29 deaths in the Hamilton homeless population were reported. 16 of those deaths were reported to be overdose-related and 30% died while accessing shelter;

WHEREAS, There is a need for sustained funding to maintain harm reduction services including safer use spaces;

WHEREAS, Adequately funded harm reduction services would create cost-savings to other municipal and frontline services;

WHEREAS, The YWCA Hamilton has been operating a safer use space since late April 2022 to present. As of January 19, 2023, the program has served 176 unique guests and successfully reversed 34 drug poisonings. There have been zero calls made to police and one call made to EMS that did not require transfer to hospital;

WHEREAS, The meaningful engagement and involvement of people with lived and living experience of drug use and homelessness is vital;

WHEREAS, The City of Hamilton has a responsibility to implement policies and programs designed to urgently address the increase in opioid-related mortality, including providing access to evidence-based harm reduction services across the City, including in the houseless serving sector; and,

THEREFORE, BE IT RESOLVED:

(a) That City staff be directed to provide quarterly reports on overdoses tracked by EMS and all deaths related to toxic drugs to the Board of beginning in Q2 2023; and

(b) That City staff be directed to:

(i) Convene with local stakeholders, including people with lived and living experience, health, and drug policy experts, to develop an evidence-based harm reduction action plan for the purpose of addressing high rates of opioid-related deaths with a completion and report back to the Board of Health on June 12, 2023; and

(ii) That these consultations and action plan specifically consider how to implement safer use spaces and other evidence-based harm reduction strategies both in the City and in the Houseless serving sector.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

FOR INFORMATION:

(a) CHANGES TO THE AGENDA (Item 2)

The Committee Clerk advised the Board of the following changes to the agenda:

5. COMMUNICATIONS

5.2 Correspondence from John Sudak respecting a Consumption and Treatment Services Site at 746 Barton Street, Hamilton.

6. DELEGATION REQUESTS

6.6 Daniel Freiheit, respecting the Prevention of Future Emergency Declarations Regarding the Opioid Crisis in Hamilton (for today's meeting)

6.7 Dr. Claire Bodkin, HAMSMaRT respecting Safe Use in Shelter and the Need for a Second Consumption and Treatment Services Site (for today's meeting)

6.8 Scott Gervais, respecting Safe Use Spaces in Hamilton Shelters (for today's meeting)

6.9 Walter Furlan, respecting Opposition to the Proposed Consumption and Treatment Services Site (for today's meeting)

9. CONSENT ITEMS

9.3 Physician Recruitment and Retention Steering Committee Report 23-001 – February 10, 2023

(A. Wilson/Hwang)
That the agenda for the February 13, 2023 Board of Health be approved, as amended.

Result: Motion CARRIED by a vote of 13 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
YES	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(b) DECLARATIONS OF INTEREST (Item 3)

There were no declarations of interest.

(c) APPROVAL OF MINUTES OF PREVIOUS MEETING (Item 4)

(i) **January 16, 2023 (Item 4.1)**

(McMeekin/Hwang)
That the Minutes of the January 16, 2023 meeting of the Board of Health be approved, as presented.

Result: Motion CARRIED by a vote of 13 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
YES	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(d) COMMUNICATIONS (Item 5)

(i) **(Cassar/Tadeson)**
That the following items be approved, as presented:

(a) Correspondence from Loretta Ryan, Executive Director, Association of Local Public Health Agencies (alPHa), respecting Program Update and Speaker Line-Up for the alPHa Winter Symposium and Section Meetings (Item 5.1)

Recommendation: Be received

(b) Correspondence from John Sudak respecting a Consumption and Treatment Services Site at 746 Barton Street, Hamilton.

Recommendation: Be Received.

Result: Motion CARRIED by a vote of 13 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
YES	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(e) DELEGATION REQUESTS (Item 6)

(i) **(A. Wilson/Nann)**
That the following Delegation Requests for the February 13, 2023 Board of Health meeting, be approved:

(i) Steven Roman Soos, respecting Declaring a State of Emergency for Opioid Overdoses and Death in the City of Hamilton (Item 6.1)

(ii) Tim McClemont, The AIDS Network, respecting Support for the AIDS Network's Application to Operate a Proposed Consumption Treatment Services Program at 746 Barton Street East, Hamilton (Item 6.2)

(iii) Olivia Mancini, Canadian Drug Policy Coalition, respecting Safer Use Spaces in Shelters (Item 6.3)

(iv) Marcie McIlveen, Hamilton Social Medicine Response Team (HAMSMaRT), respecting Safe Use in Shelter and the Need for a Second Consumption and Treatment Services Site (Item 6.4)

(v) Kim Ritchie, Canadian Drug Policy Coalition: Harm Reduction Working Group, respecting the Prevention of Overdose Related Deaths for those Experiencing Homelessness (Item 6.5)

(vi) Daniel Freiheit, respecting the Prevention of Future Emergency Declarations Regarding the Opioid Crisis in Hamilton (Added Item 6.6)

(vii) Dr. Claire Bodkin, HAMSMaRT respecting Safe Use in Shelter and the Need for a Second Consumption and Treatment Services Site (Added Item 6.7)

(viii) Scott Gervais, respecting Safe Use Spaces in Hamilton Shelters (Added Item 6.8)

(ix) Walter Furlan, respecting Opposition to the Proposed Consumption and Treatment Services Site (Added Item 6.9)

Result: Motion CARRIED by a vote of 13 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
YES	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(f) DELEGATIONS (Item 7)

The following Delegations addressed the Board:

(i) Steven Roman Soos addressed the Board respecting Declaring a State of Emergency for Opioid Overdoses and Death in the City of Hamilton (Item 7.1)

(ii) Tim McClemont, The AIDS Network, addressed the Board respecting Support for the AIDS Network's Application to Operate a Proposed Consumption Treatment Services Program at 746 Barton Street East, Hamilton (Item 7.2)

(iii) Olivia Mancini, Canadian Drug Policy Coalition, addressed the Board respecting Safer Use Spaces in Shelters (Item 7.3)

(iv) Marcie McIlveen, Hamilton Social Medicine Response Team (HAMSMaRT), addressed the Board respecting Safe Use in Shelter and the Need for a Second Consumption and Treatment Services Site (Item 7.4)

(v) Kim Ritchie, Canadian Drug Policy Coalition: Harm Reduction Working Group, addressed the Board respecting the Prevention of Overdose Related Deaths for those Experiencing Homelessness (Item 7.5)

(vi) Daniel Freiheit, respecting the Prevention of Future Emergency Declarations Regarding the Opioid Crisis in Hamilton (Added Item 7.6)

(vii) Dr. Claire Bodkin, HAMSMaRT respecting Safe Use in Shelter and the Need for a Second Consumption and Treatment Services Site (Added Item 7.7)

(viii) Scott Gervais, respecting Safe Use Spaces in Hamilton Shelters (Added Item 7.8)

(ix) Walter Furlan, respecting Opposition to the Proposed Consumption and Treatment Services Site (Added Item 7.9)

(A. Wilson/Nann)
That the following delegations, be received:

(i) Steven Roman Soos, respecting Declaring a State of Emergency for Opioid Overdoses and Death in the City of Hamilton (Item 7.1)

(ii) Tim McClemont, The AIDS Network, respecting Support for the AIDS Network's Application to Operate a Proposed Consumption Treatment Services Program at 746 Barton Street East, Hamilton (Item 7.2)

(iii) Olivia Mancini, Canadian Drug Policy Coalition, respecting Safer Use Spaces in Shelters (Item 7.3)

(iv) Marcie McIlveen, Hamilton Social Medicine Response Team (HAMSMaRT), addressed the Board respecting Safe Use in Shelter and the Need for a Second Consumption and Treatment Services Site (Item 7.4)

(v) Kim Ritchie, Canadian Drug Policy Coalition: Harm Reduction Working Group, addressed the Board respecting the Prevention of Overdose Related Deaths for those Experiencing Homelessness (Item 7.5)

(vi) Daniel Freiheit, respecting the Prevention of Future Emergency Declarations Regarding the Opioid Crisis in Hamilton (Added Item 7.6)

(vii) Dr. Claire Bodkin, HAMSMaRT respecting Safe Use in Shelter and the Need for a Second Consumption and Treatment Services Site (Added Item 7.7)

(viii) Scott Gervais, respecting Safe Use Spaces in Hamilton Shelters (Added Item 7.8)

(ix) Walter Furlan, respecting Opposition to the Proposed Consumption and Treatment Services Site (Added Item 7.9)

Result: Motion CARRIED by a vote of 13 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
YES	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(g) STAFF PRESENTATIONS (Item 8)

(i) Board of Health Governance Education Session (Item 8.1)

Karima Kanani, Partner, Miller Thomson LLP addressed the Board with a Presentation respecting the Board of Health Governance Education Session.

(Nann/Tadeson)
That the presentation by Karima Kanani, Partner, Miller Thomson LLP respecting the Board of Health Governance Education Session, be received.

Result: Motion CARRIED by a vote of 13 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
YES	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(ii) Respiratory Diseases Update (Item 8.2)

(Cassar/A. Wilson)
That the Presentation respecting a Respiratory Diseases Update, be waived and received.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

Upon further consideration, the members of the Board noted that the presentation respecting a Respiratory Diseases Update would be beneficial to the Board members and to the public, and it was therefore:

(Jackson/A. Wilson)
That the Presentation respecting a Respiratory Diseases Update, be DEFERRED to the Board of Health meeting on March 20, 2023.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(h) CONSENT ITEMS (Item 9)

(i) Opioid Emergency Response (BOH23008) (City Wide) (Item 9.2)

(Clark/A. Wilson)
That Report BOH23008, respecting Opioid Emergency Response, be DEFERRED to the Board of Health meeting on March 20, 2023.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2

YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(Clark/A. Wilson)
That the Board of Health recess at 1:55 p.m. for a 10 minutes.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(i) GENERAL INFORMATION / OTHER BUSINESS (Item 13)

(i) Amendments to the Outstanding Business List (Item 13.1)

(Jackson/Clark)
That the following amendments to the Outstanding Business List, be approved, ***as amended***:

(a) Items Requiring New Due Dates:

1. Municipal Actions to Reduce harms Associated with Alcohol Use (BOH19032)
   OBL Item: 2019-V
   Current Due Date: On Hold Due to COVID-19

Proposed New Due Date: July 2023

2. Child & Adolescent Services 2021-2022 Budget & Base Funding Increase of Five Percent (BOH21010)
OBL Item: 2021-G
Current Due Date: On Hold Due to COVID-19
Proposed New Due Date: April 2023

(b) Items Considered Complete and Needing to be Removed:

1. Consumption and Treatment Services and Wesley Day Centre (Referred to the Board of Health from the Emergency and Community Services Committee on June 19, 2020)
OBL Item: 2020-I

2. Correspondence from Anita Dubeau, Board of Health Chair, Simcoe Muskoka District Health Unit, respecting a Response to the Opioid Crisis in Simcoe Muskoka and Ontario-Wide
OBL Item: 2022-D

3. Correspondence from the Timiskaming Health Unit, respecting Decriminalization of Personal Possession of Illicit Drugs
OBL Item: 2022-F

4. Matters related to the Respiratory Disease Update
Date Completed: January 16, 2023 (BOH Report 23-001 - Item 2)
OBL Item: 2022-G

5. Opioid Emergency Response
OBL Item: 2023-A
Opioid Emergency Response (BOH23008) (City Wide) DEFERRED to March 20, 2023 meeting.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2

YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

(i) ADJOURNMENT (Item 15)

(Cassar/Tadeson)
That, there being no further business, the Board of Health be adjourned at 2:36 p.m.

Result: Motion CARRIED by a vote of 12 to 0, as follows:

YES	-	Mayor Andrea Horwath	
YES	-	Beattie, Jeff	Ward 10
YES	-	Cassar, Craig	Ward 12
YES	-	Clark, Brad	Ward 9
YES	-	Danko, J.P.	Ward 8
YES	-	Francis, Matt	Ward 5
ABSENT	-	Hwang, Tammy	Ward 4
YES	-	Kroetsch, Cameron	Ward 2
YES	-	Jackson, Tom	Ward 6
YES	-	Nann, Nrinder	Ward 3
YES	-	McMeekin, Ted	Ward 15
ABSENT	-	Pauls, Esther	Ward 7
ABSENT	-	Spadafora, Mike	Ward 14
YES	-	Tadeson, Mark	Ward 11
YES	-	Wilson, Alex	Ward 13
ABSENT	-	Wilson, Maureen	Ward 1

Respectfully submitted,

Mayor Andrea Horwath,
Chair, Board of Health

Loren Kolar
Legislative Coordinator
Office of the City Clerk

alPHa
Association of Local PUBLIC HEALTH Agencies

480 University Avenue, Suite 300
Toronto, Ontario M5G 1V2
Tel: (416) 595-0006
E-mail: info@alphaweb.org

February 10, 2023

Hon. Doug Ford
Premier of Ontario
Legislative Bldg Rm 281, Queen's Park
Toronto, ON M7A 1A1

Dear Premier,

Re: Boards of Health – Order in Council Appointments

On behalf of the Boards of Health Section of the Association of Local Public Health Agencies (alPHa), we are writing to you with regards to delays in Order-in-Council appointments to local boards of health under Section 49 of the *Health Protection and Promotion Act*.

Ontario's boards of health are at the forefront of the important decisions that are aimed at keeping people healthy throughout the province, and their success depends on stability and consistency within their membership. This is especially important in the immediate aftermath of municipal elections, which already have a significant destabilizing effect every four years.

24 out of 34 Ontario Boards of Health depend on provincial appointees to maintain their necessary complement, and the delays they are already reporting in securing these appointments are having a detrimental effect on their governance and accountability roles, as well as their engagements with their respective public health units, local councils, and community partners.

This is not the first time we have been faced with this issue, which we also raised with you via correspondence in June of 2020. At that time, several boards reported that their requests for appointments were not responded to, not approved, or approved for only a limited time. The uncertainty, interruption of continuity and simple depletion of the ranks compromised the capacity for sound decision-making on local public health matters in many areas, and we worry that this is being repeated.

We hope that provincial appointments will soon be announced. Should you wish to discuss this issue further, please have your staff contact Loretta Ryan, Executive Director, alPHa at 416-595-0006, x 222 or loretta@alphaweb.org.

Sincerely,

Carmen McGregor,
Chair, Boards of Health Section

Trudy Sachowski,
President, alPHa

COPY: Hon. Sylvia Jones, Minister of Health
Dr. Catherine Zahn, Deputy Minister, Ministry of Health
Dr. Kieran Moore, Chief Medical Officer of Health
Siobhan Corr, Manager (Acting), Public Appointments Secretariat

The Association of Local Public Health Agencies (alPHa) is a not-for-profit organization that provides leadership to the boards of health and public health units in Ontario. alPHa advises and lends expertise to members on the governance, administration and management of health units. The Association also collaborates with governments and other health organizations, advocating for a strong, effective and efficient public health system in the province. Through policy analysis, discussion, collaboration, and advocacy, alPHa's members and staff act to promote public health policies that form a strong foundation for the improvement of health promotion and protection, disease prevention and surveillance services in all of Ontario's communities.

Public Health
Santé publique
SUDBURY & DISTRICTS

February 24, 2023

VIA ELECTRONIC MAIL

The Honourable Doug Ford
Premier of Ontario
Legislative Building
Queen's Park
Toronto ON M7A 1A1

Dear Premier Ford:

Re: Provincial Funding for Consumption and Treatment Services

At its meeting on February 16, 2023, the Board of Health carried the following resolution #11-23:

> *WHEREAS as recognized by motion 14-21, Sudbury and districts continue to experience an opioid crisis with the second highest opioid-related death rate in Ontario; and*
>
> *WHEREAS the Ontario Public Health Standards require boards of health to collaborate with health and social service partners to develop programs and services to reduce the burdens associated with substance use; and*
>
> *WHEREAS evidence shows that supervised consumption sites, as a harm reduction strategy, reduce overdose deaths, increase access to treatment and other health and social services, reduce transmission of infectious diseases, including HIV and Hepatitis C, reduce public injection of drugs, and reduce publicly discarded hazardous syringes; and*
>
> *WHEREAS the provincial application for approval and funding for Sudbury's Consumption and Treatment Services was submitted in August 2021 and the application remains under review; and*
>
> *WHEREAS Réseau Access Network received the required federal exemption and has been operating Sudbury's supervised consumption services site since September 2022 with temporary operating funds provided by the City of Greater Sudbury; and*
>
> *WHEREAS there is uncertainty about the future of supervised consumption services in Sudbury given the temporary nature of current municipal funding and the outstanding provincial application;*

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f: 705.677.9611

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f: 705.867.0474

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f: 705.377.5580

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f: 705.864.0820

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1.866.522.9200

phsd.ca

> *THEREFORE BE IT RESOLVED THAT the Board of Health reaffirm motion 14-21, sounding the alarm on the local and regional opioid crisis – a crisis that has continued to intensify since 2021; and*
>
> *THAT the Board of Health urge the provincial government to immediately approve funding for the Sudbury supervised consumption services site, operating as a Consumption and Treatment Services site under the Ontario model; and*
>
> *FURTHER THAT this resolution be shared with relevant federal and provincial government ministers, area members of parliament and provincial parliament, local municipal leadership, the Chief Medical Officer of Health, and boards of health.*

The worsening drug poisoning crisis in our community requires concerted efforts on behalf of many partners. The Board of Health for Public Health Sudbury & Districts is looking to the provincial government as one of these key partners.

In addition to the primary goal of saving lives, Consumption and Treatment Services decrease health care pressures by reducing emergency services and hospital utilization and decreasing the transmission of infectious diseases such as HIV and Hepatitis C. They also facilitate referral to treatment for substance use and early treatment for other health concerns. Consumption and Treatment Services are an investment into the health of those that use the services and the health of our health care system.

The Board urges the provincial government to immediately approve and fund Sudbury's Consumption and Treatment Services site.

Thank you for your urgent and positive consideration of this request.

Sincerely,

Penny Sutcliffe, MD, MHSc, FRCPC
Medical Officer of Health and Chief Executive Officer

cc: Dr. Kieran Moore, Chief Medical Officer of Health
Honourable Sylvia Jones, Deputy Premier, Minister of Health
Honourable Michael Tibollo, Associate Minister, Mental Health and Addictions
Honourable Jean-Yves Duclos, Minister of Health of Canada
Honourable Carolyn Bennett, Associate Minister, Mental Health and Addictions
Honourable Gwen Boniface, Order of Ontario, Senator
Viviane Lapointe, Member of Parliament, Sudbury
France Gélinas, Member of Provincial Parliament, Nickel Belt
Jamie West, Member of Provincial Parliament, Sudbury
Marc G. Serré, Member of Parliament, Nickel Belt
Michael Mantha, Member of Provincial Parliament, Algoma-Manitoulin
Paul Lefebvre, Mayor, City of Greater Sudbury
All Ontario Boards of Health

Public Health
Santé publique
SUDBURY & DISTRICTS

February 24, 2023

VIA ELECTRONIC MAIL

The Honourable Doug Ford
Premier of Ontario
Legislative Building
Queen's Park
Toronto ON M7A 1A1

Dear Premier Ford:

Re: Community Engagement to Address Food Insecurity

At is meeting on February 16, 2023, the Board of Health carried the following resolution #08-23:

> *BE IT RESOLVED THAT the Board of Health for Public Health Sudbury & Districts, in recognition of the root causes of food insecurity, call on the provincial government to incorporate local food affordability findings in determining adequacy of social assistance levels; and*
>
> *THAT the Board of Health reaffirm its support for the Association of Local Public Health Agencies (alPHa) resolutions A18-02 (Minimum Wage that is a Living Wage) and A15-04 (Basic Income Guarantee); and*
>
> *THAT the Board of Health intensify its work with relevant area agencies and community groups, and municipalities to shift the focus of food insecurity initiatives from food charity to income-based solutions, including but not limited to the sharing of data and evidence-based income solutions; and*
>
> *FURTHER THAT the Board of Health for Public Health Sudbury & Districts Board share this motion with area partners, Ontario boards of health, alPHa, and the relevant provincial government ministers.*

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f: 705.864.0820

toll-free / sans frais
1.866.522.9200

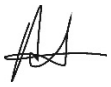
phsd.ca

The health consequences of food insecurity have serious adverse effects on people's physical and mental health and the ability to lead productive lives. Ontarians living with food insecurity are at greater risk for numerous chronic conditions including mental health disorders, non-communicable diseases (e.g., diabetes, hypertension and cardiovascular disease), and infections.[1] People who have chronic conditions and are food insecure are more likely to have negative disease outcomes, be hospitalized, or die prematurely.[2]

The health consequences of food insecurity are a significant burden on our province's healthcare and social service system. Adults in food insecure households are more likely to be admitted to acute care; they also may stay in hospital for a longer period and are more likely to be readmitted.[3] Income-based policies that effectively reduce food insecurity offset considerable public expenditures on healthcare and social services in Ontario by reducing demands on these services and reducing costs.

Thank you for your attention to this important issue – the solutions for which will not only help many Ontarians in need but also protect the sustainability of our critical health and social services resources.

Sincerely,



Penny Sutcliffe, MD, MHSc, FRCPC
Medical Officer of Health and Chief Executive Officer

cc: Dr. Kieran Moore, Chief Medical Officer of Health
Honourable Sylvia Jones, Deputy Premier and Minister of Health
Honourable Merrilee Fullerton, Minister of Children, Community and Social Services
Honourable Steve Clark, Minister of Municipal Affairs and Housing
France Gélinas, Member of Provincial Parliament, Nickel Belt
Jamie West, Member of Provincial Parliament, Sudbury
Michael Mantha, Member of Provincial Parliament, Algoma-Manitoulin
All Ontario Boards of Health
Constituent Municipalities

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[1] Tarasuk V, Li T, Fafard St-Germain AA. (2022). Household food insecurity in Canada, 2021. Toronto: Research to identify policy options to reduce food insecurity (PROOF). Retrieved 15 February 2023 from https://proof.utoronto.ca/.

[2] Tarasuk V, Li T, Fafard St-Germain AA. (2022). Household food insecurity in Canada, 2021. Toronto: Research to identify policy options to reduce food insecurity (PROOF). Retrieved 16 February 2023 from https://proof.utoronto.ca/.

[3] Tarasuk V. Implications of a basic income guarantee for household food insecurity. Northern Policy Institute – Research Paper No. 24. Retrieved 16 February 2023 from: https://proof.utoronto.ca/wp-content/uploads/2017/06/Paper-Tarasuk-BIG-EN-17.06.13-1712.pdf

210 First Street North
Kenora, ON P9N 2K4

The Right Honourable Justin Trudeau, P.C., MP
Prime Minister of Canada
Office of the Prime Minister
80 Wellington Street
Ottawa, ON K1A 0A2

Dear Prime Minister Trudeau: via email: justin.trudeau@parl.gc.ca

Re: Alcohol Health Warning Labels

On March 3, 2023, at a regular meeting of the Board of Health for the Northwestern Health Unit, the Board received a report titled *Update to Canada's Guidance on Alcohol and Health.*

The report outlined the following:

- Northwestern Health Unit (NWHU) catchment area has the highest rates in the province for ER visits and hospitalizations attributable to alcohol:
    - ER visits due to alcohol: NWHU rate of 7,486.6 per 100,000 in 2021, **13 times as high as the provincial rate** of 543.3 per 100,000[8]
    - Hospitalization due to alcohol: 1,498.9 per 100,000, **7 times as high as the provincial rate** of 210.9 per 100,000[9]
- NWHU Self-report data from 2019/20 also reveals higher heavy drinking rates than the provice:[10]
    - Proportion of people reporting heavy drinking in the NWHU is 20.2%, statistically higher than the province (15.6%). This rate has decreased from the 25.5% reported in 2015/16.

Considering the health harms associated with alcohol and the benefits of alcohol health warning labels, the Board of Health passed the following resolution:

> BE IT RESOLVED THAT the Northwestern Health Unit (NWHU) Board of Health call on the Government of Canada to amend the Food and Drug Act to make mandatory that all alcohol beverage containers have enhanced alcohol labels affixed:
>
> 1. Indicating what constitutes a standard drink;
> 2. Illustrating the number of standard drinks in the beverage container; and
> 3. Displaying health messages regarding adverse health outcomes, including the cancer risks associated with the consumption of alcohol.
>
> AND FURTHER THAT the Northwestern Health Unit Board of Health endorse, in principle, Bill S254 – An Act to Amend the Food and Drug Act (Warning Labels on

Alcoholic Beverages) and Motion M-61 A National Warning Label Strategy for Alcoholic Products.

The Northwestern Health Unit fully supports the above recommendation, and thanks you for your consideration.

Sincerely,

Douglas Lawrance
Chair, Board of Health, Northwestern Health Unit

Copy to:

- Hon. Eric Melillo, Member of Parliament, Kenora
- Hon. Marcus Powlowski, Member of Parliament, Thunder Bay - Rainy River
- Hon. Jean-Yves Duclos, Minister of Health
- Dr. Theresa Tam, Chief Public Health Officer of Canada
- Hon. Greg Rickford, Member of Provincial Parliament, Kenora - Rainy River
- Hon. Sol Mamakwa, Member of Provincial Parliament, Kiiwetinoong
- Hon. Kevin Holland, Member of Provincial Parliament, Thunder Bay - Atikokan
- Dr. Kieran Moore, CMOH
- Chair of the *Council of Chief Medical Officers of Health*
- Loretta Ryan, Executive Director, Association of Local Public Health Agencies
- Ontario Boards of Health
- Canadian Public Health Association
- Rainy River District Ontario Health Team
- All Nations Health Partners Ontario Health Team
- Kiiwetinoong Healing Waters Ontario Health Team

Peterborough Public Health

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peterboroughpublichealth.ca

March 3, 2023

Peterborough Public Health Urges Government of Canada to Explore Improvements to Funding Streams to Supporting Small Businesses and Other Organizations to Improve Indoor Air Quality

The Honourable Jean-Yves Duclos, MP
Minister of Health, Canada
jean-yves.duclos@parl.gc.ca

The Honourable Dominic LeBlanc, MP
Minister of Intergovernmental Affairs, Infrastructure
and Communities, Canada
dominic.leblanc@parl.gc.ca

Dear Honourable Ministers:

Re: Improved Indoor Air Quality in Public Settings

We've learned a great deal about COVID-19 since the pandemic began, most notably, is that **COVID-19 is an airborne virus**,[1] and does not spread as easily as we once thought by touching contaminated surfaces.[2] The Canadian Centre for Occupational Health and Safety states that "the virus that causes COVID-19 spreads from a person that is infected through the air, by respiratory droplets and aerosols."[3] Additionally, the Ontario Science Table noted that "aerosols play a role in the transmission of SARS-CoV-2, especially in poorly ventilated indoor areas."[4]

While provincially legislated 'lockdowns', mask mandates, and gathering limits may be behind us, the COVID-19 pandemic is not over. With all that we have learned, **improvements to indoor air quality of the spaces we occupy are necessary and life-saving** to truly control how the SARS-CoV2 virus and other respiratory/airborne pathogens spread. One important strategy to support this change would be through tax credits, grants, or other incentives to support small businesses in improving the indoor air quality of their spaces.

Canada's Chief Science Advisor recommends that owners and operators of indoor public facilities "scale-up and monitor effective prevention interventions, such as improving ventilation in schools, workplaces and public places as part of a first line of prevention of SARS-CoV2 infection and other respiratory/airborne pathogens."[5] These sentiments are echoed by the Ontario Society of Professional Engineers (OSPE) Indoor Air Quality group who have created many tools and resources to help Ontarians. Recommendations OSPE have developed, include:

- increasing the minimum number of air exchanges to at least 6 per hour in any indoor occupied space;
- improving ventilation requirements to follow the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) and the Canadian Standards Association;
- ensuring that HVAC systems and portable units use at least MERV 13 rated filters, and that portable filters with HEPA filters are in occupied spaces where air quality is a concern;

- having certified technicians install upper room ultraviolet germicidal systems; and
- committing to public transparency about the air quality of a space.[6]

To this end, there are many examples of improved indoor air quality being prioritized around the world. Last year for example, Belgium legislated an indoor air quality framework[7], as did France[8], while Australia earmarked over $270 million AUD for classroom upgrades alone to further "provide their students with improved learning facilities in a COVID-19 safe environment".[9]

In an effort to make public indoor spaces safer, and recognizing that COVID-19 is airborne, Peterborough Public Health (PPH) is urging the Government of Canada and its provincial and territorial partners to consider similar initiatives as these other global leaders, and explore a variety of options that support businesses and organizations in protecting their staff and patrons – most notably through improvements to their HVAC and ventilation systems, as detailed above.

PPH recently identified that because of local and provincial protections, 265-291 lives were saved in the area served by our Health Unit[10], while the CD HOWE Institute found that vaccines alone contributed to a "cost/benefit of -$0.4 billion to $2.1 billion without considering mortality."[11] Including the value of reduced mortality, this figure balloons to "$27.6 billion, dwarfing the costs of the vaccines and savings associated with averting more minor cases."[12] Given that a multilayer approach – including improved ventilation - is needed when preventing the transmission of COVID-19, **it is clear that the costs of inaction with the toll of COVID-19 transmission and other respiratory viruses is significant.**

As the Chair of our Board of Health I am writing to you today, to urge that the Federal government, in partnership with all provincial and territorial governments, identify, fund, and implement strategies such as through grants, tax breaks, and other incentives, to improve indoor air quality in public settings.

The staff at PPH and I are ready to support your teams in moving this forward; please don't hesitate to reach out if we can be of assistance.

Respectfully,

Original signed by

Councillor Kathryn Wilson
Chair, Board of Health

/ag

cc: Local MPs
Local MPPs
Curve Lake First Nation
Hiawatha First Nation
Association of Local Public Health Agencies
Ontario Boards of Health

[1] Public Health Agency of Canada. (2022). COVID-19: Main modes of transmission. Retrieved October 18, 2022 from: https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/main-modes-transmission.html

[2] Chen T. (2021) Fomites and the COVID-19 pandemic: An evidence review on its role in viral transmission. Vancouver, BC: National Collaborating Centre for Environmental Health. Retrieved October 12, 2022 from https://ncceh.ca/documents/evidence-review/fomites-and-covid-19-pandemic-evidence-review-its-role-viral-transmission

[3] Ontario Agency for Health Protection and Promotion (Public Health Ontario). (2022). COVID-19 transmission through short and long-range respiratory particles. Toronto, ON: Queen's Printer for Ontario. Retrieved October 11, 2022 from https://www.publichealthontario.ca/-/media/Documents/nCoV/phm/2022/01/covid-19-respiratory-transmission-range.pdf?sc_lang=en

[4] Science M, Thampi N, Bitnun A, et al. (2022). Infection prevention and control considerations for schools during the 2022- 2023 academic year. Science Briefs of the Ontario COVID-19 Science Advisory Table. Retrieved October 11, 2022 from https://covid19-sciencetable.ca/wp-content/uploads/2022/08/Infection-Prevention-and-Control-Considerations-for-Schools-During-the-2022-2023-Academic-Year_20220825_published.pdf

[5] Chief Science Advisor of Canada. (2022). Post-COVID-19 Condition in Canada: What We Know, What We Don't Know and a Framework for Action. Retrieved December 15, 2022 from, https://ised-isde.canada.ca/site/science/sites/default/files/attachments/2022/Pre-Report_PCC_Dec2022.pdf

[6] Ontario Society of Professional Engineers. (2022). Indoor Air Quality Reports. Retrieved December 8, 2022 from https://ospe.on.ca/indoor-air-quality/.

[7] Vandenbroucke, F.Deputy Prime Minister and Minister of Social Affairs and Health. Chancellery of the Prime Minister. (2022). Indoor air quality: future policy and legislative framework. Retrieved February 13, 2023 from https://vandenbroucke.belgium.be/nl/binnenluchtkwaliteit-beleid-van-de-toekomst-en-wetgevend-kader

[8] Sub-section 3: Indoor air quality monitoring in certain establishments open to the public (Articles R221-30 to D221-38). Retrieved February 13, 2023 from https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000006074220/LEGISCTA000024912670/

[9] Australian Government. (2022). Schools Upgrade Fund. Retrieved, February 13, 2023 from https://www.education.gov.au/schools-upgrade-fund

[10] Peterborough Public Health. (2022). Peterborough Public Health Thanks Community for Efforts in Response to the COVID-19 Pandemic to Date. Retrieved March 2, 2023 from https://www.peterboroughpublichealth.ca/peterborough-public-health-thanks-community-for-efforts-in-response-to-the-covid-19-pandemic-to-date/

[11] Wyonch, Rosalie, and Tingting Zhang. 2022. Damage Averted: Estimating the Effects of COVID-19 Vaccines on Hospitalizations, Mortality and Costs in Canada. Commentary 634. Toronto: C.D. Howe Institute. Retrieved March 3, 2023 from https://www.cdhowe.org/sites/default/files/2023-01/Commentary_634.pdf

[12] Ibid.

North Bay Parry Sound District Health Unit
Bureau de santé du district de North Bay-Parry Sound

March 3, 2023

The Honourable Doug Ford
Premier of Ontario
Legislative Building, Room 281
Queens Park
Toronto, ON M7A 1A1

The Honourable Sylvia Jones
Minister of Health / Deputy Premier
777 Bay Street, College Park, 5th Floor
Toronto, ON M7A 2J3

The Honourable Merrilee Fullerton
438 University Avenue, 7th Floor
Toronto, ON M5G 2K8

Dear Premier Ford, Minister Jones, and Minister Fullerton:

RE: Food Insecurity in Ontario

On behalf of the Board of Health (Board) and staff of the North Bay Parry Sound District Health Unit (Health Unit), we are expressing our concerns about the high rates of food insecurity in Ontario. Most recent estimates show that one in six households experience food insecurity, and one in five children live in a food insecure household. This is not acceptable. The magnitude of the problem, paired with the severe health consequences associated with experiencing food insecurity, make this an important and pressing public health issue that requires attention from all levels of government.

Food insecurity means a household has inadequate or insecure access to food due to financial constraints. Not being able to afford food has profound adverse effects on people's physical and mental health, and their ability to lead productive lives. The health consequences of food insecurity are also a large burden on our healthcare system.

As per the Ontario Public Health Standards, health units are required to monitor food affordability. We recently released our local 2022 Cost of Eating Well report, which draws attention to the inadequacy of current social assistance rates. It highlights that households with social assistance as their main income do not have enough money for the costs of living, including food. An excerpt from the report is included as **Appendix A**. It is important to note the scenarios presented include very modest estimates of both food costs and rent. Local data from the Canadian Mortgage and Housing Corporation is used for rent estimates which may or may not include utilities. Food costs are based on the Nutritious Food Basket (NFB). Grocery stores are surveyed locally to determine the cost of the NFB, which provides an estimate of the cost of following Canada's Food Guide. Examining food costs and rent rates alongside household income scenarios determines if food is affordable. For those receiving social assistance, it is clear they do not have enough money for the costs of living.

.../2

As record high food inflation rates persist, there is no doubt the financial situation is increasingly dire for these households. While the Ontario Disability Support Program (ODSP) was increased by 5% in 2022 and will be indexed to inflation going forward, the current rates are not based on the costs of living. Further, Ontario Works (OW) has not been increased since 2018 and is not indexed to inflation.
Last week, our Board passed a series of motions demonstrating collective support from Health Unit staff, leadership, and Board members, to call on the province for income-based policy action to reduce food insecurity. The complete list of resolutions and motions are attached as **Appendix B**. To summarize, our Board is urging the Province of Ontario to:

- Legislate targets for the reduction of food insecurity as part of the Ontario Poverty Reduction Strategy.
- Increase social assistance rates to reflect the costs of living, and to index Ontario Works rates to inflation going forward.
- Resume investigating the feasibility of creating a guaranteed living wage (basic income) in the Province of Ontario.

Income is an important social determinant of health (SDOH) that greatly impacts other SDOHs, including food security. Income support programs are recognized globally as important and effective population health interventions, meaning they can impact the health of the whole population. Ensuring low-income households have enough money to meet their basic needs is essential for health.

Food insecurity in Canada is a persistent and highly prevalent problem that has not improved since systematic monitoring began in 2005. Our Health Unit has been vocal in the past about the importance of adequate income to reduce food insecurity. Most recently, we called on the federal government to consider the importance of a basic income program for all in light of COVID-19 pandemic response benefits, and we called on the province to establish a Social Assistance Research Commission to advise on strengthening social assistance in Ontario. We will continue to monitor food affordability and follow the evidence on this issue, as health units are required to 'assess and report on the health of local populations describing the existence and impact of health inequities and identifying effective strategies that decrease health inequities.'

The Province of Ontario holds the power to reduce food insecurity and extreme poverty among households receiving social assistance. From a public health perspective, our Board urges you to take action. Please consider the motions our Board passed on this important issue and thank you for reviewing this information.

Sincerely yours,

Rick Champagne
Chairperson, Board of Health

James Chirico, H.BSc., M.D., F.R.C.P. (C), MPH
Medical Officer of Health/Executive Officer

Carol Zimbalatti, M.D., CCFP, MPH
Associate Medical Officer of Health

/sb

Enclosures (2) – Appendix A and B

Copy to:
Vic Fedeli, MPP, Nipissing
Graydon Smith, MPP, Parry Sound-Muskoka
John Vanthof, MPP, Timiskaming-Cochrane
Hon. Anthony Rota, MP, Nipissing-Timiskaming
Hon. Scott Aitchison, MP, Parry Sound-Muskoka
Hon. Marc Serre, MP, Nickel Belt
Ontario Boards of Health
Association of Local Public Health Agencies (alPHa)
Association of Municipalities of Ontario (AMO)
Federation of Canadian Municipalities (FCM)
Health Unit Member Municipalities

References:
Tarasuk V, Li T, Fafard St-Germain AA. *Household food insecurity in Canada, 2021.* Toronto: Research to identify policy options to reduce food insecurity (PROOF). 2022. Retrieved from: https://proof.utoronto.ca/
North Bay Parry Sound District Health Unit. *2022 Cost of Eating Well: Monitoring food affordability in the North Bay Parry Sound District.* 2023. Retrieved from: https://www.myhealthunit.ca/en/health-topics/HU_FoodInsecurity_Report22-(1).pdf
Ministry of Health. *Ontario Public Health Standards: Requirements for programs, services and accountability.* 2021. Retrieved from: https://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/protocols_guidelines/Ontario_Public_Health_Standards_2021.pdf
World Health Organization. *Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health*. Geneva: WHO. 2008. Retrieved from: https://www.who.int/publications/i/item/WHO-IER-CSDH-08.1

Appendix A

Single man receiving Ontario Works

This person does not have enough money to cover rent and food in a month, or their other costs of living. Current social assistance rates in Ontario are not based on the real costs of living. There are few income supports in place for working aged adults without children, leaving them in extreme poverty should they be unemployed.

**Income is based on OW basic allowance and maximum shelter allowance, GST/HST credit, Ontario Trillium Benefit, and the Ontario Climate Action Incentive Payment.*

Monthly income:*	$876
Rent (bachelor apartment):	$650
Food:	$404
	-$178

Single woman with 2 kids receiving Ontario Works

It is highly unlikely that the $688 remaining after paying for rent and food will be enough to cover this family's monthly expenses. Parents in Canada are eligible for the Canada/Ontario Child Benefit (CCB), which provides a seemingly significant amount of money monthly for low-income households. Yet, 1 in 5 children in Ontario live in a food insecure household, suggesting the CCB does not provide enough money to protect against food insecurity.

**Income is based on Ontario Works basic allowance for one recipient and two dependents and maximum shelter allowance for a family size of three, Canada and Ontario Child Benefit, GST/HST credit, Ontario Trillium Benefit, and the Climate Action Incentive Payment.*

Monthly income:*	$2548
Rent (2 bedroom apartment):	$1032
Food:	$828
	$688

Appendix B

Board of Health Motion: **#BOH/2023/02/04** – February 22, 2023
Moved by: Marianne Stickland Seconded by: Jamie McGarvey

***Whereas**, the Ontario Public Health Standards require public health units to monitor food affordability, as well as assess and report on the health of local populations, describing the existence and impact of health inequities;*

***Whereas**, it is well documented that food insecurity has a detrimental impact on physical and mental health;*

***Whereas**, adequate income is an important social determinant of health that greatly impacts food security;*

***Whereas,** 67% of households in Ontario with social assistance as their main source of income experience food insecurity;*

***Whereas**, the 2022 Nutritious Food Basket Survey results show that households reliant on social assistance do not have enough money for the costs of living, including food;*

***Therefore Be It Resolved,** That the Board of Health for the North Bay Parry Sound District Health Unit continue to support the efforts of staff and community stakeholders to raise awareness about, and work to reduce, health inequities, including food insecurity; and*

***Furthermore Be It Resolved,** That the Board of Health call on the Province of Ontario to legislate targets for the reduction of food insecurity as part of the Ontario Poverty Reduction Strategy; and*

***Furthermore Be It Resolved,** That the Board of Health call on the Province of Ontario to increase social assistance rates to reflect the costs of living, and to index Ontario Works rates to inflation going forward; and*

***Furthermore Be It Resolved,** That the Board of Health urge the province to resume investigating the feasibility of creating a guaranteed living wage (basic income) in the Province of Ontario; and*

***Furthermore Be It Resolved,** That the Board of Health provide correspondence of these resolutions to district municipalities, Ontario Boards of Health, Victor Fedeli, MPP (Nipissing), Graydon Smith, MPP (Parry Sound-Muskoka), John Vanthof, MPP (Timiskaming-Cochrane), the Honourable Doug Ford (Premier), the Honourable Merrilee Fullerton (Minister of Children, Community and Social Services), the Honourable Sylvia Jones (Minister of Health) and the Association of Local Public Health Agencies (alPHa), MP Anthony Rota, MP Scott Aitchison, MP Marc Serre, the Association of Municipalities of Ontario (AMO), and the Federation of Canadian Municipalities (FCM).*

From:	allhealthunits on behalf of Loretta Ryan
To:	All Health Units
Cc:	Board
Subject:	[allhealthunits] June 2023 alPHa AGM Notice and Package
Date:	Friday, March 10, 2023 4:08:37 PM
Importance:	High

PLEASE ROUTE TO:
All Board of Health Members
All Members of Regional Health & Social Service Committees
All Senior Public Health Managers

Dear alPHa Members,

alPHa's 2023 Annual General Meeting (AGM) and Conference will be held in-person at the University of Toronto's Dalla Lana School of Public Health on Tuesday, June 13, 2023.

Please click here for the **June 2023 alPHa AGM Notice and Package** or click on the links below for the individual documents:

- **Notice for the 2023 alPHa Annual General Meeting**
- **Call for 2023 alPHa Resolutions**
- **Call for 2023 alPHa Distinguished Service Awards**
- **Call for Board of Health Nominations**

In addition, the **Conference Poster** is available. Further details regarding registration, conference program and sponsorship package will be available in the coming weeks. In the meantime, please don't forget to hold the date: Tuesday, June 13th!

Take Care,

Loretta

_____

Loretta Ryan, CAE, RPP
Executive Director
Association of Local Public Health Agencies (alPHa)
480 University Avenue, Suite 300
Toronto, ON M5G 1V2
Tel: 416-595-0006 ext. 222
Cell: 647-325-9594
loretta@alphaweb.org
www.alphaweb.org

From: allhealthunits on behalf of Loretta Ryan
To: "All Health Units"
Cc: Board
Subject: [allhealthunits] 2022 Chief Medical Officer of Health Annual Report - Links to Report and Statement
Date: Tuesday, March 7, 2023 3:41:35 PM

Dear alPHa members,

The Chief Medical Officer of Health's 2022 Annual Report was tabled in the Legislature this afternoon. The 2022 report, entitled *Being Ready: Ensuring Public Health Preparedness for Infectious Outbreaks and Pandemics,* calls for the sustained investment in our preparedness capacities and capabilities to ensure readiness in the health and public health sector, communities, and society.

The report calls for an adaptive, competent, resilient public health sector that maintains strong relationships with the rest of the health care system and the communities that rely on it. We know that healthier, more equitable communities are more resilient in the face of outbreaks and pandemics and have better health outcomes. We must also support an engaged, informed, and prepared society that has the supports necessary to protect themselves and others. Being Ready further advocates for the collection of sociodemographic data, health equity and community development, which COVID-19 has proven are necessary for ensuring equitable outbreak and pandemic responses.

Report:
EN: https://www.ontario.ca/page/chief-medical-officer-health-2022-annual-report?share=zH4dQYn4HtSEaHc92TcsEQDefgFnkn4HWDCtvFjSdMU
FR: https://www.ontario.ca/fr/page/rapport-annuel-de-2022-du-medecin-hygieniste-en-chef?share=zH4dQYn4HtSEaHc92TcsEQDefgFnkn4HWDCtvFjSdMU

Statement:
EN: https://www.ontario.ca/page/chief-medical-officer-health-2022-annual-report?share=zH4dQYn4HtSEaHc92TcsEQDefgFnkn4HWDCtvFjSdMU
FR: https://www.ontario.ca/fr/page/rapport-annuel-de-2022-du-medecin-hygieniste-en-chef?share=zH4dQYn4HtSEaHc92TcsEQDefgFnkn4HWDCtvFjSdMU

Take Care,

Loretta

_____

Loretta Ryan, CAE, RPP
Executive Director
Association of Local Public Health Agencies (alPHa)
480 University Avenue, Suite 300
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loretta@alphaweb.org

BEING READY

Ensuring Public Health Preparedness for Infectious Outbreaks and Pandemics

Ontario

2022 ANNUAL REPORT

Of the Chief Medical Officer of Health of Ontario to the Legislative Assembly of Ontario

Land Acknowledgement

We wish to acknowledge the land on which we are working. For thousands of years it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today this place is still home to many Indigenous people from across Turtle Island, and we are grateful to have the opportunity to work on this land.

Catalogue No. 301275 ISSN 1912-3590 ISBN 978-1-4868-6896-4 (PDF) March 2023

Dear Speaker,

I am pleased to provide you with my 2022 Annual Report, *Being Ready: Ensuring Public Health Preparedness for Infectious Outbreaks and Pandemics,* in accordance with the provision of section 81.(4) of the *Health Protection and Promotion Act*.

Three years of COVID-19 have reinforced the devastating impact of pandemics on individuals, communities, and societies. We have lost too many loved ones. Ontarians are still experiencing the acute and ongoing, long-term effects of the virus itself, as well as the unintended consequences of some measures used to control the virus. The province also faces new infectious disease risks such as MPOX, re-emerging pathogens like poliomyelitis and tuberculosis, and the return of annual seasonal epidemics such as influenza and respiratory syncytial virus (RSV). Now, more than ever, we must be able to rapidly identify and respond to infectious disease outbreaks and pandemics so we can limit their impact, save lives, and safeguard Ontarians' health and well-being.

Being Ready is a call to learn from the past and ensure Ontario is ready for the next outbreak or pandemic, whenever it may occur. It calls for an end to the "boom and bust" cycle of funding that left Ontario less prepared than it should have been for COVID-19. It also calls for sustained investment in pandemic preparedness over time, so Ontario maintains a steady state of readiness. As Ontario's Long-Term Care COVID-19 Commission noted: "Pandemic planning is most effective when it is completed and tested before an emergency hits."

This report stresses the need for ongoing investment in public health sector and health system readiness: the relationships, workforce, scientific expertise, technologies, systems, supplies, and other resources required to detect and manage outbreaks. It also makes the case for investing in community and societal readiness: healthier, more equitable communities that will be more resilient during outbreaks; and an informed society that understands how and why decisions are made and has the information and supports it needs to protect itself.

As with previous Chief Medical Officer of Health (CMOH) reports, *Being Ready* advocates for the routine collection of sociodemographic data and community-based efforts to reduce health inequities which, as COVID-19 has proven, can help ensure more equitable outbreak and pandemic responses.

Thank you to all Ontarians who made sacrifices and endured through these very challenging times. And my condolences to all those who lost loved ones. We must learn from this experience to ensure Ontario continues to be ready, I will be assessing and reporting on the state of Ontario's pandemic preparedness in future CMOH reports.

Yours truly,

Dr. Kieran Moore

Table of Contents

Executive Summary

Three years after the first case of COVID-19 was diagnosed, the world is still struggling to adapt to and recover from this disease. While still in the midst of this pandemic, we have to ask the hard questions. If another infectious pathogen emerges in the near future, will Ontario be ready? What about in five, 10 or 20 years from now?

History tells us that, once an event like SARS, H1N1, or COVID-19 passes, complacency often sets in, funding is redirected, and readiness wanes.

Yet the risk of serious disease outbreaks and another pandemic is real and growing. Population growth, land use practices, climate change, the growing international wildlife trade, and global travel are making it more likely for zoonotic diseases, like COVID-19, to spread from wildlife to people. At the same time, we are seeing the re-emergence, globally and locally, of previously controlled pathogens, such as polio, tuberculosis, and measles, as well as an increase in antimicrobial resistant organisms, and the potential for an accidental or deliberate release of engineered or natural pathogens.

What does it mean to be ready for infectious disease outbreaks?

The duration and severity of COVID-19 drove home the challenges of containing a fast-spreading virus and making ethical decisions in a world competing for scarce resources. It highlighted the critical importance of the public health sector:

- maintaining the people, expertise, technology, systems, supplies, and other tools to track and contain infectious diseases
- knowing their communities and settings – who is most of risk of infection and severe illness – and adapting services to meet their needs
- having the support of an informed and engaged public who knows why and how to protect themselves and others.

The experience with COVID-19 demonstrated that the only way to slow or stop outbreaks and pandemics is through collective action.

Preparedness is a process that requires sustained investment in a wide range of relationships, skills, technologies, infrastructure, and capacities.

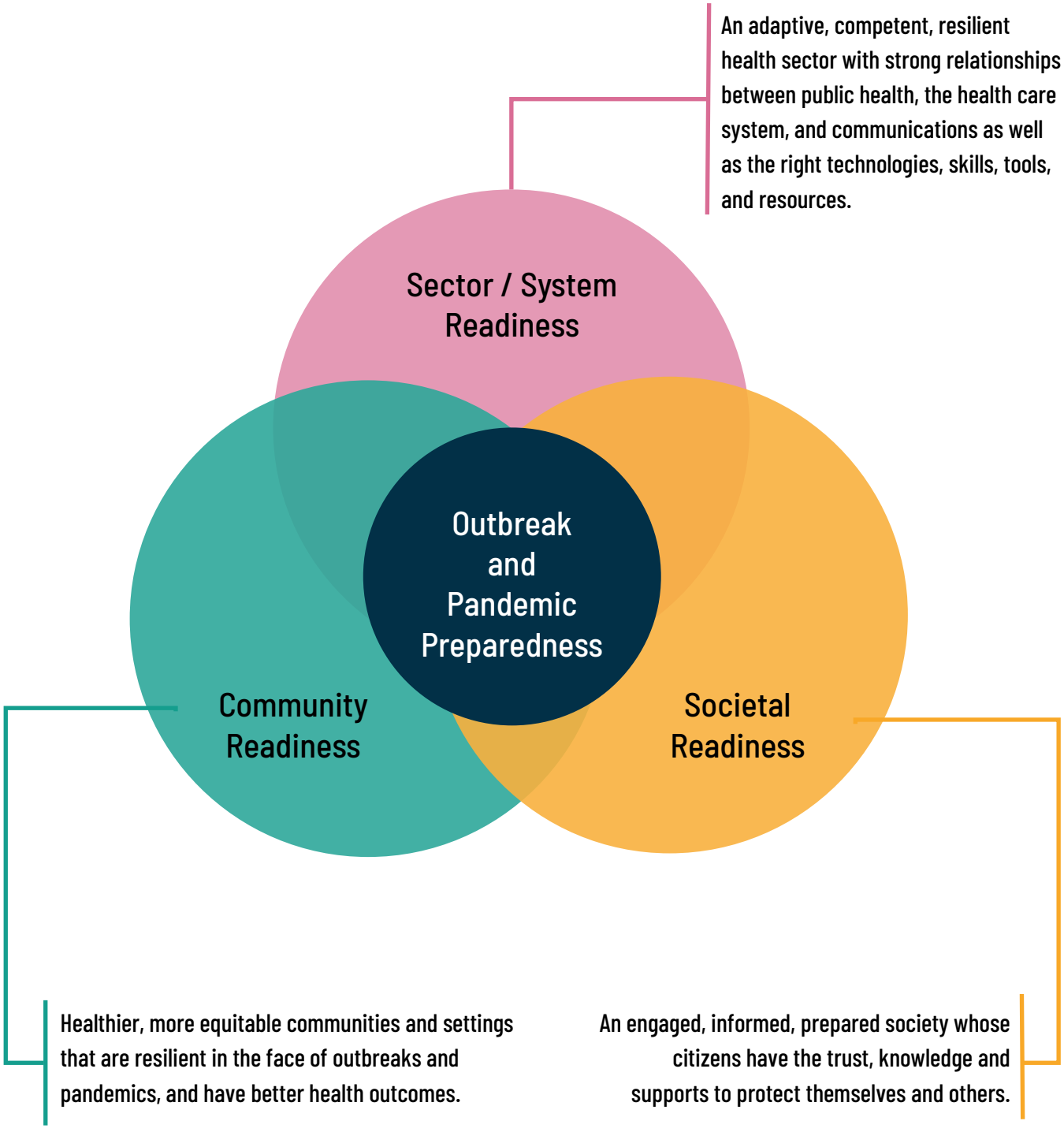
While Ontario's public health sector is responsible for leading pandemic preparedness and response in the province, preparedness is a team effort. During an infectious disease outbreak, public health must work closely with the broader health care system and other organizations responsible for health, including Indigenous health authorities and leaders, as well as communities, schools, workplaces, families, individuals, and all levels of government to:

- increase resilience
- achieve shared objectives, such as equitably minimizing morbidity, mortality, and social disruption.

> "Pandemic planning is most effective when it is completed and tested before a public health emergency hits.
>
> Final Report, Ontario's Long-Term Care COVID-19 Commission, 2021

To be ready for the next outbreak, Ontario's public health sector must take a collective, forward-thinking approach to pandemic planning. It must make sustained investments in strengthening sector and system[1], community, and societal readiness.

Figure 1: A big picture of readiness



[1] In this report, the term "sector" refers to the public health sector and the term "system" refers to the broader health system.

Where should we focus our attention and investment in the next 1-2 years?

Sector and System Readiness

Relationships

Strengthen **collaborative networks** across the health care system, including with Indigenous health service providers, and develop the governance structures to support those networks.

People

Build a skilled, adaptable resilient **public health workforce**, cross-trained in public health core competencies (e.g. vaccination, infection control, epidemiology, and outbreak management), with the surge capacity to respond to outbreaks, pandemics, and other emergencies while maintaining essential public health services.

Testing capacity and expertise

Strengthen Ontario's lab network capacity - people**, infrastructure, and technologies** - including Public Health Ontario (PHO) Laboratory's capacity, so that the network can deliver high volume testing during a pandemic while continuing to provide routine health testing, and contribute to global efforts to detect and monitor emerging infectious diseases.

Surveillance and scientific expertise

Strengthen the public health surveillance and scientific infrastructure so the sector can: provide **comprehensive real-time information** (e.g. laboratory results, cases, severity, immunizations, and sociodemographic data) to inform the public health response; adopt One Health Surveillance approaches; and coordinate the work done by scientific experts to create knowledge and inform decision-making.

Critical response resources

Maintain timely access to the critical resources required in most outbreaks:

- **Infection prevention and control** (IPAC) interventions and expertise in both health care and non-health care settings - including primary care, schools, workplaces, and congregate living settings (e.g. long-term care homes, retirement homes, shelters).
- **Personal protective equipment** (PPE) - including the capacity to produce PPE, resilient supply chains, and a reliable rolling provincial stockpile
- **Vaccines and therapeutics** – partnerships with the health care system, including pharmacists, to deliver vaccines and therapeutics, as they become available.

Community Readiness

Community partnerships

Build enduring collaborative partnerships with **communities that face health inequities and systematic racism and discrimination** as well as settings that may be at increased risk, such as congregate living settings. Work with them to: adapt public health and other health services to meet their needs; co-design and advocate for upstream interventions to reduce health inequities and risks; and co-develop and test outbreak plans.

Data to address inequities

Develop the provincial capacity to routinely collect **social, economic, health outcome, and sociodemographic data**, including information on race, ethnicity, and language, that can be used to identify communities at risk and work with them to reduce health inequities.

Societal Readiness

Social trust and ethical preparedness

Build social trust and **engage society in conversations** about the ethics and values that guide public health decisions.

Clear and transparent communications

Use evidence-based methods to increase **health literacy** and improve communications, provide credible, trusted and transparent information, and **counter misinformation**.

There are many competing demands for health and public health resources across the health system. The province must take a balanced approach to managing the health care needs of today and preparing for the disease threats of tomorrow. It is more efficient and more effective to invest in preparedness than to pay the much higher and heavier costs of being unprepared: more illness and death, mental health problems, social disruption, and economic losses.

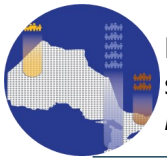
To enhance the province's preparedness and its capacity to respond to future outbreaks and pandemics, Ontario must sustain its investments in public health over time.

Investments in preparedness can cut the health and economic costs of pandemics.

When jurisdictions are prepared and respond quickly to outbreaks, they can reduce illnesses and deaths. They can also avoid more stringent public health measures (e.g. stay-at-home orders, mask mandates), or reduce the negative impacts of those measures.

Preparedness is an ongoing process, not an end state.

Ontario's public health sector knows what to do to improve health now **and** be ready for the next outbreak or pandemic. Many recommendations in this report echo those in past Chief Medical Officer of Health (CMOH) reports – because they are the right way to improve health both before and during outbreaks, including:



Develop information systems to help public health agencies gather health, economic and sociodemographic data on their communities and identify populations at risk (**2015 report** *Mapping Wellness: Ontario's Route to Healthier Communities)*

Reduce health inequities to improve health, and lower health and social costs (**2016 report** *Improving the Odds: Championing Health Equity in Ontario)*

Build public confidence in vaccines (**2014 report** *Vaccines: the Best Medicine)*

Encourage strong social connections as a way to reduce stress, improve health, and make individuals and communities more resilient (**2017 report** *Connected Communities: Healthier Together)*

Improve health literacy and help people distinguish between credible scientific evidence and misinformation (**2013 report** *Old Foes and New Threats, Ontario's Readiness for Infectious Diseases)*

This report also aligns with recommendations made by Ontario's Long-Term Care COVID-19 Commission (2021), which called on the province to develop pandemic plans that are "updated, tested, drilled" and reported on "annually to the legislature".

There is no specific checklist that Ontario can use to guarantee it will be ready for the next outbreak or pandemic. However, the Office of the Chief Medical Officer of Health will adapt existing frameworks and indicators for pandemic preparedness to regularly assess and report on the public health sector's progress in sustaining, strengthening, and developing its capacity to be ready for the next outbreak or pandemic.

Learning from the Past

COVID-19 caught the world off guard.

No one was ready for a pandemic that would last years, cause more than 6.5 million deaths worldwide (Coronavirus Resource Center, 2022) – 14,724 in Ontario as of October 29, 2022 – overwhelm hospitals, send millions of people into long lockdowns, close businesses, schools, and daycares, halt global travel, and cause social rifts over whether to follow public health measures. Nor was the world prepared for global supply chain issues and the competition over limited supplies, including hand sanitizer, masks, respirators, and vaccines.

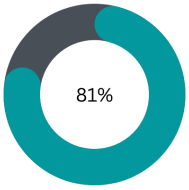
Compared to other countries that took a similar approach to COVID-19 (i.e. they did ***not*** take a zero-COVID approach[2]), Canada had relatively low mortality and high vaccination rates. (Ogden et al, 2022; Razak et al, 2022).

> “Simply put, we were not adequately prepared to face an emergency of the scale and magnitude of COVID-19. We must do better for the future.
>
> *A vision to Transform Canada's Public Health System, The Chief Public Health Officer of Canada's Report on the State of Public Health in Canada, 2021*

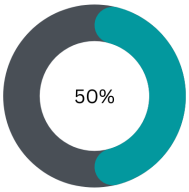
Figure 2: Cumulative deaths per 100,000 population and percentage of the population vaccinated with two doses as of April 20, 2022

Country	Cumulative deaths per 100,000 population	Percent of the adult population vaccinated with two doses
Canada	101.3	82%
Denmark	103.7	82%
Germany	159.3	77%
Sweden	183.1	75%
France	214.6	78%
United Kingdom	259.8	73%
Belgium	268.7	79%
United States	291.9	66%

Ontario also did well in preventing COVID-related hospitalizations and deaths, and vaccinating its population (all ages). (Public Health Ontario data as of November 19, 2022)

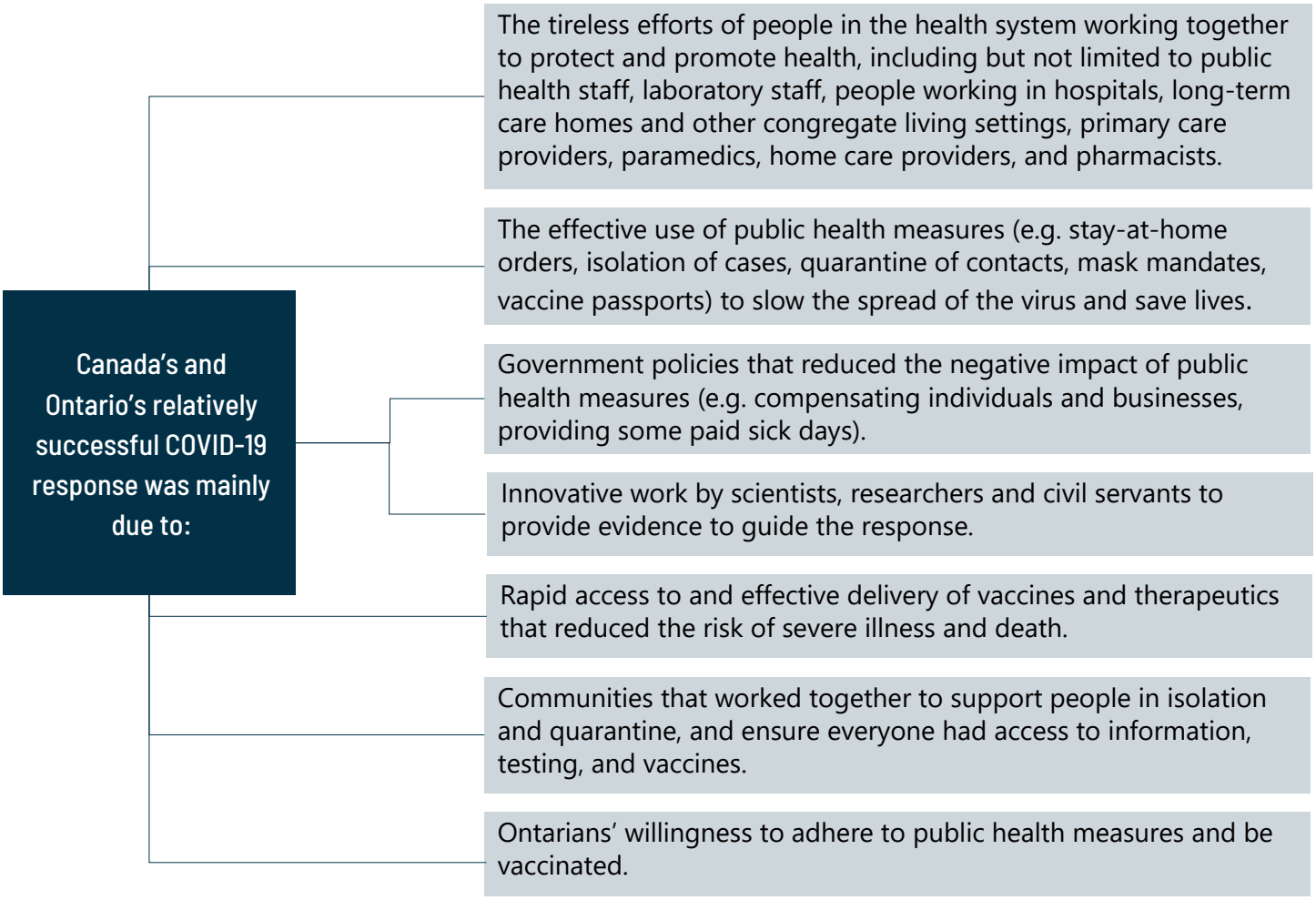


Ontarians are fully vaccinated with two shots



Ontarians have had a third dose

[2] Note: a small number of countries did adopt a zero-COVID approach, including New Zealand, Singapore, Australia, and South Korea. Those countries had lower death rates (between 11.7 and 42.2 per 100,000 population) and higher vaccination rates (between 80% and 90%) than countries, like Canada, that did *not* adopt that approach nationally.



While Ontario has done well overall, the response required sacrifices by individuals, families, society, and the health care system. In addition to the direct effects on health, including deaths, hospitalizations, acute illness, and long-term illness, the pandemic isolated people from family and friends, exacerbated health inequities (i.e. some populations experienced worse outcomes), limited access to other essential health services (e.g. surgeries, cancer care), had a negative effect on mental health and well-being, caused burnout and stress in all parts of the health system, and had a severe economic impact on many individuals, businesses, and industries.

Almost three years since the first case of COVID-19 was diagnosed in Canada, we are still experiencing the impacts of the pandemic. We will be weighing its toll for years to come.

If another virus similar to COVID-19 emerges in the future, will Ontario be ready?

Although the health system is dealing with capacity and health human resources issues, Ontario is more ready now than we were when the COVID-19 pandemic started in 2020. The province proved that in its response to the global MPOX (formerly monkeypox) outbreak in the spring of 2022. Within three weeks of the province's first confirmed case, the public health sector had established testing, determined who was most at risk, worked with those communities to reduce risk, educated health care providers to recognize and manage the illness, accessed vaccines and therapeutics from the federal government, provided immunization clinics, and connected infected individuals with specialty care.

The effective rapid response to MPOX was possible because the public health sector was ready. Learning from COVID-19, the public health sector had in place the skills, capacity, experience, infrastructure, and relationships to manage another disease threat.

What about three, five, 10 or 20 years from now?

History tells us that, once a disease threat passes, the sense of urgency drops, investments in preparedness are redirected, and readiness wanes.

Despite lessons learned from outbreaks here and in other parts of the world over the past 20 years – including SARS (Severe Acute Respiratory Syndrome), pandemic influenza H1N1, Zika virus, MERS (Middle Eastern Respiratory Syndrome), and Ebola – **Ontario did not maintain its investment in preparedness** before COVID-19 hit.

In recent reports, Ontario's Office of the Auditor General (2020, 2021) highlighted the lack of ongoing investment in:

- public health surge capacity to meet the demand for testing, and case and contact tracing in the event of a pandemic
- public health testing infrastructure and laboratory capacity to respond to public health threats
- stockpiles of personal protective equipment established post SARS
- staffing and infection prevention and control capacity in long-term care homes
- hospital surge and ICU capacity.

How do we learn from the past so the next time is different?

This report is not an assessment of Ontario's response to the COVID-19 pandemic, nor is it specific to COVID-19. It is a call to learn from the past and invest in preparedness so Ontario is ready for the next outbreak or pandemic, whenever it may occur.

While all parts of the health system and other sectors must prepare for any emergency or disaster that can affect their operations and communities, the public health sector is responsible for leading preparedness and response for infectious disease emergencies in Ontario.

> "Public health faces "boom and bust" funding cycles that leave us ill-prepared for new emergencies. As we have seen in the past, public health resources are often scaled back after health emergencies as governments move to address other priorities. This places public health systems at a disadvantage at the onset of each crisis since the capacity and networks required for a rapid response are not there. We need to invest in public health up front and consistently. This investment will be cost saving and provide many long-term social and economic benefits.
>
> *A vision to Transform Canada's Public Health System, The Chief Public Health Officer of Canada's Report on the State of Public Health in Canada, 2021*

> "When COVID-19 hit, Ontario experienced the same problems with laboratory capacity as it had during SARS: "the provincial laboratory in Toronto quickly became swamped with specimens. Like other parts of the health care system, it lacked surge capacity …"
>
> *COVID-19 Preparedness and Management Special Report on Laboratory Testing, Case Management and Contact Tracing, Office of the Auditor General of Ontario, November, 2020*

Outbreaks are inevitable. Preparedness allows us to respond early and decisively, blunting the impact of outbreaks when they occur.

Each year, outbreaks of influenza and other respiratory viruses provide opportunities to work together purposefully to practice and sustain preparedness.

Figure 3: Ontario's public health sector - the "three-legged stool" of
(i) Ministry of Health / Chief Medical Officer of Health; (II) Public Health Ontario; and (iii) Local Public Health Agencies

- Provides leadership and expertise
- Sets policy directions and public health standards for the province

- Provides scientific evidence and technical advice to the Ministry of Health, Chief Medical Officer of Health and local public health agencies
- Provides laboratory testing services
- Is responsible for disease surveillance and monitoring

- Deliver public health programs and services
- Lead health promotion and health protection/ disease prevention services
- Work to improve the health of their populations and reduce health inequities

This report focuses specifically on how to enhance the capacity of Ontario's public health sector to fulfill its lead role in preparedness planning. It:

- lays out the case for ongoing investments in preparedness for infectious disease emergencies
- argues for a more collective "big picture" approach to outbreak preparedness that builds sector and system, community, and societal readiness
- highlights the priorities for outbreak and pandemic preparedness that must be **sustained**, **strengthened** and/or **developed** over the next one to two years.

The Case for Sustained Investment in Outbreak Preparedness

There are compelling social, ethical, and financial reasons why Ontario must invest in being prepared and resilient in the face of outbreaks:

- The risk of serious outbreaks and another pandemic is real and growing.
- The human and economic costs of *not* being ready are too high.
- The burden disproportionately affects populations already facing health inequities.

> Resilience is the capacity of a system, community or society to adapt to disturbances resulting from hazards by persevering, recuperating or changing to reach and maintain an acceptable level of functioning. Resilient capacity is built through a process of empowering citizens, responders, organizations, communities, governments, systems and society to share the responsibility to keep hazards from becoming disasters.
>
> Emergency management strategy for Canada: toward a resilient 2030, Public Safety Canada, 2019

1. The risk of other outbreaks and another pandemic is real and growing

It is not a question of "if", but "when".

Novel pathogens are emerging more rapidly than in the past. In the last 20 years alone, the world has seen more frequent disease threats and serious outbreaks. Most have been caused by zoonotic viruses that spread from wildlife to humans.

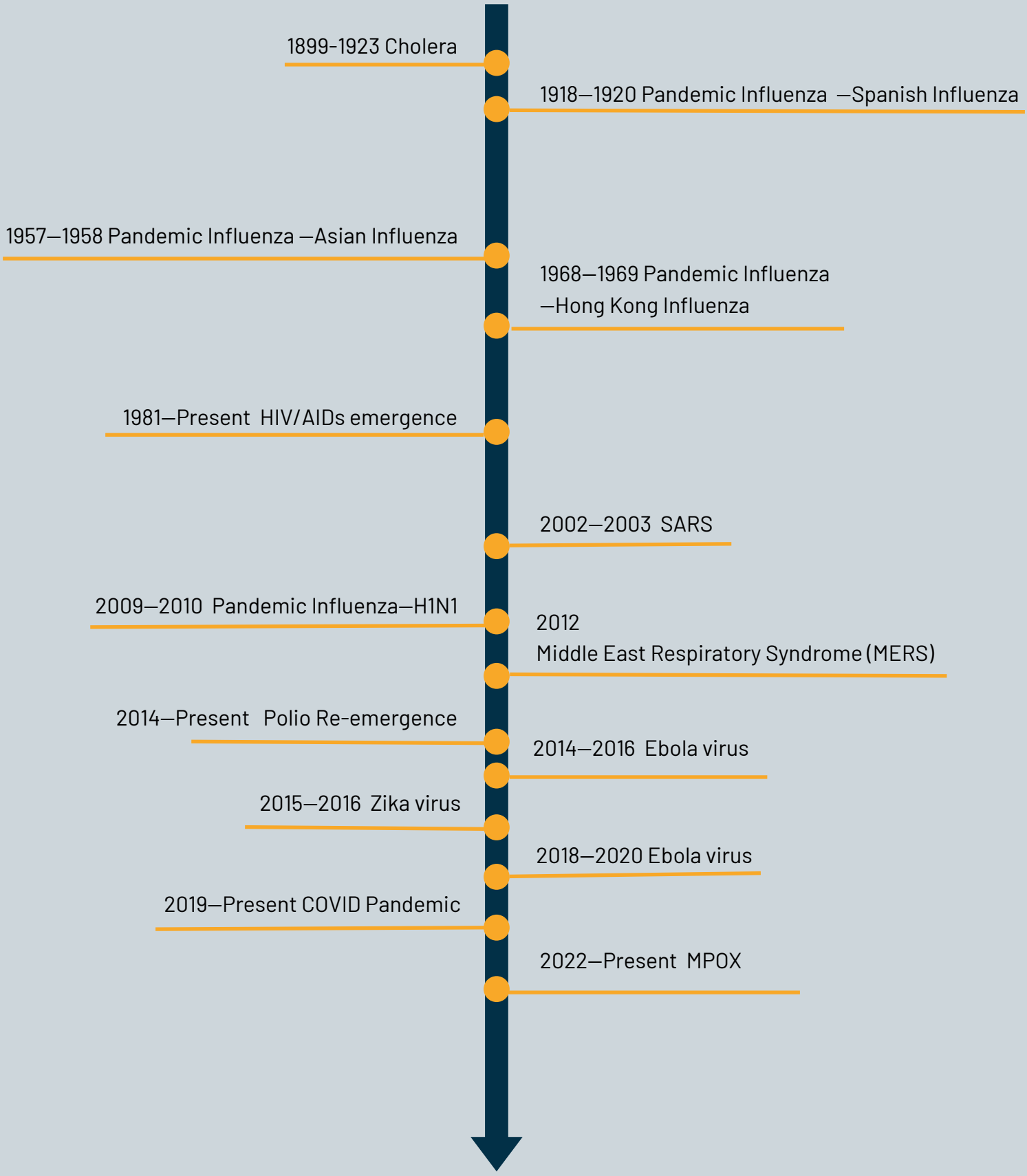
The increasing risk of zoonotic diseases is driven by: human and domestic animal population growth, climate change pushing land use and livestock production into areas inhabited by wild animals, the growing international wildlife trade, industrial-level farming and transportation of wild animals, and human behaviour and travel. As people move into wildlife habitats and animals relocate to more hospitable ecosystems, viruses carried by wild animals have more opportunity to infect domestic animals and humans. (Keusch et al, 2022; The Independent Panel for Pandemic Preparedness and Response, 2021).

> Detecting and stopping the spread of zoonotic diseases requires a One Health approach, which recognizes that human and animal health are closely connected, and brings together experts in human, animal and environmental health as well as other relevant disciplines to learn how diseases spread among people, animals, plants, and the environment.
>
> The One Health approach has the potential to prevent outbreaks in animals and people, improve food safety, reduce antibiotic resistance and protect global health security.
>
> One Health Basics, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention. 2022

There are also growing risks from:

- the resurgence of previously controlled pathogens, such as polio, tuberculosis, and measles
- rapid global spread of emerging infectious diseases, such as MPOX
- antimicrobial resistant organisms
- the accidental or deliberate release of engineered or natural pathogens.

Figure 4: Timeline of major outbreaks over the past 100 years.



The risk of an outbreak becoming a pandemic is exacerbated by our connectedness: diseases that emerge in one part of the globe do not stay there. They travel quickly to other parts of the world – often before the threat has been identified. Geopolitical forces, such as war and economic instability, affect a country's ability to maintain public health programs or respond to emerging diseases, making it more likely they will spread in that country and beyond its borders.

As a society, we know the value of being ready in case of an external threat or disaster.

Countries maintain an intelligence and defense system in case of attack or war. Provinces maintain capacities to respond to wildfires and storms. Municipalities support a network of fire stations and equipment. Individuals install smoke and carbon monoxide detectors in their homes. These investments are a form of insurance and readiness for uncommon events so that we can respond quickly in the event of an emergency. Societies must make the same kind of ongoing investment in the competencies and capacity required to respond to outbreaks and pandemics.

Maintaining and strengthening public health's capacity to plan for outbreaks and pandemics is good risk management. It's a form of insurance that will cost significantly less than another unplanned-for pandemic.

Protecting Ontarians from the threats of tomorrow will improve health today.

Strengthening Ontario's capacity to detect emerging diseases and respond to a pandemic will also enhance our ability to manage less serious or widespread outbreaks. For example, the same rapid, high volume genomic sequencing that allowed Ontario to identify and track the spread of different COVID-19 variants can be used to investigate and link cases of food-borne or other illnesses provincially, nationally – even internationally – and identify the cause of outbreaks.

2. The human and economic costs of not being ready are too high

The personal, health, social/emotional, and economic costs of a pandemic are unacceptably high.

Ontarians are still experiencing the impact of COVID-19 on their lives and health. As of September 2022, COVID-19 had resulted in:

- **>55,000** Ontarians being hospitalized[3]
- **>14,000** deaths
- **thousands** who have experienced long COVID or post-COVID-19 conditions.

What Would have Happened Without Public Health Measures?

As devastating as COVID-19 was in Ontario and Canada, without public health measures such as closures, travel restrictions, contact tracing, masking, and social distancing, and without high rates of vaccination, the toll would have been much worse.

Ogden et al (2022) estimate that, in Canada, there would have been:

10 x
up to 34 million vs 3.3 million cases

13 x
up to 2 million vs 150,602 hospitalizations

20 x
up to 800,000 vs 38,783 deaths

[3]Public Health Ontario. Ontario COVID-19 Data Tool. Numbers as of September 17, 2022. https://www.publichealthontario.ca/en/data-and-analysis/infectious-disease/covid-19-data-surveillance/covid-19-data-tool?tab=summary. Accessed September 24, 2022.

In terms of mental health, Ontarians have had to cope with stresses related both to the direct impacts of COVID-19 and the public health measures adopted to protect people from illness and death, including, but not limited to:

- grief and loss caused by COVID-19 illnesses and deaths
- stress and burnout from caring for people with COVID-19
- fear and anxiety about the virus and feeling that you do not have the capacity to protect yourself and your family
  - ◊ particularly for essential workers who were at risk of getting infected on the job and bringing the virus back to their families and for people with co-morbid conditions who were at high risk
- isolation from family members and friends for months at a time
- caring full-time for children while working from home
- disruptions to children's lives, education, and social development from being out of school or learning remotely for months
- increases in alcohol and cannabis use
- increases in domestic and intimate partner violence
- inaccessible supports for those experiencing homelessness and substance use disorders
- anxiety and mental distress over loss of income
- mental distress over loss of housing due to evictions
- stress from lack of available medical and mental health care.

> "Between March 2020 and January 2022, schools in Ontario were closed for 27 weeks, longer than any other Canadian jurisdiction and most European countries.
>
> Ontario Returns to School: An Overview of the Science, Science Table: COVID-19 Advisory for Ontario, 2022

Economic costs from pandemics are also high. The resulting illness, death, and disability due to COVID-19, and the indirect costs of caring for infected individuals took a toll on the economy. During COVID-19, hundreds of businesses closed and thousands of people were laid off. By February 2021, compared to other provinces, Statistics Canada (2021) reported that Ontario had the lowest percentage of active businesses, and the second lowest employment rate in the country (compared to pre-pandemic levels). Sectors most negatively affected at that time were: hospitality and food services; arts, entertainment, and recreation; and retail. While many sectors rebounded in 2022, the full economic impacts of COVID-19 are still unknown.

Investments in preparedness can cut the health and economic costs of pandemics

When jurisdictions are prepared and can respond quickly to outbreaks, they can reduce illness and deaths, and either avoid implementing stringent public health measures to protect health or reduce their negative impacts.

For example, early in the pandemic, South Korea was able to minimize COVID-19 spread without closing businesses or issuing stay-at-home orders. The country was able to avoid strict measures required in other countries because, after a MERS[4] outbreak in 2015 that resulted in 185 cases and 38 deaths (World Health Organization, Outbreaks and Emergencies), it invested heavily in people and systems to test, detect, and contain infectious diseases. Its preparedness initiatives included hiring more infection control staff, running more outbreak simulations, significantly increasing capacity to scale up testing as well as case and contact management, working with the private sector to ensure an adequate supply of tests, and purchasing personal protective equipment (PPE) centrally. As a result, in the first year of COVID-19, South Korea, a country with a population of 52 million, had fewer than 80,000 cases and 1,500 deaths, and the lowest percentage decrease in gross domestic product of all 37 members of the Organization for Economic Cooperation and Development (OECD) (Kim JH et al., 2021).

[4] Middle East Respiratory Syndrome

3. The burden disproportionately affects populations already facing health inequities.

Health and social inequities are exacerbated during an outbreak or pandemic.

Although Ontario had a comparatively good response to COVID-19, it was not equitable. Populations already experiencing health inequities – including Indigenous, Black, and other racialized, low-income, and newcomer communities – were disproportionately affected by COVID-19, and had more severe outcomes.

According to the Wellesley Institute's analysis of Ontario race-based data to mid-2021, Latino, South Asian, Middle Eastern, South East Asian, and Black populations were 4.6 to 7.1 times more likely to test positive for COVID-19 than white populations (Wellesley Institute, 2021). During the first waves of the pandemic, public health measures failed racialized neighbourhoods where people had fewer options to work from home or isolate if they got sick. Early vaccine rollout also favoured affluent neighbourhoods and provided fewer options for higher risk communities to access vaccine (Black Health Alliance, 2021).

> "While emergencies affect everyone, they disproportionately affect those who are the most vulnerable. The needs and rights of the poorest, as well as women, children, people with disabilities, older persons, migrants, refugees and displaced persons, and people with chronic diseases must be at the centre of our work.
>
> Health Emergency and Disaster Risk Management Framework, World Health Organization, 2019

People living in northern, rural, and remote regions, including First Nations communities, also experienced poorer outcomes. Because of inequities in access to the social determinants of health, many had underlying health conditions that increased their risk. The COVID-19 pandemic also reinforced long-standing geographic inequities in access to services in these parts of the province. For example, early in the pandemic, people in southern Ontario could get a COVID-19 test and their results within two days or less, while individuals in the north could wait as long as two weeks because of distance from laboratories and delays transporting samples. Over the course of the pandemic, the health system invested in laboratory equipment and point-of-care tests to improve access to testing in rural and remote areas, but underlying systemic health disparities were not so easily addressed.

Individuals at highest risk of COVID-19 included:

- essential workers who could not work from home
- people living in congregate settings, such as long-term care homes, as well as those in overcrowded housing that made it difficult for people to self-isolate when ill or exposed
- people with co-morbidities, such as cardiovascular diseases, diabetes, chronic respiratory disease, and cancer
- people and communities coping with long-standing social, economic, and cultural barriers to care and health, particularly those who had higher rates of chronic diseases and poorer health outcomes before COVID-19.

For some populations that experienced more severe COVID-19 outcomes, the risks were not biological. They were related to inequities in income, education and access to services, as well as the impacts of colonization, systemic racism, and discrimination.

The Link Between Poverty and Poor COVID-19 Outcomes

Over the first three waves, the number of COVID-19 cases was highest among people living in neighbourhoods with the highest levels of material deprivation – which refers to the inability of individuals and communities to access and attain their basic material needs. People in these neighbourhoods were also more likely to experience severe outcomes from COVID-19. Compared to people living in neighbourhoods with the lowest levels of material deprivation, they were 2.7 times more likely to be hospitalized and admitted to intensive care, and 2.9 times more likely to die. (Ontario Agency for Health Protection and Promotion, 2022).

It is difficult to address health inequities in the midst of an outbreak or pandemic.

Instead, that important work must be an integral part of outbreak or pandemic preparedness, as well as the ongoing work of the public health sector. The process of preparing for outbreaks includes developing and sustaining trusting partnerships with communities. It means working collaboratively with them to address the social determinants of health and reduce health inequities so communities can be healthier and more resilient during an outbreak. Pandemic responses work best when everyone is properly protected. If parts of society are left behind, the effectiveness of the response decreases for everyone.

Our existing systems are characterized by inequities. These challenges will only be exacerbated when a disease outbreak occurs. The more equitable our communities and health systems are before an outbreak, the more likely Ontario will have a better and more equitable outbreak response.

A Bigger Picture View of Readiness

Recent pandemics including SARS, H1N1, and COVID-19 have taught important lessons about preparedness. In particular, the duration and severity of COVID-19 drove home the challenges of containing a fast-spreading virus and making ethical decisions in a world competing for scarce resources. It also highlighted the critical importance of local public health agencies knowing their communities, and advocating for and delivering services to meet their needs. It is only through collective action – individuals, families, communities, schools, workplaces, the health care system, other sectors, and governments working together – that we can slow or stop outbreaks and pandemics.

While we have learned key lessons from past outbreaks, the next one may be different. To be ready, Ontario needs a supported, adaptive, resilient public health sector that continually learns from previous experiences **and** is ready to respond to new challenges that may require different solutions.

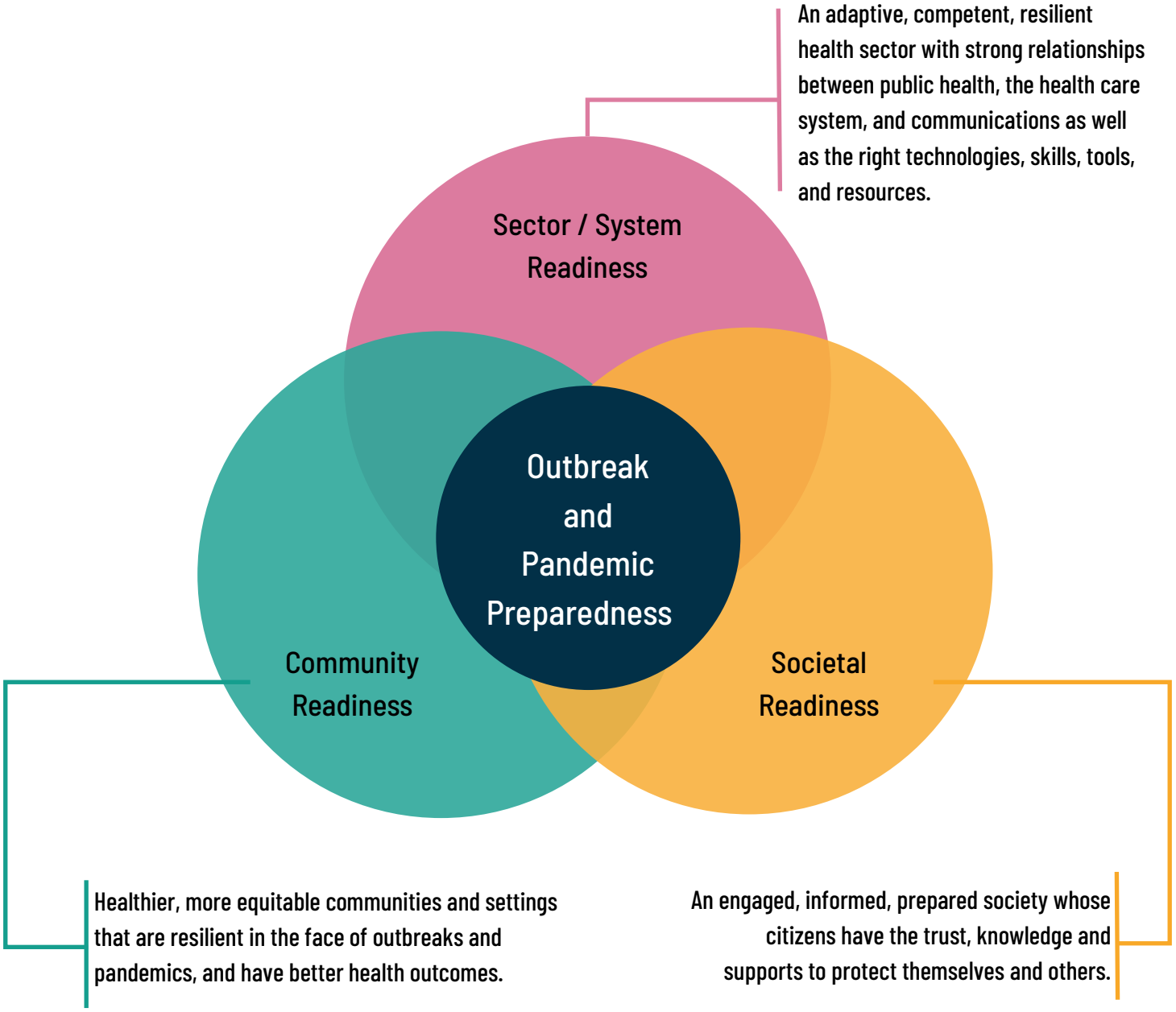
Ontario's public health sector must take a collective, forward-thinking approach to outbreak and pandemic planning that builds:

i) sector and system readiness,

ii) community readiness, and

iii) societal readiness.

Preparedness requires sustained investment in a wide range of relationships, skills, technologies, infrastructure, and capacities.



Sector and System Readiness

Sector readiness means having in place the relationships (networks), people (workforce), competencies and expertise, technologies, data systems, resources, structures, processes, and surge capacity that enable the public health sector and the broader health system to manage and contain an outbreak or pandemic - while continuing to provide other essential public health and health care services and, if necessary, respond to other emergencies that may occur during an outbreak.

Community Readiness

Planning only for sector and system readiness – the main focus of past preparedness efforts – does not address the facts that outbreaks start with people, people live in communities, and not all communities are equal. To reduce health inequities and improve health outcomes (before, during and after outbreaks and pandemics), local public health agencies must forge and maintain strong collaborative partnerships with their communities and, populations at risk, working with them, as well as with their governments and the health system, to improve health equity and resilience (O'Sullivan et al, 2014; O'Sullivan et al, 2013). They must also work closely with congregate living settings in the community, such as long-term care homes and shelters, where residents may be at greater risk.

Societal Readiness

To respond effectively to an emerging disease, Ontarians must trust public health leaders. They must be confident that governments and public health agencies will fulfill their responsibility to protect the health of the public and support Ontarians in their efforts to protect themselves and others. To prepare society for the types of difficult decisions that may have to be made during an outbreak – such as who will be first in line for scarce resources and what measures will be used to interrupt transmission (e.g., isolation, quarantine, closures) – the public health sector must engage an informed public in frank discussions about the ethical values guiding those decisions. Provincial and local public health agencies must also communicate clearly and transparently about the disease risk (i.e. what we do and do not know) and the reasons for implementing different public health measures. Society must be confident that the public health measures are based on best evidence, and reflect shared ethics and values. (Emanuel et al, 2022).

Measuring Preparedness: How Will We Know We are Ready?

The vision of readiness laid out in this report is based on the Public Health Emergency Framework and Indicators, work led by Public Health Ontario (Khan Y et al, 2018; Ontario Agency for Health Protection and Promotion, 2020) to guide planning for a broad range of public health emergencies. In this framework, ethics and values are at the centre of ten preparedness domains, and all domains rely on governance and leadership. The domains are interdependent, reflecting the complex adaptive system required to respond to public health emergencies, such as pandemics.

Figure 5: Resilience framework, adapted from Khan Y et al, 2018

Preparedness is an ongoing process, not an end state.

There is no specific checklist that Ontario can use to guarantee it will be ready for the next outbreak or pandemic. However, the Public Health Emergency Framework provides 67 indicators that public health agencies can use to monitor and assess their preparedness, and the National Collaborating Centres for Infectious Diseases and Determinants of Health (2020) have developed a resource that applies a health equity lens to assess these indicators. In addition, this report highlights some of the **Ontario Public Health Standards** that outline the local public health agencies' current accountabilities for emergency and pandemic preparedness.

Future CMOH reports will adapt and use the Public Health Emergency Framework indicators, as well as indicators from other pandemic preparedness frameworks and the Ontario Public Health Standards, to report regularly on the public health sector's progress in sustaining, strengthening, and developing the capacities required to be ready.

I. Sector/System Readiness

Ontario's public health sector – and the broader health system – must maintain the relationships, people, expertise, technologies, surge capacity, tool, processes, and resources required to quickly detect and respond to outbreaks.

During COVID-19, the public health sector and the health care system built extensive expertise, capacity, and tools to respond to and manage a pandemic. The sector and system have established a solid foundation for future readiness that must be sustained and strengthened.

To improve sector and system readiness for the next pandemic, the public health sector and its partners must focus on:

- Strong collaborative networks across the health system and other partners, including Indigenous health services
- A skilled, adaptable, resilient workforce
- Innovative, leading-edge testing and diagnostics
- Real-time surveillance systems and scientific expertise
- Critical response resources such as:
    - ◊ Infection prevention and control interventions and expertise in both health care and non-health care settings
    - ◊ Dependable supplies of personal protective equipment (PPE)
    - ◊ Timely access to vaccines and therapeutics

Strengthen Collaborative Networks

Pandemic preparedness is a team effort.

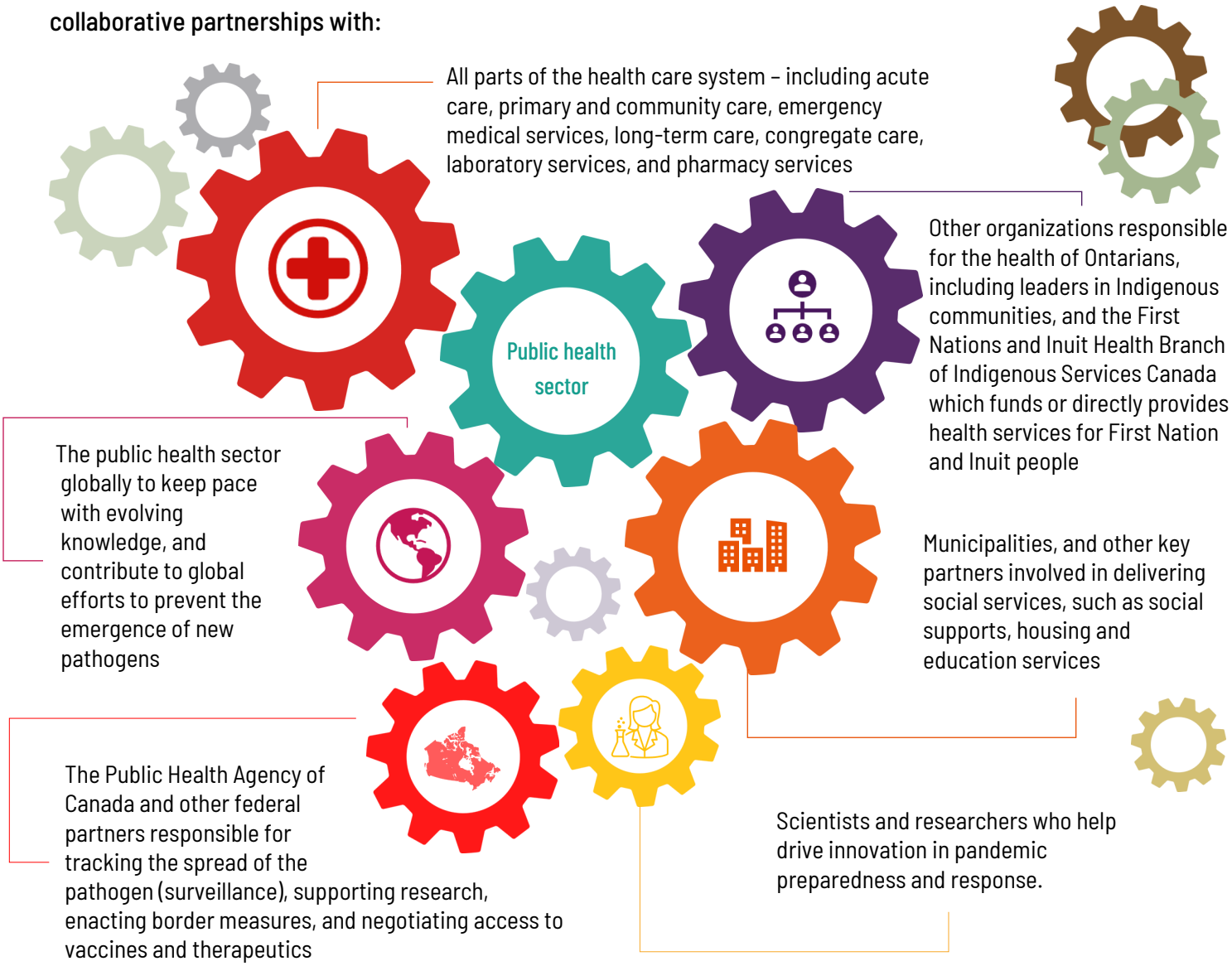
While the public health sector is responsible for leading outbreak planning and response, it relies heavily on other parts of the health care system and different levels of government to co-design and co-implement outbreak plans.

Relevant Ontario Public Health Standards

Conduct emergency planning in co-ordination with community partners and governmental bodies, including co-ordination and management of emergencies or disruptions.

Engage in relationships with Indigenous communities in a way that is meaningful for them.

Effective outbreak planning and response depends on Ontario's public health sector sustaining strong collaborative partnerships with:



These collaborative networks should be in place before an outbreak occurs and sustained over time. All partners should have a clear understanding of their roles, and work together to continually improve readiness.

Achievements and Challenges

Health System Networks

Over the course of the COVID-19 pandemic, the public health sector in some parts of the province was able to leverage existing collaborative relationships to improve access to services:

- With the creation of Ontario Health and Ontario Health Teams in 2019 (Ontario Ministry of Health, 2019), just before the pandemic, local public health agencies had opportunities to become part of new collaborative health care networks and forums to improve service co-ordination.
- Local public health agencies used their pre-existing relationships with long-term care homes, congregate living settings, and primary care, including community health centres, to improve access to testing and immunization particularly for people who are hard to reach.

- Pharmacies already trained to administer annual influenza shots were able to provide COVID-19 immunizations and tests, and can now prescribe and dispense Paxlovid®.
- Many public health agencies made innovative use of community paramedics to conduct health assessments, provide COVID-19 testing, and give immunizations – particularly in communities where it was difficult for people to travel to COVID-19 assessment centres or immunization clinics.
- Primary care physicians staffed mass immunization clinics, assessed and counselled patients, provided therapeutics, and supported local communities.

However, regions of the province with limited primary care and pharmacy services were unable to leverage these networks to the same extent, and a heavier responsibility for COVID-19 testing and immunizations fell on local public health agencies.

Forging Trusting Relationships with Indigenous Health Services

The roles and responsibilities of Ontario's public health sector in supporting the health of Indigenous communities is a long-standing issue, particularly in First Nations communities where the federal government is responsible for health care services. Some local public health agencies had already developed trusting relationships with Indigenous communities, including First Nation, Métis and Inuit communities, and were able to build on these relationships during COVID-19 (see box), but that was not the experience in all parts of the province.

In some cases, the lack of pre-existing partnerships with Indigenous leaders and communities led people to mistrust the services offered. Local public health agencies also experienced both successes and challenges co-ordinating public health services for Indigenous people living in urban and rural areas across the province.

Case Study: Collaboration with Indigenous Communities

Porcupine Health Unit serves a geographic area of more than 270,000 sq km. of northeastern Ontario from Timmins to Moosonee, shares lands with 10 diverse First Nations communities, and works closely with 12 municipalities that have large urban Indigenous populations. The public health unit respects each community's right to self-determination and is mindful in supporting their unique needs and concerns.

During the COVID-19 pandemic, the public health unit worked collaboratively with First Nations community leadership, the Weeneebayko Area Health Authority (WAHA), Tribal Councils, and Indigenous Services Canada to support the COVID-19 response in several First Nations communities. Public health staff attended regular (often weekly) meetings at the invitation of many communities, and provided the level of public health involvement guided by each community.

While public health's role was adapted to each community's needs, activities included: sharing information on the province's COVID-19 guidance and the science behind the guidance; providing advice on how that guidance could be implemented in each community; and being available to answer questions. The public health unit shared daily social media updates with First Nations Chiefs, health directors, hospitals and other health care partners, urban Indigenous partners, directors of education, and business associations. It also shared templates for communications that communities could adapt to meet their needs.

Collaborative Network Priorities

- Strengthen local public health agencies' collaborative networks with local and regional health system partners, including Indigenous leaders and Indigenous health service providers, and continue to clarify structures, roles and responsibilities during outbreaks and in pandemic planning.
- Sustain the province's collaborative networks with local, regional, and provincial forums for public health and health system partnerships.
- Integrate Indigenous models of community public health, and clarify the public health sector's role in supporting the health of Indigenous people and communities.

Build a Skilled, Adaptable, Resilient Workforce

The public health sector's ability to respond to an outbreak or pandemic depends on having a skilled, adaptable, resilient workforce.

The workforce must have the public health competencies, baseline capacity, and surge capacity to provide services at the scale and intensity required during outbreaks or a pandemic – while also being able to respond to other public health emergencies that may occur at the same time **and** maintain essential public health operations. The public health workforce must also have the capacity to provide leadership and expertise to support partner organizations assisting with the outbreak response.

Relevant Ontario Public Health Standards

Support a culture of excellence in professional practice and ensure a culture of quality and continuous organizational self-improvement.

Achievements and Challenges

COVID-19 was and continues to be a stress test of the public health workforce, and its ability to adapt.

The workforce responded, but at the cost of placing heavy demands on individuals, teams, and the public health sector:

- Local public health agencies reallocated staff from all parts of their operations to pandemic activities, such as case and contact management, and vaccinations. A number of local public health agencies had already cross-trained staff in the necessary public health skills as part of their outbreak planning, which made it easier to redeploy staff quickly.
- Local public health agency staff stepped into new roles to meet the needs of their communities, either providing services themselves and/or negotiating with community partners to provide them. For example, to support individuals in isolation or quarantine, local public health agencies coordinated places for them to isolate, delivered supplies, and arranged ways to look after dependents and pets. However, the public health sector's ability to redeploy people was limited by collective bargaining contracts and legislative requirements on health care provider scope of practice. Through the pandemic, these restrictions were eased to allow more effective use of human resources to meet demands.
- Faced with the increasing demand for case and contact management, the government gave local public health agencies additional resources to hire contract workers. Local public health agency staff rapidly recruited, trained, co-ordinated, and supervised a large number and wide variety of people, some with minimal public health or health experience. Hiring inexperienced people was challenging for public health staff who had to spend time training and supervising them, which meant they were less able to do their own jobs. In some parts of the province, there were not enough people to fill available positions.
- Like those working in other parts of the health care system, all public health staff across Ontario's public health sector were stretched extremely thin during the COVID-19 response, working long hours under great pressure, and struggling to recruit to fill vacancies. The ongoing demands affected work-life balance, and resulted in a significant increase in stress and burnout.

Lack of Surge Capacity Disrupted Other Public Health Services

In both 2020 and 2021, 74-78% of local public health agency resources were diverted to the COVID-19 response (alPHa, 2022). Almost all other public health services had to be stopped or scaled back.

Although all local public health agencies have business continuity plans, those plans did not take into account the need to adjust service levels and interrupt service delivery over such a long period of time (currently almost three years). While relatively little harm may be done when a local public health agency has to delay some activities for a few weeks, the longer an emergency continues or the more complex it is (i.e. several concurrent emergencies), the greater the negative impact of the disruption to other public health services.

Public health business continuity and contingency plans must be updated to reflect the resources and strategies required during a long-term disruption of normal business activities. The goal is to put in place plans and contingency measures that will allow the public health sector to respond to an outbreak or pandemic while still delivering other essential public health programs and services.

While the public health sector was able to respond to COVID-19, it was clear that, faced with a pandemic, the public health workforce does not have adequate surge capacity.

Examples of local public health agency services that were severely cut back or delayed during COVID-19:

- routine school immunizations
- children's health services, including Healthy Babies Healthy Children visits
- population health assessments
- upstream work on the social determinants of health
- sexual health services and sexually transmitted infection testing
- clinical and public health follow-up for sexually transmitted infections
- restaurant/food safety inspections
- delivery of substance use and injury prevention programs
- delivery of healthy eating and physical activity initiatives

The negative consequences of the delays in access to public health services may continue for years to come.

COVID-19 tested public health business continuity plans and highlighted the critical importance of planning for outbreaks or pandemics that last a long period of time.

Other Emergencies Don't Stop During a Pandemic

One of the most compelling arguments for investing in the public health workforce and surge capacity is that other public health emergencies and seasonal epidemics, such as influenza and respiratory syncytial virus, don't stop just because there is a pandemic.

One public health agency in northern Ontario reported that, during COVID-19, they were also responding to:

- clusters of tuberculosis
- an outbreak of blastomycosis
- flooding and fire-related community evacuations, including from First Nation communities
- the ongoing opioid epidemic and the need to increase harm reduction services including setting up consumption and treatment services.

Workforce Priorities

- Build a flexible, adaptable and resilient public health workforce within public health agencies locally, regionally, and at the provincial level (Ministry of Health and Public Health Ontario), that:
  - ◊ is cross trained in public health core competencies
  - ◊ has adaptive skills to respond to outbreaks and pandemics as well as other emergencies, while maintaining essential public health services
  - ◊ is supported by healthy work environments.
- Develop the surge capacity to quickly scale up the public health workforce and train additional responders in critical pandemic skills (e.g. vaccination, case and contact management, infection prevention and control).
- Strengthen public health agency continuity of operations plans to account for outbreaks of varying length, and identify the strategies and resources to maintain and restore public health services during prolonged disruptions.

Invest in Innovative, Leading-edge Testing and Diagnostics

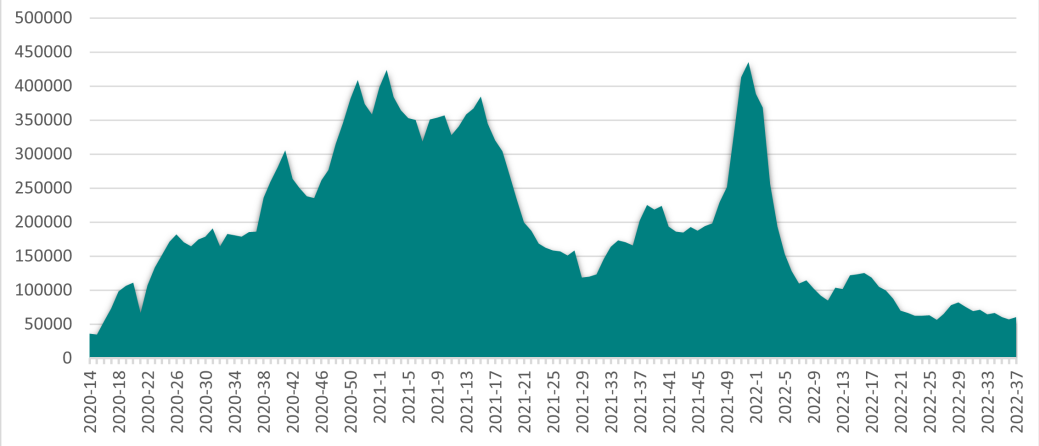
Testing capacity is essential for early detection and outbreak management.

The earlier that public health can pick up a new pathogen, the sooner it can act to contain it. Every early piece of diagnostic information buys time to understand the risk, assess whether a pathogen is emerging, spreading or mutating, and implement measures to slow or to stop its spread.

Achievements and Challenges

- As part of its collaboration with the Canadian Sentinel Practitioner Surveillance Network, Public Heath Ontario (PHO) uses community practitioners to test for influenza and other respiratory viruses to inform influenza epidemiology and vaccine effectiveness. This program allows the testing system to pick up cases early.
- When the COVID-19 pandemic began, the PHO laboratory had the capacity to process about 10,000 tests a day. Early in the pandemic, it significantly increased its capacity, and introduced new testing methodologies. To respond to increasing testing demands, the Provincial COVID-19 Testing Network, supported by Ontario Health, was formed as a network of 40 independent hospitals, public health and community laboratories. More than 170 assessment centres, over 200 pharmacies, and a number of mobile and pop-up facilities provided testing and sent samples to the laboratories in the network. At its peak, the Provincial Testing Network was processing over 100,000 COVID-19 PCR tests a day, and over 75% of people tested were getting their results within 48 hours.

Figure 6: Trends in the number of COVID-19 laboratory tests per week in Ontario over time (April 2020 to September 2022)



While the PHO Laboratory and other laboratories in the network were able to ramp up COVID-19 testing volumes, they didn't have the automated test requisition or reporting systems to support those volumes. Test requisitions were still being completed by hand, creating many person-hours of manual data entry at hospitals, long-term care homes, laboratories, and public health agencies. In the worst cases, these manual processes meant results were delayed or went missing, negatively affecting clinical care and the public health response.

The problem was highlighted in the final report of Ontario's Long-Term Care COVID-19 Commission, which recommended that Ontario "ensure laboratory surge capacity … [that prioritizes] long-term care in accessing effective testing and timely, efficient reporting of testing results, [including] ensuring long-term care homes have the technological capacity to receive electronic medical test results."

There were also geographic inequities related to accessing testing and results. The increases in provincial testing capacity mainly benefited Ontarians who lived in or near major city centres. Many people in rural and remote areas had to travel further to access a testing site, and wait longer for specimens to arrive at testing laboratories and to receive their results. These delays made it harder for public health agencies to identify and isolate people who were infected before the virus had a chance to spread. They also meant that:

- some individuals and their close contacts were in isolation longer than necessary while waiting for delayed test results
- outbreaks in long-term care homes and other settings could not be appropriately managed because of the time it took to identify individuals who were positive.

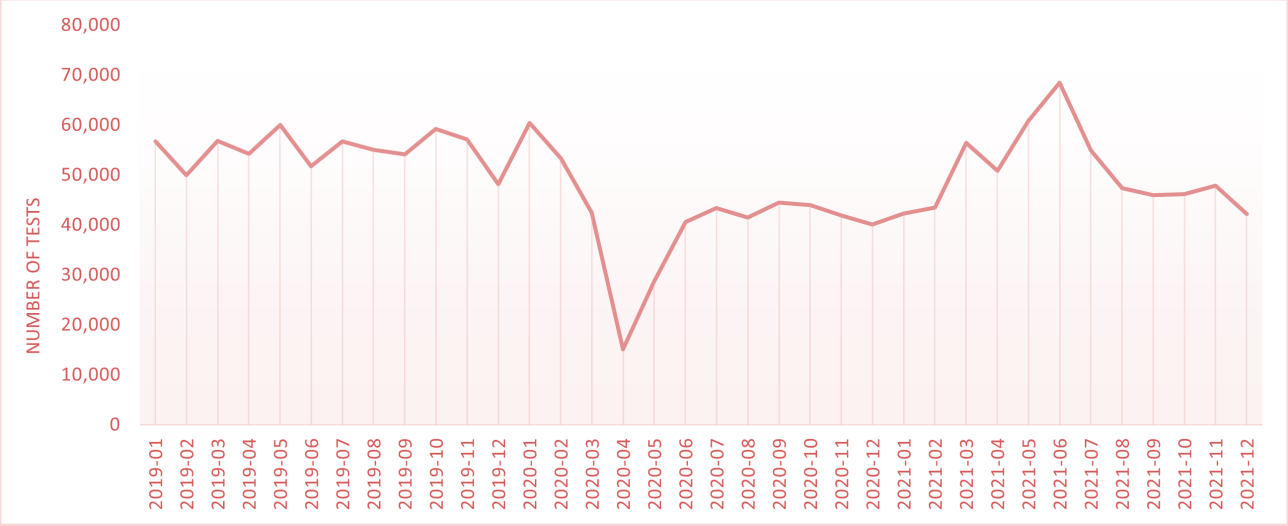
Ontario had to look for alternative strategies to provide more timely testing across the province, such as investing in rapid antigen testing kits, the introduction of ID Now testing (see box), and the use of self-collection of specimens to reduce demands on collection sites.

Lack of Laboratory Surge Capacity Limited Access to Other Testing

Ontario's rapid response to the need for COVID-19 testing came at the expense of other infectious disease testing usually done by Ontario's public health laboratories.

The combination of disruptions in clinical care and laboratory capacity issues meant people did not access the routine lab testing they would have normally received, which may have led to significant delays in diagnoses, and poor health outcomes. For example, in 2020, testing for HIV was down 26%.

Figure 7: Number of HIV diagnostic tests per week at Public Health Ontario Laboratory, January 2019 to December 2021



Outbreak planning should include strategies to ensure ongoing access to regular diagnostic testing as well as the capacity to ramp up testing for an emerging pathogen.

Case Study: ID Now Provides More Timely Testing in First Nations Communities

Northern Ontario had high COVID-19 case rates compared to the southern part of the province. Although people in the north were highly affected by COVID-19, they had less access to timely testing. To close that gap in First Nations communities, Ontario's public health sector worked closely with the Public Health Agency of Canada (PHAC) to implement the Abbott™ ID Now Analyzer: a machine that provides rapid point-of-care molecular test results. Analyzers were installed in 98 First Nations communities across Northern Ontario to provide point-of-care testing, which meant individuals in those communities no longer had to wait the days to weeks it could take to receive laboratory-based results.

Ontario worked with the communities, training local staff to conduct the tests and operate the ID Now analyzer. Challenges in implementing this testing included amending legislation to allow non-regulated health professionals to administer the testing, and finding ways to report test results to the public health agency, as part of provincial surveillance.

In the future, efforts to improve testing capacity should leverage the COVID-19 lessons on: how to provide more equitable access to testing across the province for all communities; and the health service capacities required to collect specimens in a timely and geographically equitable way. For example, providing testing resources in a variety of sites and modalities, such as primary care offices, pharmacies, community paramedics, assessment centres, mobile sites, and self-collected at home, can support rapid ramp-up of testing across the province, avoid unnecessary use of emergency departments as testing sites, and produce timely data to inform public health surveillance and response.

Testing Priorities

- Strengthen the end-to-end provincial testing infrastructure, including specimen collection and processing capacity, leading-edge testing technologies, and data systems that automate the test requisition process and reporting of results.
- Strengthen the provincial laboratory infrastructure to support high volume, province-wide testing during a pandemic while maintaining the capacity to support ongoing routine testing.
- Sustain the PHO Laboratory's capacity and expertise in the detection, monitoring, and genomics of emerging infectious diseases.

Strengthen Real-time Surveillance Systems and Scientific Expertise

Surveillance and monitoring are critical to infectious disease prevention, detection, and management.

Ontario needs timely, accurate, and detailed surveillance information as well as ready access to scientific expertise to: enhance its capacity to detect and monitor disease threats; and guide decisions about public health measures when a threat reaches a certain magnitude.

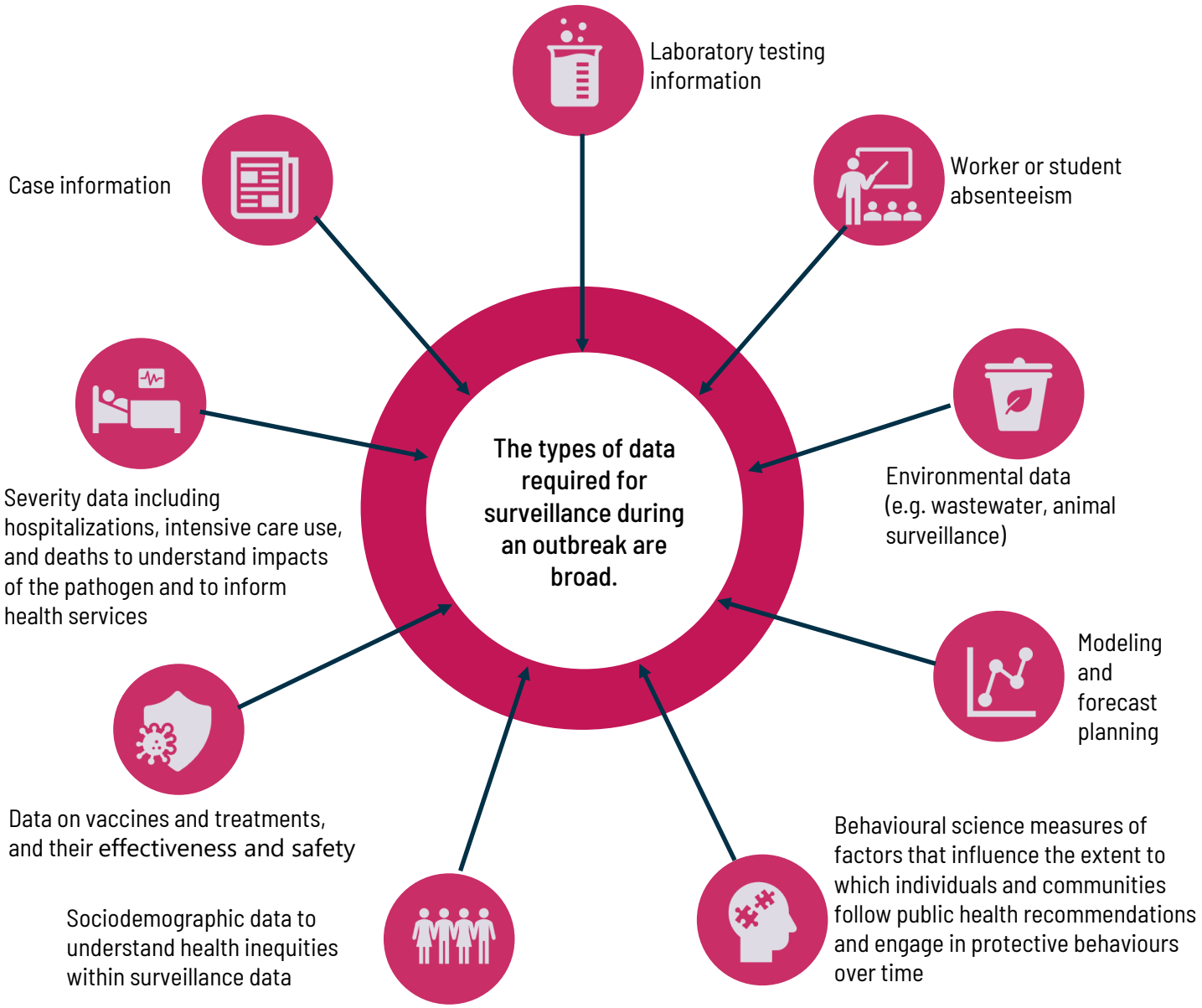
Surveillance is also key to health equity. Surveillance information is used to identify those at high risk of getting infected and/or suffering poor health outcomes, and to guide prevention and treatment. To be useful – particularly during an outbreak or pandemic – surveillance data must be collected, analyzed, synthesized, and shared quickly, preferably in real time, with those trying to understand and interrupt disease spread locally and beyond our borders.

Relevant Ontario Public Health Standards

Interpret and use surveillance data to communicate information on risks to relevant audiences.

Conduct population health assessment and surveillance regarding infectious and communicable diseases and their determinants.

Conduct surveillance and epidemiological analysis, including the monitoring of trends over time, emerging trends, and priority populations.



Achievements and Challenges

Ontario surveillance in action during COVID-19:

- Using local data showing that racially and ethnically diverse, newcomer, and low-income communities and neighbourhoods were disproportionately affected by COVID-19, the public health sector was able to target testing and immunization services to high-risk communities.
- Black, South Asian and other racialized populations were able to use local data on health disparities to advocate for and implement health services for their communities.
- Ontario used newly developed methodologies for testing municipal wastewater to help understand population-wide levels of virus within communities.
- Because of prior PHO Laboratory investments in genomic testing for foodborne illness outbreaks and human immunodeficiency virus (HIV), Ontario was a global leader in whole genome sequencing (WGS) for COVID-19. Ontario leveraged this capacity at the PHO Laboratory and other laboratories across the province to provide ongoing real-time assessments of the evolution of the virus to inform provincial, national, and global surveillance.
- COVAX – the centralized vaccination data collection system – made it possible to track uptake of COVID-19 vaccines across the province in real time. With a supportive data governance structure that made the province the health information custodian (HIC) for COVAX, Ontario had the information it needed to assess vaccine uptake and effectiveness in real time.
- PHO used surveillance data to develop a series of epidemiological reports and knowledge products synthesizing the emerging literature on COVID-19, which were used provincially and internationally.
- Ontario's open data initiatives made information about COVID-19 more transparent, and enabled researchers and scientists, including modelers, to develop analyses and models to support decision makers (Hillmer et al, 2021).
- The Ontario Science Advisory Table (now the Ontario Public Health Emergencies Science Advisory Committee of Public Health Ontario), a multidisciplinary group of researchers and scientists, analyzed provincial data and provided advice to the public health sector and government.

But there were still gaps and challenges. Ontario lacks key elements of surveillance and data system infrastructure, including data collection and use agreements to provide comprehensive and responsive data for decision-making. For example, although the greatest pandemic threat is from zoonotic viruses that spread from wildlife to people, there is a lack of integrated surveillance across human, animal, and environmental data to support a One Health approach to surveillance.

Ontario initially did not have the authority or capacity to collect data on the race, ethnicity, or other sociodemographic characteristics of COVID-19 cases to understand which populations were at greatest risk from COVID-19. It also did not have processes to ensure that the way data were collected and used respected Indigenous data sovereignty as well as the importance of responsible engagement, governance, access, and protection of race-based data.

Lack of Integrated Data Systems

Data systems used by public health agencies, hospitals, primary care, laboratories, and long-term care homes are not integrated and cannot talk to each other. Lack of information system integration results in unnecessary duplication of data collection and missing information. During COVID-19, some progress was made in integrating data to support case and contact management, and vaccination (i.e. COVAX), but those systems can currently only be used for COVID-19. They could not be adapted for MPOX when it emerged in 2022. Public health agencies had to revert to cumbersome, time-consuming manual processes for case and contact investigations and vaccinations, and MPOX case and vaccination data cannot be easily linked.

The province does not have systems that support automatic reporting of hospitalizations and deaths of individuals with diseases of public health significance. As a result, public health agencies had to use labour-intensive manual processes to assess the number of individuals with COVID-19 who had been hospitalized, were in the intensive care unit, or had died due to COVID-19.

The most effective use of scientific expertise relies on a diverse interdisciplinary range of expertise, including biomedical, social sciences, ethics, law, and history, organized to provide a pipeline of research, evidence and knowledge that integrates lessons learned from practice and provides timely, synthesized information for decision-making. During the COVID-19 pandemic, several scientific entities across the province, as well as nationally and internationally, produced similar summaries of the rapidly evolving literature. Lack of co-ordination among these scientific networks resulted in unnecessary duplication. Over the course of the pandemic, organizations in Ontario did establish an evidence synthesis infrastructure to provide rapid evidence syntheses across a range of topics to inform decision makers about the current state of the science. Approaches like this can help ensure more effective and efficient use of scientific expertise .

Case study: Recognizing Indigenous Data Sovereignty

Both the Calls to Action of the Truth and Reconciliation Commission (TRC) and the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP) reinforce Indigenous Peoples' right to data sovereignty and self-determination.

During COVID-19, Ontario faced challenges ensuring that, when First Nations communities supported efforts to collect public health data on cases and vaccination, the data were collected, entered, and shared in a way that aligned with the OCAP® principles of Ownership, Access to, Control and Possession of First Nations data, OCAP principles for Metis, Inuit Qaujimatuqangit principles for Inuit, or other guiding data sovereignty structures in place, which are crucial to Indigenous data sovereignty and self-determination.

These principles and data sovereignty structures are not yet well established or integrated in Ontario's health care system, and it was difficult to address this gap in the midst of a global pandemic. As a result, it was challenging for First Nations communities, Indigenous Services Canada, Indigenous leaders, and public health agencies to access surveillance data that could inform and guide public health advice and responses.

The process of working with Indigenous communities to determine if and how their data will be collected, accessed, used, and managed in ways that respect their data sovereignty rights should be an integral part of ongoing outbreak and pandemic planning.

Surveillance Priorities

- Strengthen the province's capacity to conduct One Health surveillance of zoonotic viruses and environmental surveillance.
- Strengthen the provincial surveillance infrastructure to provide comprehensive real-time information on laboratory results, cases, severity, immunizations, and sociodemographic data that can be adapted quickly for use with any new or emerging pathogen.
- Develop data governance mechanisms that allow the province to access timely, relevant, local surveillance data during an outbreak or pandemic, including working respectfully with Indigenous, Black, and other racialized communities to determine how their data may be collected and responsibly used to address inequities.
- Develop proactive processes and platforms to co-ordinate the work done by scientific experts to generate evidence and knowledge products to inform public health decision-making.

Provide Critical Response Resources

Having access to the right resources in the right place at the right time is key to pandemic preparedness and response.

Maintaining access to critical response resources is particularly challenging during a global pandemic when there is fierce competition for limited resources and supply chains are disrupted. During COVID-19, jurisdictions that had invested in infection control expertise as well as stockpiles of personal protective equipment (PPE) – including masks, gloves, gowns, and hand sanitizer – as part of pandemic planning were in a much stronger position to respond than those that had not.

While future pandemics may create different resource needs (e.g., ventilators, acute care capacity, therapeutics), all will require logistical planning to ensure access as well as ethical frameworks for allocating resources during shortages. Three types of critical response resources are likely to be required during all outbreaks and pandemics:

- infection prevention and control interventions and expertise in both health care and non-health care congregate settings
- dependable supplies of personal protective equipment
- timely access to vaccines and therapeutics (if/when available).

Infection Prevention and Control Interventions and Expertise

Infection prevention and control (IPAC) interventions and expertise are a critical public health resource – and a key tool in preventing and managing outbreaks.

IPAC expertise has traditionally been focused on acute health care settings, but it is a first line of defence against infectious diseases in all settings where people congregate, including long-term care homes and retirement homes, workplaces, schools, post-secondary residences, correctional facilities, shelters – even our own homes. Effective IPAC interventions and practices can reduce the spread of seasonal illnesses and improve overall health and resilience; they can also help prevent the emergence of new pathogens.

Achievements and Challenges

Outbreaks are quick to find weaknesses in infection prevention and control.

In 2003, SARS revealed IPAC deficiencies in the acute care sector. As part of the post-SARS investment in pandemic preparedness, the health system made a substantial investment in IPAC programs and expertise, which focused on acute care settings and had limited resources to support other settings.

COVID-19 exposed IPAC deficiencies in other parts of the health care system, such as long-term care homes and retirement homes, and in other community settings, such as shelters and workplaces. Many non-acute care health settings did not have access to the IPAC resources and expertise they needed or the right practices consistently in place to prevent the spread of COVID-19. Community settings also faced significant challenges applying IPAC recommendations for health care facilities in their context.

Ontario does not have enough certified infection control practitioners to meet demand. The province also needs more evidence about how to help health care and non-health care settings as well as individuals consistently implement IPAC interventions and practices.

In an effort to address the IPAC gaps, Ontario took steps to improve the quality and consistency of infection control interventions and practices during COVID-19:

- It established regional IPAC hubs responsible for providing expertise and support to community-based congregate living settings funded and overseen by the Ministries of Health, Long -Term Care, Seniors and Accessibility, Municipal Affairs and Housing, and Children, Community and Social Services including: long-term care homes, retirement homes, shelters, supportive housing, and other residential settings.
- The hubs were supported by the Ministry of Health, public health agencies, Public Health Ontario, and Ontario Health, as well as local hospitals, which provided just-in-time advice and assistance on infection control issues. This expertise helped congregate-living settings build their internal IPAC capacity.

The average citizen and employer may also now have a better understanding of the layers of infection prevention and control measures that can help protect against the spread of respiratory pathogens, such as hand hygiene, staying home when sick, wearing a mask in public spaces, and improving indoor air quality and ventilation. Ontarians may be more likely to adopt these measures as part of their day-to-day lives, as well as during outbreaks and pandemics.

However, more must be done to be ready for the next outbreak. Ontario's Long-Term Care COVID-19 Commission (2021) recommended that public health "develop minimum standards, best practices, and principles related to IPAC capacity, training and certification for both IPAC leaders and staff in long-term care homes."

The Role of Policies and Environmental Changes in Infection Prevention and Control

The COVID-19 pandemic highlighted the potential for social policies, technologies, and environmental changes such as better ventilation to help prevent disease transmission. For example:

- The Ontario government compensated people for up to three COVID-19 related sick days so they could stay home when ill.
- Both the provincial and federal governments invested in improvements to ventilation and indoor air quality in a variety of settings, including hospitals and schools (Government of Ontario, 2021; Government of Ontario, 2022).
- Ontario provided direction for businesses, organizations, and individuals on how to reduce the risk of COVID-19 transmission by improving filtration and ventilation (Ontario Agency for Health Protection and Promotion, 2022; Siegel J, 2021).
- Many buildings installed touch-free doors, faucets and toilets, and many redesigned ventilation systems and installed air filtration systems to reduce the spread of respiratory viruses and bacteria.
- Long-term care homes now limit the number of residents sharing rooms and have redesigned rooms to help prevent transmission of infectious diseases.

These types of policy and environmental changes can make communities more resilient in the face of an outbreak, and should be part of the pandemic preparedness toolkit.

Dependable Supplies of Personal Protective Equipment

Although the type of personal protective equipment (PPE) needed for the next outbreak will depend on the pathogen, PPE will always play a role in reducing risk.

Early in the COVID-19 pandemic, Ontario's capacity to provide PPE was limited by both global and local factors, including: massive worldwide demand, supply chain issues, local stockpiles that had expired, competition among sites trying to purchase supplies, distribution challenges, and the lack of local companies producing PPE.

Achievements and Challenges

Over the course of the pandemic:

- The province negotiated agreements with domestic manufacturers to produce PPE to ensure the province would have a stable supply.
- The province co-ordinated the centralized purchasing and distribution of PPE supplies to ensure fair and timely access for health care settings across the province.
- Provincial guidance on the appropriate use of PPE was updated over time to reflect evolving evidence.

However, PPE was a challenge throughout the pandemic, mainly due to changing guidance on the use of PPE in non-health care settings, and the ability of those settings to get appropriate PPE for their staff. As Ontario's Long-Term Care COVID-19 Commission (2021) notes: "As part of its pandemic planning, the province should ensure that there is a central procurement process for personal protective equipment and other necessary supplies [and maintain] within the province of Ontario a capacity to manufacture PPE [and] a provincial pandemic stockpile including personal protective equipment and other necessary supplies."

Timely Equitable Access to Vaccines and Therapeutics

Vaccines, when available, are a critical tool in stopping or controlling the spread of communicable diseases or reducing the risk of severe illness.

In the early stages of an outbreak, there may be global competition for vaccine and, as was the case with COVID-19, demand may exceed supply. The federal government is responsible for vaccine supply, including negotiating contracts to purchase vaccine, and working with academic hubs and manufacturing facilities to develop the capacity to produce vaccines in Canada. However, it is up to the provinces and territories to establish vaccine priorities, manage distribution, and collaborate with academic partners to monitor vaccine effectiveness and safety.

Investing in Innovation

Ontario has a critical mass of scientists and researchers involved in vaccine and therapeutic research and development. Every effort should also be made to build the province's capacity to innovate and contribute to efforts to find better vaccines and treatments as well as more effective ways to detect and protect against emerging pathogens.

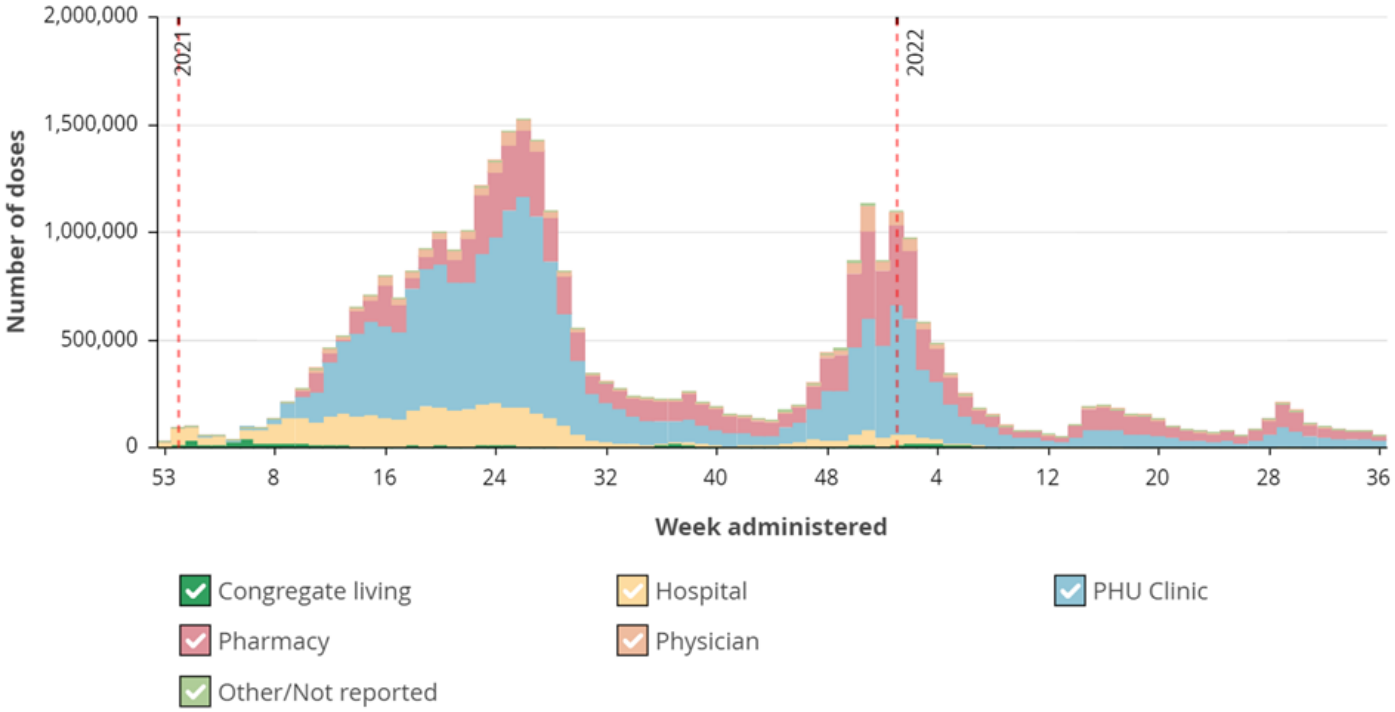
Achievements and Challenges

The world now has the expertise and technologies to rapidly develop highly effective, safe vaccines for some emerging pathogens. Ontario has also demonstrated through two outbreaks – H1N1 and COVID-19 – that it has the infrastructure and capacity to ramp up immunization services. Once a supply of COVID-19 vaccine was available in Canada, Ontario leveraged parts of the health care system to vaccinate the population quickly and efficiently:

- Ontario's public health agencies successfully used a combination of their own staff and other partners, such as hospitals, pharmacies, Indigenous agencies, and paramedics to deliver mass vaccination clinics.

- At the peak of its immunization drive, Ontario delivered over 1.5 million doses in a week.

Figure 8: Weekly number of COVID-19 vaccine doses administered in Ontario by vaccination setting



- Indigenous people were a priority for immunization because of the high risk of poor outcomes from COVID-19, particularly in remote communities that have few health services. To help protect those communities, Ontario launched Operation Remote Immunity. The program successfully delivered immunizations to 31 remote Indigenous communities and Moosonee. Indigenous and public health leaders, community members, and front-line providers worked together, with the support of Ornge, the air ambulance and critical care transport services and Indigenous Services Canada, to get people vaccinated. Community coordinators helped overcome vaccine hesitancy and organized vaccine clinics (Government of Ontario, 2021; Baifuzhiyeva D, 2022).
- The Black Physicians Association of Ontario and the Black Health Alliance worked with local public health agencies and health partners to address the disparities in early vaccine rollout, and increase coverage and protection for Black communities across the province (Black Health Alliance, 2022).
- As the COVID-19 vaccination program expanded and became more complex, public health and health system partners adapted quickly to changing guidance and implemented individual and population level recommendations, while maintaining high levels of vaccine distribution across the province.
- Ontario has also been successful in finding innovative ways to take immunization services to populations and groups who, because of personal health concerns, work schedules, distance from mass immunization clinic sites, lack of public transportation, problems accessing the online booking system, or vaccine hesitancy, may not have received their vaccines. Effective vaccination programs must be able to deliver mass immunization clinics as well as targeted vaccine programs to reach everyone possible.

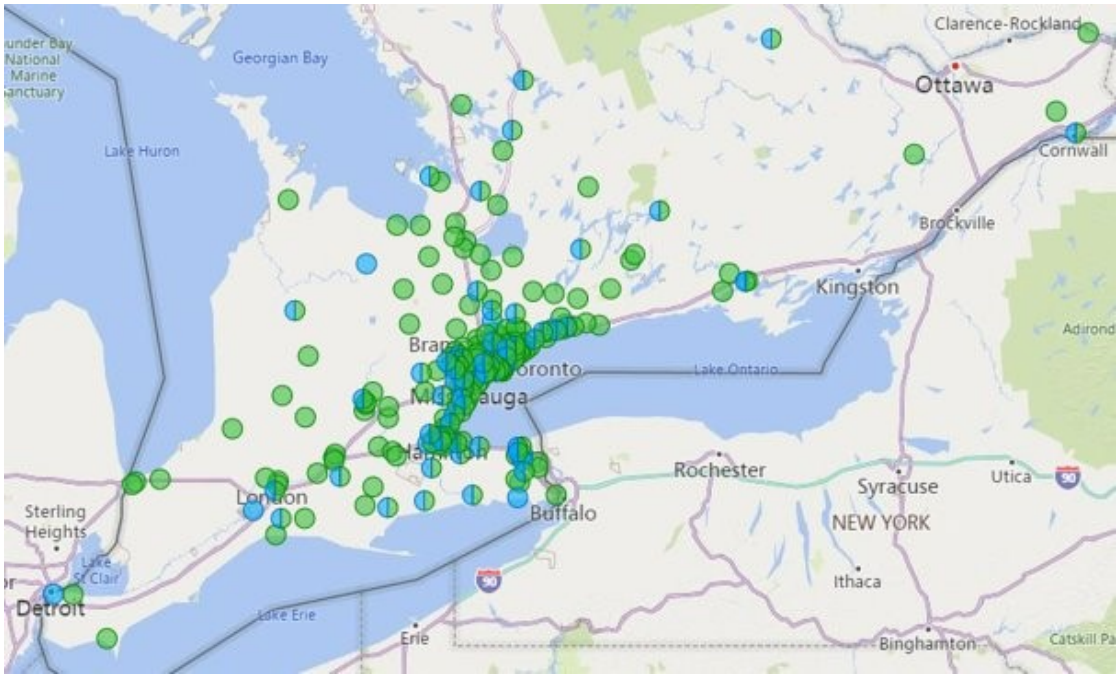
Ontario has been very successful in getting its population vaccinated: 81% of Ontarians are now fully immunized (two doses). However, only 50% have received a third (booster) dose, and vaccine uptake in children is lower than expected. These gaps are not due to lack of access to vaccines but to other factors, such as vaccine hesitancy, less sense of urgency as the number of hospitalizations and deaths drop, and/or the message that younger people are at less risk of serious illness.

Case Study: GO-VAXX Bus and Mobile Clinics Reach Under-vaccinated Groups

Between August 2021 and July 2022, the GO-VAXX Bus and Mobile Vaccine Clinics delivered almost 150,000 doses of COVID-19 vaccine to under-vaccinated groups in 26 of the province's 34 public health unit areas. The initiative, led by the Ministries of the Solicitor General and Health, worked with Metrolinx, local public health agencies, and other ministries and partners, to retrofit buses to serve as mobile vaccine clinics (GO-VAXX), and to operate pop-up clinics in indoor sites. The goal of these clinics was to reach Ontarians who might face barriers scheduling appointments at mass immunization clinics. The clinics set up in a range of settings including: shelters, homes for people with developmental disabilities, senior living facilities, community centres, shopping malls, sporting events, religious and cultural organizations, schools, and post-secondary institutions.

Part of the success of the GO-VAXX bus is that, for people who are anxious about or distrust the health system, it is not a traditional clinical environment. Although it is a fully functioning vaccine clinic, it has a non-clinical feel that makes it easier for people who are hesitant or nervous about getting their vaccines. The mobile vaccination clinics also tailor their approach to the community they are trying to reach: they work with community groups to plan the clinic and make special accommodations to meet community needs.

Figure 9: Sites of GO-VAXX bus and mobile vaccine clinics (August 2021—July 2022)



Access to Therapeutics

In future outbreaks and pandemics, effective treatments may be developed more quickly than vaccines, or there may be an urgent need for widespread delivery of therapeutics. As part of outbreak preparedness, the public health sector must co-ordinate with the broader health system to develop a plan and ethical framework for distributing treatments that may be in short supply. The plan should include strategies to ensure: equitable access across the province, ethical decision-making about how to prioritize groups for treatment, expert advice to develop and update clinical treatment guidelines, and research on the impact of novel therapies.

Priorities for Critical Response Resources

Infection Prevention and Control Expertise

- Develop the evidence, policies, procedures, minimum standards, best practices – including environmental changes, such as better ventilation, and expertise, such more certified infection control practitioners – to support appropriate use of IPAC interventions and practices in non-health care settings (e.g. congregate living settings, workplaces, schools).

- Strengthen Ontario's capacity to provide IPAC evidence, policies, procedures, minimum standards, best practices – including interventions for the built environment and IPAC expertise –– in all health care settings to reduce risks posed by emerging pathogens, particularly zoonotic diseases and antibiotic resistant organisms.

Personal Protective Equipment

- Sustain the local capacity to produce PPE, and establish, manage, and distribute a reliable rolling provincial stockpile of appropriate PPE that will avoid equipment expiring, and ensure sufficient supply to meet demand during a pandemic.

Vaccines and Therapeutics

- Sustain partnerships with the health care system, including with pharmacies, to manage the timely, equitable distribution and delivery of vaccines and therapeutics, using a variety of approaches (e.g. mass, mobile and pop-up clinics, and population-specific programs).

II. Community Readiness

Individuals and communities fare better during disease outbreaks when they are in good health and live in favourable social conditions.

People are healthier and more resilient when they:

- have supportive friends and family
- are educated
- are stably housed
- are employed in jobs where they earn a good living and have paid sick time
- live and work in safe physical environments, have easy access to health services
- healthy food and opportunities to be physically active
- have good coping skills
- do not face discrimination or racism.

While Ontarians are generally healthy, there are people in every community who do not have the same opportunities as their neighbours to enjoy good health. Because they experience inequities in factors such as income, employment, housing, education, and access to health services, and/or the impacts of systemic racism and colonialism, they have worse health outcomes. When outbreaks happen, these individuals and groups are again at higher risk of worse health outcomes.

To strengthen community readiness, the public health sector must work with populations facing health inequities to improve health and resilience before a new pathogen emerges. To do that, public health agencies must:

- Build enduring community partnerships
- Engage communities in co-creating and testing outbreak plans
- Improve health equity and resilience

Relevant Ontario Public Health Standards

Engage in multi-sectoral collaboration with municipalities and other relevant stakeholders in decreasing health inequities.

Engage with Indigenous communities and organizations, as well as with First Nation communities striving to reconcile jurisdictional issues, including fostering and creating meaningful relationships, starting with engagement through to collaborative partnerships.

Lead, support, and participate with other stakeholders in health equity analyses and policy development, and advance healthy public policies that decrease health inequities.

Build Enduring Community Partnerships

To improve health equity, the public health sector must build enduring, trusting partnerships with communities before the next threat occurs.

Collaborative partnerships respect and build on community strengths, including trusted community leaders who have an in-depth understanding of how their communities work, and the barriers they face. Community leaders can provide valuable advice to public health on the community's needs, how to adapt public health services to meet those needs, and how to communicate effectively with community members.

The process of building enduring partnerships must include opportunities to develop trust with communities that have not previously had strong working relationships with provincial public health agencies; and strategies to ensure partnerships are maintained over time (i.e. when the individuals involved in those partnerships change).

As Ontario learned during COVID-19, the process of working with communities must be deeper, more collaborative, and more sustainable than traditional approaches to community development.

True relationship building with First Nation communities must be reciprocal and go beyond "just one more consultation".

Achievements and Challenges

During COVID-19, there were many examples of local public health agencies collaborating with communities to improve health outcomes:

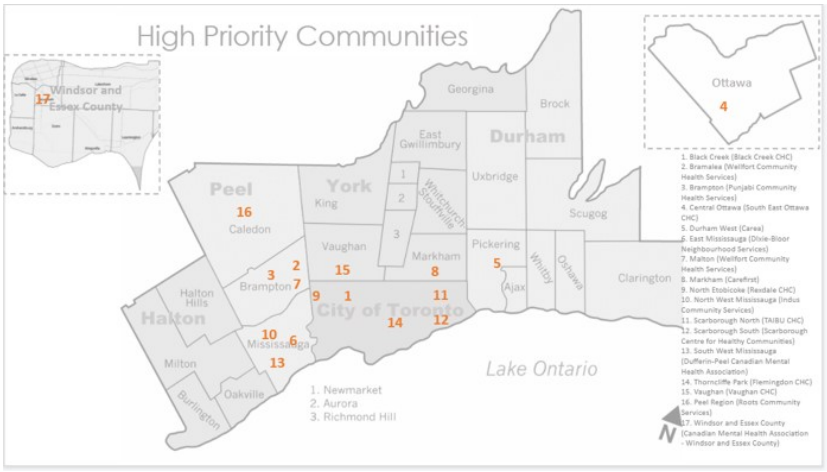
- The High Priority Communities Strategy (see below) was able to increase immunization rates significantly in communities at greater risk of COVID-19 infection and more severe outcomes. However, the strategy was limited to specific neighbourhoods, and not all communities that could have benefited from these supports received them.
- Special efforts were made to reach culturally and linguistically diverse communities. For example, local public health agencies located in areas designated under the French Language Services Act leveraged existing mechanisms and relationships to engage Francophone communities in planning and delivering services that would reach and meet the needs of Francophone Ontarians.
- Provincially funded local community ambassadors helped local public health and community health agencies connect with culturally and linguistically diverse communities with higher needs.
- In some cases, communities worked with local public health agencies to adapt public health guidance to reflect their living conditions, such as modifying hand hygiene recommendations for households without running water, or adapting isolation recommendations for people living in crowded housing conditions.
- Local public health agencies supported First Nations communities' sovereign authority to enact their own by-laws to, for example, close communities to outside people, and reopen borders, schools, and businesses on reserve.
- Some local public health agencies worked collaboratively with community leaders and services to develop strong partnerships to help people in isolation meet their basic needs (e.g. food, social supports, internet connectivity, phones).

The High Priority Communities Strategy: A Model for Greater Health Equity

When it became clear that certain communities were at greater risk of severe COVID-19 outcomes, the province and many local public health agencies worked with those communities to implement the **High Priority Communities Strategy** to reduce health risks and inequities.

The strategy used surveillance data to identify 17 high priority communities across the Greater Toronto Area, Windsor and Ottawa based on: prevalence of COVID-19, low testing and vaccination rates, and other factors (e.g. social determinants of health) that could affect access to health services (racial/ethnic diversity), and challenges meeting basic needs (material deprivation).

Figure 10: High priority communities



The provincial team collaborated with lead agencies in each community to plan and implement culturally and linguistically appropriate initiatives that would reduce barriers and improve access to community outreach and education, testing and vaccination, and wrap-around social supports. The communities developed targeted communications in relevant languages. They hired community ambassadors armed with information to promote COVID-related services and supports, and combat misinformation and myths. Testing and vaccination services were offered by trusted primary care providers in culturally safe settings and in relevant languages, and the clinics ran for longer hours and provided transportation. Each community also provided case management and referrals to other services, such as emotional support, access to PPE, isolation facilities, grocery shopping, food banks, and financial assistance.

Because of these initiatives, testing and first dose vaccination rates in high priority communities are now comparable to those in other parts of the province.

The High Priority Communities Strategy involved:

- focusing proactively on those at increased risk, based on community knowledge of the drivers of poor health outcomes
- engaging the community based on trust, and funding lead agencies, community leaders, and peers to deliver culturally responsive services
- making it a priority to bring health and social services together to solve disparities in access and outcomes
- establishing a sustainable network of partners to maintain relationships between communities and care teams
- developing an infrastructure for effective care management that directed resources where they were needed most.

Even strong community partnerships can be tested in pandemic situations, and those scenarios become more difficult when there is no pre-existing trusting relationship.

Local public health agencies reported that it was challenging to manage outbreaks and implement appropriate public health measures in congregate or crowded living settings, such as shelters (see box).

Case Study: Adapting Public Health Measures to Shelters

Early in the pandemic, outbreak measures for individuals living in shelters were highly restrictive. Every time a case of COVID-19 was diagnosed in a shelter, others using the services had to go into isolation or quarantine for extended periods of time. That meant they were unable to work or access support services. Some clients chose to stop using shelter services rather than live with these restrictions.

While many local public health agencies had strong relationships with local shelters and their clients, and they worked with community partners to support shelter clients, they could not meet all the needs. Staff of all the agencies involved found it very discouraging that efforts to protect vulnerable people from COVID-19 were having such a negative impact on their health and social well-being. In some regions, homeless shelters moved to different models of operation, such as using hotels – but that option wasn't available in all communities.

In some First Nation communities, a large proportion of the community could be in isolation or quarantine for long periods of time while ill individuals waited for test results. In other cases, communities opted to use additional measures to keep COVID-19 from entering their community. For example, members returning to the community had to be tested pre-arrival and then go into an extended quarantine. While these measures protected the community, they increased the stress on individuals and families, and affected people's mental health.

Engage Communities in Co-Creating and Testing Outbreak Plans

> **[P]andemic plans … must be reviewed, assessed and drilled annually. The province should set out a testing strategy that involves a review of the pandemic plans and full simulations that engage all key stakeholders involved in implementing the plan.**
>
> Ontario's Long-Term Care COVID-19 Commission, 2021

Outbreak planning is a process of ongoing learning and continuous quality improvement.

Tabletop and other full-scale simulation exercises are a key tool in emergency preparedness. They provide the opportunity to test assumptions, relationships, and plans, and identify and address problems or gaps.

Tabletop and simulation exercises usually involve people from different organizations collaboratively working through an outbreak or pandemic scenario. Because of the key role that community partners, including at-risk communities, play in outbreak response, they should be part of processes to co-create outbreak plans, exercises to test the plans, and ethical discussions about prioritizing access to scarce resources.

Relevant Public Health Standards

If no lived experience from disruptions or emergencies has occurred in the past 3 years, practice in whole or in part emergency plans and 24/7 notification procedures every three years.

Apply a self-assessment process to emergency management. This process may be applied to tests, exercises, simulations, and/or emergency plan activations and agency responses.

Planning for seasonal community-wide outbreaks, such as influenza, provides ongoing opportunities for local public health agencies to engage communities and the broader health system in tabletop and simulation exercises, assess readiness, and identify gaps and issues.

In addition to organizing tabletop and simulation exercises to test outbreak plans, the public health sector should document lessons learned from actual outbreak responses. What worked? What didn't? What could have been done differently? Evaluating real experiences is a critical part of the adaptive learning process.

Community Readiness Priorities

- Strengthen efforts to build enduring collaborative partnerships between local public health agencies and communities that face health inequities, systemic racism, and discrimination, and work with them to adapt public health services to meet their needs.
- Strengthen the public health sector's capacity to engage the broader health sector and community partners in co-creating and testing outbreak plans, and documenting and applying lessons learned from past outbreaks to emerging threats.
- Conduct regular exercises and simulations to test and improve outbreak plans.

Improve Health Equity and Resilience

The public health sector has a responsibility to assess the health of the population, identify health inequities, and work with partners and governments to implement interventions to reduce those inequities.

To identify individuals or groups coping with health inequities, local public health agencies need to routinely and responsibly gather information about their population's health, as well as the social, economic and demographic factors that can affect health, such as: age, sex, gender, sexual orientation, income, education, race, ethnicity, language, employment and unemployment rates, population growth, the number of seniors living alone, the number of lone-parent families, the number of newcomers, how many people own their own homes and how many rent, access to affordable housing experiences of racism or discrimination, access to healthy foods and physical activity, immunization rates, rates of preventable diseases and their impact on hospitalizations and deaths, and other factors that affect healthy growth and development.

Analyzed at the individual level, sociodemographic data can help the public health sector identify groups experiencing health inequities, and subsequently work with those groups - as well as with governments and other partners - to develop and advocate for upstream interventions that improve health equity and resilience.

Relevant Ontario Public Health Standards

Assess and report on the health of local populations, describing the existence and impact of health inequities and identifying effective local strategies that decrease health inequities.

Use population health, social determinants of health, health inequities, and other sources of information to assess the needs of the local population, including identifying populations at risk of negative health outcomes, to determine the groups that would benefit most from public health programs and services.

Achievements and Challenges

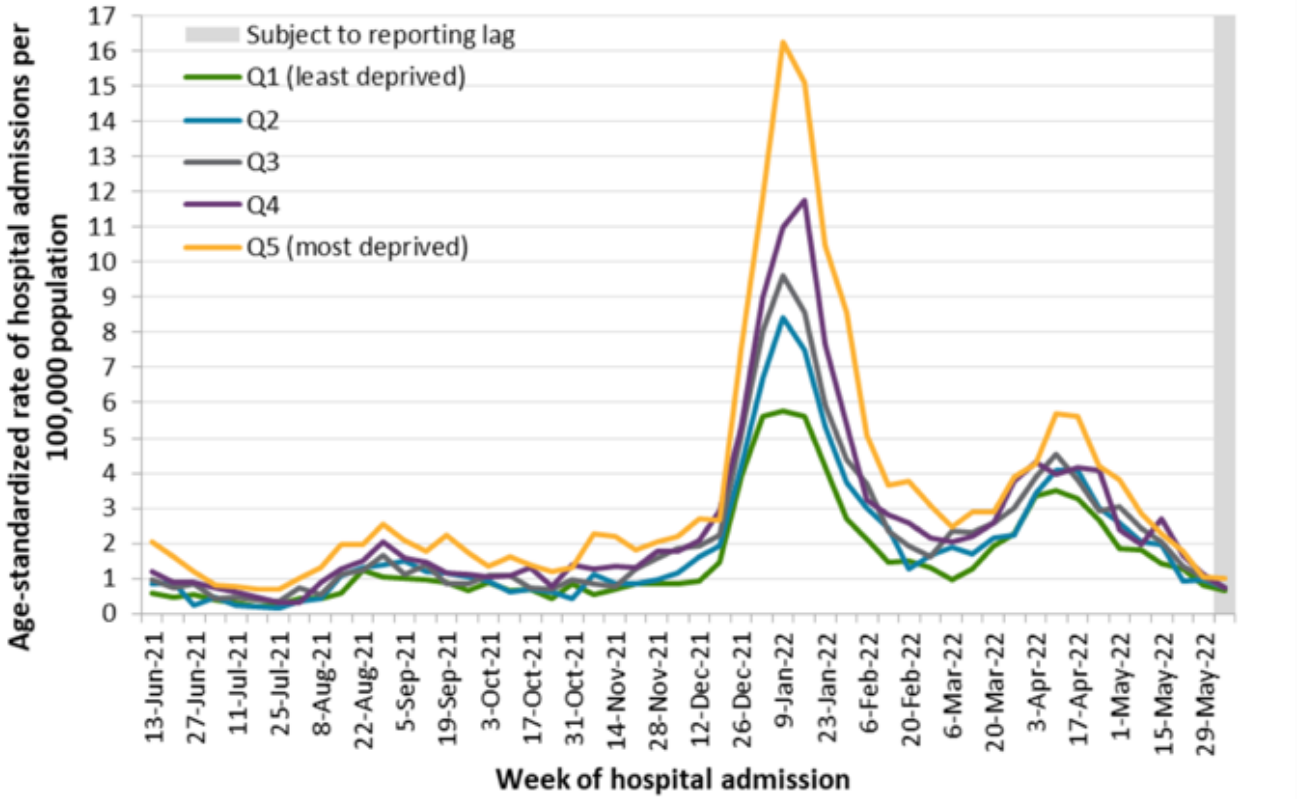
Some sociodemographic data became available as part of COVID-19 vaccine and case management. This information was extremely helpful in guiding initiatives like the High Priority Communities Strategy. However, the data were not complete or easy to collect.

At the current time, Ontario is not able to identify individuals or groups at risk of poor outcomes from future disease threats because it doesn't routinely collect sociodemographic information. To understand and address health inequities – both before and during an outbreak or pandemic – the province needs a more systematic way to routinely collect and update this information for all Ontarians, with the appropriate privacy, data safeguards, data sovereignty, and respect for Indigenous, Black and other racialized populations. Once developed, this capacity to identify groups at risk could be leveraged to improve health inequities beyond pandemics and across the health system.

During COVID-19, Ontario also experienced gaps in information about risk and the impacts of public health measures. For example:

- Local and international outbreak information indicated that some workplaces were at higher risk of having severe COVID-19 outbreaks; however, Ontario did not routinely collect information on the occupation and job type of people diagnosed with COVID-19. As a result, the public health sector was not able to assess the frequency of COVID-19 cases by occupation, understand workplace risks, or evaluate the effectiveness of workplace interventions (Buchan et al, 2022).
- Public health measures used during a pandemic can have unintended consequences for people's health and increase health inequities. For example, school closures have a more negative effect on children in families with low incomes, and families in communities with higher rates of COVID-19 – many of whom were lower income (see Figure 11) – were more likely to choose virtual school for their children even after the schools reopened (Chaabane et al, 2021).

Figure 11: Confirmed COVID-19 cases that were admitted to hospital (per 100,000 population), by quintile of neighbourhood material deprivation and hospital admission week, June 2021 to May 2022

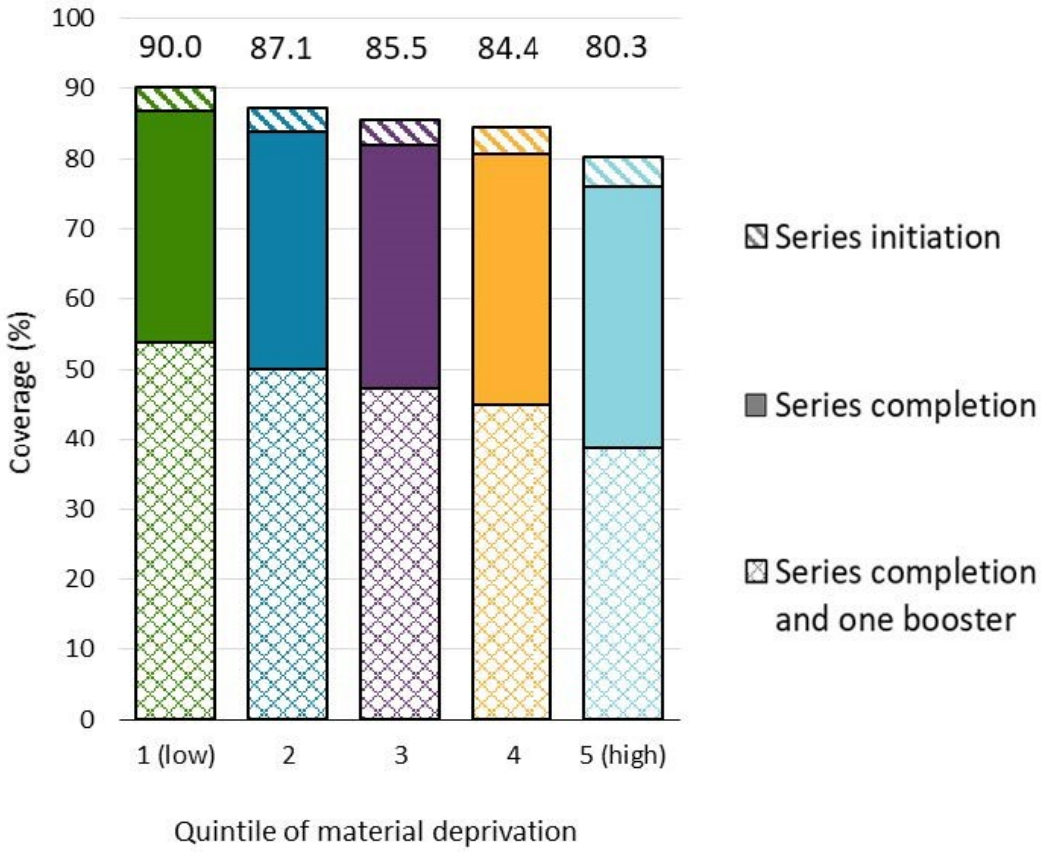


The Role of Sociodemographic Data in Identifying Health Inequities

Sociodemographic information that became available as part of case and vaccination data revealed that communities with a higher proportion of immigrants, Black and other racialized populations, and populations with low socio-economic status had a higher incidence of COVID-19 cases and deaths.

These same communities also faced barriers accessing vaccine (see Figure 12), and their residents were more likely to experience marginalization related to racism, discrimination, or other barriers to accessing resources (Ontario Agency for Health Protection and Promotion, 2022; Amberber et al, 2021).

Figure 12: Vaccination coverage for individuals aged 5 years and older by quintile of neighbourhood material deprivation: Ontario, December 14, 2020 to February 21, 2022



Health Equity Priorities

- Develop provincial systems to support the responsible and respectful collection, linkage, governance, and use of social, economic, health outcomes, and other sociodemographic data (including information on age, sex, gender, sexual orientation, race, ethnicity, language, preferred official language, income, occupation, access to services) to help the public health sector identify and address health inequities in their communities.
- Sustain the public health sector's efforts to work with populations at risk and leverage local innovation to co-design and advocate for upstream interventions that will reduce health inequities, build community strengths, and increase resilience.

III. Societal Readiness

The effective use of public health measures to prevent or manage outbreaks depends on a resilient, supportive society.

Outbreaks and pandemics raise difficult ethical questions that influence all aspects of preparedness and response, including how to allocate scarce resources, and whether or when to limit individual or societal freedoms. In a supportive, "ready" society, citizens are willing to act for the common good. They follow public health advice and recommendations, and they adhere to mandatory measures such as stay-at-home orders, mask mandates, and vaccine passports.

Measures adopted during an outbreak must be consistent with society's ethics and values, and must be clearly and transparently communicated. When people understand why certain decisions are made and have the necessary supports, they are more likely to adhere to public health recommendations.

However, to be ready and supportive, citizens must:

- Have relatively high levels of trust in government
- Understand and accept the ethics and values underlying public health decisions
- Understand and accept the government's and public health's legal authority to implement measures to protect the health of the population
- Have the information and supports they need to follow public health advice (e.g. the risks associated with the particular disease, the populations most affected, the evidence showing the measures are effective, easy access to masks and tests, places to isolate, and supports during isolation and quarantine)

To increase societal readiness for the next outbreak or pandemic, Ontario's public health sector must:

- Build social trust and ethical preparedness
- Communicate clearly and transparently with the public, and counter misinformation

Build Social Trust and Ethical Preparedness

The effectiveness of pandemic responses is related to social trust.

In countries where citizens had higher levels of trust in their government and in one another, infection rates were lower and vaccine coverage was higher (COVID-19 National Preparedness Collaborators, 2022)

Trust is closely correlated with people's sense that the government is doing the right thing: that is, making decisions that are in society's best interests, reflect shared social values, and achieve stated pandemic goals.

Who should be first in line for masks, vaccines, or treatments? How should vulnerable populations be protected or supported? What sectors should remain open? How do we prioritize pandemic health services while maintaining routine health services? When is it acceptable to make some public health measures mandatory? How should we navigate trade-offs between competing objectives or values?

Relevant Ontario Public Health Standards

Ensure a culture of quality and continuous organizational self-improvement that underpins programs and services and public health practice, and demonstrates transparency and accountability to clients, the public, and other stakeholders.

People are more likely to maintain trust in government when the answers to these questions reflect society's shared ethics and values. While it may not be possible to reach consensus on any of these difficult issues, it is incumbent on the public health sector to be transparent about its decisions, the decision-making process, and the rationale for those decisions. The sector must engage communities so that the ethics and values underpinning those decisions reflect the voice of the community, and be willing to revisit decisions at frequent intervals as well as when new information emerges.

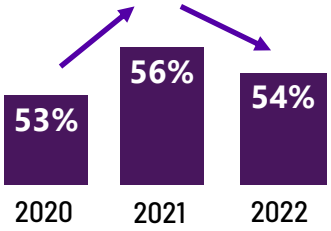
Trust is also closely correlated to reciprocity: individuals are more likely to adhere to public health measures if they have access to the supports and resources needed to follow those measures. For example, an individual who has to isolate for several days to avoid spreading illness to others is more likely to do so if they have a place to isolate and receive the physical, emotional, and financial supports they need while in isolation.

Frank public conversations about shared values, ethical frameworks and trade-offs should happen before an outbreak, as part of outbreak planning. These conversations should be revisited when an outbreak occurs to make sure that society still understands and shares the same values.

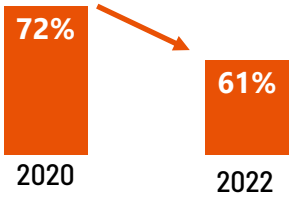
Achievements and Challenges

Measures of social trust have varied in Canada and Ontario over the past three years:

- According to the Edelman Trust Barometer (2022), an international survey assessing the general populations trust in democracies, Canadians have relatively 'neutral' levels of trust that rose and then fell during the pandemic: **53% in 2020, 56% in 2021**, **54% in 2022**. However, Canadians had higher levels of social trust than other comparable countries including the United States, Australia, Germany, and the United Kingdom.



- An Ipsos' international survey of social cohesion found a similar trend: between late 2020 and March 2022, the proportion of Canadians who trusted in other Canadians to "do what is in the best interest of the country" dropped from **72%** to **61%,** while trust in government to "do what is right" dropped from **58%** to **43%** (Sethi, 2022).



- During COVID-19, Ontario used data from behavioural measures surveys to understand where Ontarians were obtaining information, their trusted sources of information, and their awareness and compliance with recommended public health measures. Based on those surveys, Ontario experienced relatively high levels of public trust in government and adherence with public health measures, including high compliance with masking and high rates of immunization, particularly for the first two vaccine doses. There is also evidence that provincial and local medical officers of health were highly trusted and credible sources of information (Ontario Ministry of Health, 2022).
- Not all Ontarians agreed with all public health measures, and support for some measures dropped over time. Many public health officials became the targets of abuse and threats. Early public support for health care workers (e.g. going out each evening to bang pots) was replaced by anti-mask protests outside hospitals.

> "Social cohesion can rise in the aftermath of natural disasters or mass tragedies, but this "coming together" is often short-lived. The early stages of the COVID-19 pandemic witnessed marked increases in kindness and social connection, but as months passed social tensions re-emerged or grew anew. Thus local authorities faced persistent and evolving challenges.
>
> The social cohesion investment: Communities that invested in integration programmes are showing greater social cohesion in the midst of the COVID-19 pandemic, Lalot et al, 2021

Ontario employed a variety of mechanisms to build social trust and ethical preparedness during COVID-19, including:

- The Public Health Measures Table, made up of Medical Officers of Health and Public Health Ontario, provided confidential advice to the Chief Medical Officer of Health on the type and timing of different public health measures throughout the pandemic.
- Ontario's COVID-19 Bioethics Table (2022), developed briefs and guidance on a range of ethical issues, including: priority-setting for personal protective equipment, paid sick leave, a framework for ramping down elective surgeries and other non-emergent activities, and ethical frameworks for drug shortages and vaccine distribution. The public health sector used these frameworks to integrate ethical issues (e.g. harms and benefits, fairness, legitimacy, trust) into the plans to distribute vaccines and therapeutics.

> "There is broad agreement that, even in a crisis, doing the right thing must take account of fairness. … Doing the right thing also means taking proper account of individual rights … while recognizing that, at times and to the least degree possible, those rights may have to be limited for the safety and well-being of others. [It is a] difficult balancing act of reducing harm, tackling unfair health inequities and minimizing measures that are coercive.
>
> Ethical Preparedness
> Archaud, 2022

Because the process of developing ethical briefs and frameworks occurred in the midst of a pandemic, it was not possible to involve society as a whole in the conversations. It was also challenging to communicate to the public "why" certain decisions were made, and the steps that decision makers took to try to balance competing ethical principles and societal objectives.

Most of the briefs from the Bioethics Table focused on making decisions about health services. However, some of the most challenging ethical decisions during COVID-19 were about non-health services, such as public health measures that closed businesses and schools, the restrictions on visitors in long-term care settings, and the use of vaccine passports. Some of these decisions were less transparent: Ontarians did not necessarily understand the ethical values or trade-offs underlying them.

Unintended Negative Consequences of Public Health Measures

Another ethical challenge that should be considered as part of pandemic preparedness is the fact that many public health decisions and interventions required to control an outbreak can have significant unintended negative consequences for individuals, families, communities, and society. For example, during COVID:

- School closings affected parents' and children's mental health. A survey of Ontario parents found one in three had moderate to high levels of anxiety, 57% met the criteria for depression, and 40% reported their children's mood/behaviour had deteriorated. Children have also fallen far behind in their learning, and the education system will need to implement special strategies to help them recover (Gallagher-Mackay et al, 2021). School closures and the stresses associated with moving teaching online or working in hybrid models was also extremely stressful for educators.
- The decision to prioritize COVID-19 services in acute care settings kept many Ontarians who needed surgery or cancer care from getting that care. From delays in just the first three months of the pandemic, one modelling study suggested the province's surgical backlog would take 84 weeks to clear (Wang et al, 2022).
- Business closings hit those in the service, tourism, and arts and culture industries particularly hard. The full health, social and economic impact of job and business losses – although mitigated by federal and provincial income supports – is not known.

When deciding on and managing public health measures, the public health sector must weigh the potential negative unintended consequences, monitor their impact, and continually look for ways to minimize or mitigate them.

Weighing the Economic Impact of Lockdowns vs a High Number of Cases

An analysis by the International Monetary Fund, found that a very high number of COVID-19 cases caused as large a reduction in economic activity as a lockdown, except the reductions in economic activity due to high rates of illness last longer than those associated with lockdowns. Economies bounce back more quickly from the impact of lock-downs than high rates of illness, hospitalizations and deaths (International Monetary Fund, 2020).

Priorities for Ethical Preparedness

- Strengthen public health sector efforts to build and measure social trust, and involve society in conversations about the shared values and ethics that underlie pandemic decision-making, and the role of both government and society in protecting and promoting public health.
- Establish formal consistent mechanisms for the public health sector to access ethical expertise to guide public health decision-making during all phases of a pandemic (i.e. preparedness, response, recovery).

Improve Communication and Counter Misinformation

Clear communication, including effective risk communication, can help build social trust and societal readiness.

Because so much of outbreak response depends on individual and societal behaviour, the public health sector and government must be able to communicate clearly and transparently – in English, French and other languages – why public health measures are needed. It must also be able to assess public opinion and support, and quickly and effectively counter misinformation that can hinder the public health response.

The public health sector has long been a credible, trusted, non-political source of health information. During the COVID-19 pandemic, the sector had to compete in a noisy, demanding media and social media environment to communicate with the public. The World Health Organization (2022) describes that environment as an "infodemic": "too much information including false or misleading information in digital and physical environments during a disease outbreak."

Relevant Ontario Public Health Standards

Public health communication strategies reflect local needs and utilize a variety of communication modalities to ensure effective communication.

Use a variety of communication modalities, including social media, taking advantage of existing resources where possible, and complementing national/provincial health communications strategies.

> "An infodemic can cause confusion and risk-taking behaviours that harm health, lead to mistrust in health authorities, undermine the public health response, and intensify or lengthen outbreaks.
>
> Infodemic, World Health Organization, 2022

Achievements and Challenges

- Over the course of the COVID-19 pandemic, the Canadian public's trust in most information sources, particularly traditional media, declined. However, public trust remained relatively high in scientists and in leaders in their local communities (Edelman Trust Barometer, 2022). This trust in science creates opportunities for the public health sector to communicate accurate information and counter misinformation.
- COVID-19 vaccine uptake was a success in Ontario. Provincial resources and centralized telephone services, such as the Provincial Vaccine Contact Centre and the Hospital for Sick Children Vaccine Consult Service, helped providers communicate with individuals and families about the importance of immunization.
- The public health sector responded rapidly to the emergence of vaccine-related complications, such as vaccine-induced immune thrombotic thrombocytopenia and myocarditis (Science Table, 2021; Ontario Agency for Health Protection and Promotion, 2022). Communications with the public about evolving evidence were clear and transparent, building confidence in the province's strong programs for assessing vaccine safety.
- The public found it confusing when vaccine recommendations changed and became more nuanced over time (e.g. booster doses, new vaccine products), and when recommendations varied from one province or country to the next. This complex communications landscape increased vaccine hesitancy and uncertainty in individuals who readily received their first two doses.
- The public health sector was unable to keep pace with the speed at which information evolved. During the early days of the COVID-19 pandemic, the public's demand for information was insatiable, and public health struggled to produce and distribute culturally appropriate information in English, French, and other languages quickly enough to meet needs.

Countering Misinformation

It is no longer enough to put out accurate information. The public health sector must also actively counter misinformation.

In May 2021, the Center for Countering Digital Hate in the US published the results of an investigation, which showed that 12 people – the disinformation dozen – were responsible for 65% of the misleading claims and lies about COVID-19 vaccines on Facebook, Instagram, and Twitter. The social media companies took steps to reduce their influence, such as labelling posts as misleading, removing falsehoods, and banning people who repeatedly share debunked claims. However, it is relatively easy for people to start new accounts or find ways around the restrictions, and the misinformation continues. To be able to counter misinformation, Ontarians need public education in health literacy, including the skills to assess information and information sources.

> "Misinformation is one of the defining issues of our time. We have a growing body of evidence that tells us that misinformation is killing people.
>
> Too good to be true: Timothy Caulfield on misinformation and trust in health, Nicholson, 2022

Tackling the spread of harmful health information will require a multi-pronged approach, including:

Develop trusted, credible and diverse leaders – both within and outside government – who are strong communicators. In general, the more informed Canadians are, the more likely they are to trust their institutions (Edelman Trust Barometer, 2022).

Support a whole-of- society approach to developing digital strategies to counter infodemics. Health authorities, journalists, fact-checkers, civil society organizations, empowered citizens, and other relevant parties can all play an important role in debunking misinformation and building trust.

Help people develop the scientific literacy and critical thinking skills to be able to assess information and information sources. According to the Edelman survey, only 20% of Canadians have what is described as "good information hygiene", that is: they avoid information echo chambers (i.e. people only engage with information that reinforces their own opinions), verify information before they share it, and do not amplify unvetted information.

Strategies to effectively communicate public health guidance, focus on partnerships, and collaboration, and the importance of roles and relationship-building before public health incident occurs:

1. Anticipate
2. Invest in building relationships and networks
3. Establish liaison roles and redundancy
4. Active communication
5. Consider and respond to the target audience
6. Leverage networks for coordination
7. Acknowledge and address uncertainty

Khan et al, 2017.

Communication Priorities

Strengthen public health sector capacity to provide credible, trusted, transparent information that can counter infodemics and misinformation, and to use evidence-based methods to improve communications, in English, French and other languages.

Next Steps

Ontario's public health sector is committed to a bigger picture view of pandemic and outbreak readiness: one that ensures all the expertise, tools, and technologies are in place, and actively engages communities and society as a whole in pandemic preparedness.

Over the past three years, the province has demonstrated tremendous strength and resilience in terms of sector, community, and societal readiness. We have learned a great deal about how to be better prepared, and we have a clear picture of the challenges that remain as well as the efforts required to be ready for the next outbreak or pandemic.

It seems impossible that we could forget the hard lessons that COVID-19 taught us about the importance of being prepared. But history has often proved otherwise. Memories fade, life goes on, and societies become complacent about a theoretical future threat. But we no longer live in a time when future disease threats are theoretical. The emergence of new pathogens, and the resurgence of old ones mean we now live in a time when we must be constantly vigilant.

Invest in Preparedness

This report lays out the steps the public health sector and its partners must take over the next one to two years to be ready for infectious disease outbreaks. Preparedness is a process of continuous improvement. To get better at detecting and responding to emerging diseases – to reduce the impact of disease outbreaks, including illness, deaths, and social disruption – Ontario must sustain its investment in public health preparedness over time.

It is time to break the "boom and bust" funding cycles that characterized past outbreaks.

Strengthen Accountabilities

Many priorities recommended in this report are part of existing Ontario Public Health Standards. The public health sector and local public health agencies already have the mandate to address these aspects of preparedness. To help ensure accountability for outbreak preparedness and response, the Office of the Chief Medical Officer of Health will review the relevant Ontario Public Health Standards, including the *Emergency Management Guideline*, for opportunities to provide clearer direction about public health agencies' role in building and maintaining readiness.

Assess Progress

Risks and threats may change over time, and the skills, tools, resources, and capabilities to address those threats may also change. We will only know if Ontario is ready if we continue to highlight our successes, progress, challenges, and inequities in achieving system, community, and societal readiness.

The Office of the Chief Medical Officer of Health will adapt and use pandemic preparedness indicators to regularly assess and report on the public health sector's progress in outbreak and pandemic preparedness. The Office will also continue to recommend other ways to sustain, strengthen or develop key aspects of preparedness.

Improve the Health of Indigenous Peoples

Ontario's public health sector is committed to helping to improve the health of Indigenous people. We will continue to work with Indigenous leaders and health service providers, as well as federal partners including Indigenous Services Canada, to: reduce health inequities and improve community relationships; clarify the roles, responsibilities, and governance of health services; and improve data for Indigenous communities in ways that reflect the principles of Indigenous data sovereignty.

Improve the Health of Black and Other Racialized Populations

Ontario is also committed to improving the health of Black and other racialized populations, and reducing health inequities. The public health sector will work with these populations to improve the responsible and respectful collection and use of race-based data to address systemic racism and other health inequities.

Sustain Relationships

To ensure progress on the priorities identified in this report, the Office of the Chief Medical Officer of Health will strengthen partnerships within the public health sector, including with local public health agencies and Public Health Ontario, and with our health sector colleagues.

Acknowledgements

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- Nicole Blackman, Indigenous Primary Health Care Council
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And with thanks to the Ministry of Health Internal Advisory Committee

Appendix

Ontario Public Health Units with Vacant Medical Officer of Health (MOH) Positions*

Filled by Acting MOHs as of December 15, 2022

Brant County Health Unit
Chatham-Kent Health Unit
Haldimand-Norfolk Health Unit
Niagara Region Public Health Department
Peel Public Health
Renfrew County & District Health Unit
Timiskaming Health Unit
Windsor-Essex County Health Unit
Total = 8 Public Health Units with MOH Vacancies

*Under 62. (1)(a) of the Health Protection and Promotion Act, every board of health shall appoint a full-time medical officer of health.

Ontario Public Health Units with Vacant Associate Medical Officer of Health (AMOH) Positions* as of December 15, 2022

Grey Bruce Health Unit
Halton Region Health Department**
City of Hamilton, Public Health
Middlesex-London Health Unit
Niagara Region Public Health Department
Ottawa Public Health**
Sudbury and District Health Unit**
Thunder Bay District Health Unit
Total = 8 Public Health Units with AMOH Vacancies

***Under 62. (1)(b) of the Health Protection and Promotion Act, every board of health may appoint one or more associate medical officers of health.

**Vacancies may include less than or more than one FTE position per health unit and positions filled by qualified physicians awaiting ministerial approval.

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From: City of Hamilton <hello@hamilton.ca>
Sent: February 10, 2023 3:10 PM
To: clerk@hamilton.ca
Subject: Webform submission from: Request to Speak to a Committee of Council

Submitted on Fri, 02/10/2023 - 15:09
Submitted by: Anonymous
Submitted values are:

Committee Requested

Committee
Board of Health

Will you be delegating in-person or virtually?
Virtually

Will you be delegating via a pre-recorded video?
No

Requestor Information

Requestor Information
Kayla Hagerty
[redacted]

Preferred Pronoun
she/her

Reason(s) for delegation request
Speaking in favour of the increase of safer use spaces in Hamilton, ON
Outlining the dire need for these spaces and the negligence behind awaiting more research when there is plenty available that has shown this is an effective method of combatting the opioid crisis/drug harms.

Will you be requesting funds from the City?
No

Will you be submitting a formal presentation?
No

INFORMATION REPORT

TO:	Mayor and Members Board of Health
COMMITTEE DATE:	March 20, 2023
SUBJECT/REPORT NO:	Clean Air Hamilton Annual Progress Report 2021 (BOH23010) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Shelley Rogers (905) 546-2424 Ext. 1275
SUBMITTED BY: **SIGNATURE:**	Kevin McDonald Director, Healthy Environments Division Public Health Services

COUNCIL DIRECTION

Not Applicable.

INFORMATION

Clean Air Hamilton reports annually to Board of Health on the trends in local air quality and the actions undertaken by members of Clean Air Hamilton to address local air quality in Hamilton. Normally, this reporting is presented to the Board of Health at the end of the following calendar year. Due to the Municipal election and orientation of the new Board of Health, the reporting for 2021 was delayed to 2023.

The "Clean Air Hamilton 2021 Air Quality Progress Report", attached as Appendix "A" to Report BOH23010 provides further details.

Clean Air Hamilton Overview

Clean Air Hamilton is a multi-stakeholder agent of change dedicated to improving air quality in Hamilton. It has a diverse membership with representation from environmental organizations, industry, businesses, academia, citizens, and three levels of government including federal, provincial, and municipal.

Initiated in 1998, Clean Air Hamilton works to improve air quality throughout the City of Hamilton. Hamilton Public Health Services staff in the Healthy Environments Division support the work of Clean Air Hamilton and other work related to air quality and climate change across the corporation and the community.

The Clean Air Hamilton committee aims to accomplish its objectives through sound science-based decision-making, using the most up-to-date information and tools available. Clean Air Hamilton's work focuses on education and outreach, advocacy, air quality monitoring, and to continue to update the Hamilton Airshed Modelling System (HAMS). This will help identify major sources, and distribution, of air pollution in order to prioritize action for maximum air quality improvement and exposure reduction. Clean Air Hamilton continues to follow the previously developed five strategic themes related to air quality improvement:

- Governance & Structure;
- Air Zone Management;
- Transportation;
- Air Monitoring; and,
- Dust and Particulate Matter (PM) Mitigation.

Throughout 2021, Clean Air Hamilton continued to work on actions identified in the Air Quality Task Force's (AQTF) 2018 workshop which identified the three main areas of focus:

- Education;
- Air Quality Monitoring; and,
- The Hamilton Airshed Modelling System.

Clean Air Hamilton is currently in the process of updating their workplan for 2023-2026 focusing on education, air quality monitoring, and land use planning.

Clean Air Hamilton Programs 2021

In 2021, Hamilton Public Health Services provided $12,400 to fund projects resulting in air quality improvement and awareness. Two projects, Fresh Air for Kids and Modelling Local NO_2 Across Hamilton on a Ward Level During the COVID-19 Pandemic, were selected using the City of Hamilton Procurement Policy Request for Proposal process.

- **Fresh Air for Kids**

  The Fresh Air for Kids Program had a successful 2021-2022 school year with Green Venture and Corr Research delivering the program to 14 classes ranging from grades one through eight, totalling 303 students and 15 teachers across five schools.

  The Fresh Air for Kids program consists of four components: air quality education, air quality monitoring, creating an action campaign, and a wrap-up celebration. During up to five visits with Green Venture team facilitators, students are introduced to the science of air pollution and its health effects and learn about tools and resources to measure air quality, and then turn their knowledge

into action to develop an air quality action project to make a difference in their school and community.

The challenge of the COVID-19 pandemic meant that the program needed to be flexible and offer programming in ways that would fit with the changing public health guidelines and participants' comfort levels. As a result, Fresh Air for Kids was delivered completely online to one school, in-person to two schools, and in combination for the other two. Green Venture and Corr Research were able to stay consistent in the content of the program across delivery methods.

Of the 303 students who participated in the program during the 2021-2022 school year, 162 submitted signed media consent forms and were able to complete Fresh Air for Kids' post program survey. In the post program survey, 100% of students reported that they or their family reduced car idling or use and 96% indicated that participating in Fresh Air for Kids increased their knowledge on how they can improve local air quality. All participating classes completed anti-idling education campaigns and brought the message to their broader school communities through actions such as posters, outdoor banners, videos, speeches, brochures, and messages in their schools' newsletters.

- **Modelling Local NO_2 Across Hamilton on a Ward Level During the COVID-19 Pandemic**
  Dr. Matthew Adams, Ph.D., and Priya Patel, P.Eng., of the University of Toronto completed the analysis "Modelling local nitrogen dioxide (NO_2) across Hamilton on a ward level during the COVID-19 pandemic". This study was conducted to understand changes in NO_2 concentration on a ward level from 2019 to 2020. Nitrogen dioxide was selected due to its close relationship to vehicular and industrial emissions, short atmospheric lifetime, and impacts on health due to exposure.

  This study found the highest concentrations of NO_2 in the downtown, centrally located wards of Hamilton. These wards have the highest densities of residential, industrial and road land uses, which likely contribute to the high NO_2 concentrations. During the 2020 COVID-19 state of emergency, the central wards had the greatest reduction in NO_2. Overall, we hope that this study will allow policymakers, residents, and other stakeholders to gain a better understanding of NO_2 air pollution across the city and potentially inform urban design decisions. Furthermore, the research team is hopeful that this will provide an example of how air quality may improve as more mitigation and adaptation initiatives are implemented to reduce the impact of climate change.

Air Quality Improvement Projects 2022

City staff in Hamilton Public Health Services' Healthy Environments Division provide grant funding annually to local organizations for air quality projects and programs within Hamilton. As with previous years, the applications were scored by three adjudicators specializing in air quality, community planning, and project management. Two applications were successful through the 2022 funding application process including:

1. Fresh Air for Kids ($9,000) submitted by Green Venture and Corr Research Inc.; and,
2. Trees Please ($9,000) submitted by Environment Hamilton and The Hamilton Naturalists' Club.

The results of these programs will be reported in the Clean Air Hamilton 2022 Air Quality Progress Report and presented to the Board of Health in 2024.

Upwind Downwind Lunch & Learns

The COVID-19 pandemic meant that Clean Air Hamilton's signature event, the bi-annual 2020 Upwind Downwind (UWDW) Conference and the Clean Air Fair were cancelled. Rather than abandoning the plans altogether, Clean Air Hamilton ran a series of virtual Lunch & Learns featuring speakers and topics from the Upwind Downwind Conference agenda. Two of these sessions, noted below, occurred in 2021. Recordings can be found on the Clean Air Hamilton website: www.cleanairhamilton.ca.

1. "Hamilton Airshed Modelling System; Sub-Region Analysis" by Dr Janya Kelly; and,
2. "Air Pollution Sensors in Hamilton and How Can They Help?" by Dr Matthew Adams, Ph.D., Assistant Professor, University of Toronto.

Through these Lunch & Learn sessions, Clean Air Hamilton provided the community with ongoing education and awareness about local and international air quality issues. Clean Air Hamilton members began to plan the 2022 Upwind Downwind conference during the second half of 2021.

Air Quality in Hamilton

The Provincial Ministry of Environment, Conservation and Parks (MECP) monitors air quality using the network of air quality monitoring stations across Hamilton. This network consists of provincially-owned air quality monitoring stations, air monitors owned and operated by members of the Hamilton Air Monitoring Network (HAMN), as well as two air-pointer monitors owned and operated by the City of Hamilton.

Air quality data is submitted to Clean Air Hamilton and Hamilton Public Health Services annually, which is reported to the Board of Health and to the community. The air quality data submitted continues to show a significant reduction city-wide in many of the

monitored air pollutants since 1996. Based on the 2020 air quality data submitted, the following concentrations and trends were observed for the following criteria air contaminants:

1. **Total Suspended Particulate (TSP)**
    - Total suspended particulate (TSP) includes all particulate material with a diameter less than approximately 45 micrometres (µm). A substantial portion of TSP is composed of road dust, soil particles, and emissions from industrial activities and transportation sources;
    - The two Industry Stations in Hamilton show a slight increase of TSP from 2020 to 2021. All stations (two City & two Industry) are below the annual objectives;
    - Inhalable Particulate Matter (PM_{10});
    - Inhalable particulate matter (PM_{10}) has a diameter of 10 µm or less. PM_{10} makes up 40-50% of TSP in Hamilton and is primarily derived from vehicle exhaust emissions, industrial stack, and fugitive dusts (non-stack), and the finer fraction of re-entrained road dust; and,
    - The two Industry and two City stations located in Hamilton show an increase from 2020 to 2021 but remain within Ontario's Ambient Air Quality Criteria.

2. **Respirable Particulate Matter ($PM_{2.5}$)**
    - $PM_{2.5}$ makes up about 60% of PM_{10} and in most cities is derived from residential and transportation sectors. In Hamilton, there would also be some industrial contributions. Another significant portion of $PM_{2.5}$ is regionally generated emissions that can travel hundreds of kilometres via wind from where they originated. These transboundary flows play a significant role in Ontario's air quality and according to the Hamilton Airshed Modelling System (HAMS), transboundary emissions in Hamilton for $PM_{2.5}$ amounted to approximately 91%;
    - The Hamilton Mountain and Hamilton Downtown air quality stations show an increase from 2020 to 2021 readings of $PM_{2.5}$, whereas the Hamilton West station shows a slight decrease from 2020 to 2021; and,
    - MECP data shows that Hamilton Downtown continues to have the highest concentrations of $PM_{2.5}$ relative to other municipalities across Ontario that have air quality stations measuring $PM_{2.5}$.

3. **Ozone (O_3)**
    - The number of hourly exceedances greater than 50 parts per billion (ppb) increased in 2021 in comparison to 2020 for the Hamilton Downtown, Hamilton Mountain, and Hamilton West monitoring stations, but is below 2018 levels; and,

- Hamilton's 30-year ozone trend is comparable to many other municipalities in Ontario. Recent 2021 concentrations show Hamilton having one of the lowest concentrations of O_3, compared to other jurisdictions.

4. **Sulphur Dioxide (SO_2)**
   - Concentrations since 2016 have shown a slight increase for Industrial Site 1, with the annual average being recorded above the provincial Annual Objective;
   - Conversely, SO_2 monitored at the Hamilton Downtown station has been decreasing since 2018 with a small increase in 2021. Levels continue to be below the annual objective in 2021; and,
   - While SO_2 concentrations in downtown Hamilton are achieving the provincial Annual Objectives, the average concentrations are higher compared to other Ontario municipalities.

   Note: In 2018 the Province of Ontario approved a decision (EBR# 013-0903) to reduce the SO_2 standards to:
   - 1-hour average air standard to 100 micrograms per cubic meter ($\mu g/m^3$) based on respiratory morbidity associated with exposure; and,
   - Annual average air standard for SO_2 to 10 $\mu g/m^3$, based on vegetation damage with exposure to this substance.

   This decision contains a phase-in period with the air standard and will take effect on July 1, 2023.[1]

5. **Nitrogen Dioxide (NO_2)**
   - Sectors producing the majority of NO_2 emissions are transportation and industry. The level of vehicle use across Hamilton has increased slightly during the past decade, however overall NO_2 levels have decreased most likely due to improved vehicle engine technologies;
   - NO_2 concentrations have shown a significant decrease since 1999. In recent years, the Hamilton Downtown air monitoring station recorded a steep decrease for 2019 to 2020 followed by a slight increase in 2021. There is an increasing trend observed at Industrial Site 1 since 2018; and,
   - NO_2 concentrations in Hamilton are higher when compared to other Ontario municipalities.

[1] Environmental Registry (2018). Regulatory amendments related to air emissions of sulphur dioxide and other items. Retrieved from https://ero.ontario.ca/notice/013-0903

6. **Benzene**
    - Benzene is a carcinogenic (cancer-causing) volatile organic compound (VOC) that is emitted from some operations within the steel industry, specifically coke ovens and coke oven by-product plant operations. Gasoline can also be up to 5% benzene. Vapours containing benzene may be released during pumping at gasoline stations. Transboundary benzene levels amount to 70% according to HAMS; and,
    - Concentrations of benzene for all monitoring stations (Industry 1, 2, 3, and Hamilton Downtown) remain above the Annual Objective.

7. **Benzo[a]pyrene (BaP)**
    - BaP, also a carcinogen, is emitted when carbon-based fuels such as coke, oil, wood, coal and diesel fuel are burned. BaP-generating activities include coke oven operations within the steel industry, incomplete combustion producing smoke such as vehicle traffic, burning of refuse, cooking, tobacco smoking, and wood burning;
    - BaP has an increasing trend at all three monitoring stations (Industry 1, Industry 2, and Industry 3) and concentrations are above the Annual Objective; and,
    - It is important to note that source apportionment for BaP from HAMS shows that industrial sources amount to 47% for BaP emissions, while transboundary emissions contribute to 29% of BaP concentrations in the City of Hamilton.

It is important to note that there is significant amount of transboundary (air emission sources outside of Hamilton) contributions to local airshed pollution concentrations in Hamilton. For example, and as noted above, HAMS estimated that transboundary sources contribute approximately 90% of $PM_{2.5}$, 70% of Benzene, and 29% of BaP concentrations locally across Hamilton. However, local industrial, on-road and off-road transportation emissions continue to contribute to localized air pollution and downwind airsheds as well.

2021 Air Quality Alerts

Two different air quality alerts are issued during periods of poor air quality in Ontario. A Special Air Quality Statement is issued when the Air Quality Health Index (AQHI) is a high risk (>6) and is forecast to last for 1-2 hours. If the high-risk AQHI level is forecasted to persist for at least 3 hours or longer, then a Smog and Air Health Advisory will be issued by the Province of Ontario.

In 2021, Hamilton experienced four Special Air Quality Statements. Hamilton did not experience any Smog and Air Health Advisory instances.[2] For more information on current and historical air quality concentrations in Hamilton and across Ontario see: http://www.airqualityontario.com/.

Clean Air Hamilton notes that air pollution concentrations can be different at a local neighbourhood level and some areas of Hamilton can and do experience higher air pollution concentrations than others across the City.

Future Actions

There has been substantial improvement in Hamilton's overall air quality since the 1970s; however, air pollution continues to contribute to adverse health impacts to Hamilton residents. Recent improvements and information related to air pollution distribution at the hyper-local level is also providing evidence that some neighbourhoods across Hamilton experience higher levels of air pollution compared to others. Continued actions are imperative to further improve air quality in the City of Hamilton. Collaboration from individuals, organizations, industries, the City of Hamilton and other levels of government is required to reach our goals.

In the future, Clean Air Hamilton plans to:

- Continue to support and undertake all the recommendations of the Air Quality Task Force (BOH13029) and Board of Health Report (BOH18016) in the areas of air modelling and monitoring, planning education and outreach, green infrastructure and advocating for government policies that encourage and facilitate behavioural change to active and sustainable transportation and alternative forms of efficiency and renewable energy for buildings;
- Continue to support and encourage Hamiltonians to reduce their transportation emissions through the use of alternatives including: public transit, bicycles, walking, hybrid or electric vehicles, etc. and through the support of policies such as complete streets and transportation demand management;
- Encourage the continued efforts of the MECP and industry to reduce air borne contaminants in the City of Hamilton and the Province of Ontario; and,
- Continue to expand air quality monitoring activities by undertaking projects with community organizations and academic institutions in the City of Hamilton to better understand air pollution concentrations at the neighbourhood level.

[2] Ministry of Environment, Conservation, and Parks (2021). Summary of Special Air Quality Statements & Smog and Air Health Advisories 2015 to 2022. Retrieved from http://www.airqualityontario.com/aqhi/advisories_stats.php

Furthermore, in 2022, Clean Air Hamilton began to update their 2023- 2026 Workplan, consisting of actions related to Education, Air Quality Monitoring and Land Use Planning.

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” to Report BOH23010	Clean Air Hamilton 2021 Air Quality Progress Report

CleanAir HAMILTON

Clean Air Hamilton

2021 Air Quality Progress Report

March 2023

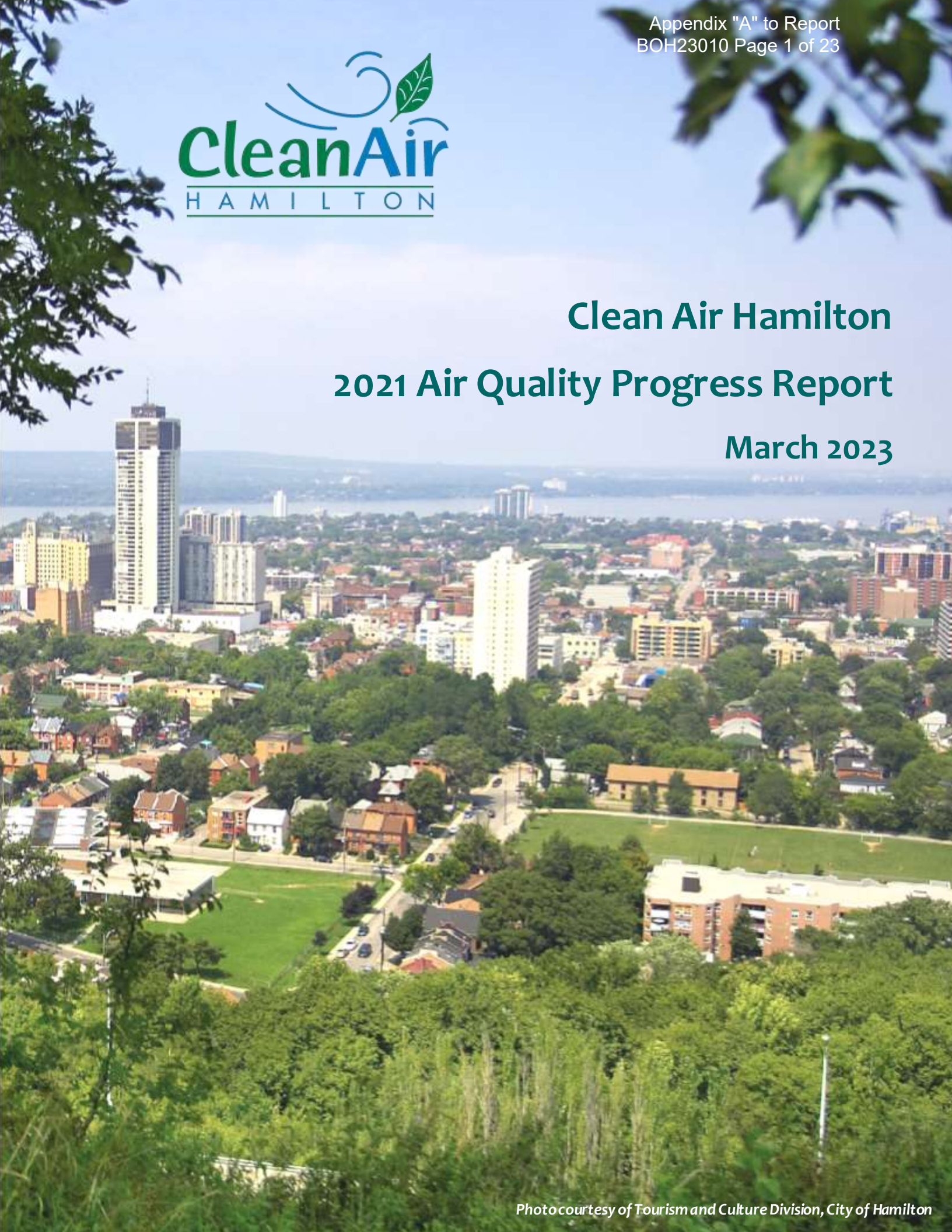

Photo courtesy of Tourism and Culture Division, City of Hamilton

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Top Row (L to R): Jahanvi Desai, Bruce Newbold (Chair), Andrew Sebestyen, Nico Strabac, Barry Duffey
Second Row (L to R): Stephen Burt, Denis Corr, Trevor Imhoff, Dan Dobrin, Geoffrey Knapper
Middle Row (L to R): George McKibbon, Heidi Levitzky, John Lundrigan, Julie Wedzinga, Kerry LeClair
Fourth Row (L to R): Lubna Hussain, Mainul Husain, Lynda Lukasik, Mark Smithson, Megan Sutton
Bottom Row (L to R): Tiffany Singh, Spencer Skidmore, Timothy Hung, Stephanie Gasko, Abigail Amponsah

For the full list of Clean Air Hamilton members, please go to https://cleanairhamilton.ca/members/

Message from the Chair

I am pleased to provide the Clean Air Hamilton Annual Report for 2021, which provides annual air quality data, along with Clean Air Hamilton's on-going work to improve air quality in Hamilton.

For previous years' activities and reports, please go to http://www.cleanairhamilton.ca.

Clean Air Hamilton remained committed to improving Hamilton's air quality in 2021. Due to the on-going impact of the COVID-19 pandemic, meetings remained virtual and we worked to engage our membership.

Clean Air Hamilton is committed to improving the health and quality of life of citizens through communication, promoting realistic, science-based decision-making and sustainable practices. In 2021, Clean Air Hamilton held two noon-hour 'Lunch and Learns' that echoed the themes of the cancelled 2020 Upwind Downwind Conference. Recordings of the presentations are available on the Clean Air Hamilton website. Clean Air Hamilton also began to plan for the 2022 Upwind Downwind conference to be held June 16, 2022.

In addition, to formalize our commitment to equity, diversity and inclusion, Clean Air Hamilton created an Equity, Diversity and Inclusion policy in 2021. We also began to document the history of Clean Air Hamilton. More information on these initiatives is included in this report.

We continue to see improvements in Hamilton's air quality, but challenges remain, with several pollutants, including particulate matter and benzo (a)pyrene, trending in the wrong direction. At the same time, we are excited about de-carbonization initiatives within the City and Clean Air partners and look forward to the benefits of cleaner air in the future. Clean Air Hamilton will continue to work with our partners to understand these trends and work to address them. Together, we can ensure healthier air for all.

We thank the Healthy and Safe Communities Department and the City Council for their on-going support of Clean Air Hamilton and its special projects. Funding has allowed us to work closely with partner groups including Environment Hamilton and Green Venture and the University of Toronto on projects that have raised awareness among local citizens about air quality issues, as well as allowing us to work towards improving local air quality.

Together, Clean Air Hamilton and its various partners are working to reduce emissions as well as our personal exposures and live healthier lives. Clean Air Hamilton's special projects and this report help us to do that.

Bruce Newbold, Ph.D.
Chair, Clean Air Hamilton

Strategic Activities

Clean Air Hamilton is dedicated to improving air quality across the City of Hamilton. This will be accomplished through sound science-based decision making, using the most up-to-date information and tools available, such as the Hamilton Airshed Modelling System (HAMS). Clean Air Hamilton plans to focus on education and outreach, air quality monitoring and to continue to update the HAMS and identify major sources of pollution to prioritize action for maximum air quality improvement and exposure reduction. Clean Air Hamilton has identified the following issues for research, communication and program activities in collaboration with our partners.

Governance & Structure:

To remain a multi-stakeholder group dedicated to improving air quality by increasing public perception and expanding Clean Air Hamilton membership while providing communication and promotion of realistic, science-based decision making and sustainable practices.

Air Zone Management:

Comply with the Ministry of the Environment, Conservation and Parks (MECP) and Canadian Ambient Air Quality Standards. This will be done through implementation of a systems level approach and future advocacy towards an industrial mandatory monitoring regulation.

Transportation:

To encourage and facilitate more use of public and active transportation through commentary on transportation related matters, supporting educational programs and localized monitoring leading to detailed information to encourage changes in behaviour.

Air Monitoring:

To improve air monitoring activities across the City of Hamilton by providing support for additional portable air monitors and fixed air monitors that provide real-time monitoring for contaminants of concern in Hamilton.

Dust & $PM_{2.5}$ Mitigation:

Lower concentrations of Particulate Matter ($PM_{2.5}$) across the City of Hamilton below Canadian Ambient Air Quality Standards by effectively utilizing the airshed model to create partnerships and pollution inventory specific to street sweeper and dust mitigation programs.

2021 Meetings	2022Meetings
January 11, 2021	January 10, 2022
February 8, 2021	February 14, 2022
March 8, 2021	March 14, 2022
April 12, 2021	April 11, 2022
May 10, 2021	May 9, 2022
June 14, 2021	July 11, 2022
August 9, 2021	August 8, 2022
September 13, 2021	September 12, 2022
October 18, 2021	October 3, 2022
November 8, 2021	November 14, 2022
December 13, 2021	December 12, 2022

Clean Air Hamilton Meetings

Clean Air Hamilton meetings are usually held virtually on the second Monday of each month using Cisco WebEx in light of the COVID-19 pandemic.

Photo courtesy of Tourism and Culture Division, City of Hamilton

Equity, Diversity and Inclusion Policy

Clean Air Hamilton is committed to the principles of equity, diversity, and inclusion (EDI) in all aspects of our community organization and partnerships. We believe we are stronger when we not only celebrate our many differences, values and voices, but include them in practice. This means that our members will actively work to understand and remove barriers to equity and inclusion, be they systematic, physical, or otherwise. In addition, we are committed to ongoing learning and development in the areas of EDI so that we can apply an "equity lens" in all areas of our activities. Further, Clean Air Hamilton will adhere to the Ontario Human Rights Code and the Accessibility for Ontarians for Disabilities Act at all times.

In 2021, Clean Air Hamilton developed and implemented the Equity, Diversity and Inclusion Policy.

The purpose of this policy is to outline our principles and expectations when it comes to EDI. At Clean Air Hamilton we strive to ensure that all people are treated equally and to be a culturally competent community organization. We value diversity and will continue to actively work to build a diverse membership which is reflective of our community and inclusive of persons of various groups in terms of age, sex, race, ethnicity, physical and intellectual ability, religion, sexual orientation, educational background and expertise.

We believe in equal treatment and opportunity for all of our members. We will ensure the right to equal treatment is upheld in participation in meetings and activities, opportunities for advocacy, enabling contributions and ideas to be fully heard and considered and assessment of grant applications. Discrimination will not be tolerated.

Every person who participates at Clean Air Hamilton has a responsibility to treat others with dignity and respect and make sure all people feel included and have access to the same opportunities to contribute. We will actively strive to create an environment where all persons are able to share their ideas, beliefs and skills.

The History of Clean Air Hamilton

In 1999 Clean Air Hamilton and Vision 2020 received United Nations Environment Program awards for best practices in municipal environment programs. In 2000, the Region of Hamilton Wentworth and its member municipalities merged to form the City of Hamilton and Clean Air Hamilton has continued to this day.

Clean Air Hamilton is drafting a paper on Clean Air Hamilton's 25 year old history. It describes what made and continues to make Clean Air Hamilton successful. It concludes with our thoughts on the challenges the next 25 years may hold for air quality in the City of Hamilton.

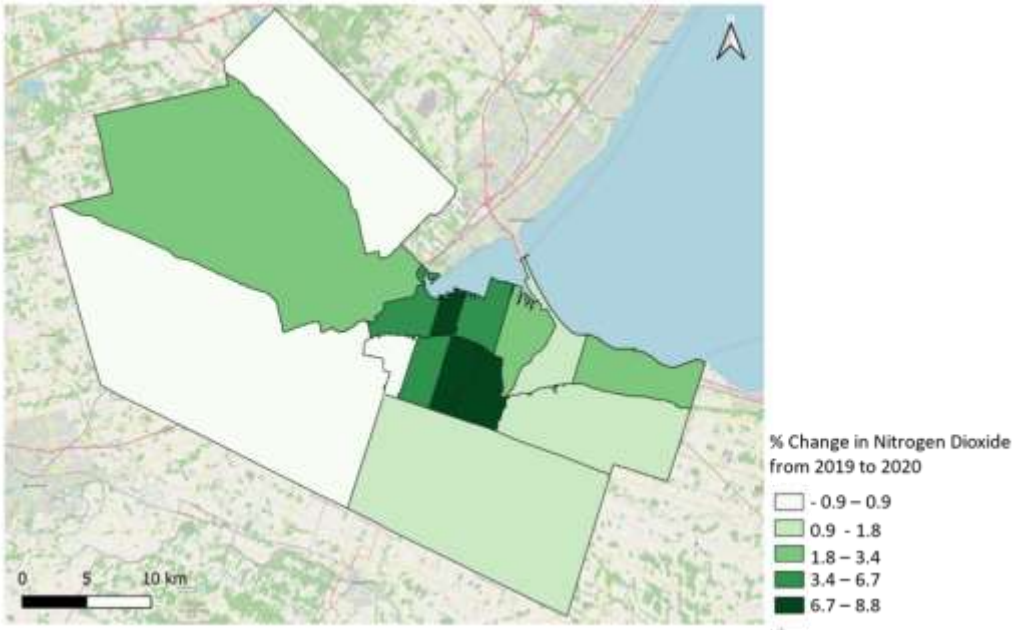
Clean Air Hamilton 2021 Funded Projects

Clean Air Hamilton is an innovative, multi-stakeholder agent of change dedicated to improving air quality in our community. In 2021, Hamilton Public Health Services provided $12,400 to fund projects resulting in air quality improvement and awareness.

These projects have reached hundreds of citizens and contribute to improving Hamilton's air quality through monitoring, promotion and spreading awareness. Clean Air Hamilton is proud to support the 2021 funded projects.

Modelling Local NO_2 Across Hamilton on a Ward Level During the COVID-19 Pandemic

Dr. Adams and Priya Patel, P.Eng completed the analysis "Modelling Local NO_2 Across Hamilton on a Ward Level During the COVID-19 Pandemic". This study was conducted to understand changes in NO_2 concentrations on a ward level from 2019 to 2020. Nitrogen dioxide was selected due to its close relationship to vehicular and industrial emissions, short atmospheric lifetime and the negative health impacts of exposure. This study found the highest concentrations of NO_2 in the downtown, centrally located wards of Hamilton. These wards have the highest densities of residential, industrial and road land uses, which likely contribute to the high NO_2 concentrations. During the 2020 COVID-19 state of emergency, the central wards had the greatest reduction in NO_2. Overall, the research team is hopeful that this study will allow policymakers, residents and other stakeholders to gain a better understanding of NO_2 air pollution across the city and potentially inform urban design decisions. Furthermore, we hope this will provide an example of how air quality may improve as more mitigation and adaptation initiatives are implemented to reduce the impact of climate change.



Lockdown 2, *May 20th – June 19th*, (negative values indicate an increase in NO_2 concentration)

Clean Air Hamilton 2021 Funded Projects Cont'd...

Fresh Air for Kids

The Fresh Air For Kids (FAFK) program had a successful 2021-2022 school year with Green Venture and Corr Research delivering the program to 14 classes ranging from grade one through eight, totalling 303 students and 15 teachers across five schools. The FAFK program consists of four components: air quality education, air quality monitoring, creating an action campaign and a wrap up celebration. During up to five visits with Green Venture team facilitators, students are introduced to the science of air pollution and its health effects and learn about tools and resources to measure air quality and then turn their knowledge into action to develop an air quality action project to make a difference in their school and community.

FAFK was delivered completely online to one school, in-person to two schools and in combination for the other two. Green Venture and Corr Research were able to stay consistent in the content of the program across delivery methods. Of the 303 students who participated in the program during the 2021-2022 school year, 162 submitted signed media consent forms and were able to complete our post program survey. In the post program survey, 100% of students reported that they or their family reduced car idling or use and 96% indicated that participating in FAFK increased their knowledge on how they can improve local air quality. All participating classes completed anti-idling education campaigns and brought the message to their broader school communities through actions such as posters, outdoor banners, videos, speeches, brochures and messages in their schools newsletters. Green Venture and Corr Research received positive feedback from students, teachers and parents alike.

Students indicated that they enjoyed all parts of the program but for the majority of students their favourite parts were the air quality monitoring walk and participating in and creating the materials for their local action campaigns.

Green Venture

Corr Research

Upwind Downwind Lunch & Learns

Due to the COVID-19 Pandemic, Clean Air Hamilton had to cancel the bi-annual 2020 Upwind Downwind Conference.

In place of the conference, Clean Air Hamilton held a series of Lunch and Learn sessions in 2020 and 2021.

In late 2021, Clean Air Hamilton members began to plan the 2022 Upwind Downwind Conference, Building Health Post-Carbon Cities.

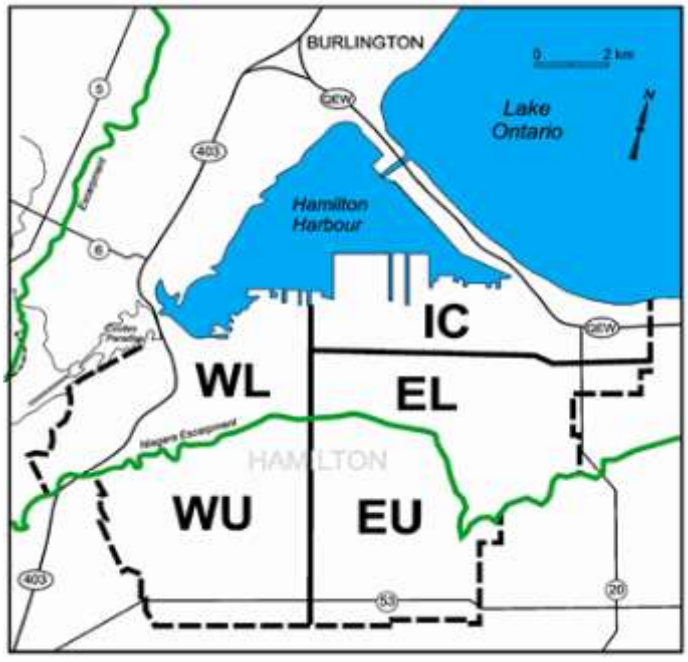
These Lunch and Learns allowed Clean Air Hamilton to educate the community about air quality issues in Hamilton while following Public Health guidance.

Video recordings can be viewed here:

https://cleanairhamilton.ca/upwind-downwind-lunch-n-learns/

In 2021, Clean Air Hamilton was joined by Dr Matthew Adams who presented and discussed "Air Pollution Sensors in Hamilton and How Can They Help?" The Lunch and Learn had more than 60 participants.

Dr. Janya Kelly of Golder Associates Ltd. also joined Clean Air Hamilton with updates *on* the *Hamilton Airshed Modelling System; Sub-Region Analysis.*

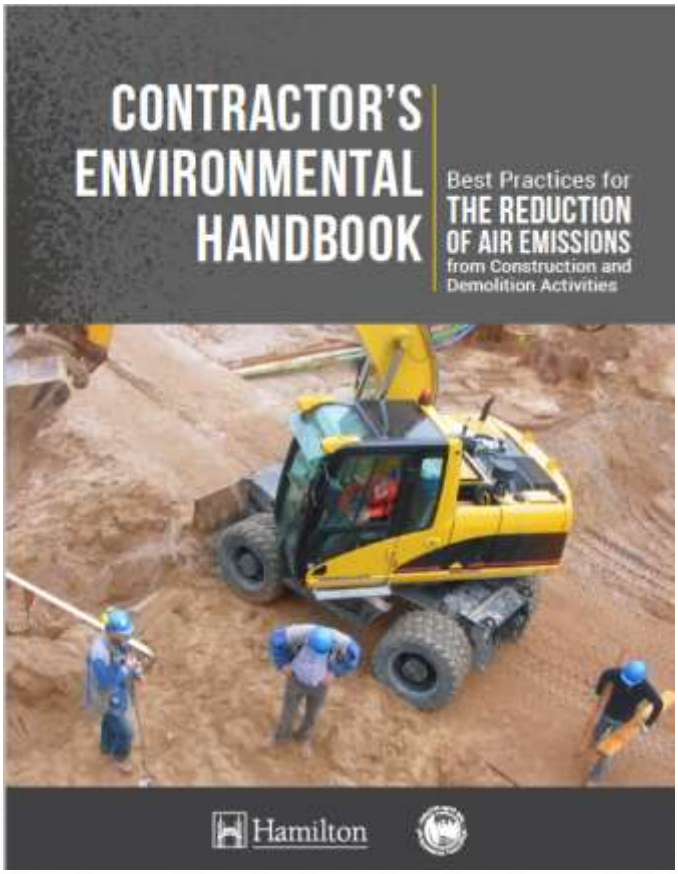


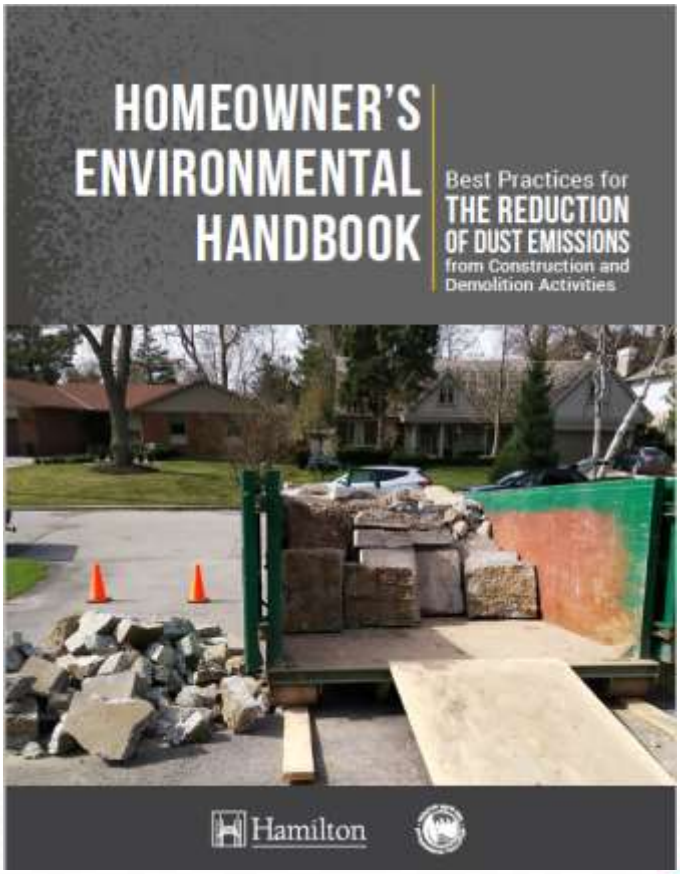
Dust Group Environmental Handbooks

There are significant health and environmental impacts associated with emissions of particulate matter (PM) and other criteria air contaminants. These emissions are often dispersed by construction and demolition projects. The Dust and Particulate Matter Working Group, a sub-committee of Clean Air Hamilton, has undertaken a number of initiatives over the last few years to attempt to address these issues.

In 2021, the Dust and Particulate Matter Woking Group distributed two handbooks on managing dust and particulate matter emissions for construction and demolition projects. The first handbook is directed towards contractors and is a comprehensive document describing many technical mitigation measures commonly applied on construction and demolition sites. The second is a smaller document meant for homeowners engaged in Do-It-Yourself construction or demolition projects and contains user-friendly directions on how to control emissions for the health of the homeowners and their neighbours.

The documents are available on the Clean Air Hamilton website (https://cleanairhamilton.ca/dust-abatement/).





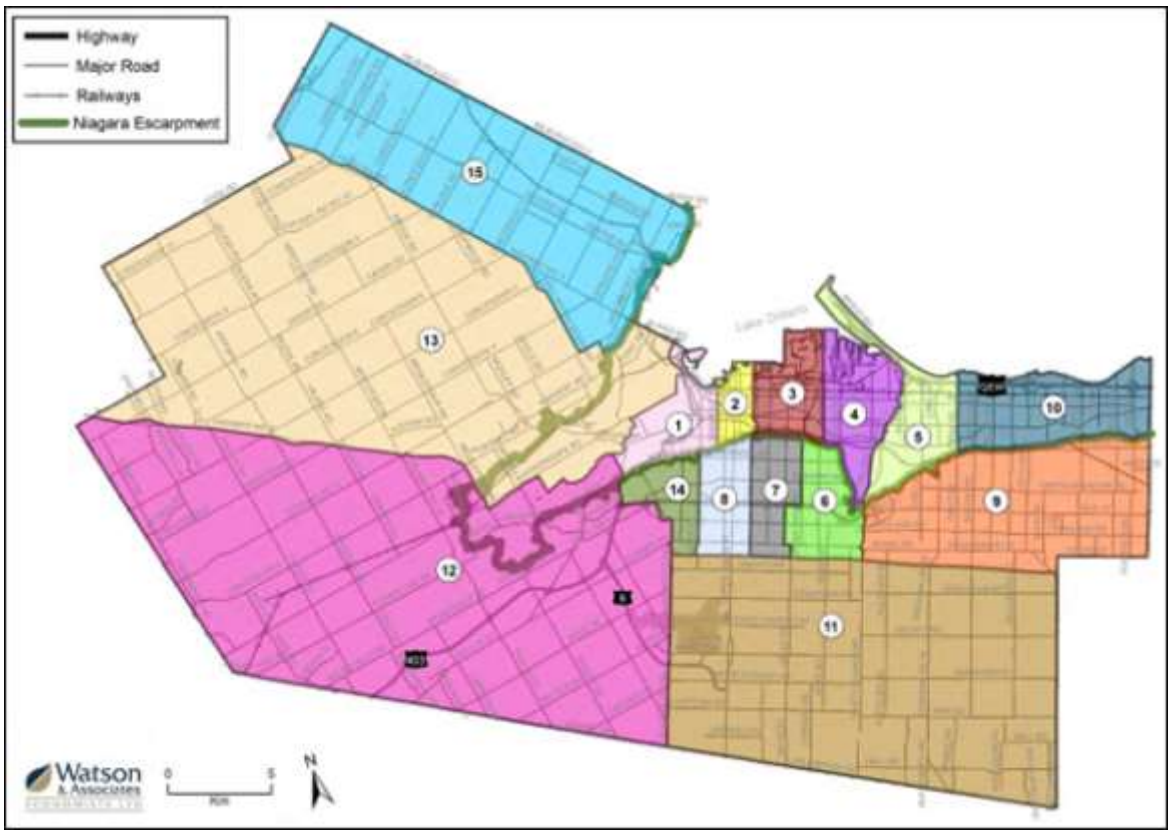
Hamilton's Ambient Air Quality Trends 2021

The City of Hamilton is a port city in Ontario. It is located 58 kilometres southwest of Toronto in the Greater Toronto and Hamilton Area (GTHA). As one of Canada's leading industrial and transportation hubs, Hamilton's industrial sector, including the iron and steel industry, accounts for major local and national Gross Domestic Product (GDP) and job creation.

The following section provides the ambient Air Quality Trends for the City of Hamilton for the year 2021. Through the completion of Hamilton's Airshed Modelling System (HAMS)[1], we are able to understand that a significant amount of transboundary (air emission sources outside of Hamilton) emissions contribute to local airshed pollution concentrations. For example, HAMS models that 91% of $PM_{2.5}$ concentrations come from transboundary sources. Local industrial, on-road and off-road transportation emissions continue to contribute to localized air pollution and downwind airsheds as well.

It is important that Hamilton continues to reduce local sources of emissions (including industrial, transportation and off-road sources), not only to improve local air quality, but also to be a good neighbour to reduce downwind transboundary emissions to other municipalities.

Clean Air Hamilton would like to sincerely thank the Ministry of Environment, Conservation and Parks (Hamilton Regional Office) for their support in providing air quality trends data.

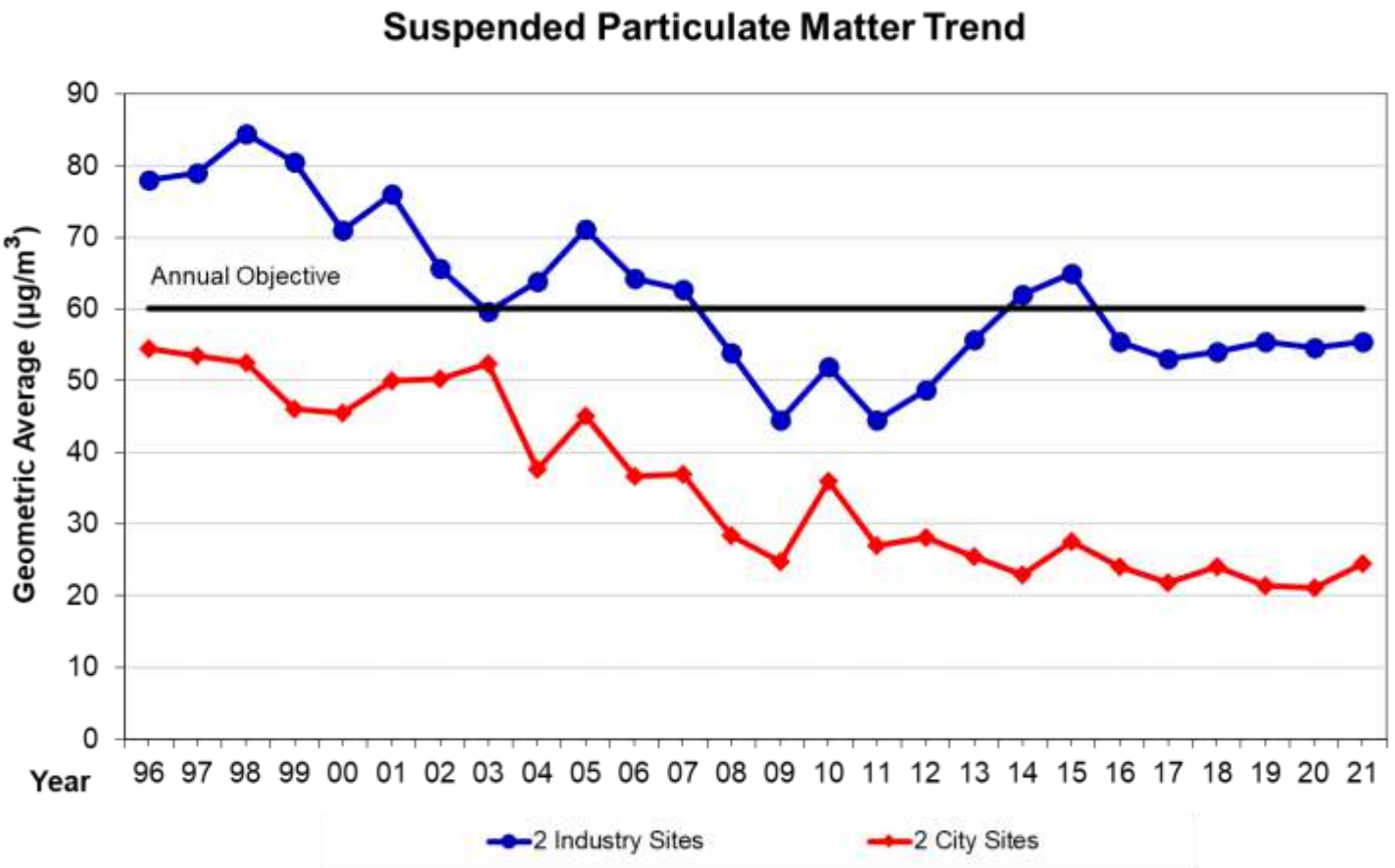


Particulate Material: Total Suspended Particulate (TSP)

Total suspended particulate (TSP) includes all particulate material with diameters less than about 45 micrometers (µm*). A substantial portion of TSP is composed of road dust, soil particles and emissions from industrial activities and transportation sources.

TSP averages have reduced at municipal and industrial sites since 1996. The 2021 concentrations at industrial sites are below the annual objective (AO). The AO is the desired concentration established by the MECP as documented in the Ontario Ambient Air Quality Criteria (AAQC).

Included in the TSP category are inhalable particulates (PM_{10}) and respirable particulates ($PM_{2.5}$).



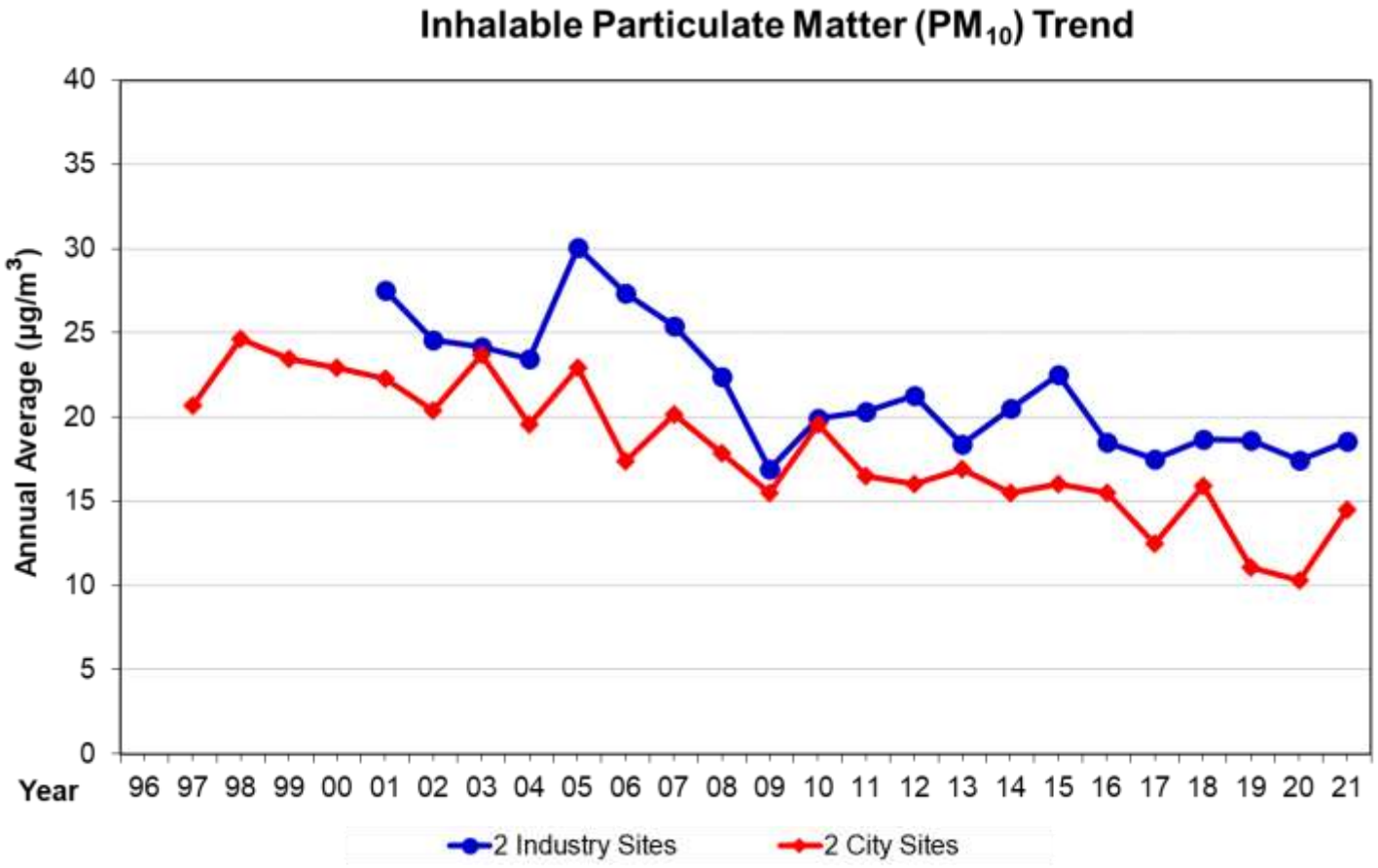
* 1 cm = 10,000 µm

Particulate Material: Inhalable Particulate Matter (PM_{10})

Inhalable particulate matter (PM_{10}) has a diameter of 10 µm* or less. PM_{10} makes up 40-50% of TSP in Hamilton.

PM_{10} is primarily derived from vehicle exhaust emissions, industrial stack and fugitive dusts (non-stack) and the finer fraction of re-entrained road dust.

PM_{10} at City and Industry sites has decreased over the past two decades. This is likely a combination of better performance of vehicle fleets, improved process emissions, increased management of dust track-out by industries and the use of better street sweepers and street sweeping practices by the city. From the Hamilton Airshed Modeling System (HAMS)[1], transboundary PM_{10} levels are primarily from transportation related emissions and they amount to over 90% of the total PM_{10} emissions.



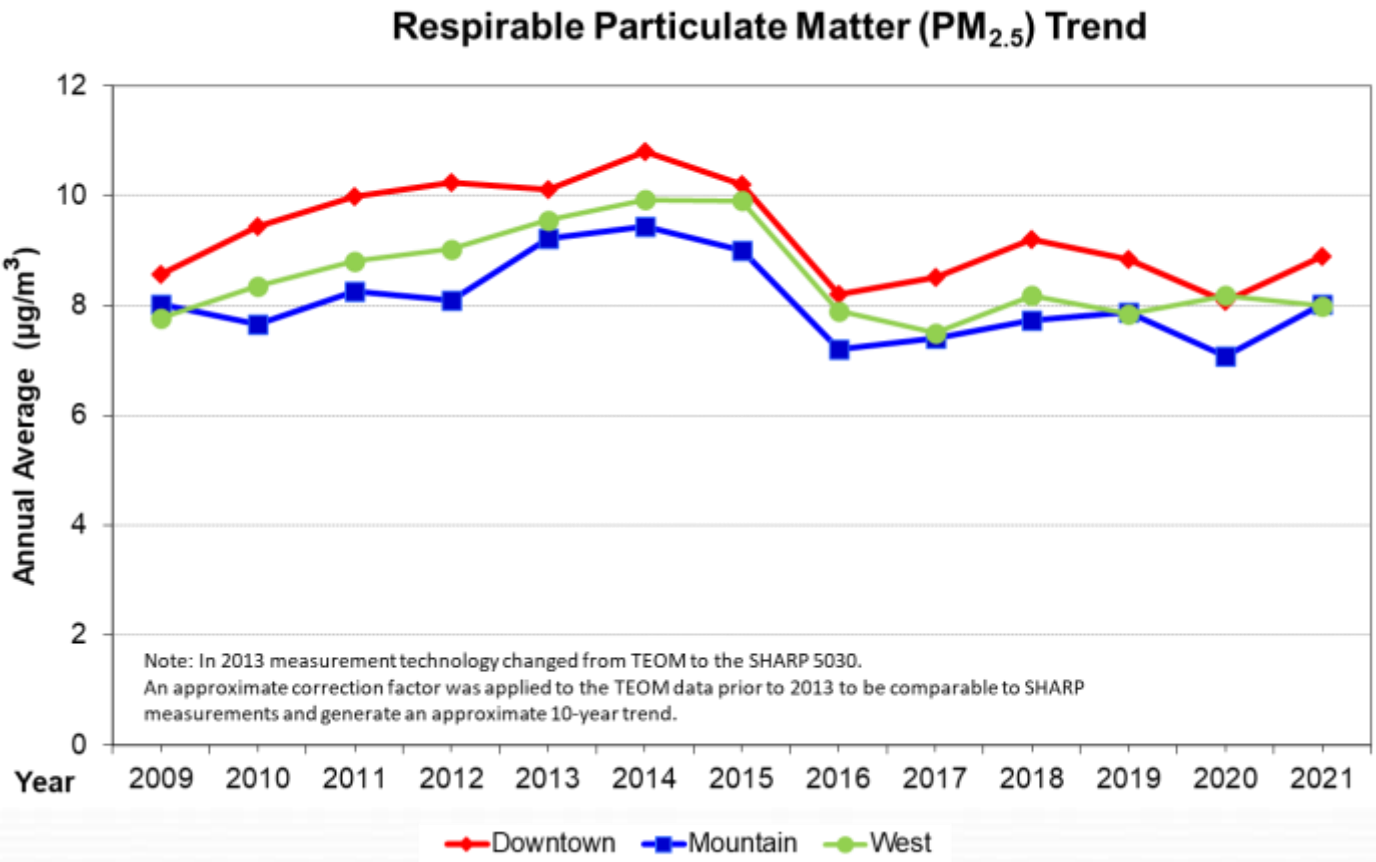
* 1 cm = 10,000 µm

Particulate Material: Respirable Particulate Matter ($PM_{2.5}$)

The Ontario government started measuring $PM_{2.5}$ across Ontario in 1999. $PM_{2.5}$ makes up about 60% of PM_{10} and in most cities is derived from residential and transportation sectors. In Hamilton, there would also be some industrial contributions. Another significant portion of $PM_{2.5}$ is regionally generated emissions that can travel hundreds of kilometers via wind from where they originated. These transboundary flows play a significant role in Ontario's air quality and according to HAMS[1], transboundary emissions in Hamilton for $PM_{2.5}$ amounted to 91%.

Exposure to fine particulate matter has been linked to respiratory, cardiovascular and other health impacts in humans[2] as well as hospital admissions and several serious health effects, including premature death[3].

Measurement technology for $PM_{2.5}$ changed in 2013. A correction factor was applied to concentrations reported prior to 2013 in order to enable a more representative comparison to concentrations measured with the new technology.



Ground Level Ozone (O_3)

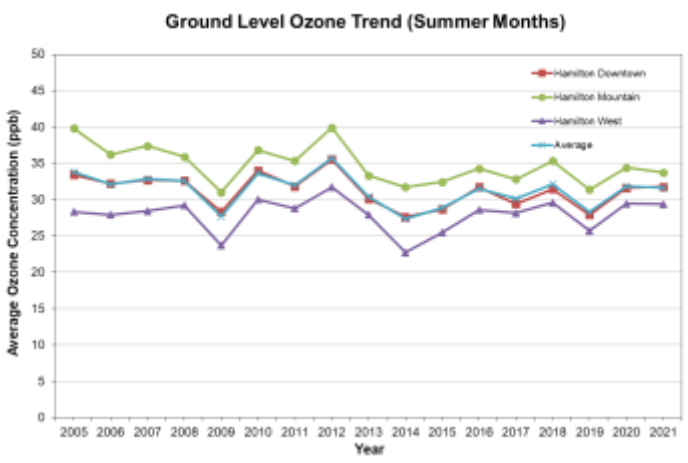
Ground-level ozone is a colourless, odourless gas not emitted directly into the atmosphere. It is a result of photochemical reactions between oxides of Nitrogen (NO_x) and Volatile Organic Compounds (VOCs) in the presence of sunlight and is a major component of smog[2]. This is why O_3 concentrations are higher during summer months, generally from May to September.

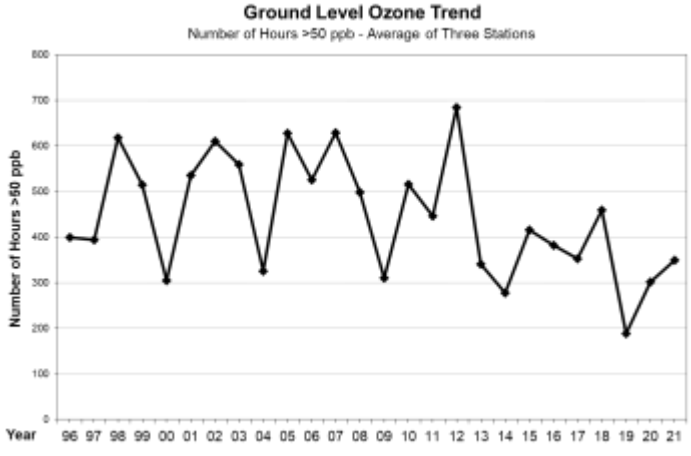
Major sources of O_3 include (but are not limited to):

- coal-fired power plants
- vehicles
- urban activities

The trend in O_3 shows that concentrations have been highly variable in the past 20+ years and showed a marked increase in 2020 for almost all seven cities (see page 19). O_3 is a main contributor for Hamilton's Special Air Health Advisories (SAHA) and Special Air Quality Statements (SAQS) and unlike other pollutants, the majority of O_3 comes from precursors emitted by sources upwind of Hamilton such as the Midwest Ohio Valley region. Sources from Hamilton contributing to O_3 pollution will affect areas downwind of Hamilton which makes lowering O_3 very important.

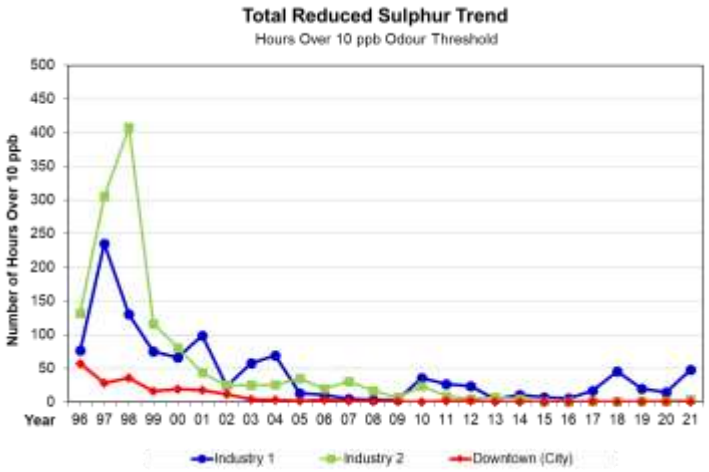
The number of hourly exceedances greater than 50 ppb increased in 2021 in comparison to 2020. The Government of Ontario has been dedicated to lowering O_3 precursor emissions by eliminating all coal fired power plants in Ontario, the last having been decommissioned in 2014.





Total Reduced Sulphur (TRS)

Total Reduced Sulphur (TRS) is a measure of the volatile, sulphur-containing compounds that are the basis of many of the odour complaints related to steel mill operations. TRS compounds are not normally considered a health hazard. An odour threshold has been set at 10 parts per billion (ppb) TRS because at this level about one-half of any group of people can detect an odour similar to the smell of rotten eggs.

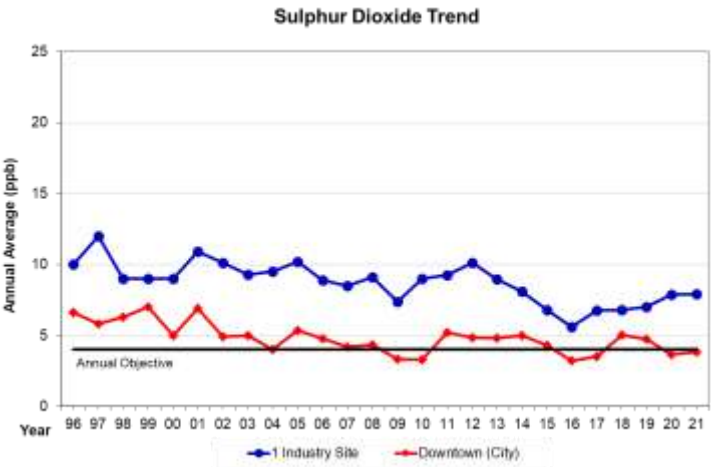


The number of hours per year in which measurements exceeded 10 ppb have reduced significantly since the mid-1990s. This is due to significant changes in the management and operation of the coke ovens, blast furnaces and slag quenching operations associated with steel mill operations.

Sulphur Dioxide (SO_2)

Sulphur Dioxide (SO_2), a by-product of industrial activity, is not only a respiratory irritant but is also converted in the atmosphere over several hours to sulphuric acid ($H2SO_4$), which is then converted to sulphate particles. These particles are acidic in nature and high levels of exposure can cause respiratory illness[4].

Significant reductions in air levels of SO_2 were made in the 1970s and 1980s. There has been a gradual decline in air levels of SO_2 since 1998. However, concentrations since 2016 have shown a slight increase for Industrial Site 1.

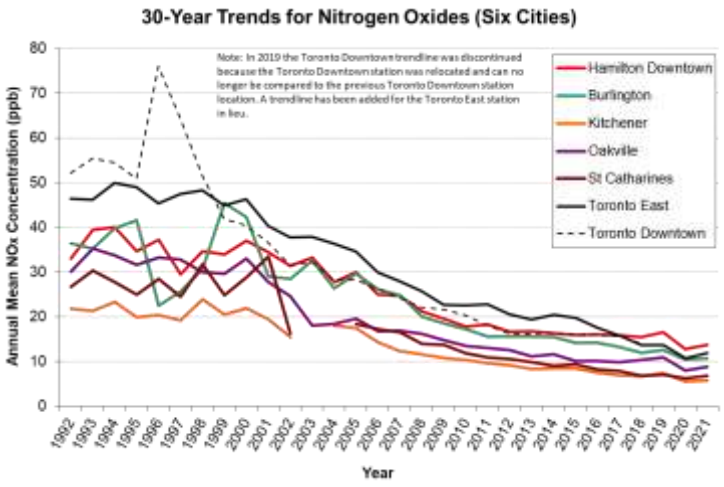


Transboundary emissions represent about 69% of the annual contribution to SO_2 levels within Hamilton of which 97% are from industrial sources[1].

Nitrogen Oxides (NO_x)

Nitrogen Oxides (NO_x) are the collective term and combined total of Nitrogen Monoxide (NO) and Nitrogen Dioxide (NO_2). NO and NO_2 are routinely measured and their sum reported as NO_x to reflect the presence of both species in urban areas.

This chart displays the steadily decreasing trend of NO_x in six cities in Ontario, including Hamilton. Since the 1990s downtown Toronto has seen reductions in NO_x levels of approximately 60%. Hamilton's NO_x levels have decreased by approximately 46% since 1990.

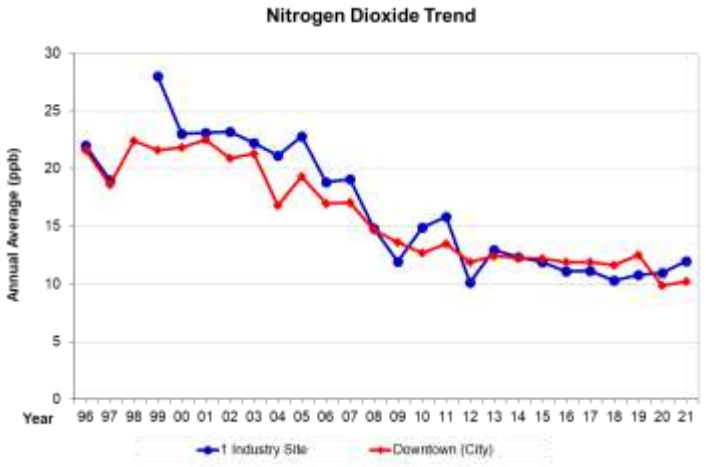


Overall, the decrease in NO_x levels is a reflection of improvements in emission performance of the vehicle fleets in Ontario over the past decade as well as industrial process improvements.

Nitrogen Dioxide (NO_2)

NO_2 is formed in the atmosphere from NO which is produced during combustion of fuels (i.e. gasoline, diesel, coal, wood, oil and natural gas). The leading sectors producing these emissions are transportation and industry. The level of vehicle use across Hamilton has increased slightly during the past decade, however overall NO_2 levels have decreased most likely due to improved engine technologies.

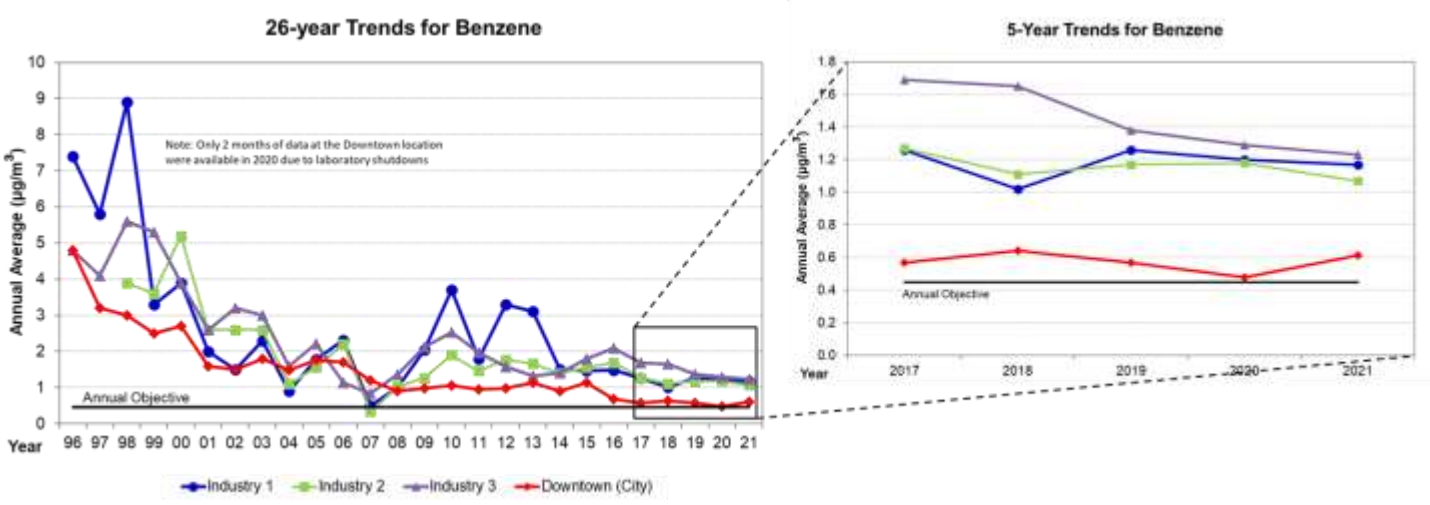
Based on HAMS[1], local emissions are highest for on-road transport at 34% and transboundary emissions contribute to 44% of NO_2 sources in Hamilton.



Benzene

Benzene is a carcinogenic (cancer causing) volatile organic compound (VOC) that is emitted from some operations within the steel industry, specifically coke ovens and coke oven by-product plant operations. Gasoline can also be up to 5% benzene. Vapours containing benzene may be released during pumping at gasoline stations.

Air levels of benzene have reduced dramatically since the 1990s, due to significant upgrading of coking plant operations, improved operating procedures and improved control of release of benzene vapours from the coke by-products. Transboundary benzene levels amount to 70% (HAMS[1]) and more work remains to be done to achieve the Annual Objective and reduce exposures to benzene from all sources.

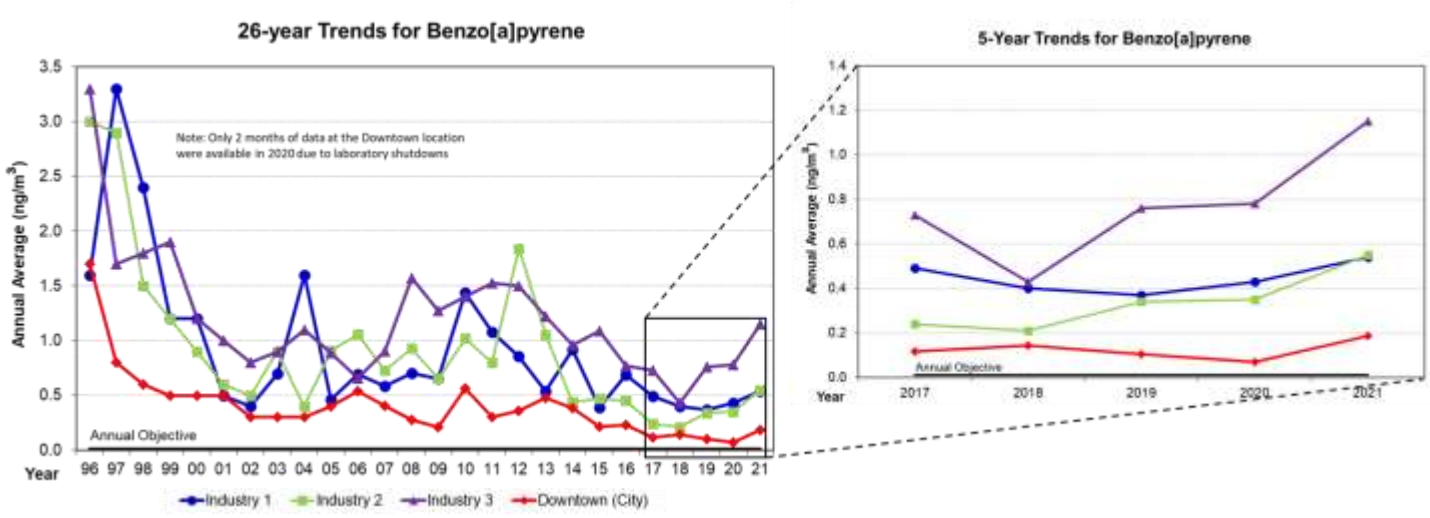


Please note that only two months of data at the Downtown location where available for benzene in 2020 due to laboratory shutdowns.

Benzo[a]pyrene

Benzo[a]pyrene (BaP) is also a carcinogen. BaP is a member of a larger class of chemical compounds called polycyclic aromatic hydrocarbons (PAHs), which are emitted when carbon-based fuels such as coke, oil, wood, coal and diesel fuel are burned. BaP generating activities include coke oven operations within the steel industry, incomplete combustion producing smoke such as vehicle traffic, burning of refuse, cooking, tobacco smoking and wood burning.

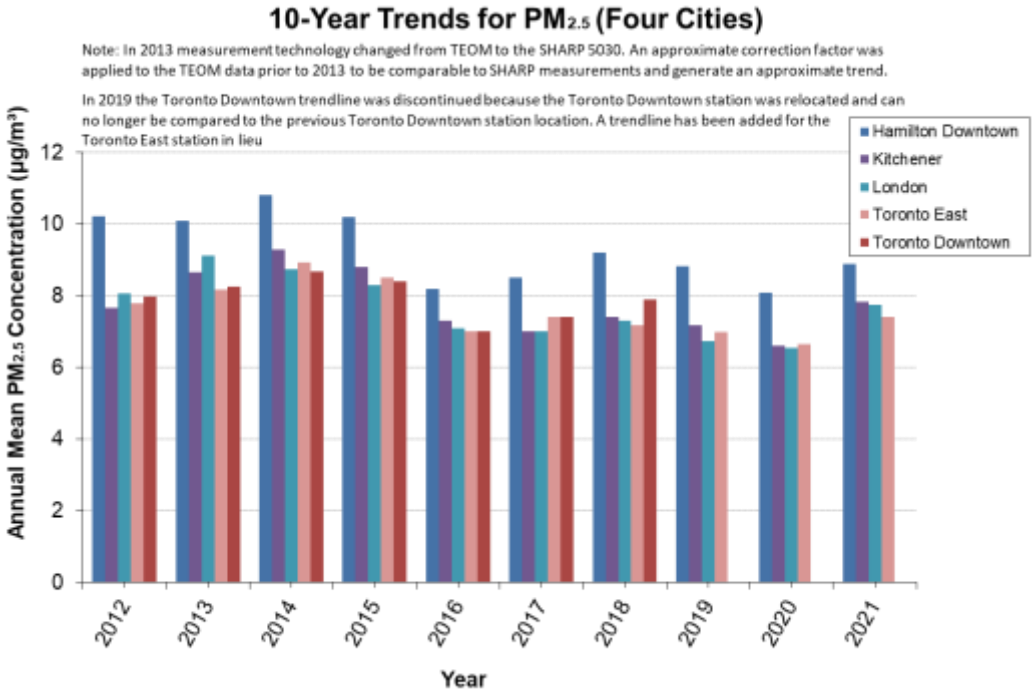
There have been significant decreases in BaP levels since the late 1990s and further decreases since 2013 with increases at Industrial sites since 2018. Source apportionment for BaP from HAMS[1] shows that industrial sources amount to 47% emissions, while transboundary emissions contribute to 29% of BaP emissions in the City of Hamilton.

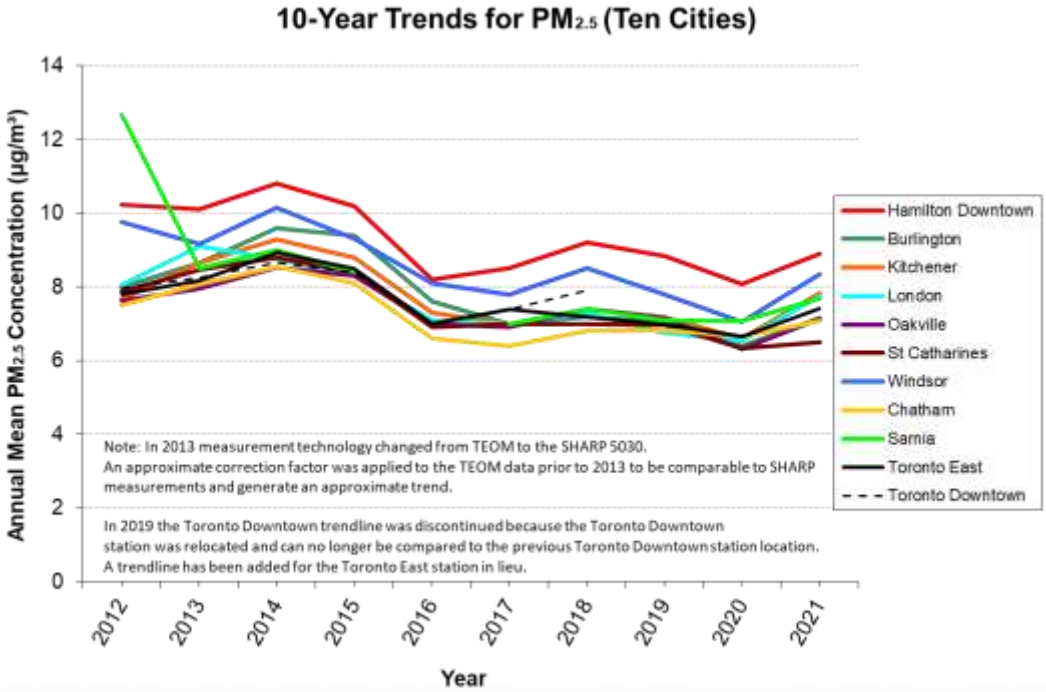


Please note that only two months of data at the Downtown location where available for benzo[a]pyrene in 2020 due to laboratory shutdowns.

Multi-City Air Quality Comparisons

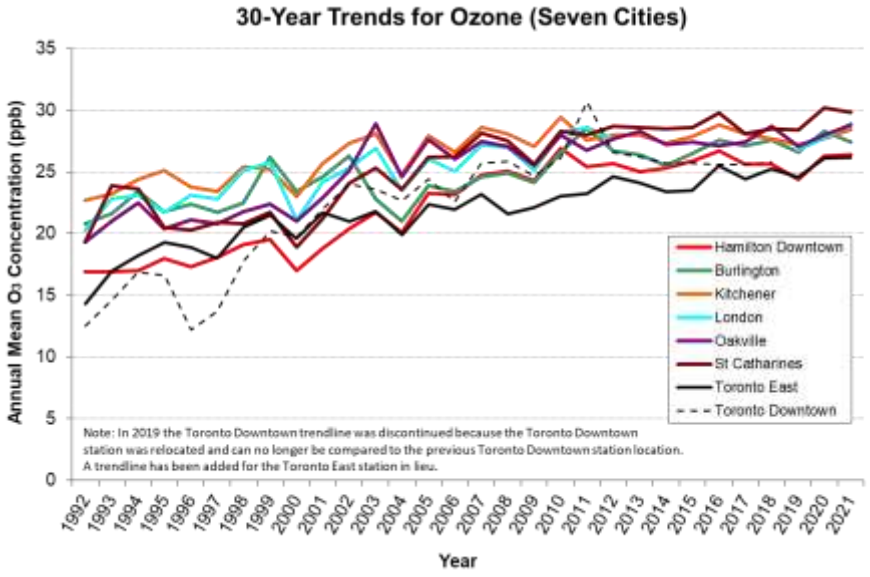
Particulate Material: Respirable Particulate Matter ($PM_{2.5}$)





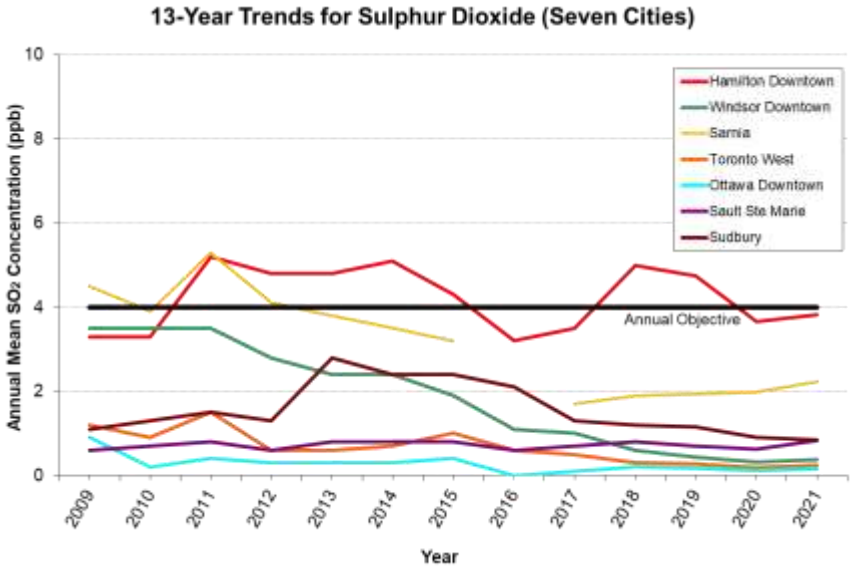
Ozone (O_3)

Hamilton's 30-year ozone trend is comparable to many other municipalities. Recent 2021 concentrations show Hamilton having one of the lowest concentrations of O_3. Air pollution from Hamilton can cause increased O_3 concentrations downwind and so reducing air pollutants such as Nitrogen Oxides (NO_x) and Volatile Organic Compounds (VOCs) is very important.



Sulphur Dioxide (So_2)

While Sulphur Dioxide (SO_2) concentrations in Hamilton are achieving the Annual Objective of 4 parts per billion (ppb), this is much higher compared to other municipalities. HAMS Sub-Regional Analysis[1] predicts higher levels for SO_2 concentration in the industrial core and West-lower areas of Hamilton from transboundary, industrial and non-road sources.



Acknowledgements

In 2021, the City of Hamilton provided financial and in-kind support to Clean Air Hamilton and its activities. Descriptions of some of the programs supported by Clean Air Hamilton can be found on pages 6 - 7 in this report.

This annual funding is leveraged significantly in two ways: first, Clean Air Hamilton uses these funds in partnership with funds provided by other agencies and institutions to develop programs related to air quality; second, since all of the members of Clean Air Hamilton donate their time and expertise, there is a significant amount of in-kind support provided. It is estimated that Clean Air Hamilton's partners provide well over $200,000 of in-kind support.

Bruce Newbold, Ph.D.
Chair, Clean Air Hamilton

Hamilton Air Monitoring Network
Beach Strip Station 29102

Public Health Services Airpointer

For more information contact Public Health Services (905) 546-2424 ext. 1275

[1] *Golder Associates. 2018, February. "Hamilton Airshed Monitoring System Results". November 1, 2021.*

[2] *Ministry of the Environment, Conservation and Parks. 2010. "Key air contaminants". September 28, 2022. <https://www.ontario.ca/document/air-quality-ontario-2018-report/key-air-contaminants>.*

[3] *Ministry of the Environment, Conservation and Parks. "Fine Particulate Matter". September 28, 2022. <http://www.airqualityontario.com/science/pollutants/particulates.php>.*

[4] *Ministry of the Environment, Conservation and Parks. 2010. "Sulphur Dioxide (SO_2)". September 19, 2021. <http://www.airqualityontario.com/science/pollutants/sulphur.php>.*

Air Quality - Additional Resources

To learn more about Clean Air Hamilton and our work visit www.cleanairhamilton.ca.
For annual air quality trends provided by the Ministry of the Environment, Conservation and Parks, please see pages 13 to 21.

Air Quality and Health

To learn about how to protect your health visit: www.airhealth.ca

To learn about Hamilton Public Health Services and actions on air quality visit: http://preview.hamilton.ca/public-health/health-topics/air-quality-pollution-smog

Government Actions on Air Quality

To learn about the Province of Ontario's actions on air quality visit: www.airqualityontario.com/

To learn about the Government of Canada's actions on air quality visit: http://www.ec.gc.ca/Air/default.asp?lang=En&n=14F71451-1

Air Quality Monitoring

For a detailed model of hourly concentrations for a variety of pollutants across Hamilton visit: http://www.hamiltonaqhi.com

To check our air pollution levels in Hamilton and Ministry run air monitors visit: http://www.airqualityontario.com/

To check out the Hamilton Air Monitoring Network visit: http://www.hamnair.ca/

To check out Hamilton Air Quality Health Index website visit: http://www.hamiltonaqhi.com

Who we are:

"Clean Air Hamilton is an innovative, multi-stakeholder agent of change dedicated to improving air quality in our community. We are committed to improving the health and quality of life of citizens through communication and promoting realistic, science-based decision-making and sustainable practices."

2021 Members

Bruce Newbold, *Chair* -*McMaster University*

ArcelorMittal Dofasco

Citizens

City of Hamilton - *Various Departments*

Corr Research

Environment & Climate Change Canada

Environment Hamilton

Green Venture

Hamilton Conservation Authority

Hamilton Industrial Environmental Association

Hamilton Port Authority

Hamilton Public Health Services

Health Canada

McKibbon Wakefield Inc.

McMaster Institute for Health Equity

Ministry of Environment Conservation and Parks (MECP) - *Hamilton Regional Office*

Mohawk College

Stelco

CleanAir HAMILTON

Clean Air Hamilton, November 2022

Production: Public Health Services
City of Hamilton

For further information, please contact:

Coordinator Air Quality and Climate Change
Public Health Services,
Healthy Environments Division,
Healthy & Safe Communities Department
City of Hamilton

110 King St. W. 3rd Floor Hamilton, ON, L8P 4S6
Robert Thompson Building

Email: cleanair@hamilton.ca
or visit our website:
www.cleanairhamilton.ca

BOH23010

Hamilton

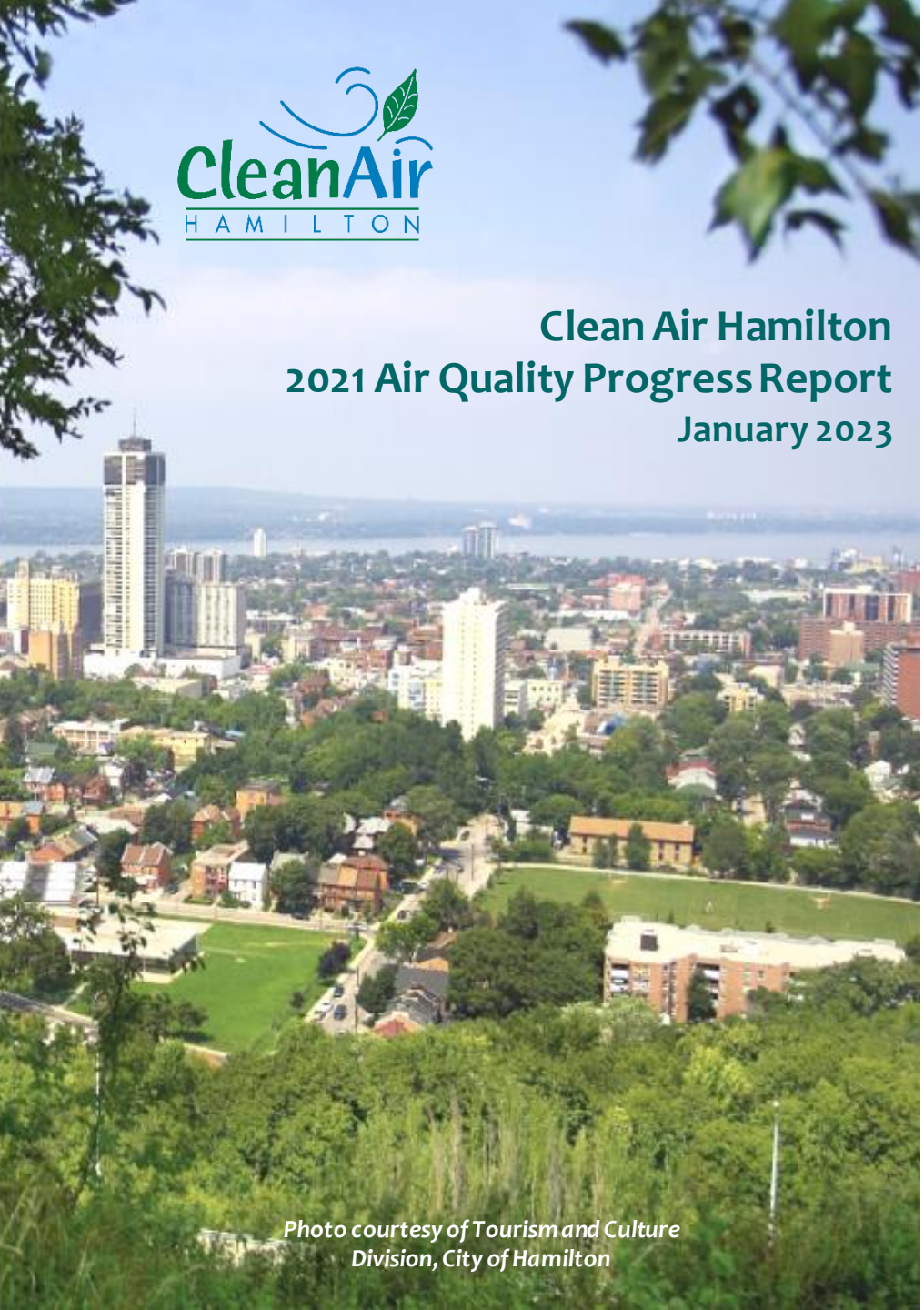
CLEAN AIR HAMILTON 2021 PROGRESS REPORT

March 20, 2023

Hamilton Board of Health

Matthew Lawson
Manager – Health Hazards

Public Health Services
Healthy Environments Division



Bruce Newbold, Ph.D.
Chair
Clean Air Hamilton

www.cleanairhamilton.ca

Clean Air Hamilton

Members:

Local Citizens

Ontario Ministry of Environment, Conservation, and Parks

Health Canada

Environment Canada

ArcelorMittal Dofasco

Stelco

Friendly Streets

Green Venture

McMaster University

- McMaster Institute for Health Equity

Mohawk College

Environment Hamilton

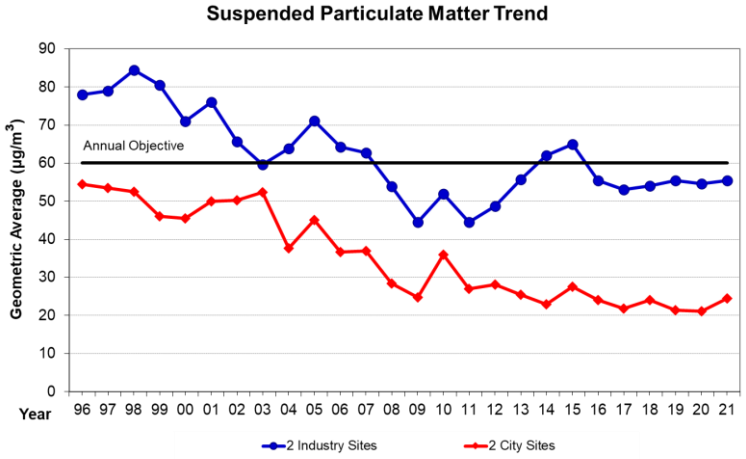
City of Hamilton

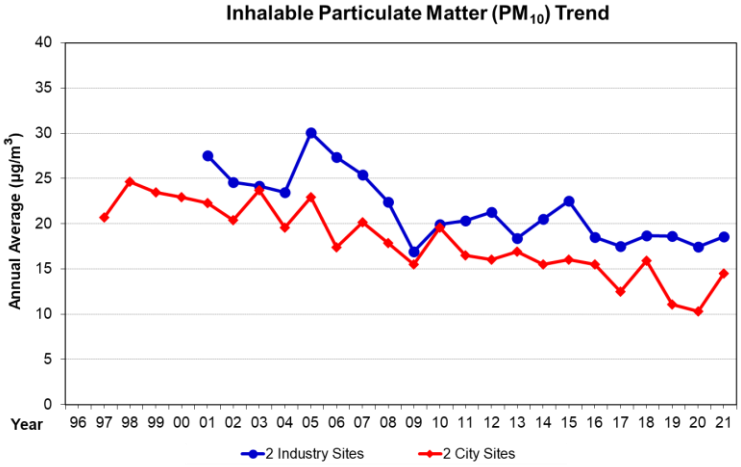
- Public Health
- Planning
- Public Works

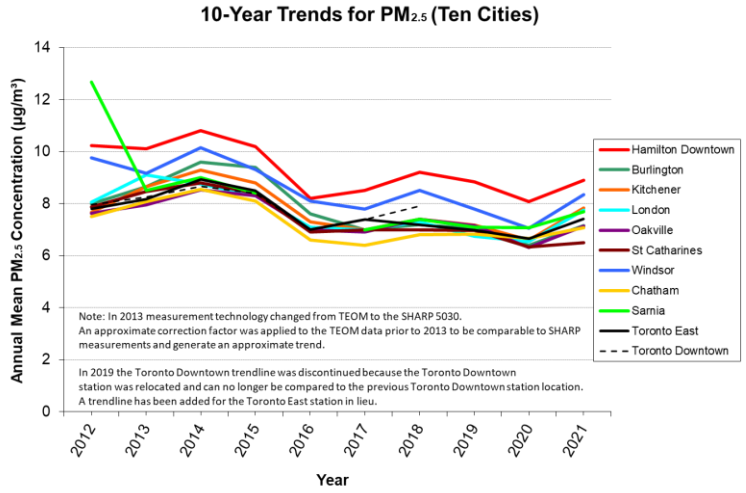
- Science based / Diverse / Inclusive / Facilitated Consensus
- Clean Air Hamilton established as an implementation committee to act on recommendations contained in 1997 Hamilton Air Quality Initiative (HAQI) Reports
- Community based initiatives
- Internationally recognized
- Meet second Monday of each month

Hamilton's Air Quality Trends

Particulate Matter (TSP, PM_{10}, $PM_{2.5}$)



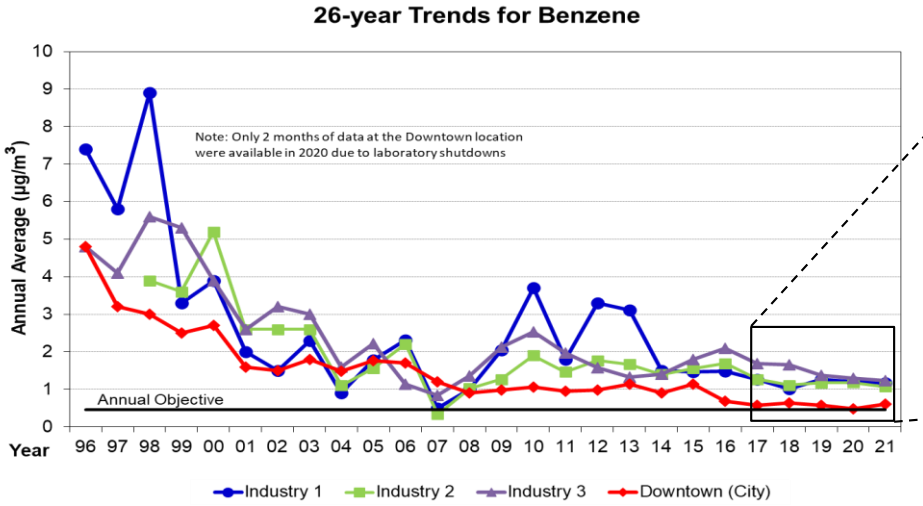


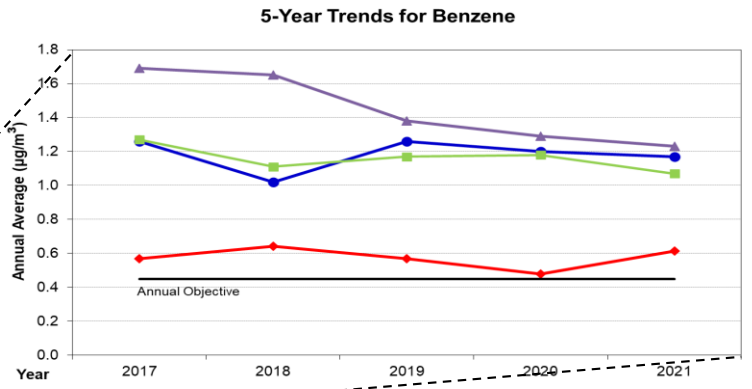


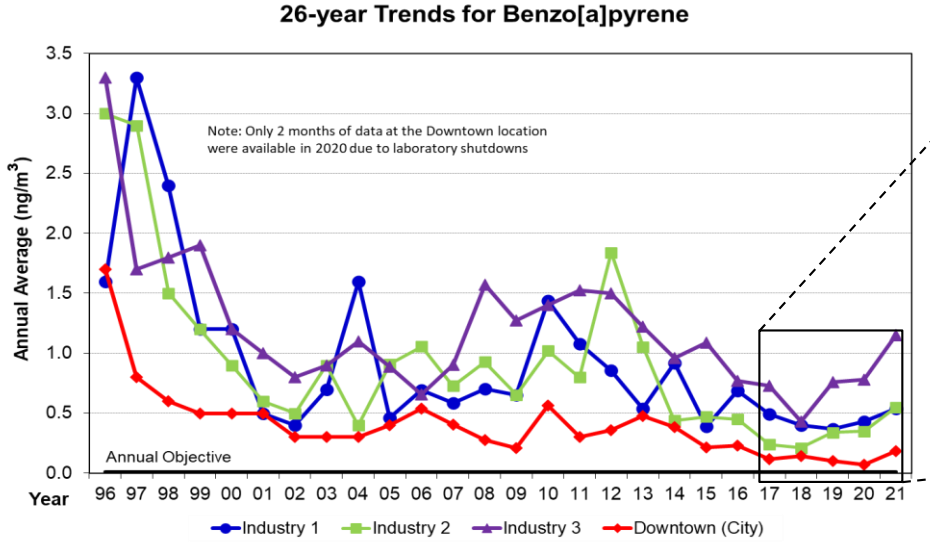
Acronyms: Total Suspended Particulate (TSP); Inhalable Particulate matter (PM_{10}); Fine Particulate Matter ($PM_{2.5}$)

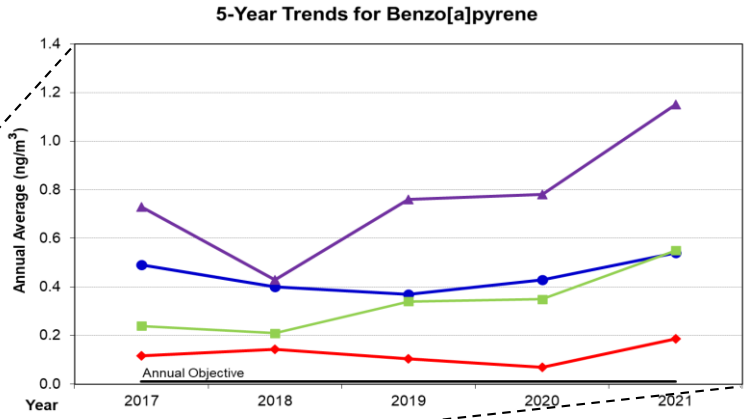
Hamilton's Air Quality Trends

Benzene and Benzo[a]pyrene



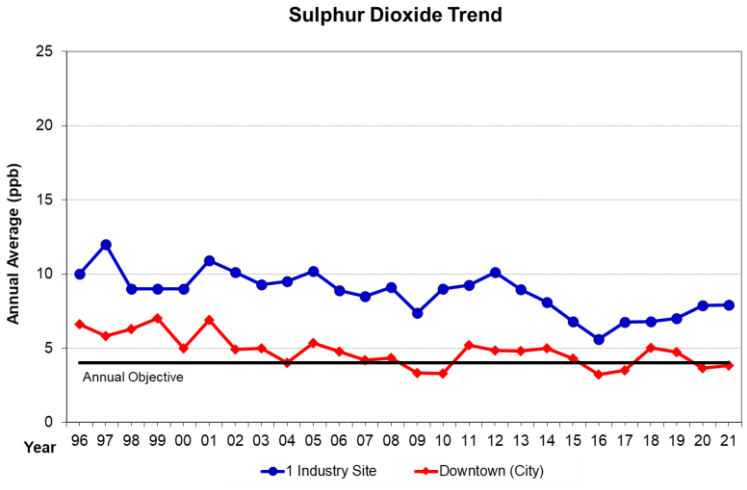


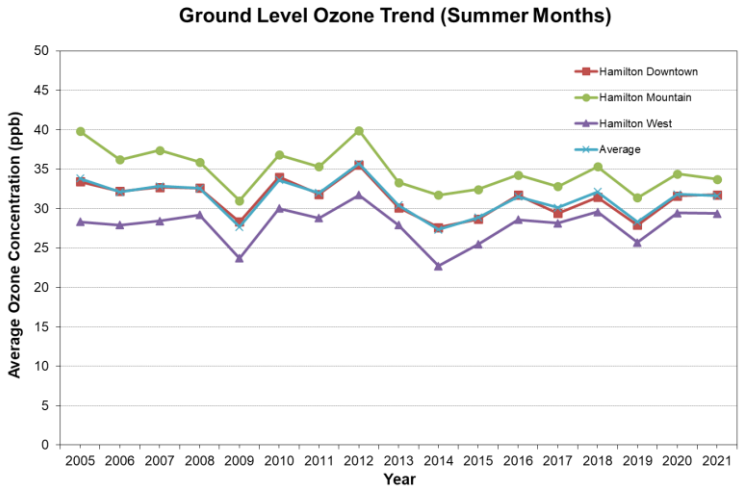


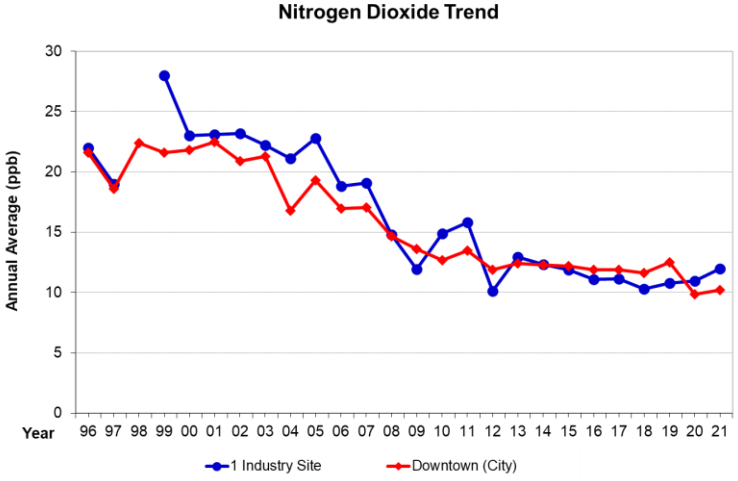


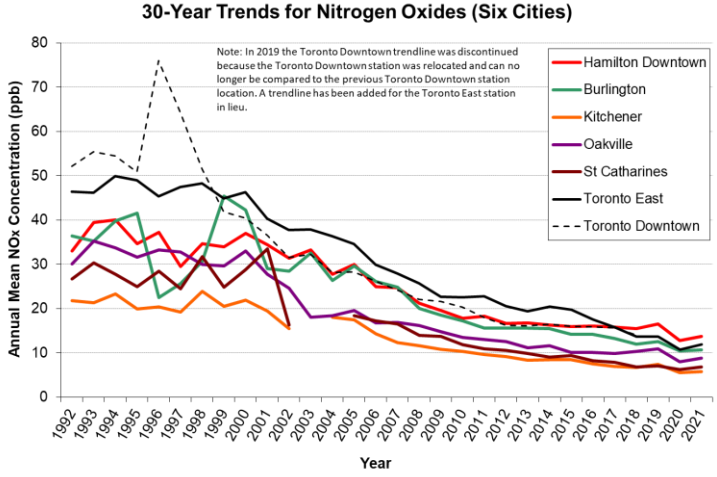
Hamilton's Air Quality Trends

Nitrogen Oxides (NO_x), Nitrogen Dioxide (NO_2), Sulphur Dioxide (SO_2), Ozone (O_3)









2021 Community Projects Supported Through Clean Air Hamilton

- **Fresh Air for Kids** (Green Venture and Corr Research)
  - Fresh Air for Kids program with anti-idling engagement and campaign at participating schools.

- **Modelling Local NO_2 Across Hamilton on a Ward Level During the COVID-19 Pandemic**
  - Conducted to understand changes in NO_2 concentrations on a ward level from 2019 to 2020.
  - During the 2020 COVID-19 state of emergency, the central wards had the greatest reduction in NO_2.

CleanAir HAMILTON

2022 Community Projects Supported Through Clean Air Hamilton

Approved 2020 Projects through Healthy Environment Division's Operating Budget

- **Fresh Air for Kids** (Green Venture and Corr Research)
  - Mobile air monitoring around four schools across Hamilton, virtual class presentations on results and importance of Air Quality Health Index.

- **Trees Please** (Environment Hamilton)
  - Tree Giveaways, Particulate Matter Monitoring, and introduction of heat sensors in Ward 4 and lower City neighbourhoods.

CleanAir HAMILTON

Green Venture

Corr Research

ENVIRONMENT HAMILTON

Future Actions

- Continue to support education and outreach
- Continue to expand air quality monitoring activities by undertaking projects with community organizations and academic institutions in the City of Hamilton to better understand air pollution concentrations at the neighbourhood level
- Use a Land Use Compatibility lens for future research and decision making

Why?

To ensure the health and well-being of the citizens of Hamilton.

Thank you,

On behalf of
Clean Air Hamilton

CleanAir
HAMILTON

Respiratory Diseases Update

Jordan Walker, Director

Communicable Disease Control Division

Board of Health

March 20, 2023

Overview

1. Respiratory Season - Situation Report
2. Vaccine Program Update
3. Key Messages

Local Respiratory Virus Transmission Status

As of March 14, 2023:

Local COVID-19 Activity: Moderate & Stable

Local Influenza Activity: Low & Stable

Key Messages:

- COVID-19 reported cases are decreasing, test positivity is increasing, while hospitalizations, Intensive Care Unit (ICU) admissions, wastewater signal & the number of active outbreaks remain stable.
- Influenza reported cases and test positivity remain stable, while wastewater signal remains at zero.
- Respiratory Syncytial Virus (RSV) test positivity is increasing, and wastewater signal remains at zero.

Health System Capacity: Admissions/Funded Beds

	Hospital	Feb 6, 2023	Feb 13, 2023	Feb 20, 2023	Feb 27, 2023	Mar 6, 2023	Mar 13, 2023
Acute Care Occupancy	SJHH	**89%** 315/354	**98%** 347/354	**100%** 354/354	**99%** 351/354	**97%** 344/354	**97%** 344/354
	HHS	**110%** 728/662	**108%** 715/662	**107%** 708/662	**104%** 688/662	**107%** 708/662	**101%** 669/662
	MCH	**103%** 76/74	**116%** 86/74	**103%** 76/74	**105%** 78/74	**111%** 82/74	**111%** 82/74
Intensive Care Unit Occupancy	SJHH	**61%** 17/28	**86%** 24/28	**93%** 26/28	**88%** 25/28	**86%** 24/28	**96%** 27/28
	HHS	**84%** 72/86	**84%** 72/86	**93%** 80/86	**86%** 74/86	**80%** 69/86	**76%** 65/86
	MCH	**67%** 8/12	**67%** 8/12	**67%** 8/12	**75%** 9/12	**75%** 9/12	**92%** 11/12

Key Messages:

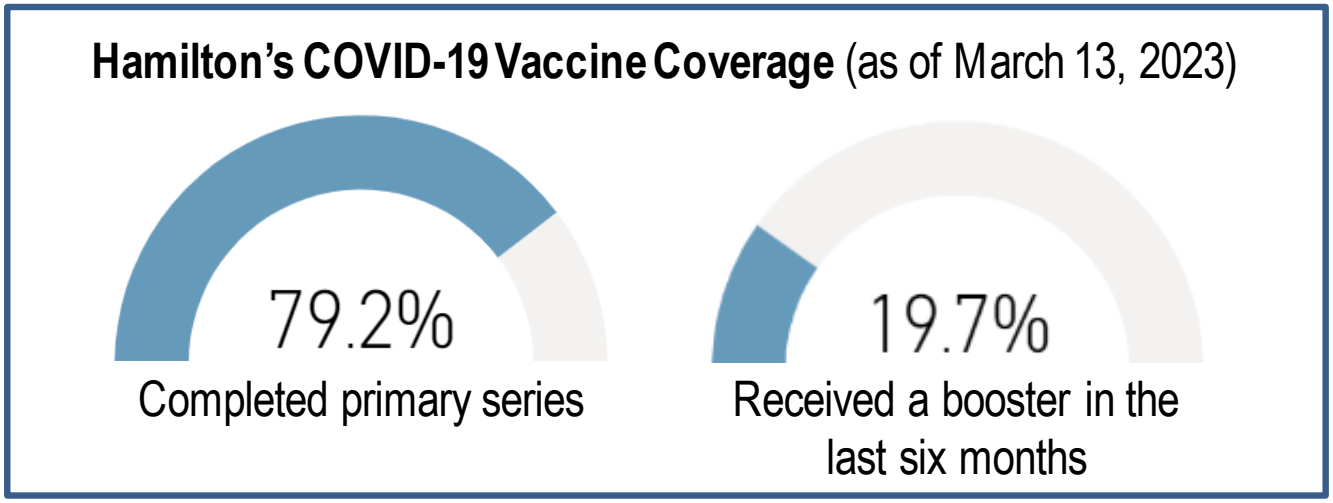
- Patient volumes/acuity and staffing challenges continue to create capacity pressures in areas of Hamilton's hospitals.
- Acute care occupancy has been near or above 100% for all hospitals . Intensive care unit capacity has improved overall, with hospitals reporting below 100% occupancy.

Note: SJHH: St. Joseph's Healthcare Hamilton, HHS: Hamilton Health Sciences, MCH: McMaster Children's Hospital

Vaccine Program Update – Data

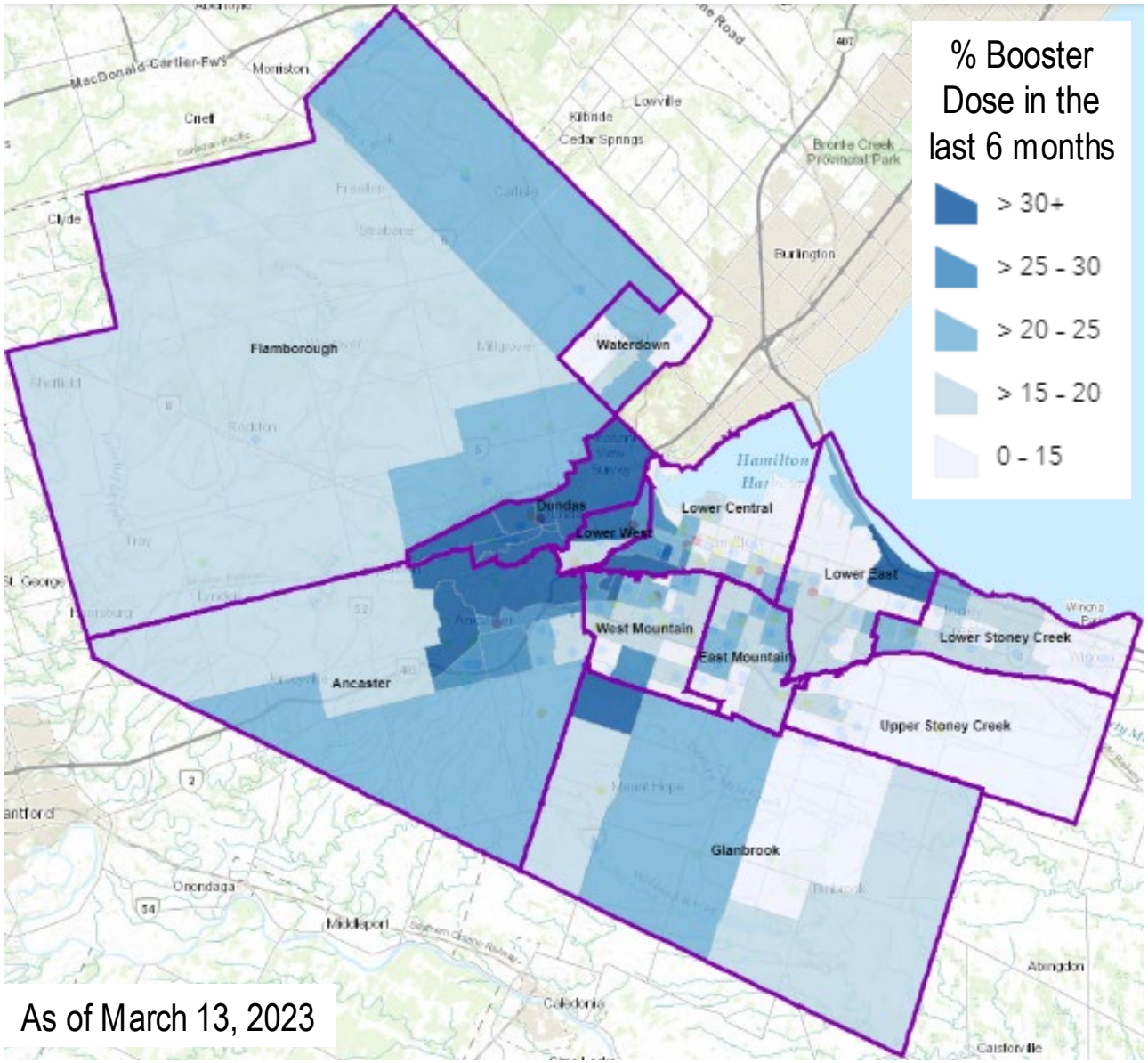
COVID-19 Vaccine Administered in Hamilton

- Administration has slowed in recent months, with approximately **963** doses administered in a recent week (March 6, 2023 to March 13, 2023):
  - Most doses continue to be bivalent booster doses (**89%**)
  - Majority administered in pharmacy (**47%**)



Note: Population aged 6+ months eligible for primary series, 5+ years for a booster

COVID-19 Vaccine Coverage by Geography



As of March 13, 2023

Vaccine Program Update - Operations

- Two mobile clinics continue to focus on Forward Sortation Areas (FSAs) at highest risk due to lower vaccine coverage, higher concentration of racialized population and high material deprivation.

- In April 2023, mobile clinics transitioning to regular locations throughout the week.

- Continue:
  - Promotion of COVID-19 vaccine access via pharmacy and primary care sources
  - Vaccine Ambassador work to promote COVID-19 vaccine and promotion of COVID-19 catch-up of routine vaccinations in high school settings

Key Messages

- Hamiltonians are recommended to take a multilayered approach to prevent spread and reduce serious health consequences this respiratory virus season:
  - Stay up-to-date with your vaccinations including COVID-19 & flu
  - Strongly recommend wearing a mask when in crowded indoor settings and/or when unable to physically distance
  - Screen for respiratory symptoms daily, practice good hand and respiratory hygiene, and stay home when you are ill
  - Speak to your healthcare provider, know in advance if you're eligible for treatment for COVID-19, flu and Respiratory Syncytial Virus (RSV) and where to access
    - Visit www.Hamilton.ca/ProtectYourself for more information

Access to Respiratory Virus Monitoring Information

Updated Resource

- Influenza & Respiratory Syncytial Virus (RSV) Dashboard (updated Tuesdays)
  - ✓ Now includes influenza A, influenza B and Respiratory Syncytial Virus (RSV) wastewater signal

Ongoing Resources

- Respiratory Virus Transmission Status (updated Wednesdays):
- COVID-19 Status of Cases Dashboard (updated Tuesdays and Fridays):
- COVID-19 Vaccine Dashboard (updated on Tuesdays and Fridays)
- Active Outbreaks posted on Open Data (updated Monday– Friday)

Hamilton

QUESTIONS?

INFORMATION REPORT

TO:	Mayor and Members Board of Health
COMMITTEE DATE:	February 13, 2023
SUBJECT/REPORT NO:	Opioid Emergency Response (BOH23008) (City Wide) **(Outstanding Business List Item)**
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Robin Dozet (905) 546-2424 Ext. 3726 Kris Nagel (905) 546-2424 Ext. 7102
SUBMITTED BY: **SIGNATURE:**	Julie Prieto Director, Epidemiology and Wellness Division Public Health Services

COUNCIL DIRECTION

This report is in response to the following direction from Council on January 25, 2023:

i) That the Medical Officer of Health or designate be directed to investigate the thresholds of opioid deaths and overdoses that would enable the declaration of a state of emergency and report back to the Board of Health; and,

ii) That staff be directed to include in their report the response required to address such an emergency; and available sources of funding to enable an effective response by the City of Hamilton.

INFORMATION

Hamilton, like the rest of the province, continues to experience a public health crisis associated with the harms from opioids. Between 2016 and 2021 Hamilton experienced a 245% increase in opioid-related overdoses and a 229% increase in opioid-related deaths. From January to October 2022, there were 139 confirmed or probable opioid-related deaths in Hamilton.[1] Hamilton's opioid death rate has been consistently higher than the provincial rate.[2]

[1] Office of the Chief Coroner of Ontario received January 20, 2023.
[2] Office of the Chief Coroner of Ontario, extracted from the Public Health Ontario Interactive Opioid Tool, January 24, 2023. Retrieved from:

As this crisis continues to prevail, additional strategies to address the harms from opioids have been considered, including formal declaration of an opioid emergency. This report provides information on the process for declaring an emergency in Ontario, as well as an overview of mental health and addictions interventions to address the public health crisis associated with the harms from opioids in Hamilton.

Declaring an Emergency in Ontario

In November of 2019, Council declared an opioid crisis in the City of Hamilton. This local declaration raised awareness of the increase in overdoses in Hamilton and requested action from the Provincial and Federal governments. The declaration did not constitute an official emergency declaration, as legislated in Ontario through the *Emergency Management and Civil Protection Act, R.S.O 1990, c. E.9* (EMCPA). EMCPA defines an emergency as "a situation or an impending situation that constitutes a danger of major proportions that could result in serious harm to persons or substantial damage to property and that is caused by the forces of nature, a disease or other health risk, an accident or an act whether intentional or otherwise." The intent of a declaration under the EMCPA is to respond to an acute emergency requiring a coordinated response that exceeds current capacities, and not necessarily for responding to systemic health issues.

While Hamilton would benefit from additional funds to further respond to the opioid crisis, an official declaration would not lead to the provision of funds. In Ontario, financial assistance for emergencies to cover extraordinary costs after a disaster is administered through the Municipal Disaster Recovery Assistance (MDRA) program. The funding is conditional on municipal costs totalling at least three per cent of the municipality's tax levy. The eligibility language in the program is very specific to natural disasters that are "caused by forces of nature. Examples of natural events that have the potential to cause disasters include but are not limited to floods, tornados, earthquakes, landslides and wildfires affecting populated areas." As such, the current opioid crisis would not be eligible under the MDRA.

Currently there are some funding sources available for organizations to access to implement interventions to address the opioid crisis. This includes Health Canada's Substance Use and Addictions Program (SUAP), where funding is available to government agencies and community-led and not-for-profit organizations in Canada for a wide range of initiatives aimed at addressing problematic substance use prevention, harm reduction and treatment initiatives for various psychoactive substances, including opioids. Since program inception in 2016, SUAP has issued three national calls for proposals in 2017, 2019, and 2021.

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https://www.publichealthontario.ca/en/data-and-analysis/substance-use/interactive-opioid-tool#/maps

The Province of Ontario provides funding for consumption and treatment services sites (CTS) in Ontario. They have also provided investments in mental health and opioid treatment, with recent announcements in treatment funding in 2022.[3]

Additionally, some agencies rely heavily on private donations to charitable organizations to fund their mental health and addiction initiatives. Examples of such programs include a new safer inhalation room at Prairie Harm Reduction's safe consumption site in Saskatoon which operates entirely on donations and revenue generated from selling of merchandise.

Thresholds for Action

In emergency management, thresholds for an elevated response can be quantitative, but are often situational and based on contextual factors and the capacities of responding agencies. Opioid-related escalation thresholds were exceeded before 2019, prompting the local crisis declaration. Since that time, extensive work across Hamilton has been done to minimize impacts of opioids and is detailed in subsequent sections of this report. Currently, thresholds are in place as part of the opioid early warning system maintained by Public Health Services to monitor local activity and issue alerts to the community. The system provides a weekly report to community partners about paramedic response activity, flags suspected elevated overdose periods, and includes qualitative information collected from partners based on their experiences in the community. In addition to the early warning system, Public Health Services collaborates with Hamilton Paramedic Services, Hamilton Health Sciences, St. Joseph's Healthcare Hamilton and community partners to provide timely opioid-related surveillance information to the public online via the Hamilton Opioid Information System (HOIS). The system provides data related to paramedic calls for opioid overdoses, naloxone distribution, hospital visits for opioid overdoses, emergency department visits for drug use and suspected overdoses, and mortality data.

Opioid Crisis Response in Hamilton

As communicated at the December 2022 (BOH22018) and January 2023 Board of Health (BOH23002) meetings, Public Health Services is focused on upstream population health, working within an integrated system of health and social services to collectively address complex health issues alongside community partners. Given the substantial public health burden, Public Health Services and the broader community of health and social service providers have a shared responsibility to respond to the opioid crisis and to reduce harms to people who use drugs.

As such, the Hamilton community has been actively responding to the opioid crisis with innovative and evidence-informed interventions since the crisis rapidly began to grow in

[3] Ministry of Health. (2023). Ontario launches new addiction recovery fund. Retrieved: https://news.ontario.ca/en/release/1001596/ontario-launches-new-addictions-recovery-fund

2016. A 2017, an Opioid Response Summit that was convened by the Mayor to address concerns regarding increases in overdose deaths led to the creation of an opioid response plan and the establishment of the Hamilton Drug Strategy (HDS). Physicians and hospital partners continue to provide access to treatment services and have established a Rapid Access Addiction Medicine (RAAM) Clinic. Safe consumption sites have been established at Hamilton Urban Core Community Health Centre and Carole Anne's Place, with plans for another community site under way. Keeping Six - a grassroots organization - provides advocacy, support and an organized voice for people with living/lived experience. Through its Harm Reduction Committee, the Greater Hamilton Health Network is focused on expansion of supervised consumption and safe supply programs. There are also four active SUAP projects in Hamilton, including by the Canadian Mental Health Association (CMHA), Hamilton Branch's Reducing Harms of Substance Use and Advancing Recovery through Peer Support program; Grenfell Ministries' Community Outreach Action Collaborative Hamilton and National Overdose Response Service programs; and, the AIDS Network's Support and Safer Supply program. Finally, as outlined at the January 2023 Board of Health (BOH23002) report, mental health and addictions continues to be a departmental priority for Public Health Services, with focused attention in 2023 on: trauma and violence-informed care, municipal policies to address substance use, community health promotion, and harm reduction.

These interventions, combined with the efforts of many other health and social service agencies not listed above, continue to be essential in enhancing the quality of life and reducing harms for people who use drugs in Hamilton. However, the opioid crisis is a complex issue that has been exacerbated by the COVID-19 pandemic, an increasingly toxic and unregulated drug supply and inadequate policies that fail to recognize drug use as a health issue. Addressing the opioid crisis requires a comprehensive and coordinated public health approach across multiple agencies and all levels of government and must include solutions that focus on the determinants of health, public health and the human rights of people who use drugs.[4] While this coordinated approach continues to be advocated to provincial and federal governments, there is a need for a more coordinated response to enhance local efforts and strengthen the local opioid response.

Therefore, Public Health Services has proposed a renewed local opioid response plan with leadership from health and social service agencies to coordinate, develop and implement a comprehensive and integrated plan. The Hamilton Drug Strategy has

[4] Health Canada Expert Task Force on Substance use. (2021). Report #2, Recommendations on the Federal Government's Drug Policy as Articulated in a Draft Canadian Drugs and Substances Strategy (CDSS). Retrieved February 2 from: https://www.canada.ca/en/health-canada/corporate/about-health-canada/public-engagement/external-advisory-bodies/expert-task-force-substance-use/reports/report-2-2021.html

approved this as a priority area for action in 2023, and will initiate the renewal of the plan in March 2023. This action-oriented plan will be developed over a series of facilitated sessions and will be presented at the June 2023 Board of Health meeting. As the Hamilton Drug Strategy secretariat, Public Health Services will assist with planning and monitoring of the plan.

APPENDICES AND SCHEDULES ATTACHED

Not Applicable.

INFORMATION REPORT

TO:	Mayor and Members Board of Health
COMMITTEE DATE:	March 20, 2023
SUBJECT/REPORT NO:	Modelling Morbidity and Mortality using the Hamilton Airshed Modelling System (BOH18016(a)) (City Wide) **(Outstanding Business List Item)**
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Dr. Sally Radisic (905) 546-2424 Ext. 5549
SUBMITTED BY: **SIGNATURE:**	Kevin McDonald Director, Healthy Environments Division Public Health Services

COUNCIL DIRECTION

This report is in response to direction approved by Council at the April 16, 2018 Board of Health meeting:

> **Hamilton Airshed Modelling System (BOH18016) (City Wide) (Item 7.1)**
>
> (b) That staff examine the feasibility of using Hamilton Airshed Modelling System to estimate morbidity and mortality outcomes associated with air pollution and report back to Board of Health, if applicable;

INFORMATION

In 2018, Golder & Associates developed the Hamilton Airshed Modelling System (HAMS) in an effort to better understand air pollution impacts in Hamilton. HAMS was developed using emissions and meteorology data which helped increase understanding of both the types and place of origin of emissions contributing to Hamilton's airshed.[1]

[1] Kelly J and Ciccone A. Hamilton Airshed Modelling System. Upwind Downwind Conference February 22, 2016. Available from: http://cleanairhamilton.ca/wp-content/uploads/2017/05/6-Ciccone-and-Kelly.pdf

There is robust evidence associating air pollution exposure with morbidity and mortality globally.[2,3,4] In Hamilton, Health Check (2018) reports that in 2012, 90 deaths of Hamiltonians were attributed to air pollution, approximately 45 deaths due to ischemic heart disease, 21 deaths due to chronic obstructive pulmonary disease (COPD), and 13 deaths due to lung cancer.[5]

Morbidity and mortality outcomes are typically generated from models such as Health Canada's Air Quality Benefits Assessment Tool (AQBAT).[4] Golder & Associates has indicated that AQBAT is appropriate for application in the City of Hamilton's estimate of air pollution-attributed morbidity and mortality.

Model Overview

AQBAT is designed to consider morbidity and mortality outcomes including cost implications based upon changes in atmospheric concentrations of six criteria air contaminants (CAC) commonly associated with urban air pollution, specifically:

- Carbon monoxide;
- Nitrogen dioxide;
- Ozone;
- Sulphur dioxide;
- Particulate matter (PM_{10}); and,
- Fine particulate matter ($PM_{2.5}$).

The changes in CAC concentrations, within a specific geographic area, are then correlated to expected changes in health outcomes such as cardiovascular disease or respiratory disease using contaminant-specific concentration response functions (CRF). Each CRF is derived based upon epidemiological data from the scientific literature in which health data are correlated with air quality monitoring data. Essentially, each unit

[2] Fuller R, Landrigan PJ, Balakrishnan K, et al. Pollution and Health: a progress update. Lancet Planet Health 2022; 6: e535-47.

[3] World Health Organization (WHO). Exposure and health impacts of air pollution. 2022. Available from: https://www.who.int/teams/environment-climate-change-and-health/air-quality-and-health/health-impacts/exposure-air-pollution

[4] Health Canada. Health Impacts of Air Pollution in Canada: estimates of premature deaths and non-fatal outcomes 2021 Report. Available from: https://www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/2021-health-effects-indoor-air-pollution/hia-report-eng.pdf

[5] City of Hamilton (Epidemiology and Evaluation - Health and Safe Communities-Public Health Services). Health Check: Assessing the local burden of disease in the City of Hamilton. 2018. Available: https://www.hamilton.ca/people-programs/public-health/diseases-conditions

change in atmospheric concentration is related to a potential change in frequency of health outcomes observed in the analyzed population.

General Inputs
There are several inputs related to the assessed population that are required to be input as part of the AQBAT model which include:

- **Baseline:** A baseline population size and distribution is selected, which can be based upon the most recent census data for Hamilton;

- **Scenario Years:** The model requires the selection of the number of years for the model scenarios to run. This can be based upon air quality re-modelling that would be undertaken by Golder & Associates under separate cover;

- **Location:** Locations can be selected from a drop-down list and include most urban centres across Canada, including Hamilton;

- **Population projection:** The changes that the population may encounter within the modelled scenario years is selected, which includes considerations such as fertility, mortality, immigration, and interprovincial migration rates. Varying ranges in the rates of these inputs can be considered (low, moderate, high); and,

- **Pollutants:** The pollutants (i.e., CACs) and averaging times (e.g., hourly, 24-hour, annual) are selected.

Concentrations of Criteria Air Contaminants
The concentrations of pollutants (i.e., CACs) would be input from the air quality re-modelling (i.e., HAMS re-modelling/updating) that would be undertaken by Golder & Associates under separate cover.

Health Outcomes
There are many health outcomes considered in the AQBAT model, and most are related to respiratory or cardiac outcomes as these are the most common health effects associated with CACs. Health outcomes that are available include:

- Acute Respiratory Symptom Days;
- Adult Chronic Bronchitis Cases;
- Asthma Symptom Days;
- Cardiac Emergency Room Visits;
- Cardiac Hospital Admissions;
- Child Acute Bronchitis Episodes;
- Chronic Exposure Mortality;

- Respiratory Emergency Room Visits;
- Respiratory Hospital Admissions; and,
- Restricted Activity Days.

Considerations

Although Golder & Associates has indicated that HAMS outputs could be used in the AQBAT model to estimate morbidity and mortality, the process would involve the initial re-modelling /updating of HAMS which may take substantial time, estimated to be at least six months and financial investments, estimated to be at least $100,000. Additionally, the model would require continual review of general inputs (i.e., population size and distribution; pollutant sources and emissions) to reflect current air quality conditions impacting morbidity and mortality in Hamilton which may require continuous HAMS re-modelling/updating and increased investment over time.

Moving Forward

Hamilton Public Health Services continues to work with partners such as Clean Air Hamilton to improve air quality in the City of Hamilton and protect population health. There is robust evidence identifying an association of adverse health outcomes attributed to air pollution exposure globally. Existing reporting and data sources provided by Health Canada and the City of Hamilton's Epidemiology and Evaluation Program via Health Check can be used to estimate air pollution-attributed morbidity and mortality in Hamilton.

APPENDICES AND SCHEDULES ATTACHED

Not Applicable.

CITY OF HAMILTON
PUBLIC HEALTH SERVICES
Office of the Medical Officer of Health

TO:	Mayor and Members Board of Health
COMMITTEE DATE:	March 20, 2023
SUBJECT/REPORT NO:	2023 PHS Annual Service Plan & Budget Submission (BOH23011) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Nancy Sullivan (905) 546-2424 Ext. 5752
SUBMITTED BY: **SIGNATURE:**	Dr. Elizabeth Richardson, MD, MHSc, FRCPC Medical Officer of Health Public Health Services

RECOMMENDATION

(a) That the Medical Officer of Health be directed to submit the 2023 Annual Service Plan and Budget to the Ministry of Health, in keeping with what is outlined in Board of Health Report (BOH23011);

(b) That the Board of Health reiterate their call to the Ministry of Health to fully fund the provincial portion, at least 70%, of the total costs of the mandatory public health programs and services provided under the Ontario Public Health Standards;

(c) That the Board of Health reiterate their call to the Ministry of Health to continue the current mitigation funding until such time as the cost-shared arrangement is restored to 75%/25% for all cost-shared programs and that the Province once again assumes 100% funding for those programs identified as such in the public health budget for 2018-2019; and,

(d) That the Board of Health call on the Ministry of Health to include expectations for on-going COVID-19 response in the Ontario Public Health Standards and provide permanent funding to sustain these requirements.

EXECUTIVE SUMMARY

The Ontario Public Health Standards set the minimum requirements for public health programs and services for boards of health across the province, targeting the prevention of disease, health promotion and protection, and community health

surveillance. Each year Public Health Services (PHS) develops the Annual Service Plan and Budget (ASPB) that describes Hamilton's plans for the delivery of programs and services in accordance with the Ontario Public Health Standards, based on local needs and budgets at the program level. Approval and submission of the ASPB to the Ministry of Health is required to receive provincial funding to support the delivery of public health programs and services under the Standards.

In January 2023, Public Health Services leadership provided an overview of Hamilton's population health assessment, priority population health needs, and priority Public Health Services action areas to address the population health needs (refer to Board of Health Report (BOH23002)). Public Health Services has identified four priority population health needs: (1) child and youth healthy growth and development; (2) climate change; (3) health equity; and, (4) mental health and substance use. These priority population health needs are not new but are enduring priorities that have been worsened by the COVID-19 pandemic. They represent areas of work that require focus and attention in planning and resourcing in order to achieve significant gains. Public Health Services has identified specific public health priority actions that will be implemented to adapt and improve existing programs and services to contribute to addressing these population health needs.

While the overall Public Health Services budget was presented within the Healthy and Safe Communities Department report and budget presentation at the January 26, 2023 General Issues Committee Meeting, specific highlights are made in the financial section of this report related to the ASPB. The expenditures related to the ASPB represent 85% or $61.5M of the total Public Health Services gross budget. Public Health Services anticipates $48.6M in provincial subsidies and fees. The resulting net levy impact of the 2023 ASPB is $12.9M or a 6.7% increase over 2022.

Alternatives for Consideration – Not Applicable

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: Approval of the 2023 ASPB and submission to the Ministry of Health is required to receive provincial funding to support the delivery of public health programs and services under the Ontario Public Health Standards. The 2023 ASPB Submission template is due to the Ministry of Health on April 3, 2023. The Province does not give local public health agencies specific targets for developing their ASPB, but has given some guidance as to expected subsidy for this year, which has been incorporated into this Board of Health Report (BOH23011). If there are further updates from the province, staff will update the Board of Health at a subsequent meeting. Final provincial subsidy grants will not be known until funding letters are received later this year.

The overall Public Health Services budget was presented within the Healthy and Safe Communities (HSC) report and budget presentation at the January 26, 2023 General Issues Committee Meeting. Appendix "A" to Board of Health Report (BOH23011) provides an overview of the Public Health Services budget, ASPB gross expenditures, and funding sources. The expenditures related to the ASPB represent 85% or $61.5M of the total Public Health Services budget (refer to Graphs 1 and 2 of Appendix "A" to Board of Health Report (BOH23011)). The following summarizes the details of the ASPB 2023 budgeted expenditures (see Graphs 3 and 4 of Appendix "A" to Board of Health Report (BOH23011)).

In 2020 the Province directed a shift from a mixed 75%/25% and 100% funding model to a 70%/30% Provincial/Municipal funding formula for all public health programs and services under the Ontario Public Health Standards (Mandatory Programs), except the Ontario Seniors Dental Care Program (OSDCP) which remains 100% provincially funded. The Ministry of Health provided one-time mitigation funding in 2020, 2021, and 2022 to keep levy increases below 10% of existing costs and has committed to continue this mitigation funding in 2023. In 2022, the Ministry of Health provided a 1% increase in base funding, an increase of $267,300. It is anticipated that the Ministry of Health will hold Public Health Services at the same funding level in 2023. The anticipated Mandatory Programs base funding in 2023 is $26,992,700 and $2,215,800 of one-time mitigation funding. The 2023 ASPB Mandatory Programs budget is $42,074,414[1] and due to increased costs of inflation includes an increase to base expenditures of $798,524 or 1.9% increase from 2022. After applying anticipated provincial funding, the net levy impact of the 2023 ASPB is $12,865,914 or a 6.7% increase over 2022. The anticipated OSDCP funding in 2023 is $4,226,500.

The 2023 COVID-19 estimated cost is currently $14,001,965, which includes the COVID-19 Vaccine program ($7,279,767), COVID-19 General Program ($5,515,478), and COVID-19 School-Focused Nurses (SFN) Initiative ($1,206,721). The Ministry of Health has communicated that funding for the COVID-19 School Focused Nurses Initiative will be extended for the remainder of the current school year until June 2023. In addition, health units continue to be eligible for reimbursement of all extraordinary COVID-19 related costs over and above ASPB subsidized expenditures in 2023.

[1] Mandatory Programs Gross Expenditures ($43,035,051) less Fees & General ($0.96M).

As part of the ASPB, the Ministry of Health also considers requests for additional one-time funding for extraordinary costs. For 2023, Public Health Services plans to request one-time funding at 100% for:

1. **Public Health Inspector Practicum Program:**
   Request $10,000 to hire Public Health Inspector Trainees for program support and to provide future Public Health Inspectors with training and hands-on field experience. This funding has been in place for many years and must be requested annually;

2. **Smoke Free Ontario (SFO) Enforcement Tablet Upgrades:**
   Request $3,600 for the purchase of tablets to support the Tobacco Inspection System software for mobile units;

3. **Needles Syringes Program:**
   Request $51,000 to support the expansion of the needle syringe kiosk program. Currently the community demand for bins, and the required staffing to empty the bins exceeds the base budget available of the program. Public Health Services is requesting one-time funding to increase the availability of kiosks and capacity to maintain the bins in 2023;

4. **Ontario Seniors Dental Care Program:**
   Request $20,000 to address ongoing challenges with Information Technology (IT) components and systems on the Seniors Dental Health Bus. The Ministry of Health has communicated that there may also be an opportunity to apply for increased 100% funding for the OSDCP to address on-going operational costs, Public Health Services will apply for $156,030 in additional operational funding; and,

5. **ASPB Base Funding Shortfall:**
   Request $2,347,310 to address the 2023 ASPB Base Funding shortfall. The current ASPB base funding is based on 2018 Q3 costs. There has only been one increase to the funding since that time; a 1% base funding increase was received in 2022. With the increased cost of inflation to our mandatory programs in wages, benefits and operating costs, as well as new and expanded requirements added to the Ontario Public Health Standards without new funding (i.e., Vision Screening Protocol; Menu Labelling Protocol; Inspection of Private Swimming Pools; *Smoke-Free Ontario Act* inspections and enforcement; and, Response to Inspection Prevention & Control Complaints), 75% of our total cost for programs that fall under the Standards amounts to $31,555,811 in 2023. This represents a shortfall of $2,347,310 in comparison to the $29,208,500 anticipated funding

for 2023. Ideally the Province will increase base funding to address these costs, but in the absence of increased base funding, Public Health Services is requesting one-time funding to mitigate these pressures in 2023.

If further adjustments are made to programs covered by the ASPB through the ongoing City budget process, these will be submitted through the regular quarterly reports to the Ministry of Health.

Staffing: Overall staffing levels for Public Health Services, including the ASPB program, are addressed in the Healthy and Safe Communities Department report and budget presentation at the January 26, 2023 General Issues Committee Meeting.

In the 2023 ASPB, total staffing is 473.85 FTEs, a decrease of 199.55 FTEs in comparison to 2022. The decrease is mainly attributed to COVID-19; staffing has decreased from 124.35 FTE in 2022 to 53.00 FTE in 2023 for the COIVD-19 General Program; from 116.00 FTE in 2022 to 70.00 FTE in 2023 for the COVID-19 Vaccine Program; and from 23.00FTE in 2022 to 22.5FTE in 2023 for the School-Focused Nurses (SFN) Initiative. There are no FTE changes in base ASPB mandatory programs, it remains at 302.39 FTE. The FTE for the OSDCP program has decreased by 0.2 FTE, from 26.00 FTE in 2022 to 25.80 FTE in 2023.

Legal: The Ministry of Health expects boards of health to be accountable for meeting all requirements included in legislation and the documents that operationalize them. It is a requirement within the Ontario Public Health Standards that boards of health submit an ASPB each year. Approval and submission of the 2023 ASPB to the Ministry fulfils this requirement.

HISTORICAL BACKGROUND

As of 2018, the Ontario Public Health Standards require that all boards of health approve and submit an ASPB to the Ministry of Health each year. The purpose of the ASPB is for boards of health to communicate their program plans and budgeted expenditures for a given year. Information provided in the ASPB describes the programs and services boards of health are planning to deliver in accordance with the Ontario Public Health Standards, based on local needs and budgets at the program level.

The ASPB lays out an assessment of the population health needs in Hamilton, priority areas for action, detailed program plans, budgeted expenditures, and requests for base and one-time funding.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The Ontario Public Health Standards outline requirements that direct the delivery of mandatory public health programs and services by public health units pursuant to the *Health Protection and Promotion Act*. It is a requirement within the Standards that boards of health submit an ASPB each year to the Ministry of Health.

RELEVANT CONSULTATION

Finance and Administration has been consulted regarding the preparation of the ASPB.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

The Ontario Public Health Standards set the minimum requirements for public health programs and services for boards of health across the province, targeting the prevention of disease, health promotion and protection, and community health surveillance. In accordance with the Ontario Public Health Standards, Public Health Services provides a broad range of programs and services in the areas of chronic disease prevention, mental health and well-being, substance use and injury prevention, school health, healthy growth and development, healthy environments, food and water safety, immunization and infectious disease prevention and control, as well as foundational programs that underlie and support all programs and services. The 2023 ASPB describes Hamilton's plans for the delivery of programs and services in accordance with the Ontario Public Health Standards, based on local needs and budgets at the program level.

In 2022, Public Health Services began the work of transitioning from the COVID-19 emergency response to sustained monitoring, prevention and response. This involved integrating COVID-19 work into existing Public Health Services programs (i.e., Infectious Disease and Vaccine Programs). As part of this transition, staff who were deployed to support the COVID-19 emergency response returned to their home programs at the end of April 2022. Since that time, Public Health Services has re-opened programs and services in a prioritized way and enhanced some service levels to address the deficits of care and backlog of services due to COVID-19. In all program areas, staff have developed program objectives and plans that meet the needs of the local population, as well as ensure compliance with the Ontario Public Health Standards.

In parallel, Public Health Services leadership identified priorities for 2023-2026, which represent areas of work that require focus and attention in planning and resourcing in order to achieve significant gains. Population health needs for Hamilton were identified through a review of the 2018 Health Check report, as well as emerging evidence on the impact of the COVID-19 pandemic on the health of communities. In January 2023, Public Health Services provided an overview of Hamilton's population health

assessment, priority population health needs and priority Public Health Services action areas to address the population health needs (refer to Board of Health Report (BOH23002)). Public Health Services has identified four priority population health needs: child and youth healthy growth and development; climate change; health equity; and, mental health and substance use. The following paragraphs provide an overview of the specific public health priority actions that will be implemented to adapt and improve existing programs and services to address these population health needs.

Public Health Services contributes to improving child and youth healthy growth and development with actions throughout the early years:

- In the perinatal period (pregnancy to 12 months post-partum), Public Health Services will focus on providing programs and service that support the healthiest start in life through prenatal education, early identification of individuals at risk for poor mental health and facilitating access to a range of community supports and support for breastfeeding;
- In the infant and early years period, Public Health Services will focus on addressing mental health by reducing the number of children age 0-6 years at risk for poor social and emotional development through education, early identification and facilitating access to community supports; and,
- Public Health Services will support school-age children through school-based interventions, such as enhanced school dental screenings and immunization clinics to address deficits of care resulting from pandemic, and universal school supports and intensive services to priority schools.

Public Health Services' climate change focus and work supports and is aligned with the City of Hamilton Climate Change Impact and Adaptation Plan (CHCCIAP). The priority action areas described here represent public health actions that are mandated in the Ontario Public Health Standards and align with the City's overarching plan for climate change action. To contribute to mitigating the impacts of climate change Public Health Standards will focus on the following priority action areas:

- Extreme heat and health by coordinating local efforts to address excessive indoor temperatures in rental housing and identifying ways to expand cooling programming and interventions across Hamilton;
- Vector borne disease (VBD) by coordinating and working with partners to ensure vulnerable groups understand and have the means to be adequately protected from VBD;
- Data for climate change health impacts by developing and implementing a plan to establish an ongoing weather-related health event monitoring system for the City of Hamilton that works towards more real-time communication; and,
- Supporting the Climate Change Office and others across the City in the development of climate/health promotional material, education/ awareness through research and identification of existing communication channels to priority and at-risk populations.

Public Health Services will continue to contribute to improving health equity by focusing on the following four priority action areas:

- Increasing staff competency to improve equitable health outcomes in Public Health Services programs and services;
- Using data, including measures of health inequities, to inform program planning and priorities;
- Community collaboration, particularly with priority populations; and,
- Increasing communication and awareness about local health inequities to drive collective action.

To contribute to improving mental health and mitigating the impacts of substance use Public Health Services will focus on the following four priority action areas:

- Implementing an organizational approach to Trauma and Violence Informed Care;
- Collaborating with City and community partners to promote mental well-being, resilience and prevent substance use in youth;
- Leading the review and update the 2011 Municipal Alcohol Policy in collaboration with City departments, and collaborating with community stakeholders and other public health units to apply to Health Canada to decriminalize the personal possession of illegal substances; and,
- Coordinating and implementing interventions to support safer substance use and decrease adverse events from individuals using alone.

In October 2021, the previous Board of Health joined a number of other boards to request additional ongoing financial support for public health units. Specifically, support was requested to relieve the following financial pressures: (1) resources required to address deficits of care; (2) increased wage, benefit and operational costs due to inflation; (3) new and expanded programs that were added to the Ontario Public Health Standards; (4) increased demand for public health services to support community pandemic recovery; and, (5) continued support for COVID-19 response. In 2022, the Association of Local Public Health Agencies (alPHa) submitted a report to the provincial government to further demonstrate the need for additional investments in public health required to clear the service backlog, resume routine programs and services, and maintain an effective pandemic response. [2] Recently, as part of their 2023 pre-budget submission, alPHa re-iterated their call to the Province to immediately revert to the 75%/25% provincial-municipal public health cost-sharing formula, along with a pledge to continue 100% funding for programs that have been traditionally underwritten by the

[2] Association of Local Public Health Agencies (2022). Public Health Resilience in Ontario: Clearing the Backlog, Resuming Routine Programs, and Maintaining an Effective COVID-19 Response. https://cdn.ymaws.com/www.alphaweb.org/resource/collection/822EC60D-0D03-413E-B590-AFE1AA8620A9/alPHa_PH_Resilience_Report_Final_Jan2022.pdf

Province.[3] In Hamilton, even with the mitigation funding, the anticipated provincial subsidy will only be approximately 70% of the total costs in 2023. With the mitigation funding expected to end in 2023, Public Health Services will have substantial cost pressures in 2024 and beyond (refer to Graph 5 in Appendix "A" of Board of Health Report (BOH23011)). alPHa also called on the Ministry of Health to include language in the public health mandate (i.e., the Ontario Public Health Standards) and permanent funding to sustain on-going public health efforts related to COVID-19 that are expected to become routine, such as vaccination and outbreak control.[2]

ALTERNATIVES FOR CONSIDERATION

Not Applicable.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Healthy and Safe Communities
Hamilton is a safe and supportive City where people are active, healthy, and have a high quality of life.

Our People and Performance:
Hamiltonians have a high level of trust and confidence in their City government.

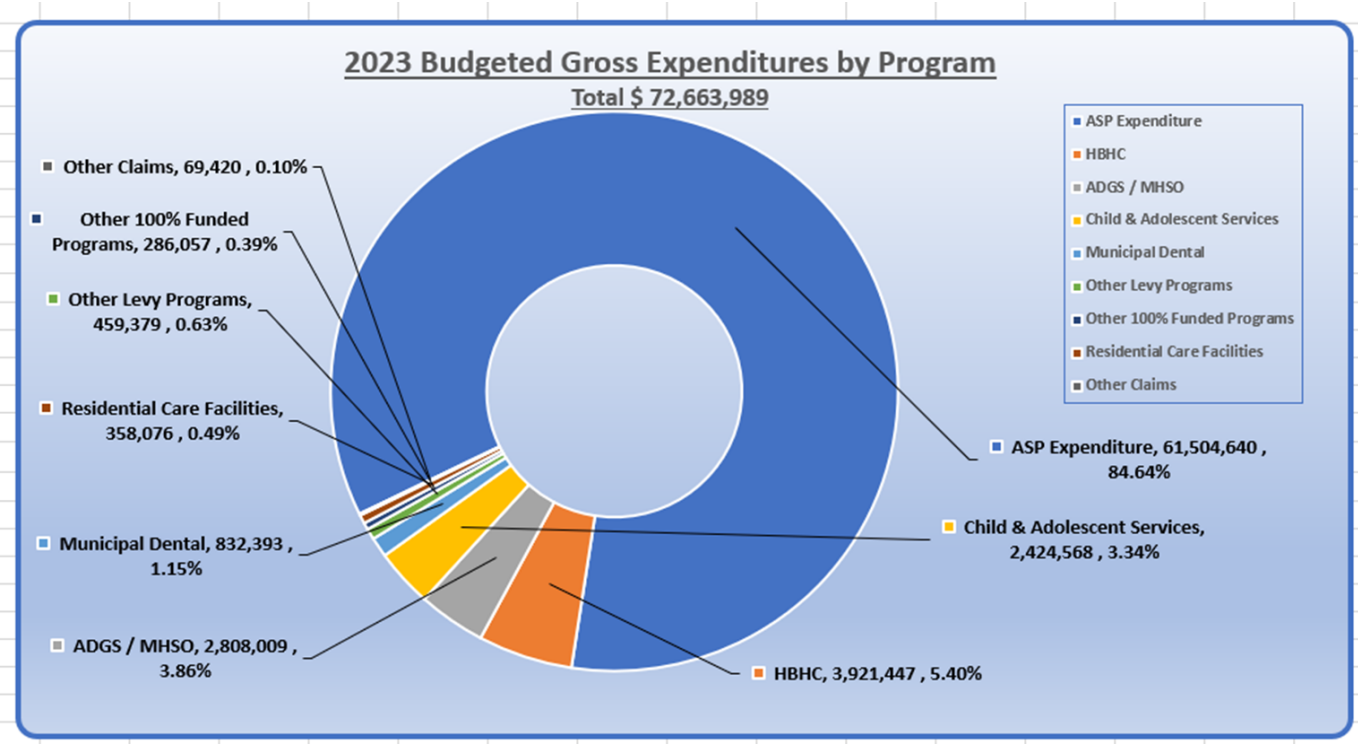
APPENDICES AND SCHEDULES ATTACHED

Appendix "A" to Report BOH23011	Summary of 2023 Public Health Services Budget for Ministry of Health Funded Programs Under the Ontario Public Health Standards

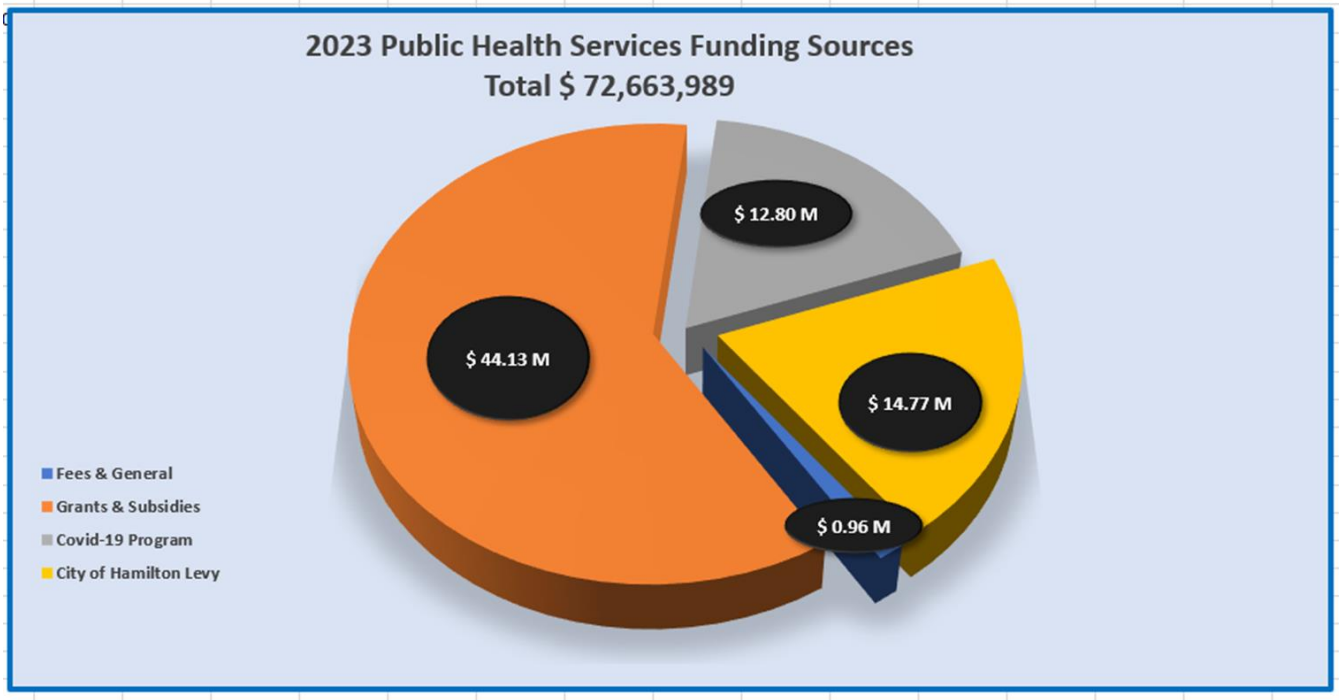
[3] Association of Local Public Health Agencies (2023). Letter to the Honourable Peter Bethlenfalvy, MPP, Minister of Finance, Re: 2023 Pre-Budget Submission: Public Health Programs and Services. https://cdn.ymaws.com/www.alphaweb.org/resource/collection/8732D26A-679B-4AB9-9C50-532E0CC3A278/alPHa_Submission_Pre_Budget_2023_140223.pdf

Summary of 2023 Public Health Services Budget for Ministry of Health Funded Programs Under the Ontario Public Health Standards

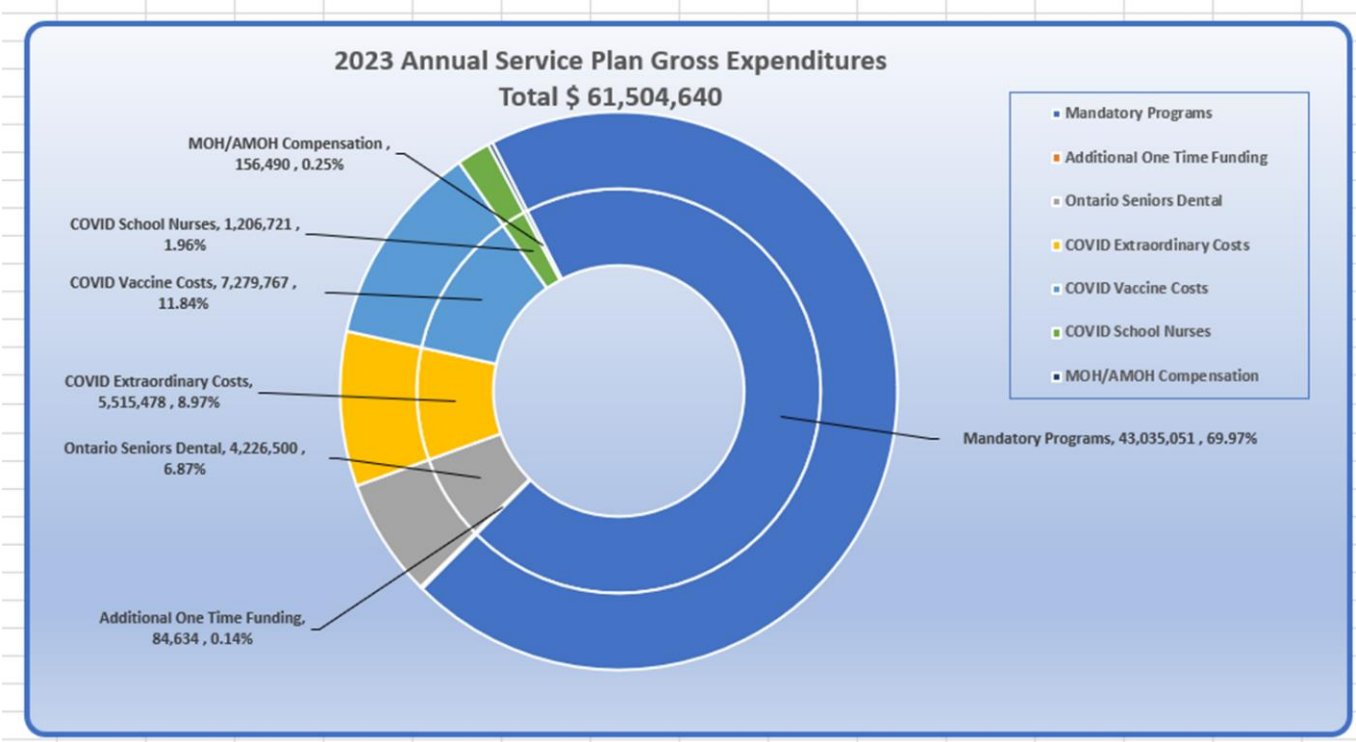
Graph 1: Public Health Services 2023 Budgeted Gross Expenditures by Program



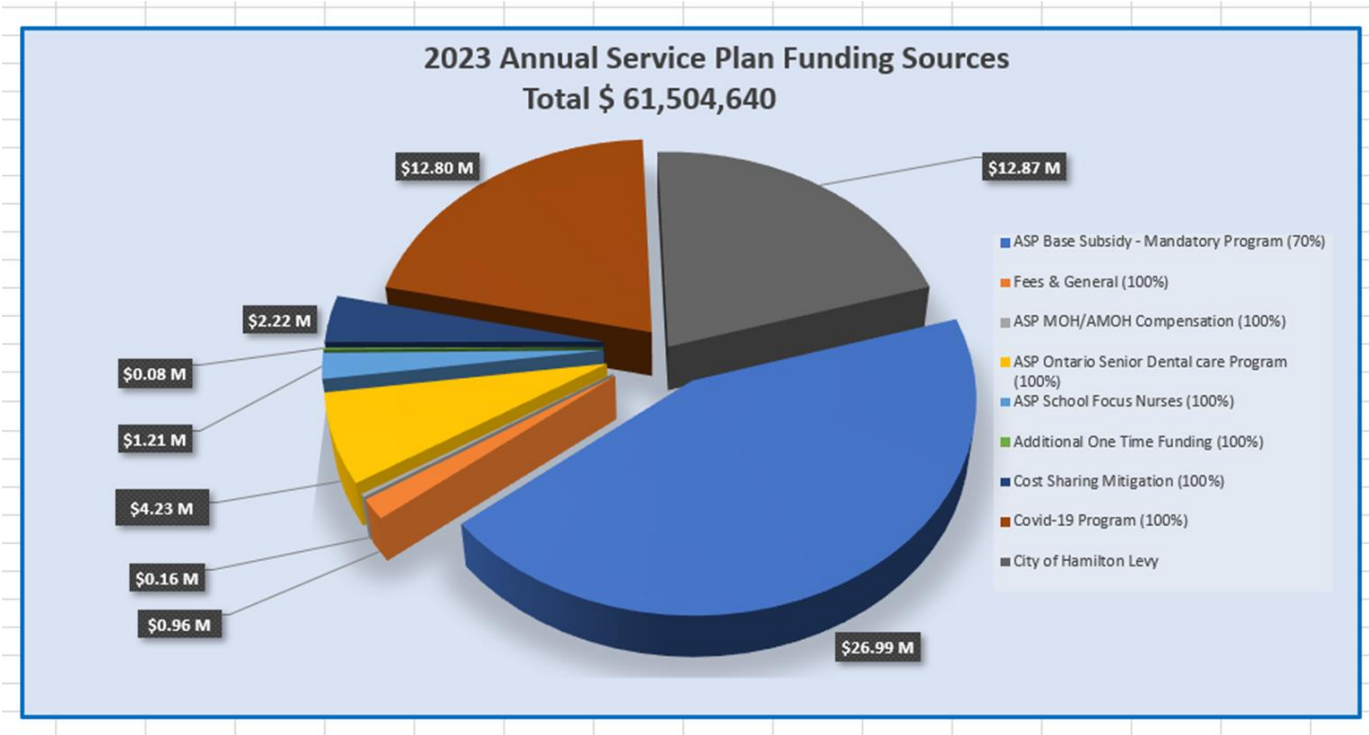
Graph 2: 2023 Public Health Services Funding Sources



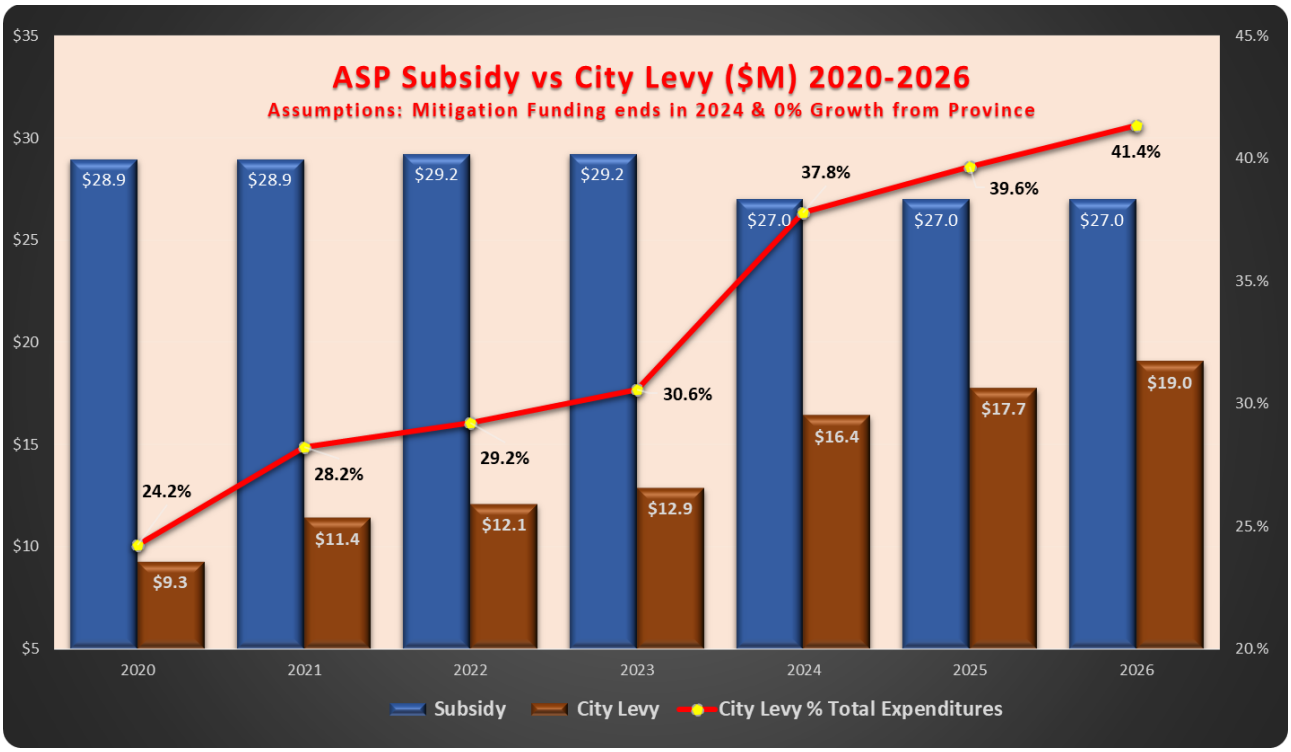
Graph 3: 2023 Annual Service Plan Gross Expenditures



Graph 4: 2023 Annual Service Plan Funding Sources



Graph 5: Trend of ASP Provincial Subsidy vs. City Levy Contribution ($M) 2020-2026



Note: Years 2020-2022 are actual expenditures and years 2023-2026 are projected estimates.