

2023

ANNUAL REPORT



Prepared by
McMaster CP Research Team

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Family Medicine

McMaster
**Community
Paramedicine**
Research



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Message From Dr. Gina Agarwal, Program Director



It is with great pride that we present to you the CP@clinic Annual Report for 2023. This report reflects a return to in-person programming following the COVID-19 pandemic in the commitment and willingness of paramedic service stakeholders to participate in the CP@clinic Program and improve the health of older adults in their communities.

This report highlights the impact that the CP@clinic Program has made throughout the past year and as a whole since it began in 2010. The report provides information on the expansion and scale-up of CP@clinic beyond the province of Ontario. It mentions key program improvements that have been made to the overall program this year, including the CP@clinic Program Training and the CP@clinic Program Database. We have included academic publications in the report to recognize their value in furthering decision-maker agendas and platforms in policy development.


A thank you to all of our paramedic service partner organizations who have dedicated the time and resources to ensuring the program's success.



This report was prepared by the McMaster Community Paramedicine Research Team. From left to right: Christie Koester, Mikayla Plishka, Jasdeep Brar, Melissa Pirrie, Dr. Gina Agarwal, Guneet Mahal, Francine Marzanek, and Ric Angeles.




Land Acknowledgement



McMaster University recognizes and acknowledges that it is located on the traditional territories of the Mississauga and Haudenosaunee nations, and within the lands protected by the “Dish with One Spoon” wampum agreement.

The McMaster Community Paramedicine Research team honours the peoples and land of the Algonquins and all First Nations, Inuit and Métis peoples.

We invite you to learn more about the people who have inhabited the land you are on. We recognize that we still have much to learn: reconciliation is an ongoing process for us all.





Executive Summary

- ▶ **CP@clinic** was developed by Dr. Gina Agarwal and the McMaster Community Paramedicine (MCP) Research Team to help keep low-income older adults healthy at home and reduce avoidable 911 calls. Community paramedics (CPs) visit with older adults to address their unmet health needs, using evidence-based assessments to evaluate their health risks. Algorithms within the CP@clinic Database guide paramedics to provide tailored health education and primary care and community referrals.
- ▶ **CP@home** is an adaptation of the CP@clinic program that is delivered as an in-home visit.
- ▶ **31** paramedic services across **Ontario** have implemented CP@clinic, as well as the **province of British Columbia** and **three** community health services in **Australia**.
- ▶ In 2023, the paramedic service partners improved the lives of **1,683** people through CP@clinic and **335** people through CP@home. Our partners conducted **981** initial visits and **5,327** follow up visits, which resulted in **13,175** health risk assessments. Clinics were run out of **106** social housing buildings.
- ▶ Since the program began in 2010, **5,876** people have participated in the CP@clinic Program. **1,040** paramedics have been trained through the CP@clinic Paramedic Training Program.
- ▶ Two new modules have been developed for the CP@clinic Program Paramedic Training in 2023: **Wound Care Education and Assessment** and **Equity, Diversity and Inclusion**. Paramedics can now receive a 'CP@clinic Paramedic Training Program Microcredential' from McMaster University. **132** Microcredentials were issued in 2023.
- ▶ The CP@clinic/CP@home **Community of Practice** was launched in 2023. It is an online platform designed for collaborative learning and discussion among community paramedics and the MCP Research Team.
- ▶ The CP@clinic Program Database continues to be refined through regular updates to the health risk assessments and related decision support. This year updates were made in the areas of **Alcohol Consumption** and **Congestive Heart Failure**.
- ▶ **Five research articles** focused on CP@clinic were published in 2023, and **six conference presentations** were given regarding the program.



Overview

What is CP@clinic?

The Community Paramedicine at Clinic (CP@clinic) Program was developed by Dr. Gina Agarwal and the McMaster Community Paramedicine (MCP) Research Team to help keep low-income older adults healthy at home and reduce avoidable 911 calls. Community paramedics (CPs) take on a novel non-urgent care role and visit with older adults in common rooms of social housing, addressing their unmet health needs. The CPs use evidence-based assessments to evaluate older adults' health risks. Algorithms within the CP@clinic Program Database guide paramedics in setting health goals with program patients and providing tailored health education and referrals to primary care and community resources.

What is CP@home?

Community Paramedicine at home (CP@home) is an adaptation of the CP@clinic program that is delivered as an in-home visit. CP@home is an innovative, evidence based chronic disease prevention, management, and health promotion program that seeks to:

- Improve older adults' health and quality of life, and reduce their social isolation
- Better connect older adults with primary care and community resources
- Reduce the economic burden of avoidable 911 calls by older adults

Mission & Vision of CP@clinic



Mission

We are committed to initiating, building and cultivating collaborative partnerships to support paramedic services in the planning, delivery and evaluation of CP@clinic across Canada and internationally.

Vision

To integrate CP@clinic as the standard Community Paramedicine wellness clinic model in the Canadian healthcare landscape and thereby improve the health of vulnerable populations.



Impact of CP@clinic



In 2023, our paramedic service partners:

- Helped improve the lives of **1,683** people through CP@clinic and **335** people through CP@home
- Conducted **981** initial visits and **5,327** follow-up visits
- Completed a total of **13,175** Health Risk Assessments
- Ran clinics out of **106** social housing buildings

Since the program began in 2010, CP@clinic and CP@home has:

- Improved the lives of over **5,876** people
- Trained **1,040** paramedics through the CP@clinic Paramedic Training Program
- Expanded to **31** paramedic services across Ontario, the provincial British Columbia Emergency Health Services (BCEHS), and three Australian community health services

CP@clinic Program Scale-Up



Several services that had to pause the program over the pandemic were able to resume holding CP@clinic sessions in 2023. In addition, new Ontario paramedic services began implementing the program for the first time in 2023, with many more planned to begin implementation in 2024.

CP@clinic is further expanding both nationally and internationally.

Nationally, we have continued our partnership with British Columbia Emergency Health Services to implement CP@clinic in Surrey, BC and to identify future potential sites. Internationally, our partnership with LaTrobe University, Sunraysia Community Health Services, Gateway Health and Primary Care Connect has led to the implementation of CP@clinic in multiple locations in Victoria, Australia.



Program Improvements

Keeping CP@clinic on the Cutting Edge

The MCP Research Team conducts an annual review of the literature specific to the CP@clinic Evidence-Based Assessments. This is to ensure that the most suitable validated tools are included and the algorithms follow the most up-to-date evidence. Using our expert epidemiological, statistical and clinical primary care lens, we critically appraise the latest evidence each year. As a result we are able to update our decision-making algorithms and change assessment cutoffs in the CP@clinic database to reflect the best evidence possible.

CP@clinic Program Paramedic Training

This year, the MCP Research Team has created new training modules to continuously improve the Paramedic Training Program.

New modules for 2023 include:

NEW

- **Wound Care Education and Assessment** - this module gives an in-depth view of the tools used to assess different types of wounds
- **Equity, Diversity, and Inclusion (EDI)** - this module explores the crucial role that EDI plays in providing compassionate care to a diverse range of patients

We also made updates to the following modules, based on the annual review of the most current literature:

UPDATED

- **General Health Education**
- **Congestive Heart Failure**





CP@clinic Paramedic Training Program Microcredential

Beginning in April 2023, paramedics who complete the CP@clinic Program Training can now earn a 'CP@clinic Paramedic Training Program Microcredential' from McMaster University. The Microcredential is official recognition of a paramedic's skills, knowledge, and competencies needed to implement the CP@clinic Program. Not only do paramedics receive training that has been accredited by the Global Paramedic Higher Education Council, but they can also receive a microcredential for it. 132 Microcredentials were issued in 2023.

CP@clinic Paramedic Training Audits

As a quality assurance measure, we conduct monthly audits for paramedics who have been enrolled in the CP@clinic Program Paramedic Training to ensure all paramedics are up-to-date on the CP@clinic training. If requested by the paramedic service, our team sends reminder emails to paramedics who have not yet completed the training.

Community of Practice

In October 2023, we launched the CP@clinic/CP@home Community of Practice; an online platform designed for collaborative learning and discussion among community paramedics and the McMaster Community Paramedicine (MCP) Research Team.

This is an incredible opportunity to connect and learn from fellow community paramedics and the MCP Research Team.

Sessions are held quarterly and each one will focus on a topic of interest for paramedic services. The first session discussed the use of local community resources, including which ones are most helpful, and how to get new services set up with a collection of resources specific to their region.



Stakeholder Reports

The MCP Research Team creates an interim report for every paramedic service implementing CP@clinic/CP@home on a quarterly basis. This report provides an aggregate summary of the evaluated measures. Each component of the report is compared to the average percentage across all active sites for the same time period. The statistics reported include data provided by each CP@clinic/CP@home site.

New to the Stakeholder Reports this year are Missing Data Reports. This includes the percentage of patients that have missing data for each health risk assessment collected by each paramedic service. The Missing Data and Data Recommendations section includes benchmarks for data completion that were determined by the CP@clinic Executive Committee. This will help to ensure complete health risk assessment data is being collected for each patient to achieve the full value of the program.



CP@clinic Database

The CP@clinic Program database was developed by the MCP Research Team and continues to be refined through regular updates.

The smart database:

- ➔ Has **built-in algorithms** with decision support that **analyzes** the data input by paramedics, provides **assessment results, recommendations** for actions based on these results and local available resources.
- ➔ Is used during a CP@clinic or CP@home session to **collect and store** patient data from their initial visit and any follow-up visits they attend.
- ➔ Was developed to allow the paramedic personnel to easily move through the various risk assessments with the patient, using built in algorithms to provide decision support in **real-time**.
- ➔ Provides a **list** of possible **risk factors** that the paramedic and patient would like to manage together, and includes a list of **local resources** that can be shared with the patient.
- ➔ Includes **automated alerts** to notify the paramedic when repeat assessments are to be conducted and reports that can be sent to the patient's family physician.

Database Updates

Each year, the MCP Research Team conducts an annual review of the literature to ensure that the most up to date research is reflected in the tools. Updates were made to the following data collection tools:



UPDATED

- **Canada's Guidance on Alcohol and Health**
- **Congestive Heart Failure**



OSCAR Database Platform

The CP@clinic/CP@home Database is now available on the **Open System for Communication in Realtime (OSCAR) Platform**. The full suite of tools and algorithms developed for these programs can be found on this Platform. OSCAR McMaster is a web-based, physician grade, electronic medical record (EMR) system developed in-house by McMaster University's Information Technology (IT) team. We have consulted with the McMaster Privacy Office to complete a Privacy Impact Assessment (PIA) on the OSCAR database and it was deemed to be a **low-risk initiative**.

We now have four paramedic service partner sites using OSCAR as their smart database for CP@clinic, with many more scheduled to begin the program with the OSCAR database in 2024.

The Chronicles of CP@clinic
featuring... The Amazing OSCAR!

Volume 1 Issue 2

A regular day at CP@clinic headquarters ...

ARGH! This is taking me SO MUCH longer to do than it took the Avengers to kill Thanos!

Hey, what's wrong? You look really frustrated!

You know what? I think I know someone who can help!

I've been summoned, Ma'am?

Well, I just can't get this Ministry reporting done right. How will we help our citizens if the report is taking this much time?

This is OSCAR. He's a SMART EMR designed to run all the CP@clinic algorithms AND extract Ministry reports with ease!

With just a few clicks, you can use my system to generate all this!

I can also find all resources close to your patients so you can refer them.

Well OSCAR, pleasure to have you here. I wish I'd met you earlier! I'm going to start using CP@clinic with OSCAR right now!

Happy to help, Sir!

THE END

The CP@clinic database on OSCAR saves the day!

McMaster University

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VIP RESEARCH LAB

View the comic electronically here: <http://hdl.handle.net/11375/28688>



Academic Research Output

The McMaster Community Paramedicine Research Team has published articles based on CP@clinic research, and presented at conferences. Here is the list of publications and presentations for 2023.

Publications

- 1 Development of indicators for avoidable emergency medical service calls by mapping paramedic clinical impression codes to ambulatory care sensitive conditions and mental health conditions in the UK and Canada. Agarwal G, Siriwardena AN, McLeod B, Spaight R, Whitley GA, Ferron R, Pirrie M, Angeles R, Moore H, Gussy M, EDGE Consortium. (2023). *BMJ Open*, 13:e073520. doi: 10.1136/bmjopen-2023-073520.
- 2 Perceived value and benefits of the Community Paramedicine at Clinic (CP@clinic) programme: a descriptive qualitative study. Marzanek F, Nair K, Ziesmann A, Paramalingam A, Pirrie M, Angeles R, Agarwal G. (2023). *BMJ Open*, 13:e076066. doi: 10.1136/bmjopen-2023-076066.
- 3 Challenges in Recruiting Frequent Users of Ambulance Services for a Community Paramedic Home Visit Program. Plishka M, Angeles R, Pirrie M, Marzanek F, Agarwal F. (2023). *BMC Health Services Research*, 23:1091. doi: 10.1186/s12913-023-10075-9
- 4 The Most Common Self-Reported Reasons for Calling EMS: A Cross-Sectional Survey of Frequent Callers in Ontario. Angeles R, McLeod B, Lee J, Mahmuda S, Stocic A, Howard M, Agarwal G. (2023). *International Journal of Paramedicine*, 4: 29-39.
- 5 Adapting the Community Paramedicine at Clinic (CP@clinic) program to a remote northern First Nation community: A qualitative study of community members' and local health care providers' views. Keenan A., Sadri P., Marzanek F., Pirrie M., Agarwal G. (2023). *International Journal of Circumpolar Health*.



Presentations

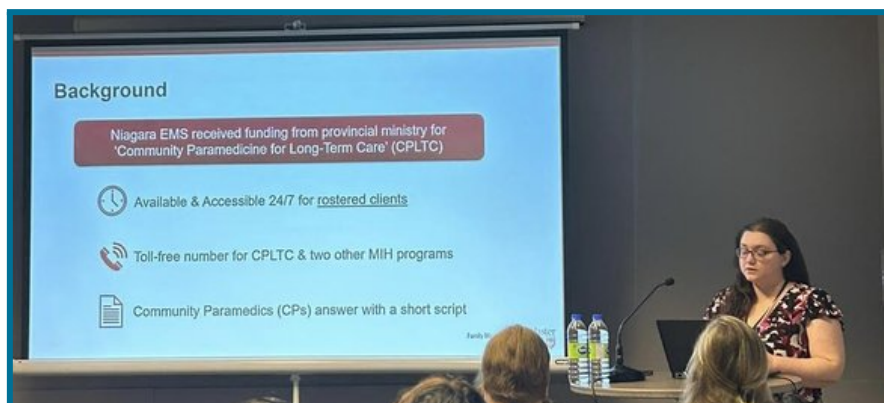
1

Effectiveness of the Community Paramedicine at Home (CP@home) program for frequent users of emergency medical services in Ontario: A randomized controlled trial. Agarwal G, Angeles R, Brar J, Pirrie M, Marzanek F, McLeod B, Thabane L. Canadian Association for Health Services and Policy Research Conference. May 29-31, 2023, Montreal, Canada. (Oral)



2

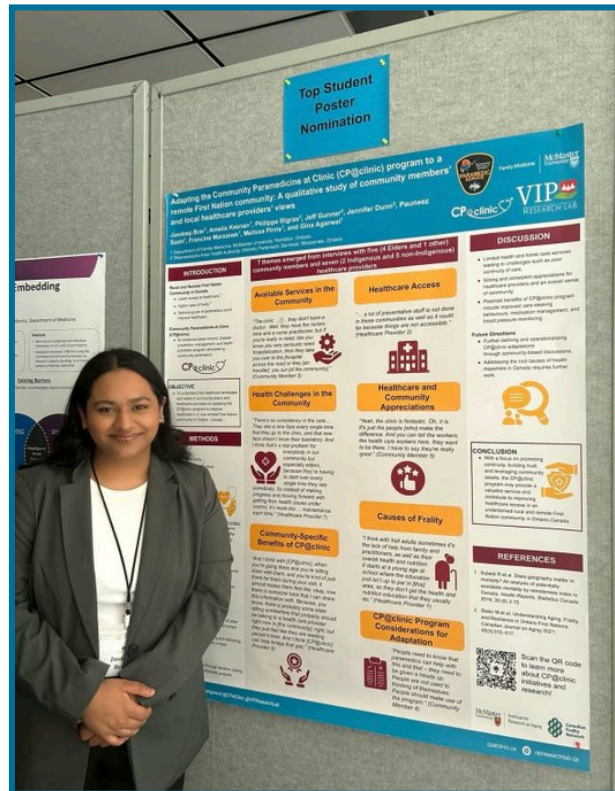
Examining the use of a 24/7 non-emergency phone line by patients rostered in Mobile Integrated Health programs of an Ontario paramedic service. Pirrie M, Agarwal G, Mako M, Ferron R. Canadian Association for Health Services and Policy Research Conference. May 29-31, 2023, Montreal, Canada. (Oral)





3

Adapting the Community Paramedicine at Clinic (CP@clinic) program to a remote First Nation community: A qualitative study of community members' and local health care providers' views. Brar J, Keenan A, Sadri P, Marzanek F, Pirrie M, & Agarwal G. Canadian Association for Health Services and Policy Research Conference. May 29-31, 2023, Montreal, Canada. (Poster)



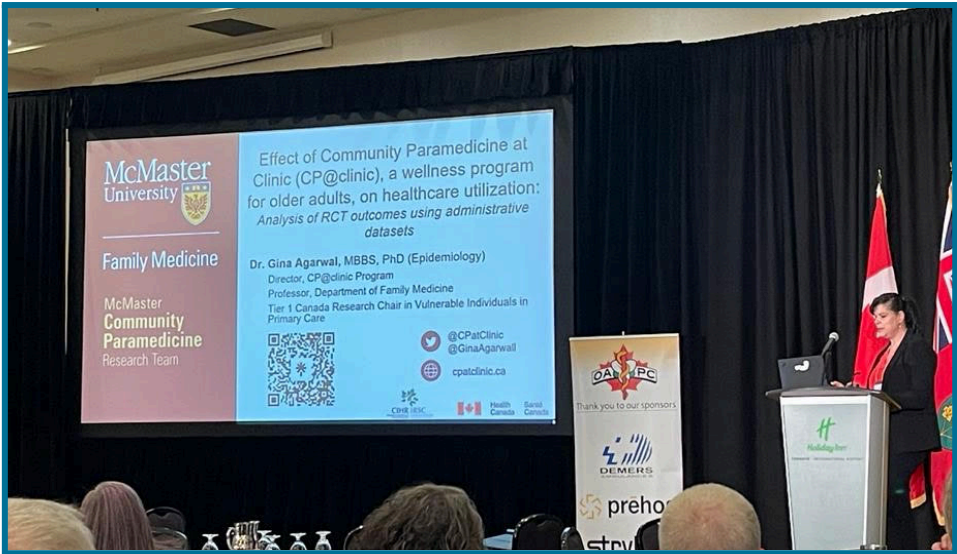
4

Effects of the Community Paramedicine at Clinic (CP@clinic) Program on the health behaviours of older adults residing in social housing. Brar J, Alshenaiber L, Dzerounian J, Angeles R, Pirrie M, Marzanek F, & Agarwal G. Faculty of Health Sciences Graduate Plenary. May 8, 2023, Hamilton, Canada. (Oral)



5

Effect of Community Paramedicine at Clinic (CP@clinic), a wellness program for older adults, on healthcare utilization: Analysis of RCT outcomes using administrative datasets. Agarwal G. Ontario Community Paramedicine Knowledge Exchange Expo. March 29, 2023, Toronto, Canada.



6

Effects of the Community Paramedicine at Clinic (CP@clinic) Program on the health behaviours of older adults residing in social housing. Brar J, Alshenaiber L, Dzerounian J, Angeles R, Pirrie M, Marzanek F, & Agarwal G. Department of Health Research Methods, Evidence & Impact Research Day, March 23, 2023, Hamilton, Canada. (Poster)

CP@clinic Locations

Canada





Australia





Acknowledgements

CP@clinic Executive Committee

We would like to acknowledge the contributions of Brent McLeod (Hamilton Paramedic Services), Natalie Kedzierski (York Region Paramedic Services), and Brad Jackson (Bruce County Paramedic Service) as members of the CP@clinic Executive Committee.

Partner Organizations


The McMaster Community Paramedicine Research Team would like to thank our partner organizations:

Paramedic Partners:

- BC Emergency Health Services
- Beausoleil First Nation EMS
- Brant-Brantford Community Paramedic
- Bruce County Paramedic Service
- Medavie EMS Ontario Chatham-Kent
- Cochrane District Paramedic Service
- Cochrane District Social Services Administration Board
- Region of Durham Paramedic Services
- Essex-Windsor EMS
- Frontenac Paramedic Services
- Grey County Paramedic Services
- Guelph-Wellington Paramedic Service
- Haldimand County Paramedic Services
- Halton Region Paramedic Services
- Hamilton Paramedic Services
- Hastings-Quinte Paramedic Services
- Niagara EMS
- Norfolk County Paramedic Services
- Kenora District Services Board
- Oxford County Paramedic Services
- Peterborough County-City Paramedics
- Prescott-Russell Paramedic Services
- Peel Regional Paramedic Services
- Rainy River District Social Services Administration Board
- District of Sault Ste. Marie Paramedic Services
- County of Simcoe Health and Emergency Services
- City of Greater Sudbury Paramedics
- District of Timiskaming Social Services Administration Board
- Weeneebayko Area Health Authority Paramedic Service
- York Region Paramedic Services

Community Partners

- Hamilton City Housing
- Hamilton Public Health Services
- Kingston & Frontenac Housing Corporation
- Sault Ste. Marie District Social Services
- Greater Sudbury Housing Corporation

- 
- The Corporation of the County of Wellington
 - York Region

Australia Partners

- Gateway Health
- Primary Care Connect
- Sunraysia Community Health Services

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Financial contribution from



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du Canada



The Chronicles of CP@clinic[®]

Volume 1 Issue 1



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