What is the goal of CP@clinic Program ?

The Community Paramedicine at Clinic (CP@clinic) Program is an innovative, evidence-based, cost-effective 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

Healthcare Utilization by Low-Income Older Adults Living in Social Housing
In Canada, 75-80% of older adults have at least one chronic condition.[1,2] As a result, older adults face a disproportionately high mortality and morbidity rate, as well as lower overall health and quality of life.[3,4] Chronic disease costs the national economy approximately 190 billion dollars annually and places a strain on Canada's health systems.[5] Despite the large proportion of older adults who have a family physician, many are unable to have timely access to primary care.[1] Consequently, older adults represent up to 48% of Emergency Medical Services (EMS) calls and a large portion of Emergency Department (ED) visitors.[6–9] This increased use of emergency services by older adults also contributes to the high healthcare costs associated with aging.[1] This economic burden is projected to increase given Canada's rapidly growing elderly population.[10]

A particularly vulnerable subset of the older adult population are low-income older adults living in social housing. Relative to the general population, this population is at greater risk of chronic disease, poverty, social isolation, stress, loneliness, depression, and falls.[11–18] As a result of this increased risk of chronic diseases, low-income older adults living in social housing have higher mortality, poorer health, and poorer health-related quality of life.[4,19-20] Furthermore, the complex interaction of factors such as low income and aging contributes to the increased risk of chronic disease and disability.[4] Additionally, due to many factors affecting this population including limited access to primary care, the use of emergency healthcare services is increased.[4] These factors, as social determinants of health, contribute to poor health outcomes, frequent EMS calls, and frequent ED visits in this population.[22-25]

Approach to Address the Needs of Older Adults

Many reports suggest that the most effective approach to address the needs of older adults is to reduce the burden of chronic disease and to improve connections through community-based and patient-centered primary care.[1,2,5] Additionally, the cluster of low-income older adults who live in social housing gives the opportunity to efficiently deliver health-related programs and community resources. If successful, such an approach would reduce aforementioned healthcare costs and improve the health of this population. Specifically, a focus on community-based care involves management and prevention of chronic diseases which would in turn reduce the burden of 911 calls and ED visits. Community paramedicine programs are an example of such an approach.[26]

Intervention: CP@clinic Program

The Community Paramedicine at Clinic (CP@clinic) program is an innovative and evidence-based program developed to address the high 911 call rate and high needs of the vulnerable population of older adults living in social housing. The program was developed, researched, and implemented by the McMaster Community Paramedicine (MCP) Research Team under the supervision of Dr. Gina Agarwal, a primary care clinician. The MCP Research Team continues to innovate and conduct high quality research and produce robust evidence to inform policy and decision makers across Canada.The team works in partnership with Canadian paramedic, housing and public health services. Community paramedics conduct scheduled sessions on a regular weekly/biweekly basis in the common rooms of social housing. Older adults attend a session and meet one-on-one with a paramedic. Paramedics use evidence-based assessments to evaluate older adults' health risks eAlgorithms within the CP@clinic Program Database guide paramedics in providing tailored health education and referrals to primary care and community resources and programs. With consent, the participant's assessment results are shared with their primary care provider to enhance continuity of care. The CP@clinic program improves the health and quality of life of the older adult participants, but also reduces social isolation and improves social connectedness of older adults, which is a growing area of concern in Canada.[15]

Impact of the CP@clinic Program

The CP@clinic program was first evaluated in a pilot study[27] and subsequently in a large, multi-community pragmatic randomized controlled trial, both rendering very positive results.

Reduces 911 Calls by 19-25%
The average number of ambulance calls per month was significantly lower in buildings that had the CP@clinic Program compared to control buildings without the CP@clinic Program, across multiple communities.

- 19% less calls in the CP@clinic Program multi-site randomized controlled trial[28]
- 22% less calls in 3 intervention buildings in Hamilton, ON[29]
- 25% less calls in the CP@clinic Program pilot study[30]

This reduction in 911 calls may allow for the reallocation of ambulances for those who are in greater need.

Improves Quality of Life
CP@clinic Program participants showed significant improvements in:

- self-care (washing & dressing themselves)[28]
- ability to engage in "usual activities"[28,29]
- pain and discomfort[29]

There was a significant QALY gain for CP@clinic Program participants.[28,29]
QALYs= Quality-Adjusted Life Years: Improved quality of life can lead to older adults developing better coping skills and increased resiliency

Reduces Chronic Disease Risk
Blood Pressure:

- For participants who had a high BP at their 1st CP@clinic Program session, 40.5% had their BP normalize after attending several CP@clinic Program sessions[28]
- For participants who had a high BP at their 1st CP@clinic Program session, their average BP decreased significantly by 5.0 mmHg systolic and 4.8 mmHg diastolic after the 2nd and 4th sessions. This decrease was sustained across 10 or more visits.[29]

Diabetes Risk:

- 79% of the CP@clinic Program participants had a high risk for developing diabetes in the next 10 years.[29]
- There was an improvement in participants' diabetes risk after several CP@clinic sessions.[28,29]
- This demonstrates the positive effects of the tailored health education of the CP@clinic Program in this setting.

Empowers Participants

- The CP@clinic Program participants are actively engaged in goal setting.
- Participants set goals for themselves based on their chronic disease risk factors enabling them to take charge of their health.[31]

Facilitates Social Connections

- The CP@clinic Program addresses social issues such as access to social support and loneliness while also facilitating social relationships between older adults. Participants reported that they felt more socially connected to the other residents.[32]

Proven to be Cost-effective

- Benefit to Cost Ratio of 2:1 - For every $1 spent on the CP@clinic Program, the Emergency Care System sees $2 in benefits[33]
- Using data from the CP@clinic Randomized Controlled Trial in 13 social housing buildings with 1461 residents[33]

Future of CP@clinic

To date, the CP@clinic Program has been implemented by 17 paramedic services in 118 sites and improved over 3500 lives. In 2019, Dr. Gina Agarwal and the McMaster Community Paramedicine Research Team were awarded Health Care Policy Contribution Program (HCPCP) funding from Health Canada to expand this innovative program across Canada. This expansion includes revisions of the CP@clinic Program materials and paramedic training modules to adapt the CP@clinic Program into a sustainable national community-based health program. Expansion also includes new partnerships with paramedic services and health authorities across the country. Changes due to COVID-19 have influenced the CP@clinic Program mode of delivery, as the program has been adapted to be provided virtually as well as in-person in accordance with public health recommendations to ensure participant safety.

Conclusion

CP@clinic Program is an innovative and evidence-based chronic disease prevention, management and health promotion program. The program works in partnership with the paramedic services to improve the health of older adults, reduce 911 EMS calls, and connect participants with primary care. The future of the CP@clinic Program sees a nationwide scale-up as well as a virtual CP@clinic program option. Additionally, the CP@clinic Program is being adapted with the Weeneebayko Area Health Authority (WAHA) Paramedic Service for their Indigenous community in Northern Ontario and for Australian retirement village residents. Overall, the cost-effective CP@clinic program has been shown to improve the health and quality of life of vulnerable low-income older adults, but also can facilitate appropriate healthcare service use leading to redistributions of scarce healthcare resources.

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