GUIDING PRINCIPLES FOR THE PLANNING AND IMPLEMENTATION OF COMMUNITY PARAMEDICINE PROGRAMS

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Background

The Ontario Community Paramedicine Secretariat (OCPS) works to support partnerships that can reduce hallway healthcare, prevent hospitalizations, and improve patient-centred care. Established in 2018 through LHIN-funding, the Secretariat mandate supports the larger provincial community paramedicine network, enabling and facilitating work on the creation and dissemination of standardized care processes, performance reporting and measurement activities, and aspects of knowledge translation and exchange. The OCPS Steering Committee has representation from multiple key stakeholders including Ontario Health, the Ontario Association of Paramedic Chiefs, and frontline community paramedics.

In 2019 the OCPS Policy and Practice Working Group reviewed the 2017 *MOH Community Paramedicine Framework for Planning, Implementation, and Evaluation* (1). The working group drew from their experiences with community paramedicine programs, findings from the 2019 *Report on the Status of Community Paramedicine in Ontario* (2), and other published reports or literature to provide practical guidance to paramedic services, their health system partners, the LHINs, Ontario Health, and the Ministry on current aspects of planning, implementation, and reporting practices. The status of Community Paramedicine in Ontario reflects significant growth from the demonstration projects that began five years ago.

The OCPS was established at a time of both regulatory change to paramedicine and administrative transformation across all sectors of health care. The Secretariat and Steering Committee are optimistic about how community paramedicine programs will continue to adapt and develop new priority and patient/public aligned models of care. Community paramedicine programs are demonstrating effective and efficient ways to provide short-to-midterm episodic care to underserved patient populations (3–12). We expect that new strategies in community paramedicine programs will be developed during a period of health system transformation that will address hallway healthcare by helping patients overcome barriers or challenges in accessing timely coordinated care. The OCPS will continue to support planning and implementation of community paramedicine programs and future reporting on the impacts of these programs related to improved health outcomes, patient and provider experience, value, and improved system performance which has broader impacts on the whole population.

Objective

This report is intended to outline changes in the delivery of community paramedicine programs that have emerged in Ontario and summarize opportunities to update and revise aspects of the previously established MOH framework for community paramedicine.

General concepts about community paramedicine program delivery

Community paramedicine programs use “paramedics to provide immediate or scheduled primary, urgent, and/or specialized healthcare to vulnerable patient populations by focusing on improving equity in healthcare access across the continuum of care (13)." Locally identified community needs that either define patient population groups or specific aspects of equity or access that can be improved have drive ongoing evolution in community paramedicine programs delivery. In Ontario, the delivery of community paramedicine programs by municipal paramedic services has evolved from the demonstration projects that were first funded in 2014

(2). The 2017 *MOH Community Paramedicine Framework for Planning, Implementation, and Evaluation* described three predominant types of community paramedicine models of care—*assessment and referral programs*, *community paramedic-led clinics* and *home visit programs* (1). The 2019 *Report on the Status of Community Paramedicine in Ontario* found that 81% (39/48) of municipal paramedic services are operating two or more community paramedicine programs (2). By offering multiple community paramedicine programs, municipal paramedic services have developed multidimensional strategies; expanding the delivery of patient care to provide high-quality, coordinated care and improve timely access to other health care providers for their patients and within their communities. Community paramedicine programs represent a departure from the traditional treat and transport model of paramedicine where the emergency department is the only available option (14,15).

The definition of a community paramedicine program includes; an identified patient population (case finding), a provision of care (through a care plan), and a case management approach that includes the continuum of care (13). Each municipal paramedic service can define an approach to case finding that identifies a targeted population that is relevant and applicable to the local communities they serve (11,16). Case finding is usually defined by a combination of three factors; a geographic catchment (such as a clinic operating in a fixed location), a defined clinical profile (such as chronic disease), and/or by some health utilization criteria (such as repeated 9-1-1 calls). Improved case finding and better-defined patient resource utilization groups for community paramedicine programs is required (8). Care planning and case management are dependent on the approach taken to case finding and to the objectives for specific community paramedicine programs (8). Having a multidimensional strategy in community paramedicine means that a municipal paramedic service could define different aims for multiple community paramedicine programs but that one individual patient may receive coordinated care by qualifying for the different cases that have been identified by the paramedic service or its health system partners (2). For example, if a patient was identified for a community paramedicine home visit program because of a hospital admission (in partnership with hospital discharge planners) and as a result of the care provided, their condition improved, they could be subsequently cared for in a community-paramedic led clinic program (in partnership with their local primary care provider). By delivering patient-centred integrated care like this, municipal paramedic services are providing the coordination of care through community paramedicine programs that are reducing emergency department visits, hospital admissions, and repeated 9-1-1 calls (2).

Community paramedicine as a general concept represents many different possibilities for the delivery of integrated patient care[1]. In the years since the Ontario Community Paramedicine Demonstration Projects began, there has been an emergence and expansion of community paramedicine in other provinces across Canada, and new examples of implementation internationally (7,17–22). In each case there have been ongoing and sustained efforts to maximize efficiencies in patient care and healthcare resources. These same drivers have been reflected in steps towards further modernization within the broader healthcare system and changes intended to ensure the sustainability of the provinces publicly funded healthcare services (23). The development of integrated care through Ontario Health Teams coupled with regulatory changes made to the Ambulance Act that enable new models of care for select patient populations have created new opportunities to provide timely access to definitive care options other than traditional transport to the emergency department. New models of care that

[1] We define integrated patient care as the delivery of care that focuses on achieving the Quadruple Aim (34) through a coordinated effort within and between healthcare providers (35).

are built on the successes of community paramedicine programs will continue to help reduce hallway healthcare and ensure the delivery of timely high quality, integrated care.

Specific aspects of community paramedicine to consider

- Program Delivery & Health System Partnerships

The delivery of community paramedicine programs reflects the integration of care between paramedic services and multiple health system partners (2,8). Community paramedicine programs are built to empower patients to interrupt inefficient cycles of hospital re-admission or repeated 9-1-1 calls as a stopgap measure and to provide integrated "wrap around" care that often includes at home clinical support (24). Community paramedicine programs better encompass episodes of care beyond one isolated incident, such as an exacerbation of a condition that generated a 9-1-1 call. Taking a broader lens to episodes of care can involve supportive care that either aligns with recovery following, or prevention preceding a 9-1-1 call. Quite often a broader lens on the episode of care supports improved patient care at a baseline state in alignment with or as an extension of primary care (7,8). Community paramedicine programs, regardless of design or aim, recognize that patients may resort to calling 9-1-1 because of barriers or challenges in accessing timely care. The delivery of integrated care could involve any healthcare sector or provider. The 2019 *Report on the Status of Community Paramedicine in Ontario* found that new community paramedicine programs have emerged that involve partnerships with Hospitals, Public Health Units, Palliative Care Teams, Long-term Care Homes, and Community Mental Health Agencies (2). The framework for community paramedicine program delivery should not be defined by setting or process but reflect partnerships with other health system partners who contribute to or support an integrated approach to healthcare (25). Community paramedicine programs continue to be designed to meet the needs of the community they support and are adaptable to local context, leveraging existing resources in specific communities to better serve patients.

- Funding Community Paramedicine Programs & Cost-Benefit Analysis

One of the challenges that has been identified by municipal paramedic services is the funding arrangements required for community paramedicine programs—specifically that paramedic services have not been recognized transfer payment agencies of the LHINs. However, municipalities are LHIN recognized health service providers either through the long-term care residences that they operate or in instances where the municipality operates the public health unit. Differences between municipal administration does not always align these different sectors within the same division or department, further complicating administration of funds. The direction of funding to municipal paramedic services for community paramedicine programs through Ontario Health is yet to be determined but, the development of Ontario Health Teams could present an opportunity to address the logistics associated with funding community paramedicine programs. Regardless of how community paramedicine programs are funded in the future, to date it is evident that one-time and short-term funding arrangements delay further spread and scale of community paramedicine programs.

With the implementation of new models of care for selected 9-1-1 callers and greater integration between emergency operations and community paramedicine programs, new challenges will emerge regarding funding for community paramedicine programs in the absence of defined funding criteria. Such criteria could follow either a cost per patient or a cost per program approach. Defining cost per program may be better suited to existing administrative structures of municipal paramedic services while providing an avenue for cost-benefit analysis. However,

aligning funding to a cost per patient model could provide a bridge between responsibilities between municipal paramedic services and their health system partners. If Ontario Health Teams parallel the development of the Accountable Care Organization (ACO) movement in the United States, then cost-benefit analysis could adjusted according to geographic variation, target populations, and patient characteristics (26). Regardless of process, providing consistent annual funding to municipal paramedic services for the community paramedicine programs that they operate is necessary for program continuity. Short-term and one-time funding arrangements delay the spread and scale of community paramedicine programs.

Any cost-benefit analysis should be aligned with the objectives of the respective community paramedicine program and the health system partnerships that it entails. Such analysis would stem from pre-defined case-finding strategies to clearly articulated that the patients being served are correctly identified at the outset. A funding process that was regular and consistent could further enable accountability of municipal paramedic services for the costs associated with their community paramedicine programs. Blended accountability including health system partners should reflect that any benefit or cost savings includes a reflective balance for the resources required to achieve that benefit.

- Accountability, Program Evaluation, & Operational Guidelines

The OCPS Performance Measurement working group is exploring new means for reporting on community paramedicine program outcomes. A number of key variables have been identified and their work continues to engage with municipal paramedic services about the data collection process. The goal is to develop a new framework for reporting on community paramedicine programs that defines a minimum data set (MDS) for patient information. The MDS will facilitate aggregate reporting of all community paramedicine activities and enable comparison to land ambulance reporting. To accompany the MDS, the working group is also working on documentation standards.

For the purpose of this report, we wish to highlight one particular component of community paramedicine program evaluation. We recommend measuring the interval of time between patient enrollment in a community paramedicine program and subsequent 9-1-1 call stratified by acuity level (CTAS). The objective should be to demonstrate a lengthening of the time interval, reflecting a longer period of time at baseline or without exacerbation thereby increasing days at home and decreasing frequency of 9-1-1 calls and emergency department visits. We theorize that such measurement would reflect a longer period of time where patients are supported at home (27). Data linkages create a number of challenges in the ability to measure outcomes that are outside the domain of paramedic services or their health system partners. Further improvements to electronic medical records and new digital health solutions may address this challenge.

In keeping with community paramedicine program aims to address barriers in accessing healthcare outside of the emergency department, it is also important to note that community paramedicine programs may result in increased 9-1-1 calls, particularly where other healthcare providers are not available, where new models of care for selected 9-1-1 callers are implemented, or where the care provided by community paramedics can be accessed through integration with emergency operations. Performance indicators for community paramedicine should be aligned with efforts that have been established elsewhere and account for improvements in symptoms, improvements in self-reported health, patient experience, or patient quality of life, and determining if care provided aligns with established care plans (28–30).

- Quality Assurance & Patient Safety

Existing guidelines to municipality and DSSABs do not promote integration between land ambulance and community paramedicine which can have implications for quality assurance and patient safety. One of the innovative models of community paramedicine programs that has been implemented in a few municipalities involves full integration with traditional emergency response (2). Community paramedicine programs are the ideal means of ensuring patient safety through programs like frequent caller follow-up (31). Having Community Paramedicine Response Units whose primary commitment is to the case management and care-planning of select patients can facilitate integrated care with land ambulance operations when it comes to models of care such as treat and release, treat and refer, and triage and return. By integrating community paramedicine programs with land ambulance operations, changes in patient condition can be identified beyond the point in time of an isolated 9-1-1 call. Beyond streamlining of paramedic services quality assurance, the coordination with community paramedicine health system partners can also facilitate quality assurance and patient safety particularly through shared access to electronic medical records.

- Delegation of medical acts

The regulatory framework that has been established for paramedics, principally under the Ambulance Act, has not addressed delegation of medical acts in community paramedicine programs. Each municipal paramedic service has established their own parameters—largely as a reflection of the physicians involved in the health system partnerships that are part of the community paramedicine program design and the education or training provided to the community paramedics involved (32). However, delegation of medical acts may include working directly, virtually, or under established standing orders or medical directives of regulated health care professionals besides physicians. As an example, where community paramedicine programs are working with Family Health Teams, the primary care providers that a community paramedic works with could be a nurse practitioner. Where Mobile Integrated Healthcare Teams have been established, the coordinated delivery of care between a community paramedic and another regulated health care professional has been accomplished within existing policies described in the Basic Life Support Patient Care Standards (33). All municipal paramedic services should be encouraged to continue working with physicians and regulated health professionals in fields broader than emergency medicine to support setting and service appropriate medical delegation of controlled acts in the delivery of community paramedicine programs. Given the progress made to date in these areas, we would encourage the continued enablement of municipal paramedic services to formalize and expand existing partnerships for delegation of medical acts in community paramedicine outside of the base hospital system where this makes sense.

- Satisfaction Reporting; Patients, Caregivers, and Providers

From the beginning, patient, caregiver, and provider satisfaction has been identified as an important metric and component of reporting on the success of community paramedicine programs (1). Community paramedicine programs across the province have consistently reported overall high levels of satisfaction related to the service and care provided by community paramedics. Recognition of the importance of the voice of the patient (and their family and/or caregiver) has been broadly accepted across the continuum of healthcare. With the embedding of principles to achieve the Quadruple Aim, the OCPS recognizes that

satisfaction surveys should also include caregivers, other health care providers, and community paramedics themselves.

Community paramedicine programs require that shared and collaborative learning opportunities should accompany the development of integrated care. Municipal paramedic services stated that overcoming challenges in the planning and implementation of community paramedicine programs was a reflection of building relationships, expanding levels of trust, and engaging in collaborative efforts (2). Municipal paramedic services also stated that by clearly communicating roles and responsibilities (for both community paramedics and health system partners), the ability to connect patients with the appropriate health services was made possible. Meetings such as team huddles, connectivity or situation tables were examples of teamwork that aligned common goals and provided space to ask questions such as; “Did this (treatment or intervention) work? Why didn’t it work? What could be done better?” Including satisfaction surveys that reflect the performance of a local team’s approach to integrated patient care will contribute to an ongoing ability to evaluate the success of individual community paramedicine programs (2).

REFERENCES

1. Ministry of Health and Long-Term Care (MOHLTC). Community Paramedicine Framework for Planning, Implementation and Evaluation. 2017.
2. Leyenaar MS, Strum R, Haque M, Nolan M, Sinha SK, Ontario Community Paramedicine Secretariat Steering Commitee. Report on the Status of Community Paramedicine in Ontario [Internet]. 2019. Available from: https://www.ontariocpsecretariat.ca/resources
3. Verma AA, Klich J, Thurston A, Scantlebury J, Kiss A, Seddon G, et al. Paramedic-Initiated Home Care Referrals and Use of Home Care and Emergency Medical Services. Prehospital Emerg Care [Internet]. 2017;0(0):1–6. Available from: https://doi.org/10.1080/10903127.2017.1387627
4. Agarwal G, Angeles R, Pirrie M, McLeod B, Marzanek F, Parascandalo J, et al. Reducing 9-1-1 emergency medical service calls by implementing a community paramedicine program for vulnerable older adults in public housing in Canada: A multi-site cluster randomized controlled trial. Prehospital Emerg Care [Internet]. 2019;0(0):1–16. Available from: https://www.tandfonline.com/doi/full/10.1080/10903127.2019.1566421
5. Agarwal G, Angeles R, Pirrie M, McLeod B, Marzanek F, Parascandalo J, et al. Evaluation of a community paramedicine health promotion and lifestyle risk assessment program for older adults who live in social housing: a cluster randomized trial. Cmaj [Internet]. 2018;190190(21):638–47. Available from: www.cmaj.ca/lookup/doi/10.1503/cmaj.180642
6. Choi BY, Blumberg C, Williams K. Mobile Integrated Health Care and Community Paramedicine : An Emerging Emergency Medical Services Concept. Ann Emerg Med [Internet]. 2016;67(3):361–6. Available from: http://dx.doi.org/10.1016/j.annemergmed.2015.06.005
7. Rasku T, Kaunonen M, Thyer E, Paavilainen E, Joronen K. The core components of Community Paramedicine - integrated care in primary care setting: a scoping review. Scand J Caring Sci [Internet]. 2019; Available from: http://doi.wiley.com/10.1111/scs.12659
8. Leyenaar M, Mcleod B, Chan J, Tavares W, Costa A, Agarwal G. A scoping study and qualitative assessment of care planning and case management in community paramedicine. Irish J Paramed. 2018;3(July):1–15.
9. Gregg A, Tutek J, Leatherwood MD, Crawford W, Friend R, Crowther M, et al. Systematic Review of Community Paramedicine and EMS Mobile Integrated Health Care Interventions in the United States. Popul Health Manag [Internet]. 2019; Available from: http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=medp&NEWS=N&AN=30614761
10. Agarwal G, Lee J, Mcleod B, Mahmuda S, Howard M, Cockrell K, et al. Social factors in frequent callers: a description of isolation, poverty and quality of life in those calling emergency medical services frequently. BMC Public Health [Internet]. 2019;19(684):1–8. Available from: https://doi.org/10.1186/s12889-019-6964-1
11. Patterson DG, Coulthard C, Garberson LA, Wingrove G, Larson EH. What Is the Potential of Community Paramedicine to Fill Rural Health Care Gaps? J Health Care Poor Underserved [Internet]. 2016;27(4A):144–58. Available from: https://muse.jhu.edu/article/634884
12. Nejtek VA, Aryal S, Talari D, Wang H, O'Neill L. A pilot mobile integrated healthcare program for frequent utilizers of emergency department services. Am J Emerg Med [Internet]. 2017;35:1702–5. Available from: http://dx.doi.org/10.1016/j.ajem.2017.04.061
13. CSA Group. Community Paramedicine: Framework for program development. Toronto, ON: CSA Group; 2017.
14. Jensen JL, Carter AJE, Rose J, Visintini S, Bourdon E, Brown R, et al. Alternatives to

Traditional EMS Dispatch and Transport: A Scoping Review of Reported Outcomes. Can J Emerg Med. 2015;17(5):532–50.
15. Bigham BL, Kennedy SM, Drennan I, Morrison LJ. Expanding Paramedic Scope of Practice in the Community: A Systematic Review of the Literature. Prehospital Emerg Care. 2013;17(3):361–72.
16. O'Meara P. Community paramedics : a scoping review of their emergence and potential impact. Int Paramed Pract. 2014;4(1):5–12.
17. Carter AJE, Arab M, Harrison M, Goldstein J, Stewart B, Lecours M, et al. Paramedics providing palliative care at home: A mixed-methods exploration of patient and family satisfaction and paramedic comfort and confidence. CJEM [Internet]. 2019;1–10. Available from: https://www.cambridge.org/core/product/identifier/S1481803518004979/type/journal_article
18. Brohman M, Green M, Dixon J, Whittaker R, Fallon L. Community Paramedicine Remote Patient Monitoring (CPRPM): Benefits Evaluation & Lessons Learned [Internet]. Toronto, ON; 2018. Available from: https://infoway-inforoute.ca/en/what-we-do/news-events/webinars/resources/reports/benefits-evaluation/3542-community-paramedicine-remote-patient-monitoring-cprpm-benefits-evaluation-lessons-learned
19. COMMUNITY PARAMEDICINE IN BRITISH COLUMBIA Improving health care in rural and remote communities [Internet]. 2017. Available from: http://www.bcehs.ca/our-services-site/Documents/Community Paramedicine Initiative Overview.pdf
20. Calderone C, Brittain M, Sirivar D, Kotani N. Community Paramedicine Initiative: Transforming Paramedicine in British Columbia. Stud Health Technol Inform [Internet]. 2017;234:54–8. Available from: http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=med13&NEWS=N&AN=28186015
21. Jensen JL, Travers AH, Marshall EG, Cain E, Leadlay S, Carter AJE. Insights into the Implementation and Operation of a Novel Paramedic Long-term Care Program. Prehospital Emerg Care. 2014;18(1):86–91.
22. Brown R, Carter A, Goldstein J, Jensen JL, Travers AH. Methodology of a Cross-sectional Study Evaluating the Impact of a Novel Mobile Care Team on the Prevalence of Ambulatory Care Sensitive Conditions Presenting to Emergency Medical Services. Cureus [Internet]. 2018;10(9):1–9. Available from: https://assets.cureus.com/uploads/original_article/pdf/14144/1543344308-20181127-2937-1j2q8cl.pdf
23. Ontario Ministry of Health. Discussion Paper : Emergency Health Services Modernization. 2019.
24. Iezzoni LI, Dorner SC, Ajayi T. Community Paramedicine — Addressing Questions as Programs Expand. N Engl J Med [Internet]. 2016;374(12):1107–9. Available from: http://www.nejm.org/doi/10.1056/NEJMp1516100%5Cnhttp://www.ncbi.nlm.nih.gov/pubmed/27007957
25. Ontario Community Paramedicine Secretariat Steering Commitee. Community Paramedicine : Part of the Team [Internet]. 2019. Available from: https://www.ontariocpsecretariat.ca/resources
26. McWilliams JM, Hatfield LA, Chernew ME, Landon BE, Schwartz AL. Early Performance of Accountable Care Organizations in Medicare. N Engl J Med [Internet]. 2016 Jun 16; 374(24):2357–66. Available from: http://www.nejm.org/doi/10.1056/NEJMsa1600142
27. Groff AC, Colla CH, Lee TH. Days Spent at Home — A Patient-Centered Goal and Outcome. N Engl J Med [Internet]. 2016 Oct 27;375(17):1610–2. Available from: http://www.nejm.org/doi/10.1056/NEJMp1607206
28. Turner J, Siriwardena AN, Coster J, Jacques R, Irving A, Crum A, et al. Developing new

ways of measuring the quality and impact of ambulance service care: the PhOEBE mixed-methods research programme. Program Grants Appl Res [Internet]. 2019;7(3):1–90. Available from: https://www.journalslibrary.nihr.ac.uk/pgfar/pgfar07030
29. Munjal K, Chapin H, Miller T, Kahn C, Richardson L, Dunford J. Promoting Innovation in Emergency Medical Services. 2019.
30. El Sayed MJ. Measuring Quality in Emergency Medical Services: A Review of Clinical Performance Indicators. Emerg Med Int. 2012;2012:1–7.
31. Association of Family Health Teams of Ontario. Board Award County of Simcoe Paramedicine Program [Internet]. 2019 [cited 2020 Jan 6]. Available from: https://www.afhto.ca/sites/default/files/2019-09/Winner Board - final_0.pdf
32. Chan J, Griffith LE, Costa AP, Leyenaar MS, Agarwal G. Community paramedicine: A systematic review of program descriptions and training. CJEM [Internet]. 2019;21(6):749–61. Available from: https://doi.org/10.1017/cem.2019.14
33. Emergency Health Services Branch Ontario Ministry of Health and Long-Term Care. Basic Life Support Patient Care Standards [Internet]. 2nd ed. Toronto, ON: Queen's Printer for Ontario; 2016. 1–293 p. Available from: http://www.lhsc.on.ca/About_Us/Base_Hospital_Program/Medical_Directives/BLSPCS-v3.0.1.pdf
34. Bodenheimer T, Sinsky C. From triple to Quadruple Aim: Care of the patient requires care of the provider. Ann Fam Med. 2014 Nov 1;12(6):573–6.
35. International Journal of Integrated Care [Internet]. [cited 2020 Jan 6]. Available from: https://www.ijic.org/about/