

# HOME-BASED PRIMARY CARE FOR FRAIL OLDER HOMEBOUND ADULTS: AN INNOVATIVE SOLUTION FOR A 21ST-CENTURY CHALLENGE



PRINT THIS ARTICLE

**Tracy Smith-Carrier, MSW, PhD,** postdoctoral fellow in the Geriatrics Program, Mount Sinai and the University Health Network Hospitals, Toronto, Ontario

**Mark Nowaczynski, PhD, MD, CCFP,** clinical director of House Calls; assistant professor in the Department of Family and Community Medicine, University of Toronto, Toronto, Ontario

**Sabrina Akhtar, MD, CCFP,** physician lead of the Homebound Elders Program, Toronto Western Family Health Team, Toronto, Ontario; lecturer in the Department of Family and Community Medicine, University of Toronto, Toronto, Ontario

**Thuy-Nga Pham, MSc, MD, CCFP,** physician lead of the South East Toronto Family Health Team, Toronto, Ontario; assistant professor in the Department of Family and Community Medicine, University of Toronto, Toronto, Ontario

**Samir K. Sinha, MD, DPhil, FRCPC,** director of geriatrics at Mount Sinai and the University Health Network Hospitals, Toronto, Ontario; assistant professor of medicine at the University of Toronto, Toronto, Ontario, and the Johns Hopkins University School of Medicine, Baltimore, Maryland

Correspondence may be directed to Samir Sinha at [ssinha@mtsinai.on.ca](mailto:ssinha@mtsinai.on.ca).

Health care systems will be increasingly challenged in the coming decades to meet the needs of an aging society. A successful system will be one in which there is seamless integration and collaboration across care sectors.<sup>1</sup> Frail homebound older adults often have complex and inter-related health and social problems, putting them among the most vulnerable and marginalized patient populations. Their needs are generally not well served by traditional office-based primary care, given a host of challenges they face in accessing care. As a result, many homebound patients are not regularly seen by primary care physicians<sup>2</sup> and resort to less-ideal episodic care alternatives, such as emergency departments or one-off home visit physician services – health interventions that do not offer the continuity of care that could prevent medical escalations. Consequently, compared with other older adults, frail homebound elders are twice as likely to require treatment at a hospital,<sup>3</sup> where further functional deterioration usually ensues.<sup>4</sup> As the number of frail older adults with complex conditions steadily rises, the need to consider how primary care is structured to better support these patients becomes increasingly important, as does the integration of health, social, and community care systems.

Not a new concept, home-based primary care (HBPC) may be thought of as an old-fashioned solution to an emerging problem.<sup>5</sup> The provision of traditional house calls, however, must be distinguished from modern HBPC, which provides comprehensive ongoing primary care in the home and specifically targets patients who have complex chronic disease and who are poorly served by office-based care.<sup>6</sup> A team approach to care is also required. We advocate for HBPC facilitated by physician- or nurse practitioner-led inter-professional teams supported by allied health and social care professionals,<sup>6</sup> preferably with after-hours availability for urgent care issues.<sup>7</sup>

HBPC programs have the following overall goals<sup>6</sup>:

1. Providing access to ongoing primary medical care
2. Maximizing independence and function
3. Enhancing patient safety and quality of life
4. Linking patients to supportive home care services
5. Reducing emergency department and hospital admissions

## Opportunities and Challenges in HBPC Delivery

While the needs of this population steadily mount, there has been a continuous decline in the number of physicians making home visits in Canada.<sup>8</sup> The 2010 National Physician Survey reported that only 42.4% of Canada's general practitioners made house calls in 2010, a decrease from 48.3% in 2007.<sup>8</sup> Although physicians delivered more than a third of their care to patients in their homes in the 1940s,<sup>9</sup> these visits conceivably became less frequent as physicians increasingly relied on technology and traditional fee-for-service payment models, which continually reward high volume and short-duration episodes of care.<sup>10</sup> Barriers to providing home visits are now well documented, and the issues of time constraints, inadequate remuneration, transportation, and safety are raised repeatedly among practising family physicians.<sup>11</sup> In fact, family medicine trainees have identified the lack of positive role models in the provision of house call services as a further barrier to practising HBPC in the future.<sup>12</sup>

The past few years, however, have witnessed an unprecedented and renewed interest in HBPC as an effective and cost-conscious alternative for the provision of primary care for the homebound frail elderly population. Indeed, in August 2011, Ontario Health Minister Deb Matthews announced that \$60 million would be earmarked annually to support the expansion of HBPC services across Ontario<sup>12</sup>; at the same time, the governments of British Columbia and Manitoba expressed interest in developing HBPC programs for elderly persons in their provinces. These responses emerged from an increasing awareness of (and interest in) this model of care,

particularly in light of its documented ability to achieve positive patient, caregiver, and systems-level outcomes (including improvements in patient quality of life<sup>14</sup> and caregiver satisfaction<sup>5</sup>) as well as reductions in emergency department visits,<sup>15</sup> hospitalizations,<sup>16</sup> readmissions,<sup>5</sup> and nursing home admissions.<sup>17</sup>

### The Evolution of HBPC

While HBPC remains a relatively new and rare model of care in Canada, HBPC programs have existed for years in the United States and are becoming increasingly accepted as essential components of a robust continuum of care for frail elderly persons. The U.S. Department of Veterans Affairs (VA) health care system has led work in this area during the past decade, demonstrating that this model of care works and is valuable in the context of a universal and publicly funded system that operates along principles congruent with those of the Canada Health Act. VA currently cares for approximately 25,000 veterans across the United States<sup>18</sup> through HBPC programs at 138 locations in 48 states. Rigorous evaluations of VA HBPC programs have shown reductions of 62% in hospital days, 88% in nursing home days, 24% in VA costs, and 11% in Medicare costs for high-need beneficiaries. This compelling evidence continues to push the widespread adoption of HBPC in every community health system in which VA operates.<sup>6</sup>

Indisputably, HBPC is a resource-intensive model. In addition to greater convenience and access to ongoing primary care (ensuring that patients actually receive care), HBPC programs also offer an overall reduction of costs through the prevention of higher expenditures related to unscheduled hospitalizations, avoidable emergency department (ED) visits, and long-term care admissions.<sup>19</sup> Whereas the VA system adopted HBPC relatively quickly by shifting acute care resources to provide this upstream care without any additional cost, such programs have also grown in popularity outside the VA, with a resulting increase of physician home-visit fees under Medicare in the 1990s.<sup>9</sup> Indeed, many leading American medical centres have programs that vary in caseload from a few hundred patients to more than a thousand.<sup>20</sup>

### Canadian Context for HBPC

The development of HBPC programs in Canada has been slow despite the compelling evidence of the positive results they can deliver. This is largely due to the fact that, until recently, no appropriate remuneration structure was in place for physicians who wished to engage in this work, which made HBPC uncompetitive with routine office-based care with its financial incentives. This trend, however, appears to be changing.

A more recent change in the fee code structure in British Columbia not only has increased interest in the provision of physician home visits but has also led to the development of two robust and effective programs in Vancouver and Victoria.<sup>21</sup> In Ontario, officials of the Ministry of Health and Long-Term Care (MOHLTC) initially hoped that the establishment of Family Health Teams (FHTs) in 2005 would help to facilitate the delivery of HBPC. To date, however, FHTs have shown little movement toward the widespread adoption of this model of care. This is probably because current FHT physician remuneration

capitation models pose a real disincentive to the provision of HBPC since house calls are considered “in-basket” services (an arrangement that clearly does not recognize the increased time-intensiveness of the services), when FHT physician remuneration is based on traditional office-based patient caseloads.

Interest in HBPC is expected to rise in Ontario as new physician funding opportunities are presented by the Care of the Elderly Alternative Funding Plan (COE AFP) recently announced by MOHLTC. This plan will more appropriately compensate 0.5 to 1.0 full-time-equivalent focused-practice family physicians providing ongoing primary care to 120 to 150 frail homebound older patients at any given time.<sup>22</sup> The plan also complements the recently approved new fee code increases that aim to make house calls more viable for geriatricians.<sup>23</sup> While FHT physicians are not currently eligible to work under this alternative funding arrangement, these changes will provide primary care physicians in general with the flexibility to work in a variety of settings to provide this much-needed care and should provide the impetus for the replication of the HBPC model throughout the province.

### The House Calls HBPC Model in Ontario

Initially established as a pilot project in 2007, “House Calls” became a fully funded Toronto Central Local Health Integration Network (LHIN) program in September 2009 through Ontario’s Aging at Home Strategy. The program is currently the largest team-delivered HBPC program in Ontario, providing ongoing comprehensive, integrated, and inter-professional care for frail homebound elder adults in Toronto. It is also the largest training program for medical and allied health professionals wishing instruction in HBPC in Ontario.

The goal of the House Calls program is to help patients and their caregivers remain safely in the community for as long as possible while it simultaneously delivers better overall patient and system outcomes (including avoidable hospitalizations and ED visits) and enables patients to die at home. The House Calls team presently includes two family physicians, a nurse practitioner, an occupational therapist, a social worker, and a team coordinator. All House Calls clients have access to in-home geriatric medicine and psychiatry consultations and follow-ups as required. Unlike the traditional FHT program, the House Calls program is embedded in a Community Support Agency (CSA) to ensure that patients benefit from the full “basket” of the affiliated agency’s available services, including friendly visiting, homemaking and personal support worker services, Meals on Wheels, transportation services, adult day programs, and supportive housing. In the fall of 2010, House Calls developed an acute care partnership with the Geriatrics Program at Mount Sinai Hospital, the Mount Sinai Hospital ED, and the University Health Network Hospitals to better support patients requiring hospitalization and also to transition frail homebound elderly persons identified as being without adequate primary care support back into the community after a hospitalization or ED visit.

The House Calls program cares for an annualized caseload of about 300 patients (with an average age of 86 years for patients at the time of enrolment) and a current daily operating caseload of approximately 180, numbers comparable to those of established HBPC programs in

the United States, based on its current staffing complement. Patients are referred by various sources (community-based family physicians or geriatricians, geriatric emergency management [GEM] nurses, care coordinators, acute care and rehabilitation hospitals, and community support service agencies) or by self-referral. Currently, up to half of new patients admitted to the program are enrolled following an acute hospitalization.

House Calls operates Monday to Friday during standard business hours, although in certain cases (e.g., a patient's becoming palliative), patients and caregivers are given 24-hour access to an on-call physician or nurse practitioner. The family physicians oversee medical care plans, and weekly team rounds are held with full team involvement. Communication is via a shared electronic health record and a secure email urgent-notification system that links professionals and staff from House Calls, Mount Sinai Hospital, the University Health Network Hospitals, and the Toronto Central Community Care Access Centre.

A 90-day recidivism and mortality analysis was recently conducted among House Calls patients enrolled following an index acute care hospitalization. Average client age at enrolment was 86.3 years, with a corresponding Charlson comorbidity index (CCI)<sup>24</sup> of 3.7 and a 1-year predicted mortality rate of 52%. The age-adjusted CCI<sup>24</sup> for these clients was 7.9, and the 1-year predicted mortality rate was 85%. Unscheduled readmission rates were 12% and 22% at 30 and 90 days, respectively, well below the observed rates of 14% and 31% for all Mount Sinai Hospital patients aged 65 years and older in the Toronto Central LHIN<sup>25</sup> and favourable to other established norms.<sup>26</sup> All patients who survived their subsequent hospitalizations were discharged home and back into the ongoing care of the House Calls program. During the first 90 days following index hospitalization, 24% died; 67% of the total deaths occurred at home with the support of House Calls, higher than the death rates in non-institutional settings in Ontario (20.3%)<sup>27</sup> and across Canada (30.0%).<sup>28</sup> Neysmith has noted increased client and caregiver satisfaction, a lower caregiver burden, and high levels of team functioning among participants of the program.<sup>29</sup> The latter measure, assessed with a validated scale,<sup>30</sup> has been associated with better client outcomes in terms of perceived and

actual measures of activities of daily living (ADL) functioning and hospital utilization.<sup>31</sup>

### The Need to Further Evolve Mixed HBPC Models

We believe that the future development of HBPC programs in Ontario and across Canada will not succeed through a one-size-fits-all approach – an approach that is not feasible or even desirable. In Ontario, two HBPC models currently exist. The House Calls program receives a direct annual investment through its affiliated CSA from the MOHLTC to provide inter-professional team support and to compensate the physicians currently working in the program on a fee-for-service basis, although physician support will now come under the COE AFP. Other CSAs in the province with similar support can replicate this model.

There are currently 200 FHTs in Ontario, but only two to date have established formal HBPC programs. We believe that with appropriate reform, FHTs and Community Health Centres (CHCs) can become stronger vehicles for spreading HBPC on a wider scale across Ontario, reflecting the inter-professional team-based primary care approach. The Vancouver and Victoria HBPC programs have also evolved with a fee-for-service physician remuneration structure and alternative methods to fund the nursing and allied health team members essential to the delivery of effective HBPC.

With the landscape of Canada quickly evolving around the provision of HBPC, it is critical that the opportunities and barriers supporting and hindering the development of HBPC programs anchored in FHTs, CHCs, CSAs, and other venues be further examined. With funding support from the Ontario MOHLTC, we are currently conducting a two-year evaluation of existing and newly emerging HBPC programs in Toronto to advise communities throughout the province on how to better meet the needs of the growing numbers of frail older homebound adults they will be called to serve.

This article has been peer reviewed.

### References

1. The Kings Fund. Avoiding hospital admissions: lessons from evidence and experience. The Fund, 2010; [http://www.kingsfund.org.uk/current\\_projects/quality\\_in\\_a\\_cold\\_climate/avoiding\\_hospital.html](http://www.kingsfund.org.uk/current_projects/quality_in_a_cold_climate/avoiding_hospital.html). Accessed February 2, 2010.
2. Pereles L. Home visits: an access to care issue for the 21st century. *Can Fam Physician* 2000;46:2044–8.
3. Desai NR, Smith KL, Boal J. The positive financial contribution of home-based primary care programs: the case of the Mount Sinai Visiting Doctors. *J Am Geriatr Soc* 2008;56(4):744–9.
4. Bronskill SE, Carter MW, Costa AP, et al. Aging in Ontario: an ICES chartbook of health service use by older adults. Toronto: Institute for Clinical Evaluative Sciences, 2010.
5. Priest L. Canada's seniors: the doctor will see you now. *The Globe and Mail* 2011 Apr 11; <http://www.theglobeandmail.com/life/health/new-health/health-news/canadas-seniors-the-doctor-will-see-you-now/article1981281/>. Accessed April 14, 2011.
6. Beales JL, Edes T. Veteran's Affairs home based primary care. *Clin Geriatr Med* 2009;25(1):149–54, viii–ix.

### Key Points

- *The needs of frail homebound older adults are generally not well served by traditional office-based primary care.*
- *Home-based primary care (HBPC) models use a primary care provider-led team to provide comprehensive ongoing primary care in the home.*
- *Studies of HBPC models have demonstrated their ability to achieve positive patient, caregiver, and systems-level outcomes.*
- *Initial evidence from the House Calls program in Toronto provides support for the replication of the HBPC model.*
- *The development of a variety of HBPC models that are responsive to local issues will be needed to support the expansion of this type of care across Canada.*

7. Leff BA, Edes T, Kinoshian B. Medical care for the elderly living at home: home-based primary care (HBPC) and hospital-at-home programs. National Health Policy Forum. Washington (DC): The George Washington University, 2011; [www.nhpf.org/library/forum-sessions/FS\\_07-22-11\\_HomeCareElderly.pdf](http://www.nhpf.org/library/forum-sessions/FS_07-22-11_HomeCareElderly.pdf). Accessed April 14, 2011.
8. National Physician Survey. The College of Family Physicians of Canada, Canadian Medical Association, The Royal College of Physicians and Surgeons of Canada. 2010.
9. Leff B, Burton JR. The future history of home care and physician house calls in the United States. *J Gerontol A Biol Sci Med Sci* 2001;56(10):M603–8.
10. Ontario Ministry of Health and Long-Term Care. Schedule of Benefits for Physician Services under the Health Insurance Act. Toronto (ON): The Ministry; 2011.
11. Eaton B. Why we do not make housecalls. *Can Fam Physician* 2000;46:1945–7.
12. Akhtar S, Liu J. House Calls in Medical Practice and Education: Interests, Attitudes and Beliefs of Family Medicine Residents and Physicians; 2011 (Unpublished).
13. Ferguson R. Liberals promise to bring back house calls for seniors and people with mobility issues. *The Toronto Star* 2011 Aug 29; <http://www.torontostar.com/news/canada/politics/provincialelection/article/1046065--liberals-promise-to-bring-back-house-calls-for-seniors>. Accessed October 16, 2011.
14. Counsell SR, Callahan CM, Clark DO, et al. Geriatric care management for low-income seniors: a randomized controlled trial. *JAMA* 2007;298(22):2623–33.
15. Hughes SL, Weaver FM, Giobbie-Hurder A, et al. Effectiveness of team-managed home-based primary care: a randomized multicenter trial. *JAMA* 2000;284(22):2877–85.
16. Landi F, Onder G, Russo A, et al. A new model of integrated home care for the elderly: impact on hospital use. *J Clin Epidemiol* 2001;54(9):968–70.
17. Wajnberg A, Wang KH, Aniff M, et al. Hospitalizations and skilled nursing facility admissions before and after the implementation of a home-based primary care program. *J Am Geriatr Soc* 2010;58(6):1144–7.
18. Office of Health Reform Integration. Independence at Home Demonstration Program: section 3024 of the Patient Protection and Affordable Care Act. Health Reform Issue Briefs 2010;3(8).
19. Chang C, Jackson SS, Bullman TA, Cobbs EL. Impact of a home-based primary care program in an urban Veterans Affairs medical center. *J Am Med Dir Assoc* 2009;10(2):133–7.
20. Cestari L, Currier E. Caring for the homebound elderly: a partnership between nurse practitioners and primary care physicians. *Home Health Care Manage Pract* 2001;13(5):356–60.
21. Chan C. House calls could be the answer for Canada's stressed health-care system. *The Province* 2011 Oct 25; <http://www.theprovince.com/House+calls+could+answer+Canada+stressed+health+care+system/5525851/story.html>.
22. Ministry of Health and Long-Term Care. Alternate Funding Plan for Focused Practice General Practitioners in Care for the Elderly. Information Sheet. Toronto (ON): The Ministry; 2011.
23. Glazier R, Klein-Geltink J, Kopp A, et al. Capitation and enhanced fee-for-service models for primary care reform: a population-based evaluation. *CMAJ* 2009;180(11):e72–81.
24. Charlson ME, Pompei P, Ales KL, et al. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis* 1987;40(5):373–83.
25. Akhtar S, Pham T-N, Nowaczynski M, Sinha S. Bridging Care for Frail Older Adults: A Study of Innovative Models Providing Home-Based Care in Toronto. Toronto (ON); 2011 (Unpublished Grant Proposal).
26. Gruneir A, Dhalla IA, van Walraven C, et al. Unplanned readmissions after hospital discharge among patients identified as being at high risk for readmission using a validated predictive algorithm. *Open Med* 2011;5(2):104–11.
27. Motiwala SS, Croxford R, Guerriere DN, et al. Predictors of place of death for seniors in Ontario: a population-based cohort analysis. *Can J Aging* 2006;25(4):363–71.
28. Wilson DM, Truman CD, Thomas R, et al. The rapidly changing location of death in Canada, 1994–2004. *Soc Sci Med* 2009;68(10):1752–8.
29. Neysmith S. House calls/supportive housing: continuum of care for frail and marginalized seniors. *House Calls Annual Report*; 30 Apr 2011.
30. Temkin-Greener H, Gross D, Kunitz SJ, et al. Measuring interdisciplinary team performance in a long-term care setting. *Med Care* 2004;42(5):472–81.
31. Mukamel DB, Temkin-Greener H, Delavan R, et al. Team performance and risk-adjusted health outcomes in the Program of All-Inclusive Care for the Elderly (PACE). *Gerontologist* 2006;46(2):227–37.