ORIGINAL RESEARCH

Enhancing Physical and Community MoBility in OLDEr Adults with Health Inequities Using CommuNity Co-Design (EMBOLDEN): Results of an Environmental Scan

K. Bruce Newbold, PhD[1], Ruta Valaitis, PhD[2], Stuart Phillips, PhD[3], Elizabeth Alvarez, PhD[4], Sarah Neil-Sztramko, PhD[4], Davneet Sihota, BHSc[5], Mainka Tandon, MSc[2], Abbira Nadarajah, BHSc[5], Amy Wang, BHSc[5], Caroline Moore, BSc(HONS)[2], Elizabeth Orr, PhD[6], Rebecca Ganann, PhD[2]

[1]School of Earth, Environment & Society, McMaster University, Hamilton, ON; [2]School of Nursing, McMaster University, Hamilton, ON; [3]Department of Kinesiology, McMaster University, Hamilton, ON; [4]Department of Health Research Methods, Evidence and Impact, McMaster University, Hamilton, ON; [5]Faculty of Health Sciences, McMaster University, Hamilton, ON; [6]Nursing, Brock University, St. Catharines, ON, Canada

https://doi.org/10.5770/cgj.26.602

ABSTRACT

Background

Using the comparatively new environmental scan methodology, a protocol was developed and conducted to inform the co-design and implementation of a novel intervention to promote mobility among older adults in Hamilton, Ontario, Canada. The EMBOLDEN program seeks to promote physical and community mobility in adults 55 years and older who face barriers accessing community programs and who reside in areas of high inequity in Hamilton, and to address the following areas of focus: physical activity, nutrition, social participation, and system navigation supports.

Methods

The environmental scan protocol was developed using existing models and drew insights from census data, a review of existing services, organizational representative interviews, windshield surveys of selected high-priority neighbourhoods, and Geographic Information System (GIS) mapping.

Results

A total of 98 programs for older adults from 50 different organizations were identified, with the majority (92) supporting mobility, physical activity, nutrition, social participation, and system navigation. The analysis of census tract data identified eight high-priority neighbourhoods characterized by large shares of older adults, high material deprivation, low income, and high proportion of immigrants. These populations can be hard to reach and face multiple barriers to participation in community-based activities. The scan also revealed the nature and types of services geared toward older adults in each neighbourhood, with each priority neighbourhood having at least one school and park. Most areas had a range of services and supports (i.e., health care, housing, stores, religious options), although there was a lack of diverse ethnic community centres and income-diverse activities specific to older adults in most neighbourhoods. Neighbourhoods also differed in the geographic distribution number of services, along with the number of recreational services specific to older adults. Barriers included financial and physical accessibility, lack of ethnically diverse community centres, and food deserts.

Conclusions

Scan results will inform the co-design and implementation of the Enhancing physical and community MoBility in OLDEr adults with health inequities using commuNity co-design intervention–EMBOLDEN.

Key words: environmental scan, asset mapping, health inequities, older adults, mobility, physical activity, nutrition, social participation, system navigation, engagement, co-design

INTRODUCTION

It is widely recognized that older adults face barriers to accessing programs that support physical activity and social engagement in their community, leading to social isolation and poor physical and mental health outcomes.(1) It is also well established that both social participation and physical mobility are integral to older adults' independence and quality of life.

However, there is limited research and no consensus on how best to deliver interventions targeting these outcomes. This conclusion is particularly true in non-clinical settings where it is important to consider how population health intervention programs can maximize the benefits for individuals and the community. Critical to the success of a health intervention program is understanding the community, including its context, resources, and population. Programs that leverage existing community and neighbourhood assets[2] and bridge social capital components[3-5] may be ideal for promoting health and well-being.

We define community as the residential neighbourhood where many day-to-day activities occur, while recognizing that communities exist at multiple spatial scales and that individuals can participate in multiple communities as part of their daily lives. Neighbourhoods can also reveal health disparities which impact health and individual mobility. In general, mobility limitations increase with age, with reduced mobility leading to barriers in participating in activities outside the home[6-8] and accessing resources and services such as transportation, physical activity, food, and social programs. Environmental factors and availability of relevant community resources are important to understand these health and mobility disparities as they can alter participation in activities.[9] This problem may be exacerbated in disadvantaged neighbourhoods where the physical environment is degraded, income inequality may be greater, and health problems reflect the local environment and well-known social determinants of health.[10]

The City of Hamilton (Ontario, Canada) has a rich set of health and social services, but the 'Code Red' project (https://projects.thespec.io/codered10/) vividly illustrated the connections between health disparities and wealth at the neighbourhood level, which have also been recognized in other cities. This raises a question of how promoting personal and community mobility could reduce or eliminate disparities through increased use of existing community programs and services. The Enhancing physical and community MoBility in OLDEr adults with health inequities using commuNity co-design (EMBOLDEN) study aims to promote physical and community mobility amongst older adults who experience difficulties taking up community programs, and who reside in areas of high health inequity in Hamilton.

The purpose of this paper is to describe the methods and findings from an environmental scan that will be used to inform the co-design and implementation of the EMBOLDEN mobility-enhancing intervention for older adults. Objectives include: (i) providing contextual information about the current state of programs for older adults in Hamilton; (ii) describing assets and gaps in care and service provision within priority neighbourhoods for the EMBOLDEN intervention; and (iii) identifying potential facilitators and barriers for the intervention.

METHODS

Co-design is a research approach that engages target populations and research stakeholders to better align research with existing community programs, leverageable assets, and applicable contextualized experiences of older adults.[11] A critical component of the intervention development framework is understanding the context for the intervention including population characteristics, geographical setting, socio-cultural and economic influences, and implementation facilitators and barriers.[12]

As part of the co-designed intervention, we focus on priority neighbourhoods where health disparities are greatest. As a methodology, environmental scans are gaining increased recognition as an important part of developing health programs.[9] Further, environmental scans are increasingly used by health researchers to address a variety of health-related topics and enable "the design of health programs that are geared toward and incorporate the needs of specific communities".[13]

While environmental scans have been used in health research and other contexts, we extend the methodology. Importantly, the environmental scan developed for the EMBOLDEN project was informed by the social determinants of health and divided into three phases. Each phase informs the next and uses a mix of publicly available data, key informant descriptions, on-the-ground verification using windshield surveys, and consultation with our Strategic Guiding Council (SGC) to validate the accuracy of information. SGC membership includes representatives from the City of Hamilton, Hamilton Public Health Services, Hamilton Council on Aging, older adult citizens from priority neighbourhoods, and other community partners. The process was iterative in that new information, such as the impact of COVID-19 on community resources, would be integrated into the neighbourhood profiles. Phase I and II dealt with Hamilton generally, and Phase III focused on the priority neighbourhoods identified during the first two phases.

Phase I: Creating a Program Inventory

In this first phase, we inventoried existing programs and services for older adults in Hamilton through the use of publicly available data. Programs were included if they (a) focused on older adults or included older adults; (b) served residents of the Hamilton Census Metropolitan Area (CMA); and (c) addressed at least one of: physical activity (recreation and exercise), transportation (programs that enabled community mobility), diet quality (food access and healthy eating), social participation (programs enabling socialization), or system navigation (programs that direct/refer individuals to appropriate services and information).

Program information regarding the target population, scope, physical and/or cultural accessibility, and geographic location and/or reach within the city was extracted through organization websites. A local resource, the 'Age Friendly Hamilton Community Resources for Older Adults', was used as a starting point. This resource provided an online searchable directory of services, programs, and organizations and was a critical resource for the team (https://www.hamilton.ca/people-programs/adults-55-services/senior-and-older-adult-resources).

Team members also reached out to organizational representatives (e.g., program coordinators, managers, directors) by phone and email using an established data collection guide (Table 1). Additional programs were identified through provincial and regional databases including Healthline (https://www.hnhbhealthline.ca/) and Flamborough Connects (https://flamboroughconnects.ca/information/seniors-programs/). Finally, snowball sampling was used by asking organizational representatives to identify other similar programs and services of which they were aware.

Phase II: Identifying Priority Neighbourhoods

In the second phase, we utilized the most currently available Canadian Census Tract data from Statistics Canada (2016) to identify priority Hamilton neighbourhoods with greater needs that are targeted in Phase III. Key population health indicators used to determine the priority neighbourhoods included: (a) the proportion of the population aged 55 and older, (b) the level of material deprivation,* (c) the prevalence of older adults (aged 65 and older) in the census tract living below the low-income cut-off,† and (d) the proportion of immigrants in the census tract. Selection of the priority neighbourhoods was based on the census tracts having at least 1% of the older adult population relative to the total city population, a deprivation index defined as quintiles 4 or 5,[14] at least 2% of older adults below the low-income cut-off,[14] and a minimum of 15% of the population being immigrants. Census data did not include the age profile of the immigrant population in each census tract.

TABLE 1.
Environmental scan questions

Target Audience: Who is this program for? For programs that target the general population, how many seniors are served?
Reach: How many people do you serve? Is there a waiting list? What is your geographic reach? Are there any individuals that you don't reach?
Eligibility: What are the eligibility criteria to be part of your program?
Accessibility: Is your location physically accessible? Are there options for those who do not speak English? Is transportation/delivery offered? Do participants have to pay a cost? If so, how much? Is there a subsidy provided?
Registration Process: Level of literacy: do you support/serve those with low literacy in your program? If so, how? What is the registration process? Are there any additional pieces of information needed? E.g., photo id
Referral Process: How do people find out about your program? What is the referral process for participants to take part in the program? (e.g., does the individual need a doctor's note to partake in the program?)
Snowball Sampling: Do you know of any other physical activity, nutrition, system navigation, and social programs that serve seniors?

Phase III: Windshield Survey of Priority Neighbourhoods

Once priority neighbourhoods were identified, we assessed neighbourhood features and resources using a windshield survey (Table 2). Data were collected by mapping resources and noting observations based on a survey tool that provided an objective view of a community, along with the conditions and trends that could affect the population's health. The survey tool was constructed based upon templates developed by the Canadian Association of Schools of Nursing[15] and Fletcher.[16] Additional insights based on the needs of the EMBOLDEN program, as well as other windshield survey examples including Allender *et al*,[17] Hunt,[18] and Yiu,[19] and University of Central Florida's Guidelines for a Windshield Survey,[20] informed our own survey.‡ Windshield surveys were conducted between March and June 2019, with two or three research team members working together to complete the evaluation to ensure consistency and reliability in survey completion. While weather and seasonality could affect observations, neighbourhoods were only surveyed once.

A map, narrative, and a summary table of services and programs were developed for each priority neighbourhood. Geographic Information System (GIS) mapping (Esri Canada, Toronto, ON) was used to visualize the location of services identified in the earlier phases. Services were labelled as education, fitness/recreation, food sources, health/social services, housing, parks, protective services, religious organizations, retail stores, and transportation. Data from the windshield surveys were cross-referenced with information from Phase I and resources such as Information Hamilton to ensure accuracy of the neighbourhood profile. Public transportation options were also mapped. Each neighbourhood profile was shared with the EMBOLDEN SGC and feedback was incorporated into refined neighbourhood profiles.

*The material deprivation index is closely related to poverty and reflects the inability to access and attain basic material needs. It is based on the 2016 Ontario Marginalization Index (http://www.ontariohealthprofiles.ca/onmargON.php) and is a composite score of educational levels, recipients of government transfer payments, income, employment, dwelling conditions.

†While the overall focus of EMBOLDEN is on older adults aged 55 and older, Statistics Canada only provides information on the proportion living below the low-income cutoff for those aged 65 and older.

‡Further information on the environmental scan, windshield survey (including the full tool), and the development of the infographics can be found at: https://emboldenstudy.mcmaster.ca/

TABLE 2.
Windshield survey tool[a]

Geographic Area Observed: (street names that bound the neighbourhood)
Date:
1. Community
Boundaries - Map
History - Observe
Demographics - Observe
Ethnicity - Observe
Religion – Map/Observe
Values and beliefs – Observe
2. Subsystems
Physical Environment – Observe
Parks, Recreational Areas, and Common Areas – Map/Observe
Education – Map/Observe
Health and Social Service Centers - Map/Observe
Health and Morbidity - Observe
Stores – Map/Observe
Transportation and safety - Observe
Crime & Protective Services - Map/observe
Communication – Observe
3. Perception
Overall Impression?

[a]The above table includes only the high-level ideas captured in the survey. The full tool is available by contacting the authors.

RESULTS

The Hamilton CMA, which includes the City of Hamilton and the surrounding communities of Stoney Creek, Dundas, Ancaster and Flamborough, had a 2016 population of 745,545. Approximately 31% of the population was aged 55 and over and 18% were aged 65 and older.[14] Unemployment was measured at 6.6% (2016) and the average after-tax income was CA$39,875, slightly higher than the provincial average ($39,318). The prevalence of low income amongst older adults was 6.5% versus 5.1% for the province. In terms of education, 10% of residents aged 15 and over had no certificate, diploma, or degree; 25% had a secondary (high) school diploma or equivalency certificate; and 65% had a postsecondary certificate, diploma, or degree. Hamilton has a diverse immigrant population with 24.1% of its 2016 population defined as foreign-born.

Phase I

A total of 98 programs for older adults from 50 different organizations were identified; 92 programs offered within the City of Hamilton directly supported mobility and the areas of focus of this work (i.e., physical activity, nutrition, social participation, and system navigation), and six supported mobility indirectly in one or more of the areas of focus. Examples of indirect support include the 'Let's Take the Bus' program, which offers workshops for older adults to learn about public transportation in Hamilton, with the intent of increasing the likelihood of using public transportation. There were 24 programs (24%) that catered to older adults (aged 55 and over) only, while 20% of the programs targeted older adults and other age groups (e.g., adults with mobility issues, including older adults). Most programs (81%) targeted one area of focus (i.e., physical activity, diet quality, transportation, social participation or system navigation), with fewer programs (19%) targeting two or more areas of focus. Physical activity and social participation were the two most common areas of focus, with 20% of the programs targeting these two areas. Only three programs (3%) focused on system navigation. The scan revealed that few programs supported diet quality or multilingual services.

Additional insights associated with the target audience, reach and eligibility, accessibility, registration, and referrals were obtained through a detailed analysis of their online descriptions or follow-up conversations with representatives from individual organizations. Of the 98 programs contacted, 58 responded and provided further information. For programs that did not target older adults exclusively, we inquired about the proportion of older adults that participated. Questions about reach and eligibility revealed that approximately 50% of the programs require some form of advanced registration or referral. Geographic location was closely linked to program reach, with some focusing on specific neighbourhoods. Others included participants from outside of Hamilton. Conversations with service providers often revealed the challenges of reaching isolated individuals who faced economic hardship, cope with mental health issues, or faced other barriers (i.e., transportation or catchment area issues). Conversations also highlighted the physical accessibility of spaces and whether participants needed transportation, and the language and cost of services.

Phase II

Based upon the analysis of census tract data, eight priority neighbourhoods that met the aforementioned criteria were identified (see Figure 1). These neighbourhoods included Strathcona/Dundurn, Durand, Corktown/Stinson, Burkholme, Macassa, Corman, Kentley, and Riverdale West. Infographics were used to visually highlight population structure, income and employment, citizenship and immigration, education profiles, and housing characteristics in each area (Figure 2).

Phase III

The windshield surveys reinforced that the neighbourhoods varied in the geographic distribution of services and the number of services for all versus those specific to older adults. Typically, there was greater access to services on the perimeters of each neighbourhood, although this in part reflected the fact that major streets often defined neighbourhood boundaries. The maps also showed the potential barriers older adults living in the neighbourhoods would experience as they accessed services and activities. Each priority neighbourhood had at

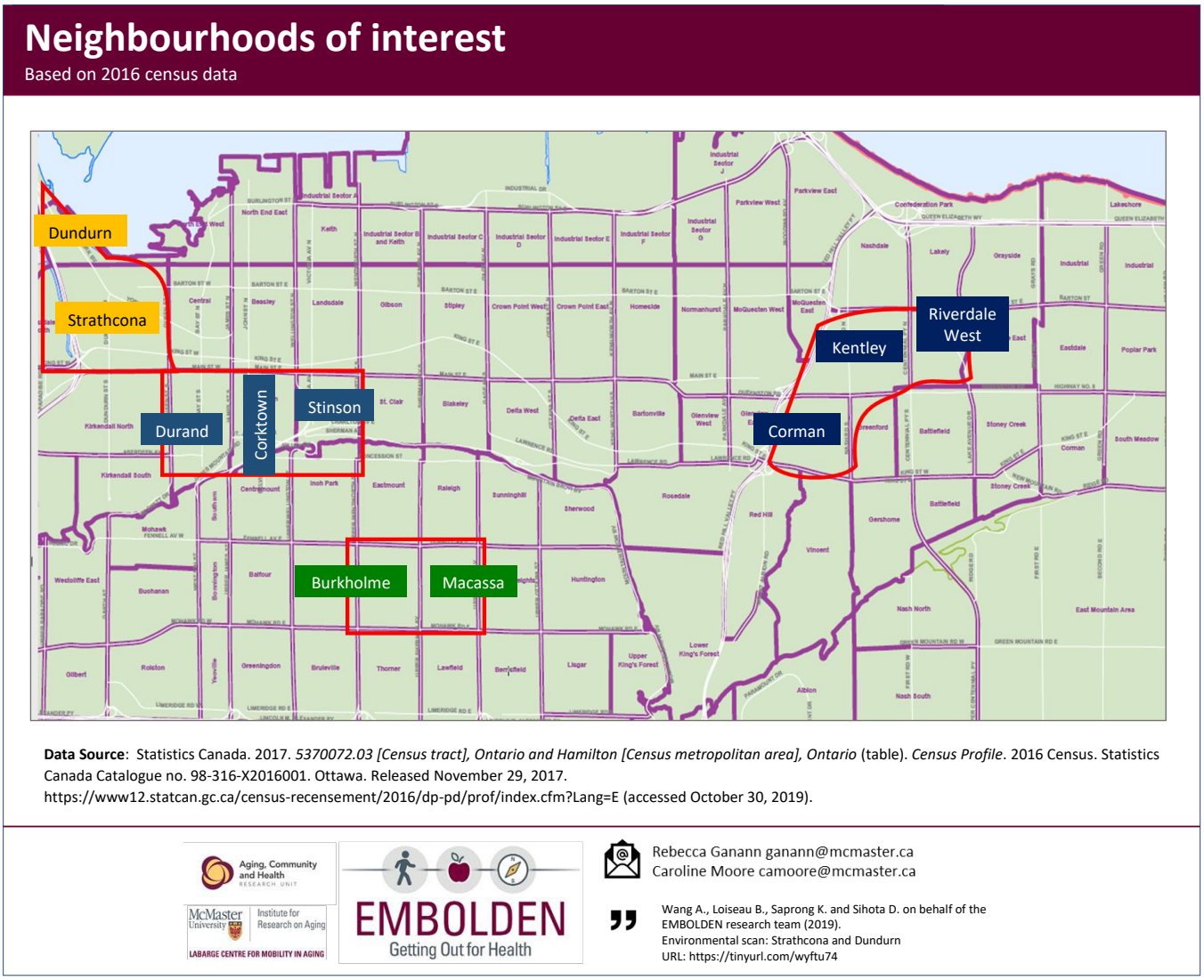

FIGURE 1. Map of Hamilton with priority neighbourhoods

least one school and a public park. Most areas had a range of other services including health care, housing, stores, and religious services. Windshield surveys revealed both a lack of diverse ethnic community centres and income-diverse activities specific to older adults in most neighbourhoods.

The completed windshield surveys were used to develop maps, narratives, and summary tables of services and programs available in each neighbourhood. For example, Figures 3a and 3b illustrate the findings associated with the Riverdale West neighbourhood.

The results were shared with the EMBOLDEN SGC and neighbourhood organizations as tools to foster knowledge exchange and expand on the teams' observations to capture additional relevant features and contextualize gaps. Their feedback allowed the team to update results, ensure that important neighbourhood features or assets had not been missed, and help avoid any biases or assumptions of the team. The current work provides a baseline, and the team will continue to add information and update these living documents.

DISCUSSION

By providing evidence of environmental and contextual factors that can shape health outcomes, environmental scans have emerged as a valuable tool in health planning. The current scan provided information needed to enable a deep understanding of the sociodemographic features and health and social services of Hamilton neighbourhoods and allowed the identification of eight priority neighbourhoods characterized by populations that may be harder to reach and may face multiple barriers to participation in community activities. Profiles were created for each priority neighbourhood, capturing data on the available services and census information. The results of this scan will inform the EMBOLDEN intervention and serve as a reference point for program implementation and evaluation of program success at the neighbourhood level. Based on these findings, intervention components can be modified to address local gaps and leverage relevant assets in an area. Across neighbourhoods, this approach will support

sustainability and scalability plans to understand a range of implementation contexts and adaptations.

In completing this scan, the team faced several barriers and challenges, including having data consistently represented across neighbourhoods. Data collection templates were used for consistency. Further, training on the use of the windshield survey tool and support from community health nursing students with past windshield survey experience, helped ensure consistency in data collection.

While the team drew upon various resources during the environmental scan, it was recognized that the scan would miss some services in each neighbourhood, particularly small-scale or grassroots organizations and services. However, the environmental scan provided an overall summary of the resources in each neighbourhood and provided documents that could be used to initiate additional discussions with community partners that would uncover missing resources. Three additional limitations are noted. First, it is recognized that the landscape of service providers will shift over time as funding or needs change. The *Age Friendly Hamilton Community Resources for Older Adults*[21] was published in 2017, and resources may have changed in the intervening years. Although team members tried to reach representatives identified in Phase I at least twice by phone, they could only connect to representatives from 58 of 98 programs. The lack of connection by phone highlights potential challenges that older adults could face if they tried to access information about services by phone. Second, the windshield surveys could not be assumed to identify all resources in a community but sharing the results with community partners again helped identify gaps. Third, the weather and timing (both seasonal and daily) would affect the windshield survey outcomes, such as the number or presence of pedestrians or the use of greenspace and parks.

Recognizing such limitations is important because they point to the ongoing need to refresh and update the data, a task that the team continues to engage in, particularly as COVID-19 has changed the service provider landscape. Data from the 2021 Canadian Census will also update the profiles. Although the scans were completed prior to the pandemic, the methods described in this paper lay the foundation for updates as the pandemic continues to evolve and the intervention is developed and delivered. Further, as we need to narrow the number of neighbourhoods where the intervention occurs from the current eight potential priority areas, the intent is to work with the SGC, neighbourhood organizations, and community partners to narrow the selection to one neighbourhood where intervention will be trialed. Later, the intervention will be scaled up to other priority neighbourhoods within the city as identified by this scan.

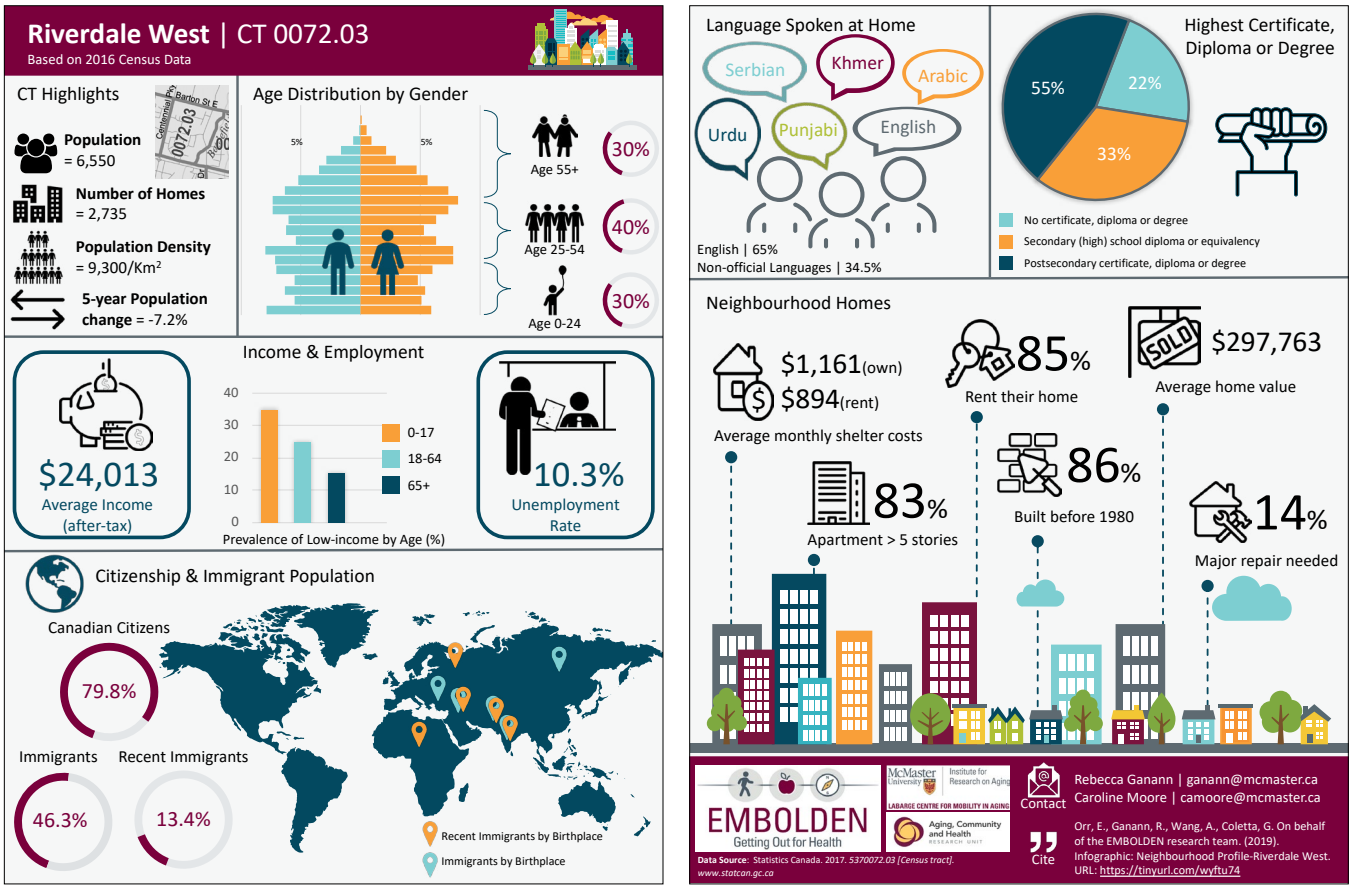

FIGURE 2. Riverdale West infographic

Riverdale West | CT 0072.03 | July 2019

Map of services identified in Riverdale West

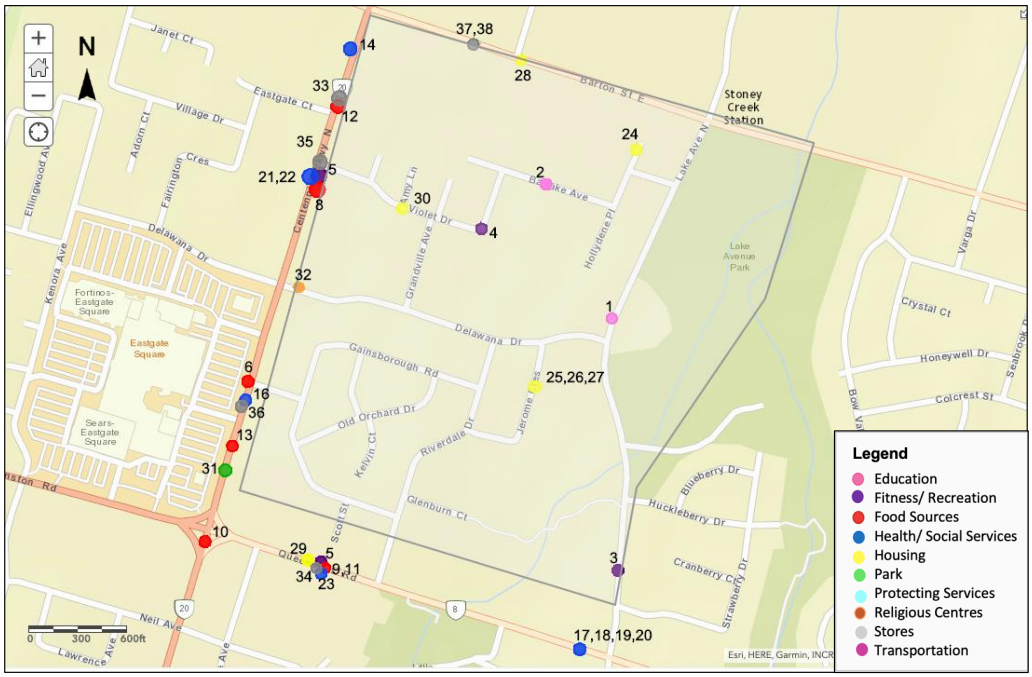

FIGURE 3a. Map of services identified in Riverdale West

Riverdale West | CT 0072.03 | July 2019

Index of services in Riverdale West

Map Number	Description
Education	
1	Lake Avenue Public School
2	St. Charles Adult & Continuing Education Centre
Fitness/Recreation	
3	A Quiet Place Yoga with Mary Telford
4	Dominic Agostino Riverdale Recreation Centre*
5	Golf Sports Academy
6	Stoney Creek Tennis Club
Food Sources	
7	Coffee Culture Cafe & Eatery
8	East Place Chinese Restaurant
9	Food basics
10	Himalaya Restaurant
11	Kin's Farm Market
12	Kings Buffet
13	Wok Around Chinese Food
Health/Social Services	
14	Centennial Pharmacy
15	Chestnut Tree Foot Care
16	Community Donation Centre
17	Food Basics Pharmacy
18	Hearing Life
19	Pharmaserve
20	Queenston Eye Care
21	Stoney Creek Medical Walk-In Clinic
22	Village Green Denture Specialist
23	YMCA Immigrant Services – Stoney Creek
Housing	
24	Aynsley Apartments
25,26	Bel-Gal Estates
27	Di Cenzo Apartments
28	Pat & Dia Ltd
29	Rolida Garden Apartments
30	Silvana Manor
Parks	
31	Warden Park
Religious Centres	
32	Stoney Creek United Church
Retail Stores	
33	Dollar Power
34	Eastgate Square
35	Easy Homes Store
36	Money Mart
37	Salvation Army Thrift Store
38	Value Village

*Programs targeted specifically at older adults

Aging, Community and Health Research Unit
McMaster University | Institute for Research on Aging
LABARGE CENTRE FOR MOBILITY IN AGING

EMBOLDEN
Getting Out for Health

Rebecca Ganann ganann@mcmaster.ca
Caroline Moore camoore@mcmaster.ca

Sihota D., Tandon M., Nadarajah A., Wang A., and De Panfilis L. on behalf of the EMBOLDEN research team (2019). Environmental scan: Riverdale West URL: https://tinyurl.com/wyftu74

FIGURE 3b. Services identified in Riverdale West

CONCLUSIONS

The scan provided a baseline understanding of the neighbourhoods and their residents, which provides the insights needed for the next steps of the EMBOLDEN project. These next steps include a co-design process to develop intervention tools, with the goal of improving physical and community mobility, nutrition, and social participation by older adults that reside in the priority neighbourhoods. Ultimately, results from this environmental scan will be used to support the co-design and planned implementation of the EMBOLDEN intervention for older adults aged 55 and older (aligning with community resources and literature on mobility) who reside in areas of high health inequity and may experience barriers in the uptake of community programs. As part of this larger study, participant's physical and mental health will be assessed at baseline and post-intervention. Measures include mobility, knowledge of chronic disease risk factors, physical literacy, food literacy, collective efficacy, healthy eating and nutrition risk, self-reported physical activity, health-related quality of life, frailty, and mental health, in addition to demographic indicators.

ACKNOWLEDGEMENTS

The team would like to acknowledge the contributions Lisa DePanfilis, Bethina Loiseau, Kwasi Sarpong, Anusha Hewagama, Kristen Gale, Dr. Darren Scott, and the Mills Library staff at McMaster to the conduct of the environmental scan.

CONFLICT OF INTEREST DISCLOSURES

We have read and understood the *Canadian Geriatrics Journal*'s policy on conflicts of interest disclosure and declare that there are no conflicts of interest.

FUNDING

This work is supported by funding from the Labarge Centre for Mobility and Aging within the McMaster Institute for Research on Aging, the Canadian Institutes of Health Research, and in-kind support from the Aging, Community and Health Research Unit at McMaster University.

REFERENCES

1. Levasseur M, Généreux M, Bruneau J-F, Vanasse A, Chabot É, Beaulac C, *et al*. Importance of proximity to resources, social support, transportation and neighborhood security for mobility and social participation in older adults: results from a scoping study. *BMC Public Health*. 2015;15(1):503.
2. Kretzmann J, McKnight JP. Assets-based community development. *Nat Civic Rev*. 1996;85(4):23–29.
3. Bloom J, Hardison-Moody A, Schulman M. Bonding and bridging: leveraging immigrant and refugee community assets to support healthy eating. *Community Development*. 2018;49(2):211–30.
4. Campbell C. Social capital, social movements and global public health: fighting for health-enabling contexts in marginalised settings. *Soc Sci Med*. 2020;257:112153.
5. Emmering SA, Astroth KS, Woith WM, Dyck MJ, Kim M. Social capital, health, health behavior, and utilization of healthcare services among older adults: a conceptual framework. *Nurs Forum*. 2018;53(4):416–24.
6. Darin-Mattsson A, Fors S, Kåreholt I. Different indicators of socioeconomic status and their relative importance as determinants of health in old age. *Int J Equity Health*. 2017;16(1):173.
7. May D, Nayak US, Isaacs B. The life-space diary: a measure of mobility in old people at home. *Int Rehabil Med*. 1985;7(4): 182–86.
8. Peel C, Sawyer Baker P, Roth DL, Brown CJ, Brodner EV, Allman RM. Assessing mobility in older adults: the UAB Study of Aging Life-Space Assessment. *Phys Ther*. 2005;85(10):1008–119.
9. Rowel R, Moore ND, Nowrojee S, Memiah P, Bronner Y. The utility of the environmental scan for public health practice: lessons from an urban program to increase cancer screening. *J Natl Med Assoc*. 2005;97(4):527–34.
10. Raphael D. Social determinants of health: Canadian perspectives, 3rd ed. Toronto: Canadian Scholars Press; 2016.
11. Australian Healthcare and Hospitals Association, Consumers Forum of Australia. Experience-based co-design: a toolkit for Australia. Deakin, Australia; The Association; 2018.
12. O'Cathain A, Croot L, Duncan E, Rousseau N, Sworn K, Turner KM, *et al*. Guidance on how to develop complex interventions to improve health and healthcare. *BMJ Open*. 2019;9(8):e029954.
13. Graham P, Evitts T, Thomas-MacLean R. Environmental scans: how useful are they for primary care research? *Can Fam Physician*. 2008;54(7):1022–23.
14. Statistics Canada. Census Profile, 2016. Available from: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E
15. Canadian Association of Schools of Nursing. Entry-to-practice public health nursing competencies for undergraduate nursing education. 2014. Available from: https://casn.ca/wp-content/uploads/2014/12/FINALpublichealthcompeENforweb.pdf
16. Fletcher M. Community health nursing: a Canadian perspective. *Canadian Nurse*. 2004;100(6):16.
17. Allender JA, Rector CL, Warner KD. Community and public health nursing: promoting the public's health, 8th ed. Philadelphia, PA: Wolters Kluwer/Lippincott Williams & Wilkins Health; 2014.
18. Hunt R. Introduction to community-based nursing, 5th ed. Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2013.
19. Stamler LL, Yiu L. Community nursing process care. Community health nursing: a Canadian perspective, 4th ed. Toronto, ON: Pearson Prentice Hall; 2016.
20. University of Central Florida. Guidelines for a windshield survey. 2013. Available from https://webcourses.ucf.edu/courses/966999/files/28762014
21. Hamilton Council on Aging. The age friendly Hamilton community resources for older adults. Hamilton, ON: City of Hamilton, Healthy and Safe Communities Department; 2018. Available from: https://www.hamilton.ca/people-programs/adults-55-services/age-friendly-hamilton

Correspondence to: Rebecca Ganann, PhD, School of Nursing, McMaster University, 1280 Main St. West, Hamilton, ON L8S 4K1 Canada
Email: ganann@mcmaster.ca