



Addressing Rural Health Needs

STROKE PREVENTION: Intervention in a Rural Community, Haldimand and Norfolk

Acknowledgements

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Abstract

The purpose of the study was to establish and determine the effectiveness of a rural, community-based stroke prevention intervention in Haldimand and Norfolk in terms of:

1. improving knowledge about stroke;
2. obtaining a blood pressure of less than 140 mm Hg/90 mm Hg and
3. maintaining or improving behavioural changes in the area of nutrition, mainly the consumption of vegetables and fruit, and physical activity when adopting a healthy lifestyle.

A time series observational cohort design was employed. Participants completed a self-reported questionnaire at four points: before the intervention (T_0); at the end of the intervention, at four weeks (T_1); one month after the intervention (T_2) and three months after the intervention (T_3). Forty-eight persons participated in the study.

The study demonstrated that implementation of a stroke program in a rural commu-

nity was effective in improving knowledge about stroke and behavioural changes in the area of nutrition, specifically the consumption of vegetables and fruit, and physical activity. However, it was also found that the proportion of participants who achieved a blood pressure of less than 140 mm Hg/90 mm Hg at (T_3) was the same at baseline (T_0).

The study has several implications for stroke education in a rural community. First, it is important to foster community collaboration and integrate researchers, health professionals, community people, government and other key stakeholders in every phase of the project. Second, challenges and asset identification associated with living in a rural community should be considered in developing effective stroke education programs in a rural setting, using the social determinants of health framework. The study also revealed that the program can be adapted to any rural setting or have good potential to be adopted in a rural setting to meet the unique needs of a rural population.

CHAPTER 1: Introduction and Background Information



1.1 The Problem

In 2004, stroke was the third leading cause of death in Canada (Heart and Stroke Foundation, 2009). Each year, more than 14,000 Canadians die from stroke (Heart and Stroke Foundation, 2009). A higher proportion of women than men die from stroke (Heart and Stroke Foundation, 2009). Every year, there are more than 50,000 strokes that occur in Canada; on average, a stroke occurs every 10 minutes (Heart and Stroke Foundation, 2009).

The prevalence of stroke doubles every 10 years for persons 55 and older (Heart and Stroke Foundation, 2009). The high prevalence of stroke may be attributed to maladaptive lifestyle behaviours, including smoking, physical inactivity, being overweight or obese, high blood pressure, poor nutrition and diabetes (Heart and Stroke Foundation, 2003). It is fundamentally understood that the risk of developing cardiovascular disease, including stroke, increases with at least one of the

aforementioned risk factors (Heart and Stroke Foundation, 2003).

In addition, many researchers noted poor knowledge of stroke in the general population (Pratt, 2003). Specifically, there were 44 studies that documented poor stroke knowledge within the population (Pratt, 2003). There is a positive relationship between stroke knowledge and behaviour (Pratt, 2003). The premise is that knowledge of stroke encourages people to engage in positive lifestyle behaviours like exercising and eating healthy (Pratt, 2003).

1.2 Significance of the Problem

It has been established that the growing burden of stroke is repeated in rural and remote communities (Desmeules et al., 2006; Public Health Agency of Canada, 2008). On average, rural populations have higher death rates than urban populations relating to circulatory diseases, including stroke, and higher smoking and

obesity rates (Desmeules et al., 2006; Public Health Agency of Canada, 2008). Unhealthy behaviours are also embedded in socioeconomic factors that are apparent in rural populations, including a larger senior population, higher incidence of low income and poverty and lower levels of education compared to their urban counterparts (Smith, Humphrey's & Wilson, 2008).

Moreover, access to health-care services is limited by low population density, distance, travel and low number of practitioners and specialists who are willing to practise in isolated areas, which can negatively affect quality of stroke care (Romanow, 2002; Public Health Agency of Canada, 2008). All of these health disparities contribute to rural Canadians being at risk for a higher incidence of stroke compared to their urban counterparts (Romanow, 2002; Public Health Agency of Canada, 2008).

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INTRODUCTION AND BACKGROUND INFORMATION

Emerging from this data was a strong belief that Haldimand and Norfolk Counties, a rural area located in southern Ontario, showed similar trends compared to other rural communities. In particular, in 2006, it was found that the age-standardized mortality rate for stroke in adults 55 and older was higher in Haldimand and Norfolk compared to Ontario (209.8/100,000 and 173.6/100,000 respectively). Moreover, the age-standardized hospitalization separation rate for stroke in adults 55 and older was also higher in Haldimand and Norfolk compared to Ontario (549.5/100,000 and 501.2/100,000 respectively).

Haldimand and Norfolk also have formidable challenges in lifestyle behaviours. In 2007, over half of Haldimand and Norfolk residents consumed fewer than five servings of vegetables and fruit, were overweight or obese (18+) and were inactive. From an accessibility perspective, in Haldimand and Norfolk, residents who require stroke prevention therapy are referred to surrounding areas.

One of the most important avenues for the investment in and recognition of the broader understanding of health involves the commitment to focus on the social determinants of health in stroke prevention programming in rural settings. According to Smith, Humphreys and Wilson (2008), programs to improve rural health are more effective when they are based on policies related to the health determinants. However, it is fundamentally understood that conventional or urban chronic disease prevention programs are implemented in rural settings (Romanow, 2002). There is an increasing awareness that health problems associated with living in rural settings are unlikely to be addressed by mainstream or urban programs (Romanow, 2002). Therefore, in response to this, the Haldimand-Norfolk Health Unit submitted a proposal to obtain funding to develop and implement a stroke prevention program in a rural community.

1.3 The Purpose

Innovative rural chronic disease prevention approaches and programs in the area of stroke are essential (Public Health Agency of Canada, 2006). The notion of "best practices in rural communities" is somewhat unique to the rural context because of the extensive variability in geography, population and culture. As a result, rural programs or approaches need to be designed to address unique challenges associated with living in a rural community and maximize community assets to meet the needs of rural populations. Through the identification of rural health inequalities and assets in Haldimand and Norfolk, the *Step Up to a Healthier You* stroke program was developed and evaluated.

Outcome measures were selected based on the *Canadian Stroke Network and the Heart and Stroke Foundation of Canada 2008 Canadian Best Practices Recommendation for Stroke Care*, as well as other existing instruments found in publications and national surveys in the area of stroke knowledge, blood pressure, nutrition and physical activity.

Therefore, the purpose of the study was to establish and determine the effectiveness of a rural, community-based stroke prevention intervention in Haldimand and Norfolk in:

1. **improving knowledge about stroke;**
2. **improving or maintaining a healthy blood pressure (140 mm Hg/90 mm Hg) and**
3. **maintaining or improving behavioural changes in the area of nutrition, mainly the consumption of vegetables and fruit, and physical activity when adopting a healthy lifestyle for stroke prevention.**

The objective of the program was that participants would be adequately equipped to choose positive lifestyle behaviours and learn more about stroke to reduce the risk of stroke or a subsequent stroke.

1.4 Theoretical Framework

The Health Belief Model and the Transtheoretical Model of Change provided the framework for this study.

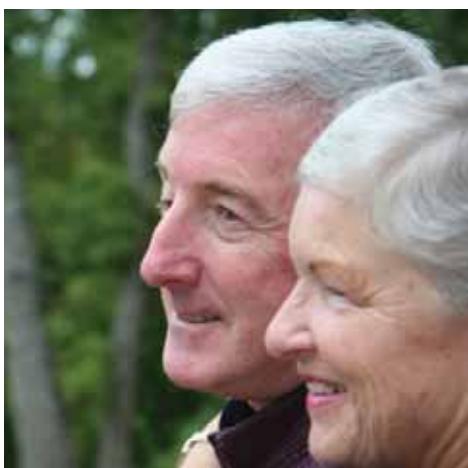
The Health Belief Model

The Health Belief Model has been used extensively in health behaviour research (McKenzie & Smeltzer, 1997). It hypothesizes that health-related actions depend on a simultaneous occurrence of five major constructs: a. perceived susceptibility, b. perceived severity, c. perceived benefits, d. perceived barriers and e. self-efficacy.

The Transtheoretical Model of Change

The Transtheoretical Model of Change helps to explain the stages that people experience as they attempt to change their behaviour over time (McKenzie & Smeltzer, 1997).

This model suggests that people move from the precontemplation stage (no intention to change their behaviour) to the contemplation stage (seriously considering changing their behaviour in the next six months) to the preparation stage (actively planning change) to the action stage (overtly making changes) and finally to the maintenance stage (taking steps to sustain the change, after six months of behaviour change) (McKenzie & Smeltzer, 1997). Since relapse is a part of change, this model represents a non-linear relationship among the five stages (McKenzie & Smeltzer, 1997).



Chapter 2: Methods

2.1 Study Design

This is a time series observational cohort design. Participants who attended the program and agreed to participate were included in the study. The participants were assessed at four points: before the intervention (T_0), at the end of the intervention, at four weeks (T_1); one month after the intervention (T_2) and three months after the intervention (T_3). The time points were selected based on the timelines and funding specified in the Ministry of Health Promotion proposal.

2.2 Sampling

A non-probability convenience sample was employed. Both subjects who had a stroke and those who did not have a history of stroke were included. Inclusion criteria required being 18 or older, cognitively intact and currently living in Haldimand or Norfolk.

2.3 Data Collection

Data collection was with a structured questionnaire for each time point (see Appendix A). At (T_0), the questionnaire consisted of seven sections:

1. demographic information,
2. stroke knowledge,
3. family and personal history,
4. physical activity,
5. nutrition,
6. blood pressure and
7. background information.

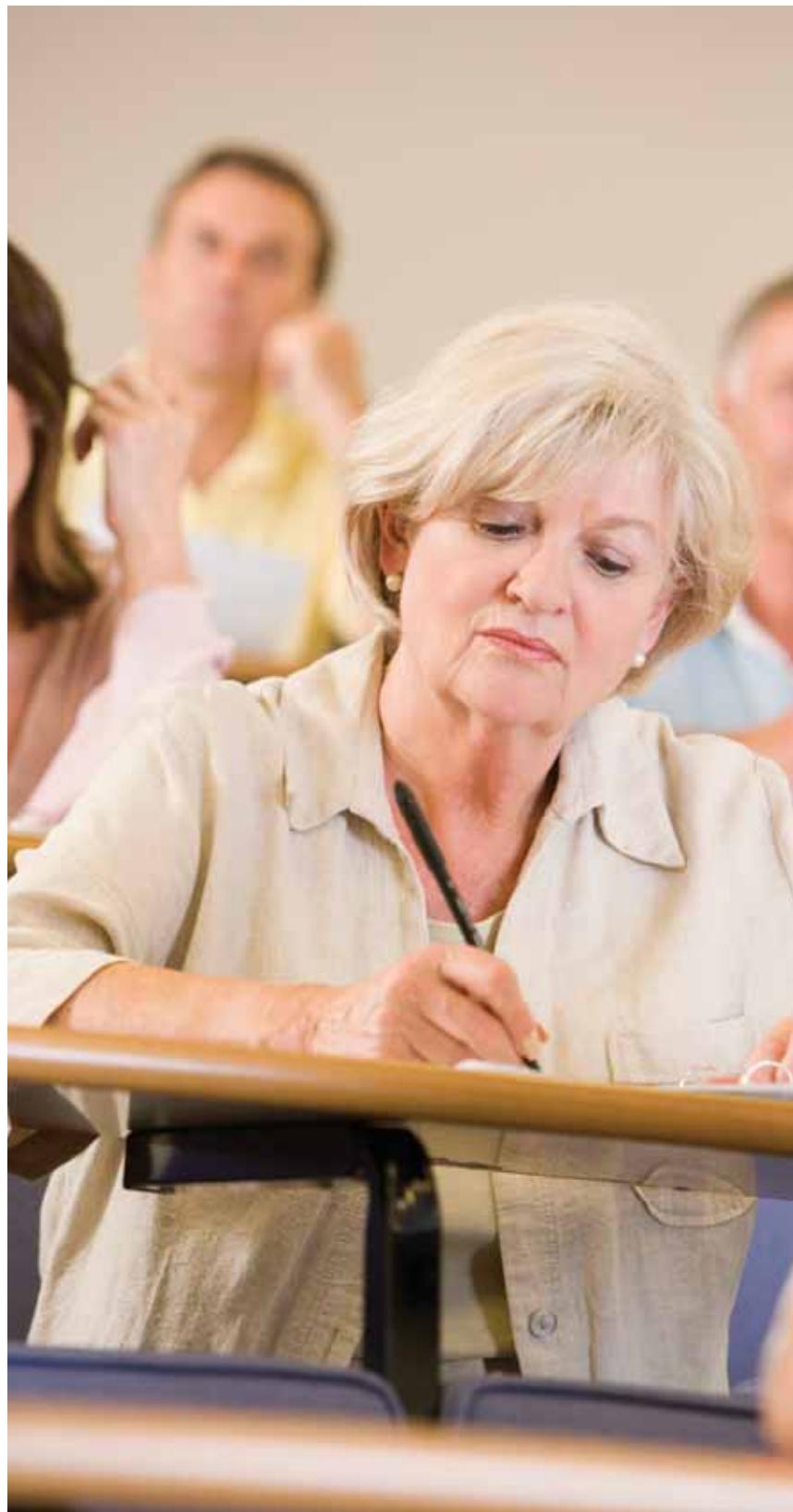
At (T_1), the questionnaire consisted of five sections:

1. stroke knowledge,
2. physical activity,
3. nutrition,
4. blood pressure and
5. overall rating.

At (T_2) and (T_3), the questionnaire consisted of four sections:

1. physical activity,
2. nutrition,
3. blood pressure and
4. goal setting.

For (T_0) and (T_1), data were collected at the program location. For (T_2) and (T_3), data were collected at health assessment sessions. Health sessions were located at the Health Unit, where participants completed the questionnaire and had their blood pressure taken. Participants were asked to



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complete and bring their physical activity and food logs from the previous week to the health assessment sessions. During the last health assessment, participants were given a token of appreciation for their time: a stainless steel water bottle and a certificate of participation. At each time point, the researcher was present to answer any questions and provide instruction on how to complete the questionnaires.

2.4 Ethical Considerations

The Haldimand-Norfolk Health Unit Ethics Committee approved the study in March 2008. Informed consent was obtained from all subjects who agreed to participate (see Appendix B). If participants did not want to participate in the study, they were still able to participate in the program. Prior to data collection, subjects were provided with written and verbal communication about the study's purpose and procedures. They were informed that participation was completely voluntary and that they could withdraw at any point during the study. Confidentiality and anonymity were strictly enforced throughout the study.

2.5 Outcome Measures

Both closed and open-ended questions were used. Open-ended questions allowed participants the freedom to answer a question with fewer limits imposed by the researcher.

Measurable outcomes were selected based on the *Canadian Stroke Network and the Heart and Stroke Foundation of Canada's 2008 Canadian Best Practices Recommendation for Stroke Care*, other existing instruments found in publications and national surveys, namely the *Canadian Community Health Survey Cycle 4.1*, as well as input from program planners.

Stroke Knowledge

The knowledge of stroke questions were modified using the scale developed by Pratt, Levine, & Pratt (2003) to assess participants' knowledge of stroke, causes of stroke, warning signs of stroke, lifestyle behaviours that contribute to stroke, medical conditions that contribute to stroke,

uncontrollable factors that increase the risk of stroke and actions required in case of a stroke. A summative score was calculated in the form of the correct number of responses and the total percentage and was compared at baseline (T_0), and at the end of the program (T_1). The higher the score, the more correct responses.

Physical Activity

The goal for physical activity was for the participants to engage in physical activity 150 minutes per week. This is supported by evidence that suggests that 150 minutes a week supports long-term maintenance, feasibility and effectiveness (The Diabetes Prevention Program Research Group, 2002). The goal was adopted from the Diabetes Prevention Program (DPP). Although the DPP prescribed 150 minutes of moderate physical activity similar to the intensity of brisk walking, it would have been difficult to quantify the intensity of activity among study participants, therefore, the intensity of activity was not considered.

Participants were encouraged to participate in various activities. The program instructors stressed brisk walking, but participants were given examples of other activities such as resistance techniques with Dyna-Bands and stretching exercises. It is interesting to note that from a rural perspective, the article, "*The Effects of Primary Care Exercise Intervention for Rural Women*," found that a simple walking intervention through a primary care practice was effective in increasing the short-term walking rates of rural women (Sherman, Gilliland, Speckman & Freund, 2006). Participants were given pedometers to track their progress as well as physical activity logs. This was recorded at (T_0), (T_1), (T_2) and (T_3).

Nutrition

The goal of the dietary intervention was for participants to increase their consumption of vegetables and fruit and reduce fat, calories and salt. As per Canada's Food Guide recommendations, participants were asked to achieve a nutrition goal of consuming seven or more vegetables and fruit daily. The vegetables

and fruit questions were adopted from Godin, Belanger-Gravel, Paradis, Vohl, and Perusse (2008), *Fruit and Vegetable Questionnaire (FV-Q) for Obese and Non-Obese Populations*.

According to the Best Practices for Stroke Prevention, a healthy, balanced diet is high in fresh fruits and vegetables (Canadian Stroke Network and the Heart and Stroke Foundation of Canada, 2008). The lack of sufficient vegetables and fruit consumption has been identified as a major risk factor for the development of several chronic diseases, including hypertension and heart disease (Perez, 2002). Time and budget restraints prohibited the measurement of other dietary changes. However, participants were provided additional information about healthy eating, including how to make healthy choices when shopping or dining out, how to reduce sodium intake and how to reduce fat intake. Participants were given a food log at the start of the intervention. This was recorded at (T_0), (T_1), (T_2) and (T_3).

Blood Pressure

According to the Best Practices for Stroke Prevention, the Canadian Stroke Strategy recommends target blood pressure levels as defined by the Canadian Hypertension Education Program (CHEP) for stroke prevention among the general public (Canadian Stroke Network and the Heart and Stroke Foundation of Canada, 2008). Therefore the goal was for participants to obtain a blood pressure of less than 140 mm Hg/90 mm Hg. Participants' blood pressures were taken at (T_0), (T_1), (T_2) and (T_3) by the same Registered Nurse at each time point. Participants who could not attend the class and have their blood pressure taken were encouraged to have their blood pressure taken at their physician's office and provide the results to the instructor.

Other Measures

Background information, family and personal history, overall rating and goal setting were other variables that were analyzed for the purpose of future program planning and implementation.

2.6 The Intervention

2.6.1 Rural Community Asset and Challenges Identification

Rural challenges and assets were first identified to guide program planners in the design and implementation of the program using the social determinants of health framework. Solutions that addressed rural health inequalities as well as optimizing rural assets provided program planners with an intervention that can be applied in a rural setting (see Table 1 and Table 2).

Table 1: Rural Health Challenges Identification in Haldimand and Norfolk

Determinants of Health	Challenges in Haldimand and Norfolk and Rural Communities	Solutions in Haldimand and Norfolk	Determinants of Health	Challenges in Haldimand and Norfolk and Rural Communities	Solutions in Haldimand and Norfolk
Income and Social Status	Lower median income compared to Ontario. Higher poverty rate.	Provide a no-cost program.	Physical Environment	Low population density. More distance to travel. No public transportation. Seasonal considerations.	Provide classes where there is high population density and short distance to travel. Offer the program in the spring to match seasonal considerations in H&N. For example, in the winter, driving can be difficult. In rural areas, roads may be unlit and poorly signed, and shoulders may be missing or poor. The program will match the seasonal rhythm of the crops and therefore will be offered in the spring. Provide classes in facilities that are wheelchair accessible.
Social Support Networks	Geographic isolation.	Provide classes across both counties (H&N) to encourage the establishment of social networks. Encourage social networking among participants.			
Education and Literacy	Low education levels.	Provide simple educational materials, resources and information for ease of reading to increase stroke knowledge and promote the adoption of a healthy lifestyle. Encourage participants to ask questions about the topics.			
Employment/Working Conditions	Higher unemployment rates.	Provide a no-cost program.			
Social Environments	Limited social support services.	Provide a novel primary stroke prevention program that is accessible.			

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Determinants of Health	Challenges in Haldimand and Norfolk and Rural Communities	Solutions in Haldimand and Norfolk	Determinants of Health	Challenges in Haldimand and Norfolk and Rural Communities	Solutions in Haldimand and Norfolk
Personal Health Practices	Over 50% of H&N residents are overweight or obese, do not consume the recommended daily allowance of vegetables and fruit and are physically inactive. Higher rates of smoking than urban counterparts.	The scope of the program will be based on the risk factors for stroke, including physical inactivity and lack of sufficient vegetable and fruit consumption. Utilize adult learning principles. Promote home-based exercises and simple monitoring tools to track their progress (e.g., pedometers, food and physical activity logs). Provide additional educational materials for smokers. If there are current smokers in the class, offer an additional class on smoking cessation.	Health Services	Low number of specialists and practitioners. Lack of access to health-care services. Residents travel outside of the counties to obtain services.	Provide a novel and accessible stroke program in both counties and introduce participants to health-care professionals in both counties. To date, there are no primary stroke prevention classes in H&N.
Healthy Child Development	Not applicable.	Not applicable.	Gender	Females have higher rates of stroke.	Provide a program targeting both females and males.
Biology and Genetic Endowment	Higher death rates due to circulatory diseases and diabetes. Stroke is the third leading cause of death in Canada. The rate of stroke is higher in H&N compared to Ontario.	The scope of the program will be based on the risk factors for stroke to decrease morbidity and mortality rates for stroke in H&N.	Culture	Low-German-speaking population. Large senior population.	Consider a subsequent program targeting the Low-German-speaking population. Accommodate the senior population by providing programs in the afternoon, depending on the demographic structure.



Table 2: Rural Asset Identification in Haldimand and Norfolk

Selected Determinants of Health	Asset Identification	Maximize Assets
Social Support Networks	Strong stock of social capital (sense of belonging, inclusion, trust, participation in community life and reciprocity).	<p>Develop a Stroke Advisory Committee and integrate researchers, health professionals, community people, government and other key stakeholders in every phase of the project.</p> <p>Utilize multiple levels of support within the community by inviting various guest speakers to speak to the group about adopting a healthy lifestyle (e.g., local pharmacist, personal trainers, Dietitian, Health Promoters).</p>
Social Environments	Strong social and community response to health issues.	<p>Stroke prevention is considered a priority in Haldimand and Norfolk by community members, public health, hospitals, social service agencies, politicians and other key stakeholders.</p> <p>The Board of Health and the community accepted the program.</p> <p>Utilize multiple levels of support (e.g., researchers, health professionals, community people, government and other key stakeholders).</p>
Physical Environment	<p>Green space, trails and walking clubs.</p> <p>Local farmers' market.</p>	<p>Promote a simple walking program using pedometers as reinforcement.</p> <p>Promote walking trails within the community.</p> <p>Promote local walking clubs.</p> <p>Promote local produce that is easily accessible (e.g., at local farmers' markets, numerous fruit and vegetable stands).</p> <p>Promote local services and programs.</p>
Biology and Genetic Endowment	Reported better quality of life.	Increase awareness that adopting a healthy lifestyle will maintain or improve quality of life and health status.
Health Services	Existing related programs and services in the counties.	<p>Promote existing secondary programs and services in both counties, including:</p> <p>The Haldimand-Norfolk Diabetes Program. The Ontario Stroke System. Heart and Stroke Foundation. Alzheimer's Society. Haldimand-Norfolk Community Senior Support Services Inc. Canadian Cancer Society. Haldimand-Norfolk Health Unit. Haldimand Health and Wellness.</p>

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2.6.2 The Intervention: Step Up to a Healthier You

The *Step Up to a Healthier You* program is a primary stroke prevention program that focuses on education and skill building on topics related to stroke prevention. The *Step Up to a Healthier You* program was developed by the Haldimand-Norfolk Health Unit, working collaboratively with the Stroke Prevention Advisory Committee, based on rural challenges and asset identification in Haldimand and Norfolk.

The committee included stroke survivors, hospital representatives, Health Promoters, Registered Dietitians, pharmacists, non-government organizations and other community agencies. The content of the program was developed in accordance with the 2008 Canadian Best Practices Recommendation for Stroke Care and components of various community chronic disease prevention programs across Ontario, including the *Feel the Power Feel Fit Campaign*, the *Oxford County Public Health Program Blood Pressure Education Program* and *Wellington-Dufferin-Guelph Public Health Program Health Measures Program*.

The program used various teaching, adult experimental methods and experience sharing to promote group interaction and participation and focused on individual education, goal setting and action plans. Adult learning principles were also employed to foster a supportive, collaborative learning environment.

Participants had the opportunity to implement learned skills and the action plan at home and reflect on it before the next class. Personal daily food and physical activity monitor logs, as well as pedometers, were given to participants to track their daily progress. At the beginning of each session, participants were encour-

aged to share their personal experiences and challenges and celebrate their individual accomplishments. Feedback was welcomed for reinforcement and motivation.

Due to the wide geographical area, one class was held in Norfolk and one was held in Haldimand. In Norfolk, the classes were held in Simcoe; in Haldimand, the classes were held in Dunnville. Both classes were held in May. Factors that contributed to the location of the classes included: demographic profiles in each community, past attendance of health promotion programs in the catchment areas, high population density, short distance to travel and no public transportation. These factors were deemed in the selection criteria to be critical factors in participation and attendance rates. The times the classes were offered varied depending on the demographic distribution of the population. For example, since Simcoe has a large working population, the classes were held in the evening, whereas in Dunnville, the classes were held in the afternoon since the town has a predominantly older population. Classes were held after the Haldimand and Norfolk Stroke Prevention Awareness Evening in April 2009. Appendix C provides a detailed description of the program.

2.6.3 Twenty-step procedure used in implementing the project

Procedures for implementing a stroke prevention program in a rural community:

1. Write proposal.
2. Hire Health Promoter Project Lead.
3. Strike a committee of key stakeholders and community members, including stroke survivors, representatives from local hospitals, Health Promoters, Registered Dietitians, pharmacists, non-governmental organizations and other community agencies.
4. Research other stroke prevention initiatives and best practices for rural health and stroke prevention.
5. Conduct an environmental scan of rural health challenges and asset identification.
6. Decide on goals and objectives and develop program.
7. Brainstorm an appropriate name for the program.
8. Decide on a strategy for facilitating the classes, including location, times, dates, topics to be covered and class structure.
9. Develop promotional material for the classes, including a workbook and hand-outs, and decide on accompanying resources.
10. Recruit participants for the program through the newspaper, radio advertisements, poster and flyer distribution and visiting local clubs or groups who have members who may be at higher risk for stroke, including the Haldimand-Norfolk Diabetes Program, Cardiac Club, Haldimand-Norfolk Community Senior Support Services and various walking groups.
11. Prepare a template for the layout of each class.
12. Recruit speakers for the classes: physical activity instructors, speaker on stress management, pharmacist and Dietitian.
13. Decide on the amount of time needed to cover the various topics in the classes.
14. Develop PowerPoint presentations for the classes.
15. Organize/purchase resources for the classes, including pedometers, portion plates, DVDs, Dyna-Bands, prizes and giveaways.
16. Develop evaluations.
17. Set up the rooms in which the classes will take place.
18. Facilitate the classes.
19. Set up one-month and three-month follow-up dates with participants.
20. Write a report and develop recommendations.

2.7 Analysis

The information presented was in the form of descriptive statistics and chi-squares. Yates correction was employed as a conservative test of the null hypothesis. For the qualitative responses, a thematic approach was utilized.



Chapter Three: Results

3.1 Sample

Overall, 48 participants attended the program at (T_0), all of whom consented to be part of the study. Six participants who did not attend at (T_0) were excluded from the study. A higher proportion of participants attended the educational sessions in Simcoe than in Dunnville (60.4%, n=29; and 39.6%, n=19, respectively). A higher proportion of females than males attended the classes (81.3%, n=39; and 18.8%, n=9 respectively). The average age of participants was 65, although the age of participants ranged from 27 to 82. The majority of participants were married (70.2%, n=33), while a lower proportion were widowed (23.4%, n=11). More than half of participants (63.8%, n=30) had a high school education or less (see Figures 1 and 2).

Figure 1: Marital Status

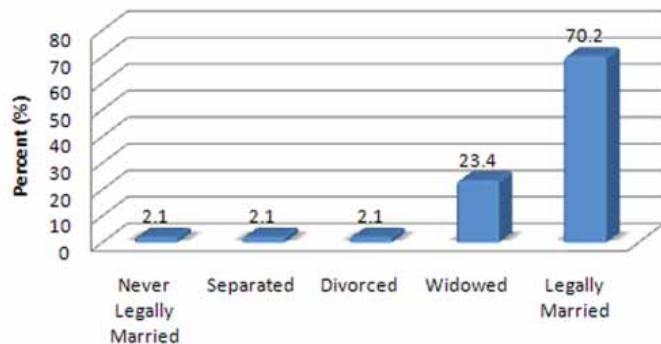
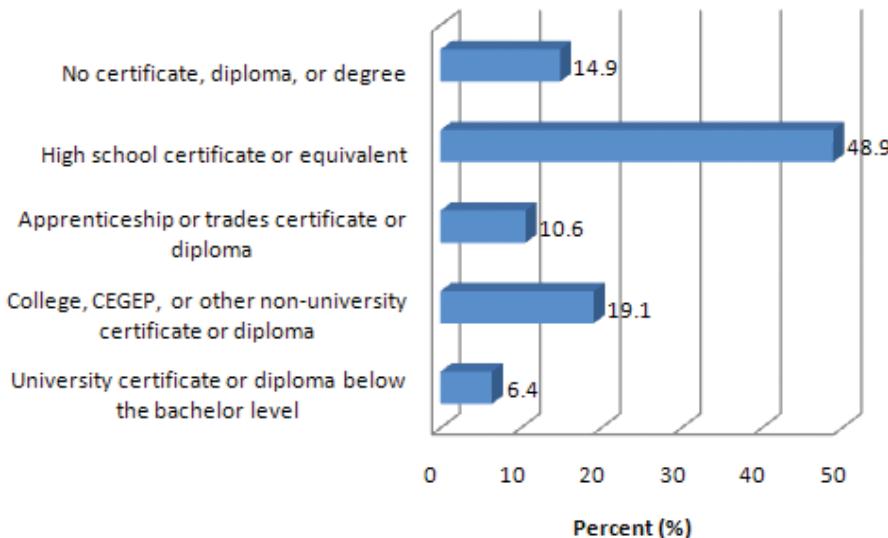


Figure 2: Education Level



As shown in Figure 3, a higher proportion of participants lived in Dunnville (35.4%, n=17), Simcoe (33.3%, n=16) and Waterford (12.5%, n=6). Participants were also asked their current residential status; overall, 72.3% (n=34) lived with family, whereas 27.7% (n=13) lived alone. In addition, more than two-thirds (66.7%, n=32) of participants were retired (see Figure 4).



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Figure 3: Place of Residence

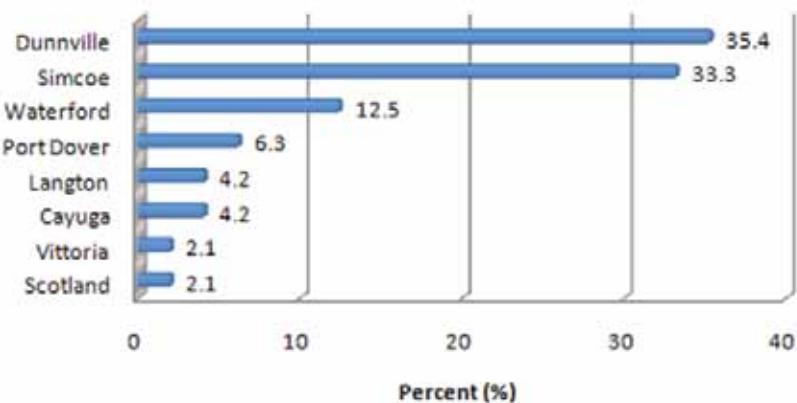
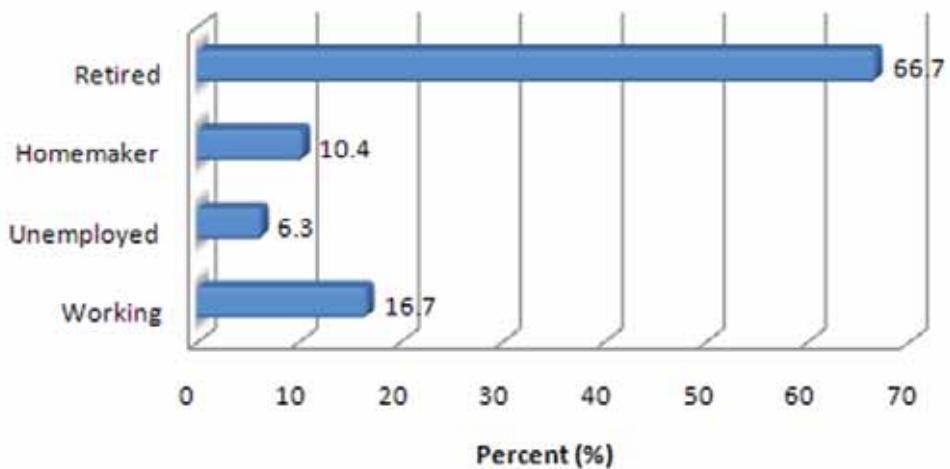


Figure 4: Occupation Status



3.2 Background Information

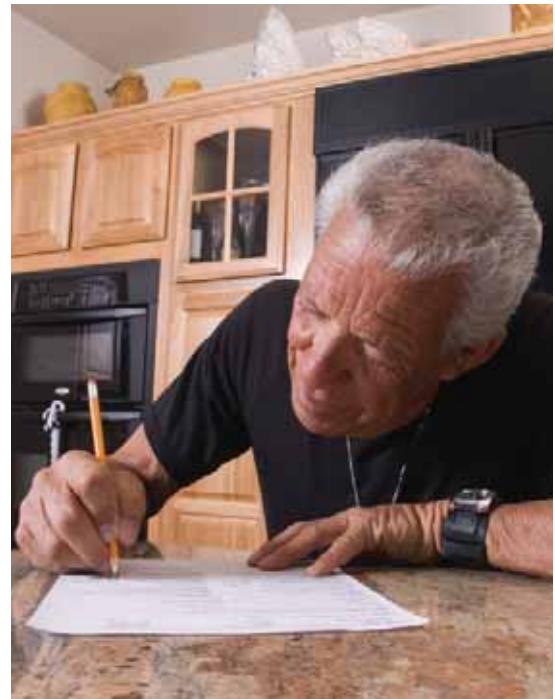
3.2.1 Family Medical History

Participants were asked about their family history of chronic conditions. Overall, over 50% of participants reported that they had a family history of heart disease (69.4%, n=25), diabetes (56.4%, n=22) and high blood pressure (51.2%, n=22) (see Table 3). It is interesting to note that a small percentage reported that they did not know if they had a family history of chronic conditions.

Table 3: Family Medical History

Chronic Condition	Yes	No	Don't Know	Total	Rank
Heart disease	69.4% (n=25)	22.2% (n=8)	8.3% (n=3)	100% (n=36)	1
Diabetes	56.4% (n=22)	35.9% (n=14)	7.7% (n=3)	100% (n=39)	2
High blood pressure	51.2% (n=22)	34.9% (n=15)	14% (n=6)	100% (n=43)	3

Data Notes: Percentages rounded up.



3.2.2 Personal Medical History

Participants were then asked questions about their medical history of chronic conditions. Overall, a high percentage of participants reported that they had high blood cholesterol (45.2%, n=19), took medication for high blood pressure (39%, n=16) and had high blood pressure (38.1%, n=16) (see Table 4). It is interesting to note that a small percentage reported that they did not know if they had a chronic condition. Participants were also asked if they currently smoked; overall, 85.4% (n=41) reported that they did not smoke, while 12.8% (n=6) did.



Table 4: Personal Medical History

Chronic Condition	Yes	No	Don't Know	Total	Rank
High blood cholesterol	45.2% (n=19)	47.6% (n=20)	7.1% (n=3)	100% (n=42)	1
Medication for high blood pressure	39% (n=16)	61% (n=25)	0% (n=0)	100% (n=41)	2
High blood pressure	38.1% (n=16)	54.8% (n=23)	7.1% (n=3)	100% (n=42)	3
Irregular heart beat	30.8% (n=12)	53.8% (n=21)	15.4% (n=6)	100% (n=39)	4
Diabetes	22.2% (n=8)	75% (n=27)	2.8% (n=1)	100% (n=36)	5
Heart disease	11.4% (n=4)	82.9% (n=29)	5.7% (n=2)	100% (n=35)	6

Data Notes: Percentages rounded up.



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3.2.3 Found Out About Program

Participants were asked if they attended the Haldimand and Norfolk Stroke Prevention Awareness Evening in April. Overall, half of the participants who participated in the program had attended the evening event (50%, n=24). Participants were also asked how they read or heard about the program. A higher proportion of participants found out about the program from the newspaper (29.2%, n=14); the Stroke Prevention Awareness Evening in April (25%, n=12); print materials (20.8%, n=10) or from a friend, family member or colleague (20.8%, n=10) (see Figure 5).



Dr. Timothy Bard

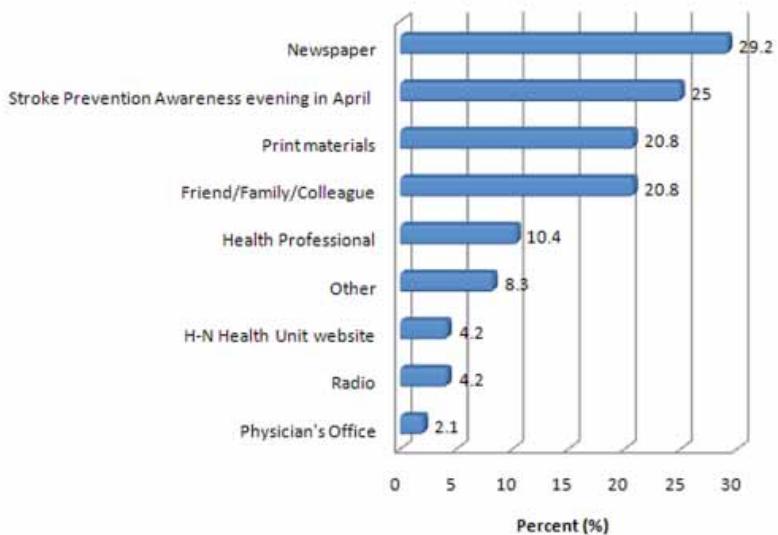
3.2.4 Reasons Attended Program

Participants were also asked the reasons why they attended the program. Overall, a higher proportion of participants attended the program to learn to eat well (72.3%, n=34), to become more physically active (59.6%, n=28), to achieve or maintain a healthy body weight (57.4%, n=27) and to identify the warning signs of stroke (55.3%, n=26) (see Figure 6). Other reasons reported were to learn how to lower blood sugar and to refresh their knowledge of stroke.



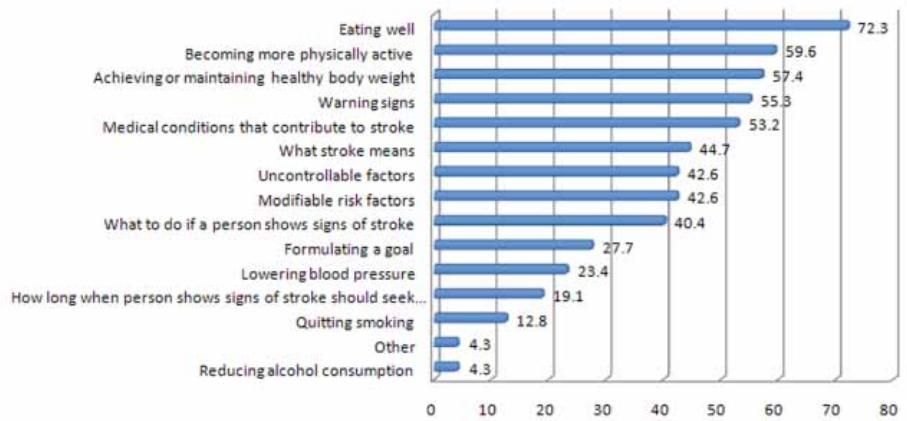
Jill Steen, Walter Gretzky, Anna Gowala

Figure 5: Found Out About the Program



Data Note: Percentages do not add up to 100%.

Figure 6: Reasons for Attending the Program



Data Note: Percentages do not add up to 100%.



Michele Crowley



Table 5: Met Expectations

3.2.5 Met Expectations

At (T_1), participants were asked if they learned more about the various topics listed below after attending the program. Of the main reasons participants attended the sessions - to learn to eat well, become more physically active, achieve or maintain a healthy body weight and identify the warning signs of stroke - over 80% of respondents reported that they learned more about these topics, with the exception of achieving or maintaining a healthy body weight (see Table 5). This may be attributed to the lack of focus on body weight. Participants also reported that after attending the program, they learned about food labels ($n=1$), portion control ($n=1$), medications ($n=1$) and lowering cholesterol ($n=2$).

	Reported Initial Reasons for Attending the Program (T_0) (n)	Met Expectations (T_1) (n)	Met Expectations (T_1) (%)
Eating well	29	26	89.7%
Becoming more physically active	24	21	87.5%
Achieving or maintaining a healthy body weight	22	15	68.2%
Identifying the warning signs of stroke	22	18	81.8%
Medical conditions that contribute to stroke	20	18	90%
Major modifiable risk factors for stroke	18	16	88.9%
What the word stroke means	17	15	88.2%
What to do if a person shows signs of stroke	17	14	82.4%
Uncontrollable factors that contribute to stroke	16	10	62.5%
Formulating a goal	12	12	100%
Lowering high blood pressure	11	6	54.5%
How long a person should consult with a physician after showing signs of stroke	7	7	100%
Stopping smoking	5	2	40%
Reducing alcohol consumption	2	1	50%



CHAPTER THREE

RESULTS

3.3 Stroke Knowledge

A stroke knowledge score was computed as the sum of correct responses to the knowledge items. Each correct response was assigned a score of one; some questions have more than one correct response. The total maximum score was 22.



Table 6: Difference of Participants' Stroke Knowledge at (T_0) and (T_1)

	Pre-Test (T_0)		Post-Test (T_1)		Differ-ence (%)	Significant Difference Between (T_0) and (T_1)
	Correct Responses (N)	Correct Percentages	Correct Responses (N)	Correct Percentages		
QUESTIONS						
1. What does stroke mean to you?						
Blocked or burst arteries in the brain	11	27.5%	21	52.5%	+10 (25%)	Yes χ^2_h , (1, N=40) = 8.976, $p= .003$
2. Where does stroke occur?						
Brain	29	72.5%	34	85%	+5 (12.5%)	No
3. What are the first warning signs of stroke?						
Dizziness	19	47.5%	33	82.5%	+14 (38%)	Yes χ^2_h , (1, N=40) = 7.677, $p= .006$
Vision problems	18	45%	28	70%	+10 (25%)	No
Severe headaches	13	32.5%	22	55%	+9 (22.5%)	No
Numbness/weakness	18	45%	24	60%	+6 (15%)	No
Slurred speech	21	52.5%	25	62.5%	+4 (10%)	No



3.3.1 Difference of Participants' Stroke Knowledge at (T_0) and (T_1)

Of the 40 participants who completed (T_0) and (T_1) for stroke knowledge, it was found that stroke knowledge increased among participants, with the exception of poor nutrition as a modifiable risk factor for stroke, diabetes as a medical condition that contributes to stroke and immediately seeking treatment when he or she shows signs of stroke. While the identification of poor nutrition as a modifiable risk factor remained the same, the correct responses "diabetes" and "immediately seeking treatment" decreased at (T_1). For diabetes, this may be attributed to the lack of discussion about diabetes and stroke. Moreover, it is plausible that the decrease in the correct response "seeking immediate treatment" may be attributed to the fact that participants provided more descriptive answers to the question, "How long after a person shows signs of stroke should he/she seek treatment?", but did not explicitly state that the person should seek help immediately. Of the 22 responses, there were only significant differences found between the pre-test scores and the post-test scores for three responses: "blocked or burst arteries in the brain" (χ^2_h , (1, N=40) = 8.976, $p= .003$), "dizziness" (χ^2_h , (1, N=40) = 7.677, $p= .006$) and "lack of physical activity" (χ^2_h , (1, N=40) = 8.087, $p= .004$) (see Table 6). Table 7 illustrates that the total score, mean, range, medium and mode increased at (T_1).



	Pre-Test (T_0)		Post-Test (T_1)		Differ- ence (%)	Significant Difference Between (T_0) and (T_1)
	Correct Respon- ses (N)	Correct Per- cent- ages	Correct Re- sponses (N)	Correct Percent- ages		
4. What lifestyle behaviours contribute to stroke?						
Alcohol consump- tion	9	22.5%	15	37.5%	+6 (15%)	No
Lack of physical activity	16	40%	19	47.5%	+3 (7.5%)	Yes χ^2_h , (1, N=40) = 8.087, $p= .004$
Sodium intake	1	2.5%	3	7.5%	+2 (5%)	No
Smoking	21	52.5%	23	57.5%	+2 (5%)	No
Poor nutrition	21	52.5%	21	52.5%	Same	No
5. What medical conditions contribute to stroke?						
High blood cholesterol	7	17.5%	18	45%	+11 (27.5%)	No
High blood pressure	22	55%	28	70%	+6 (15%)	No
Heart disease	8	20%	10	25%	+2 (5%)	No
Diabetes	29	72.5%	26	65%	-3 (7.5%)	No
6. What uncontrollable factors increase risk of stroke?						
Having a family history of stroke	18	45%	35	87.5%	+17 (42.5%)	No
Age (55 and older)	9	22.5%	24	60%	+15 (37.5%)	No
Ethnicity (being African American)	0	0%	14	35%	+14 (35%)	No
7. How long after a person shows signs of stroke should he/she seek treatment?						
Immediately	35	87.5%	30	75%	-5(12.5%)	No
8. What is the reason for the response above?						
Effective treatment occurs within three Hours	0	0%	6	15%	+6 (15%)	No
9. If you observe someone having a stroke or showing signs of stroke, what would you do first?						
Call 911	32	80%	39	97.5%	+7 (17.5%)	No



CHAPTER THREE RESULTS

Table 7: Sum of Participants Stroke Knowledge Scores (T_0) and (T_1)

	(T_0)	(T_1)
Total Scores	339	498
Mean	8 (38.5%)	12 (56.6%)
Minimum	1 (4.5%)	2 (9.1%)
Maximum	14 (63.6%)	22 (100%)
Medium	9 (41%)	13 (59.1%)
Mode	7.0 (31.8%)	13 (59.1%)

Data Notes: Mean scores rounded up. Total possible scores (22*40=880)

3.3.2 Stroke Knowledge Post Test (T_1) Scores

As shown in Table 8, the post-test scores demonstrated that a higher percentage of participants were more knowledgeable about the importance of calling 911 if they observe someone having a stroke, that stroke occurs in the brain and to seek help immediately if someone is showing signs of stroke. Participants were less knowledgeable that effective treatment for stroke occurs within three hours of a stroke, lifestyle behaviours that contribute to stroke, particularly sodium intake and the medical conditions that contribute to stroke, namely heart disease. This information can assist program planners in the future.



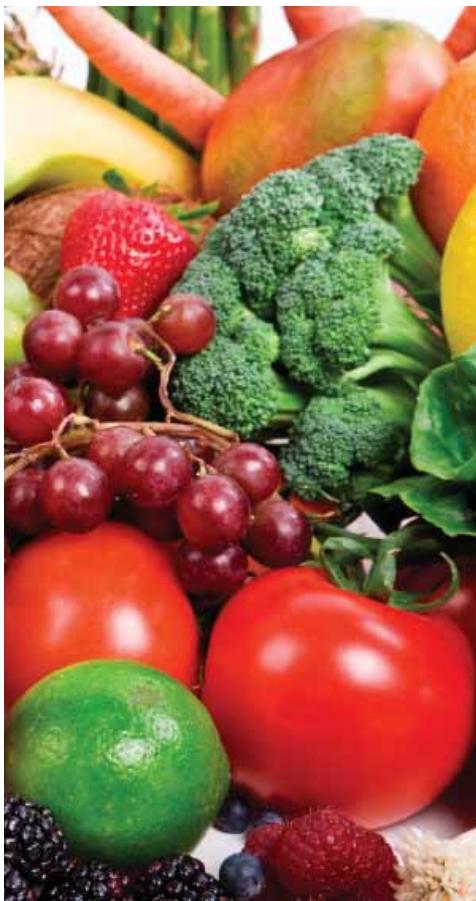
Table 8 : Ranked Stroke Knowledge Post-Test Scores (T_1)

	Correct Responses (n) (T_1)	Correct Percentages (%) (T_1)	Rank
QUESTIONS			
1. What does stroke mean to you?			
Blocked or burst arteries in the brain	21	52.5%	6
2. Where does stroke occur?			
Brain	34	85%	2
3. What are the first warning signs of stroke?			
Dizziness	33	85.5%	
Vision problems	28	70%	
Slurred speech	25	62.5%	
Numbness/weakness	24	60%	
Severe headaches	22	55%	
Total Score / Percentage	132	66%	4
4. What lifestyle behaviours contribute to stroke?			
Smoking	23	57.5%	
Poor nutrition	21	52.5%	
Lack of physical activity	19	47.5%	
Alcohol consumption	15	37.5%	
Sodium intake	3	7.5%	
Total Score / Percentage	81	40.5%	8
5. What medical conditions contribute to stroke?			
High blood pressure	28	70%	
Diabetes	26	65%	
High blood cholesterol	18	45%	
Heart disease	10	25%	
Total Score / Percentage	82	51.3%	7
6. What uncontrollable factors increase risk of Stroke?			
Having a family history of stroke	35	87.5%	
Age (55 and older)	24	60%	
Ethnicity (being African American)	14	35%	
Total Score / Percentage	73	60.8%	5
7. How long after a person shows signs of stroke should he/she seek treatment?			
Immediately	30	75%	3
8. What is the reason for the response above?			
Effective treatment occurs within three hours	6	15%	9
9. If you observe someone having a stroke or showing signs of stroke, what would you do first?			
Call 911	39	97.5%	1

Data Notes: Responses are ranked based on total scores. Total scores and total percentages are based on summative scores for each question



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3.4 Vegetables and Fruit Consumption

Of the 35 participants who completed the vegetables and fruit module at all four points, Figure 7 shows that the number of participants who consumed seven or more servings of vegetables and fruit increased from (T₀) to (T₃). Three months after the intervention, 60% (n=21) of participants reported consuming the recommended daily amount of vegetables compared to 42.9% (n=15) at baseline. Significant differences between the consumption of vegetables and fruit between (T₀) to (T₁) ($\chi^2_{\text{h}}, (1, N=35) = 15.125, p=.000$) (see Table 9). It is important to note that at baseline (T₀), participants were asked to report their fruit and vegetable fruit consumption for the previous day, whereas participants were asked to record their vegetable and fruit consumption for the previous week for each time point (T₁) to (T₃). Moreover, the validity of responses may have been compromised due to the increase in knowledge about serving sizes at each time point.

Figure 7: Mean Consumption of Vegetables and Fruit =>7

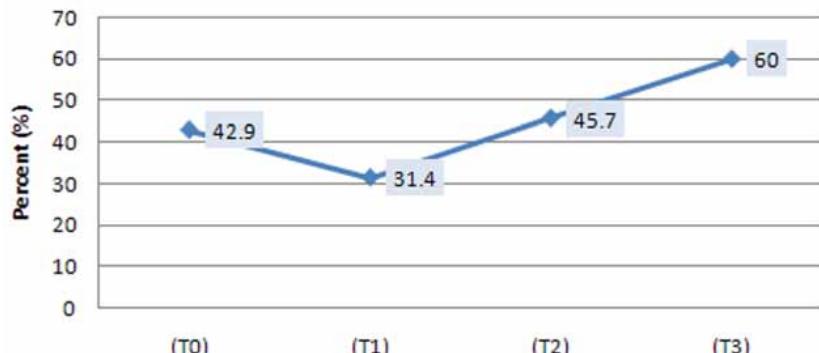


Table 9: Difference of Mean Daily Intake of Fruit and Vegetables (T₀) - (T₃)

	(T ₀) (n=35)	(T ₁) (n=35)	Difference Between (T ₀) and (T ₁) (n=35)	Significant Difference Between (T ₀) and (T ₁)	(T ₂) (n=35)	Difference Between (T ₁) and (T ₂) (n=35)	Significant Difference Between (T ₁) and (T ₂)	(T ₃) (n=35)	Difference Between (T ₂) and (T ₃) (n=35)	Significant Difference Between (T ₂) and (T ₃)
Mean daily consumption of vegetables and fruit >=7	*42.9% (n=15)	31.4% (n=11)	-11.5% (n=-4)	$\chi^2_{\text{h}}, (1, N=35) = 15.125, p=.000$	45.7% (n=16)	+14.3% (n=+5)	NS	60% (n=21)	+14.3% (n=+5)	NS
Mean daily consumption of vegetables and fruit <7	*57.1% (n=20)	68.6% (n=24)	+11.5% (n=+4)	$\chi^2_{\text{h}}, (1, N=35) = 15.125, p=.000$	54.3% (n=19)	-14.3% (n=-5)	NS	40% (n=14)	-14.3% (n=-5)	NS
Total	100% (n=35)	100% (n=35)			100% (n=35)			100% (n=35)		

Data Notes: *Based on previous day. NS: Not Statistically Significant. Other scores are average scores for the previous week.

3.5 Physical Activity

Of the 35 participants who completed the physical activity module for all four points, as shown in Figure 8, from (T_0) to (T_3), the proportion of participants who achieved 150 minutes of physical activity successively increased and plateaued at (T_3). From baseline (T_0) to (T_3), the proportion of participants who achieved 150 minutes of physical activity increased from 54.3% (n=19) to 85.7% (n=30), a reported difference of 31.4%. As shown in Table 10, there were no statistically significant differences between each time point. It is interesting to note that walking, followed by gardening, was the most popular type of physical activity.



Figure 8: Achieved 150 Minutes of Physical Activity/Week

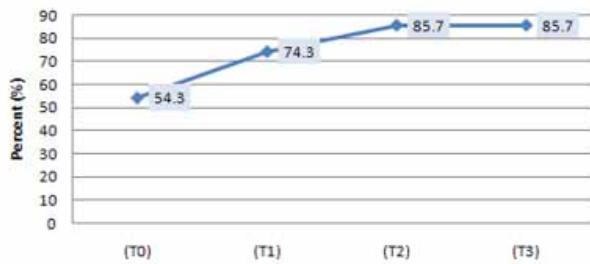


Table 10: Difference of Achieving 150 Minutes or More of Weekly Physical Activity (T_0) - (T_3)

	(T_0) (n=35)	(T_1) (n=35)	Difference Between (T_0) and (T_1) (n=35)	Significant Difference Between (T_0) and (T_1)	(T_2) (n=35)	Difference Between (T_1) and (T_2) (n=35)	Significant Difference Between (T_1) and (T_2)	(T_3) (n=35)	Difference Between (T_2) and (T_3) (n=35)	Significant Difference Between (T_2) and (T_3)
Weekly Physi- cal Activity =>150	54.3% (n=19)	74.3% (n=26)	+20% (n=+7)	NS	85.7% (n=30)	+11.4% (n=+4)	NS	85.7% (n=30)	0% (n=0)	NC
Weekly Physi- cal Activity <150	45.7% (n=16)	25.7% (n=9)	-20% (n=-7)	NS	14.3% (n=5)	-11.4% (n=-4)	NS	14.3% (n=5)	0% (n=0)	NC
Total	100% (n=35)	100% (n=35)			100% (n=35)			100% (n=35)		

Data Notes: NS=Not Statistically Significant. NC=Not able to Compute.

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3.6 Blood Pressure

Of the 28 participants who had their blood pressure taken all four points, as shown in Figure 9, the proportion of participants who achieved a blood pressure of less than 140 mm Hg/90 mm Hg successively increased at each time point from (T_1) to (T_3). However, the proportion of participants who achieved a blood pressure of less than 140 mm Hg/90 mm Hg at (T_3) was the same as baseline (T_0). This could be attributed to several factors that may have decreased the reliability in the measurements specifically, participants' blood pressure was not taken at similar times every day, and some were taken after the participants engaged in physical activity, mainly walking. Therefore, the reliability of the data may have been compromised. There were no significant differences found in blood pressure (< 140 mm Hg/90 mm Hg) at each time point (see Table 11).

Figure 9: Blood Pressure < 140 mm Hg/90 mm Hg

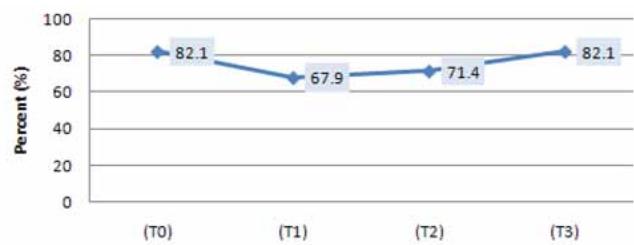


Table 11: Difference of Blood Pressure < 140 mm Hg/90 mm Hg (T_0) - (T_3)

	(T_0) (n=28)	(T_1) (n=28)	Difference Between (T_0) and (T_1) (n=28)	Significant Difference Between (T_0) and (T_1)	(T_2) (n=28)	Difference Between (T_1) and (T_2) (n=28)	Significant Difference Between (T_1) and (T_2)	(T_3) (n=28)	Difference Between (T_2) and (T_3) (n=28)	Significant Difference Between (T_2) and (T_3)
< 140 mm Hg/90 mm Hg	82.1% (n=23)	67.9% (n=19)	-14.2% (n=-4)	NS	71.4% (n=20)	+3.5% (n=+1)	NS	82.1% (n=23)	+10.7% (n=+3)	NS
> 140 mm Hg/90 mm Hg<150	17.9% (n=5)	32.1% (n=9)	+14.2% (n=+4)	NS	28.6% (n=8)	-3.5% (n=-1)	NS	17.9% (n=5)	-10.7% (n=-3)	NS
Total	100% (n=28)	100% (n=28)			100% (n=28)			100% (n=28)		

Data Notes: *Based on previous day. NS: Not Statistically Significant.

3.7 Overall Rating

Participants were asked to rate various aspects of the program. Overall, participants reported positively on all aspects of the program, including location, time of sessions, date of sessions, topics and length of sessions (See Figures 10 to 14). The main theme that emerged from the comments was that the program was very informative and helpful (n= 13).



Theme 1: Very Informative and Helpful (n=13)

"Found the 4 weeks interesting and informative and will read more labels when shopping."

"I found the sessions to be very thorough and very basis-enough so-for everyone to grasp and retain the knowledge provided."

"Variety was helpful i.e. pharmacist."

"The take-home material be a valuable resource to review from time to time."

"Was very good info."

"Well presented by knowledgeable people."

*"Enjoy would come back again to upgrade myself."
"Very informative and helpful."*

"Thank you for all your hard work, location was great, topics, information, everyone."

"It increased my knowledge of stroke."

"Very good."

"Enjoyed the sessions and hope that I can reduce my or my family and friends chances of a stroke."

"I thought the classes were well done."



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Figure 10: Location

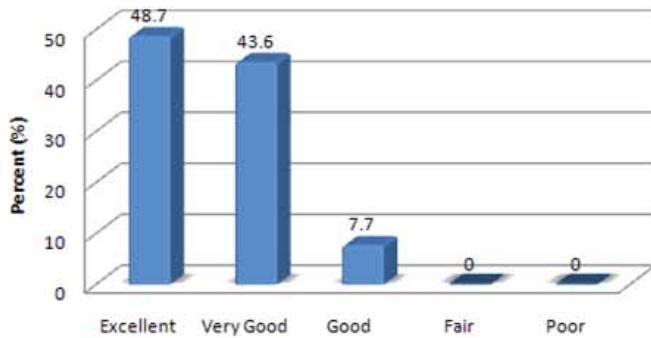


Figure 13: Topics

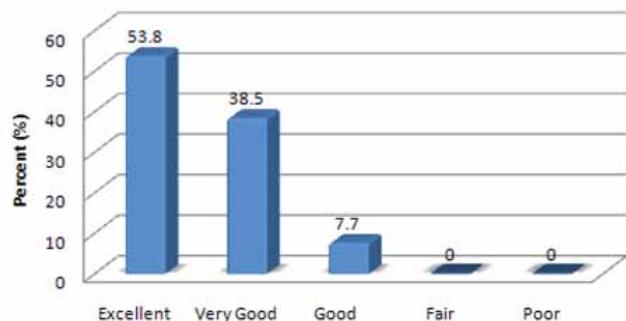


Figure 11: Time of Sessions

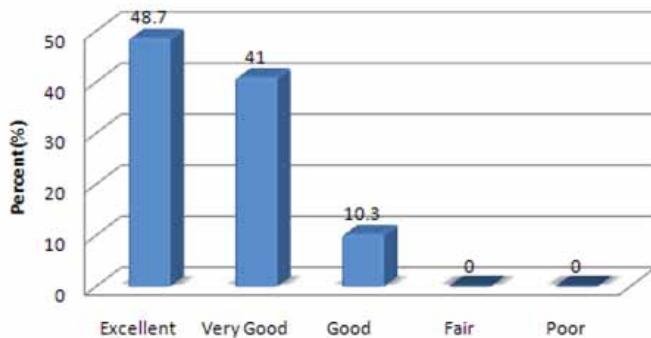
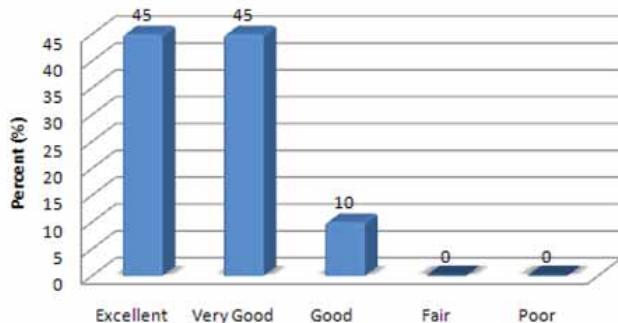


Figure 14: Length of Sessions



Figure 12: Date of Sessions



Participants were also asked to rate the educational sessions. Overall, 100% ($n=48$) rated the program as either excellent, very good or good, and 97.4% ($n=38$) reported that they would recommend the program to others (see Figure 15 and Figure 16).

Figure 15: Overall Rating

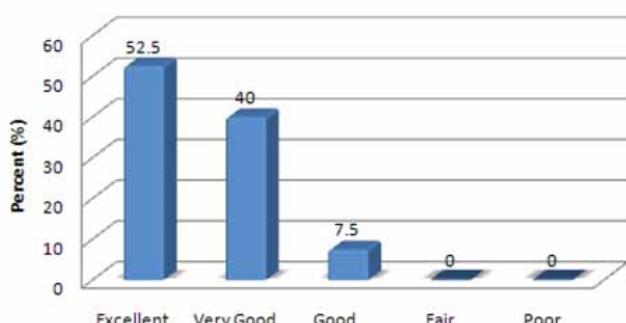
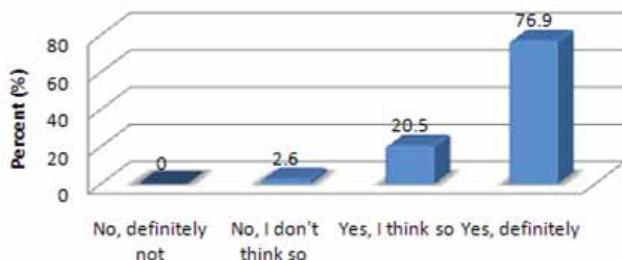


Figure 16: Recommend Program

3.7.1 Most Liked

Participants were also asked what they liked about the program. Participants reported that they most liked the physical activity component ($n=10$), the information ($n= 9$), everything ($n= 7$), the nutrition component ($n= 6$), the heart and stroke education ($n= 5$), the instructors ($n= 3$), the pharmacist's presentation ($n= 3$), the session topics ($n= 3$), the free gifts ($n= 2$), that the program was interactive ($n= 2$) and the presentations overall ($n=2$) (see Appendix D).

3.7.2 Least Liked

Participants were also asked what they least liked about the program. Participants reported that they enjoyed everything ($n=7$). Other comments were: "not enough for the younger group," "I don't think you needed to gift us with water bottles etc., your program was good enough," "knowing what to eat and how much to exercise," "sitting too long" and "evaluations."

3.7.3 Program Suggestions

Participants were also asked what we can do differently. Participants reported that they would not change a thing. Other comments were:

- "Discuss diabetes, celiac and dialysis,"
- "Going into public schools/high schools,"
- "Have sessions for the younger people if there is enough interest,"
- "Tracking food servings should correspond to the chart in this booklet; although I believe the 'tracking food guide servings' is more complete,"
- "Keep running the program,"
- "Show the page on the screen

your talking about i.e. pg 7 in our workbook,"

- "Too much info in each class, should be put into more weeks. Some info rushed to quickly can't concentrate on all of it,"
- "Not to have the personal trainer, she is nice lady but I felt I was not physically fit in what I am doing with walking and line dancing,"
- "chairs too crowded" and
- "exercise-limited because of knee problems and arthritis in the neck."

3.8 Long-Term Goals

From (T_1) to (T_3), participants were asked to define their long-term goals (see Appendix E). Data from (T_3) were analyzed at the completion of the program. The question to define their long-term goals was included at (T_1) and (T_2) to remind participants of their long-term goals and to encourage successful completion of their goals.

The following goals were reported:

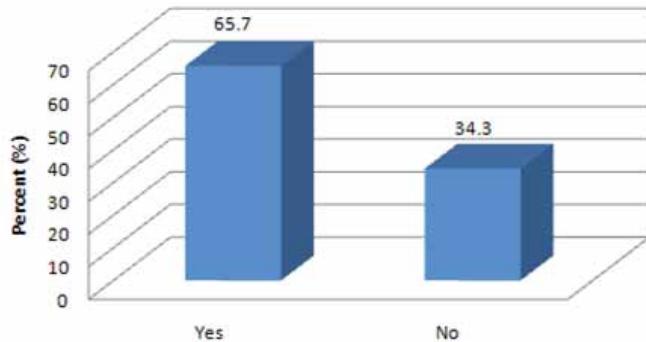
- Increase physical activity, mainly walking ($n=18$).
- Eat healthier, particularly by consuming more vegetables and fruit ($n=18$).
- Lose weight ($n= 15$).
- Reduce stress ($n= 3$).
- Stay healthy ($n= 2$).

Participants were also asked if they achieved their long-term goals. Overall, more than half of participants (65.7%, $n=23$) reported that they achieved their long-term goal, while 34.3% ($n=12$) did not (see Figure 17). It is important to note that the responses were based on self-reported data rather than measurable outcomes.



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Figure 17: Achieved Long-Term Goal



Participants were also asked what they did to help them achieve their goals (see Appendix F). The following themes emerged:

- Eating healthy and being physically active (n=9).
- Being physically active (n= 4).
- Eating healthier (n=3).
- The classes (n=3).

Participants were asked to identify the barriers that prohibited them from achieving their goals (see Appendix G). The following themes emerged:

- Chronic conditions/functional limitations (n=4).
- Choose to eat unhealthy (n=3).
- Lack of motivation (n=3).
- Lack of planning (n=3).
- Lack of time (n=2).



Chapter Four: Summary and Limitations

Sample

- Higher proportion attended the educational sessions in Simcoe (60.4%) than Dunnville (39.6%).
- More females than males attended the classes (81.3% and 18.8% respectively).
- Average age was 65 (27 to 82 years of age).
- High proportion were married (70.2%).
- More than half of participants (63.8%) had a high school education or less.
- Participants mainly lived in Dunnville (35.4%) and Simcoe (33.3%).
- Over two-thirds of participants were retired (66.7%).
- Over 50% reported a family history of heart disease, diabetes and high blood pressure.
- High proportion reported that they had high blood cholesterol (45.2%).

Background Information

- Participants mainly found out about the program from the newspaper (29.2%).
- The reasons they attended the program was to learn how to eat well (72.3%), to become more physically active (59.6%), to achieve or maintain a healthy body weight (57.4%) and to identify the warning signs of stroke (55.3%).
- Over 80% of respondents reported that they learned more about how to eat well, become more physically active and identify the warning signs of stroke.

Stroke Knowledge

- Stroke knowledge increased among participants, with the exception of poor nutrition as a modifiable risk factor for stroke, identifying that diabetes is a medical condition that contributes to stroke and the importance of seeking help immediately if you observe someone having a stroke or showing signs of stroke.
- Significant differences were found between the pre-test scores and the post-test scores for three responses: “blocked or burst arteries in the brain,” “dizziness” and “lack of physical activity.”
- The total and mean knowledge scores increased between baseline and the post-test.

Post-Test Scores

- Post-test scores demonstrated that a higher percentage of participants were more knowledgeable about the importance of calling 911 if they observe someone having a stroke, that stroke occurs in the brain and to seek help immediately if someone is showing signs of stroke.
- Participants were less knowledgeable that effective treatment for stroke occurs within three hours of a stroke, the lifestyle behaviours that contribute to stroke, particularly sodium intake and the medical conditions that contribute to stroke, namely heart disease.



CHAPTER FOUR

SUMMARY AND LIMITATIONS



Vegetables and Fruit Consumption

- The number of participants who consumed seven or more servings of vegetables increased from (T_1) to (T_3).
- Three months after the intervention, more than half of participants (60%, n=21) reported consuming the recommended daily allowance of vegetables compared to 42.9% (n=15) at baseline.
- Significant differences between vegetables and fruit consumption were found between (T_0) and (T_1).

Physical Activity

- Physical activity increased and plateaued at (T_3).
- From baseline, the proportion of participants who achieved 150 minutes of physical activity increased from 54.3% to 85.7%, a 31.4% increase.
- No significant differences were found at each time point.
- Walking and gardening were the most popular types of physical activity.

Blood Pressure

- More than 2/3 of participants achieved a blood pressure of less than 140 mm Hg/90 mm Hg at each time point from (T_0) to (T_3).
- The proportion of participants who achieved a blood pressure of less than 140 mm Hg/90 mm Hg at (T_0) was the same at baseline (T_0). This could be attributed to several confounders.
- No significant differences were found for blood pressure at each time point.

Overall Rating

- Participants positively rated the location, time of sessions, date of sessions, topics and length of sessions.
- All participants rated the program as either excellent, very good or good.
- The program was very helpful and informative.
- Most liked the physical activity component, the information and everything.
- A high number of participants reported that they would not change a thing about the program.

Long-term Goals

- Participants' long-term goals were to increase physical activity, mainly walking; eat healthier (more vegetables and fruit); lose weight; reduce stress and stay healthy.
- Over 60% of participants reported that they achieved their long-term goal.
- Eating healthy, being physically active and eating healthier were three ways participants achieved their long-term goals, as well as attending the classes.
- Some of the barriers that prevented participants from achieving their long-term goals were chronic conditions and functional limitations, their choice to eat unhealthy, lack of motivation, lack of planning and lack of time.

Table 12: Summary Table for Program Planners

Effective	Not Effective
Improving the participants' knowledge about stroke and how to adopt a healthy lifestyle for stroke prevention.	Maintaining or improving blood pressure.
The behavioural changes in the area of nutrition, specifically the consumption of vegetables and fruit, and physical activity.	
Participants positively rated all aspects of the program, including the location, time of sessions, date of sessions, topics and length of sessions.	

4.2 Limitations

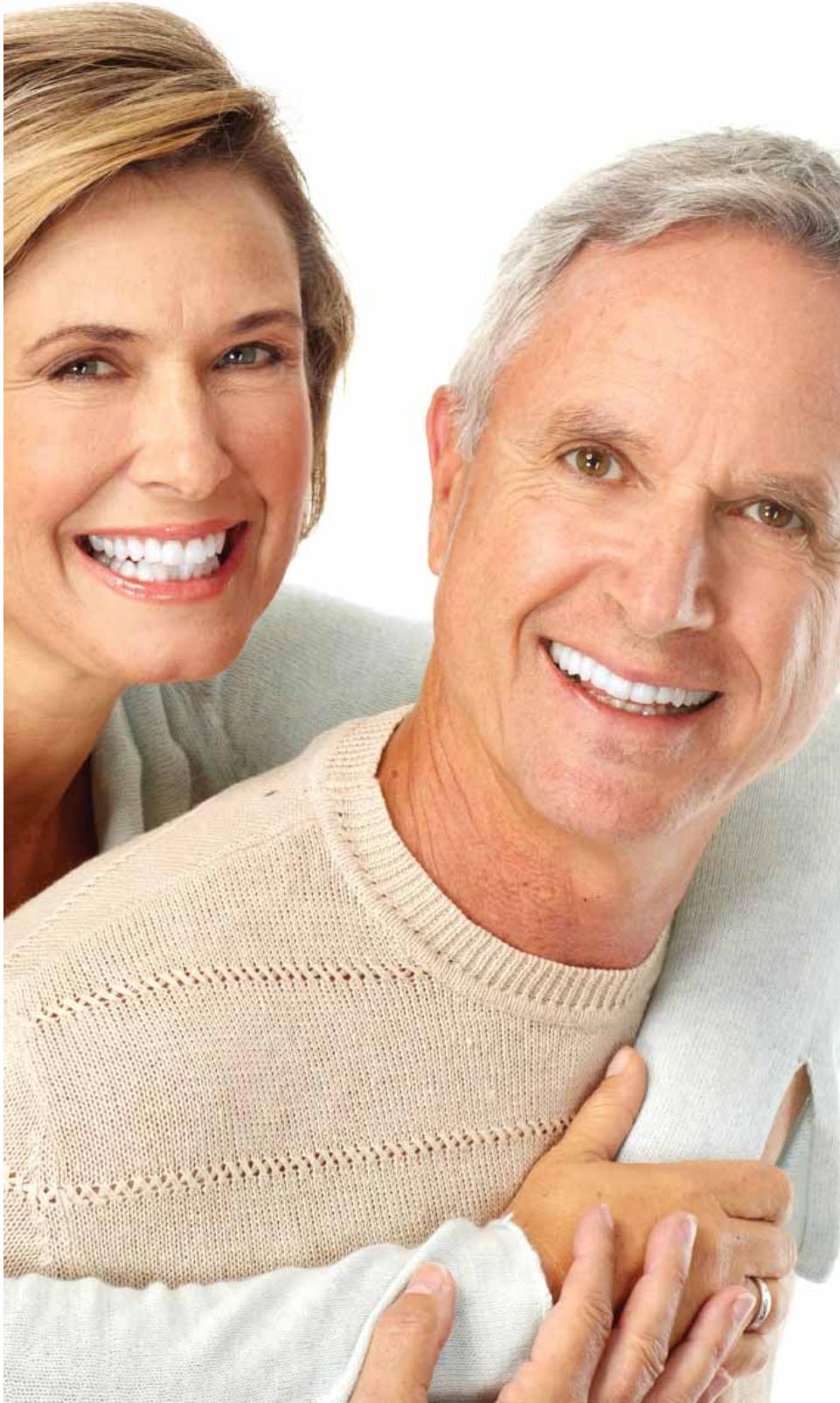
Despite the utilization of several standardized instruments, some of the questions on the questionnaire were ambiguous and unclear. Specifically, the question “What does stroke mean to you?” was unclear and could negatively influence the validity and reliability of the responses. For example, some of the responses reflected personal experience like “my mother had a stroke,” while other responses provided a definition of the word “stroke.” Moreover, for stroke knowledge, the question “What causes stroke?” was not simple and free from ambiguity and therefore was excluded from the analysis.

For the vegetables and fruit consumption module, when answering the self-administered questionnaire at baseline, participants were less likely to be familiar with serving and portion sizes. Although some of the definitions and portion sizes were provided on the questionnaire, participants were more likely to have a better understanding of portion sizes after each time point. This could have negatively affected accuracy of reporting. Moreover, there were two different questionnaire administered. One questionnaire at baseline measured how many servings of vegetables and fruit the participants consumed the previous day, while the other questionnaire at (T_1), (T_2) and (T_3) measured the consumption of vegetables and fruit the previous week. One explanation for this is that upon arrival at the program, participants were not asked to monitor their consumption of vegetables and fruit the previous week, whereas the participants were given a food diary to record their intake the following weeks. Consequently, the accuracy of the responses may be inconsistent. Also, depending on their level of knowledge regarding portion sizes, the responses could have been underestimated or overestimated. If participants varied in their knowledge of portion sizes, then they could have omitted some portions or considered one serving as a portion. In addition, the question, “Do you plan to consume seven servings of vegetables and fruit daily” was not analyzed. The participants reported that the question was unclear and therefore not useable.

For the physical activity module, although the questionnaire specifically stated to report on the time spent on each activity, some participants provided a check mark rather than quantifying the amount of time spent on the activity. Therefore, the amount of time spent was coded as missing data and was excluded from the analysis. Therefore, the



■ CHAPTER FOUR SUMMARY AND LIMITATIONS



precision of the data may have been compromised. Also, the question “Have you done any activities in the past week?” was not specific and clearly defined. The definition of activity was not provided to participants as “activity done outside of work or school.” Therefore, the question was elusive and subject to interpretation by the participant. Once observed, the researchers defined the term activity as activity done outside of work or school before each time point. Moreover, functional limitations that may prevent participants from engaging in physical activity were not explored. Also, since the study was done in the spring, favourable seasonal weather could have attributed to the higher levels of physical activity than in the winter.

For the blood pressure module, other confounders may have decreased the reliability in the measurements. Specifically, participants’ blood pressure was not taken at similar times every day, and some were taken after the participants engaged in physical activity, mainly walking. Other confounders may have included caffeine consumption and smoking. Therefore, the reliability of the data may have been compromised.

In addition, it has been established that self-reported questionnaires are subject to several measurement errors and biases. Participants may improve an aspect of their behaviour in the short term, like consuming more vegetables and fruit and being more physically active, because they are being studied. Also, participants may not accurately report their behaviour, so the information could be misreported, which usually deviates toward overestimating their level of activity and consumption of vegetables and fruit. In addition, forgetfulness is another subject error that can decrease the accuracy and precision of the findings. Lastly, since there was no control group in the study, outcomes may be attributed to several confounding factors.

Chapter Five: Discussion and Recommendations



5.1 Discussion

This study demonstrated that the implementation of a stroke prevention program in a rural community was effective in improving the participants' knowledge about stroke and the behavioural changes (e.g., the consumption of vegetables and fruit and the increase of physical activity) that are required when adopting a healthy lifestyle for stroke prevention. Participants positively rated all aspects of the program including the location, time of sessions, date of sessions, topics and length of sessions. Participants also reported that the program met their expectations and they would recommend the program to others. Although the number of participants who had blood pressure of less than 140 mm Hg/90mm Hg was shown to increase at each successive time point, the proportion of participants who achieved a blood pressure of less than 140 mm Hg/90mm Hg at (T_3) was the same at (T_1). This could be attributed to several factors that may have decreased the reliability of the measurements. Specifically, participants' blood pressure was not taken at similar times every day, and some were taken after the participants engaged in physical activity, mainly walking. Other confounders may have included caffeine consumption and smoking. Therefore, the reliability of the data may have been compromised.

The study has several implications for stroke education in a rural community. First, it is important to foster community collaboration and integrate researchers, health professionals, community people, government and other key stakeholders in every phase of the stroke project in order to promote community acceptance and ownership.

Second, challenges and asset identification associated with living in a rural community should be considered in developing effective stroke education programs in a rural setting, using the social determinants of health framework. According to Smith, Humphreys, & Wilson (2008), programs to improve rural health are more effective when they are related to health determinants. For example, due to the wide geographical area, classes were evenly distributed across both counties. Factors that contributed to the location included: demographic profiles in each community, past attendance at health promotion programs in the catchment areas, high population density and shorter distance to travel because there is no public transportation. Moreover, the time of the year the program was offered matched the seasonal consideration in Haldimand and Norfolk. Typically, rural roads are unlit and poorly signed, and the shoulders may be missing or poor; therefore, the classes were offered in the daytime. Also, the program matched the seasonal rhythm of the crops; therefore, the program was offered in the spring. These factors were identified during the planning phase of the project by the advisory committee as critical in participation and attendance rates.

In addition, health trends of Canadians living in rural and remote areas indicate that people who live in rural areas have higher poverty and unemployment rates and lower literacy rates compared to their urban counterparts; therefore, the program was offered at no charge to participants, and the materials and resources were developed for ease of reading. Since rates of being overweight and obesity tend to be higher in rural communities and the levels of physical activity and fruit consumption are low, the scope of the program addressed these modifiable risk factors for stroke. Home-based exercises and simple monitoring tools like pedometers and food and physical activity daily logs were also provided to participants.

Asset identification also guided program planners. Program planners identified that rural communities have a strong stock of social capital; therefore, they utilized multiple levels of support within the community. For example, guest speakers were invited to speak on various health topics during the classes, and health professionals and community members were invited to be integral members of the Stroke Advisory Committee. This promoted community acceptance and ownership of the program. In addition, program planners maximized the physical attributes of Haldimand and Norfolk by promoting walking trails and local walking clubs. They also promoted a simple walking program using pedometers as reinforcement. Existing programs and services within the community were also endorsed.

Finally, since the results demonstrated that the program was successful as shown by increasing stroke knowledge and positive behaviour changes in the area of physical activity and vegetables and fruit consumption, it can be adopted and modi-

CHAPTER FIVE

DISCUSSION AND RECOMMENDATIONS



fied by other rural communities to meet their unique rural needs. A Stroke Prevention Program Framework in a Rural Community and the Rural Health Challenges and Asset Identification using the Social Determinants of Health Framework in Haldimand and Norfolk can be used to guide other program planners (see Appendix H and I).

5.2 Study Recommendations

1. This primary stroke prevention was successful as demonstrated by an increase in stroke knowledge and positive behaviour changes in the area of physical activity and vegetables and fruit consumption. However, to improve program delivery, the curriculum should be modified in the area of salt and its effects on hypertension and stroke prevention. Moreover, medical conditions that contribute to stroke, namely diabetes; the need to seek treatment immediately and the fact that effective treatment for stroke occurs within three hours should be emphasized.
2. For future primary stroke prevention programs, take care to standardize the blood pressure measurements by measuring blood pressure at similar times during the day and making sure the participant is sedentary for an appropriate length of time before taking his or her blood pressure.
3. Consider conducting a subsequent evaluation of the program by adopting a case/control study design to improve the validity and reliability of the data.
4. For future evaluations, modify the question "What does stroke mean to you?" to define the word stroke and omit the question "Do you plan to consume at least seven servings of vegetables and fruit daily?" due to ambiguity.

5.3 Observational Recommendations

1. Disseminate the report, workbook, resources and the Stroke Prevention Program Framework in a Rural Community to other key stakeholders and Health Units for the purpose of program planning and stroke prevention.
2. Conduct a literacy review of all resources and materials.
3. Incorporate information on how to achieve or maintain a healthy weight in each session.
4. Have physical activity logs developed using the same format as the evaluations.
5. Explore various options in order to sustain the program.
6. Create a website with the appropriate content in order to expand the audience.

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APPENDIX A

“STEP UP TO A HEALTHIER YOU” EVALUATION (T₀)

SECTION 1: DEMOGRAPHIC INFORMATION

1. What is your **YEAR OF BIRTH**? _____

2. Are **YOU**...? (*please check one*)
 Female
 Male
 Refuse

3. What is your **CURRENT MARITAL STATUS**? (*please check one*)
 Never legally married (single)
 Legally married (and not separated)
 Separated, but still legally married
 Common-Law (live together as a couple)
 Divorced
 Widowed
 Refuse

4. What is your **HIGHEST EDUCATION** level? (*please check one*)
 No certificate, diploma, or degree
 High school certificate or equivalent ('High school certificate or equivalent' includes persons who have graduated from a secondary school or equivalent.)
 Apprenticeship or trades certificate or diploma
 College, Collège d'enseignement général et professionnel (CEGEP), or other non-university certificate or diploma
 University certificate or diploma below the bachelor level
 University certificate, diploma, or degree
 Don't know
 Refuse

5. Where do you **LIVE**? (*please check one*)

<input type="radio"/> Caledonia	<input type="radio"/> Simcoe
<input type="radio"/> Cayuga	<input type="radio"/> Waterford
<input type="radio"/> Dunnville	<input type="radio"/> Port Dover
<input type="radio"/> Hagersville	<input type="radio"/> Port Rowan
<input type="radio"/> Jarvis/Townsend	<input type="radio"/> Delhi
<input type="radio"/> Courtland	<input type="radio"/> Langton
<input type="radio"/> Hamilton	
<input type="radio"/> Other (<i>please specify</i>) _____	
<input type="radio"/> Don't know	
<input type="radio"/> Refuse	

6. What is your **CURRENT RESIDENTIAL STATUS**? (*please check one*)
 Live alone
 Live with family
 Live with others
 Refuse

7. What is your **OCCUPATIONAL STATUS**? (*please check one*)
 Working
 Unemployed
 Homemaker
 Retired
 Refuse

SECTION 2: STROKE KNOWLEDGE

Please answer the questions to the best of your ability. We would like to know how much you know about stroke.

8. What does stroke mean to you?

9. Where does stroke occur?

10. What causes stroke? (multiple answers)

11. What are the first warning signs of stroke? (multiple answers)

12. What lifestyle behaviours contribute to stroke? (multiple answers)

13. What medical conditions contribute to stroke? (multiple answers)

14. What uncontrollable factors increase the risk of stroke? (multiple answers)

15. How long after a person shows signs of stroke should he/she seek treatment?

16. What are the reasons for question 14?

17. If you observe someone having a stroke or showing signs of stroke, what would you do first?

APPENDIX A

“STEP UP TO A HEALTHIER YOU” EVALUATION (T₀)

SECTION 3: FAMILY AND PERSONAL HISTORY

18. Do you have a FAMILY HISTORY of.....? (please check one for each box)

	Yes	No	Don't Know	Refuse
1. High blood pressure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Heart disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Diabetes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Do YOU have.....? (please check one for each box)

	Yes	No	Don't Know	Refuse
1. High blood pressure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Heart disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Diabetes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Medication for high blood pressure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. High blood cholesterol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Irregular heart beat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. At the PRESENT time do you SMOKE cigarettes? (please check one box)

- Daily
- Occasionally
- Not at all
- Don't know
- Refuse

SECTION 4: PHYSICAL ACTIVITY

21. Have you done any of the following ACTIVITIES in the PAST WEEK that is from Monday to Sunday? Please write the TIME SPENT on each activity for that week? If you did no activity, please go to the next question.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1. Walking for exercise							
2. Gardening or yard work							
3. Swimming							
4. Bicycling							
5. Popular or social dance							
6. Home exercises							
7. Ice hockey							
8. Ice skating							
9. In-Line skating or rollerblading							
10. Jogging or running							
11. Golfing							
12. Exercise class or aerobics							
13. Downhill skiing or snow-boarding							
14. Bowling							
15. Baseball or softball							
16. Tennis							
17. Weightlifting							
18. Fishing							
19. Volleyball							
20. Basketball							
21. Yoga							
22. Tai Chi							
23. Other (please specify)							

SECTION 5: NUTRITION

The next questions are about the vegetables and fruits that you eat. Please think about the vegetables and fruits that you ate yesterday, including 100% vegetable and 100% fruit juice that you drank yesterday. Include:

- raw and cooked vegetables and fruit,
- those eaten at snacks and meals,
- those eaten at home and away from home (restaurants, friends, take-out) and,
- those eaten alone and mixes with other foods.

According to The Canada’s Food Guide, one serving of Vegetables and Fruits consist of following:

- 125 mL (½ cup) fresh, frozen or canned vegetable
- 250 mL(1 cup) leafy raw vegetables or salad
- 125mL (½ cup) of cooked leafy vegetables
- 1 fruit or 125 mL (½ cup) of fresh, frozen or canned fruits.
- 125mL (½ cup) of 100% fruit or vegetable juice

APPENDIX A “STEP UP TO A HEALTHIER YOU” EVALUATION (T₀)

22. Yesterday, how MANY SERVINGS of vegetables and fruit did you eat? Please complete the table below.

	Number of Servings
Fruit juice	
Vegetable juice	
Fruit	
Potatoes (excluding French-fried potatoes)	
Green salad	
Other vegetables	

23. The recommended daily consumption of vegetables and fruit is at LEAST 7 SERVINGS of VEGETABLES and FRUIT DAILY. Do you plan to consume at least 7 servings of vegetables and fruit daily? Please check the box that represents your opinion.

- No, I do not intend to consume at least 7 servings of vegetables and fruit
- Yes, I do intend consume at least 7 servings of vegetables and fruit
- Yes, I am planning to increase my consumption of vegetables and fruit
- Yes, I have started consuming 7 servings or vegetables and fruit within the last six months
- Yes, I have been consuming 7 servings of vegetables and fruit for more than six months
- Refuse

SECTION 6: BLOOD PRESSURE

24. What is your BLOOD PRESSURE today? _____

SECTION 7: BACKGROUND INFORMATION

25. Did you attend the “STROKE PREVENTION AWARENESS EVENING” in April? (please check one)

- Yes
- No
- Don’t know
- Refuse

26. How did you HEAR OR READ about the educational sessions? (please check all that apply)

- Library
- Stroke Prevention Awareness Evening in April
- Physician’s Office
- Pharmacy
- Health Professional
- Newspaper
- Radio
- Friend/Family/Colleague
- Print Material (Pamphlet, Newsletter, Flyer)
- Poster/Displays
- Haldimand-Norfolk Health Unit Website
- Workplace
- Other (please specify)_____
- Don’t Know
- Refuse

27. What were the REASONS you attended the sessions to learn more about....? (please check all that apply)

- What the word stroke means
- Major modifiable risk factors for stroke (i.e. overweight, obesity, smoking, alcohol consumption)
- Identifying the warning signs of stroke
- Medical conditions that contribute to stroke (i.e. diabetes)
- Uncontrollable factors that contribute to stroke (i.e. family history, age, gender).
- What to do if a person shows signs of stroke
- How long after he/she shows signs of stroke, when should consult with a physician
- Formulating a goal
- Becoming more physically active
- Eating well
- Quitting smoking
- Reducing alcohol consumption
- Achieving or maintaining a healthy body weight
- Lowering high blood pressure
- Other (please specify)_____
- Don’t Know
- Refuse

SECTION 1: STROKE KNOWLEDGE

Please answer the questions to the best of your ability. We would like to know how much you know about stroke.

1. What does stroke mean to you?

2. Where does stroke occur?

3. What causes stroke? (multiple answers)

4. What are the first warning signs of stroke? (multiple answers)

5. What lifestyle behaviours contribute to stroke? (multiple answers)

6. What medical conditions contribute to stroke? (multiple answers)

7. What uncontrollable factors increase the risk of stroke? (multiple answers)

8. How long after a person shows signs of stroke should he/she seek treatment?

9. What are the reasons for question 8?

10. If you observe someone having a stroke or showing signs of stroke, what would you do first?

APPENDIX A “STEP UP TO A HEALTHIER YOU” EVALUATION (T₁)

SECTION 2: PHYSICAL ACTIVITY

11. Have you done any of the following ACTIVITIES in the PAST WEEK that is from Monday to Sunday? Please write the TIME SPENT on each activity for that week? If you did no activity, please go to the next question.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1. Walking for exercise							
2. Gardening or yard work							
3. Swimming							
4. Bicycling							
5. Popular or social dance							
6. Home exercises							
7. Ice hockey							
8. Ice skating							
9. In-Line skating or rollerblading							
10. Jogging or running							
11. Golfing							
12. Exercise class or aerobics							
13. Downhill skiing or snow-boarding							
14. Bowling							
15. Baseball or softball							
16. Tennis							
17. Weightlifting							
18. Fishing							
19. Volleyball							
20. Basketball							
21. Yoga							
22. Tai Chi							
23. Other (please specify)							

SECTION 3: NUTRITION

The next questions are about the vegetables and fruits that you eat. Please think about the vegetables and fruits that you ate yesterday, including 100% vegetable and 100% fruit juice that you drank yesterday. Include:

- raw and cooked vegetables and fruit,
- those eaten at snacks and meals,
- those eaten at home and away from home (restaurants, friends, take-out) and,
- those eaten alone and mixes with other foods.

According to The Canada’s Food Guide, one serving of Vegetables and Fruits consist of following:

- 125 mL (½ cup) fresh, frozen or canned vegetable
- 250 mL (1 cup) leafy raw vegetables or salad
- 125mL (½ cup) of cooked leafy vegetables
- 1 fruit or 125 mL (½ cup) of fresh, frozen or canned fruits.
- 125mL (½ cup) of 100% fruit or vegetable juice

APPENDIX A ■
“STEP UP TO A HEALTHIER YOU” EVALUATION (T₁)

12. In the Last 7 Days, how many servings of vegetables and fruit did you eat? Please complete the table below.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Fruit juice							
Vegetable juice							
Fruit							
Potatoes (excluding French-fried potatoes)							
Green salad							
Other vegetables							

13. The recommended daily consumption of vegetables and fruit is at LEAST 7 SERVINGS of VEGETABLES and FRUIT DAILY. Do you plan to consume at least 7 servings of vegetables and fruit daily? Please check the box that represents your opinion.

- No, I do not intend to consume at least 7 servings of vegetables and fruit
- Yes, I do intend consume at least 7 servings of vegetables and fruit
- Yes, I am planning to increase my consumption of vegetables and fruit
- Yes, I have started consuming 7 servings or vegetables and fruit within the last six months
- Yes, I have been consuming 7 servings of vegetables and fruit for more than six months
- Refuse

SECTION 4: BLOOD PRESSURE

14. What is your BLOOD PRESSURE today? _____

SECTION 5: GOAL SETTING

15. What is your LONG-TERM goal?

SECTION 6: OVERALL RATING

16. After attending the sessions did you to LEARN MORE about....? (please check all that apply)

- What the word stroke means
- Major modifiable risk factors for stroke (i.e. overweight, obesity, smoking, alcohol consumption)
- Identifying the warning signs of stroke
- Medical conditions that contribute to stroke (i.e. diabetes)
- Uncontrollable factors that contribute to stroke (i.e. family history, age, gender).
- What to do if a person shows signs of stroke
- How long after he/she shows signs of stroke, when should consult with a physician
- Formulating a goal
- Becoming more physically active
- Eating well
- Stopping smoking
- Reducing alcohol consumption
- Achieving or maintaining a healthy body weight
- Lowering high blood pressure
- Other (please specify) _____
- Don't Know
- Refuse

APPENDIX A

“STEP UP TO A HEALTHIER YOU” EVALUATION (T₁)

17. For each item, please fill in the box that represents your opinion. Overall, how would YOU RATE THE.....? (please check one box for each question)

	Excellent	Very Good	Good	Fair	Poor	Non-applicable	Dont know	Refuse
Location								
Time of sessions								
Date of sessions								
Topics								
Length of the sessions								

Comments _____

18. Overall, how would you RATE the Educational Sessions? (please check one)

- Excellent
- Very Good
- Good
- Fair
- Poor
- Don't Know
- Refuse

19. Would you RECOMMEND the sessions to others? (please check one)

- No, definitely not } → Please explain why you would NOT RECOMMEND IT?

- No, I don't think so

- Yes, I think so

- Yes, definitely
- Don't Know
- Refuse

20. What did you MOST LIKE about the Educational Sessions ?

21. What did you NOT LIKE about the Educational Sessions?

22. Is there something we can do DIFFERENTLY?

SECTION 1: PHYSICAL ACTIVITY

1. Have you done any of the following ACTIVITIES in the PAST WEEK that is from Monday to Sunday? Please write the TIME SPENT on each activity for that week? If you did no activity, please go to the next question.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1. Walking for exercise							
2. Gardening or yard work							
3. Swimming							
4. Bicycling							
5. Popular or social dance							
6. Home exercises							
7. Ice hockey							
8. Ice skating							
9. In-Line skating or rollerblading							
10. Jogging or running							
11. Golfing							
12. Exercise class or aerobics							
13. Downhill skiing or snow-boarding							
14. Bowling							
15. Baseball or softball							
16. Tennis							
17. Weightlifting							
18. Fishing							
19. Volleyball							
20. Basketball							
21. Yoga							
22. Tai Chi							
23. Other (please specify)							

SECTION 2: NUTRITION

The next questions are about the vegetables and fruits that you eat. Please think about the vegetables and fruits that you ate yesterday, including 100% vegetable and 100% fruit juice that you drank yesterday. Include:

- raw and cooked vegetables and fruit,
- those eaten at snacks and meals,
- those eaten at home and away from home (restaurants, friends, take-out) and,
- those eaten alone and mixes with other foods.

According to The Canada's Food Guide, one serving of Vegetables and Fruits consist of following:

- 125 mL (½ cup) fresh, frozen or canned vegetable
- 250 mL (1 cup) leafy raw vegetables or salad
- 125mL (½ cup) of cooked leafy vegetables
- 1 fruit or 125 mL (½ cup) of fresh, frozen or canned fruits.
- 125mL (½ cup) of 100% fruit or vegetable juice

APPENDIX A **“STEP UP TO A HEALTHIER YOU” EVALUATION (T₂)**

2. In the Last 7 Days, how many servings of vegetables and fruit did you eat? Please complete the table below.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Fruit juice							
Vegetable juice							
Fruit							
Potatoes (excluding French-fried potatoes)							
Green salad							
Other vegetables							

3. The recommended daily consumption of vegetables and fruit is at LEAST 7 SERVINGS of VEGETABLES and FRUIT DAILY.
Do you plan to consume at least 7 servings of vegetables and fruit daily? Please check the box that represents your opinion.

- No, I do not intend to consume at least 7 servings of vegetables and fruit
- Yes, I do intend consume at least 7 servings of vegetables and fruit
- Yes, I am planning to increase my consumption of vegetables and fruit
- Yes, I have started consuming 7 servings or vegetables and fruit within the last six months
- Yes, I have been consuming 7 servings of vegetables and fruit for more than six months
- Refuse

SECTION 3: BLOOD PRESSURE

4. What is your BLOOD PRESSURE today? _____

SECTION 4: GOAL SETTING

5. What is your LONG-TERM goal? _____

6. Did you ACHIEVE your long-term goal?

- Yes
- No
- Refuse

7. If YES, what did you do to help you achieve your goal?

8. If NO, what BARRIERS did you experience that stopped you from reaching your goal?

SECTION 1: PHYSICAL ACTIVITY

1. Have you done any of the following ACTIVITIES in the PAST WEEK that is from Monday to Sunday? Please write the TIME SPENT on each activity for that week? If you did no activity, please go to the next question.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1. Walking for exercise							
2. Gardening or yard work							
3. Swimming							
4. Bicycling							
5. Popular or social dance							
6. Home exercises							
7. Ice hockey							
8. Ice skating							
9. In-Line skating or rollerblading							
10. Jogging or running							
11. Golfing							
12. Exercise class or aerobics							
13. Downhill skiing or snow-boarding							
14. Bowling							
15. Baseball or softball							
16. Tennis							
17. Weightlifting							
18. Fishing							
19. Volleyball							
20. Basketball							
21. Yoga							
22. Tai Chi							
23. Other (please specify)							

SECTION 2: NUTRITION

The next questions are about the vegetables and fruits that you eat. Please think about the vegetables and fruits that you ate yesterday, including 100% vegetable and 100% fruit juice that you drank yesterday. Include:

- raw and cooked vegetables and fruit,
- those eaten at snacks and meals,
- those eaten at home and away from home (restaurants, friends, take-out) and,
- those eaten alone and mixes with other foods.

According to The Canada's Food Guide, one serving of Vegetables and Fruits consist of following:

- 125 mL (½ cup) fresh, frozen or canned vegetable
- 250 mL(1 cup) leafy raw vegetables or salad
- 125mL (½ cup) of cooked leafy vegetables
- 1 fruit or 125 mL (½ cup) of fresh, frozen or canned fruits.
- 125mL (½ cup) of 100% fruit or vegetable juice

APPENDIX A

“STEP UP TO A HEALTHIER YOU” EVALUATION (T₃)

2. In the Last 7 Days, how many servings of vegetables and fruit did you eat? Please complete the table below.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Fruit juice							
Vegetable juice							
Fruit							
Potatoes (excluding French-fried potatoes)							
Green salad							
Other vegetables							

3. The recommended daily consumption of vegetables and fruit is at LEAST 7 SERVINGS of VEGETABLES and FRUIT DAILY. Do you plan to consume at least 7 servings of vegetables and fruit daily? Please check the box that represents your opinion.

- No, I do not intend to consume at least 7 servings of vegetables and fruit
- Yes, I do intend consume at least 7 servings of vegetables and fruit
- Yes, I am planning to increase my consumption of vegetables and fruit
- Yes, I have started consuming 7 servings or vegetables and fruit within the last six months
- Yes, I have been consuming 7 servings of vegetables and fruit for more than six months
- Refuse

SECTION 3: BLOOD PRESSURE

4. What is your BLOOD PRESSURE today? _____

SECTION 4: GOAL SETTING

5. What is your LONG-TERM goal? _____

6. Did you ACHIEVE your long-term goal?

- Yes
- No
- Refuse

7. If YES, what did you do to help you achieve your goal?

8. If NO, what BARRIERS did you experience that stopped you from reaching your goal?

Stroke Prevention Educational Session Evaluation

The Haldimand-Norfolk Health Unit is conducting an evaluation of the stroke prevention educational sessions to determine if the program was effective. You will be asked to complete an evaluation at four different time points. At the beginning of the first session, last class, at 1 month and at 3 months. The survey(s) consists of eight sections (1) demographic (2) stroke knowledge (3) family and personal history (4) physical activity (5) nutrition (6) blood pressure (7) overall rating and (8) goal setting. At 1 month and 3 months after taking the classes, you will be asked to complete an evaluation and have your blood pressure taken by a Registered Nurse. As a token of our appreciation, you will receive a stainless steel water bottle.

The Health Unit and the Stroke Prevention Advisory Committee would really appreciate your participation. Your input will help us to better serve the residents within our community. The evaluations will take approximately 10 minutes to complete at each time point.

When you have completed the evaluation, please give it to the Class Educator.

If you have any questions, please ask Anna Glowala, Health Promoter, or Deanna Morris, Epidemiologist, Haldimand-Norfolk Health Unit.

Participation is completely voluntary and your individual information will remain confidential and anonymous. This information will be kept strictly confidential and will be available only to members of the research team. No individual information will be reported. You can refuse to answer any questions.

I consent to participate in this research study

Please print name _____

Signature_____

Date_____

Thank-you for your participation

APPENDIX C

STEP UP TO A HEALTHIER YOU PROGRAM

Session	Topics	Objectives
One	Experience of stroke and self-monitoring skills	<ul style="list-style-type: none"> First, there was an ice breaking session to establish rapport with participants as well as facilitators. At that time, participants were invited to share their personal stories and experiences and feelings of stroke. Participants were provided with an overview of the program, and shared any concerns they may have about the program.
	Stroke Study	<ul style="list-style-type: none"> Participants were first asked to complete a consent form to participate in the study. If the participants agreed to participate they were given the first questionnaire to complete and had their blood pressure measured. Participants were also provided with a package that included physical activity and nutrition logs as well as goal setting worksheets.
	The facts about, causes of stroke, warning signs of stroke, lifestyle behaviours that contribute to stroke, medical conditions that contribute to stroke, uncontrollable factors that increase the risk of stroke, and actions required in case of a stroke.	<ul style="list-style-type: none"> Participants began to build their overall knowledge of stroke, stroke prevention, and actions required in the case of stroke. Participants were also provided with a case study for recognizing the risk factors attributed to stroke.
	Healthy Diet	<ul style="list-style-type: none"> Facilitators educated the class about The Canada's Food Guide, with a particular emphasis on portion size and vegetables and fruit consumption. Participants were given a portion plate as well as a food guide tracker to help keep track of their daily intake. Participants were also encouraged to consume at least seven servings of vegetables and fruit daily.
	Establishing Regular Exercise Habits	<ul style="list-style-type: none"> Participants were introduced to the importance of being physically active and how physical activity is associated with stroke prevention. Canada's Physical Activity Guide was used to show the recommended levels of physical activity on a weekly basis, and to provide suggestions for reducing sedentary time. The components of physical activity: endurance, strength, and flexibility, were briefly discussed. Participants completed the PAR-Q, the Physical Activity Readiness Questionnaire. This questionnaire identified adults who are at risk for injury and should consult with a physician before they start an exercise program. Participants were then encouraged to use the On The Move to Physical Activity Tool, to help them identify and achieve a physical activity goal: <ul style="list-style-type: none"> a. what fitness benefits they find motivating, b. what barriers keep them from being physically active, c. what lifestyle priorities affect their sports activities, and d. what sports activities meet their needs Participants were encouraged to aim for at least 150 minutes of physical activity each week.
	Establish Goals	<ul style="list-style-type: none"> Participants were encouraged to develop SMART (Specific, Measurable, Attainable, Realistic, Timely) goals and to record their progress throughout the intervention up to three months

APPENDIX C
STEP UP TO A HEALTHIER YOU PROGRAM

Session	Topics	Objectives
Two	Review established goals and discussion of individual experiences the previous week and reflect on their previous week's food and physical activity log.	<ul style="list-style-type: none"> Participants were encouraged to sign in and hand in their Goal Check in Sheet to the facilitator. They were also encouraged to share and celebrate their individual accomplishments and to discuss some of the barriers that prevented them from reaching their personal goals and develop strategies to reduce those barriers. Participants were asked to reflect on their previous week's food and physical activity log.
	Healthy Eating: The facts about good and bad fat, sodium intake, fibre and alcohol	<ul style="list-style-type: none"> Facilitators educated the class about healthy eating to reduce stroke, good and bad fat, how to reduce sodium intake, why fiber is important and how alcohol affects the body.
	Healthy Body Weight: Knowing how to determine a healthy body weight. This class focused on three key messages: 1) Eat well 2) Be active 3) Accept yourself and others	<ul style="list-style-type: none"> Facilitators continued to educate the class on stroke risk factors, namely being overweight and obese. Reviewed BMI and waist circumference, as an indicator of body weight. Participants were informed of the limitations of BMI as an accurate measure of a body weight and were encouraged to see their family physician to evaluate their weight. Healthy eating, being physically active and accepting yourself and others were three key messages also discussed.
	Physical Activity: Using Pedometers to establish regular physical activity	<ul style="list-style-type: none"> A Pedometer was given to each participant for daily tracking of goal achievement. Participants were also introduced to, "Walk This Way", a program and tool for increasing your level of physical activity through walking. Participants were then challenged to set a step goal for the following week. A resources page was included in the work book that lists all walking groups and trails within the community, available for use by the public
	Establish Goals	<ul style="list-style-type: none"> Participants were encouraged to establish goals for the following week.
Three	Review established goals and discussion of individual experiences the previous week and reflect on their previous week's food and physical activity log and pedometer readings	<ul style="list-style-type: none"> Participants were encouraged to sign in and hand in their Goal Check in Sheet to the facilitator. Discussion of individual accomplishments and barriers in achieving their short term goals. Participants were encouraged to provide input of their daily food logs and to share their pedometer progress. A question and answer period followed the discussion to collectively develop strategies to reduce barriers to achieving a healthy lifestyle.
	The facts about blood pressure, cholesterol and medications	<ul style="list-style-type: none"> A Pharmacist facilitated the discussion. Participants learned about high blood pressure and high cholesterol. Namely the causes, the effects and strategies to reduce high blood pressure and high cholesterol. Medications to reduce blood pressure and cholesterol were also discussed. A question and answer period followed.
	Stroke avoidance through tobacco use prevention	<ul style="list-style-type: none"> Facilitators continued to educate the class about stroke risk factors, namely tobacco use. Statistics on tobacco use, the effect of tobacco smoke on the body, how to quit smoking and avoiding environmental smoke, and local resources were presented. Verbalizing personal experiences about tobacco use was encouraged.
	Physical Activity: Building Strength	<ul style="list-style-type: none"> Facilitators continued to educate the class about the importance of regular physical activity. A guest instructor educated participants on the benefits of increasing physical strength through resistance training. Participants were provided with examples of weight bearing exercises using Dyna-Bands and were introduced to stretching exercises. Safety, technique and proper breathing were demonstrated. Participants were also provided with a list of community resources and were encouraged to develop a resistance training goal for the following week.

APPENDIX C

STEP UP TO A HEALTHIER YOU PROGRAM

Session	Topics	Objectives
Four	Review established goals and discussion of individual experiences the previous week and reflect on their previous week's food and physical activity log and pedometer readings	<ul style="list-style-type: none"> Participants were encouraged to sign in and hand in their Goal Check in Sheet to the facilitator. Participants discussed individual accomplishments and barriers to achieve their short term goals. They were encouraged to provide input of their daily food logs and to share their pedometer progress. A question and answer period followed the discussion to collectively develop strategies to reduce barriers to achieving a healthy lifestyle. Through class group discussion, participants reviewed the signs and symptoms of stroke, and modifiable risk factors for stroke.
	Review stroke information	
	Healthy Eating: Knowing how to read food labels, making healthy choices when dining out and grocery shopping, and preparing healthy meals and snacks at home.	<ul style="list-style-type: none"> Facilitators continued to educate participants about the Canada's Food Guide on healthy eating. Educated participants on food labelling and making healthy choices when shopping and dining out. Taught healthy cooking methods and preparing healthy meals and snacks at home.
	Physical Activity: Flexibility	<ul style="list-style-type: none"> Facilitators continued to educate participants about the importance of regular physical activity. Participants were educated on flexibility. Particularly, how to get started, safety tips and community opportunities. A guest instructor provided the class with a 20 minute stretching demonstration. The purpose of the stretching session was to teach participants simple stretching techniques that can be easily done at home, at work, sitting or standing. Participants were then encouraged to develop a goal to increase their flexibility.
	Stress Management	<ul style="list-style-type: none"> Facilitators continuing to reinforce the knowledge on stroke risk factors, namely stress management. A guest speaker from the Canadian Mental Health Association (CMHA) provided a 30 minute presentation on stress, how it affects you and your risk of stroke, and how to reduce high levels of stress in your life.
	Redefine Goals	<ul style="list-style-type: none"> Participants were then given the opportunity to redefine their short term and long term goals.
One Month Follow-up	Complete questionnaire and have blood pressure taken	<ul style="list-style-type: none"> Participants completed their evaluation and had their blood pressure taken and signed up for their one month and three month follow-up.
	Complete questionnaire and have blood pressure taken	<ul style="list-style-type: none"> Participants completed the questionnaire and had their blood pressure taken at the Health Unit.
Three Month Follow-up	Complete questionnaire, have blood pressure taken, and given a token of our appreciation	<ul style="list-style-type: none"> Participants completed questionnaire and had their blood pressure taken at the Health Unit.
		Participants were given a stainless steel water bottle and a certificate of appreciation.

APPENDIX D
MOST LIKED ABOUT THE PROGRAM

Themes	Quotes
Physical Activity Component (10)	<p>“Exercise sessions”</p> <p>“Especially like the exercises”</p> <p>“Exercise component”</p> <p>“The exercising part to learn to stretch/workout”</p> <p>“Learning the importance of exercise”</p> <p>“Exercises”</p> <p>“Exercise program”</p> <p>“Low-cost techniques to increase level of activity (i.e. Dyna bands, stretching). Also, using the pedometer was very insightful.”</p> <p>“Liked the exercises with (instructor)”</p> <p>“The mini classes with (instructor)”</p>
The Information (9)	<p>“Lots of good information”</p> <p>“Very informative”</p> <p>“Actual information”</p> <p>“I liked almost all the things that I was able to learn”</p> <p>“Lots of information”</p> <p>“They were informative”</p> <p>“Information was timely and accessible”</p> <p>“The content”</p> <p>“Sessions were relaxed informative”</p>
Everything (7)	<p>“To learn everything about stroke”</p> <p>“All like”</p> <p>“I liked very much the presentation of everything”</p> <p>“Liked it all”</p> <p>“Liked it all”</p> <p>“All info”</p> <p>“I liked every session”</p>

APPENDIX D

MOST LIKED ABOUT THE PROGRAM

Themes	Quotes
Nutrition Component (6)	<p>"The Dietician speaking about healthy food choices"</p> <p>"Canada Food Guide"</p> <p>"Reading labels"</p> <p>"Anything about food-nutrition. I would be interested on sessions about menus-food-nutrition-cooking etc."</p> <p>"The nutrition"</p> <p>"Learning the food guide"</p>
Heart and Stroke Education (5)	<p>"The education on heart/stroke"</p> <p>"Learning about strokes and what to do"</p> <p>"Signs of stroke"</p> <p>"Information on stroke"</p> <p>"I learned a lot about the heart"</p>
Girls (Instructors) were friendly and approachable (3)	<p>"The girls were very approachable"</p> <p>"Friendly, non-judgemental instructors"</p> <p>"All the girls"</p>
Pharmacist's Presentation (3)	<p>"Talk from the Pharmacist"</p> <p>"Info from pharmacy"</p> <p>"Talk on drugs"</p>
Session topics were explained well (3)	<p>"(in-depth classes) - explaining things"</p> <p>"I felt that all the sessions were very well explained and was very much at ease with all the girls that presented them. It was very fun for me and really enjoyed it. Thank-you to all."</p> <p>"Took time to explain questions"</p>
Free Gifts (2)	<p>"All the freebies to encourage you to do the steps to maintain healthy lifestyle and weight and keep physically active"</p> <p>"Thanks for free things as well i.e. pedometers"</p>
Interactive (2)	<p>"Interactive"</p> <p>"Interaction as in answering questions"</p>
Presentations (2)	<p>"Presentation and accompanying notes"</p> <p>"Presentation. Your knowledge"</p>

Long Term Goals

Increase Physical Activity (18)	<p>Walk More (6)</p> <ul style="list-style-type: none"> • "To walk at least 30 minutes a day" • "To walk every day" • "Keep active by walking" • "Add more walking" • "Walk more" • "Walk 6000 steps each day" <p>Other (12)</p> <ul style="list-style-type: none"> • "Exercising well" • "Become proactive towards physical activity" • "To exercise more" • "Continue doing my regular exercises" • "5 minutes per day each of weight lifting, yoga and tai-chi:" • "Get into better shape" • "To be able to exercise and gain mobility" • "Exercise more" • "Get into an exercise routine" • "Get more exercise" • "Get more exercise" • "Exercise more and longer" 	Lose Weight (15)	<ul style="list-style-type: none"> • "Lose 8 pounds" • "Trying to lose weight (low thyroid)" • "Lose 30 pounds" • "To loose weight" • "To loose weight" • "Lose a little weight" • "Hopefully lose weight. It's difficult with a knee that needs to be replaced" • "Lose some weight" • "Loose weight" • "Lose some weight" • "To lose weight" • "Lose weight" • "Weight loss. Decrease edema ankles" • "To lose weight" • "Lose weight"
Eat Healthier (18)	<p>Eat More Vegetables and Fruit (11)</p> <ul style="list-style-type: none"> • "Eating and getting 7-10 servings" • "To eat more vegetables and less sweets" • "Eat 1 orange and 1 green vegetable a day" • "Keeping up with eating enough fruits and vegetables" • "Eat more fruits and veggies" • "To eat more veggies, fruit" • "Daily eating recommend amount of fruits and vegetables" • "Increasing fruit and vegetable intake" • "Eat more fruit and vegetables" • "Eat more fruits and vegetables" • "Eat more fruits and vegetables" <p>Other (7)</p> <ul style="list-style-type: none"> • "Become proactive towards healthy eating" • "Pay more attention to Canada's food Guide" • "To eat healthier" • "To eat healthier" • "Learn how to read labels" • "Eat better" • "Try new healthy foods" 	Reduce Stress (3)	<ul style="list-style-type: none"> • "Respond to stressors with less stress" • "Reducing stress and anxiety" • "Get rid of stress"
Stay Healthy (2)		Stay Healthy (2)	<ul style="list-style-type: none"> • "To be healthy till the end" • "Stay healthy and live long"
Other		Other	<ul style="list-style-type: none"> • "Lower my cholesterol and work" • "To feel better" • "Hopefully develop a better sleeping pattern"

APPENDIX F

ACHIEVED LONG TERM GOALS

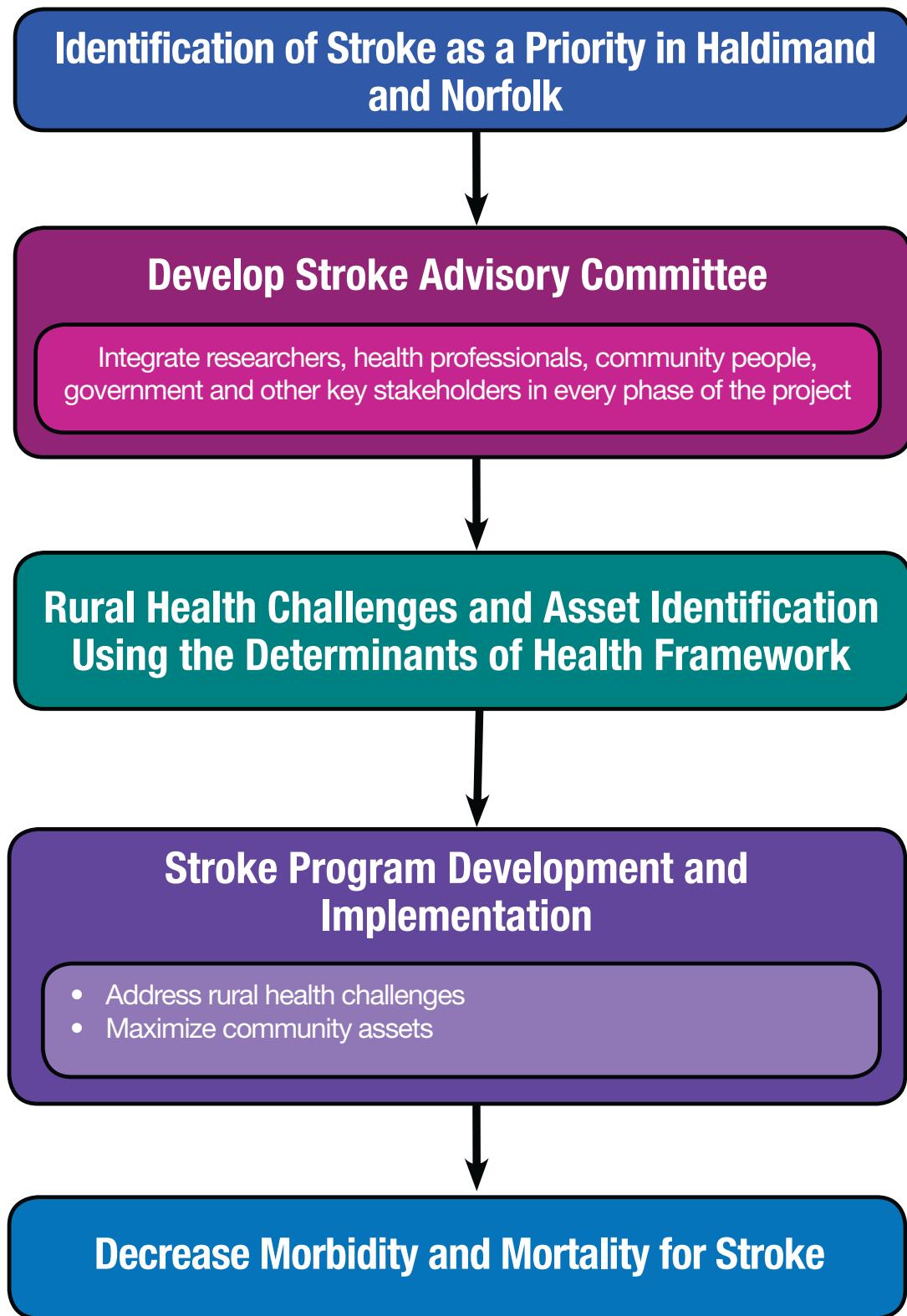
Achieved Long Term Goals

Eating Healthy and being Physically Active (9)	<ul style="list-style-type: none"> • (yes achieve goal) "Walk, ate orange. I got osteoporosis, that is why I walk. It is not helping much. Maybe it would be worse if I didn't. I am also heavier than I would like to be so any exercise is good. Wishing to be slimmer, and less fat" • "Eating properly and exercising" • "Be more conscious of what I was eating plan to exercise more" • "Recently experiencing some health issues, high cholesterol and blood sugars has motivated me to incorporate physical activity and healthy eating into my daily schedule" • "Ate more fruit and vegetables walked more in between the rains" • "Planning and prioritizing. Eating healthy and physical activity is every day." (my wife) • "I lost 5lbs lately. Learning more about the food groups from the classes and regular aerobic classes" • "I have lost 4 pounds. The diet and walking. One of my plans was to change lifestyle, but because of the company I haven't been able to. I do okay at home a couple of meals. You guys, your talks really helped a lot, what we learned from you. I know what I am doing, because I learned it from you." • "Tracked eating. Made an effort to exercise more"
Being Physically Active (4) (achieved goal)	<ul style="list-style-type: none"> • "To some extent. I like to walk, but it is hot. But extended gym from 3 to 4" • "Signed up for line dancing class" • "Lost 12 pounds recently from all the exercise. Increasing the amount of physical activity through walking has helped me" • (Yes I achieved my goal), "But I would like to slowly do more physical activity"
Eating Healthier (3)	<ul style="list-style-type: none"> • "Yes, partially cut back consumption of excess fats and desserts-mainly cookies/cakes and pies" • "Just monitoring more what I was eating. In the summer time fruit is no problem. In the winter time fruit is more expensive, you have to buy the cups. Just eating more fruits and vegetables. I don't have a hard time drinking water. No problems" • "Yes-To eating fresh fruits and veggies. No to exercising. The summer time and all the fresh local food that is available. Using tracking sheets to set goals and to see what I am eating"
The Classes (3)	<ul style="list-style-type: none"> • "The teaching in these seminars, that it was important" • "Learn from classes" • "The classes and follow has kept us on track"
Other	<ul style="list-style-type: none"> • "Lost 4 pounds already" • "Using tracking sheets was very good and helpful. The follow-up helped me stick to my goals" • "More aware of your stressors and consciously trying not to let myself get up tight" • "Still working on my long-term goal. Paying attention to food labels more carefully and trying to relax more" • "Yes, I lost a little bit around my waist. The program helped me to achieve my goal. I also drank more water." • "My daily routine helps to stick to my goal" • (Did not achieve goal) "But working on it. The classes helped me to pick and eat healthier food" • "One serving of stuff I actually gained. With that I gained more than I am used to eating (fruit). I need to exercise more." • "Very conscious of my health which makes it important to me"

Barriers to Achieving Goals

Chronic Condition/ Functional Limitations (4)	<ul style="list-style-type: none"> “Hurt back recently, have arthritis” “Unable to exercise as much due to breathing problems, summer weather makes that harder. Broke a rib just last week so I've been hardly able to get around and my eating habits have also suffered a bit this week” “Knee replacement surgery” “Knee and back pain makes it difficult to exercise too much”
Choose to Eat Unhealthy (3)	<ul style="list-style-type: none"> “I like food, especially the kinds that I know are not good for me” “Eat too much junk food” “Eat too many carbs. I have to be careful with my portions. Thank-you I appreciate the very informative classes.”
Lack of Motivation (3)	<ul style="list-style-type: none"> “Walking by yourself if not having to wait for my walking partner-easier to go when I want for how long I want. Regularly doing (exercise presenters) exercises” “Lack of motivation” “Failure to make it a high priority”
Lack of Planning (3)	<ul style="list-style-type: none"> “Need more planning of meals ahead of time but lack of times makes it difficult. Needs some improvement 85% toward reaching my goal” “Summer time meals are less planned, busy with outdoor activities” “Just not discipline in shopping. I wish I knew more green vegetables”
Lack of Time (2)	<ul style="list-style-type: none"> “Lack of time, lots going on right now” “Lack of time”
Other	<ul style="list-style-type: none"> “No, not really” “I'm not there yet” “I want to lose a lot more weight actually no barriers. I have lost 10 pounds but need to lose at least 50 pounds. This program helped me a lot especially reading labels. Understanding the Food Guide. This is a program that should definitely be kept up for other people to learn”

APPENDIX H
STROKE PREVENTION PROGRAM FRAMEWORK IN A RURAL COMMUNITY



**SELECTED RURAL HEALTH CHALLENGES AND ASSET IDENTIFICATION USING
THE DETERMINANTS OF HEALTH FRAMEWORK IN HALDIMAND AND NORFOLK FOR
STROKE**

CHALLENGES

ASSETS

Income and Social Status

Poverty

Social Support Networks

Geographic isolation

Strong stock of social capital

Education & Literacy

Low education levels

Employment/Working Conditions

Unemployment

Social Environments

Limited social support services

Strong social & community response to health issues

Physical Environment

Low population density; more distance to travel; no public transportation; seasonal considerations

Walkable community (green space, trails, walking clubs)

Personal Health Practice

Over 50% are... overweight/obese; do not consume recommended day allowance of vegetables and fruit; physically inactive; high rates of smoking

Biology & Genetic Endurance

High rates of circulatory disease, stroke and diabetes

Better quality of life of life compared to urban areas

Health Services

Low number of specialists and practitioners.
Lack of access to health care services; residents travel outside of community to obtain services

Existing stroke programs and sevices



Step up to a
Healthier you
STROKE: ARE YOU AT RISK?

HealthUnit
Haldimand-Norfolk

Step up to a *Healthier* you

An Online Educational Series

- 1 Stroke Prevention 
- 2 Physical Activity 
- 3 Healthy Eating 
- 4 Nutrition Labels 
- 5 Blood Pressure 
- 6 Blood Cholesterol 
- 7 Alcohol 
- 8 Smoking 
- 9 Stress Management 
- 10 Download Workbook 

stepuptohealthieryou.com

Vegetables

Fill half the plate with vegetables.
Choose two or more colours when possible.

Add fruit and a serving of dairy for a well-balanced meal.

Starch

Choose either potatoes, rice
pasta, bread or a grain
like bulgur or barley.

(one serving of starch is
about the size of your fist)

Protein

Choose either chicken, lean
meat, fish, tofu, beans or
lentils.

(one serving of protein is
about the size of a deck
of cards)

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