Evaluating the long-term sustainability of the ENCOURAGE (ENhancing primary care COUnseling and Referrals to community-based physical Activity opportunities for sustained lifestyle chanGE) project utilizing methods to determine external validity

by

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Abstract

Primary care based physical activity interventions have been shown to be efficacious when delivered under controlled research conditions, over the short-term. However, few studies have evaluated the long-term sustainability of these health interventions utilizing methods to determine external validity. Our own research group conducted the ENCOURAGE project, which enabled previously sedentary individuals (Age, 51 ± 1 years; BMI, 35.2 ± 0.8) to increase their total physical activity by 104 minutes a week. Although the ENCOURAGE project has now ended, a number of stakeholders are utilizing project outcomes to inform best practice within their respective organizations. The purpose of this thesis project was to use the RE-AIM framework to evaluate the external validity of the ENCOURAGE project, and to describe the stakeholders' perceptions regarding the long-term sustainability of the project utilizing methods from a stakeholder analysis assessment. Results from the RE-AIM evaluation suggest that three of the five dimensions of the framework were met, notably: Reach, Adoption and Implementation. Therefore, the ENCOURAGE project generated a moderate level of public health impact. Semi-structured interviews were conducted with eight key stakeholders who were involved with the design, development or implementation of the project. Although the ENCOURAGE project was not adopted into the health care system, it left notable implications on the recognition of physical activity in primary care, and the delivery of physical activity services in primary care. Furthermore, the project was able to influence the primary care providers' perceptions about physical activity, community-based programing and health policy. These positive changes observed at the individual, organizational and system-level are sustainable over the long-term.

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Dedication

I would like to dedicate this thesis project to my parents, Donald and Myunghee Chapman. My academic success would not have been possible without your unconditional love and support. You have been my inspiration throughout every stage of my life, and I am eternally grateful to call you my parents.

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Chapter 1.0: Introduction

It has been well documented that Canadians are not physically active enough to maintain health. A number of primary care based physical activity interventions have been conducted in order to help promote physical activity in adults, many of which have been proven to be efficacious over the short-term. Health interventions are often conducted as efficacy trials, and utilize standardized research protocols and scientific rigor in order to demonstrate clinically significant findings. Although effective, this method of evaluation limits the generalizability of findings into "*real world*" settings and clinical practice. Several evaluation frameworks have been developed to measure the external validity of health interventions, beyond efficacy, for real world significance. Specifically, these evaluation frameworks assess whether an intervention has the potential to be adopted into routine practice, over the long-term. For example, the RE-AIM framework is research evaluation tool designed to assess an intervention's potential for producing public health impact.

Our own research group conducted a primary care based physical activity intervention entitled the ENCOURAGE project, which enabled previously sedentary individuals to increase their total physical activity accumulation by 104 minutes a week. Although the project is now complete, many stakeholders are utilizing project outcomes to inform best practice within their respective organizations. Therefore, the purpose of this thesis project is to use the RE-AIM framework to evaluate the external validity of the ENCOURAGE project, and to describe the stakeholders' perceptions regarding the long-term sustainability of the project.

Chapter 2.0: Background

2.01 Canadians are not active enough to maintain health

Findings from the 2007-2009 Canadian Health Measures Survey suggest that 85% of Canadians are classified as inactive and are failing to meet the Canadian Physical Activity Guidelines of "*150 minutes of moderate to vigorous physical activity a week*."[1] Furthermore, the vast majority of Canadians are sitting for 69% (i.e., 9.5 hours/day) of their waking hours.[1] These statistics are particularly concerning due to the fact that the World Health Organization has identified physical inactivity as one of the most preventable risk factors for several chronic conditions, including cardiovascular disease, stroke, type 2 diabetes and cancer (i.e., colon cancer and breast cancer).[2] In Canada, physical inactivity directly contributes to chronic disease mortality. Specifically, 33% of deaths related to cardiovascular disease and 29% of deaths related to cancer are attributed to physical inactivity (www.statcan.ca).[3] If every Canadian were to accumulate "*150 minutes of moderate to vigorous physical activity a week*," mortality related to coronary heart disease and stroke could be reduced by 33% and 25% respectively.[3,4,5]

The development of strategies to target physical inactivity levels in Canada should be viewed as a public health priority, in order to prevent the onset of chronic disease, manage the adverse effects of chronic disease and improve the lives of Canadians at the level of population health.

2.02 Physical activity counseling in primary care

Primary care is often viewed as the first entry point into the health care system, and can play a vital role in health behavior change and chronic disease prevention. It can do this by providing individuals with access to programs and services that are designed to improve their health outcomes throughout their life course. Findings from the "*U.S National Health Interview Survey*" (2000-2001) have shown that 83% of Americans seek primary care services when they are ill, or in need of professional health advice (http://www.cdc.gov/nchs).[6] Furthermore, data from Statistics Canada (2008) found individuals who self-report their health status as "*fair*" are more likely than others to seek primary health care services.[7] It is estimated that up to 40% of individuals have access to a team of primary care providers in Canada.[7] Therefore, individuals seeking primary care services may benefit from primary prevention strategies, such as physical activity counseling, in order to reduce the risk of chronic disease, and improve overall health.

Primary care based physical activity interventions have been delivered in various countries across the world, such as the United States,[8,9,10,11] Australia,[12,13,14] and New Zealand.[15,16] The majority of these interventions have been conducted as efficacy trials,[17,18] which suggest the use of internal validity and controlled research conditions.[19] Although there is widespread evidence to suggest that primary care based physical activity interventions are effective when conducted under controlled research conditions over the short-term, little is known about the dissemination of these findings into clinical settings and routine practice.[17,18,19,20,21,22,23,24] Three very large, well renowned primary care based physical activity interventions that have been delivered in various jurisdictions

across the world are the "*Physician-based Assessment and Counseling for Exercise*" (PACE) trial,[8] "*The Green Prescription Study,*"[15] and the "*Activity Counseling Trial.*"[11]

Calfas et al.[8] launched a primary care based physical activity intervention entitled "*Physician-based Assessment and Counseling for Exercise*" (PACE) to determine whether exercise counseling delivered by a primary care provider could increase the physical activity levels of patients attending 17 physician offices in San Diego, California. The aim of PACE was to promote the long-term adoption of moderate intensity physical activity in previously sedentary, apparently healthy individuals.[8] Two-hundred and fifty-five sedentary adults over the age of 18, who had never been diagnosed with a chronic condition that could limit their physical activity participation, and who failed to accumulate 120 minutes of moderate intensity physical activity a week were recruited for participation.[8] Eligible participants received 3 to 5 minutes of physical activity counseling delivered by a physician or nurse practitioner.[8] Throughout the physical activity counseling sessions, participants were taught how to overcome barriers related to physical activity, while gaining the skills required to set realistic, measureable and attainable goals according to their current "*stage of change.*"[8] Study participants received a brief phone call at 2 weeks post-intervention to discuss their progress.[8] Outcome measures such as self-report physical activity and current "*stage of change*" were examined at baseline, 4 weeks and 6 weeks.[8] Overall findings suggest that individuals who received physical activity counseling from a primary care provider increased their walking by an average of 37 minutes a week.[8] Significantly more intervention participants transitioned from a contemplation (i.e., sedentary) "*stage of change,*" to an active "*stage of change*" (χ^2 39,19, $p<0.0001$) than individuals who did

not receive the intervention.[8] In conclusion, a primary care based physical activity intervention delivered by primary care providers can result in short-term positive changes in moderate intensity physical activity accumulation in apparently healthy, previously sedentary individuals.[8]

Swinburn et al.[15] conducted a primary care based physical activity intervention in New Zealand entitled the "*Green Prescription Study*" to determine whether a written exercise prescription delivered by a general practitioner could increase the physical activity levels of previously sedentary individuals. Eligible participants were currently inactive (i.e., accumulated 1 hour or less of vigorous physical activity a week, engaged in 3 hours or less of sports a week or walked 3 hours or less a week), and were capable of changing their physical activity behaviors within a 6-week period.[15] After receiving verbal physical activity counseling delivered by a general practitioner, participants were randomized to either receive a written exercise prescription (green prescription n=239) or no further intervention (n=252).[15] Self-report physical activity was assessed at 6 weeks by a telephone follow-up.[15] Overall findings suggest that participants in both groups increased their self-reported recreational physical activity participation by 27% from baseline to follow-up (i.e., 54% at baseline to 81% at 6 weeks).[15] A significantly larger proportion of green prescription participants reported making changes to their physical activity levels at follow-up (i.e., 32%) compared to control (i.e., 17%; p=0.02).[15] Furthermore, the percentage of green prescription participants who engaged in physical activity to "*maintain health*" had a significantly increased by 32% (i.e., from 36% at baseline to 68% at follow-up).[15] Findings from the "*Green Prescription Study*" have

demonstrated the effectiveness of a written exercise prescription delivered by a general practitioner in primary care.[15]

Simons-Morton et al.[11] conducted a primary care based physical activity intervention in the United States to examine the extent to which physical activity counseling is effective in improving patient outcomes such as cardiorespiratory fitness and total physical activity accumulation. Sedentary individuals between the ages of 35 to 75 years who had not been previously diagnosed with a serious chronic condition were recruited for participation from 11 primary care clinics in the United States.[11] Eight hundred and seventy-four eligible participants were randomly assigned to one of three groups, namely "*Advice*," "*Assistance*" or "*Counseling*."[11] Individuals randomized to the "*Advice*" group (n=292) received physical activity educational material and a brief physician led physical activity counseling session (i.e., 2-4 minutes) that was delivered based on the American physical activity recommendations (i.e., 30 minutes of physical activity performed at a moderate intensity, 5 days a week).[11] Participants randomized to the "*Assistance*" group (n=293) received a brief physician led physical activity counseling session (i.e., 2-4 minutes), physical activity educational material, a 30 minute behavioral counseling session, a 1-week follow-up phone call, a pedometer prescription with specific individualized guidelines and monthly newsletters to promote physical activity.[11] Participants randomized to the "*Counseling*" group (n=289) received all services provided by the "*Advice*" group and the "*Assistance*" group, plus behavioral counseling telephone sessions delivered by a primary care provider (i.e., bi-weekly for the first 6 weeks, and then once a month for the remainder of the year) and weekly physical activity behavioral counseling classes offered in primary care.[11] At 24 months, self-reported

physical activity was measured by the "*7-day Physical Activity Recall*" (PAR) questionnaire and cardiorespiratory fitness was measured by the VO_2max test, which is an aerobic assessment of maximal oxygen consumption.[11] Overall, no significant difference in total physical activity was observed between the "*Assistance*" group and the "*Counseling*" group.[11] Women (n=337) demonstrated significantly higher VO_2max results in the "*Assistance*" group compared to the "*Advice*" group at follow-up (mean difference of 80.7 mL/min; 99% CI, 8.1-153.2 mL/min).[11] Women also demonstrated significantly higher VO_2max results in the "*Counseling*" group compared to the "*Advice*" group at follow-up (mean difference of 73.9 mL/min; 99% CI, 0.9-147 mL/min).[11] No significant difference was observed in VO_2max results between the "*Assistance*" group and the "*Advice*" group (mean difference of 49.5 mL/min; 99% CI, -44.6-143.6 mL/min) or the "*Counseling*" group and the "*Advice*" group (mean difference of 15.3 mL/min; 99% CI, -1.1-111.7 mL/min) for men (n=439).[11] In conclusion, women who received either of the patient-centered physical activity education and counseling approaches demonstrated significant improvements in cardiorespiratory fitness compared to women who received physical activity educational material and a brief physician led physical activity counseling session with no further intervention.[11]

Table 1. Physical activity counseling in primary care

	Calfas et al.[8]	Swinburn et al.[15]	Simons-Morton et al.[11]
Aim	• The aim of PACE was to promote long-term adoption of moderate intensity physical activity in previously sedentary, apparently healthy individuals.[8]	• To determine whether a written exercise prescription delivered by a general practitioner would increase physical activity levels in previously sedentary individuals.[15]	• To test the effectiveness of two patient-centered physical activity education and counseling approaches on cardiorespiratory fitness and physical activity accumulation in sedentary adults, and compared these approaches to standard care.[11]
Sample	• 255 inactive adults (<120 minutes of moderate physical activity a week) over the age of 18, absence of chronic disease.[8]	• 491 inactive adults, who were capable of increasing physical activity levels within a 6-week period.[15]	• 874 inactive individuals, ages 35 to 75 years, absence of chronic disease.[11]
Intervention	• 3 to 5 minute physical activity counseling session delivered by a physician or nurse practitioner.[8] • Participants received a 10 minute "*booster phone call*" at 2-weeks post counseling session to discuss progress.[8]	• After receiving verbal physical activity counseling from their general practitioner, participants were randomized to either receive a written exercise prescription (green prescription) or no further intervention.[15]	• *Advice* group: (n=292) participants received a brief 2-4 minute physician-based physical activity counseling session and physical activity educational material.[11] • *Assistance* group: (n=293) participants received a brief physician-based physical activity counseling session, physical activity educational material, a 30 minute behavioral counseling session, a 1-week follow-up phone call, a pedometer

	Calfas et al.[8]	Swinburn et al.[15]	Simons-Morton et al.[11]
			prescription and monthly newsletters to promote physical activity.[11] • *Counseling* group: (n=289) participants received all services provided to the *Advice* and *Assistance* groups, plus behavioral counseling telephone sessions delivered by a primary care provider and weekly physical activity behavioral counseling classes.[11]
Outcome Measures	• Self-report physical activity and current "*stage of change*" assessed at baseline, 4 weeks and 6 weeks.[8]	• A telephone interview was conducted to assess self-report physical activity levels at 6 weeks.[15]	• Self-report physical activity assessed by the 7-day Physical Activity Recall (PAR) and cardiorespiratory fitness assessed by the VO2 max test.[11]
Key Findings	• Intervention participants increased their walking by +37 minutes a week at follow-up.[8] • A larger proportion of intervention participants transitioned from the contemplation (sedentary) stage of change, to the active stage of change, compared to control (χ^2 39,19, $p<0.0001$).[8]	• Self-report recreational physical activity increased significantly from baseline (54%), to follow-up (81%) for both groups.[15] • A significantly higher proportion of green prescription participants reported making changes to their physical activity at follow-up (32%) compared to control (17%) ($p=0.02$).[15]	• Women (n=337) demonstrated significantly higher VO_2max results in the *Assistance* group compared to the *Advice* group at follow-up (i.e., mean difference of 80.7 mL/min; 99% CI, 8.1-153.2 mL/min).[11] • Women demonstrated significantly higher VO_2max results in the *Counseling* group compared to the *Advice* group at

	Calfas et al.[8]	Swinburn et al.[15]	Simons-Morton et al.[11]
		• Green prescription participants were more likely to report engaging in physical activity to maintain health at follow-up (68%) compared to baseline (36%).[15]	follow-up (mean difference of 73.9 mL/min; 99% CI, 0.9-147 mL/min).[11]

2.03 Efficacy trials

Efficacy trials utilize stringent research protocols to capture whether an intervention is producing "*more good than harm.*"[17,18] These trials attempt to establish cause and effect, by utilizing short-term interventions, trained research staff, motivated subjects and controlled research protocols.[22,25,26,27] The utilization of controlled research conditions ensures that the outcome(s) can be attributed to intervention itself.[18] Some researchers argue that the utilization of efficacy trials (i.e., randomized controlled trials) for the evaluation of public health is unethical and unpractical.[28] Unlike efficacy trials, effectiveness trials and demonstration trials incorporate less scientific rigor and more real world conditions into their project design.

2.04 Effectiveness trials

Effectiveness trials utilize real world conditions to capture an intervention's potential for producing "*more good than harm.*"[17,18] Because effectiveness trials require organizational-level implementation and are typically delivered under less controlled conditions, only positive outcomes are accredited to the intervention itself.[17,18] Many researchers have argued that effectiveness trials, such as quasi-experimental designs and non-randomized controlled trials may be proven efficacious if evaluated effectively.[28] However, researchers must prove an intervention's efficacy prior to conducting an effectiveness trial.[18]

2.05 Demonstration trials

Wozniak et al.[25] have determined that "*the assessment of clinical effectiveness alone is not enough to inform decisions about a programe's broader public health impact.*" Therefore, demonstration trials have been developed to assess the public health impact of efficacious interventions by incorporating the "*system*" (i.e., cities, provinces and nations) into the project designs.[17,18] Although demonstration trials do not produce as much scientific rigor as efficacy trials,[18] they use real world significance to provide support for external validity, and are therefore vital for decision making, policy change and to determine best practice.[18,25]

2.06 Evaluating the external validity of health interventions

Current evaluations of health intervention research rely heavily on internal validity and clinically significant outcomes, rather than the evaluation of public health impact.[22,25,26,29] Although efficacy trials are efficacious when delivered under controlled research conditions, the scientific rigor makes them difficult to implement under real world conditions.[26] In reality, individuals may have underlying health issues or chronic conditions that may limit their ability to participate in an intervention.[26] Furthermore, the stringent control often hinders the generalizability of the findings across different subgroups of populations (i.e., clinical), and settings [27] which, therefore, limits the translation of research into clinical practice.[22,25] Health interventions that are conducted as demonstration trials are often implemented for the purpose of quality improvement.[30] These trials can provide evidence for external validity and have the potential to

significantly impact health outcomes, health service delivery and health expenditure in Canada.[30]

2.07 Evaluation approaches

The purpose of research intervention evaluation is to enable its users to understand the intervention's purpose, the projected outcomes of the intervention, and to provide evidence to better support decision making.[31] Research intervention evaluation is designed to stimulate discussion related to current practice, and to test the effectiveness of new theories and ideas over time.[31] Research intervention evaluation should be incorporated into the initial project design, and should actively engage its stakeholders to ensure the project goals are in alignment with the organizational goals.[31]

2.08 Type of evaluation approaches

Kitson et al. developed a conceptual evaluation framework entitled: "*Promoting Action on Research Implementation in Health Services*" (PARiHS), which was designed to assess the translation of evidence-based research into practice.[32] The PARiHS framework utilizes a 4-item equation to establish "*successful implementation*" (SI).[32] Specifically, *"SI is represented as a function (f) of the nature and type of evidence (E), the qualities of the context (C) in which the evidence is being introduced, and the way the process is facilitated (F); SI = f (E,C,F).*"[32] "*Evidence*" (E) is represented by any findings derived from research, clinical exposure or patient experience.[32] "*Context*" (C) represents situations that promote leadership, learnings and feedback.[32] "*Facilitation*" (F) examines the specific skill set of the facilitators, by assessing their ability to

understand evidence, resources, evaluation, values, culture and various styles of leadership.[32] Although the PARiHS framework has yet to be validated, the conceptual framework has specific components that may contribute to the understanding and development of knowledge translation.[32]

Campbell et al.[33] developed a framework that incorporates a five phased approach for the evaluation of complex interventions. The aim of this framework is to address the specific issues that arise when evaluating complex interventions, which are related to improper study design, sample size and methods of randomization.[33] The "*Pre-clinical/Theoretical*" phase, which is the first phase of the evaluation framework, recognizes an intervention's potential for producing the targeted outcome(s).[33] "*Phase 1: defining components of the intervention*" identifies the specific component of the intervention, and the factors that may influence the targeted outcome(s).[33] "*Phase 2: defining trial and intervention design*" utilizes the outputs of "*Phase 1*" to develop the study design (i.e., define variables and protocol).[33] "*Phase 2*" determines the extent to which an intervention is feasible, replicable, effective, well endorsed and delivered consistently over time.[33] In "*Phase 2*," researchers define the control group and establish a method of randomization.[33] "*Phase 3: methodological issues for main trial*" controls for issues related to sample size, inclusion criteria, exclusion criteria, blinding and randomization.[33] The final phase of the evaluation framework, "*Phase 4: promoting effective implementation*," is a measurement of uptake, stability and the long-term sustainability of the intervention.[33] This type of evaluation may increase an intervention's effectiveness by identifying the variables that may lead to improvements in study design and long-term sustainability.[33]

The "*Transparent Reporting of Evaluations with Nonrandomized Designs*" (TREND) statement is an evaluation framework that is specifically designed to assess non-randomized controlled research trials, behavioral trials and public health interventions.[28] The TREND checklist is consistent with the "*Consolidated Standards of Reporting Trials*" (CONSORT) statement, which a 22-item checklist designed for the evaluation of randomized controlled trials.[28] The TREND checklist has been developed to improve the quality and consistency of data reporting of non-randomized controlled research trials by making evidence-informed recommendations for clinical practice.[28] The TREND checklist utilizes 22-items to assess an intervention's potential for producing public health impact.[28] The checklist is designed to identify areas related to behavioral and social theory, research design, scientific rigor and biases.[28] The TREND checklist is unique because it utilizes a standardized approach for the reporting of non-randomized research trials in public health.[28]

Table 2. The transparent reporting of evaluations with nonrandomized designs (TREND) checklist

Title and Abstract	Title and Abstract	• "*Information on target population or study sample*"[28]
Introduction	Background	• "*Theories used in designing behavioral interventions*"[28]
Methods	Participants	• "*Inclusion criteria*"[28] • "*Sampling method*"[28] • "*Recruitment setting*"[28]
	Intervention	• "*Unit of delivery: how were subjects grouped during delivery?*"[28] • "*Setting: where was the intervention delivered?*"[28] • "*Activities to increase compliance or adherence (e.g., incentives)*"[28]
	Outcomes	• "*Methods used to collect data*"[28]
	Assignment Method	• "*Unit of assignment (the unit being assigned to study condition, e.g., individual, group, community)*"[28] • "*Method used to assign units to study conditions, including details of any restriction (e.g., blocking, stratification, minimization)*"[28] • "*Inclusion of aspects employed to help minimize potential bias induced due to nonrandomization (e.g., matching)*"[28]
	Blinding	• "*How the blinding was accomplished and how it was assessed*"[28]
	Unit of Analysis	• "*Description of the smallest unit that is being analyzed to assess intervention effects (e.g., individual, group, or community)*"[28]
	Statistical Methods	• "*Methods for imputing missing data, if used*"[28] • "*Statistical software or programs used*"[28]
Results	Baseline Data	• "*Baseline characteristics for each study condition relevant to specific disease prevention research*"[28] • "*Baseline comparisons of those lost to follow-up and those retained, overall and by study condition*"[28] • "*Comparison between study population at baseline and target population of interest*"[28]
	Baseline Equivalence	• "*Data on study group equivalence at baseline and statistical methods used to*

		control for baseline differences"[28]
	Numbers Analyzed	• "*Indication of whether the analysis strategy was "intention to treat" or, if not, description of how noncompliers were treated in the analyses*"[28]
	Outcomes/ Estimations	• "*Inclusion of results from testing prespecified causal pathways through which the intervention was intended to operate, if any*"[28]
Discussion	Interpretation	• "*Discussion of results taking into account the mechanism by which the intervention was intended to work (causal pathways) or alternative mechanisms or explanations*"[28] • "*Discussion of the success of and barriers to implementing the intervention, fidelity of implementation*"[28] • "*Discussion of research, programmatic, or policy implications*"[28]
	Generalizability	• "*Generalizability (external validity) of the trial findings, taking into account the study population, the characteristics of the intervention, length of follow-up, incentives, compliance rates, specific sites/settings involved in the study, and other contextual issues*"[28]

Information directly quoted from: Des Jarlais DC, Lyles C, Crepaz N. Improving the reporting quality of nonrandomized evaluations of behavioral and public health interventions: The TREND statement. *American Journal of Public Health*. 2004;94(3):361-366.

2.09 The RE-AIM framework

The RE-AIM framework, originally proposed by Glasgow et al.,[22] is an evaluation framework designed to measure the external validity of health interventions [22] beyond efficacy, by assessing an intervention's potential for producing public health impact and translating knowledge from research into clinical practice.[25,26,34] The RE-AIM framework measures five dimensions of external validity in order to assess an intervention's potential for public health impact.[25] The five dimensions of the RE-AIM framework are as follows: **R**each the target population; **E**fficacy/**E**ffectiveness of the intervention; **A**doption into the target setting, the **I**mplementation of the intervention and the long-term **M**aintenance of an intervention. The RE-AIM framework is often used for the planning and evaluation of health interventions.[22,35] For a complete description of the five dimensions that make up the RE-AIM framework, please refer to Table 3.

Table 3. The RE-AIM dimensions

Dimension	Definition	Level of assessment	Questions to ask
Reach	• "*The ability to identify targeted population(s) at an organisational level and the absolute number, proportion and representativeness of individuals who are willing to participate in an intervention*"[25]	Individual	• "*Can the program attract large and representative percent of target population?*"[35] • "*Can the program reach those most in need and most often left out (i.e., older adults, the poor, low literacy and numeracy)?*"[35]
Efficacy/ Effectiveness	• "*The impact of an intervention on important outcomes, including potential negative effects and quality of life*"[25]	Individual	• "*Does the program produce robust effects, and across sub-populations?*"[35] • "*Does the program produce minimal negative side effects and increase quality of life or broader outcomes?*"[35]
Adoption	• "*The absolute number, proportion, and representativeness of settings and intervention agents (ie, people who deliver the programme) who are willing to initiate an intervention*"[25]	Organizational	• "*Is the program feasible for most real-world settings (costs, expertise, time, resources, etc.)?*"[35] • "*Can it be adopted by low-resource settings and typical staff serving high-risk populations?*"[35]

Dimension	Definition	Level of assessment	Questions to ask
Implementation	• "*At the individual level, implementation refers to clients' use of the intervention strategies*"[25] • "*At the setting level, implementation refers to the intervention agents' fidelity to the various elements of an intervention's protocol, including consistency of delivery as intended, and the time and cost of the intervention*"[25]	Individual and Organizational	• "*Can the program be consistently implemented across program elements, different staff, time, etc.?*"[35] • "*Are the costs—personnel, up-front, marginal, scale-up, equipment—reasonable to match effectiveness?*"[35]
Maintenance	• "*At the individual level, maintenance has been defined as the long-term effects of a programme on outcomes six or more months after the most recent intervention contact*"[25] • "*At the setting level, maintenance refers to the extent to which a programme or policy becomes institutionalised or part of the routine organisational practices and policies*"[25]	Individual and Organizational	• "*Does the program include principles to enhance long-term improvements (i.e., follow-up contact, community resources, peer support, ongoing feedback)?*"[35] • "*Can the settings sustain the program over time without added resources and leadership?*"[35]

Information directly quoted from: Wozniak L, Rees S, Soprovich A, et al. Applying the RE-AIM framework to the Alberta's caring for diabetes project: A protocol for a comprehensive evaluation of primary care quality improvement interventions. *BMJ Open*. 2012;2(5). Toobert DJ, Glasgow RE, Strycker LA, Barrera Jr. M, King DK. Adapting and RE-AIMing a heart disease prevention program for older women with diabetes. *Translational Behavioral Medicine*. 2012;2(2):180-187.

The RE-AIM framework utilizes both individual-level dimensions, as well as organizational-level dimensions in order to assess an intervention's potential for producing public health impact. Reach and Efficacy/Effectiveness are evaluated at the individual-level, whereas Adoption is assessed at the organizational-level.[22] Implementation and Maintenance can be evaluated at both the individual-level as well as the organizational-level.[15] An intervention's potential for public health impact is determined by the "*combined effect*" of each dimension of the framework.[22] When evaluating a health intervention with the RE-AIM framework, it is imperative to include both individual-level and organizational-level components, for they each provide vital information regarding an intervention's potential for public health impact.[18] For example, a clinical trial that produces large individual-level impact (i.e., Reach and Efficacy/Effectiveness), but utilizes program resources that would be difficult to gather under real world conditions will have little public health impact (even though the impact would seem large if only individual-level dimensions were evaluated).[18] Six months to one year of data collection is required for the proper assessment of Implementation, whereas a minimum of two years of data collection is required for organizational-level Maintenance.[22]

2.09A. Reach

Reach, which is the first dimension of the RE-AIM framework, is defined as "*the percentage and risk characteristics of persons who receive or are affected by a policy or program.*"[22] Reach is assessed at the individual-level and utilizes items such as sample size, participation rates and overall representativeness of the study sample to assess an intervention's potential for producing public health impact.[26,30] When calculating the participation rate, the intervention participants are represented by the numerator, whereas the population at large is represented by the denominator.[22] An intervention that produces good Reach would include a study sample that is representative of the larger target population.[22] Reach may also indicate the specific characteristics that distinguish intervention participants from non-intervention participants, such as demographic information (i.e., age, sex, socio-economic status, ethnicity), and health status (i.e., presence or absence of chronic disease).[22,26,36] As non-intervention participants have not provided written or oral consent to disclose their personal or health information, it is unethical to acquire any demographic or medical information on this population.[22,37] It is for this reason that many physical activity interventions fail to report the representativeness of the study sample to the larger target population.[18] Nevertheless, it is important to acknowledge any discrepancies that exist between intervention participants and non-intervention participants in order to determine whether a program is reaching those in need.[18,22] Even slight variations in health status or demographic information between participants and non-participants may have large implications towards an intervention's potential for producing public health impact.[22,38]

2.09B. Efficacy/Effectiveness

Efficacy/Effectiveness, which is the second dimension of the RE-AIM framework is measured at the individual-level. Efficacy is defined as the extent to which "*a program does more good than harm when delivered under optimum conditions in a controlled setting.*"[17,27] Whereas Effectiveness is defined as the extent to which "*a program does more good than harm when delivered under real world conditions.*"[17,27] Collectively, Efficacy/Effectiveness represent an assessment of any positive, negative or unintended outcome of the intervention.[22,26] This includes any outcomes related to health, wellbeing, quality of life, participant satisfaction or behavioral change.[22,26] For example, positive outcomes can exist in the form of clinical outcomes (i.e., improvements in health status), humanistic outcomes (i.e., smoking cessation, improvements in physical activity accumulation) and societal outcomes (i.e., policy change).[22] Negative outcomes can exist in the form of clinical outcomes (i.e., deterioration in health status), humanistic outcomes (i.e., the psychosocial implications of classifying a participant as "*inactive*" or "*unhealthy*") and societal outcomes (i.e., wasted or misused resources).[22,35,39,40] Efficacy/Effectiveness should also address the robustness of an intervention's primary and secondary outcome(s) by determining whether an intervention can demonstrate equal effectiveness across different subgroups and populations.[35] This includes individuals vulnerable to poor health outcomes (i.e., older adults) and individuals with low socio-economic status.[35]

2.09C. Adoption

Adoption, which is the third dimension of the RE-AIM framework is defined as "*the proportion and representativeness of settings (such as worksites, health departments, or communities) that adopt a given policy or program*," and is measured at the organizational-level.[22] Methods to capture Adoption include direct observation, interviews, focus groups and self-report surveys. Adoption is influenced by a number of organizational cultures, such as health care facilities, workplaces, schools, communities and governing institutions.[18] Items used to measure Adoption include the number of available settings, a description of each intervention setting, the inclusion and exclusion criteria of each intervention setting, the participant rates, and the overall representativeness of each intervention setting to the community at large.[18,26,27] Adoption is equally influenced by the individuals who delivered the intervention, which can include teachers, physicians, physical activity specialists and health professionals.[18] Therefore, it is important to identify the individuals who delivered the intervention, along with their professional-level of expertise, and the inclusion criteria used to recruit the delivery agents.[27] An intervention that has the capability of adopting into a variety of different settings (i.e., settings with limited resources) with a diverse group of delivery agents (i.e., staff with varying levels of expertise), will have the potential to produce public health impact.[18,27]

2.09D. Implementation

Implementation, which is the fourth dimension of the RE-AIM framework is assessed at both the individual-level, as well as the organizational-level. By definition, Implementation is "*the extent to which a program is delivered as intended.*" [22] At the individual-level, Implementation measures participants' adherence to the intervention.[22] At the organizational-level, Implementation measures the extent to which the delivery agents implement the intervention as intended, in accordance to the research objective.[22] The Implementation of an intervention can be assessed by the costs associated with the intervention, the extent to which the intervention is delivered and evaluated as intended,[26] and the degree to which participants receive the intervention as intended.[27] Collectively, the costs associated with promotion, recruitment and implementation equal the cost of intervention delivery.[35] The Implementation of health interventions into existing facilities (i.e., community centers, recreation centers and seniors' centers) and health settings may act as a cost-effective approach to increase program sustainability over the long-term.[35] The assessment of Implementation should include a "*treatment receipt*," which is defined as "*the degree to which the participant understands and is able to use the intervention skills.*"[18] Implementation should also include an "*enactment*" which is defined as "*the degree to which the participant applies the skills during the program.*"[18] Ideally, Implementation may include the level of fidelity[25] and autonomy the delivery agents exert while implementing the intervention.[18,36] However, due to the subjective nature of this assessment, these indicators would be difficult to assess. Implementation may also examine the extent to which an intervention was delivered consistently to all of its participants.[35] The assessment of Implementation is important in determining whether

an intervention holds enough real world significance to be effective under real world conditions.[22]

2.09E. Maintenance

Maintenance, which is the final dimension of the RE-AIM framework, is assessed at both the individual and organizational-level. Maintenance examines the extent to which a change in behavior can be sustained over the long-term.[18] Specifically, Maintenance evaluates the extent to which "*innovations become a relatively stable, enduring part of the behavioral repertoire of an individual (or organization or community).*"[18] At the individual-level, Maintenance is characterized as long-term behavior change that lasts over 6 months.[26] A number of studies have demonstrated 6 months to be the necessary time frame required for sustained, long-term behavior change.[22,27,41] Therefore, individual-level Maintenance measures participant outcomes at 6 or more months following initial behavior change.[27] At the individual-level, Maintenance can exhibit a dose-response effect.[18] An intervention's Maintenance is directly associated with the length of time the intervention participants spend engaged in positive health behavior change.[18] When examining individual-level Maintenance, it should be noted that initial behavior change may be subject to relapse.[22,35]

Organizational-level Maintenance is designed to assess the extent to which an intervention can be sustained over time, under real world conditions.[18] At the organizational-level, Maintenance is defined as "*the extent an intervention becomes an established program in the organization.*"[26] Therefore, an efficacious intervention that is sustained over the long-term will have the potential to produce a large amount of public

health impact.[18] The integration of health interventions into established programs or organizations is often a challenge, especially when research funding is withdrawn post-intervention.[35] Because research materials, training and resources are typically funded through grant funding, an intervention will need to rely on alternate sources of funding in order to be sustained over the long-term. This may explain why organizational-level Maintenance is a dimension of the RE-AIM framework that commonly goes unreported.[35,42,43] A systematic literature review conducted by Allen et al. analyzed 31 clinical and community-based research trials that utilized the RE-AIM framework, and found Maintenance, at the organizational-level to be reported only 11% of the time.[27]

2.10 RE-AIM framework for physical activity interventions in primary care

Several primary care based physical activity interventions have employed the RE-AIM framework to determine whether physical activity counseling delivered by a health care provider can become a routine practice in primary care settings. These clinical trials have been conducted in Canada,[20] Australia,[19,44] and Finland.[21] Table 4 outlines the five dimensions of the RE-AIM framework, pertaining to primary care based physical activity interventions.

Table 4. RE-AIM Framework - physical activity interventions in primary care

RE-AIM element	Guidelines
Reach	"*The percent and representativeness of the target population that participates in the intervention*"[19]
Efficacy/Effectiveness	"*The extent to which the intervention achieves its anticipated outcomes, i.e., increased levels of physical activity among primary care patients*"[19]
Adoption	"*The percent and representativeness of healthcare settings or providers who agree to participate*"[19]
Implementation	"*The degree to which the intervention is conducted as intended*"[19]
Maintenance	"*At the patient level, the extent to which intervention effects are sustained over time*"[19] "*At the systems level, the extent to which the intervention becomes a part of routine practice*"[19]

Information directly quoted from: Eakin EG, Brown WJ, Marshall AL, Mummery K, Larsen E. Physical activity promotion in primary care: Bridging the gap between research and practice. *American Journal of Preventive Medicine*. 2004;27(4):297-303.

Eakin et al.[19] conducted a primary care based physical activity intervention in Australia, which was developed alongside the "*10,000 Steps Rockhampton Project.*" The purpose of this intervention was to promote the addition of physical activity counseling into the current practice of general practitioners in Rockhampton Australia.[19] A total of 66 general practitioners from 23 clinics were invited to participate in the study.[19] General practitioners were requested to provide physical activity promotional material and brief physical activity counseling sessions to patients attending one of the 23 designated clinics.[19] Four out of the five dimensions of the RE-AIM framework were assessed to evaluate the intervention's potential for producing public health impact. Efficacy/Effectiveness was evaluated by examining the extent to which the program

demonstrated impact at the community-level. An independent cross-sectional analysis was performed using telephone surveys on a random sample of Rockhampton residents to determine whether the "*10,000 Steps Rockhampton proj*ect" was effective, and whether the residents self-reported that they engaged in physical activity counseling with their general practitioner.[19] A significant increase of 51% was observed in the general practitioners' "*awareness*" of the "*10,000 Steps Rockhampton proj*ect" from baseline to follow-up (i.e., 14 months).[19] At follow-up, residents of Rockhampton were 31% more likely to recall engaging in physical activity counseling with their general practitioner (95% CI 1.11-1.54).[19] Adoption was evaluated by the number of clinics and general practitioners who engaged in the "*10,000 Steps Rockhampton project.*"[19] Overall, 21 out of the 23 clinics (91%), and 32 of the 55 general practitioners (58%) participated in the intervention.[19] Implementation was evaluated by the amount of clinics and general practitioners who utilized program resources and engaged in physical activity counseling with their patients.[19] At follow-up, 62% of the general practitioners who participated in the study showcased physical activity promotional material in their clinical space, 81% handed out 10,000 Steps brochures and 70% gave out pedometers.[19] However, the number of general practitioners who self-reported counseling their patients on physical activity did not increase significantly from baseline to follow-up.[19] Maintenance was evaluated by assessing the probability the general practitioners would remain in the "*10,000 Steps Rockhampton project*" and continue to use the program materials in the future (i.e., post-intervention).[19] Overall, 81% of general practitioners stated they would continue use program materials and 68% stated they would continue to hand out pedometers.[19] Because this intervention demonstrated good Efficacy/Effectiveness by

increasing the number of residents who reported receiving physical activity counseling from their general practitioner, excellent Adoption at the setting and staff-level, and good Implementation through the use of program materials and pedometers, this primary care based physical activity intervention has the potential to be successfully adopted into clinical practice.[19]

In 2001, Aittasalo et al.[21] conducted a four-year clinical trial in Finland entitled the "*Physical Activity Prescription Program*" (PAPP). The objective of this research trial was to improve physician-based physical activity prescription in primary care (2002, n=16,692; 2004, n=17,170).[21] The five actions of the PAPP trial were to: i) develop a physician-based physical activity counseling strategy, ii) provide physical activity counseling resources, iii) assist physician adoption of the physical activity counseling strategies, iv) disseminate physical activity counseling strategies to necessary stakeholders and v) raise economic resources to fund the program.[21] Researchers used all five dimensions of the RE-AIM framework to assess whether the PAPP trial could reach a level of public health impact. Reach was evaluated by examining the number of PAPP resources that were requested by the physicians.[21] At follow-up, 3,048 blocks of physical activity prescription had been utilized by the physicians.[21] Efficacy/Effectiveness was examined by the number of times the physicians counseled their patients on physical activity.[21] In 2002, 65% of physicians reported counseling one out of every three patients on physical activity, and by 2004, that percentage had increased to 67%.[21] Adoption was evaluated by examining the number of times physicians utilized physical activity resource material to support verbal physical activity counseling.[21] In 2002, 12% of physicians reported utilizing program resource material to council patients on physical

activity.[21] That percentage declined to 11% in 2004.[21] Implementation was evaluated by determining whether the program actions were accomplished.[21] When evaluating Implementation, researchers determined that each of the five actions of the PAPP trial were implemented as intended.[21] Maintenance was evaluated by examining the extent to which the PAPP trial had the potential to become integrated as part of clinical practice within primary care.[21] By 2004, the PAPP trial had facilitated the launch of 14 local projects in Finland, all of which had utilized their program resource material.[21] Although this intervention had effectively achieved Reach, Implementation and Maintenance, the frequency of physical activity counseling (Efficacy/Effectiveness), and the frequency of physicians utilizing physical activity resource material (Adoption) did not increase significantly from baseline to follow-up.[21] Unsuccessful Efficacy/Effectiveness and Adoption would make an intervention such as the PAPP trial difficult to adopt into clinical practice of primary care, over the long-term.

Fortier et al.[20] launched a primary care based physical activity intervention in Canada entitled the "*Physical Activity Counselling randomized controlled trial*" (PAC Trial).[20] Patients who attended a non-emergency scheduled primary care visit during the recruitment period, and who failed to meet the Canadian Physical Activity Guidelines (i.e., accumulated less than "*150 minutes of moderate to vigorous physical activity a week*") were invited to participate.[20] After receiving a "*Brief Physical Activity Counseling*" (BPAC) session that was led by a health care provider, 136 eligible patients were randomized to one of two groups; 1) "*Intensive Physical Activity Counseling*" (IPAC) delivered by a physical activity specialist (i.e., 6 additional visits) or 2) no further intervention.[20] All five dimensions of the RE-AIM framework were examined to

measure the intervention's potential for producing public health impact.[20] When evaluating Reach, researchers determined that the study participants were predominantly female, middle age, well-educated and overweight or obese.[20] This population was also older, more overweight and obese, and had a higher prevalence of chronic disease than non-study participants.[20] Of the 136 eligible participants, 61were randomized into the IPAC group, and 59 received no further intervention.[20] To evaluate Efficacy/Effectiveness, researchers assessed participants' total leisure time physical activity at two specific time points; 6 weeks and 13 weeks.[20] Patients who received IPAC reported increases in their total leisure-time physical activity at 6 and 13 weeks (6 weeks: $p=0.009$, 13 weeks: $p=0.01$), and increased levels of physical activity throughout the duration of the intervention compared to individuals who received no further intervention.[20] Program adherence rates were used to assess Adoption.[20] A total of 82% of individuals who received either BPAC or IPAC attended all clinic appointments and follow-up visits.[20] When evaluating Implementation, researchers determined that the primary care providers delivered the intervention as intended 91% and 80% of the time for the BPAC group and the IPAC group respectively.[20] The IPAC participants had also reported relatively high rates of satisfaction with the program (i.e., an average score of 6.4 out of 7.0).[20] When examining individual-level Maintenance, overall findings suggest that the physical activity levels of individuals in both groups reverted back to baseline measures at 25 weeks.[20] Because patient-centered physical activity counseling delivered by an exercise specialist demonstrates short-term improvements in physical activity, an intervention such as the PAC trial would require strategies to increase individual-level

Maintenance over the long-term in order to be successfully integrated into clinical practice.

Physical activity interventions that attempt to capture real world significance and public health impact have their strengths as well as their limitations. For example, Eakin et al.,[19] and Aittasalo et al.[21] conducted primary care based physical activity interventions and incorporated less stringent control and scientific rigor into their project designs to demonstrate that their interventions could still be efficacious under real world conditions. The researchers did not incorporate a control group into their project designs, and relied on self-report measures to assess the percentage of patients counseled on physical activity.[19,21] Fortier et al.[20] employed less stringent control and standardization by applying the RE-AIM dimension Reach to a broad range of healthy adults, as well patients with chronic disease.[20] The strongest outcomes of these primary care based physical activity interventions are the short-term positive benefits that were observed at the individual-level. For example, Eakin et al.[19] found patients to be 31% more likely to receive physician-led physical activity counseling. Fortier et al.[20] found participants who received patient-centered physical activity counseling from an exercise specialist over a 3-month period displayed significant improvements in self-reported physical activity accumulation at 6 and 13 weeks, although it must be acknowledged that the accelerometer data did not support these findings. Unfortunately, these interventions struggled to achieve sustained behavior change at the individual-level,[20] as well as long-term program sustainability at the organizational-level.[19] Glasgow et al.[22] have identified Maintenance at both the individual and the organizational-level as one of the greatest challenges researchers face when trying to employ the RE-AIM framework to assess an

intervention's potential for producing public health impact. Specific examples of these challenges include behavior relapse at the individual-level, and access to program-level measures of institutionalization at the organizational-level.[22] In order for an intervention to be influential at the level of public health, researchers must first identify the systems and stakeholders that may impact the outcomes and long-term sustainability of a project.[45] Researchers must then incorporate these governing bodies into their project designs to develop a common vision for program continuance and policy implementation.[45]

Table 5. Physical activity interventions utilizing the RE-AIM framework

RE-AIM Element	Eakin et al.[19]	Aittasalo et al.[21]	Fortier et al.[20]
Reach	• Not applicable[19]	• The number of PAPP resources requested by the physicians[21] • By the completion of the intervention, a total 3048 blocks of physical activity prescription were used[21]	• The percentage of patients willing to participate. The representativeness of the study population[20] • Study participants were predominantly female, middle age, well-educated and overweight/obese[20] • Study participants were older, more overweight/obese and had a higher prevalence of chronic disease than non-study participants[20]
Efficacy/Effectiveness	• The extent to which the program was influential at the population (community) level[19] • GP's awareness of the "*10,000 Steps Rockhampton project*" significantly increased by 51% from baseline to follow-up (14 months)[19]	• The frequency of physicians who engaged in physical activity counseling with their patients[21] • In 2002, 65% of physicians reported counseling one out of every three patients on physical activity. By 2004, that percentage had increased to 67%[21]	• The physical activity levels of patients in the BPAC and IPAC groups[20] • IPAC participants self-reported higher levels of total leisure-time physical activity at 6 weeks (p=0.009) and 13 weeks (p=0.01) compared to control[20]

RE-AIM Element	Eakin et al.[19]	Aittasalo et al.[21]	Fortier et al.[20]
	• Participants were 31% more likely to recall engaging in physical activity counseling with their GP (95% CI 1.11-1.54)[19]		
Adoption	• The percentage of GPs and practices that agreed to participate in the program[19] • 21 out of the 23 practices (91%) and 32 out of 55 GPs (58%) participated[19]	• The frequency of physicians who used physical activity resource material[21] • In 2002, 12% of physicians reported using resource material.[21] That percentage declined to 11% in 2004[21]	• Patient adherence to the program[20] • 82% of patients from the BPAC and the IPAC groups attended all clinic appointments and follow-up visits[20]
Implementation	• The number of GPs and practices that utilized program resources and engaged in physical activity counseling with their patients[19] • 62% of GPs displayed promotional material in their clinics, 81% handed out brochures and 70% had distributed pedometers [19]	• The extent to which the 5 actions of the PAPP trial were implemented as intended[21] • All five actions of the PAPP trial were implemented as intended[21]	• The extent to which the program was delivered as intended. The extent to which the patients received the intervention as intended. The patients overall satisfaction with the program[20] • Primary care providers delivered the protocol as planned 91% and 80% for the BPAC group and the IPAC group respectively[20]

RE-AIM Element	Eakin et al.[19]	Aittasalo et al.[21]	Fortier et al.[20]
	• The number of GPs who reported engaging in physical activity counseling with their patients did not change from baseline to follow-up[19]		• Overall, IPAC participants reported an average score of 6.4/7 for program satisfaction[20]
Maintenance	• The extent to which the GPs would remain in the "*10,000 Steps Rockhampton project*" and utilize program resources over the long-term[19] • 81% of GPs stated they would continue to promote physical activity using program material and 68% would continue to distribute pedometers[19]	• The extent to which the PAPP trial had become part of clinical practice in primary care[21] • By 2004, the PAPP trial facilitated the launch of 14 local projects in Finland[21]	• The long-term sustainability of physical activity levels in patients[20] • At 25 weeks, the physical activity levels of patients in both groups reverted back to baseline measures[20]

2.11 Strategies to influence the individual-level Maintenance of primary care based physical activity interventions

Future research should investigate how to effectively deliver primary care based physical activity interventions for long-term sustainability, at the individual-level. Suggestions include integrating a non-physician member[19] such as a certified exercise specialist into a primary health care team, who is trained in delivering patient-centered physical activity counseling sessions to apparently healthy individuals as well as patients with chronic disease. The addition of quantitative measures such as pedometers and accelerometers into the study design may have a positive impact on program delivery and program sustainability.[19,46] Motivating the primary care team to increase their personal physical activity levels could have a downstream effect at the patient-level.[19,47] Determining the impact of the research on long-term individual behavioral change and sustainability must be conducted when assessing the efficacy of any of these approaches.

2.12 Strategies to influence organizational-level Maintenance

In order to influence Maintenance at the organizational-level, it is imperative to identify the key stakeholders who may be influential towards the outcomes and long-term sustainability of a project. Secondly, it is important to identify the most appropriate phase(s) of the research process (i.e., planning, implementation or dissemination) to engage these stakeholders, in order to increase the likelihood that an intervention becomes sustained over the long-term, and achieves the highest level of public health impact. Strategies that may facilitate this process including conducting a stakeholder

analysis and employing tactics of knowledge translation throughout the various phases of the research process.

2.12A. Stakeholder analysis

In order for an intervention to be influential at the level of public health, researchers must first identify the type of system the project is involved in (i.e., social, environmental, cultural or economic), understand how key stakeholders influence the system, and identify the unique relationship stakeholders have to the project.[45] Key stakeholders, such as community members, policy makers and investors specialize in planning, decision making (i.e., rules and regulation) and policy implementation.[45] These stakeholders may be highly influential towards the outcomes and long-term sustainability of a project, due to their unique ability to access resources, political authority and key information.[45] Therefore, it is important to ensure the project's needs, values and views are in alignment with the needs, values and views of the key stakeholders and systems.

A stakeholder analysis may be used to determine how researchers should involve stakeholders (i.e., throughout the planning, development, implementation, dissemination or decision making phase), and what level of involvement is necessary to fulfill project objectives.[45] Successful interventions involve key stakeholders at the initial planning phases, as well as the decision making phases of a project.[45] Including multiple viewpoints and acknowledging opposing interests could enhance project effectiveness through the creation of new insights and ideas, and may minimize the potential for obstacles, unforeseen consequences and setbacks.[45] This may also enable researchers and stakeholders to develop consensus with the vision and goals of a project, establish what

constitutes as "*success*," and determine how to utilize project outcomes to better support the community.[45] A stakeholder analysis is crucial to a program's impact on public health, because key stakeholders such as policy makers and governing bodies have the authority to make final decisions in regards to funding and project sustainability.[45]

What is a stakeholder analysis?

By definition, a stakeholder analysis is "*a process of systematically gathering and analyzing qualitative information to determine whose interests should be taken into account when developing and/or implementing policy or program.*"[48] It is imperative that this type of analysis be conducted prior to policy implementation to decrease the potential for setbacks, build alliances and acknowledge opposing interests.[48] Data obtained from a stakeholder analysis may provide useful information for future analysis, provide supporting data for policy development, and formulate a collaborative process to develop consensus.[48]

Who is a stakeholder?

A stakeholder is an actor (i.e., an individual or an organization) who exhibits specific knowledge, influence and interest towards a specific decision, program or policy in question.[48] Schmeer[48] has classified stakeholders into eight different categories; 1) international, 2) national (i.e., legislators, governors), 3) public (i.e., ministers, agents), 4) labor (i.e., unions, associations), 5) private-for-profit organizations, 6) non-for-profit organizations, 7) civil/society and 8) users/consumers.

Steps for conducting a stakeholder analysis

Step 1: Plan the process

When planning a stakeholder analysis, the first step is to identify the purpose for conducting the analysis.[48] It is important to determine who will utilize the information obtained from the analysis (i.e., policy makers, decision makers), and how this information will be interpreted and evaluated.[48] Planning a stakeholder analysis involves deciding who is responsible for data collection and interpretation.[48] It is advised that the process of data collection and interpretation be conducted by a small group (2-3 individuals) as opposed to a single individual or organization, in order to limit the potential for subjective bias that is associated with individualized data collection and interpretation.[48] In fact, a broad range of viewpoints and perspectives may contribute to the richness of the data.[48]

Step 2: Identify the policy

The second step of the stakeholder analysis involves identifying the specific policy or issue that will be targeted.[48] The policy in question should be specific, concise, identifiable and "*controversial*" at the social or political-level.[48] The policy in question should be "*controversial*" in terms of resource allocation by providing justification for the need to allocate resources towards a particular policy or program.[48]

Step 3: Identify the key stakeholders

The third and most important step of the stakeholder analysis is to identify the key players who may be influential towards the implementation of a specific program or

policy in question.[48] The identification of key stakeholders includes the acknowledgement of current sectors, policies and players that are affiliated with the target stakeholders.[48] When selecting key stakeholders, it is important to include individuals or organizations who are affected by a specific program or policy, who can directly influence the implementation of a program or policy, and who demonstrate an interest in the program or policy.[48]

Step 4: Data collection

A stakeholder analysis should include tools designed to identify stakeholders' positions, interests, alliances, resources, power and potential to inform program, policy and practice.[48] A method of data collection (i.e., interviews, focus groups, questionnaires) should be selected based on measures of validity, reliability and cultural relevance.[48] In reference to an interview-based method of data collection, the interviewer should ask clear, concise, open-ended questions to the target stakeholders.[48]

Step 5: Data analysis

The process of data analysis involves the systematic grouping of qualitative data into clear themes and concise messages, to allow researchers to establish comparisons between stakeholders, and present findings in a systematic way that is easily interpretable and understandable.[48] The "*position*" of stakeholders is assessed through a compilation of information gathered from stakeholder interviews, indirect sources (i.e., secondary information and perspectives of other stakeholders) and levels of interest.[48] Researchers may draw comparisons between the number of stakeholders who support the

implementation of a policy or program, and the number of stakeholders who are in opposition.[48] A stakeholder's level of interest is characterized by his or her assessment of the potential advantages or disadvantages of a policy or program.[48] The level of power a stakeholder exhibits is assessed in his or her ability to access and utilize resources.[48] Leadership is determined by a stakeholder's willingness to either support or refute the implementation of a policy or program.[48] After completing a stakeholder analysis, researchers should identify who is an important stakeholder and what is his or her position, level of interest, knowledge, alliance and level of power and leadership.[48]

Step 6: Utilize information gathered

The final step of the stakeholder analysis entails presenting information in a simple and concise manner so policy makers can utilize findings to "*take action*" and produce change.[48] The presentation should highlight the primary outcomes of the analysis, and the current recommendations for long-term policy or program implementation.[48] Suggested recommendations include: 1) how to maintain support from current supporters, 2) how to increase power and leadership from current supporters, 3) how to transform opponents into supporters, 4) how to decrease the current power and leadership of opponents and 5) how to transform neutral stakeholders into supporters.[48]

2.12B. Knowledge translation

Background information

Data from the Netherlands and the United States suggest that approximately 30% to 40% of patients are exposed to health care services that are not based on current scientific findings.[30] Furthermore, 20% to 25% of patients receive care that has either been proven to be ineffective, or has the potential to cause harm.[30] It is believed that 10,000 to 20,000 deaths in Canada may be prevented every year with the proper implementation of current scientific evidence into clinical practice.[30] Historically, the research process was "*complete*" when researchers were acknowledged for having their scientific findings published in a peer-reviewed journal.[49] At that time, researchers did not engage in the translation of research to inform health policy and practice.

What is knowledge translation?

The translation of evidence-based research into health policy and clinical practice has become an increasingly significant component of scientific research in Canada. The Canadian Institutes of Health Research (CIHR; www.cihr.irsc.gc.ca) and the Canadian Health Services Research Foundation (CHSRF; www.chsrf.ca) have promoted knowledge translation by urging researchers to engage key stakeholders, decisions makers and policy makers into their projects designs, in order to utilize scientific evidence to formulate decision making in health care.[30] Estabrooks et al.[30] suggest that incorporating key stakeholders such as community members, practitioners, policy makers and investors into a research team will formulate a sense of collective responsibility to the community.[30] Establishing a collaborative approach to the development of

knowledge translation initiatives in Canada will not only strengthen our health care system, but enhance the health of our Canadian population over the long-term.[30]

According to the CIHR, knowledge translation is defined as "*a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system*" (www.cihr-irsc.gc.ca). A knowledge translational approach is characterized as a communication strategy between the researchers and the end-users, which has been established to achieve evidence-informed decision making for clinical practice.[50] CIHR has described two knowledge translational approaches, namely, "*End Grant Knowledge Translation*" (EGKT) and "*Integrated Knowledge Translation*" (IKT; www.cihr.irsc.gc.ca). The selection of which approach to use is based on the specific end-user (i.e., researcher, clinician, decision maker, policy maker or the public), and the type of research conducted.[51]

End grant knowledge translation

"*End Grant Knowledge Translation*" is an approach that is utilized once the research project is complete and the findings are readily available.[49] This approach enables researchers to disseminate their findings to the appropriate knowledge-users who can utilize the outcomes to inform best practice.[50] Some activities of EGKT include conference presentations, meetings, briefings, workshops, media engagement, and peer-reviewed publications.[49,52] These activities have been specifically designed to aid the researchers communicate their findings to their targeted audiences.[49,52]

Integrated knowledge translation

"*Integrated Knowledge Translation*" is a collaborative, participatory approach to knowledge translation that integrates the knowledge-users throughout the design, development, implementation and dissemination of the research (i.e., the development of the research question and outcome measures, data collection, data analysis and knowledge dissemination).[50] Knowledge-users range from policy and decision makers, to community leaders, practitioners, clinicians and the media.[50] The ability to integrate the knowledge-users into the research design, and receive their buy in from project inceptions is a key attribute of IKT.[50] Because IKT involves integrating the knowledge-user throughout the design and development of the research project,[50] the research process can be more time-consuming, demanding, and may require more resources than other knowledge translational approaches.[49] Furthermore, knowledge-users could influence knowledge production, which may alter the balance between research independence and research relevance.[30] Nevertheless, the active involvement of knowledge-users throughout every phase of the research process may be the deciding factor when determining whether the scientific findings become utilized to inform best practice and policy.[49] An effective IKT approach requires: i) a common understanding of the current issue or policy in question, ii) consensus on the appropriate course of action, iii) specific roles, responsibilities and accountabilities for each member, iv) varying levels of expertise, competencies and interests of each member, and v) trust to ensure that professional relationships are maintained and potential conflicts are resolved appropriately.[49]

Knowledge broker

A knowledge broker is a recent knowledge translational approach that attempts to build collaboration between the researcher and the end-user.[53] Knowledge brokers are experts in knowledge translation, and have extensive experience in research, decision making and policy implementation.[49] Furthermore, they have expertise in building rapport, formulating alliances and assisting knowledge-users make evidence-informed decisions.[53] Knowledge brokers can exist as individuals, groups or organizations.[53] Unfortunately, most organizations lack the funding and resources required to support a knowledge broker within their practice. Table 6 outlines the three knowledge translation approaches with their respective roles.

Table 6. Knowledge translation approaches

	End Grant Knowledge Translation	Integrated Knowledge Translation	Knowledge Broker
Knowledge Production:	Researcher: • Research question • Data collection • Data analysis • Interpretation • Conclusion	Researcher and Stakeholders: • Research question • Methodology • Data collection • Data analysis • Interpretation • Dissemination / implementation	Researcher: • Research question • Data collection • Data analysis • Interpretation • Conclusion
Knowledge Translation:	Researcher → Stakeholders and End-Users	Researcher and Stakeholders→ End-Users	Researcher → Knowledge Broker → Stakeholders and End-Users

2.13 The ENCOURAGE project

In Winnipeg, Manitoba an inter-professional team of stakeholders ranging from academics to researchers, health care professionals, community service providers and policy makers came together to support the vision of improving the prescription of physical activity as a health intervention in primary care. Together, the team of stakeholders utilized a collaborative approach to develop a model that would provide previously inactive individuals with the supports required to adopt and sustain a more physically active lifestyle. The team developed an intervention entitled the "*ENhancing primary care COUnseling and Referrals to community-based physical Activity opportunities for sustained lifestyle chanGE*" (ENCOURAGE) project.[54] The purpose of this project was to bridge the gap between primary care and the community by utilizing strategies from the "*Expanded Chronic Care Model*" (ECCM),[55] and the "*Integrated Knowledge Translation*" approach.[50] The ECCM was adapted from Wagner's Chronic Care Model, originally proposed in 1998.[56] The integration of an exercise specialist into an inter-professional team of primary care providers created a liaison system between the health care system and the community that would influence individual-level, community-level and clinical-level outcomes.[55]

The ENCOURAGE project was implemented in two Winnipeg Regional Health Authority (WRHA) primary care clinics (i.e., Access River East and Access Transcona) that were selected based on their representativeness to the Winnipeg population. With approximate population densities of 1,229 and 1,146 per square kilometer for the community area of River East and Transcona respectively,[57] these sites had the community capacity necessary for successful project implementation. A "*Risk Factor*

Identification Tool" (RFIT) was utilized to assess participants' current physical activity levels,[54] risk behaviors, and readiness to change. Participant recruitment began in December 2011.[54] Individuals between the ages of 25 to 75 years, who did not meet the current Canadian Physical Activity Guidelines of "*150 minutes of moderate to vigorous physical activity a week,*" who were willing to integrate physical activity into their everyday lives (i.e., identified as being in the contemplation, preparation or action stage of change according to the "*Transtheoretical Model of Change*"[41]) and who had not been previously diagnosed with an underlying condition that could limit their physical activity participation were eligible for recruitment.[54] The project recruited 119 participants, 36 males and 83 females.[54] In addition, to better support the health care teams discuss physical activity in their practices, the intervention integrated a "*Canadian Society for Exercise Physiology – Certified Exercise Physiologist*" *(CSEP-CEP)* into the study design to provide patients with physical activity counseling supports, individualized physical activity prescriptions and referrals to community-based programs and services.[54] The *CSEP-CEP* charted summary notes about his interactions with clients in an electronic medical record database, which enabled the health care providers to remain up to date with the physical activity behaviors of the patients.[54] Study participants received four 30 to 60 minute physical activity counseling sessions delivered by the *CSEP-CEP* over a period of 16 weeks.[54] Participants were also asked to attend four follow-up appointments (i.e., 8 weeks, 16 weeks, 24 weeks and 40 weeks) to capture primary and secondary outcome measures.[54] The primary outcome was a change in total daily physical activity, as measured objectively through accelerometry.[54] Symptoms of depression were assessed using the "*Patient Health Questionnaire*" (PHQ-9).[54] Data

were collected at baseline and then again at 2, 4, 6 and 10 months.[54] Sixty-two participants withdrew from the study, and 57 participants completed the study. The majority of drop-outs occurred in between the baseline and 2-month appointment (n=40). Overall findings suggest that individuals increased their total physical activity levels by adding more than 104 minutes of physical activity in bouts lasting 30 seconds or longer a week (or > 1400 total steps on a daily basis).[54] Findings from the PHQ-9 data suggest that 29 participants reported experiencing some symptoms of depression at baseline, whereas only 12 participates reported experiencing some symptoms of depression at 10 months.[54] Collectively, these findings support the effectiveness of the ENCOURAGE project.

Chapter 3.0: Methods

3.01 Purpose/ policy in question

Based on the information gathered from this literature review, it is apparent that a number of clinical trials have been conducted in order to better support physical activity as a health intervention in primary care. However, a limited number of studies have evaluated the external validity of these health interventions, beyond efficacy, for long-term sustainability, organizational-level Maintenance and public health impact.[19,21] Our own research group conducted the ENCOURAGE project, which enabled previously sedentary individuals (Age, 51 ± 1 years; BMI, 35.2 ± 0.8; with at least 1 or more chronic disease risk factor) to increase their total physical activity accumulation by 104 minutes a week (i.e., an equivalent of adding ~1,400 more total steps of activity/day).[54] More importantly for the context this thesis project, the ENCOURAGE project captured the support of an inter-professional team of stakeholders ranging from academics (the University of Manitoba), to researchers (the St. Boniface Research Centre, the University of Manitoba), health care professionals (WRHA) and community service providers (the Reh-Fit Centre, the City of Winnipeg) throughout the design, development and implementation of the project. An inter-professional team brings added value by incorporating a diverse range of professionals from various disciplines into a team, in order to work collaboratively towards a common objective. Although the ENCOURAGE project has now ended, the inter-professional team of stakeholders are utilizing project outcomes to inform best practice and policy within their various organizations. Because organizational-level Maintenance, or long-term program sustainability, is the least

reported dimension of the RE-AIM framework,[35,42,43] the purpose of this thesis project was to:

1) Use the RE-AIM framework to evaluate the external validity of the ENCOURAGE project; and,
2) Describe the stakeholders' perceptions regarding the long-term sustainability of the ENCOURAGE project

By completing these assessment approaches, I have identified factors that may guide the development of future research initiatives to better support the sustainability of physical activity interventions at the organizational-level.

3.02 Utilization of the RE-AIM Framework

The evaluation of the ENCOURAGE project for the purpose of this thesis project included a brief analysis of four of the five dimensions of the RE-AIM framework (Reach, Efficacy/Effectiveness, Adoption, Implementation), with an in-depth analysis of Maintenance, which is the final dimension of the framework. The RE-AIM framework utilizes an individual and organizational-level assessment in order to evaluate an intervention's potential for producing public health impact.[22]

3.02A. Reach

Reach was evaluated by examining the following question: is the study sample representative of the larger target population? The Reach dimension assessed demographic information of the participants who received the ENCOURAGE intervention, versus non-intervention participants. Participant-level data were collected

by reviewing the "*ENhancing primary care COUnseling and Referrals to community-based physical Activity opportunities for sustained lifestyle chanGE*" (ENCOURAGE) project thesis that has been written by David Kent.[54] Demographic information of non-participants were identified utilizing inferential regional data captured from the "*Community Health Assessment Report*" (2009).[57] The "*Community Health Assessment Report*" classifies regional health status, determinants of health, and demographic information according to each community area located in Winnipeg, Manitoba.[57] The two primary care clinics utilized as the study settings for the ENCOURAGE project were located within two community areas, namely River East and Transcona. Therefore, the most recent population-level data available from the "*Community Health Assessment Report*" were used to describe these two community areas.[57]

3.02B. Efficacy/Effectiveness

In the context of the RE-AIM framework, Efficacy/Effectiveness measures any positive, negative or unintended outcome that was a result of the intervention.[22,26] At the client-level, the primary outcome of the ENCOURAGE project was a change in total daily accumulation of moderate to vigorous physical activity (MVPA) in bouts of 10 minutes or more.[54] A detailed analysis examining the extent to which the ENCOURAGE project was efficacious in achieving its primary and secondary outcome measures (i.e., self-efficacy, health behavior change, physical and mental functioning, quality of life and symptoms of depression) has been written by David Kent.[54] Therefore, I have only briefly addressed the Efficacy/Effectiveness dimension of the ENCOURAGE project in order to allow for a more in-depth focus on the other aspects of the RE-AIM framework.

3.02C. Adoption

Adoption is evaluated by assessing the extent to which the ENCOURAGE project would be equally effective if delivered in a different setting, or if delivered by different agents.[18] Adoption provides a brief description of the health care providers who delivered the intervention, the settings included in the intervention, the settings excluded from the intervention, and the representativeness of the settings to the community at large.[18,26,27] Regional data were collected by reviewing the "*Community Health Assessment Report*" (2009),[57] provided by the WRHA. Clinic-level data were assessed by analyzing the post-intervention interview transcripts that were conducted with the health care providers involved with the ENCOURAGE project. These interviews were conducted by Dr. Moss Norman and Dr. Elizabeth Ready.[58] For the purpose of this analysis, a simplified version of a thematic analysis was performed. First, all transcripts were read and re-read to identify patterns and meaning within the dataset.[59] Next, codes were used to classify the data into meaningful categories.[59] Finally, the codes were grouped to generate broad, overarching themes.[59] For a detailed description of the process taken to conduct a thematic analysis, please refer to page 58.

3.02D. Implementation

Implementation examines the extent to which the intervention was delivered as intended.[22] Specifically, Implementation identified whether the protocol implemented for the ENCOURAGE project was delivered consistently to all study participants[35] (i.e., whether the *CSEP-CEP* provided each client with the physical activity counseling as designed). Clinic-level data were collected by reviewing the reflection journal of the *CSEP-CEP*.[60] The reflection journal represents a compilation of consult notes from each physical activity counseling session delivered by the *CSEP-CEP*.[60] These consult notes provided a detailed description of any physical activity recommendation made by the *CSEP-CEP* as well as any changes noted by the clients related to their health status or physical activity levels. The consult notes were collated and themed in order to examine the extent to which the ENCOURAGE interventions were delivered consistently to each participant.

3.02E. Maintenance

In the context of the RE-AIM framework, organizational-level Maintenance refers to the long-term sustainability of an efficacious intervention.[18] An in-depth analysis of Maintenance was conducted utilizing key components from a stakeholder analysis assessment.[48]

Semi-structured interviews

Semi-structured interviews were performed with eight project stakeholders (i.e., academics, researchers, leaders and community service providers) who were involved with the design, development or implementation of the intervention. Please refer to *Appendix A* on page 139 for an outline of the semi-structured interview questionnaire that was used for this thesis project. A list of key stakeholders were identified by the ENCOURAGE project Co-Principal Investigators, Dr. Todd Duhamel and Jan Schmalenberg. The key stakeholders were then contacted and invited to participate in one semi-structured interview, with an approximate duration of 30 minutes to 1 hour, consisting of a series of open-ended questions developed from a stakeholder analysis assessment.[48] The semi-structured interviews captured each stakeholder's position, interest and alliance regarding the long-term sustainability of the ENCOURAGE project, as well as strategies to inform policy and practice. Three components of the stakeholder analysis assessment,[48] namely position, interest and alliance, were assessed throughout the semi-structured interviews using the following questions:

1) Position: "*What specific contributions did you or your organization make to support the ENCOURAGE project, and in what manner would you demonstrate this support?*"
2) Interest: "*Why did you or your organization choose to contribute to the ENCOURAGE project?*"
3) Alliance: "*During the ENCOURAGE project, did you or your organization establish new partnerships with stakeholders that you have not previously worked with?*"

At the end of each interview, each stakeholder was asked to identify another individual, group or organization that had contributed towards the design, development or delivery of the intervention. Based on this information, I utilized a "*snowball sampling technique,*"[61] originally proposed by Goodman (1961), where "*a random sample of individuals is drawn from a given finite population.*"[61] The "*snowball sampling technique*" was an ideal method to select for this analysis as it had the capability to identify a population with a low sample size that would otherwise be difficult to track. With snowball sampling, "*each individual in the sample is asked to name k different individuals in the population, where k is a specified integer*."[61] This sampling method captured a broad group of project stakeholders with an attempt to better understand the impact the ENCOURAGE project had on various organizations. Findings from the stakeholder analysis determined 1) who should utilize the information obtained from the analysis (i.e., policy makers, decision makers) and 2) how this information could be interpreted and evaluated.[48]

To ensure the privacy of the research participants, all interviews were conducted in a private meeting room. All personal identifiers such as names, addresses and telephone numbers were removed prior to data analysis. Publications of the results were presented by group means in order to protect anonymity and confidentiality. If the publications utilized specific examples referencing a single stakeholder, pseudonyms were used to protect anonymity. All research staff involved in the project were required to sign a pledge of confidentiality. And finally, all original transcripts are being kept in a locked and secured area and are only accessible to those persons identified as researchers. These data will be kept for a maximum of seven years, then destroyed.

Thematic analysis

The qualitative data collected from the semi-structured interviews were recorded and transcribed by Soyun Chapman. A "*thematic analysis,*" which is defined as *"a method for identifying, analyzing and reporting patterns (themes)*" within a dataset, was performed on the original transcripts.[59] The thematic analysis is the most commonly used method of analysis in qualitative research. This method of analysis is unique in the sense that it utilizes a non-linear approach to contextualize meaning from text.[59] A "*theme*" is understood as "*something important about the data in relation to the research question, and represents some level of patterned response or meaning within the dataset.*"[59] The thematic analysis utilized a "*latent approach*" to produce an overall description of the dataset by examining "*underlying ideas, assumptions, conceptualizations and ideologies*" that emerged beyond the text.[59]

The thematic analysis utilized a five step process to analyze the qualitative dataset. In Step 1, the audio recordings, including all verbal and non-verbal utterances from each stakeholder interview were captured and transcribed into text format.[59] Next began the process of immersing myself within the dataset.[59] This included actively searching for initial patterns or meaning, taking notes and generating ideas for potential codes.[59] Finally, each transcript was read and re-read in order to provide a foundation for the next phases of the analysis.[59] In Step 2, the codes were generated manually from the dataset.[59] A code represents a detailed element of the data, that adds meaning or value to the topic in question.[59] The codes were used as a method of classifying the data into meaningful categories.[59] In Step 3, the codes were assessed and grouped appropriately in order to generate broad, overarching themes.[59] All themes were then assessed to determine whether they needed to be refined, combined with another theme, broken down or discarded completely.[59] In Step 4, all themes underwent further refinement.[59] All codes within each theme were reviewed to ensure they formed a cohesive pattern.[59] Finally, all themes were compared against the full dataset for validation purposes.[59] In Step 5, all themes were written up to generate the final report.[59] Each theme was supported with one or more direct quote(s) in order to capture the essence of the point being made.[59]

Validity was assessed by allowing the stakeholders to review their respective transcripts prior to data analysis, in order to ensure their comments were noted appropriately. Inter-rater reliability was assessed by allowing a member of our research team to review the thematic analysis independently, in order to ensure the codes and themes were noted appropriately.[62]

Chapter 4.0: Results

4.01 Reach

Reach was assessed by examining the extent to which the study cohort of the ENCOURAGE project was representative of the larger target population. Reach examines specific characteristics that distinguish intervention participants from non-intervention participants such as demographic information (i.e., age, gender), and health status (i.e., BMI, risk factors for chronic disease) in order to assess an intervention's potential for producing public health impact.[22,26,36]

4.01A. Participant characteristics of the ENCOURAGE project

A total of 237 patients were referred to the ENCOURAGE project from two primary care clinics in Winnipeg, Manitoba.[54] Of the total referrals, 119 patients met the inclusion criteria and were recruited for participation.[54] Eligible participants expressed an interest in adopting a more physically active lifestyle. Participants were excluded from the study if they had an existing condition that could limit their physical activity participation, such as cancer, ischemic heart disease, diabetes, osteoporosis, exercise-induced angina or cardiac arrhythmia.[54]

Of the 119 individuals recruited to the ENCOURAGE project, only participants with 3 or more data-points were included in the demographic analysis.[54] Therefore, baseline data were only reported for 56 participants.[54] The study population was predominantly female (70%), with a mean age of 51 (± 1, range 30-72) and a mean BMI of 35.2 (± 0.8) kg/m^2 (i.e., class 2 obese).[54] Of the study cohort, 21% of participants were overweight

and 79% of participants were obese.[54] Furthermore, the vast majority of study participants (96%) did not meet the Canadian Physical Activity Guidelines of "*150 minutes of moderate to vigorous physical activity a week,*" and were therefore classified as physically inactive.[54] Overall findings suggest that the study participants were at risk of chronic disease.[54] Specifically, 88% of study participants had at least two risk factors for chronic disease, such as age (men ≥ 45, women ≥ 55), BMI (≥ 25.0 kg/m^2) and insufficient physical activity (< 150 minutes of MVPA minutes/week) as assessed by self-report.[54]

4.01B. Population characteristics of the River East community area

In 2006, the population estimate for the River East community area was 93,041.[57] Self-reported BMI data extracted from the "*Canadian Community Health Survey*" (2001-2005) determined that 33% of the adult population (i.e., 18+) residing in the community area of River East was classified as overweight (BMI: 25.0-29.9 kg/m^2), and 21% was classified as obese (BMI ≥ 30.0 kg/m^2).[57] Self-report total physical activity was assessed utilizing data extracted from the "*Canadian Community Health Survey*" (2001-2005).[57] Total physical activity included any physical activity accumulated throughout work, leisure or travel.[57] Overall findings suggest that 28% of individuals ages 15-75 years residing in the community area of River East were active (≥ 3 kcal/kg/d), 38% were moderately active (1.5 to < 3 kcal/kg/d), and 34% were inactive (< 1.5 kcal/kg/d).[57]

4.01C. Population characteristics of the Transcona community area

In 2006, the population estimate for the Transcona community area was 33,233.[57] Self-reported BMI data extracted from the "*Canadian Community Health Survey*" (2001-2005) determined that 32% of the adult population (i.e., 18+) residing in the community area of Transcona was classified as overweight (BMI: 25.0-29.9 kg/m^2), and 18% was classified as obese (BMI $\geq$ 30.0 kg/m^2).[57] Self-report total physical activity was assessed utilizing data extracted from the "*Canadian Community Health Survey*" (2001-2005).[57] Total physical activity included any physical activity accumulated throughout work, leisure or travel.[57] Overall findings suggest that 24% of the individuals ages 15-75 years residing in the community area of Transcona were active ($\geq$ 3 kcal/kg/d), 51% were moderately active (1.5 to < 3 kcal/kg/d) and 25% were inactive (< 1.5 kcal/kg/d).[57]

4.01D. Population characteristics of Winnipeg, Manitoba

In 2005, the population estimate for Winnipeg, Manitoba was 662,520, with 51% of the population being female (340,087) and 49% being male (322,433).[57] The largest percentage of the total population fell within the age bracket of 40 and 44 years (4% male, 4% female), followed by 45-49 years (4% male, 4% female) and 50-54 years (4% male, 4% female).[57] In 2009, 34% of the population residing in Winnipeg was overweight, and 18% was obese.[57] Self-report total physical activity was assessed utilizing data extracted from the "*Canadian Community Health Survey*" (2001-2005).[57] Total physical activity included any physical activity accumulated throughout work, leisure or travel.[57] Overall findings suggest that 25% of individuals ages 15-75 years

residing in Winnipeg were active (≥ 3 kcal/kg/d), 36% were moderately active (1.5 to < 3 kcal/kg/d) and 39% were inactive (< 1.5 kcal/kg/d).[57]

Table 7. Population characteristics: River East, Transcona and Winnipeg

	River East	Transcona	Winnipeg
Population Estimates	93,041	33,233	662,520
Percent Overweight	33%	32%	34%
Percent Obese	21%	18%	18%
Percent Active	28%	24%	25%
Percent Moderately Active	38%	51%	36%
Percent Inactive	34%	25%	39%

Information gathered from: Beattie D, Owczar S, Caetano P, et al. Winnipeg Regional Health Authority Community Health Assessment 2009-2010. 2009-2010.

4.01E. Representativeness of the ENCOURAGE cohort to the population at large

Overall findings reveal that the participants of the ENCOURAGE project were older, predominately female, more obese and less physically active than the overall population of the River East community area, the Transcona community area and the City of Winnipeg. The ENCOURAGE project recruited participants between the ages of 25-75 years who were physically inactive and free of chronic disease. Given the limited availability of resources, the ENCOURAGE project was specifically designed to target this segment of the population, and focus on helping individuals who were inactive adopt a more physically active lifestyle to improve overall health and prevent the onset of chronic disease. Approximately 50% of individuals referred to the ENCOURAGE project were excluded because they had an existing chronic condition that could limit their ability to participate in physical activity. The primary care providers may not have

been aware of the inclusion criteria when they referred these patients to the study, or they understood the positive health benefits associated with physical activity and chronic disease. If resources had not been a factor, the ENCOURAGE project may have reached a broader population by targeting physically inactive individuals with and without chronic disease. Nonetheless, the ENCOURAGE project was designed as a preventative quasi-experimental trial, and it can therefore be concluded that the project reached the population it had intended to reach.

4.02 Efficacy/Effectiveness

Efficacy/Effectiveness examines the extent to which the study was efficacious in achieving its primary and secondary outcome(s). The primary outcome of the ENCOURAGE project was a change in total daily accumulation of MVPA in bouts of 10 minutes or more. A detailed analysis examining the extent to which the ENCOURAGE project was efficacious in achieving its primary and secondary outcomes (i.e., self-efficacy, health behavior change, physical and mental functioning, quality of life and symptoms of depression) has been written by David Kent.[54] No significant changes in total daily MVPA in bouts of 10 minutes or more were observed from baseline to 10 months.[54] Sporadic physical activity, which was a secondary outcome, was measured by assessing any physical activity accumulated in bouts lasting greater than 30 seconds and less than 10 minutes.[54] At 4 months, light sporadic physical activity increased by 14%, and sustained increases for an additional 6 months.[54] Total sporadic physical activity increased by 18% and 21% at 4 months and 6 months, respectively.[54] These findings are important because sporadic physical activity contributes to the total amount of physical

activity accumulated throughout the week, and has been linked with improvements in health outcomes.[54] Overall, the ENCOURAGE project enabled previously sedentary individuals to increase their total sporadic physical activity by 104 minutes a week.[54] Although the ENCOURAGE project was not efficacious in achieving its primary outcome, empowering the sedentary population to accumulate light and sporadic physical activity in short bouts (i.e., under 10 minutes) is a positive secondary outcome.[54]

4.03 Adoption

Adoption examines the extent to which the intervention has been successfully integrated into the target setting. Adoption is influenced by the delivery agents, and therefore assesses the professional-level of expertise and recruitment criteria of the staff that delivered the intervention. Adoption also identifies the extent to which the intervention setting is representative of the broader community, and whether the intervention has been adopted by the setting staff.

The Adoption of an intervention is determined by the staff that delivered the intervention, as well as their professional-level of expertise. The ENCOURAGE project was delivered by a *CSEP-CEP*, who was responsible for; 1) counseling participants on the broad health benefits of physical activity, 2) providing individualized physical activity prescriptions and 3) providing referrals to physical activity programs and services offered in the community. A *CSEP-CEP* is a trained professional in the health and fitness industry who has expertise in exercise prescription, behavioral counseling and lifestyle education for apparently healthy individuals, as well as individuals with chronic conditions, functional limitations and disabilities (www.csep.ca). The *CSEP-CEP* was

also responsible for supporting and educating the health care providers at the primary care clinics to better promote physical activity as a health intervention. Because the *CSEP-CEP* is the only profession designated to conduct physical assessments, prescribe and monitor exercise protocols and perform behavior health counseling to the clinical population, including individuals who are classified as class 1, class 2 and class 3 obese, this designation was a requirement for the staff recruitment of the ENCOURAGE project.

Adoption is equally influenced by the representativeness of the setting to the community at large. In Winnipeg, the WRHA is the health authority responsible for delivering health services to the residents of Winnipeg and surrounding municipalities, such as Churchill Manitoba. The WRHA governs seven Access Centres in Winnipeg, namely: Access Downtown, Access Fort Garry, Access NorWest, Access River East, Access St. Boniface, Access Transcona and Access Winnipeg West (www.wrha.mb.ca/facilities/access.php). The Access Centres are designed to offer services that meet the unique needs of their respective communities (http://www.gov.mb.ca/health/primarycare/public/access/access.html).

Access River East and Access Transcona are community-based health centres located in 2 of the 12 community areas in Winnipeg. Access River East offers a variety of primary care services ranging from screening and diagnostics, to education and management of chronic disease for patients residing in the community area of River East (http://www.wrha.mb.ca/healthinfo/a-z/diabetes/directory-access-river-east.php). Similar to Access River East, Access Transcona offers primary care services for patients residing in the community area of Transcona. Both community health centres provide interdisciplinary care from a team of health care professionals, ranging from physicians,

to nurse practitioners, registered nurses, registered dietitians, mental health professionals and social workers (http://www.wrha.mb.ca/healthinfo/a-z/diabetes/directory-access-river-east.php).

The settings that were excluded from the ENCOURAGE project were fee-for-service (FFS) clinics, which account for 80% of family medical services offered in Winnipeg.[63] The ENCOURAGE project did invite two FFS clinics to participate, however both declined. Unlike primary care clinics such as Access River East and Access Transcona, FFS clinics are not under the jurisdiction of the WRHA.[63] Because Access River East and Access Transcona offer services that meet the needs of the communities they serve, and are inclusive to the residents of the communities they serve, these settings are representative of the broader communities of River East and Transcona, respectively.[63] However, it should be acknowledged that individuals who attend Access Centres are typically more complex than those attending FFS clinics.

The final component of Adoption examines the extent to which the intervention was adopted by the setting staff. After the completion of the ENCOURAGE project, a focus group was conducted with the health care providers at each primary care site. For the purposes of Adoption, the data were analyzed to determine the extent to which the *CSEP-CEP* had been successfully adopted into the interdisciplinary team of health care providers at Access River East and at Access Transcona. Results from the thematic analysis indicate that four key themes emerged from the dataset: 1) initial thoughts and concerns with the addition of the new role, 2) the integration process, 3) the scope of practice of the *CSEP-CEP* and 4) strategies for successful integration. At the onset of the intervention, the setting staff expressed uncertainties regarding the process, the scope of

practice of the *CSEP-CEP* and the impacts the project would have on their current workload. However, once the integration process had commenced, several comments were noted regarding how smooth the transition had been, and how easily the *CSEP-CEP* had blended into each primary care team. Both primary care clinics gained an in-depth understanding of the role and skill set of the *CSEP-CEP*, and realized the value that this profession brought to the team and to the patients. Finally, several strategies were brought forward to help ease the integration process, such as having the *CSEP-CEP* stationed in close proximity to the rest of the team, engaging in regular face to face contact and being fully integrated into the electronic medical record system. In future, having appropriate physical space for the *CSEP-CEP* to perform physical assessments would provide more support for integration. The overall findings from the post-intervention focus groups with the health care providers suggest that the ENCOURAGE project was successfully adopted by the team of primary care providers at Access River East and Access Transcona.

Table 8. Post-intervention interviews with health care providers

Theme	Quotes
Initial thoughts and/or concerns:	Access River East: • *"I think we wondered about increased workload, like filing out the.. forms or you know just putting that into the conversation that it might be more time consuming"* • *"There was a concern about the process"*
	Access Transcona: • *"It was interesting at the beginning because I had never heard the word kinesiologist"*
Integration:	Access River East: • *"The integration was... quite easy. It was a simple process"* • *"I thought it went smoothly"* • *"He fit in very well as a member of our team"* • *"You know like we were pretty well integrated. I think we function well as a team. He just kind of blended in."* • *"You know, like I think it would have been the same with anybody hopefully joining the team."* • *"He actually integrated really well. I mean he came [to] this meeting with us, which is a big part of who we are and he sat with us and gave us updates on clients and some of the case studies he had that were coming through. Some of the positive things that were happening and client feedback because we don't always get client feedback."*
	Access Transcona: • *"He was very thorough and blended well"* • *"And we adopted him as a team member. He was one of us. So…yeah it was good. He was, it was unfortunate that it was only a short time, but he was I think as a, as a team we brought up. We treated him the same as one of us. We still invite him out with us if we have a function or something"*
Scope:	Access River East: • *"I thought it actually exceeded what my expectations were"*

	• *"His role was uh it was, it was actually an identified deficit in what we've been providing for a while now."* • *"And so his integration came… it was very welcomed…it was, it exceeded our expectations of what type of role it looked like in a primary care setting"* • *"Umm, it was just a natural extension of, of what we are I think we are already. Um that's the part we were missing… Was that physical activity"* • *"There's a broader knowledge and expertise that, that you wouldn't have and we wouldn't have access to, and so you know for me personally as a primary care provider, I can only take my advice to a certain endpoint and beyond that, that's as far as my scope extends and that's where I would look for someone who has more knowledge and expertise and knowledge of resources than I would have"*
	Access Transcona: • *"Well it's for you know, comprehensive care for everything. Everyone has uh, a spot on the team, whether it's a dietitian, or doctor, or NP or whoever. We're all contributing to the health of the patient, right. And he has just an important [role] as everybody else"* • *"As a community resource, there's a huge wealth of knowledge that's not yet been tapped. Like he could offer more to the general community of Transcona for health and wellness"* • *"I had more of an expertise.. to tap into.. which gave me confidence in providing good care"*
Strategies for successful integration	Access River East: • *"Proximity is key for the closer relationships and, and usefulness of those relationships"* • *"Seeing him there in the corner. I, I, it kept him in my mind cause as I went to see clients I go, "Oh yeah [the CSEP-CEP]." You know it was, it was kind of a visual cue to, to keep that in mind"* • *"Face to face contact"*
	Access Transcona: • *"It was much smoother cause on a team he became a part of our EMR and you just task him. That made it easy just to refer cause you just send him a task and he kind of.. dealt with everything instead of having to make this big long referral and do all this other stuff. He could just pick it up and so it was efficient"* • *"The dream would be to have a room set-up for exercise like where he could do all the assessments"*

4.04 Implementation

Implementation was assessed by examining the extent to which the ENCOURAGE project was delivered as intended according to the research objective, and delivered consistently to all study participants.

Throughout the ENCOURAGE project, the *CSEP-CEP* performed a total of 350 physical activity counseling sessions to 110 participants.[60] Therefore, approximately 3 physical activity counseling sessions were delivered to each study participant.[60] At each initial assessment, the *CSEP-CEP* met one-on-one with participants of the ENCOURAGE project to discuss their overall health status and health concerns, their barriers to physical activity participation, and their specific goals related to physical activity and overall health. The *CSEP-CEP* then provided each participant with an individualized home-based physical activity program, or a referral to a community-based recreation program. Every physical activity recommendation made by the *CSEP-CEP* was specifically designed to fit the unique lifestyle of the individual. When necessary, the *CSEP-CEP* provided participants with a referral to another health care provider (i.e., MD, NP, RN, PA, RD, SCC) in order to discuss a health-related concern. Follow-up physical activity counseling sessions were provided in order to reassess the extent to which the participants were taking positive steps towards achieving their physical activity and health goal(s). If a participant had fallen off track, modifications were made to the physical activity recommendation(s). The compilation of *CSEP-CEP* consult notes reveal that the same counseling process was applied to each study participant. Therefore, it can be concluded that the ENCOURAGE project interventions were delivered consistently to each study participant. An example of the *CSEP-CEP* counseling process

is outlined in Table 9. For this particular example, the individual was a middle aged female with a BMI of 41.4 (i.e., class 3 obese). She attended a total of 5 exercise counseling sessions with the *CSEP-CEP*. Her health goal was to become physically active and lose 50 lbs. in a one year period. The participant was able to understand the recommendations made by the *CSEP-CEP* (i.e., to achieve a target goal of 10,000 steps/day), and apply the skills gained from the sessions throughout the duration of the intervention (i.e., self-reported walking ≥ 10,000 steps/day at 3 sessions). This exemplifies how the "*treatment receipt*" and the "*enactment*" components of the Implementation dimension were fulfilled.[18] At her final exercise counseling session, the participant self-reported that she had lost weight, her energy had increased, her confidence had improved, and she had a changed outlook on life. Furthermore, she had made plans to purchase a home treadmill. Because the ENCOURAGE study participant had made positive changes towards adopting a more physically active lifestyle, this example supports the conclusion that the ENCOURAGE intervention was delivered as intended. To view the full compilation of client sessions with the *CSEP-CEP*, please refer to *Appendix B* on page 144.

Table 9. CSEP-CEP client session example

ID	Age	Sex	BMI	Site	Current Health Status and Health Concerns	Health Goal(s)	# of CSEP sessions	Follow-Up (Challenges)	Referral	Outcomes (Positive Outcomes)	CSEP Referral to another HCP	HCP Notes MD, NP, RN, RD, PA, SCC
17	63	F	41.4	RE	Previously active prior to death of brother and mother Enjoys walking Husband recently diagnosed with Leukemia and T2DM Used to accumulate >10,000 steps/day Barrier: caloric consumption	Become physically active Weight loss of 50 lbs. over one year	5		Use pedometer Target: >10,000 steps/day with higher intensity Moderate portion sizes YMCA	Excellent progress Walks up to 12,000 steps/day, with only one day under 10,000 Increased energy Social support Gone on a walking route		MD: Exercising more after beginning program with CEP MD: Making progress with physio regarding back pain, pelvic floor exercises
								Not proceeded with aquasize Self-conscious about wearing bathing attire Lower back soreness	Will reinforce exercises provided by physio for back pain Stretch more regularly Increase walking intensity	Accumulates >10,000 steps/day Performs stretching exercises		
								Feeing discouraged Onset of neck and shoulder pain Overwhelmed with exercises given from Access, Hospital and physio	Methods of stress reduction Demonstrated shoulder and neck stretches Discussed self-myofascial release with foam roller Scapular retraction with resistance tubing Reinforce success	Surpass expectation States “everything has gotten better” in the last 3 months, including self-efficacy, mood, energy, fitness and back pain Walks at least 10,000 steps/day		
									Interested in purchasing treadmill YMCA and treadmill for colder weather Provide resources for husband (exercise with T2DM)	After 4 months: lost weight Increased energy, self-confidence, changed outlook Enjoys being active Understands that some days she may not achieve 10,000 steps		
									Exercise intensity	Will purchase home treadmill		

4.05 Maintenance

Maintenance, which is the final dimension of the RE-AIM framework examines the extent to which the ENCOURAGE project can be sustained over the long-term. Semi-structured interviews were conducted with eight project stakeholders (i.e., academics, researchers, leaders and community service providers) from varying organizations, including; the University of Manitoba, the St. Boniface Research Centre, the WRHA, Manitoba Health, the City of Winnipeg, the Reh-Fit Centre and the Wellness Institute. These interview transcripts were coded and themed. The outcomes of the thematic analysis are listed below:

4.05A. Primary care

Primary care is described as the first point of entry into the health care system, resulting in the first point of contact with a health care professional. Primary care is the gateway to both secondary and tertiary care.

- *"It's that quarterback of… health care" (07)*
- *"I would define primary care as sort of the level of when... people are meeting with a... health care professional like a physician" (08)*
- *"The first entry into the doc's office" (06)*

4.05B. Chronic disease prevention

Chronic disease prevention is described as both the identification of risk factors that are associated with chronic disease (i.e., physical inactivity, sitting time, inadequate nutrition and smoking), as well as the prevention of those disease-specific risk factors through public awareness and the promotion of positive health behavior choices.

- *"Chronic disease prevention is having a healthy lifestyle" (05)*
- *"How do we reduce the risk of chronic disease by identifying the risk factors that are associated with those chronic diseases" (06)*
- *"Trying to... reduce the prevalence of risk factors, or reduce the proportion of the population that has risk factors…contributing to chronic disease. Things like... promotion [of] physical activity, reducing sitting time, getting rid of smoking… improving somebody's nutritional intake" (01)*

4.05C. Is there a role for physical activity in chronic disease prevention?

A total of seven stakeholders were supportive of the role of physical activity in chronic disease prevention. Physical activity is a subset of health promotion because it leads to improvements in overall health and quality of life, and is associated with other health promoting behavior choices, such as healthy nutrition intake, smoking cessation and reductions in sedentary time.

- *"In my opinion, I believe there is a... very large role for that" (08)*
- *"Definitely, [because] I think it's a part of a healthy lifestyle" (05)*

- *"If you look back over the last hundred years it's the sitting time that's increased significantly, and the moving time that's reduced a lot. So we need to find strategies to get people moving" (01)*
- *"Physical activity has a really strong role in the sense that it's... preventing chronic disease, it's improving overall... health, which includes quality of life, and it's not just the absence of disease" (04)*

4.05D. Does your organization currently promote physical activity for the purpose of chronic disease prevention?

Some disciplines within the WRHA such as Winnipeg in motion, the Physical Activity Promotion Team, the Chronic Disease Prevention Team and Population Public Health promote physical activity for the purpose of chronic disease prevention. Whereas, other organizations such as the University of Manitoba and the City of Winnipeg promote physical activity for the wellbeing of the general population.

- *"I would say our organization, the City of Winnipeg promotes physical activity... but it's a more general sense, just more for the wellbeing and vitality of the citizens of Winnipeg" (08)*

4.05E. Are there benefits to your organization if the province were to implement a primary care based physical activity initiative in Manitoba?

The implementation of a primary care based physical activity initiative in Manitoba may generate patient-level benefits, professional-level benefits, system-level benefits, economic-level benefits and population-level benefits.

Benefits at the patient-level were noted as primary prevention, which consists of health behavior change and improvements in patient health. Patient-level benefits were also noted as secondary prevention, which includes improving the management of certain chronic conditions such as cardiovascular disease, COPD, osteoporosis and mental health conditions.

- *"Getting people engaging in healthy behavior" (07)*
- *"Physical activity has a role... directly and indirectly with mental health. Then we look at the chronic conditions such as cardiovascular disease, COPD... even osteoporosis, any number of them that have already been proven through time that... regular activity has some role to play directly or indirectly in its management or prevention" (06)*

At the professional-level, the implementation of a primary care based physical activity initiative may contribute to the recognition of kinesiology as a profession in Manitoba. The implementation of this type of initiative could generate professional respect from other health care disciplines, and increase the career opportunities for kinesiology graduates. This may generate student interest at the academic-level, resulting in the growth and expansion of the field of kinesiology as a whole.

- *"I think kinesiology as a field is… scary for a lot of people because there currently aren't a whole lot of opportunities to practice your craft" (02)*
- *"But if this did come in and become [a] recognized part of health care, I think there would be a lot more confident... graduates who are willing to try things on their own" (02)*

- *"The university would benefit because… kinesiology students, there'd be more jobs... for them to exit. So if our students leave and there's jobs waiting for them in health care, that's a good thing. It's likely more students would apply to our programs" (01)*

System-level benefits would include the normalization of physical activity within the health care system, and increased accessibility to both kinesiology as well as other health care professionals. The specific skill set of a kinesiologist could alleviate the added pressure placed on other health care professionals to deliver exercise counseling as part of their regular patient care regime. This may improve patient accessibility to all health care professionals, including kinesiologists.

- *"There starts to be a bigger change at a, at a population-level because more people are able to get the services that are tailored towards the needs that they have and, more providers actually understand the context of the people we need to influence the most" (01)*
- *"We could see um, people accessing the right provider at the right time, and therefore they can see the kinesiologist when they needed that support. Opening up more opportunities for people to access uh, family docs and nurse practitioners when they need them" (04)*
- *"So for us it's to try and uh, use the right provider to open up the opportunity for other people to get a doctor" (04)*
- *"There's a new contribution this group [kinesiology graduates] can do to alleviate pressures on others [health care providers]" (01)*

At the economic-level, the implementation of a primary care based physical activity initiative could result in an increase in funding and employment opportunities, and may lead to a decrease in health care costs in Manitoba.

- *"Well then if we could uh, see increase[d] physical activity levels, then that's sort of continued decrease in health care costs" (04)*
- *"The university would benefit because... kinesiology students, there'd be more jobs… for them to exit. So if our students leave and there's jobs waiting for them in health care, that's a good thing. It's likely more students would apply to our programs" (01)*

Finally, at the population-level, the widespread implementation of a physical activity initiative such as the ENCOURAGE project could lead to a healthier population in Manitoba, and reduce the burden placed on our health care system.

- *"If we can keep people healthy, and in the community, and not have them uh, get into the health care system, that would be critical right?" (03)*
- *"The healthier everybody is, the better everything is" (08)*

4.05F. Can you identify any barriers that may present with the implementation of a provincial-wide physical activity initiative?

The widespread implementation of a primary care based physical activity initiative in Manitoba may present with barriers at the financial, logistical, cultural and professional-level. Financial barriers include the lack of additional financial resources to sustain a primary care based physical activity initiative over the long-term. This may result in the relocation of funds from other government agencies or organizations. The government of

Manitoba may opt for a roll out, which would leave it up to the regions to find the necessary funding to sustain the implementation of this type of initiative over the long-term. Furthermore, the discrepancy between the type of physical activity funded through health care, and the type of physical activity classified under community-based recreation would need to be addressed. Finally, the health care system would need to re-prioritize its resource allocation from acute care, to prevention, in order to sustain this type of initiative over the long-term.

- *"When things happen at a provincial-level, and they get um, implemented at a regional-level, it's up to the regions…it often doesn't come with additional funds…so it would be up to the region, so the Winnipeg Regional Health Authority to reallocate funds to help support this physical activity um, specialist in the primary care setting" (04)*
- *"I think that the... whole fiscal aspect will be an issue because who pays for it, and how does it get funded?" (06)*

The planning and implementation of a primary care based physical activity initiative may present with logistic barriers such as the lack of additional resources (i.e., equipment and space) and the lack of trained professionals (i.e., *CSEP-CEPs*) required to ensure the service is delivered at an appropriate level that meets the expectations of the province of Manitoba. The planning and implementation of this type of service would require a large amount of time, training, ongoing monitoring and accountability to ensure a successful delivery.

- *"I think a barrier as well will be shear logistics of having enough physical activity specialists trained to be able to do that job" (04)*

- *"There is um, a need to increase training and accountability in the area of chronic disease, and their [kinesiology graduates] ability to work in that venue. So, there is really not a plethora of people out there that have um, that wealth of experience" (06)*
- *"We're getting to a point now where health care wants kinesiologists to be there. But to be honest, our... training program isn't making them. Our students are not good enough when they're graduating. They actually need to get additional training which is a problem" (01)*

The integration of a *CSEP-CEP* into a team of health care providers may present with certain cultural barriers. For example, the interdisciplinary team of health care providers may need to develop a new understanding of the role and skill set of the *CSEP-CEP* in order to sustain inter-professional collaboration. This would require the formation of new inter-professional relationships between the *CSEP-CEP* and the team of health care providers.

- *"Seeing [kinesiologists] as part of a health care team... the mechanics or operational structure of doing that" (05)*

Finally, kinesiology as a discipline would require political buy in, provincial legislation, professional regulation and a well-defined scope of practice in order to be successfully integrated into the health care system over the long-term.

- *"Kinesiology needs to be regulated... and become more closely aligned in the way that it does its work with other health professionals" (03)*
- *"Who would be owning physical activity? It's not anyone professionally. We've talked inter-professional collaboration so no one owns activity or exercise" (06)*

- *"Health care and recreation, health care and fitness, where is that line?" (07)*
- *"What is funded by health care, and what is community-based recreation?" (07)*

4.05G. What was the purpose of the ENCOURAGE project?

When discussing the overall purpose of the ENCOURAGE project, three key themes emerged. The overall purpose of the ENCOURAGE project was to better support physical activity as a health intervention, by demonstrating the effectiveness of integrating a *CSEP-CEP* into an inter-professional team of primary care providers, in order to demonstrate patient-level, community-level and system-level impact. Furthermore, stakeholders wanted to determine whether this added role could enhance community capacity and demonstrate health behavior change in sedentary individuals at risk of chronic disease.

At the patient-level, stakeholders wanted to determine whether physical activity counseling delivered by a *CSEP-CEP*, with individualized one-on-one patient to provider interaction and support could lead to health behavior change (i.e., increased physical activity levels leading to both prevention and improvements in the management of chronic disease).

- *"I think the overall purpose was to try and get people more physically active" (08)*
- *"So it was... a different way of I think... tapping people on the shoulder to get them to be active" (08)*

- *"Bringing an exercise specialist on board in a primary care setting to become part of the team approach to [look] at... helping patients do the best they can do to manage or avoid... increasing their risk for chronic disease" (06)*

At the community-level, stakeholders wanted to determine whether a *CSEP-CEP* that provided a liaison service between the health care system and the community could enhance community capacity through the formation of new partnerships, inter-professional collaboration and enhanced program delivery.

- *"We needed a project that could demonstrate the importance of physical activity…We want the health care system to know the importance of it and... then to... support it in the community… So that's the whole community linkage, developing community programs, working with community partners, getting people to know one another" (03)*

At the system-level, stakeholders wanted to determine whether the addition of a *CSEP-CEP* into a team of primary care providers could optimize the delivery system by offering an efficient streamline of health-based programs and services offered in the community. Furthermore, the addition of this new role was thought to alleviate the burden placed on other primary care providers to incorporate exercise counseling as part of their regular patient care regime.

- *"Well, I think it was to try and… demonstrate the impact that having a kinesiologist embedded into a primary care setting could have... at a system wide level. So how did that change the way they delivered services to their patients, so the doctors, the nurses, the dietitians, everybody involved in that team. How did having the kinesiologist change the delivery system" (04)*

- *"So I think the purpose is… looking at how do we as a province... operationalize the concept of exercise is medicine… Physicians are too busy... they don't have [a] billing code for exercise counseling... and so, is that a physician role? What we want to do is take things off physicians' plates" (07)*

4.05H. Why did you or your organization choose to contribute to the ENCOURAGE project?

When discussing the reasoning behind each individual stakeholder's (or their respective organization's) decision to contribute to the ENCOURAGE project, several key themes emerged, namely: personal interest, to enhance community capacity, to improve patient health and to address the gaps found within the current health care system.

On a personal-level, many stakeholders held personal values that were in direct alignment with the core values of the ENCOURAGE project. Many stakeholders identified a need for the project, which contributed to their decision to participate. Several stakeholders wanted to share their professional expertise, and disseminate their knowledge and understanding (i.e., background, skill set and career focus).

- *"Just because we believe in exercise is medicine" (07)*
- *"I chose to contribute to the project because it was something that matched my skill set" (02)*
- *"Because I spent most of my life... all of my life seeing the role and value in activity" (06)*
- *My interest in this was to develop something that was maybe... focused on getting people moving more rather than exercising per say… My skill set... is really*

tailored towards bringing people together on a project and that's why I got involved" (01)

- *"It's a real obvious and natural fit for us with physical activity promotion and our role with Winnipeg in motion" (04)*

Many stakeholders made a decision to contribute to the ENCOURAGE project based on the idea of enhanced community capacity through partnerships formed with community-based programming. Other stakeholders were interested in the direct line of sight to improvements in patient health.

- *"We saw… a… huge connection with… community programs because we do know... from research that people need to have options to exercise and we have a lot of... facilities and we have a lot of... walking paths and community organizations and we thought that was... a really good way to provide a menu of options for people to get more active" (08)*
- *"I feel personally rewarded by working one-on-one with people. Or at least in small groups... To see the change, and not only see that change but hear from them" (02)*

Finally, certain stakeholders chose to contribute to the ENCOURAGE project in order to address the gaps (specific to exercise counseling) that are apparent in our current health care system.

- *"Realizing that [physical activity] had a role to play and that unfortunately in primary care, it was still very clinical, and hasn't totally embraced the full value of seeing a person who has the… opportunity to work with someone who can actually fit a program for that person" (06)*

- *"We know that primary care is a setting that we have the most contact with individuals on a regular basis. They're often the individuals that we're not reaching in some of our other means [of] physical activity promotion. We also know that for us the evidence is really strong. We believe in the… health behavior change model, so the motivational interviewing, so for us it was... a… win win opportunity to start demonstrating that the kinesiologist has a role in doing some of that, facilitating some of that behavior... change" (04)*

4.05I. Does the ENCOURAGE project complement or overlap with other initiatives within your organization?

The ENCOURAGE project complements and overlaps with several organizations in Manitoba, such as the Reh-Fit Centre, the WRHA (Population Public Health), Winnipeg in motion and the University of Manitoba. When asked to identify whether the ENCOURAGE project complements or overlaps with other initiatives within the stakeholders' respective organizations, several themes emerged, namely: population health, community and strategic direction.

The ENCOURAGE project complements population health by creating a liaison with primary care in order to prevent and manage chronic disease through the promotion of self-management skills (i.e., physical activity) that enhance both physical health (i.e., weight management) and mental health.

- *"in motion, which is a department in Population Public Health is looking at increasing and helping… support people to be active. So it's totally in sync with that" (06)*

The ENCOURAGE project complements and overlaps with several organizations that use similar capacity building strategies to provide community supports and respond to the specific needs of the community.

- *"There is [a] similar role the kinesiologist… played… that liaise with the community, building capacity within the community... it probably overlaps to some degree with the role of the community facilitator within the Winnipeg Regional Health Authority… their expertise is very broad and very general… so [the] kinesiologist just played a… much more targeted role" (04)*

The ENCOURAGE project demonstrates overlap with several organizations by sharing a similar strategic direction, specific to organizational-level mission, mandate and values.

- *"I think it overlaps a bit, in that our mission is to get people to move more. Our mission's not specifically about health care but there's a bit of overlap with that" (01)*
- *"It overlaps… in the sense that we're doing that just here... is it a duplication? I don't think so… I think there is overlap in the same objective" (05)*
- *"It certainly is related to IP, which is the inter-professional collaboration, recognizing that there may be some non-traditional partners that haven't been thought of before that should be at the table" (06)*

4.05J. What specific contributions did you or your organization make to support the development of the ENCOURAGE project?

When discussing the specific contributions that each individual (or their respective organization) made to support the development of the ENCOURAGE project, four key themes emerged, namely: professional contributions, contributions made to support community programming, contributions made to support the development of the physical activity intervention, and committee involvement.

Several stakeholders made professional contributions to support the planning, development and implementation of the ENCOURAGE project. These professional contributions were identified as professional expertise (i.e., evaluation, funding, health care), leadership (i.e., management and project leadership), knowledge and skill (i.e., best practice, coordination and collaboration), and time.

- *"We led the project… I wrote the grant and called people together and called the meetings and kind of did upper management type stuff… I supervised the kinesiologist... with [Another stakeholder]" (01)*
- *"Public health expertise… health care system expertise... project coordination, project management" (03)*

Contributions that were made to enhance community programming were identified as the development of new community-based programs to support entry level exercisers, the development of a tool kit that housed the community-based resources, and the adjustments made to program scheduling in order to better support the needs of the study population.

- *"What we tried to do is set up some programs that gave people some skills, or some… first level physical activity opportunities, and.. from there... tried to provide... other programs that they might choose to go into. But I think we found that they really liked what they were doing at that level" (08)*
- *"We contributed to... the tool kit of.. all the community resources that are available" (07)*
- *"Certainly encouraging... the city or the Y to consider looking at their program schedules to see if they could do a better job at embracing people in that way" (06)*

Several stakeholders made specific contributions to support the development of the physical activity intervention, such as providing strategies to optimize patient-level behavior change, providing tools and resources to support the delivery of the exercise counseling intervention (i.e., exercise bands and pedometers) and providing ongoing support for the *CSEP-CEP*.

- *"So I actually worked on the team that actually told, you know those stages of change or behavior strategies and what would happen at each of those interventions. So I helped with all of those" (05)*

Many stakeholders contributed their expertise throughout the initial discussion and preliminary planning stages of the ENCOURAGE project. Stakeholders were also involved in certain committees such as the Steering Committee, the Evaluation Committee and the Community Committee.

- *"There were a few people on our team that we involved in the… well on almost every committee, the steering committee, evaluation committee, community committee" (04)*

4.05K. What was successful?

When asked to identify what specific aspects of the ENCOURAGE project (if any) were successful, six key themes emerged, namely: the organizing table, the patient-level health outcomes, the study design, the effectiveness of the *CSEP-CEP*, the liaison that was established between primary care and the community, and the discussion about sustainability post project completion.

The committee of stakeholders that formed the organizing table was comprised of a panel of experts ranging from researchers to practitioners, who each represented a different discipline or sector. Stakeholders were willing and able to share their expertise with the rest of the working group in order to forge inter-professional collaboration, while working towards a common goal. This strengthened the relationships formed between the members of the steering committee.

- *"What worked well? I think the people who were brought to the table. I don't think it would have been anywhere as successful if we didn't have people coming from different perspectives because it was like what was discussed at the organizing table was almost like a microcosm of what was going to happen, placing a kinesiologist in health care because those people represented almost… the different fronts of health care" (05)*

- *"The most important thing that worked well was getting a bunch of different stakeholders from the university, from health care settings, from the city, from different programs and just getting them into one room and letting them talk and create what the strategy was… By actually keeping hands off and not trying to go in a set direction, what we ended up doing was… going out on a spider web and each of us influenced our organizations in different ways" (01)*
- *"The… experts that came to the table, they shared their expertise willingly, they brought incredible knowledge and incredible… collaboration and cooperation" (03)*
- *"The capacity to build those relationships with people and to bring people towards a common vision and a common goal" (03)*

Patient-level health outcomes were noted as a vital component of the project's success, with specific reference to increasing the physical activity levels of previously sedentary individuals (our patient population), in order to promote overall health and prevent disease.

- *"The increased physical activity levels. Which ultimately, at the end of the day, our team… wants increased physical activity levels… for the promotion of health and the prevention of… disease" (04)*

The study design was an aspect of the ENCOURAGE project that was considered to be successful. The project lead had adopted a free flowing, hands off approach that was adaptive in nature. This technique facilitated problem solving and project efficiency. Having the *CSEP-CEP* stationed physically in the clinic and integrated within the health

care system was a fundamental component of the study design that added to the overall success of the project.

- *"The approach that the principal investigator had, to make things somewhat free flowing and adaptive rather than set in stone, as far as the methodology went" (02)*
- *"It was simply a question of saying, can we change this for the better? And then simply doing it" (02)*
- *"Being physically in the clinic worked well because it reinforced all the practitioners there that I was part of the team" (02)*

The overall effectiveness of the *CSEP-CEP* was another aspect of the project that was considered to be successful. Specifically, with his unique ability to provide a diverse range of physical activity opportunities that were tailored towards the needs of each individual client, understand his scope of practice, and foster relationships with the primary care and community-based service providers.

- *"I also found that… person [the CSEP-CEP] seemed to take quite a bit of initiative and had a really developed range of opportunities, which was very good. Because… we always struggle with what are all the opportunities, when somebody's wanting to pick something up. And it's impossible to keep a.. current inventory all the time... because things are always changing" (08)*
- *"There has to be huge credibility and I get the impression that [the CSEP-CEP] was able to garner that credibility … able to forge that relationship with primary care, which is key" (06)*

The liaison that linked primary care with community-based programming was another aspect of the ENCOURAGE project that was considered to be successful. Many comments were noted regarding how effective the *CSEP-CEP* was in forging relationships between primary care and community-based programming.

- *"I think demonstrating the… effectiveness of a kinesiologist in the primary care setting and connecting to community, and building capacity of primary care providers was also really, really positive and I've heard... numerous people speak about the ENCOURAGE project, I mean, months afterwards, about the positive and sort of ground breaking examples of where public health and primary care can come together and demonstrate real change" (04)*
- *"I think the kinesiologist worked very well because… it seemed that, that was the real connector between the primary care role and then the link to what people wanted in terms of physical activity" (08)*

The discussion about sustainability is a final aspect of the ENCOURAGE project that was considered to be successful, given that it has progressed to a provincial-level.

- *"The sustainability discussion around, so what now. And how do we integrate if we can't have a kinesiologist in every primary care setting, what can we do. What will it look like? And bring part of the conversation… at a provincial-level" (04)*

4.05L. What could have worked better/challenges?

When asked to identify what aspects of the project could have worked better, three key themes emerged. The ENCOURAGE project faced system-level challenges, as well as challenges specific to the study design, and the project sustainability.

Challenges identified at the system-level were specific to the notion of trust. Tensions and resistance were expressed by certain primary care providers involved in the project. This may have been the result of unfamiliarity with the new role. A second system-wide challenge was identified when trying to incorporate fee-for-service physicians into the study design. The fee-for-service physicians opted out of the ENCOURAGE project as systems weren't in place for them to properly bill for the services they would have provided.

- *"The two clinics were… supposed to be integrated health care team[s] and they were and they acted that way. But even within those health care teams, some people, some of the health care providers were good at working with [the CSEP-CEP], and… other people were resistant to it" (01)*
- *We were asking fee-for-service doctors to do something without any money… and they are private business people" (03)*

Challenges specific to the study design were described as difficulty with patient recruitment and physician referrals at the onset of the project. Another challenge was identified as ensuring that individuals who received the ENCOURAGE intervention were provided with the self-management skills required to maintain their exercise behaviors post project completion.

- *"First of all we weren't getting clients…We thought… it would work… and it wasn't happening" (05)*
- *"What we thought would go faster didn't go as fast" (05)*

The final challenge identified was specific to the long-term sustainability of the ENCOURAGE project. Many stakeholders commented on the financial realities of our economy, and how it is not financially feasible to incorporate one kinesiologist into every primary care clinic in Winnipeg. Having had the discussion about sustainability throughout the initial planning stages of the project may have helped alleviate some of these barriers.

- *"I think there's always funding available if we can build the case and get the right people around the table" (04)*
- *"It would have been thinking more sustainability at the… onset of the project so, when we're developing how the kinesiologist will work and function within a primary care setting… stopping then and saying, is this going to be realistic? Is this going to be sustainable if we demonstrate success?" (04)*
- *"Once we got started, and it started to look successful, it was unfortunate we didn't have the funding to continue because I think that... something like this is a great way to really connect with that target that we're looking after" (08)*

4.05M. Did you notice any unexpected or unintended outcomes?

Unexpected or unintended outcomes of the ENCOURAGE project were identified at the organizational and community-level. Organizational-level outcomes reflected any changes made to the clinic and to the clinic staff as a result of the ENCOURAGE project. For example, the environmental context of certain clinic offices started to change. Many providers started to display more physical activity promotional material (i.e., posters, pamphlets) in their clinical space. Furthermore, there was a positive increase in the primary care providers' awareness of physical activity, and their comfort in talking about physical activity with their patients. Many primary care providers reported increasing their personal physical activity levels as a result of the project.

- *"The health care providers started… at least at one of the sites, particularly started role modeling, and wanted their clients to know that they were active themselves, and put up some posters or some pictures of themselves exercising and things like that" (01)*
- *"The WRHA started having conversations about how they support their own employees to be active and is there a way for us to be able to influence the clinic staff themselves?" (01)*
- *"The reflection that [the] primary care providers did about their own health while they were considering physical activity… promotion or support for their… patients" (03)*
- *"The definite unintended… or unexpected was the change in [the] health care providers' physical activity levels themselves, like their individual levels… increased their own physical activity levels, their own comfort in talking about*

physical activity…changing their… environmental context to have more physical activity resources and pictures and just that conversation" (04)

At the community-level, the *CSEP-CEP* had formed inter-professional relationships with neighboring community partners, such as the River East Neighborhood Network, Winnipeg in motion, the YMCA and the Seniors Resource Network.

- *"I had been asked to help put together some outdoor activity days as part of the River East Neighborhood Network, and involvement with Winnipeg in motion, and another YMCA and Seniors Networks" (02)*

4.05N. Who were the key stakeholders involved with the ENCOURAGE project

Stakeholders from private, public and community organizations were identified as having involvement with the ENCOURAGE project.

Table 10. Stakeholders involved with the ENCOURAGE project

	Name of Organization
Private Organizations	• The Wellness Institute • The Reh-Fit Centre • The YMCA

Public Organizations	• The WRHA
	  ○ Population Public Health
	  ○ Chronic Disease Collaborative
	  ○ Diabetes Education
	• The University of Manitoba
	• The University of Winnipeg
	• The Province of Manitoba
	• Manitoba Health
	• Primary Care
	• The City of Winnipeg
	• Winnipeg in motion

Community	• River East Neighborhood • Local community groups

4.05O. Can you provide an example of an action that another stakeholder took to drive the project forward?

Stakeholder actions were classified as individual-level actions, organizational-level actions and system-level actions. At the individual-level, many stakeholders contributed their leadership skills and their professional-level of expertise to drive the project forward.

- *"Well I think definitely [Another Stakeholder], WRHA… I don't think that [the] project would have been what it was if it wasn't for her" (05)*

At the organizational-level, many stakeholders implemented changes related to process, operational activities, and introduced new initiatives within their respective organizations. For example, the City of Winnipeg, Youville and the Norwest Co-op Community Health Centre have each made alternations to their physical activity program delivery based on their involvement with the ENCOURAGE project. The Reh-Fit Centre and the Wellness Institute integrated aspects of the project into their operational activities. The Reh-Fit Centre and the City of Winnipeg developed entry level physical activity programming at a level that could accommodate the needs of the study population.

- *"The City of Winnipeg… really working to shift their system to be able to offer and look at programs differently" (03)*
- *"There's other community health centres like Youville and… [the] Norwest Co-op. They're all doing physical activity interventions differently because of their [involvement]…in this project" (03)*

- *"The Reh-Fit and… the City of Winnipeg... developing sort of that really entry level physical activity... and providing space for that to happen" (04)*

Several stakeholders implemented system-level actions within their respective organizations. For example, the ENCOURAGE project has influenced Manitoba Health and the WRHA to alter their policy and shift their system internally. The WRHA integrated the position of a *CSEP-CEP* into their electronic medical record system.

4.05P. Did you employ any strategies to influence any individuals and/or organizations?

Several engagement strategies were employed to influence individual stakeholders, organizations, communities and the system. Many stakeholders employed strategies to influence other stakeholders throughout the preliminary planning stages of the project, throughout the project implementation and post project completion. Stakeholder engagement strategies consisted of ensuring the right people were brought to the table, providing freedom of speech, empowering and influencing the steering committee, setting timelines, forming partnerships, and demonstrating support through word of mouth.

- *"I actually had [the CSEP-CEP] come to… a diabetes day at Access Downtown. They would like to have more activity in their area, and they have no resources. Because [the CSEP-CEP's] involvement with ENCOURAGE and that relationship and trust that he built in the community… I asked him to come... because... I knew that there was already a relationship built" (06)*

- *"The biggest one was inviting anybody to the table that wanted to be [there]. And then letting them come to meetings and… contribute whatever they could. There was no expectation tied in with it. And different groups that came to the table... some of them took major roles because it was within their mandate. And other groups, all they did was consult with us" (01)*
- *One strategy we did to be able to have the most influence in the health care [system] was to make sure one of the co-leads on the project was in the WRHA" (01)*

Several organizational-level engagement strategies were employed, such as promoting physical activity participation within the clinic by encouraging the clinic staff to increase their own personal physical activity levels, and initiating workplace wellness activities (i.e., a marathon relay team, a physical activity wall of photos).

- *"Getting physical activity into the mix as much as possible. Whether that was having marathon relay teams or physical activity wall of photos of how primary care keeps active. Or things along that nature" (02)*

Many stakeholders employed engagement strategies at the community-level, such as developing a community connectors working group for the inclusion of neighboring organizations (i.e., the City of Winnipeg, YMCA, Snap Fitness, Diamond Athletics).

- *"Collectively... we're working to provide as many opportunities for individuals as possible. It didn't matter if it was from the Y or from the school division or from the City of Winnipeg. It was really how do we collectively provide a range of options for people to choose from?" (08)*

- *"There was a community connectors working group, so community development principles were used there… to influence... the City of Winnipeg, the YMCA, the Snap Fitness. All of those facilities where there's possibility for people to actually be physically active... The idea with community development would be to engage them, [and] bring them into the conversation" (04)*

Finally, engagement strategies were employed at the system-level in order to influence the city of Winnipeg and the province of Manitoba. One example includes the development of a framework that involves key stakeholders from multiple organizations (i.e., the University of Manitoba, the City of Winnipeg, the Reh-Fit Centre, the Wellness Institute, and the YMCA) to establish an infrastructure for the graduates of kinesiology to be specifically trained in chronic disease management. This would lead to increased employment opportunities for kinesiology graduates while consecutively providing optimal exercise counseling opportunities for our target population.

- *"Working with the University of Manitoba, the Reh-Fit, the Wellness and the city in terms of looking at what would be the framework that we might be able to create to develop an infrastructure to allow… students to be trained at the two medical fitness facilities" (06)*

4.05Q. Throughout the course of the ENCOURAGE project, did you establish any new partnerships with any individuals and/or organizations whom you had not previously worked with?

Many stakeholders involved with the ENCOURAGE project developed new partnerships with individuals and organizations, such as the *CSEP-CEP*, neighborhood providers, practicing kinesiologists and academic professors.

- *"So [the CSEP-CEP] himself, so that role obviously, because it didn't exist before" (07)*
- *"Yup. Some of them I had heard about them but I had never met them… If I didn't know them, I got to know them better" (05)*
- *"Neighborhood providers… So everything from the City of Winnipeg, to Snap Fitness to the YMCA to even, you know, Goodlife and the Bronx Community Centre and Seniors Networks" (02)*
- *"We ended up findings out there's more kinesiologists working in health care settings than we originally had thought… We pulled seven or eight clinics together into kind of a council... and sought their input on what they're doing and what a kinesiologist intervention looks like at their different sites" (01)*
- *"Some in the community... new organizations… getting to know the new professors that have come into the university and their expertise and knowledge" (03)*

4.05R. Are there any aspects of the ENCOURAGE project that can not be sustained over time?

When asked to identify what aspects (if any) of the ENCOURAGE project could not be sustained overtime, three key themes emerged. Challenges specific to the long-term funding, the operational design and the principle of incorporating one *CSEP-CEP* into every primary care clinic were identified as aspects of the ENCOURAGE project that are not sustainable over the long-term. Given our current economic situation, funding to support the position of a *CSEP-CEP* within the health care system is not sustainable over the long-term.

- *"I'm not sure how we will fund it… that's a huge sustainability issue. However, once fiscal restraints are less apparent, and the position is legislated, the province will have data to support the need, and effectiveness" (06)*
- *"The financial side of things… but… as far as... the clinic involvement, now when I was leaving… and even to this day… I'll still get messages saying…hey you know, can we refer someone… they didn't want the service to go, they all found it valuable" (02)*
- *"The finance questions me because… the cost of employing one full-time kinesiologist… we'd have to look at the cost-benefit" (07)*
- *"Finances to me seems like a huge challenge... and if government had money to spend... I haven't seen the data to know if this would be the most targeted intervention" (07)*

Certain aspects regarding the operational design of the ENCOURAGE project are not sustainable over the long-term. Issues related to the delivery of service, with specific

reference to the referral system (i.e., the "*Risk Factor Identification Tool*" (RFIT) recruitment software) would need to be addressed. Furthermore, with the high prevalence of sedentary individuals living in Manitoba, a triage protocol may need to be implemented in order to target high risk individuals, and individuals who may benefit the most from an intervention such as the ENCOURAGE project. This type of protocol would be vital in ensuring an adequate relationship is maintained between the demand and supply of the program.

- *"The RFIT tool was… designed to make the... recruitment easier but what [we] ended up finding out is that physicians liked controlling who they were referring to the site. They didn't like being told by the software who should be referred to [the] project. Probably anything it was that the RFIT wasn't implemented in a really meaningful way in the context of the clinic" (01)*

Finally, given our financial realities, the principle of incorporating one *CSEP-CEP* into every primary care clinic is not feasible. It would be important to develop an appropriate *CSEP-CEP* to clinic ratio.

- *"I don't think it would be sustainable to think there'd be one in every primary care setting. I think to me is having a link to a kinesiologist is key" (05)*
- *"Realistically, I think the Cadillac version of having a kinesiologist in every primary care setting is not sustainable… I think the connections to community though, and that part of it is definitely sustainable" (04)*

Allocating one *CSEP-CEP* to each of the twelve community areas in Winnipeg (i.e., Seven Oaks, River East, Transcona, St. Boniface, St. Vital, Fort Garry, River Heights,

Assiniboine South, St. James, Downtown, Point Douglas and Inkster), or providing group counseling sessions that target multiple clients at once may be a more viable option.

- *"Primary care networks, they're trying to determine what are all the supports needed for that area? Let the physicians pool their resources and share… so it's more cost-effective" (05)*
- *"We learned from the Diabetes Education Classes is that you can actually do the counseling in a group setting" (01)*

4.05S. What is your five year vision of success?

When discussing each stakeholder's five year vision of success, four key themes emerged, namely: recognition, integration, accessibility and liaison. All four themes centered around the notion that there would be a shift in how physical activity is perceived, adopted and immersed in our culture.

Recognition was identified as knowledge, appreciation and understanding of the value of physical activity and exercise and its relation to both enhancing and managing health, as well as preventing the onset of chronic disease. From a professional standpoint, recognition was identified as the public recognition of kinesiology as a health profession, with a clear understanding of the roles and responsibilities of a kinesiologist, and how this role fits into the primary care setting.

- *"An appreciation of physical activity… that to me in itself would be a huge accomplishment… An appreciation and understanding of... what physical activity does and what a [kinesiologist's] role is" (05)*

- *"Success looks like having a known, defined and established group of professionals, aka kinesiologists, who are the go to people, either for the general population to phone up, or for medical practitioners to refer to. Who maintain[s] and enhance[s] health" (02)*
- *"We have physicians who recognize the role of activity" (06)*
- *"Physical activity is recognized... as a key player in health, overall health and... prevention of chronic disease" (04)*

Physical activity is integrated into the everyday practice of health care professionals. It is included in the training programs of health care professionals, and is normalized within the health care system through the electronic medical record database. Physical activity is also integrated into the everyday lives of all Manitobans, making for a healthier, happier population.

- *"We're no longer making the case as to why health care providers should talk about physical activity to their patients" (04)*
- *"We're using the electronic medical records, physicians could refer to this liaison service and then patients could access it" (01)*
- *"There would even be systems that once they get active, not only do we encourage them to get active, but we'll say, if they have some reason that they have to stop being active, that we again... encourage them down the road so that there's this ongoing... process. No different from how you see your doctor every year for your checkup, that somehow your physical activity checkup is built into that in some shape or form" (08)*

Physical activity is widely accessible, and accessed by all Manitobans, regardless of age, health status, socio-economic status or skill level. There are a vast array of community-based programs available to the general public, regardless of age and skill level.

- *"People from all different abilities and ages… and those that are not traditional exercisers would be encouraged to exercise. And that there would be a… really... good link for the recommendations from the doctor with how they could get active... within their community" (08)*
- *"We try to cut down the costs of chronic disease, we try to make people's lives better and healthier, and try to enhance lifestyles, whether that person comes to us with diabetes, arthritis, you know, leaky valve or apparently healthy" (02)*
- *"Free or accessible programs for those who… are not in a position to pay" (06)*
- *"There's many different types of programs out there. It's not just a one type fits all" (06)*

There is an established liaison between primary care based exercise counseling and community-based services.

- *"I guess what success would look like... to me... having obviously like... that exercise counseling piece. Making sure that it's screening and assessment. Make sure they're safe for exercise. Basic knowledge of what it is that they should be doing, or perhaps, shouldn't be doing. And then connection to community" (07)*
- *"There's a lovely relationship between primary care and the kinesiologists. So they have... an opportunity to have conversation[s] to better evolve programs for their patients, and it affects our overall city programs" (06)*

- *"The liaison service would be supporting the clinics to create these new connections that don't currently exist. And [the] liaison service would help the service providers that don't offer programs that are appropriate… for new exercisers. So they could develop those programs" (01)*

4.05T. Would your organization have to change its operational activities in order to support the vision?

Many stakeholders identified organizational changes such as equitable access to physical activity opportunities that appeal to the general public, and to clinical populations to support the vision.

- *"We'd have to have a really good understanding and government would have to have a good understanding… of equitable access" (07)*
- *"People may choose to come to [the] Wellness Institute [because], perhaps you get a more in-depth process and it's... part of the membership fee. But if people wanted that... for free, we would like to be able to say well, you know, we can provide it, fee-for-service but if this is something you're interested in, it's offered at x and x clinic. At no cost… But if I say it's offered too, at this clinic for no cost but you're not eligible… That's when it starts to become... only people in that catchment area can go… That's when it... could start... creating tension in the services we deliver" (07)*
- *"Right now, our organization will provide very specified exercise programs for people with arthritis or people with… diabetes or different issues like that, but I think that we need to become... even more open to chronic disease prevention,*

and incorporate some of those things and some very general exercise programs that really appeal to people" (08)

4.05U. What type of changes would be required in order to support the vision?

When asked to identify the types of changes required to support the vision, three key themes emerged, namely: system-level changes, interdisciplinary collaboration and a shift in culture.

System-level changes at the level of health care, academia and the government would be required to support the vision. Implementing health care coverage to support individuals who receive services from registered kinesiologists, enhancing the university's curriculum to support graduates of kinesiology to be better equipped to work in health care, and recognizing kinesiology as a profession in primary care are all examples of system-level changes that would be required to support the vision.

- *"I think one of the reasons… kinesiologists aren't seen as part of health care [is] it's not covered under health care" (05)*
- *"We need to change our curriculum to reflect the skill set that's needed. We would need to train our people to be able to talk about physical activity and health behavior change to people that… didn't like exercise" (01)*
- *"Kin is going to have to figure out a way to be able to better provide for their students so that they're best prepared for this" (06)*
- *"Academic settings probably need to do a better job [at] training and supporting new kinesiology grads to be better equipped to work in a health care setting,*

and… [be] more trained around behavior change and motivational interviewing" (04)

Interdisciplinary collaboration was another reoccurring theme that emerged when asked to identify any changes required to support the vision. Interdisciplinary collaboration would enable organizations to work together in order to avoid overlap and redundancy between service delivery. Interdisciplinary collaboration would also ensure that the services offered are meeting the needs of the community, and are equally accessed by all members of the community.

- *"We're working more collaboratively from the planning stage, to the implementation stage... so there's no redundancy of programs out there... so... the city, the YMCA, all programs are meeting the needs of the community" (04)*

A shift in the way physical activity is perceived, adopted and immersed in our culture was the final theme that emerged when discussing any changes required to support the vision. Physical activity needs to be built into our environment.

- *"[Physical activity] is part of how we live. It should be embraced as part of how we live. It's… as fundamental as how we eat and how we think and how we act. So, it shouldn't be any different than that. And it shouldn't be carved out as its own little piece. It should be integrated and part of the whole" (06)*
- *"[Physical activity] needs to be supported by the whole healthy lifestyle, built environment, urban planning… like the whole healthy in its broadest sense if we're really going to keep people out of the health care system, keep them well and not with chronic disease" (03)*

4.05V. Are there any individuals or organizations who we should share our experience with?

The discussion around the dissemination of the project findings and outcomes generated six key themes. The results of the ENCOURAGE project should be shared with regional health organizations, provincial organizations, national organizations, professional disciplines, academic organizations and governing bodies such as the government of Manitoba.

Regional health organizations were identified through the WRHA as the Primary Care Network (PCN) and the Chronic Disease Collaborative. At the provincial-level, Manitoba Health, Doctors Manitoba, the Physical Activity Coalition of Manitoba and the Primary Prevention Syndicate were identified as organizations that would benefit from the findings of the ENCOURAGE project. Project outcomes were also thought to be shared with certain national organizations such as the Canadian Society for Exercise Physiology (CSEP), the American College of Sports Medicine (ACSM) and Exercise is Medicine (EIM). Professional disciplines such as physical therapy, family medicine and mental health, and academic institutions were identified as groups that would benefit from the findings of the project. Finally, many stakeholders suggested that project outcomes be disseminated to the governing bodies in Manitoba, such as community decision makers, the Minister of Healthy Living and the Chamber of Commerce.

- *"Engaging our mental health professionals… where anecdotally some of the quick wins are when we think of physical activity and the role physical activity has... around mental health" (04)*

- *"I also think... sharing some of it with the curriculum development people… all levels of curriculum development for the different health care providers" (04)*
- *"All the community stakeholders, so Wellness, Reh-Fit, City of Winnipeg, YMCA… different seniors groups" (07)*
- *"Government Cabinet, Minister of Healthy Living" (02)*

4.05W. Are there any individuals or organizations who would oppose the implementation of a primary care based physical activity initiative over the long-term?

When asked to identify any individuals or organizations who would oppose the implementation of a primary care based physical activity initiative in Manitoba, over the long-term (if any), three key themes emerged, namely: funding, values and scope of practice.

Opposition and push back may be expressed by individuals or organizations who receive cuts to their program(s) or service(s) in order to fund physical activity counseling in primary care, over the long-term.

- *"Definitely there would be but it depends on if there was a decision without new money, somebody is getting pulled money… And the problem with health care then… it's perceived you're taking money away from somebody who could have had treatment" (05)*

Individuals or organizations who have values or priorities that do not align with the values or priorities of the ENCOURAGE project may express opposition or push back. Furthermore, individuals or organizations who do not see the merit of physical activity

counseling in primary care may oppose the implementation of this type of intervention over the long-term.

- *"There's always people that don't necessarily believe that activity has much merit. I think that's a smaller group today than there used to be" (06)*

Opposition and push back may be expressed by certain professional disciplines that have a scope of practice that aligns closely to the scope of practice of a *CSEP-CEP*, such as nutrition, physiotherapy, occupational therapy and athletic therapy. Opposition and push back may be expressed by certain organizations such as the Reh-Fit Centre, or the Wellness Institute, because their organizational missions are in direct alignment with the roles and responsibilities of a *CSEP-CEP*. The mission of the Reh-Fit Centre is "*to enhance the health and well-being of its members and the community by providing innovative health and fitness services through assessment, education, and exercise in a supportive environment*" (http://www.reh-fit.com/).

- *"It may not be in the best interest of the Reh-Fit Centre, the Wellness Institute… Because when the government is willing to foot the bill to cover the costs of visiting a kinesiologist, how do we attract the top minds and the top players in that field" (02)*
- *"There might be push back about... should it be a CEP or not, or should it be a physio or maybe a different role… We have to respect that there's going to be some blurry areas… in… the way that we provide that care for people… There's a continuum from PT to CEP to community-based program[s] where you don't even need to go... see a health care service" (01)*

4.05X. Will the outcomes of the ENCOURAGE project influence emerging initiatives?

The outcomes of the ENCOURAGE project will contribute towards the emerging discussion about the future direction of primary care in Manitoba.

- *"So I don't think in itself it would have probably been enough but it just happens that as this study was being done, there's been different initiatives like it across the country. And worldwide. And a lot of publications on it… so because of that... it's [a] combination of multiple things" (05)*
- *"I think it adds… if we say primary prevention is interested in activity. Now this has sort of helped support saying yea it made a difference… It is research saying that... we found that it made a difference. It made a difference in all these different domains and that's of… merit to the person" (06)*
- *"The primary care providers themselves, from the day I was leaving were already ready to have me back and you know, continue things on. It wasn't as if they thought it was a poor service and they wanted it discontinued… I think if the funding is there, if the evidence is there and the government, or whatever stakeholder decides to make this financially viable, then it absolutely can work" (02)*
- *"Developing a business case that we are submitting to Manitoba Health… specifically being designed by primary health care" (01)*
- *"The evidence to demonstrate success as far as our opportunity to initiate the conversation with primary care settings" (04)*

Chapter 5.0: Discussion

The purpose of this thesis project was to:

1) Use the RE-AIM framework to evaluate the external validity of the ENCOURAGE project; and,
2) Describe the stakeholders' perceptions regarding the long-term sustainability of the ENCOURAGE project

5.01 Evaluating the external validity of the ENCOURAGE project

The evaluation of the ENCOURAGE project for the purpose of this thesis project included a brief analysis of four of the five dimensions of the RE-AIM framework (Reach, Efficacy/Effectiveness, Adoption, Implementation), with an in-depth analysis of Maintenance, which is the final dimension of the framework. The RE-AIM framework utilizes an assessment of both individual and organizational-level components, in order to evaluate an intervention's potential for producing public health impact.[22] The level of public health impact is determined by the "*combined effect*" of all five dimensions of the RE-AIM framework. A qualitative assessment of Reach suggests the ENCOURAGE project had successfully reached its target population, which was comprised of individuals between the ages of 25-75 years who were physically inactive and free of chronic disease. A qualitative assessment of Adoption reveals the ENCOURAGE project was successfully adopted into each target setting by the clinic staff. For example, one clinical staff member noted:

> *"He actually integrated really well. I mean he came [to] this meeting with us, which is a big part of who we are and he sat with us and gave us updates on clients and some of the case studies he had that were coming through. Some of the positive things that were happening and client feedback because we don't always get client feedback"*

Furthermore, as both clinics were designed to meet the needs of the communities they serve, and are inclusive to the residents of the communities they serve, the target settings were representative of the communities accessing primary care services in the areas of River East and Transcona. A qualitative assessment of Implementation suggests the ENCOURAGE project was delivered as intended, and delivered consistently to each study participant. Although the ENCOURAGE project had enabled previously sedentary individuals to increase their total physical activity accumulation by 104 minutes a week,[54] the intervention was unsuccessful in achieving its primary outcome of a change in total daily accumulation of moderate to vigorous physical activity in bouts of 10 minutes or more, over a period of 10 months. Therefore the Efficacy/Effectiveness dimension of the RE-AIM framework was not achieved. Even so, the ENCOURAGE project successfully supported participants to increase their physical activity levels at a lower intensity.[54] Although the ENCOURAGE project had notable implications on primary care providers, community-based programing and health policy, the funding for the project was not maintained post project completion, nor was the ENCOURAGE project adopted into the health care system over the long-term. Therefore, the Maintenance dimension of the RE-AIM framework was not achieved. Given that three of the five dimensions of the RE-

AIM framework were met (i.e., 60%), it can be concluded that the ENCOURAGE project generated a moderate level of public health impact.

5.02 Stakeholders' perceptions regarding the long-term sustainability of the ENCOURAGE project

Although the ENCOURAGE project was not adopted into the health care system, these data suggest that certain aspects of the ENCOURAGE project are sustainable over the long-term. The ENCOURAGE project left a lasting impact on the recognition of physical activity as well as the delivery of physical activity services in primary care. Furthermore, the ENCOURAGE project had notable implications on primary care providers, community-based programing and health policy.

5.02A. Physical activity is recognized as an integral component of health

The outcomes of this thematic analysis suggest that physical activity should be recognized as an integral component of health. The majority of key stakeholders involved with the design, development or implementation of the ENCOURAGE project have indicated that physical activity plays a vital role in both preventing and managing chronic disease, as well as enhancing overall health and wellbeing. For example, one participant noted:

> *"Physical activity has a really strong role in the sense that it's... preventing chronic disease, it's improving overall... health, which includes quality of life, and it's not just the absence of disease"*

Another participant stated:

> *"Physical activity is recognized... as a key player in health, overall health and... prevention of chronic disease"*

Another participant noted:

> *"Physical activity has a role... directly and indirectly with mental health. Then we look at the chronic conditions such as cardiovascular disease, COPD... even osteoporosis, any number of them that have already been proven through time that... regular activity has some role to play directly or indirectly in its management or prevention"*

We need to develop strategies to increase physical activity participation at the population-level.[64] We need to promote physical activity to all populations across the spectrum of care, from apparently healthy individuals to patients with chronic disease, irrespective of age or ability.

One participant noted:

> *"We know that primary care is a setting that we have the most contact with individuals on a regular basis. They're often the individuals that we're not reaching in some of our other means [of] physical activity promotion"*

Another participant suggested:

> *"People from all different abilities and ages… and those that are not traditional exercisers would be encouraged to exercise. And that there would be a… really... good link for the recommendations from the doctor with how they could get active... within their community"*

We need to create a culture, along with the supporting environment that allows Canadians to be physically active in all areas of life (i.e., school, work, leisure and travel).[64] Physical inactivity should be viewed as a public health priority targeting all populations across all demographics in Canada.

One participant noted:

> *"[Physical activity] needs to be supported by the whole healthy lifestyle, built environment, urban planning… like the whole healthy in its broadest sense if we're really going to keep people out of the health care system, keep them well and not with chronic disease"*

Another participant stated:

> *"We saw… a… huge connection with… community programs because we do know... from research that people need to have options to exercise and we have a lot of... facilities and we have a lot of... walking paths and community organizations and we thought that was... a really good way to provide a menu of options for people to get more active"*

Another participant noted:

> *"If you look back over the last hundred years it's the sitting time that's increased significantly, and the moving time that's reduced a lot. So we need to find strategies to get people moving"*

Another participated stated:

> *"There would even be systems that once they get active, not only do we encourage them to get active, but we'll say, if they have some reason that they have to stop being active, that we again... encourage them down the road so that there's this*

> *ongoing... process. No different from how you see your doctor every year for your checkup, that somehow your physical activity checkup is built into that in some shape or form"*

National-level organizations in the United States have adopted a similar philosophy to physical activity. For example, "*Exercise is Medicine*" is an initiative founded in 2007 by the American Medical Association and the American College of Sports Medicine.[64] The goal of "*Exercise is Medicine*" is to have health care providers screen every patient for physical activity, and to provide a physical activity prescription, or a referral to an exercise professional when appropriate.[64] By adopting a population-wide approach to physical activity, and by creating the supportive environments that allow physical activity to be integrated into the everyday lives of Canadians, physical activity will be recognized as an integral component of health.

5.02B. The impact of the ENCOURAGE project on the delivery of physical activity in primary care

Although the benefits of physical activity for the prevention and management of chronic disease have been well documented, opportunities to support physical activity in primary care settings often go missed.[65] In a study examining the preventative practices utilized in primary care settings, clinics were asked to rate how frequently they referred their patients to community-based programming to target one of the following risk factors for chronic disease; smoking, alcohol consumption, diet and physical inactivity, using a 5-item Likert scale (i.e., 0 = never, 1 = rarely, 2 = occasionally, 3 = usually, 4 = always).[65] Overall findings suggest that primary care practices infrequently refer their

patients to community-based programming to address the behaviors that put individuals at risk of chronic disease (mean: 1.96, SD: 0.55, Range: 0.25-3.0).[65] Furthermore, of the four risk factors that contribute to chronic disease, patients were less frequently referred to community-based programming to address physical inactivity (mean: 1.87, SD: 0.67, Range: 0-3.0).[65] Primary care providers may be unaware of the services offered in the community, they may lack the time, or barriers related to "*inter-organizational linkages*" may be preventing the referral process from happening.[66]

One participant noted:

> *"how do we as a province... operationalize the concept of exercise is medicine… Physicians are too busy... they don't have [a] billing code for exercise counseling... and so, is that a physician role? What we want to do is take things off physicians' plates"*

Having an established liaison system that links health organizations with the community may be a sustainable solution that could reduce the barriers that are preventing patients from accessing the services they need to improve their overall health.

Liaison models that link health care systems with local community programs have been proven to be efficacious when delivered across varying clinical populations. For example, a phone-based patient navigator system was developed in Alabama to link primary care providers with community programs in order to improve the outcomes of patients with type 2 diabetes.[67] After exposure to the intervention, patients demonstrated improvements in self-efficacy (3.1 ± 0.8 vs. 3.6 ± 0.7, $p<0.001$), as well as glycemic control (HbA_{1c}: $7.8 \pm 1.9\%$ vs. $7.2 \pm 1.3\%$, $p=0.001$).[67] In another example, a partnership was formed between a health care system and community-based fitness providers in

Florida to create a Stroke Wellness Program to increase the accessibility to affordable, safe and sustainable physical activity opportunities for patients who have rehabilitated from a stroke.[68] Results from a program satisfaction survey suggest that 95% of participants were satisfied with the program, and felt that it met or exceeded their expectations.[68] Participants were particularly satisfied with their overall experience (i.e., staff, equipment, location, time) and the health benefits they received from the program (i.e., physical well-being, emotional well-being, social engagement, quality of life).[68] In a final example, compelling evidence from 96 studies reveals that having an established liaison system that links primary care with community-based obesity prevention and management programs can both prevent and treat obesity in children.[69] Furthermore, providing referrals to community-based programs was identified as one of the nine areas in which primary care providers can target obesity in children.[69]

Findings from the ENCOURAGE project suggest that a *CSEP-CEP* acting as a liaison between primary care and community-based programming is a model that has shown to be efficacious when delivered in a primary care setting. The *CSEP-CEP* was able to build capacity between primary care and public health by leveraging health and wellness programs already existent within the community. The primary care sector benefitted as their patients were becoming more active. Community-based programs benefitted as they were receiving new clients and became aware of how to better target this specific population. The liaison system was identified by several stakeholders as a unique success of the project.

For example, one participant noted:

> *"I think the kinesiologist worked very well because… it seemed that, that was the real connector between the primary care role and then the link to what people wanted in terms of physical activity"*

A second participant noted:

> *"I think demonstrating the… effectiveness of a kinesiologist in the primary care setting and connecting to community, and building capacity of primary care providers was also really, really positive and I've heard... numerous people speak about the ENCOURAGE project, I mean, months afterwards, about the positive and sort of ground breaking examples of where public health and primary care can come together and demonstrate real change"*

A third participant noted:

> *"The liaison service would be supporting the clinics to create these new connections that don't currently exist. And [the] liaison service would help the service providers that don't offer programs that are appropriate… for new exercisers. So they could develop those programs"*

A fourth participant noted:

> *"We needed a project that could demonstrate the importance of physical activity…We want the health care system to know the importance of it and... then to... support it in the community… So that's the whole community linkage, developing community programs, working with community partners, getting people to know one another"*

A fifth participant noted:

> *"I think the connections to community though, and that part of it is definitely sustainable"*

One clinical staff member noted:

> *"As a community resource, there's a huge wealth of knowledge that's not yet been tapped. Like he could offer more to the general community of Transcona for health and wellness"*

As this service had not been previously offered in clinical settings across Winnipeg, the liaison system adopted in the ENCOURAGE project was a novel approach to increasing the physical activity opportunities for patients at risk of chronic disease.

5.02C. The impact of the ENCOURAGE project on primary care providers

The ENCOURAGE project successfully integrated a new profession (i.e., *CSEP-CEP*) into two primary care teams in Winnipeg, Manitoba. Although this position was only integrated into the primary care clinics for 16 months, the data identified behavior changes in the health care providers exposed to the ENCOURAGE project. For example, the *CSEP-CEP* was able to develop a strong relationship with the primary care providers. This led to the primary care teams becoming more familiar with the role and skill set of a *CSEP-CEP*, and recognizing the value that this profession brought to the team and to the patients. One participant noted that:

> *"There has to be huge credibility and I get the impression that [the CSEP-CEP] was able to garner that credibility … able to forge that relationship with primary care, which is key"*

Having formed trusting relationships with the primary care teams, the *CSEP-CEP* was able to utilize certain strategies to influence the physical activity behaviors of the primary care providers themselves. For example, one strategy identified by the *CSEP-CEP* suggests:

> *"Getting physical activity into the mix as much as possible. Whether that was having marathon relay teams or physical activity wall of photos of how primary care keeps active. Or things along that nature"*

There was a notable shift in the health care providers' perceptions of physical activity, which may be attributed to their exposure to the ENCOURAGE project, and the relationships formed with the *CSEP-CEP*. Many health care providers began to self-reflect on their own personal physical activity levels, change the environmental context of the primary care clinics to one that promotes physical activity, and integrate physical activity into their daily lives. One participant noted that:

> *"The health care providers started… at least at one of the sites, particularly started role modeling, and wanted their clients to know that they were active themselves, and put up some posters or some pictures of themselves exercising and things like that"*

Hebert et al. conducted a systematic review of nineteen studies from across the world to evaluate health care providers' perception of physical activity counseling in primary care.[70] What the authors noted was that lacking knowledge and training in physical activity was the second most common barrier limiting physical activity counseling in primary care.[70] Furthermore, a number of studies have shown that health care providers are more likely to engage in physical activity counseling with their patients if they

themselves are physically active.[70] For example, nurses who are physically active are more likely to engage in physical activity counseling with their patients than nurses who are physically inactive ($p<0.05$).[71] Physicians who regularly engage in aerobic exercise are five times more likely to prescribe aerobic exercise to their patients, compared to physicians who do not regularly engage in aerobic exercise (OR: 5.72; 95% CI 2.41-13.54; $p<0.0005$).[72] Finally, physicians who perform strength training on a regular basis are four times more likely to prescribe strength training exercises to their patients, in comparison to their sedentary counterpart (OR: 4.55; 95% CI 2.61-7.91; $p<0.0005$).[72] These findings are consistent with the outcomes of the thematic analysis, which suggest that once the health care providers became more familiar with physical activity, through their exposure to the ENCOURAGE project and through the relationships formed with the *CSEP-CEP*, they themselves started to increase their personal physical activity levels and thus, became more comfortable talking about physical activity with their patients. One participant noted:

> *"The definite unintended… or unexpected was the change in [the] health care providers' physical activity levels themselves, like their individual levels… increased their own physical activity levels, their own comfort in talking about physical activity…changing their… environmental context to have more physical activity resources and pictures and just that conversation"*

Another participant commented on:

> *"The reflection that [the] primary care providers did about their own health while they were considering physical activity… promotion or support for their… patients"*

Therefore, it is suggested that exposing health care providers to an intervention such as the ENCOURAGE project may demonstrate positive changes in both personal and professional beliefs and behaviors related to physical activity.

5.02D. The impact of the ENCOURAGE project on community-based programming

Community-based organizations gained a clear understanding of the barriers associated with physical activity, and therefore shifted the way they delivered their services in order to better meet the needs of the target population (i.e., the ENCOURAGE cohort). Studies have shown that not knowing how to participate in physical activity, as well as having inadequate skills and resources are among the top barriers associated with physical activity in middle aged adults.[73,74] In a study conducted by Justine et al., 37% of study participants identified not knowing how to engage in physical activity as an internal barrier that limited their ability to exercise regularly.[73] Throughout the ENCOURAGE project, the community-based programs began to work closely with the *CSEP-CEP* to gain a better insight regarding the specific needs of the study cohort, which was comprised of middle aged sedentary individuals, with a mean BMI of 35.2 ± 0.8 kg/m^2 (i.e., class 2 obese), and in turn, gained a better understanding of the unique barriers this population faced when it came to regular exercise. These insights can be generalized to a broader population, as not knowing how to participate in physical activity has been shown to be an internal barrier that limits regular exercise participation in both middle aged and older adults with varying BMI measures (middle aged: 25.39 ± 5.18 kg/m^2 vs. older adults: 23.87 ± 3.68 kg/m^2).[73] The community-based programs utilized this information to shape their program delivery, and started offering entry level physical

activity opportunities tailored towards new exercisers. For example, one participant noted:

> *"What we tried to do is set up some programs that gave people some skills, or some… first level physical activity opportunities, and.. from there... tried to provide... other programs that they might choose to go into. But I think we found that they really liked what they were doing at that level"*

A second participant stated:

> *"The Reh-Fit and… the City of Winnipeg... developing sort of that really entry level physical activity... and providing space for that to happen"*

A third participant noted:

> *"There's other community health centres like Youville and… [the] Norwest Co-op. They're all doing physical activity interventions differently because of their [involvement]…in this project"*

The hope was that in providing entry level physical activity opportunities, study participants would overcome the internal barriers associated with physical inactivity, such as not knowing how to participate in physical activity and having inadequate skill, and increase the likelihood of integrating physical activity into their daily lives.

Perceived lack of time has been well documented as one of the most common barriers associated with physical activity participation in adults.[75] This barrier remains consistent amongst different populations with varying health statuses.[74,75,76] Nies et al. conducted a qualitative study to determine the factors that facilitate and prevent physical activity participation in European American (EA) women.[77] The authors of this study concluded that "*the most important recommendation for EA women is to assist them to determine*

activities that they can fit in their daily schedules and continue over time."[77] Allocating scheduled time for physical activity that does not compete with family obligations, work and household responsibilities has its challenges. "*Without a supportive schedule, exercise is either not begun or is subsequently stopped.*"[77] It is for this reason that certain community-based programs involved with the ENCOURAGE project started altering their program schedules in order to better meet the needs of the study population. For example, one participant noted:

> *"Certainly encouraging... the city or the Y to consider looking at their program schedules to see if they could do a better job at embracing people in that way"*

One participant spoke specifically to the City of Winnipeg, and noted:

> *"The City of Winnipeg… really working to shift their system to be able to offer and look at programs differently"*

The hope was that in shifting their program schedules, inactive individuals may overcome the barrier of "*inadequate time*" and increase their likelihood of integrating physical activity into their daily lives.

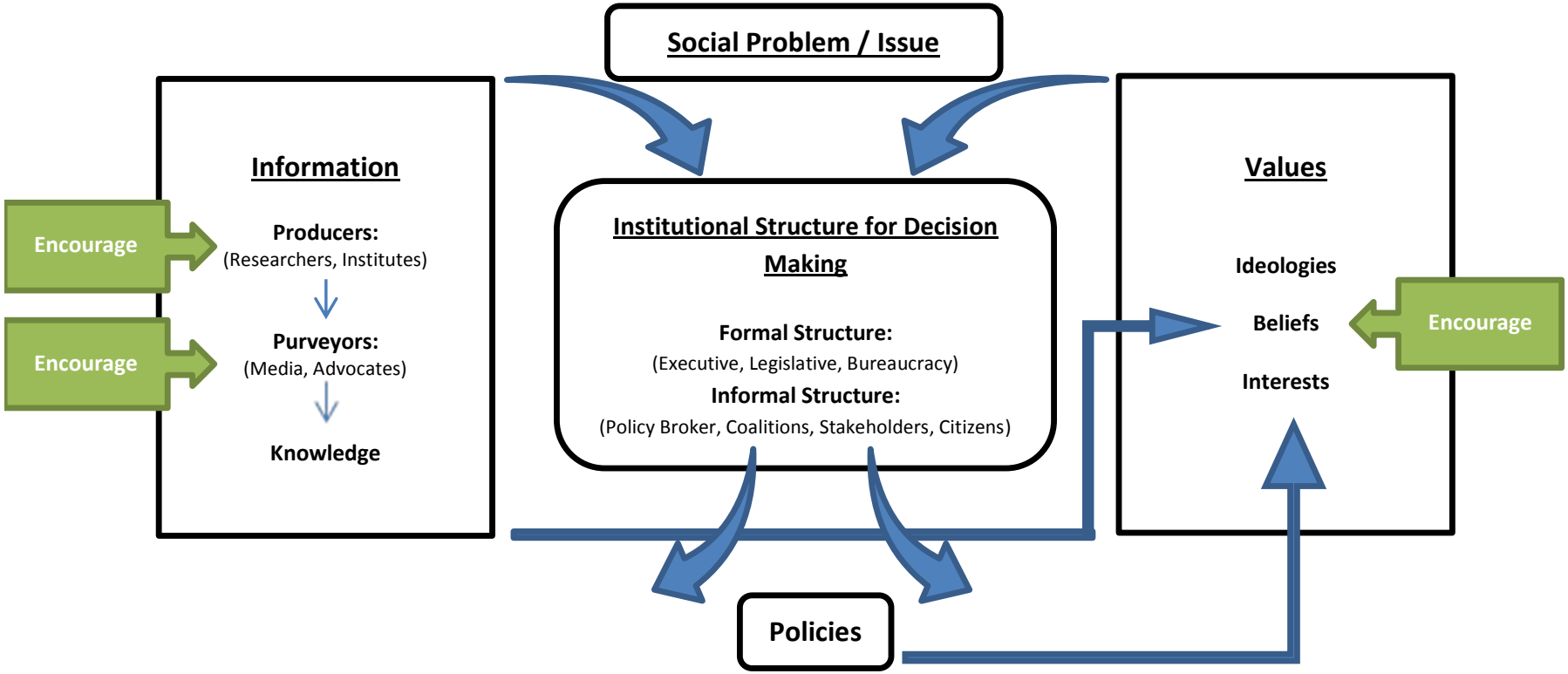
5.02E. The impact of the ENCOURAGE project on health policy

There has been ongoing dialogue and discussion regarding how to better support physical activity in primary care at the provincial-level, based on the outcomes of the ENCOURAGE project. The formation of health policy is a complex, non-linear process that is developed over multiple stages and is influenced by information and values.[78] Information is represented by various sources of research and evidence.[78] These sources are then used by the purveyors of information (i.e., media and advocates), and translated

into simple knowledge that is both meaningful and easy to understand.[78] Individual and organizational-level values are shaped through multifaceted interactions that occur between interests, ideologies and beliefs.[78] Interests depict "*how one would like the world to work;*" ideologies are guided by individual or organizational views of "*how the world ought to work;*" and beliefs represent "*our knowledge of how we think the world actually does work.*"[78]

Of the three attributes that shape our values, the outcomes of research can only persuade our beliefs, which is only achieved through repeated exposure over a long period of time.[78] It is for this reason that "*a single project may do no more than develop an idea, validate a methodology, assess efficacy or evaluate applicability,*" recognizing that the beliefs that are influenced by research need to compete with both ideologies and interests in order to shape the values that contribute to policy change.[78] Figure 1 outlines the process taken to formulate health policy, and the specific stages where the ENCOURAGE project has intervened. Information is translated from research and evidence to simple knowledge through the purveyors of information.[78] The information is then used for input into the "*institutional structure for decision making*."[78] This knowledge is also used to persuade the beliefs of the decision makers who form the formal and informal structure for policy change.[78]

Figure 1. The formation of health policy



Note: The green arrows represent where the ENCOURAGE project has intervened

The information generated by the "*producers*" of knowledge is not driven by the product of one particular research study, but rather the synthesis of information pertaining to a specific area of study.[78] This implies that the likelihood of the ENCOURAGE project, as a sole intervention, informing decision making and health policy is rather slim. The outcomes of this thematic analysis reveal that the organizations that govern the health services in Manitoba such as the WRHA and Manitoba Health started to engage in preliminary dialogue regarding how to better support physical activity in primary care, based on the outcomes of the ENCOURAGE project. For example, one participant stated:

> *"The WRHA started having conversations about how they support their own employees to be active and is there a way for us to be able to influence the clinic staff themselves?"*

Another participant noted:

> *"I've heard... numerous people speak about the ENCOURAGE project, I mean, months afterwards, about the positive and sort of ground breaking examples of where public health and primary care can come together and demonstrate real change"*

This participant went on to state:

> *"The sustainability discussion around, so what now. And how do we integrate if we can't have a kinesiologist in every primary care setting, what can we do. What will it look like? And bring part of the conversation… at a provincial-level"*

One participant spoke to the development of a business case to support physical activity counseling in primary care:

> *"Developing a business case that we are submitting to Manitoba Health… specifically being designed by primary health care"*

These data suggest that the ENCOURAGE project provided evidence-based exposure to the concept of physical activity counseling in primary care, which over time, has the potential to shape the beliefs of the policy makers who form the structure for decision making of health services in Manitoba. Factors that will further influence the decision to adopt physical activity counseling into the primary care system include political buy-in, system readiness, and alignment to current priorities and community need.

5.03 Limitations

Although a comprehensive evaluation was performed utilizing the RE-AIM framework and methods of a stakeholder analysis to determine the external validity of the ENCOURAGE project, certain limitations must be acknowledged. These limitations are specific to the RE-AIM framework, the snowball sampling methodology and the study sample.

5.03A. Limitations of the RE-AIM framework

A distinct limitation of the RE-AIM framework is the lack of a validated method for calculating an overall RE-AIM score. There is no standardized approach for determining the interplay between the five dimensions of the RE-AIM framework, and how they each contribute to determine the level of public health impact.[22] Therefore, there exists no

standardized approach for determining the level of public health impact an intervention can generate (http://www.re-aim.hnfe.vt.edu/about_re-aim/FAQ/).[22] The model is based on the principle that equal weight is given to each dimension of the framework (http://dev.nccmt.ca/registry/view/eng/70.html). This approach was adopted when determining the level of public impact that the ENCOURAGE project produced.

5.03B. Limitations of the snowball sampling methodology

The snowball sampling methodology used to identify the study participants for the Maintenance dimension of the RE-AIM framework has its limitations. The snowball sampling methodology was utilized to identify and recruit participants, through a series of "*chain referral*" made by the participants themselves.[79] The snowball sampling methodology has three limitations that can introduce a bias to the study sample. The first limitation of the snowball sampling methodology is the potential for introducing a gatekeeper bias, where study participants may choose to restrict the researcher's access to a specific individual or population.[79,80] The second limitation of the snowball sampling methodology is the potential for restricting the study sample to individuals embedded within a specific social network.[79] This may lead to an overrepresentation of social cohesion and an underrepresentation of "*isolates*" or individuals outside the social network.[79] The final limitation of the snowball sampling methodology is the potential for introducing a selection bias into the study sample. Because participants are not selected at random, but rather, chosen based on the selective bias of another study participant, the outcomes generated from a snowball sampling methodology are difficult to generalize to different populations and settings.[81] For the purposes of this thematic analysis, the

selection bias limitation did not negatively impact the study sample, as we received representation from community, municipal and provincial organizations from public and private sectors, across the spectrum of care, that each have unique funding entities and collectively, oversee all demographics and populations across Manitoba. However, it must be acknowledged that the outcomes of this thematic analysis may be difficult to generalize to populations and settings outside the province of Manitoba.

5.03C. Limitations of the study sample for Maintenance

Although the study sample used to evaluate the Maintenance dimension of the RE-AIM framework held representation from community, municipal and provincial organizations, including; the University of Manitoba, the St. Boniface Research Centre, the WRHA, Manitoba Health, the City of Winnipeg, the Reh-Fit Centre and the Wellness Institute, the study sample was mainly comprised of "*administrative decision makers*" who had involvement with the design, development or implementation of the ENCOURAGE project. The lack of representation from health care providers who were responsible for referring patients to the project was a limitation of the study sample. Having engaged more frontline providers who were responsible for referring patients to the ENCOURAGE project may have generated an alternative perspective of how an intervention such as the ENCOURAGE project could be sustained over the long-term. Specifically, these frontline providers could have provided insight specific to the day to day operational activities of the primary care clinics, patient need, the supports that are lacking, and the supports that are required to inform the long-term sustainability of an

intervention such as the ENCOURAGE project.

5.04 Future directions

The ENCOURAGE project had engaged "*administrative decision makers*" such a program managers, leads and executives from community, municipal and provincial organizations of public and private sectors, who were responsible for decisions made at the organizational-level. "*Administrative decision makers*" may support the implementation of health policy formed at the legislative-level.[78] The ENCOURAGE project adopted an "*Integrated Knowledge Translation*" approach by incorporating these stakeholders into the design, development and implementation of the project. This was considered to be one of the key successes of the project. For example, one participant noted:

> *"What worked well? I think the people who were brought to the table. I don't think it would have been anywhere as successful if we didn't have people coming from different perspectives because it was like what was discussed at the organizing table was almost like a microcosm of what was going to happen, placing a kinesiologist in health care because those people represented almost… the different fronts of health care"*

Another participant stated:

> *"The most important thing that worked well was getting a bunch of different stakeholders from the university, from health care settings, from the city, from different programs and just getting them into one room and letting them talk and create what the strategy was… By actually keeping hands off and not trying to go*

> *in a set direction, what we ended up doing was… going out on a spider web and each of us influenced our organizations in different ways"*

However, having incorporated "*legislative decision makers*" such as politicians and bureaucrats who are responsible for informing systemic change at a provincial-level, throughout the preliminary planning phases of the ENCOURAGE project may have increased the likelihood of widespread implementation. "*The clearest message from evaluations of successful research utilization is that early and ongoing involvement of relevant decision makers in the conceptualization and conduct of a study is the best predictor of its utilization.*"[78,82] Secondly, having engaged in discussion regarding the long-term sustainability at the preliminary planning stages of the project, as well as formulating a sustainability plan prior to project initiation may have increased the likelihood of widespread implementation. For example, one participant noted:

> *"It would have been thinking more sustainability at the… onset of the project so, when we're developing how the kinesiologist will work and function within a primary care setting… stopping then and saying, is this going to be realistic? Is this going to be sustainable if we demonstrate success?"*

Future research looking to enhance the external validity of a health intervention such as the ENCOURAGE project for widespread implementation could attempt to incorporate "*legislative decision makers*" throughout the design, development and implementation of the project. Furthermore, the development of a sustainability plan prior to project onset would be imperative in enhancing the probability of widespread implementation.

5.05 Conclusion

The first objective of this thesis project was to use the RE-AIM framework to evaluate the external validity of the ENCOURAGE project. As three of the five dimensions of the RE-AIM framework were met, notably: Reach, Adoption and Implementation, it can be concluded that the ENCOURAGE project generated a moderate level of public health impact. The second objective of this thesis project was to describe the stakeholders' perceptions regarding the long-term sustainability of the ENCOURAGE project utilizing methods from a stakeholder analysis assessment. Although the ENCOURAGE project was not adopted into the health care system, these data suggest that certain aspects of the ENCOURAGE project are sustainable over the long-term. In conclusion, the ENCOURAGE project had notable implications on the recognition of physical activity in primary care, as well as the delivery of physical activity services in primary care. Furthermore, the ENCOURAGE project was able to influence the primary care providers' perceptions about physical activity, community-based programing and health policy. These positive changes observed at the individual, organizational and system-level are sustainable over the long-term.

Appendix A

Appendix A:

Stakeholder Interview Questionnaire

Date: ___/___/_____ Name: _____ Organization: _____

Introduction:

The ENCOURAGE project explored innovative ways of enhancing the prescription of physical activity as a health intervention. The project was a joint research initiative between the University of Manitoba, the Winnipeg Regional Health Authority (WRHA) and Winnipeg *in motion*. This approach enabled the project to successfully develop and implement a model for physical activity promotion at two WRHA Access Clinic sites in Winnipeg. The ENCOURAGE model was designed based on components of the Expanded Chronic Care Model and guided by the evidence-based recommendations of the WRHA's directional document, *Lifting the Burden of Chronic Disease*. By using an *integrated knowledge translation approach* and best practice evidence to inform the model, the ENCOURAGE project was able influence the health system in a variety of ways. For example, the partnership with the WRHA enabled us to leverage the resources available within the electronic medical record system to better support physical activity as a health intervention. As a result, practitioners at each project site were able to use electronic physical activity tools and resources (i.e., activity planners, activity trackers, and goal setting activities) to strengthen the clinics' capacity to counsel clients on physical activity. Another strategy utilized by ENCOURAGE was to strengthen the multidisciplinary team approach to support clients so they could learn the skills needed to become more physically active. Finally, the ENCOURAGE project model enabled the health care team to refer individuals to relevant community, public health and physical activity resources so they could access existing recreational programs in their local neighborhoods. As primary care renewal evolves there are opportunities to build on existing work and apply the ENCOURAGE project findings to inform emerging physical activity promotion initiatives. Therefore, we are interested in identifying factors that may guide the development of future initiatives to better support the sustainability of physical activity interventions at the organizational-level. As a key stakeholder, we are interested in obtaining your opinion about the ENCOURAGE project approach in order to determine whether the project has informed new initiatives within your organization. Therefore, we invite you to meet with us to conduct one semi-structured interview for approximately 1 hour.

The information obtained from this interview will be used to generate a report describing the influence the project has had on physical activity promotion initiatives. You will be provided with an opportunity to review the transcript and ensure your comments were noted appropriately. Information gathered will not identify your name or specific opinions, but rather will report on broad themes that emerged from multiple stakeholders. Your name and other identifying information will not be used or revealed.

Context:

1. How do you define the term "*primary care?*"

2. How do you define the term "*chronic disease prevention?*"

3. Is there a role for physical activity promotion in chronic disease prevention?

4. What organization do you work for?

5. What is your job title and role within the organization?

6. Does your organization currently promote physical activity for the purpose of chronic disease prevention?
    a. If yes, how?
    b. Are there any opportunities to expand your physical activity promotion initiatives? If so, how?

7. Are there potential benefits to you or your organization if the province were to implement a primary care based physical activity promotion initiative in Manitoba?

8. Are there potential disadvantages or barriers to you or your organization for implementing a primary care based physical activity promotion initiative in Manitoba?

The ENCOURAGE Project:

9. What was the overall purpose of the ENCOURAGE project?

10. Why did you or your organization choose to contribute to the ENCOURAGE project?

11. Does the ENCOURAGE project complement or overlap with other initiatives in your organization?
    a. If so, which ones?

12. What specific contributions did you or your organization make to support the ENCOURAGE project?
    a. In what manner would you demonstrate this support?

13. Were there some aspects of the ENCOURAGE project that worked well?
    a. If so, which aspects?

14. Were there any aspects of the ENCOURAGE project that could have worked better?
    a. If so, what aspects need refinement?

15. Did you notice any unintended or unexpected outcomes?

Stakeholders:

16. "*A stakeholder is an actor (individual or organization) who exhibits specific knowledge, influence and interest towards a specific decision, program or policy in question.*" Based on this definition, who were the key stakeholders involved with the ENCOURAGE project?

17. Can you provide an example of an action that another stakeholder took to support the ENCOURAGE project?
    a. If so, what was the action?
    b. Did that action influence *change* in individuals, groups or organizations?

18. Did you employ any strategies to influence any individuals or organizations?

19. During the ENCOURAGE project, did you or your organization establish new partnerships with stakeholders that you have not previously worked with?

Long-Term Sustainability of the ENCOURAGE project:

20. Were there aspects of the ENCOURAGE project that were not sustainable?
    a. If so, what were they?
    b. Are there solutions to address these aspect?

21. Picture the program three to five years from now and imagine that it has been extremely successful in developing and implementing its activities. In this ideal situation, assuming everything went well, what would total success look like?

22. Based on this ideal vision of success, would your organization have to change how it supports physical activity promotion?
    a. If so, what were the changes?

23. Based on this ideal vision of success, were there aspects of the program that will require other stakeholders to do something differently than they did before?
    a. If so, what were the changes?

24. Are there specific individuals or organizations who we should share our experience with to support or influence their emerging initiatives?

25. Are there any individuals or organizations who you believe would oppose the implementation of the ENCOURAGE project approach?
    a. If so, why would they be opposed to it?
    b. Are there solutions to address their concerns?

26. Do you think the outcomes of the ENCOURAGE approach will influence physical activity promotion initiatives within the primary care setting over the long-term?
    a. If so, how?
    b. If not, why not?

Appendix B

ID	Age	Sex	BMI	Site	Current Health Status and Health Concerns	Health Goal(s)	# of CSEP sessions	Follow-Up (Challenges)	Referral	Outcomes (Positive Outcomes)	CSEP Referral to another HCP	HCP Notes MD, NP, RN, RD, PA, SCC
1	48	F	36	RE	Self-conscious Weight gain Previously active Lower back soreness	Swim one length of pool	1		Handout: core strengthening and stretching YMCA			MD: No physical activity recommendation
2	64	F	28.2	RE	Currently using "Slim in Six" DVD Can exercise for 12-20 minutes Not motivated and finds group exercise uncomfortable	Take swimming lessons Feel confident in water	5		Modification for pushups YMCA Aquasize Tubing exercise handout	Acquired stationary exercise bike Action stage of change		MD: Walk when anxious or stressed RD: Healthy eating with lifestyle behavior RD: Preparation stage of change RD: Increased physical activity RD: Action phase of change RD: Motivation maintained RD: Gaining weight (scale) RD: Active 3-4x/week RD: Increased energy and enjoyment
									Exercise routine with proper form Goal: exercise 4x/week, 2 days with Slim in Six DVD 2 days with resistance training/ 10-15 min bike program Basic nutrition	Achieved activity goals sporadically over two weeks Unstructured physical activity Utilizing Slim in Six DVDs Stamina improving Clothes looser More energy and positive attitude		
								Getting of tired of same routine with Slim in Six DVDs	Winnipeg in motion older adult Exercise DVD Stability ball exercises	Exercises at home (DVDs) Able to exercise longer (with DVDs) Became a YMCA member (aquasize) Attends Henderson Library Exercise Class Reports no barriers		
										Successfully maintained lifestyle change Is motivated for further changes Aquasize 3x/week Deep water aquasize 1x/week Resistance training machine circuit 1-2x/week Walks outside with dog Feels great Enjoys exercise Better portion control		
3	31	F	32.1	RE	20 lbs. weight loss Smokes 1x/week Diabetic Leg pain Previously active Barrier: mental stress	Avoid medication (diabetes) Decrease leg pain Resume	2		Pedometer prescription with tracking chart Callisthenic exercises (home training) YMCA			RD: Preparation stage of change RD: No physical activity recommendation MD: Meet dietitian

ID	Age	Sex	BMI	Site	Current Health Status and Health Concerns	Health Goal(s)	# of CSEP sessions	Follow-Up (Challenges)	Referral	Outcomes (Positive Outcomes)	CSEP Referral to another HCP	HCP Notes MD, NP, RN, RD, PA, SCC
					(past) 184 lbs.	activity		Depression Weight gain of 6 lbs. Lethargic Low activity due to cold weather	Looking into realistic opportunities for rowing, yoga (River Osborne CC) and soccer Customized exercise plan for home Goal: 3x/week			and CEP, increase activity MD: Fainting episode, wants to reduce medication MD: Lost 40 lbs. in 5 months, healthier eating, lifestyle improvement, hold off metformin and temporarily stop progesterone MD: Significant amount of weight loss and continue to hold off metformin MD: Much improvement in diet and exercise MD: Continue to hold off metformin
4	39	M	28.1	RE	Continuous pain stemming from both MVA Daily tasks impacted: lifting, laying down and sitting in one position Pain with walking short distances Short-term memory difficulty Participates in aquasize 1x/week	Improve muscle tone Have the ability to go out with no sling Reduce excess fat	3		Healthy eating habits Plan healthy snacks Recording tool (for memory loss) Increase frequency of aquasize 2x/week at Transcona pool Exercise plan focusing on isometric training using Therabands Recumbent bike	Lost 12 lbs. over past 6 weeks due to portion control and attending aquasize 3x/week		
								Has not been able to find recumbent bike	Print outs of current models, private seller (recumbent bike) Nutrition material (for wife)	Attended aquasize		
								Aquasize session ended Unhappy with low intensity of the class Presents with low effect	YMCA aquasize Relationship between self-efficacy and pain management resources Resistance training for upper body using Velcro weights			

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5	61	F	30.6	RE	Inactive for several years Previously active: bowling, golf, tennis Barrier: unmotivated Needing social support Hip pain when standing still Dehydrated	Increase cardiovascular fitness Lose 30 lbs.	6		Pedometer and log sheet Goal: begin using treadmill for minimum of 10 minutes, 3x/week, RPE: 6-7/10 Increase water intake Increase frequency of activity Log sheet and self-contract	Stretching 20 minutes per day, full body	Referral to dietitian	?: Sedentary lifestyle ?: Significant {} due to breast cancer ?: Increase physical activity MD: No physical activity recommendations RD: No physical activity recommendations
								Unable to exercise due to reoccurring hip discomfort	Provide new self-contract Relevant hip stretches PNF stretching Muscular endurance exercises to alleviate hip discomfort			
								Inactive at the beginning of April (husband surgery)	Increase overall walking and stair usage Treadmill Walk outside Goal: 10 minutes of cardiovascular activity, 3x/week Zumba			
								Barriers: caregiver for husband Barrier: motivation	Two additional sessions of walking/week One walk/week Walking path down Gateway Zumba			
									Walking with husband Diet: overwhelmed by recommendations Strategies to reduce cravings			
								Fallen off wagon Exercise class is all the way across the city Snacking often, irregular meals Irregular sleep pattern Continuing pain in knees and back related to job	Time usage Strategies to create ergonomic work space Manage portion size Zumba classes near her residence			
6	53	F	32.3	RE	Depression Sedentary Experiences panic attacks	Health, body and mind	5		Pedometer prescription Exercise handouts for tubing and weights Winnipeg in motion exercise DVDs Henderson Library	Self-reported slight increase in activity Mall walking	Dietitian referral	MD: No physical activity recommendation

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									Resources for equipment, handouts for stability ball and tubing Neutral spine Pedometer and log sheet WIM older adults DVD Goal: engage in home-based exercise program 3x/week Goal: increase walking levels	Cut down on fast food and unhealthy food		
								Set back due to family issues Barrier: lack of energy	Focus on how exercise makes client feel more positive City of Winnipeg Exercise class Goal: 10,000 steps or greater	Increased activity from start of intervention Attended Henderson Library Previous week step count: 7000 – 8000 steps Exercises at home Increase in energy and sustained motivation		
								Experiencing migraines Difficulty being active Days with activity <1000 steps	Outdoor walking Goal: neighborhood trails	10,000 steps/day, as high as 14,000 Enjoys walking Improved mood, weight loss over last 4 months Absence of panic attacks		
								Not as active as client would like to be Experiences dizziness Lack of energy	Biking YMCA Cross country skiing Winnipeg in motion Snow Trek RPE			
7	45	M	28	RE	Currently rides eBIKE to work Walks 30 min, 5x/week Lost 40 lbs. in 5 months Chest pain	Understand exercise HR Reduce hypertension with exercise Healthy weight Decrease blood pressure medication	5		ACSM hypertension guidelines Basic home exercise program Waist circumference Increase walking time Resistance training program	30 minutes of cardiovascular exercise 5x/week Clothes fitting looser		
								Does not enjoy cardiovascular exercise No change in weight	Motivational strategies Tailored exercise program Proper form and safety YMCA PEP (Personal Exercise Program)	Weight loss Purchased new clothes Better sleep, enhanced mood and energy		

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								IT band tightness	Stretches for IT band Bike routes	Continual success in weight loss Jogs 30 minutes before biking to work Improved sleep, energy, enjoys saving money on gas		
								Does not enjoy current activities Biking accident	Alternate routes Add variety to treadmill workouts to increase interest and sustainability	Enjoys physical activity Total weight loss of 55 lbs. Minimal Atacand dose		
								Muscle soreness Does not enjoy strength training	Ride regular bike (instead of eBIKE) Short sets of exercises specifically to complement muscles not used in biking Swimming YMCA			
8	56	F	38.9	T								
9	41	F	39	T	Recently diagnosed with T2DM Previously active Currently walks 5x/week	Become more physically active	4		Pedometer prescription with tracking chart Basic resistance training program Goal: increase current steps/day	Pleased with progress Attends diabetes education session at AT Lost weight 13,000-14,000 steps/day Portion control Highly motivated with no barriers		RN: Meets criteria for Type 2 Diabetes RN: Referred to CEP MD: No physical activity recommendation MD: No physical activity recommendation
										Exceeded expectation Friends/family noticed change (weight loss/outlook on life) Motivated Has social support Surpasses 13,000 steps/day Engages in unstructured activities		
										Continued success Surpassed CPAG Noticeable difference in energy and physical appearance Husband attends Diabetes Class with her		
								One barrier: cold weather	Winter activities: Winnipeg in motion Snow Trek, X-country Ski Trails			

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10	31	M	35.7	RE	Previously active (aerobics, swimming, hiking, biking) Anorectal fistula	Become physically active Weight loss	5		Resources to track energy expenditure Pedometer Written resources for safe exercise	7000-8000 steps/day		
								Sedentary past two weeks Contemplative stage for smoking cessation	Goal: Bike 15 minutes, 5x/week Resources for smoking cessation and exercise with fistula	Completed exercises at home Lost 5 lbs.		
								Unable to complete goals over previous 2 weeks		Progress in health status, feels great Continual weight loss (10 lbs.) Walks between 10,000 - 20,000 steps		
										Successfully adopted PA into lifestyle Enjoyment, confidence, sleeps better, improved energy, clothes fit better		
11	58	F	29.4	RE		Lose 62 lbs. in one year Physical activity and weight loss	5		Provided a daily activity calendar Home based exercise and strength training program Discussed technique Pedometer	Excellent progress towards weight loss goal Highly motivated Meeting CPAG Purchased pedometer for husband		
									Reviewed home-based exercise program	Continued success Increased energy Decreased weight Clothes fitting looser Less junk food craving No barriers to physical activity Increased walking intensity Uses walking poles Progressing with resistance training program		
								Unable to attend Henderson Library Exercise Class		Excellent progress Further increases in energy Better posture Improved mental health Healthier overall		

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								Patient has plateaued previous resistance training program	Updated resistance training program Henderson Library Exercise Class	Feels like her old self Participates in the Henderson Library Exercise Class Bikes Exercises at home Walks enough to receive 150 min activity/week Support: husband		
								Barrier: family visiting	Cross country skiing, kayaking and Tai Chi Strategies to remain active with this barrier			
12	44	F	47	T	Morbidly obese Diabetic Degeneration of knees Lower back pain Currently exercises 20 minutes, 2x/day (vibration machine) Lacks social support	Weight loss Increase physical activity levels	2		Aerobic activity (to improve back/knee pain) Swimming or Aquasize Walking	6000 – 7000 steps/day (5000 steps/day as a result of her job) Eats breakfast Increased energy		NP: Morbidly obese NP: Referral
									Stretches for hip/low back Increase step goal to 8000 YMCA Provide meal log sheet Exercise prescription with vibration machine			
13	64	F	31.4	RE	Currently attends Curves, 3x/week for 30 minutes (strength training) Dietary problems since loss of her husband Low energy Insufficient sleep	Weight loss goal: 20 lbs. Long-term goal of walking with neighbor	4		Cardiovascular exercise with resistance training as a second aid for weight loss Pedometer to gradually increase physical activity levels Aquasize at YMCA Provide resources for dietary consideration Home based resistance training program with dumbbells			NP: Struggling with weight loss NP: Was attending Curves and enrolled in Weight Watchers with no success NP: Referred to CEP RD: Feeling much better RD: Action stage of change for diet and exercise RD: No weight loss but clothes fit better NP: Gained 3 lbs. NP: Curves 3x/week NP: Zumba 1x/week NP: Discouraged with weight gain and inability to lose weight NP: Seeing CEP
								Delayed progress	Use home based exercise program while on vacation Join YMCA	Walking outdoors and utilizing pedometer Pants fitting looser Feeling better Attends Curves 5x/week Increased energy		
								Discouraged with increased weight (# on scale)	Discussed BMI Henderson Library Exercise Class	Positive developments Synthroid dosage increased Changed diet, increased		

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										exercise, enjoys outdoors All lifestyle changes are positive Intrinsically motivated Success in energy, mood, sleep Feels "how I used to" Lifestyle modifications: parking further away and walking outside No barriers		
								No success in weight loss	Will discuss exercise intensity after upcoming stress test Will provide details regarding AT exercise class			
14	57	M	27.3	RE	High cholesterol Sedentary	Decrease cholesterol levels	1		CAPG Walking/Biking Pedometer prescription and log sheet			
15	41	F	29.7	T	Previous weight loss with Atkins Walks 3 hours/week Attends Snap Fitness 1-2x/week	Weight loss goal: 20 lbs. in 3 months	4		Work at higher intensity for shorter durations Chart to track weight loss progress Basic resistance program for Snap Fitness	Used pedometer for one week Accumulated between 2500 and 10,000+ steps/day Average 6000 steps/day		RN: Seeing CEP, motivated to get active
								Sore back	Hot yoga and Zumba Moksha Yoga Goal setting Hip flexion verse spine flexion Grip aids and exercises Gait and footwear	Active 1-3x/week Social support: Daughter		
								Discouraged, lack of perceived change in fitness/body comp Self-conscious of spectators while exercising	Home-based exercise DVDs Simplify exercise plan Outdoor activities Decreased completion time to monitor improvements in fitness	Increased success Continues flyer route Uses exercise DVDs and enjoys them Attended exercise class for two weeks Subject in pedometer intervention Overall feeling more confident and energetic		

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								Barrier: Travel time to Snap Fitness	Cardiovascular exercises for home Recumbent bikes online			
16	62	F	43.4	T	Exercises 5x/week (treadmill) Walks 30-45 minutes/day (days with weight training) Walks 45-60 minutes/day (w/out weight training)	Weight loss (dietitians notes) Avoid blood pressure medication	1		Aquasize (YMCA) Strength training routine Increase intensity			RD: Goal: Weight loss RD: Walks on treadmill and does weight training for upper body RD: Has a home gym
17	63	F	41.4	RE	Previously active prior to death of brother and mother Enjoys walking Husband recently diagnosed with Leukemia and T2DM Used to accumulate >10,000 steps/day Barrier: caloric consumption	Become physically active Weight loss of 50 lbs. over one year	5		Use pedometer Target: >10,000 steps/day with higher intensity Moderate portion sizes YMCA	Excellent progress Walks up to 12,000 steps/day, with only one day under 10,000 Increased energy Social support Gone on a walking route		MD: Exercising more after beginning program with CEP MD: Making progress with physio regarding back pain, pelvic floor exercises
								Not proceeded with aquasize Self-conscious about wearing bathing attire Lower back soreness	Will reinforce exercises provided by physio for back pain Stretch more regularly Increase walking intensity	Accumulates >10,000 steps/day Performs stretching exercises		
								Feeing discouraged Onset of neck and shoulder pain Overwhelmed with exercises given from Access, Hospital and physio	Methods of stress reduction Demonstrated shoulder and neck stretches Discussed self-myofascial release with foam roller Scapular retraction with resistance tubing Reinforce success	Surpass expectation States “everything has gotten better” in the last 3 months, including self-efficacy, mood, energy, fitness and back pain Walks at least 10,000 steps/day		
									Interested in purchasing treadmill YMCA and treadmill for colder weather Provide resources for husband (exercise with T2DM)	After 4 months: lost weight Increased energy, self-confidence, changed outlook Enjoys being active Understands that some days she may not achieve 10,000 steps		
									Exercise intensity	Will purchase home treadmill		

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18	55	F	34.3	T	Sedentary Previously active: bicycling and attended YMCA for circuit training One leg longer than other which limits exercise	Decrease blood pressure Increase energy levels	5		Short-term goal: clear space at home to do exercise Bike 3x/week Calendar checklist Zumba list Aerobic training outline	Gardening and walking, 10 minute bouts Improved outlook on physical activity		RD: Exercise recommendations RD: Free exercise class, Henderson Library RD: Saw CEP, free exercise class at Henderson Library, aquasize 1x/week
								Unable to meet goals Down and discouraged Barrier: finances	Discussed dose response relationship Free exercise class with ENCOURAGE and the City of Winnipeg			
								Foot pain	Shallow water aquasize 1x/week Elmwood YMCA City of Winnipeg beginner exercise class	Enjoying City of Winnipeg Exercise Class Enjoying Aquasize 1x/week Walks Meeting CPAG		
								Feeling stressed, overwhelmed, like she hit a "wall"	Time management and organization Simple activity: walk Walking, biking and aquasize			
19	60	F	38.7	T	Previously active (walking) Tightness in chest High levels of stress Pain in ankles and lower back (OA spine) with prolonged walking Barrier: self-image	Primary goal: weight loss To be under 200 lbs., currently 225 lbs.	5		Walk frequently, short durations Walk in YMCA pool Purchase water shoes Change in family change room and wear loose fitting clothing Pedometer Stretches, postural exercises Encouragement	Walked several days past 10,000 steps/day Over 15,000 steps/day on weekend Energetic		NP: DM with suboptimal control, OA in spine NP: Weight loss and more physical activity NP: Effective physical activity routine NP: Exercises daily NP: Walks dog and attends a program at the University of Manitoba NP: Trying to eat healthy NP: Uses food to cope with stress
								Soreness	Walking versatility Swimming YMCA Goal: allocate 5 minutes to stretching/day	Increased energy Attended YMCA Average 10,000 steps/day Feels like old self		
								High stress	Concordia pool 2x/week Walking outside	Increased physical activity Attained walking goals		

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								Barriers: Osteoarthritis causes discomfort when standing/twisting Pain in ankles and knees Weight remains constant High stress, alternating between no eating and overeating Needing social support	Consistent meals Swimming ENCOURAGE exercise class	Lower blood sugars Fewer interruptions in sleep Pedometer reading ranges from 3,500 to 10,000+		
								Ability to be active has deteriorated over summer Increased pain in knees and hips due to humidity and heat Barrier: encouragement Pain when walking up stairs	Reduce sedentary time rather than scheduled exercise sessions Walk dog Garden Stationary bike ENCOURAGE group session Using low ROM when climbing stairs and increase gradually			
20	n/a	n/a	n/a	n/a								
21	71	M	30.5	T	Barrier: chronic pain Low HDL Uses exercise bike and walks Poor posture Muscle imbalance	Moderate weight loss Triglyceride improvement	3		Postural stretching Nordic walking Pedometer prescription, goal of 10,000 steps/day Step converter	Uses bike and walks frequently outside		RD: Chronic pain and low HDL RD: Interested in exercises appropriate for living with chronic pain RD: Has access to a stationary bike and abb roller MD: No physical activity recommendation MD: No physical activity recommendation
									1500 kcal (expended)/week for triglyceride improvement Attend Good Neighbors Active Living Centre exercise class Aquasize/swimming	Energy has increased and chronic pain has decreased due to increased activity levels Walks often and uses bike Lost 15 lbs. Feels better		
								Dizziness due to antidepressants	Aquacycling Pedometer clipped on bike			
22	40	M	40.4	T		Weight loss of 50 lbs. in a 1 year timeline Increase activity	2		One year timeline (50 lbs.) Pedometer prescription/log sheet Walk during children's activities/Polo park Home based 20 min weight training routine 2-3x/week	Performs flexibility exercise after walking		MD: Starting to get more physically active

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								No success at increasing activity Barriers: lack of child care and lack of time	Simplifying physical activity/prioritize health Treadmill (home) 20 minutes 3x/week			
23	n/a	n/a	n/a	n/a								
24	47	F	29.6	T	Heaviest weight in memory Carpal tunnel	Lose 20 lbs.	1		Shapes gym membership Cardiovascular program Resistance training program			
25	25	F	52.6	T								
26	29	M	40.1	T	Previously active Used to jog several times/week Depressed Sedentary Gained 40 lbs. Poor eating habits Low energy Previous weight loss of 60 lbs. with treadmill exercise	Improve general health	5		Pedometer and log sheet Goal: breakfast consumption Goal setting Basic stretches and core strengthening exercises for home	Increased activity levels	Referral to dietitian for healthy meal choices	MD: Seen CEP MD: Gradually increasing activity and feeling good
								1500 steps/day	Increase daily step count by 500 steps each week	Encouraged by progress Accumulating 7000-8000 steps/day Is seeing progress with strength training exercises		
									Decision balance sheet Walking: using trails or walking with friends	Pedometer intervention participant More energetic Retains more after reading Acquired and utilizes new bike		
									Maintain intensity while using pedometer Engage in “fun” activities Snap Fitness Provide basic exercise program Goal: 3x/week Long-term goal: 5x/week	Bikes 3x/week Walking more sporadically Using treadmill		

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								Not followed through on plan of joining Snap Fitness Barrier: cost Barrier: momentum Treadmill belt slipping	Snap Fitness summer pass: $8.95/month Intensity, duration and frequency of biking Higher frequency, lower intensity, enjoyable bike rides Treadmill maintenance Weight training program			
27	51	F	35.4	T	Fits criteria for pre-diabetes Previously active Enjoys unstructured activities (biking)	Avoid contracting T2DM Lose 20 lbs. in 6 months	2		Warm water pool at Wellness Institute Pedometer prescription for health goal Exercise bike, minimum of 10 minutes 3x/week, RPE: 6-7	Minor weight loss Clothes fit better Reports feeling better 3 bouts of exercise (bike) /week Pedometer count shows an average of 5000 steps/day		
								Sore back and knees Tight shoulder	3 strength exercises for hip extensors/low back Stretching routine Regular eating One block of time for cardiovascular/ flexibility/ strength/ therapeutic			
28	38	F	32.9	T	Sedentary Never participated in formal activity Poor posture Barrier: time Needing social support Occasionally walks during lunch break	Become more active	3		Walking 30 minutes, 3-5x/week Pedometer for self-motivation Stretching and strengthening exercises for posture/daily	Walked when lunch hour was free Utilized Max Bell track for laps at lunch		MD: No physical activity recommendations MD: Exercise and having alone time to focus on relationship MD: No physical activity recommendations SCC: No physical activity recommendations
									Plans for relapse Exercise class at Frank Kennedy Centre Increased intensity	Continued walking at lunch regularly Purchased bike trailer to be active with child Participating in ENCOURAGE pedometer intervention		
									Running Proper technique and gait Yoga class at lunch hour in Frank Kennedy Centre Wellness Institute Running Program Goodlife ENCOURAGE exercise class			

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29	47	F	20.7	T								
30	61	M	26.9	RE	Lower back and knee pain Previously active (skiing, hiking)	Become more active to alleviate pain in lower back and knees	3		Walking Pedometer prescription Stability ball Elliptical/bike Activity inventory for River East and Transcona	Mood improvements Walking 5 miles/day at work Active tasks at home		
								Barrier: time	Increase intensity, 15-20 minutes, 3x/week (walking/biking) Exercise in the AM before work	Action stage of change		
									Walk in KP, 1x/week Interested in racquetball Warm-up, dynamic stretching, stretch large leg muscles			
31	49	M	31.8		Previously active Used to skate 4x/week Chronic back pain Calf cramps, wrist pain Plantar fascia damage Low energy	Reduce weight	3		Individualized stretching program Lengthening tissues (calf pain reduction) Eat breakfast before work	Improved adherence to breakfast (2x/week) Walks dog for 40 minutes Bikes for 20 minutes		MD: Seen CEP and starting to work out more MD: No physical activity recommendation
								Discomfort and cramping in calf	Modified lower body stretches Pedal straps for bike	Accomplished previous goals of regular eating and being more active Feels better Exercises more intensely More energy, positive outlook Utilizes stationary bike		
									Increase variety Swimming: YMCA or Reh-Fit Maintain activity levels on bike Increase intensity			
32	48	F	46.3	RE	Previously active (minimal) aquasize Walking	Increase energy Lose weight Walk more than one flight of stairs without being	3		Tubing, body weight exercises and stretching 10 minutes/day Pedometer prescription Henderson library Bunn's Creek and Pioneer Greenway walking path	Accumulates 15,000 steps at work Accumulates 10,000 steps on days off		MD: Enhanced mood MD: Exercises intermittently

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						out of breath Improve appearance		No increase/decrease in energy	Aquasize Examine duration of individual bouts Increase walking pace 20 minutes, 3x/week of continuous physical activity Rollerblading	Attended city exercise class at Henderson Library		
								Developed ankle spur Aggravated left shoulder Unable to increase exercise intensity	Free YMCA drop ins 150 minutes of physical activity/week with 3 YMCA classes			
33	51	M	39.2	T	Struggles with weight loss Active in summer, inactive in winter Lack of social support	Weight loss Goal: 220 lbs. in 4-5 months Currently weights 250 lbs.	2		Simple home-based weight training program Pedometer	Achieves 10,000 steps/day Sometimes as high as 14,000 steps/day		MD: No physical activity recommendation MD: Avoid too much exertion until results MD: Stress test neg at 7 METS
								Physical activity regime complicated by addition of CV factors	Emphasized frequency and duration rather than intensity Safety considerations: HR, RPE, through warm-up and breathing Variety Continuous aerobic exercise rather than intermittent			
34	50	F	41	T	Walking Needing motivation Previously active: swimming	Increase activity levels	5		Body weight strength training program Pedometer 3x 15 minute resistance training sessions/week Increase walking for 2 weeks	Achieving almost 10,000 steps/day Continues to do strength routine		
								Barrier: short 30 minute lunch break Barrier: shortness of breath Unmotivated	Muscle soreness and shortness of breath are signs of physiological adaptations from a stimulus Biking to work and active transportation Corridor runs at workplace Work initiative “Walk Across Canada” campaign Workplace in motion Modifications to strength routine Manitoba in motion workplaces Kildonan mall walking group			

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								Inactive for the last month Barrier: motivation and self-confidence States she has all the necessary tools but hasn't moved forward Stress from work	Strategies to increase motivation Goal: walking 150 minutes/week ENCOURAGE exercise class Social support: friends Motivational slogan	Great success Developed a motivational slogan Walks at least 30 minutes/day Walked to Access from Lag Purchased two new pairs of shoes from Canadian Footwear Uses bicycle Participating in the ENCOURAGE pedometer intervention		
								Low back pain Shin splints	Snap Fitness On-site workshop at Snap Fitness Methods to reduce discomfort (written program)	Describes herself as a "success story" Became more positive Physically active with family Jogging Few barriers Motivation, time usage and enjoyment have increased Attended ENCOURAGE group session		
									Goal: half marathon in one year Will purchase a membership at Goodlife Yoga (Moksha)			
35	52	F	36.5	RE	Previously active Lost 40 lbs. last summer with walking and Wii Fit In need of social support (i.e., walking partner) Difficulty using stairs	Become more healthy Weight loss Regain fitness from last year Strengthen knees	5		Strength training exercises to strengthen muscles around knees Avoid squats and lunges Modified squats and wall pushups Pedometer Short-term goal monitoring Aquasize	Accumulated 10,000-18,000 steps before illness Few barriers Diet has improved, she has met with the dietitian		MD: Meets criteria for diabetes MD: 262 lbs. MD: BP: 140/86 MD: Referred to dietitian and CEP RN: Tired and sluggish RN: Working towards lifestyle changes RN: Previously active and previous weight loss, working towards same goal RN: Discussed activity level and healthy food choices RN: Find activities that are enjoyable
								Ill throughout the week Low physical activity levels Still searching for a walking partner	Kildonan Place Walking Group Treadmill (indoor walking) YMCA (for herself and daughter) General nutrition	Continues to walk as main mode of exercise Increased energy Weight loss Found multiple walking partners Motivated Acquired treadmill Joined exercise class at AT		

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										Progress continues Accumulated over 24,000 steps on one day		RN: Don't focus on number on the scale RN: Moving more will benefit RN: Enrolled in ENCOURAGE and seeking walking partner RN Diabetes class (new diagnosis) RD: Accumulating 23,000 steps/day and working with CEP RD: Increasing motivation RN: Great efforts at lifestyle change RD: Maintenance of change going well RD: Maintain walking and exercise classes RD: Maintaining food changes MD: No physical activity recommendation NP: No physical activity recommendation
								General soreness with increased activity	Step goal of 25,000 steps Does not receive resources or further support	Continued to increase activity levels Social support Good motivation Mood continues to improve		
									Long-term plan for winter months (i.e., treadmill) Low impact aerobics and yoga Activities with daughter			
36	47	F	32.5		Previously active Curves Progress stagnate Eats healthy Aquasize	Weight loss	5		Options near home Home based exercise program Treadmill program 4x/week Strength training program Portion control	Following exercise program and motivated by new treadmill Husband increasing activity levels Joined Streamline Weight Loss Group (weekly weight in and low impact aerobic)		MD: Continue with activity exercises MD: Upset with no weight loss MD: Previously active RD: Does aerobics 1x/week for 1 hour RD: Elliptical 1x/week at work RD: Uses treadmill and Wii at home RD: Does not see CEP due to time conflicts RD: Self-report losing 0.2 lbs. this week
								Experiencing pain Spinal rotation Saw massage therapist Rib subluxation Going to see chiropractor Does not attend Curves	Walking with husband Walking on new treadmill Continue resistance training program with new adaptations Interested in Shapes membership No further resources needed	No more discomfort in rib Has attended multiple visits with chiropractor Walks and bikes Engages in strength training 3x/week		

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								Does not want to join a gym Seeking walking partner	Motivated to exercise independently Swimming Discussed ENCOURAGE exercise class (for husband as well) Update strength training program	No pain		
								Difficulty with motivation for exercise In need of walking partner and social support	Join exercise class for immediate motivation and accountability	Completed ENCOURAGE exercise class Walking to most non-work destinations Attends Streamliners 1x/week		
								Still seeking social support	Winter plan: home treadmill and gym at work Aquasize (i.e., with sister)			
37	56	F	47.7	RE	Discouraged Walks up flight of stairs and feels winded YMCA membership but does not use it	Improve health and energy	2		Walking path: Pioneers Greenway Pedometer for motivation Goal: Commit to walking Goal: 30 minutes of walking/day to achieve CPAG	Completed action plan of walking 30 minutes/day in the evenings, 5x/week Increased energy and positive mood		
								Dissatisfaction with body	Dissatisfaction with body Discussion of health vs. appearance Discussion of journey vs. destination Self-reinforcement Portion size handout Action plan: continue walking 30 minutes/day while increasing intensity periodically Take stairs at work Lunch time walk at work Neighborhood trails ENCOURAGE exercise class			

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38	50	M	34.9	T	Back pain Seen Physiotherapist Previously active: farmhand Never done formal exercise Currently sedentary Pain when remaining in one position for extended time		2		Cardiovascular activity from a supported position: recumbent bike Home based routine focusing on recruiting TVA through supported motions and strengthening weak hip extensor muscles	Motivated		MD: Continued back pain MD: Worse with sitting MD: Getting up every 20 minutes to walk around MD: WCB has only approved 4 physio sessions MD: Has appointment with CEP MD: Back pain MD: Increased while sitting at desk for long periods of time MD: Progressively worse and beginning to affect concentration MD: Doing exercises and stretches
								Didn't notice any improvements in back pain Has only been holding stretches briefly	Explained rational of intensity and time Walking poles to exercise without aggravating muscles of lower back Reviewed stretching techniques and added two Stretch daily			
39	65	M	33.4	T	High cholesterol Overweight Never exercised Short of breath with minor exertion Irritation in left hip Muscular stiffness	Increase energy Improve health status	5		Low intensity walking Frequent hydration Pedometer to achieve numbers greater than baseline	Accumulated 3200-3500 steps/day Walks 1 mile several times/week Lost 5-6 kg		MD: Intentional weight loss over past year but now plateau MD: No physical activity recommendation NP: No physical activity recommendation MD: No physical activity recommendation
								Irritation in left hip: possible contributing factors: footwear Muscular stiffness	Discussed footwear Canadian Footwear Stretching handouts	Weight loss Low levels of activity (4000-5000 steps/day) Social support: girlfriend		
									Educational material	Weight loss plateau Purchased new footwear from Canadian Footwear Steadily increasing walking intensity (previous stroll, now motors) Walks 2/3 mile before taking rest Enjoys walking		

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									Suggest KP mall or free pass to YMCA	Gradual increase activity levels Walk continuously for 1 mile Occasionally uses pedometer		
									Motivational interviewing for smoking cessation			
40	41	M	34.6	T	Weight gain (several years ago) Previously active Used to walk 30 minutes, several times/week Self-conscious Fatigued	Weight loss	5		YMCA Financial assistance program Pedometer Walk 3x/week Home based strength training program ENCOURAGE exercise class	Very motivated Change in mood and energy level States "almost like a miracle" Average daily step count: just below 10,000 steps/day	Referral to dietitian	RN: 91.8 kg, BMI: 33.3 RN: Feels walking could be a possibility RN: Agrees to complete fitness assessment with CEP RN: Open to discussion about ENCOURAGE
									Encouraged working at a higher absolute intensity	Consistently walking 30-40 minutes Small follow-through with resistance training exercises		
								Discouraged Two weeks of inactivity Barriers: development of housing, children, finances, evening schedule and stress Major barrier is self-esteem	Increase intensity WiM Suntrek Event Resistance training log to monitor strengthening process Active early in the morning Increase intensity through power walking	Consistently accumulating 13,000 steps/day Stores dumbbells in visible place to utilize once/day Shrinking mid-section		
								Has not committed to waking up early to exercise (currently exercises in the evening while tired) Social anxiety and self-image		Enjoyed pedometer intervention		
								Disappointed with lack of weight loss Barrier: extreme heat of summer	Emphasized weight not sole predictor of health Nutrition Elliptical Refer to dietitian			
41	45	M	32.6	T	Weight gain over last 4-5 years	Weight loss	4		Walk 45 minutes, 3x/week	Walked 45 minutes, 2-3 times		

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					Frustrated Life changes Attempted life style change (walking, purchased exercise bike)			Encountered barriers: started new job, child sick	Walk 30 minutes at lunch Walk up and down stairs Home strength training circuit	Increased walking duration to 60 minutes 3x/week More energetic		
								Weight not significantly altered Barrier: temporary illness and late nights at work	Intensity, frequency and duration are appropriate to meet goals Walking poles to increase intensity Not needing any further support	Continues walking as main form of exercise Reports no barriers at this time Motivated Improvements in energy, weight and fitness		
									Needing no further support at this time			
42	39	F	45.2	T	Shortness of breath Low energy Afternoon naps Previously active Had lost 30 lbs. (attended gym) Weight training Walking Previously unable to complete a 1.6 km path (walk) Can now walk this path in less time with more energy Barrier: cost	Rebuild fitness levels and lose weight	4		Monitor time of walking Positive descriptor words Heart rate Wii Fit Exercise classes in neighborhood	Motivated by progress Pants fit better Has not felt “winded” Can walk further than a month ago Seeking new walking route Walking during children’s activities Less screen time Average of 5000 steps/day Sleeping better		MD: Limited exercise MD: Average 1700-2500 steps/day MD: Weight too high, wanting to lose MD: Difficulty keeping up with kids, feeling winded MD: Saw dietitian and CEP RD: Reports weight loss of 12 lbs. RD: Made positive changes and feeling good RD: Walking daily, attends ENCOURAGE exercise class 1x/week, increased frequency, intensity and duration, might join gym in future
									Elliptical machine Appointment with dietitian to discuss blood sugar and meal log Cardiovascular exercise to manage blood sugar	Progress in healthy lifestyle and changing diet Attended ENCOURAGE exercise class Increased intensity of walking (2700 steps in 30 min vs. 2500 steps) Uses hills Purchased bike rack for vehicle Decreased screen time Exercise no longer feels like a chore Energy increased		

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								Barrier: forearm soreness	Would like to participate in exercise classes more often (higher intensity than individual exercise) Ice and stretch arm Email stretches and a list of nearby group fitness exercise classes	Patient made excellent progress Made community connections, social support, increased activity levels of family members and decreased sedentary time Enjoyed the ENCOURAGE exercise classes Bikes with family Walks in neighborhood Attended Snap Fitness Lost 10 lbs., 2 pant sizes More energy, better outlook, enhanced mood Decreased screen time		
								Found the atmosphere of Snap Fitness intimidating	Yoga Group sessions for social connection			
43	35	M	36.6	T	Previously active (interval training) Barrier: time	Weight loss Regain previous fitness	1		20 minute home program to rediscover enjoyment of activity DIY fitness testing (motivation)			MD: No physical activity recommendation MD: Gained weight over Xmas, little exercise MD: Exercises on treadmill, sleeps good
44	29	F	32.6	T	Previous weight loss Too overwhelmed to be active Previously active (DVDs and elliptical) Currently walks children to park 3x/week for 30 minutes	Weight loss: 60-70 lbs. Regain increased energy levels	3		Family based options in neighborhood Zumba Goal: Add one additional walk to park/week Log step count Weight loss activities Strength training program			MD: Limited exercise MD: To see CEP
									Start exercise program 4x/week, minimum 30 minutes in addition to walking children to park 3x/week (30 minutes) Elliptical at home Bowflex Zumba	Progress in energy, outlook and weight loss Moksha Yoga consistently for 1 month Boosted self confidence		

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								Barrier: cost Exercise at home provided too many excuses not to exercise	Take tour of fitness facility for possible membership Tour of YMCA with daughter Personalized Exercise Program (PEP) ENCOURAGE exercise class			
45	33	F	41.3	T	Struggles with portion size, regular eating, inefficient treadmill workouts, lack of activity throughout the rest of the week	Instructed by physician and fertility specialist to lose weight Have the ability to run Lose 30 lbs. over 6 months	5		Move slowly into running Intervals done with incline Discussed HR, lactic acid and DOMS Home based resistance training program Pedometer Meal log Treadmill program to progress jogging	Successfully completed goals at week 2 Walked at least 4x/week for 30 minutes Resistance training with husband More energy Motivated		MD: Exercises 30 minutes on treadmill MD: Concerns are obesity and fertility MD: CEP MD: Getting weight down MD: Has seen dietitian and CEP (2x) MD: Improvements in energy and ability to exercise
								Difficulty increasing physical activity levels first week	Biking Walking trails Add variety to increase adherence Stairs and elliptical TRX suspension training No additional support at this time Exercise intensity	Continues to increase activity levels More energy and self-efficacy Surpassed goal of activity 4x/week for 30 minutes Bike rides with husband (90 minutes) Enjoying strength training		
									Variety Lent out loaner TRX straps for 1 month Gave instructions and demonstrated form	Enjoys activity regime Walks on treadmill 4-5x/week Continues strength training program Active outings with husband Increased energy and looser clothing		
									Discussed outdoor Winter activities with husband Ski trails and free skating at City facilities	Pregnant!!		

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								Feeling side effects of pregnancy Motion sickness and nausea	Consideration of maintaining activity levels while pregnant Intensity Exercising in ergonomic position Basic caloric requirements for pregnancy General safety			
46	64	F	39.1	RE	Currently sedentary Previously active Walks to grocery store 1-2x/week, 10 minutes Smoking cessation 100 lb. weight gain Knee pain Barrier: Emphysema Diabetic	Regain energy Lose weight Strengthen body	2		Interested in YMCA Swimming and treadmill at home Short-term goal: begin activity 3x/week, 10 minutes Membership assistance at YMCA Pedometer prescription	Accumulated 6500 to 7000 steps/day, up to 10,000 Using stationary bike (nurse notes)		RN: No physical activity recommendation MD: Goals (physician and nurse notes) MD: Eat 3 regular meals/day, portion control MD: Avoid eating unhealthy snacks MD: Use treadmill or bike MD: Walk 3x/week for 20 minutes MD: Remember feeling great on treadmill and bike RN: Increase time on stationary bike RN: Continue to meet goal of 7000 steps/day
								Knee pain	Good Neighbors Aquatics class Goal: achieve a minimum of 7000 steps/day Engage in strengthening exercises for lower body 3x/week Cycle on days when she cannot walk outside			
47	39	F	32.6	RE	Begun running (lost 25 lbs.) Weight has returned Sustained hip injury Bursitis of right hip Does not stretch, does not gradually warm up Currently walking on treadmill at home	Health and longevity	1		Reviewed stretches (from MD) to confirm proper technique Added a number of stretches to current program Emphasized frequency Discussed motivation Kickboxing Strength training 3x/week Zumba Pedometer and log sheet			

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48	32	F	30	T	Low energy due to inactivity Previously active Currently participates in dodgeball and baseball Has social support Barrier: Previous lateral right thigh injury Has Snap Fitness membership		5		Bike 1x/week Walk with friend 1x/week Walk with family 1x/week Play sports 2x/week Monitor activity with pedometer Stretching 1x/day TRX training			MD: Seeing CEP and finding that she is feeling better, increased energy and motivation
								Barrier: Patient has been sick the last week Barrier: Patient suffered injury to thumb	Resume stretches and strengthening exercises Apply cold to thumb after activity Avoid aggravating injury with weight training exercise Workplace wellness program: active transportation	Increased activity levels through jogging Increased frequency of walking Biking to work when possible Plays sports several times/week Played 2 games of baseball last night Motivated Feeling in control and happy when exercising		
									Discussed winter activities for colder season Free weights Gym membership Goodlife Downtown resources, library seminars and skywalks Zumba Cross country skiing	Playing baseball and dodgeball		
								Stressful workplace Barrier: Cost	Yoga to reduce stress Yoga: Leisure guide, Moksha Karma Classes, Yoga in the park Zumba Attend Snap Fitness regularly Switch to Goodlife	Enjoying leisure activities with son, such as bike riding Attending Snap Fitness (great stress reliever)		
									Needing social aspects of sport: Soccer, Ultimate Frisbee			
49	36	F	38.6	T	Struggles with weight loss and energy levels Uses elliptical 1-2x/week	Weight loss Energy level improvement	2		Increase exercise intensity Home exercise Cardiovascular (elliptical) and resistance training 3x/week Pedometer prescription with tracking sheet	Followed through on goals Using elliptical 3x/week Motivated		MD: Feeling really good, increased energy and stable mood MD: Decreasing Sertraline use

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									Sustainability RPE: 7-10			
50	31	F	40.8	T	Very busy lifestyle Works 4 jobs Previously active (jogging) BMI: 39		1		Monitor activity with pedometer Gradually increase steps Reduce time			MD: Wanting bariatric surgery, frustrated with size, has walked 1-2 miles few times/week with little improvement MD: Frustrated, embarrassed, poor self-image, anxiety MD: Refer to CEP to increase activity levels
51	49	M	32	T			5		Walk with wife in evenings Provided pedometers with guidelines List of resources (i.e., hiking trails) Goal: increase step count and begin activity 3x/week	Pedometer has been good motivation 6000 steps/day first week, 7000 steps/day second week Working out with son at corporate gym Motivated		MD: See CEP for weight reduction and increase activity
									Goal: 8000 steps/day this week Increase step count with intensity rather than time Provided resistance training program for client and son Rationale and form Walking trails	Resumed activity with walking and trips to the gym Feels better, more energy, lost weight		
								Ceased activity Barrier: family visits	Participating in the pedometer intervention Flexibility exercises	Engaging in 2-3 gym visits/week with son Maintaining walking outside Motivated Clothes fit better More energy Improved self-efficacy		

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										Increased physical activity levels Higher energy and weight loss Absence of barriers Motivated Notable outcome: 5 provider visits in 6 months before ENCOURAGE, 0 provider visits in 6 months after final ENCOURAGE appointment		
									Experiences greatest success when exercising in a group (small studio or formalized gym setting) Moksha yoga Discussed strategies to increase uptake for son Trial month at Snap Fitness (dance and yoga for wife)			
52	58	F	45.1	T	Referred by physician to increase exercise for health reasons Currently walks 1x/week Previously active with Richard Simmons DVDs In need of motivation and social support	Increase exercise	5		Discussed home-based and outdoor exercise options Recreation inventory for Transcona CPAG 150 minutes of moderate to vigorous physical activity 3x/week 30 minutes walking Pedometer and log sheet One DVD/week	Utilized exercise DVD once or twice		MD: Seen CEP, has been working well
								Trouble achieving original goals (walking 30 min, 3x/week) Barrier: time	Structured physical activity ENCOURAGE exercise class YMCA Discussed other patients' success stories Aquasize Motivation Arrange walks with a destination	Achieved goal: activity 3x/week, duration 150minutes/week Gardening and housework Attended ENCOURAGE exercise class More confidence Showing initiative and motivation Walks at moderate intensity Has social support Few barriers Feels "less clumsy" Increased energy		

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									YMCA Doesn't need further support at this time	Motivated and feels good about progress		
								Less active Barrier: mother is ill	Walking as a backup plan Emphasized current success Tour of YMCA No further resources needed at this time	Activity levels increased since last appointment Can reflect on several positive changes: more energy, more coordination, feeling better, slight weight loss		
								Not meeting CPAG Barrier: mother ill Barrier: self-confidence	Social support: a group of 12-15 participants from the ENCOURAGE project (walking and aquasize)			
53	53	M	32.2	T	Depression Will to take steps to change facets of life Previously active (14 years) Seizures Needing social support Low self-confidence Often hurts back Lack of flexibility	Increase mood and energy Get belly down in size	5		Unstructured home-based or outdoor activities SMART goals Walk or bike 150 minutes, 3-4 days/week with a RPE: 7-10 Exercise plan Pedometer Log sheet for steps and mood before and after exercise	Moderately increased activity levels Came close to initial goal More energy, feeling better Social support		MD: Discussed exercise MD: Left knee soreness MD: Rest or avoid weight-bearing MD: Depressed, life could be better, wishes life could be over, difficulty with energy and motivation, lonely, missing work, no suicidal ideation but would rather not be alive MD: Exercise last year helped MD: Restart exercise
									Reinforce success and positive changes Discussed strategies to prevent barriers Exercises for lower back injury reduction 3x/week	Performing core strength exercises Noticing difference in comfort level		
								Injured lower back by climbing a ladder and twisting Barrier: busy schedule	Attend gym in the morning to alleviate barrier of time and increase energy at work Goodlife with son	Purchased membership at Snap Fitness Attends several times/week Motivated Improved energy and mood Achieving CPAG		

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									Reviewed exercise plan Monitor motivation and make social support	Continued walking and occasionally swimming Discomfort in shoulder and lower back is diminishing Comfortable with current exercise routine, believes it's sustainable Participated in ENCOURAGE exercise class		
								Gallbladder surgery Temporarily discontinued higher intensity strength training				
54	25	M	47.2	RE	Anxious Schizophrenic Previously active Currently sedentary Walks 3 blocks	Improve confidence and mood Strength gain and fat loss	2		Cardiovascular exercise and diet for weight loss Exercise 5x/week Use pedometer and log sheet to track walking Weight training program	Anxiety reduced Outlook has improved with current medication		RD: No physical activity recommendation MD: Anxiety attack MD: Unable to leave house
								Anxiety	Resume activity when anxiety subsides			
55	40	F	46.8	T	Physician referral Previously active (basketball and volleyball and bike riding) Barriers: self-esteem and self-worth Screen time	Increase activity	5		Decision balance sheet: benefits and cons of exercise vs. no exercise Precontemplation Simple home based activity program with core strengthening and variety 3-4x/week Activity inventory Walking trails Tracking chart		Referral to counselor	MD: No physical activity recommendation MD: Chest tightness with exercise MD: Gained a lot of weight (10 kg), eating poorly and not exercising MD: Not meeting with CEP MD: Highly encouraged lifestyle modifications
								Tearful Low mood Lowered self confidence In need of social support Stressed Current activity: active video games Addicted to the computer and the TV	Encouraged self-acceptance based on values and self-identity Tour at YMCA Walking clubs Walking partner	Acted on plan and took a tour of YMCA Social support: sister in law Wii Fit daily		

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								Intimidated by the weight area Stress	Free passes to YMCA Group activities (i.e., aquasize) Program descriptions and fees			
								No time to relax or be active Barrier: time Largest barrier: lack of social support Unsafe neighborhood	Exercise DVDs at home Meet other ENCOURAGE participants at a scheduled time Attend Snap Fitness for a group orientation with kinesiologist	Slight change in dietary lifestyle: will choose salads, chicken and diet drinks over hamburgers and milkshakes		
								Under lots of stress Has not participated in exercise since experiencing shortness of breath and racing heart rate Needing social support	Safe heart rate range and self-monitoring Stress test at Reh-Fit or Wellness Provided low intensity home-based exercise DVDs Pedometer Coping mechanisms for mental stress			
56	48	M	28.8	T	MSK injuries Anterior herniated disc in lumbar spine Carpal tunnel syndrome Previously active Currently plays hockey, water-skis, walks, stretches Back pain with prolonged walking	Increase activity	1		Aerobic endurance activities Goal: walk outside RPE: 6-7, 30 minutes, 4x/week Stretching daily List of stretches			MD: Lifestyle modification MD: No regular exercise MD: Interested in CEP MD: Exercise regime
57	54	F	21.6	T	Distressed Previously active (fitness instructor, ran 5 miles/day) Musculoskeletal problems, DDD, carpal tunnel and sore hip Current activity: walking dogs	Weight loss Identity Become a role model for her daughter	4		Modify/substitute activities Walk on incline lightly Ankle and wrist weights for resistance Walking trails Winnipeg Trail Association Stationary bike	More comfortable walking dogs in neighborhood Engaged in resistance training with strap-on weights Tried walking on treadmill and found less discomfort		MD: No physical activity recommendation SCC: No physical activity recommendation MD: Noticeable difference in mood, increased energy and motivation, improved concentration and mood MD: No physical
									ENCOURAGE exercise class Increase intensity	Participated in ENCOURAGE exercise class Finds physical activity to be a stress reliever		

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								High stress	Snap Fitness (5 minutes from home) Modification to strength training exercises to lessen forearm involvement and reduce neck tension			activity recommendation MD: Mood (good days and bad days) MD: Exercise helped mood significantly NP: No physical activity recommendation MD: No physical activity recommendation
								Inactive due to stressors Barrier: cost Cost is prohibiting gym membership Heaviest weight since pregnancy Self-conscious	Home exercise DVDs Active living passes for facility usage Resume ENCOURAGE exercise class			
58	49	M	35.6	RE	Not physically active Concerned with excess weight, knees and lower back Previous ACL injury Previously active (basketball) 4-5 years ago Bikes with dog Sedentary job Barrier: time	Lose excessive weight Reduce strain on back Currently 240 lbs. Goal: 200 lbs.	4		Goal: Bike 20-30 minutes, 3x/week, RPE: 7-10 Use pedal straps to strengthen hip flexors and knee extensors/flexors 3 body stretches for posterior and anterior chain	Continued with flexibility and home exercises Golf and stationary bike		MD: Sedentary MD: Reviewed healthy lifestyle and encouraged client MD: Refer to CEP
								Discomfort in hip area from unilateral golf motion Barrier: scheduling Barrier: time	Stretches and PNF variations Exercise in morning or prior to studies Goodlife (son)			
								Irritation in the area of inguinal ligament	Due to hernia operation, avoid physically stressing activities, and activities that increase intra-abdominal pressure Flexibility Pedometer and log sheet	Continued weight loss		
								Currently inactive Recovery state	Resume biking with stationary bike Maintain muscle mobility around affected area Yoga Intramurals and casual sports Peer group for sports			
59	64	M	30.2	RE								
60	63	F	29.5	RE								

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61	56	F	33.2	T	Dietitian referral T2DM Walks 2-3x/week at a moderate pace Walks 3x/week with a friend at low intensity	Lose 40 lbs. by the end of the year Stop muscle atrophy	5		Wellness Swim and aquasize Strength training program at home with free weights Increase walking intensity Pedometer: steps/30 minutes Flexibility exercises Yoga Walking poles (Suntrek) Zumba	Attended ENCOURAGE exercise class Achieved physical activity through walking		
								Soreness	Tubing exercises for shoulders and core Biking and pedal straps Wellness Institute stationary bike sale Tour of Wellness Institute Resistance training General fitness on blood glucose levels	Took a tour of Wellness Institute Has social support Purchased bike from Costco Maintaining walking		
								Feeling ill Barrier: cost Problems with blood sugar levels Lethargic	Zumba and aquasize with friends over winter Reviewed strength training routine, added stability ball Log sheet of blood sugar, activity and diet	Swam almost every day for 1 hour ALC down 15 to 7.8 Lost 4 lbs. Maintaining walking		
								Has not had the opportunity to use bike Stress from work causes neck pain and head aches	ENCOURAGE exercise class Wellness drop-in for aquasize Wanting indoor stationary bike Relaxation methods: yoga, meditation and Tai Chi	Met physical activity goal Feels better, more energetic, better outlook Uses pedometer to ensure meeting 10,000 step/day guideline Registered for 2 months of aquasize and Zumba ENCOURAGE exercise class Purchased kettlebells		
									Drop-in yoga Add variety to workouts Encourage friends to increase activity levels as well Written kettlebell instructions Walking partner			

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62	57	M	40.9	T	Referred by MD to increase physical activity levels Diabetes Previous MI Attended Cardiac Rehabilitation at Reh-Fit (walked 40 minutes/day) Sedentary Bike rides of 10 minutes gives SOB Barrier: motivation		3		No longer than 2 days in between aerobic activity Walk or bike 3-4x/week for a minimum of 10 minutes Increase frequency and duration Food intake modification Pedometer Area bike trails	Has biked around the block 1-2x/week Felt better after being active		MD: No physical activity recommendation MD: Walking since CEP visit MD: Hypotension and weight loss through diet and exercise RD: Uses pedometer daily RD: Cycles regularly RD: Sees CEP regularly RD: Suggested focusing on intensity MD: Seeing dietitian and CEP to help with lifestyle adjustments to cope with new diagnosis (diabetes) MD: No physical activity recommendation
									Specific walking program Area bike trails Stretching exercise program Self-contract to place on fridge Walking/biking at a comfortable intensity 5x/week for at least 15 minutes ENCOURAGE exercise class	Has lost weight mostly due to dietary changes Bike rides around the block several times/week Short walks on weekends Average daily step count 5000 with one day 7500		
								Does not notice any increase in HR or breathing while biking	Canadian Diabetes Association Exercise guidelines SMART goals setting sheet Activity log Trail Map Increase intensity and duration Purchase second hand stationary bike ENCOURAGE exercise class			
63	37	F	29.2	RE	Long-term disability Chronic pain Poor sleep schedule IBS Endometriosis Depression Sedentary Abdominal discomfort	Feel better Reduce pain	5		Exercise for 2 hours a week, in as many increments as needed Gym: City facility subsidization Access Transcona exercise class	Attending exercise class at AT Motivated		RD: importance and benefits of regular exercise RD: Open to suggestions about how to start an exercise program
								Barrier: Environmental costs Impact activities worsening IBS	Recognize own limitations	Increasing self-efficacy One month Snap Fitness pass Notice fitness levels increase		

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								Pain and headaches	Join Henderson Library exercise class Snap Fitness Leisure guide: yoga Chief Peguis Fitness Centre Running Room: free walking/jogging club Provide handout outlining stretches (neck, lower back) CPAFLA	Performs callisthenic exercises at home, or walks, 2-3x/week		
								Abdominal pain increasing, limiting exercise				
								Sedentary due to chronic pain and endometriosis Barrier: finances	Exercise at home, and less sitting time Home-based callisthenic program: yoga, 10 min bouts Rejoin ENCOURAGE Look into City's Active Living Pass, Sunova CC, Kildonan CC			
64	41	M	29.3	T	Elevated cholesterol and inactivity Previously active Barriers: Lower back injury, chronic pain, stress Poor sleep Barrier: motivation Dislikes people		5		Indoor exercise Biking Main goal: Walk 3x/week for 30 minutes, and use incline to modify intensity Resume exercises physiotherapist provided Stretching and ROM exercises	Went for one bike ride in neighborhood trail		MD: Referral MD: No physical activity recommendation
								Difficulty initiating activity regime Not ideal stage of change Barrier: pain and time and variable work schedule	Incorporate activity in morning, afternoon and evening (walking to store, parking further away)	Surpassed goals set last session Achieves 150 minutes of physical activity/week Either biking outside or on treadmill 30mins/day Exercises on weekends Feels better and more energetic Does not need afternoon naps Believes he can maintain current activity levels Motivated Social support		

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								Overwhelmed with the amount of exercises prescribed by various providers	Therapeutic exercises prescribed by physiotherapist and psychiatrist Therapeutic exercises after cardiovascular exercise	Has been active throughout vacation by walking Pain diminished Adapted behavior to fit with lifestyle (re-adjusting schedule to fit exercise)		
								No weight loss Disinterested in making social connections	Home videos for Tai Chi Body awareness and core strength Yoga	Achieving CPAG Motivated Improvement in back pain		
								Experiencing pain-limited days	Consolidated and removed redundancy of exercises provided by other providers Fascia targeting passive stretches Introductory yoga class at Moksha			
65	51	F	36.4	T	Depression Cancer Previously active (aquasize and YMCA)	Increase physical activity Feel better	4		Attend ENCOURAGE exercise class Pedometer and track sheet Increase activity levels: duration Walking trails and recreation inventory Seeking social support Discussed relationship with physical activity and depression	States: "my world has changed" Attended ENCOURAGE exercise class Walking regularly Boosted confidence Attends employment program	Dietitian referral	
									Increase activity and attends exercise classes	Finding time to walk (relieves stress and gives her energy) Not felt depressed for some time (reinforcing success)		
									Gradually increase walking intensity via pedometer	Reduced stress over last 6 weeks		
									Goodlife List of free trail exercise classes			

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66	39	F	40.4	T	Depression Previous weight gain Has lost weight at work, deli manager, walks constantly Previously active: Shapes and Curves Needing social support	Become healthier for the sake of longevity	4		Monitor step count via pedometer ENCOURAGE exercise class Zumba	Two walks/week One 60 minute exercise class and one 60 minute Zumba class/week Acquired social support from ENCOURAGE exercise class		MD: Sign up with CEP MD: No exercise MD: Is always motivated but follow-through is very poor
									Exercise can also be simple and unstructured: walking	Active 3x/week through exercise classes: Zumba, Yoga and ENCOURAGE exercise class Energy has improved Good outlook		
								Unable to accomplish unstructured physical activity, needing social support	Planning a group discussion between patients to facilitate social support linkages New options (yoga cancelled for the month) Aquasize	Achieved CPAG and meeting goals Feels better physically and mentally Enjoys being active		
								Somewhat inactive due to exercise classes being in between sessions Current exercise regime is not cost-effective Barrier: family responsibilities conflicting with exercise class schedule Not open to home-based exercises due to space limitations and self confidence	Membership to facility that offers classes Goodlife ENCOURAGE group fitness classes Moksha Karma Classes Yoga DVD EDventures Fitness exercise DVDs			
67	60	F	37.8	RE	Completely sedentary Previously active: Aerobics 3x/week at YMCA and active outdoors	Counteract symptoms of PVD Lose weight Reduce	3		Goal: Walk more vigorously than normal for up to 30 minutes/day, 3x/week YMCA membership			MD: Increase activity levels MD: Refer to CEP to assist with this RN: No physical

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					Barrier: time Barrier: knee soreness, tight ITB and Sciatica Weight gain Mental health issues	symptoms of diabetes		Experiencing mental health issues Needing social support	Membership assistance program at YMCA Simple activities: walking Pedometer and log sheet Gradually increase duration of movement Self-reflection of emotional state when engaging in activity Group discussion session with ENCOURAGE participants	General active living: gets off bus one stop earlier		activity recommendation MD: No physical activity recommendation
								Preoccupied with other personal matters Hoarding issues Did not attend aquasize Does not have proper footwear Barrier: financial Has not been using pedometer	Printed off new step log sheet as motivation ENCOURAGE group session			
68	50	F	40.3	T	Torn meniscus Seeing physiotherapist Injured during aerobics exercise class Energy decreased Sedentary time increased Barrier: motivation Hemorrhoids		5		Attending sessions with husband Goals: Strengthen leg through physiotherapy, lose weight, reduce stress on joint Stationary bike 3x/week To increase motivation: chart to record daily energy levels Discussed appropriate biking seat	Patient and husband attended ENCOURAGE exercise class Motivated		RD: Inactivity RD: Referral to CEP RD: RFIT
								Barrier: cost	Develop endurance before trip to Germany Pedometer and log sheet Discussed free options: Pioneers Greenway walking trail	Enjoying pedometers Achieving over 10,000 steps/day Husband reaching over 25,000 steps/day		
								Knee surgery Unable to continue ENCOURAGE exercise class due to work schedule	Resume low impact aerobics class at Gateway CC Husband: Snap Fitness with son Recreation inventory	Knee significantly improved Exercising at low intensity		
									Increase intensity Session 5 not saved in EMR			

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69	50	M	39.2	T	High cholesterol Lost weight and lowered cholesterol through advice from a dietitian Sleep apnea Barriers: motivation, intimidation, lack of social support Self confidence	Lose weight Lower cholesterol Reduce symptoms of sleep apnea	5		Client and spouse see CEP together Develop a plan for Snap Fitness, 3x/week Strength routine 30 minutes of aerobic exercise	Attended and enjoying ENCOURAGE exercise class		
									Pedometer and log sheet Pioneers Greenway walking trails	Enjoying pedometers >25,000 steps/day (spouse >10,000 steps/day) Surgeon noticed 70% improvement in knee function after surgery		
									Gateway CC (aerobic class) Snap Fitness Recreation inventory	Attend Snap Fitness 3-4x/week Walking outside Motivated, enjoys activity Noticed mood and demeanor of spouse has become more positive Weight loss and increased energy		
									Session 5 not saved in EMR			
70	54	M	39.6	RE	Completed cardiac rehabilitation at Wellness Institute Exercised for 2 hours/day Chronic ischemia	Keep active	2		Exercise for 1 hour more frequently Kimberly YMCA Exercise at home Cardiovascular exercise and weight training 3-4x/week, 60 minutes	Walks on treadmill		MD: Attends Wellness Institute MD: Lots of energy, lost weight MD: Wants to go back to work RN: Lose weight and exercise
								Inactive due to knee injury Meniscal tear	With absence of knee discomfort, attain 110 bpm at steady state Biking might be a superior option Modify strength training to alleviate pressure on knees			
71	50	M	43.7	T	Attended cardiac rehabilitation at St. B Injury to the knee Currently sedentary MSK issues in chest Barrier: travel time		2		Consistent smaller increments of exercise Walking Raise HR for 20 minutes, 3x/week Find walking partner	Went beyond goals and realized body wasn't able to adapt	Referral to dietitian	MD: Exercising less MD: Discussed going back to cardiac rehab to work on diet/exercise MD: Discussed weight gain

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								Spent 1 week inactive and sore	Emphasize realistic goals 20 minutes of walking Obtain educational material from Wellness Core strengthening, TVA+GM exercises			MD: Referred to CEP to discuss activity options
72	41	M	34.4	T	Onset of weight gain with the start of family life Previously active with informal activities Barrier: childcare and time Previous weight loss	Reduce health risks of obesity	2		30 minutes of activity in the evening, 2x/week Active recreation options for the family Basic start-up program, leading to interval style training Biking and walking Pedometer and log sheet Callisthenic strength training program	Seen dietitian with some progress	Referral to dietitian	MD: Obesity MD: Exercise referral to CEP RD: No physical activity recommendation NP: Has been doing stretching exercises at home with no improvement
								Has found difficulty getting active Barrier: Time Barrier: Building addition to his house Still eating fast food	Provincial park Integrate stretching and brief body weight strength exercises to daily routine			
73	35	F	47.3	RE	Previously active Had higher self-confidence and energy while active Barrier: family life Tired after 15 minutes of walking Barrier: finances and inactive husband Needing social support	Increase physical activity levels Regain level of fitness where patient can comfortably walk for extended periods of time	2		Free subsidies at YMCA and the City of Winnipeg Time conflict with ENCOURAGE exercise class Potential social support: mother Goal: allocate 30 minutes, 3x/week to activity Mode: walking Post walking stretches Provide pedometer and log sheet Recreation inventory	Has made lifestyle changes Increased daily step count from 2000 to 6000 steps Visited YMCA Motivated Acquired social support: mother		MD: Weight gain, thinks its related to diet MD: Trying to exercise more and get out with children MD: Discussed increasing activity MD: Referral to CEP RN: No physical activity recommendation MD: No physical activity recommendation
								Injured ankle due to inappropriate footwear Poor time management skills	Recommended Canadian Footwear for proper walking shoes Goals: prepare for activity, finish membership assistance paperwork for YMCA, acquire proper footwear and gradually increase pedometer step count			

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74	54	F	34	T	Previously active: Wellness Institute		5		Notes from Session 1 not saved in EMR	Beginning membership process for YMCA		MD: Referral MD: No physical activity recommendation
								Made no changes to activity levels thus far Barrier: work, family responsibilities, extremely hot weather	YMCA: for track and fitness classes ENCOURAGE pedometer intervention	Very much enjoyed being active at YMCA Used track, weight circuits and bicycle Reports easier work day with prior exercise Increased energy		
								Barrier: Distance to travel to YMCA Barrier: time	Snap Fitness or Goodlife Aquasize at YMCA Reduce sedentary time during the day	Usually walks for 30 minutes between two jobs Having more energy and watching less TV than 3 months ago		
								Struggling to be more active Barrier: work and time Working multiple jobs YMCA hours don't fit her work schedule	24 hour Snap Fitness CEP will meet with client at Snap Fitness			
75	65	F	36.3	T	Completely sedentary Previously active: Richard Simmons DVDs and Aquasize Fatigued Barrier: husband very sick Barrier: Caregiving, spine degeneration, nerve pain in hip, neck pain Needing social support		2		Pedometer to track success Gentle walk up to 15 minutes			MD: Advised to increase exercise and consider some physio
								Discomfort in lower back Needing social support Accumulating 1500 to 5200 steps	Melanoma support group and resources Chronic disease support group Stationary exercise bike Short-term goal: cardiovascular exercise at a light intensity, for 10 minutes, 3x/week Winnipeg in motion older adults exercise DVD Get Better Together workshop			
76	54	M	37.8	T	Back injury Previously active (military) Previously active (swimming and walking)		4		Cardiovascular activity, 2 days apart, 10 minute bouts, low or no impact YMCA Home exercise bike 3-4x/week			NP: Referral

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					Diet is questionable Sedentary				Bike: several times/week "Move" more, for longer durations	Successfully bikes with wife in the evenings		
								Structured physical activity has ceased Source of exercise: auto maintenance and house renovations Frustrated with weight Denies he can achieve 20 minutes of physical activity/day Barriers: time and motivation Said he would not benefit from social support	ENCOURAGE exercise class 5-10 minutes home-based exercise program (weight machine, treadmill and bike)	MVPA continues to increase Added variety with geocaches with walking More frequent, longer trips to the dog park Increase speed of walking Social support: wife Noticeable increase in physical fitness over past months		
								High amount of sedentary time at home and on bus	Aquatic program Break up sitting when possible			
77	54	F	33.2	T	Currently active with aquasize Activity decreased due to injuries (ankle and cuboid) Sciatic nerve pain Seen two physiotherapists and a chiropractor Elbow pain Needing social support		4		ENCOURAGE exercise class YMCA (pool) Simple exercise sheet for ankle instability	Confidence Enjoyed ENCOURAGE exercise class	Referral to Prairie Trails physio physician	RD: General exercise advice RD: Strength training RD: Currently engages in aquasize 1x/week and walks occasionally RD: Feeling overwhelmed with all the information from RD and CEP
								Feeling overwhelmed with health information	Simplified and consolidated information Ankle stabilization tools and handouts Winnipeg in motion stretching handouts	Successfully increased activity levels since first meeting Attends ENCOURAGE exercise class Walking		
								Stretching has not helped chronic tightness and postural issues Anxious about cardiovascular health	YMCA Longer passive stretches Foam roller Yoga classes Online resources Reh-Fit Centre and Wellness Institute	Stretching regularly Foam roller		

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								Difficulty being active Barriers: recent marriage, vacation and pain in lateral hips Imbalance in whole body, chronically tight fascial tissue	Spending time to be active with husband			
78	42	F	38.7	RE	Previously very active: Softball and Soccer Several knee injuries 6 surgeries Low self-confidence Barrier: finances Sedentary Physical job Needing social support	Weight loss	1		Suggested walking or biking Aquasize at ReT School Division, YMCA, City of Winnipeg Fee subsidies ENCOURAGE exercise class Pedometer and log sheet			MD: Will refer to CEP for exercise to strengthen core and reduce weight
79	42	F	25.7	RE	Not active Never engaged in structured activity Scoliosis	Reduce cholesterol and increase activity	1		Dose response between aerobic exercise and HDL Yoga Pilates Resistance band strengthening exercises for scapula and spine Cardiovascular exercise plan: walking on treadmill or outside ENCOURAGE exercise class Walk at a brisk pace, 30 minutes, 3x/week TV or music as motivation Pedometer Log sheet Leisure Guide, River East/Transcona School Division, Moksha Yoga Exercises to strengthen core and improve posture			MD: Refer to CEP for some help with exercise

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80	60	F	29.8	RE	Clothes fitting tighter each year Uses recumbent bike for up to one hour, low intensity, quite often Previous breast cancer Family history: many members of her family are overweight	Weight loss	3		Aquasize at University of Manitoba or Margaret Grant Pool Strengthening exercises using resistance band and exercise ball Gradually building muscle endurance Moderate intensity interval training on bike	Incorporated strength training into her day and enjoyed it		
								Patient was ill Barrier: finish work before retirement	Discussed form, proper hip flexion from standing position Decrease sedentary behavior 15 minutes/day rather than make more time for activity Walking at home on the phone CPAFLA norms and 6 Minute Walk Test instructions for self-assessment			
								Difficulty increasing or maintaining physical activity Enjoys treadmill and stationary bike but cannot realistically accomplish physical activity goals in the upcoming weeks	Emphasized success and positive feelings she experiences when being active Active transportation			
81	53	F	46	T	Preparation stage of change Interested in recumbent bike and exercise equipment Attends arthritis management sessions Pan-Am Clinic: cortisone injections for back pain Ligamentous damage Cramps in posterior thigh Intimidated Lost 50 lbs. from	Lose weight Manage arthritis	5		Aquasize and swimming Wellness, YMCA, PACE Arthritis specialty class through Leisure Guide Corrective exercises and stretches	Attended YMCA Felt welcomed by staff Has social support	Referral to RD	NP: Pain in back, knee and body NP: Referral to CEP NP: Aquafit (good for joint pain, low impact fitness) NP: Open and willing to start exercising NP: Gained 30-40 lbs. over past couple years NP: Arthritis/joint pain RD: Decreased 4.4 lbs.
								Unable to participate in aquasize (bleeding) Intimidated by equipment	Active with husband (pedometer) Handout outlining what equipment to use, what order, weights to lift etc.…	Walking is main mode of exercise Walking 30 minutes/day outside Has attended YMCA Strength training circuit Knees don't bother her as much		

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					walking in the past (30 minutes/day)			Intimidated by cardiovascular exercise equipment Concerned with weight	Target: 150 minutes as per CPAG Better mode of exercise for OA: biking and swimming ENCOURAGE participant "gym group" Modify intensity by walking on incline	Continued increasing activity levels		RD: Can tell with clothes that patient has lost weight RD: Joined YMCA for aquatics 2x/week for 45 minutes RD: Plan on running in the pool RD: Walks with pedometer, tracks daily steps, variable amounts RD: Treadmill set up in basement RD: Continue to lose weight, exercise vs. diet? Discussed importance of exercise for weight/muscle maintenance and that diet plays larger role in weight loss RD: Swimming at the YMCA 3x/week RD: Walking on treadmill 2x/week for 10 minutes (plans on increasing duration) RD: Plans on running in water RD: Down 3 lbs. in 12 days RD: Overall weight loss is 8 lbs. RD: Clothes fitting looser RD: Positive lifestyle change RD: Congratulated client on exercise levels, and increasing frequency to 3 days/week
								Developed irritation in knees	Less impactful activities when discomfort increases Aquasize Link with ENCOURAGE participant for social support Walking is a great backup Warm-up, cool down and intensity	Aquasize 2x/week Walks at a moderate intensity for several 10 minute bouts/day Acquired social support from another ENCOURAGE participant Exercised in a new environment that the client wasn't originally comfortable in Social support: husband Made dietary changes		
								Barrier: schedule	Instructions for strength training program			

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82	44	F	32.2	RE	Hypertensive Hypertrophic cardiomyopathy HTN Diabetes Lifestyle changes: quit drinking pop and reduced smoking and coffee Previously active: Volleyball and other sports Back and knee injuries Completely sedentary Lost 200 lbs. in 2-3 years		1		Walk or swim 3x/week Safe intensity due to hypertension and chronic musculoskeletal issues Post exercise flexibility			MD: Refer to CEP
83	68	F	40.5	RE								
84	62	F	39.7	RE								
85	51	F	35.2	RE	High stress Active in winter (Richard Simmons DVDs) Sedentary in summer Previous weight loss: 40 lbs. Exercise: roller-skating, walking and swimming Enjoys high intensity exercise		5		Blood sugar and cardiovascular exercise Interval training Goal: 30 minutes, 3-4x/week of higher intensity walking Pedometer: gradually increase distance travelled in 30 minutes	Roller-skating: increased confidence Biking: can achieve 4 km Walking: at home and at the cabin for >30 minutes Influencing family to increase physical activity levels Barriers reduced: women's only Shapes Increased mood, energy, self-efficacy and self confidence		NP: States she does not cook with salt and followed by CEP MD: Lost 14 lbs. doing Richard Simmons exercise DVDs and following Weight Watchers MD: Encouraged further weight loss and exercise
								Balance issues with roller-skating	Suggest roller-skating poles (balance, brake aid and intensity modality) Gym facility (Shapes)	Attends aquasize 2x/week Social support Motivated		
								Barrier: thyroid nodules causing difficulty swallowing and breathing	New Shapes location Will plan on attending with daughter Emphasized moderate intensity	Continues to attend aquasize Attends Shapes with daughter Active throughout setbacks		

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								Partially torn Achilles tendon Does not enjoy weight training	Enjoyable exercise classes as an alternative to strength training with machines Discussed movements to avoid with healing process Stretching affected area	Lost over 10 lbs. in last month Resumed aquasize class Doing Richard Simmons exercise DVDs Following Weight Watchers Overcoming challenges of heel injury Motivated		
86	48	F	34.8	RE	Sprained ankle when entering clinic Undergoing daily radiation therapy Previously active: biking, competitive volleyball, hatha yoga Hyperextended knee	Use physical activity to maintain bone density and muscle tone	4		Stretching muscles during healing process Small basic exercises to develop functional strength in lower limbs Home exercise bike			MD: Overall feels good MD: Lost 20 lbs. MD: Lost muscle mass but continues to talk MD: Going to see CEP RD: Physical activity likely still lacking due to injury RD: No physical activity recommendation
								Ran into barrier: Achilles tendon rupture	Light upper body resistance training Stationary bike Wind trainer: converts road bike into stationary bike	Removes boot 3x/day to do ROM exercises prescribed by physio Bikes 50 minutes every second day Walking often		
								Barrier: wearing boot due to ruptured Achilles tendon	Moksha Yoga Maintain current volume of activity	Returned to work Only re-gained 7 lbs. (out of the 25 lbs. she lost) due to ankle injury Doing regular exercises prescribed by physio		
								Barrier: walking with snowfall	Suggested taking dog to school field after hours Walking poles as balance aid Skiing with diligence Goodlife or YMCA Walking and home exercise on hybrid bike or wind trainer Caution when engaging in more intense physical activity, higher risk for injuries			

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87	46	F	29.4	T	Self-conscious Currently walks 30 minutes at low intensity on lunch breaks Currently walks her dog Very intimidated	Modify lifestyle to lower cholesterol and increase fitness Strengthening, losing weight and increasing fitness so she can participate in activities with family	2		ENCOURAGE exercise class Increase intensity by walking Pedometer and log sheet Goal: walk 30 minutes at home, 3x/week Increase step count gradually over time Strengthening exercises at home	Has surpassed goal Typical walks lasting 45 minutes Uses pedometer for motivation		MD: No physical activity recommendation
									ENCOURAGE pedometer intervention Flexibility and strength training exercises ENCOURAGE group session for social support ENCOURAGE Snap Fitness "field trip"			
88	49	F	35.5	T	Completely sedentary Only leaves the house once or twice a month Active very little in the past Chronic pain, low energy, low motivation Barriers: heat and insects Low back pain Tightness in posterior hips	Increase activity levels and reduce pain	2		Decrease sedentary time throughout the day Stretches for posterior hips Walk 3x/week Emphasized frequency over intensity			
								Erratic mood Cannot eat, lost 20 lbs. Changes in medication Shakiness and low coordination	Increase social support Connect patient to community and to clinic to improve self-efficacy and support City of Winnipeg subsidies Pedometer			
89	60	M	40	T	Barriers: OA in knee and motivation Never formally exercised Low energy Owns a bike Swimming	Become more active Goal: for the doctor to comment positively on blood work (cholesterol, and blood	4		Suggested being active during screen time Goal: to be active during news at 12 Strengthening exercises to reduce stress on knee Emphasized cardiovascular exercise and decreased sedentary time	Activity increased somewhat over last 2 weeks		RD: Basic exercise advice RD: OA in knee RD: Become physically active

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						sugar)		Barrier: in need of stationary bike Barrier: family events and fatigue on working days (12 hour shifts) Barrier: time Needing social support	Provided 2 pedometers (one for wife) Action plan: increase daily step count Walking to sister's house Family activities	Increase walking Used road bike occasionally last month		
								Wife not wanting to increase activity levels, she did not use pedometer Barriers: social support, time, energy and motivation	Walk to sister's house (15-20 minute walk) Pool at mother's apartment building (15-20 minute walk) Consistent cardiovascular activity for blood sugar Increasing total minutes of physical activity Short-term goal: achieve 150 minutes of physical activity/week ENCOURAGE exercise class Stretches to counteract sedentary behavior	Active enough to reflect positively on blood work MD emphasized that physical activity is positively impacting his life Feels more energetic Walks several times a day		
								Patient has fallen off wagon Barrier: cold weather and holiday season	Resume swimming and walk more often Build support into routine Walk with sister a few times a week Wellness: to walk indoors in Winter Snow Trek event (snowshoeing and skiing)			
90	53	F	36	T	Hyperlipidemia Inactive 20-60 minute walks with dogs Overwhelmed with dietary information Saw dietitian Needing social support for exercise	Behavior change for health reasons	3		ENCOURAGE exercise class Taking sedentary time and making it more active (i.e., bike to friend's house) Small changes in foods she consumes (i.e., healthy alternative) Move more frequently, at a low intensity, recreational activities Mode: walking Frequency and duration over intensity			MD: Hyperlipidemia MD: Become active and fit MD: Lifestyle change MD: Not wanting to go on medication

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								Guilt and low self-worth from lifestyle and behavior Work stress Tried frequently but does not cook meals (McDonalds) Bowflex and pedometer are visual reminders of failure Experience with exercise negative Not comfortable at Shapes	Discussed social support Wellness and their demographics (i.e., 40% of members high risk) Tour of the Wellness Institute	Took a tour of the Wellness Institute Stage of change has progressed		
								Barrier: the Wellness Institute is too far from current residence	Possible social support: niece who attends Goodlife Elmwood YMCA drop in with sister Aquasize Link patient with another ENCOURAGE participant for social support			
91	54	F	27.9	T	Sedentary Takes grandchildren to YMCA to participate in family activities Barrier: finances Abdominal weight gain	Increase physical activity levels to enhance health	3		Walking and biking at YMCA YMCA membership to attend with family YMCA membership assistance program Pedometer Handouts for stretching and strengthening of lower back and core ENCOURAGE group session for social support	Enjoys walking Happy that daily step count is increasing Lost some weight	Referral to dietitian	MD: Client completed RFIT
								Was too intimidated at YMCA Concerned with husband's excess weight and inactivity	Zumba Yoga at East End CC	Attended Weight Watchers 1x/week Attended Zumba 1x/week with daughters		
								YMCA and Snap Fitness are both too intimidating Concerned about overweight daughters Concerned about sedentary husband	Home based exercise Zumba and Yoga exercise DVDs Discussed frequency of Zumba classes with daughters Discussed motivational strategies for husband Winnipeg in motion Weight watchers support group			

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92	47	F	33	T	Recently diagnosed with diabetes Has begun to modify lifestyle, first with diet Preparing to become more active Currently inactive Walks dog Physical job Barrier: motivation		3		Use blood sugar measurement as motivation Will commit to 30 minutes, 3-4x/week Written program Pedometer Recreation inventory	Increased activity since last session		RD: Client realizes next step is to address physical activity for further aid with weight and health RD: Refer to CEP to aid with physical activity RN: Lots of stress, feeling overwhelmed RN: Recent death of parent RN: Not sleeping
								Very stressed, mother ill	Counseling Snap Fitness (family membership with daughter) Exercise to reduce stress levels Increase walking levels	Membership at Snap Fitness Social support: daughter Had a starter session with a personal trainer at Snap Fitness		
								Stress: mother passed away and father suffered stroke Back pain	Basic program for Snap Fitness 2-3 core strengthening exercises Stretches: forearm flexors Expand handout from physio (wrist) Link with ENCOURAGE participant for social support			
93	24	F	52.1	RE	Sedentary Stands at work and is inactive at home Previously healthy weight Used to bike Now SOB after 2-3 blocks	Weight loss and regaining physical fitness Reducing lower back discomfort	1		Attended session with mother Re-use low back exercise book provided by physio for flexibility exercises Online flexibility resources Goal: 30 minutes/day of walking or biking Pedometer and log sheet Gradually increase step count over a 30 minute period Muscular strength and endurance exercises: squats, TVA activation and dead lifts Handout: breathing techniques			
94	49	F	36.4	T	Weight accumulated through menopause and inactivity Previously active: lost 30 lbs. while attending Curves Needing social support	Lose excess weight	1		Structured group exercise with Leisure Guide, University of Manitoba and Snap Fitness Goal: 20-30 minutes of activity every weekday Walking Pedometer			

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95	49	M	37.6	RE	Previously active: racquetball, weightlifting, YMCA Needing social support Social anxiety Physical job Knee pain	Lose weight Reduce chronic pain in knees	2		Restart walking for 30 minutes ENCOURAGE exercise class ENCOURAGE pedometer intervention Strengthening exercises for whole body to supplement with exercises from physiotherapist	Engaged in walking 10 minutes, 4x/week Progressed to 15-20 minutes, 4x/week More energy		RD: Lack of motivation due to lack of change patient feels so far RD: Mental health is the biggest issue affecting eating and activity RD: Started physical activity with CEP, walking, but not as regular as would like RD: Missed CEP appointment RD: Cancelled last appointment with CEP due to not being active RD: Can't find the motivation
								Sore knees Social anxiety	Explained exercises provided by physiotherapist Low impact exercises until condition of knees improves ENCOURAGE exercise class at YMCA Borrow stationary bike from sister			
96	52	M	31.8	T	States he is heading for a stroke Sedentary Does not eat breakfast, overlarge serving sizes Sore hip Low energy Crohn's Resistant to a referral to dietitian	Increase physical activity for health reasons	2		Information regarding nutrition labels and general information ENCOURAGE exercise class Goal: 150 minutes of activity/week Walking Pedometer Biking with granddaughter Protein as part of breakfast Portion control	Active with stationary bike Felt good 4 miles More energy and clear thinking Using pedometer		NP: Patient states he needs to lose weight NP: Patient feels he needs an exercise program NP: Receptive to a referral to RFIT and CEP NP: Discussed nutrition and exercise NP: Going to see CEP for fitness and is motivated to lose weight and become more physically active NP: Attending ENCOURAGE exercise class
								Patient went up to 8 miles (excessive), sweat profusely	Nutrition label reading and examples ENCOURAGE exercise class Frequency over intensity Provide resources for mother (4 strokes and resistant to exercise)			

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97	64	F	41.4		Osteoarthritis in knee Currently inactive Barrier: finances	Lose weight Better control T2DM	2		Indoor options (Winter) KP Walking Group YMCA Peguis Trail Walking Group Pedometer and log sheet Goal: Walk at least 20 minutes, 4-5x/week	Increased motivation Attended YMCA Accumulated between 3200 and 9200 steps/day		RN: Recent visit with CEP: ENCOURAGE project
								YMCA is not realistic due to travel distance Body image issues (aquasize) Barrier: childcare	Snap Fitness KP Mall Walking Group Stationary bike, home use Public school walking group			
98	56	F	42.9	RE	Barrier: low back pain Discectomy Cortisone shot Right knee operation to remove spur Rheumatic mitral valve Previously active: walking 15 minutes of walking, or brisk walking will not aggravate back Gait affected, cannot extend right knee Hip extension limited, poor posture when walking	Become more active	3		TVA activation exercises Stretching hip flexors and anterior chain muscles Provide handout Pool for cardiovascular exercise Walking Pedometer and log sheet	Attempted to increase walking		RD: Relapse in routine, no longer eating breakfast RD: Received call from CEP, has not yet called back (hives and new meds) RD: Call CEP to start addressing physical activity RD: Working on activity with CEP
								Pain more significant than predicted Biomechanical issues	Engage in aquatic exercise Handout with steps to start with YMCA Membership subsidy	Gradually increased cardiovascular activity through pool usage Spends 2 hours in pool, 4x/week at low intensity		
								Time in pool dependent on whether it is in use	Drop in passes for YMCA aquasize Drop in passes for YMCA Zumba Corrective exercises			
99	50	M	36.3	T	Sedentary Walking for an extended period of time causes hip pain (right hip replacement) Wears lift on shoe, one leg shorter than the other	Reduce weight (40 lbs.) Manage new diagnosis of diabetes Manage pre-existing chronic pain	2		SMART goals Cardiovascular exercise 2x/week, mode: walking Recumbent bike or pool at low intensity for 10 minutes Strength training with Bowflex 2-3x/week Stretches for hip and lower back Foam roller Diabetes Education Class	Down 7-8 lbs. since last visit Eliminated soft drinks and butter from diet Increasing activity through walking Motivated		RN: Client agreeable to attend Diabetes Education Class RN: Complete survey for ENCOURAGE MD: Went to diabetes teaching MD: Saw CEP MD: Doing more activity lately, trying to do exercise MD: Has seen CEP

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									Implemented a more structured exercise plan			MD: Trying to increase activity at home MD: Has stationary recumbent bike and Bowflex MD: Finds walking difficult, aggravates pain MD: Gets increasingly sore when sitting for long period of time MD: Hard to get off couch MD: Motivated to implement structured activity MD: Trying to find activity to do with acceptable pain range
100	60	F	33	RE	Pre-diabetes Excess weight Previously active Ceased outdoor activities (skin cancer) Needing social connection Walks 20 minute/mile for 2 miles several times/week	Become more physically active	4		YMCA Walking on treadmill with modified intensity and incline	Used treadmill to increase intensity for 40 minutes, several times/week		RD: Stressed RD: Activity going well RD: Kcal on treadmill, thinks about how to enjoy that amount to compensate
									Alternative activities (for lake) Building social support Scheduling ENCOURAGE exercise class Dietary difficulties: Eatracker	Maintained activity over past 4 weeks Lowered BP medication Walks on treadmill, 40 minutes, 3-4x/week		
								Did not exercise while on vacation Did not follow through on YMCA membership Barrier: motivation Unable to connect with social supports Feeling fatigued	Had gone through strength training circuit Suggest group environment to build motivation Increase treadmill incline in intervals	Motivated		
								Decreased activity due to cold holiday season	Suggest using a pedometer to ensure still getting same amount of activity Log sheets and instructions Discussed sustainability RPE			

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101	70	F	23.2	T	Barrier: income, using transit system for transportation Pain in right breast	Find social support Get more active	2		Discussed options available with bus Kildonan park mall walking group YMCA (aquasize) ENCOURAGE exercise class Seniors Walk and Talk at Peguis Trails Bus route information Discussed counselor		Referred back to NP for pain in breast	NP: Difficulty accessing exercise program, limited by bus transportation NP: Candidate for evening exercise class at AT NP: No physical activity recommendation
								Physical ailments Lack of social support Difficulty sleeping Lower back pain Can't wake up for mall walking group at KP KP walking group not very social Feeling tired, low energy, low appetite Barrier: finances	Suggested using elevation under feet to reduce back spasms while sleeping Handout for basic stretching exercises Prairie Pathfinders Walking Group (socializing) City of Winnipeg Leisure Guide with fee subsidy form RE-T school division			
102	61	F	21.8	T	Bipolar children High stress Carpal tunnel		1		Aquasize at YMCA ENCOURAGE exercise class Discussed intensity			NP: Newly diagnosed with HTN NP: Lot of stress NP: Financially difficult to access exercise program NP: Interested in Yoga MD: Started ENCOURAGE MD: Now has pedometer
103	53	M	41.1	T	Started Metformin and on the maximum dose of blood pressure medication Planter fasciitis Knee pain	Increase health through activity	3		ENCOURAGE exercise class Structured exercise program with weights and bike Safe exercise intensity	Has been able to achieve 150 minutes of activity/week Has been swimming during daughters swim practice X-box Kinect Walks at YMCA		NP: Patient not wanting diabetic medication NP: Would like to try diet and exercise NP: Refer to CEP NP: Exercises

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								While walking outside, hip is irritated	Wife's workplace has Biggest Loser Activity Tracking, modify to stay accountable Goal: gradually increase exercise intensity	Lost 10 lbs. with online Weight Watchers program prior to injury Swims 1x/week Attends Canadian Sports Centre with daughter 1x/week and uses machines		NP: Swimming at pool once a week NP: Walking at home on treadmill 1-2x/week NP: Does not think any loss of weight NP: Back pain after swimming NP: Knot, then pain severely increased RN: No physical activity recommendation
								Barrier: Return of back pain NOS Lack of activity increase FBS and weight	Canadian Diabetes Association Guidelines One cardiovascular activity with no less than 20 minutes duration every 36 hours Bike to work (4 km) Pedometer for motivation and to gauge intensity Step counts pedometer log sheet			
104	40	F	33.5	RE	Back injury from MVA Epilepsy Previously active: boxing class at Pan Am (lost 10 lbs.) Engages in frequent, low intensity exercise with Wii Fit and Dance Dance Revolution Barrier: motivation	Lose 32 lbs.	3		Zumba class at Bronx CC Shapes Environmental aids to assist stretches for back and hips Eatracker to monitor eating habits Goal: achieve 150 minutes of activity Boxing classes	Attended ENCOURAGE exercise class Visited YMCA More active while wearing accelerometer		
								Cannot attend ENCOURAGE exercise in future due to work conflict Difficulty with snacking	YMCA membership Social support: husband Prepare healthy snacks	Attended ZUMBA Utilized exercise DVD		
								Shoulder pain Significant pain with shoulder flexion Barriers: Musculoskeletal	Zumba DVDs Provide pedometer Goodlife Snap Fitness YMCA			
105	49	F	42.5	T	No cartilage left in knees Waiting for knee replacement surgery Frustrated and		2		Participate in no impact activity: aquasize Stretching and strengthening upper and lower body	Walked occasionally		RD: Unable to connect with CEP RD: Contemplation to preparation stage of change

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					saddened with weight gain and inactivity Previously active: road hockey Edema in feet while walking Barrier: husband			Inactive over last month Barrier: family and job Relationship with husband is a tremendous source of stress Motivated by music (husband shuts off music)	Relocating time usage: allocating time to distress IPod ENCOURAGE exercise class Zumba with daughter Handout for husband: proper healing and strength exercises (sedentary and has rotator cuff injury)			*Issues with referral RD: No physical activity recommendations RD: No physical activity recommendations
106	72	F	30.7	RE	Risk of total inactivity (uses motorized scooter) Previously active (work: trap line) Limited social support		4		Fibromyalgia Support Group 1x/month for specialty aquatics class Good Neighbors Centre Home based exercise program Strengthening exercises Theraband	Increased frequency of stationary bike rides Increased time by 5 minutes Enjoys being active Enjoys competing against men (bike riders) Monitoring heart rate with appropriate range for age, health status and beta blocks		NP: Hip pain and weakness while walking NP: Interested in the ENCOURAGE exercise class NP: Refer to CEP NP: Trouble sleeping related to shoulder pain NP: Has been exercising on an upright stationary bike with handles NP: Feels stronger and was having good sleep and less pain up to now
									Winnipeg in motion Resistance Band Handout Continue increasing duration of activity Provided new fall prevention manual Provided balance exercises Social opportunities but patient would rather exercise alone	Pleased with lifestyle changes from CEP and NP Sleeping better Experiencing significantly less pain Increased cardiovascular exercises from 10 minute duration to 30 minute duration on most days		
									Examined balance: mildly impaired Developed handouts for patient to improve balance	Pain levels have not affected her increased cardiovascular fitness Motivated Bikes 30 minutes Can exercise to sweaty intensity		
								Increased pain: fibromyalgia Occasionally has inability to sleep more than 1 hour consecutively Walking pace slowed Headaches and tension in SCM muscles	Added stretches to routine Link: self-efficacy and pain management			

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107	30	F	44.5	T	Overweight Unhealthy Has tried Weight Watchers Workplace offers exercise program Self-conscious Body image Needing motivation	Weight loss Improve overall health	5		Attend workplace exercise sessions Emphasized importance of diet and exercise Eatracker.ca Neighborhood recreation inventory	Increased activity over past two weeks Made appointment with dietitian Attends strengthening classes, Bootcamp, Zumba Increased social support Overcame barriers Met CPAG		NP: 25 lb. gain NP: Referral to CEP NP: Encouraged patient to start exercising again at work as full gym RD: No change in weight but has been on holidays RD: Weight management and feels confident she can focus on diet and exercise RD: Sees CEP and attends gym at work 4-5 days/week
									Discussion around changing lifestyle in general besides the one hour window at lunch Yoga List of Yoga providers and Yoga DVDs	Has been overcoming barriers Met friends at workplace exercise class Took initiative to attend new spin class Utilized Yoga DVDs Made plans to be active on vacation: borrow bike, swim in pool Exercise has gotten easier: "felt like I was going to die" at onset and now "wondering where time went"		
								Hesitant towards attending Yoga class because self-conscious	Explore new city by foot while on vacation	Continued success from attending workplace exercise classes No mental or physical barriers Made good use of social support		
									Discussed long-term goal Motivating boyfriend to increase activity levels, precontemplative, provided resources This will create another support	Although ill, has continued lifestyle changes Network of 4-5 co-workers that motivate each other Walks 3 km in the evenings Significant other has become more active as well, utilizing free weights and exercises through TV program		
									Does not need further assistance at this time			

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108	37	F	43.5	T	Sedentary Previously active Bipolar	Address risk factors for hypertension, diabetes, obesity Go about daily life without feeling fatigued	1		Discussed Canadian Physical Activity Guidelines Pedometer Strategies for addressing step count ENCOURAGE exercise class			NP: Many medical problems, fallen twice in past couple months NP: Public health worries about her conditioning NP: Open to referral to CEP
109	52	F	37.6	RE								
110	25	M	45.9	RE	Inactive Previously active: walking, YMCA, 10 minute jog Gained > 100 lbs. Pain in neck and lower back Decreased concentration Low energy Early morning wakening Depression Diabetes Has social support Participates in bowling once a week Consumed up to 2L of soda/day	Reduce and discontinue BP medication	3		Walking Pedometer prescription Gradually increase duration of activity Encourage client to find a physical activity buddy	Pedometer showed between 12,000 and 20,000 steps/day Small reductions in back pain		MD: Low energy MD: Referral to CEP, exercise regime MD: Dizziness MD: Doing lots of house work, bowling, which is more activity than normal MD: Back pain likely secondary to disc herniation that was exacerbated by increase in activity MD: Depression and negative thoughts MD: No physical activity recommendations MD: Encourage ongoing regular physical activity, getting out of house and paying attention to dietary intake
									Monitor progress with log sheet RPE 117-136 BPM (moderate) Reduce soft-drink intake	Engages in light, frequent activity in small bouts Has social support: friend and mother Has YMCA membership and has been attending once every two weeks Pedometer has been encouragement		
								Experiencing dizziness and lower back pain Implications of exercise with diabetes Barriers: depression, back and leg pain, dizziness Extrinsically motivated	Activity with diabetes: monitoring blood sugar, proper footwear, carbohydrates for every half hour session of activity YMCA light aquatic exercise twice a week Motivational worksheet CSEP behavior change and motivation worksheet			
111	41	F	37.3	RE	Recent muscle strain on hip flexors Previously active: swimming, recreational sports and YMCA Barrier: cost Back pain	Lose weight	2		Wellness Institute Sale Inventory for exercise equipment for home YMCA ENCOURAGE exercise class Strengthening exercises and stretches for back pain	Borrowed an elliptical from a family member and uses it daily Increased continuous activity to 15 minutes Doing stretches as prescribed Walking comfortably with no pain		

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									Discussed heart rate, ideal duration for future plans. No additional resources needed at this time			
112	75	F	32	RE	Leg pain due to degenerative changes in knee and bursitis Walking long distances aggravates problem Engages in smaller walks Previously active: stationary bike Engages in gardening, housework, works as a lunch monitor, Avon	Strengthening of legs	3		Strengthening exercises for minimal weight-bearing of knee: modified squat, bridge Electronic instructions Light intensity on bike Goal: Reach 10 minutes of continuous exercise	Slow improvement in aerobic endurance Feels less cramping when walking and biking Motivated Doing strengthening exercises as prescribed Can reach 4-5 minutes of continuous aerobic exercise		RN: Seeking exercises to increase leg strength RN: Referral to CEP RN: Mildly abdominal ABI, cramping with walking, lack of exercise MD: No physical activity recommendations
									Reviewed home activity plan Goal: reach 10 minutes of continuous aerobic exercise	Had reached a point when she could bike with no cramping at all and felt better		
								Lessened amount of activity over Xmas	Motivation Tour of Wellness Institute			
113	35	F	42.5	RE	Chronic fatigue syndrome Steep decrease in physical activity Previously active: aquasize, walking, playing with children Concern: exhaustion after activity Knee pain Barrier: cost		2		Moderate exertion: 50-60% of HR max Build total daily activity with a pedometer ENCOURAGE exercise class	Increased frequency of activity, kept intensity and duration low (i.e., pulling child on sled, outdoor activities)		NP: Chronic fatigue symptoms NP: Feels low energy in PM NP: Questions regarding exercise to help with myalgia and chronic fatigue symptoms NP: Refer to CEP SCC: No physical activity recommendation
								Off work due to chronic fatigue and poor concentration Stress Self-image difficulties Discouraged that she can only participate in limited capacity	ENCOURAGE exercise class			

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114	32	F	42.4	T	Successfully lost 15 lbs. but regained following miscarriage Antidepressants Previously active: Image Fitness for Women, Taekwondo, Jogging, Volleyball Self-conscious, body image issues Needing social support Asthma	Weight loss Better energy Resolution of infertility	2		Exercise plan for Image, 3-4x/week Strength training in circuit format for 20 minutes Cardiovascular exercise for 30 minutes Longer, moderate intensity exercise Zumba	Positive dietary changes		NP: Weight gain of 75 lbs. due to fertility drugs NP: Infertility, depression and knee surgery NP: Referral to CEP to discuss activity NP: Suggested Weight Watchers (has worked in the past) NP: Mother is doing WW so could be a source of support
								Not seen significant increase in activity over last two weeks Barrier: depression, medication change, SAD and little motivation Little energy, difficulty leaving the house Was ill	Motivation: living healthier day to day rather than setting goals at the gym			
115	55	M	31	RE	Sciatica Neck pain Hyperlipidemia Osteoarthritis and disc degeneration Sedentary Previously active, changed lifestyle due to family commitments Experiences relapse Client pushes himself too hard Barrier: motivation Poor eating habits	Lifestyle change (enjoyment, weight loss, energy)	4		Log sheet with cardio/exercise guidelines (4-5x/week) CPAG Serving size and portion control Handouts from dietitian	Sleeping better Increased mood Walking 60min/day, 4-5x/week (4 miles) Reduced portion size		MD: Discussion around diet and exercise MD: Interested in speaking to CEP and enrolling in ENCOURAGE MD: Going to the gym regularly MD: Walking dog regularly MD: Feels much better MD: Back still sore
								Hand injury	Peguis Trail Fitness Centre (strength training) High intensity interval training on machine without impact Eatracker.ca	Lost 10 lbs. since first visit Increased muscle mass Eager to share success story Has gained social support at Peguis Trail 45 minutes of cardiovascular every 2 days, 10-12 strength training exercise, multiple sets Healthy eating, smaller portion sizes Highly motivated, minimal barriers		
									Strength program: scapulohumeral rhythm and exercise form	Achieved lifestyle goal of enjoyment, weight loss and increased energy		
									Future plans of overcoming future plateau in exercise program			

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116	55	F	35.9	T	Previously active Enjoyed walking, now pain with 2-3 blocks Degeneration of knee Heel spur	Create a more active lifestyle to facilitate knee replacement surgery	1		Aquasize programs at Transcona Centennial Pool and YMCA ENCOURAGE exercise class Safe strength training routine focusing on lower body			NP: Right knee causing pain NP: Unable to walk without a limp NP: Previously active NP: Unable to be active, unable to weight-bear NP: Refer to CEP for exercise initiation NP: Suggest aquafit because it is not cause weight-bearing impact on knee NP: Develop an exercise plan/goals
117	28	F	44	RE	Previously active: walking 5 km over 45 minutes, Taekwondo, Yoga, Exercise DVDs Activity came to a halt with severe pain from occipital nerve Panic attacks Numbness in scalp Lingering shoulder injury High mental stress Low motivation Strain in pectoral area	Regain healthy weight Goal: to complete the 5 km "Run for your life"	3		Consistency rather than intensity Zumba Strengthening and stretching pectoral area Wall pushups with scapular retraction Treadmill, 15-20 minutes, as many times/week as possible	Begun walking more frequently Increased energy Purchased stability ball and dumbbells Has been using Wii		MD: Depressed mood most of the time MD: Gaining weight because lack of energy and motivation to cook MD: Depressive episode moderate, anxiety MD: Exercise referral to CEP MD: Took son to gymnastics, was showing him how to crab walk and sustained injury to shoulder MD: No physical activity recommendation
								Barrier for Zumba: time	Zumba (with children) Continue to increase activity levels at home	Staying active with Zumba and Xbox Kinect with daughter		
								Sustained shoulder injury Dislocates up to 4x/day Stress Goal: participate in Color Me Rad Chopped up walks due to other obligations	Suggested TRX training for an interesting, fast pace program Discussed total activity throughout the day rather than blocks of time Pedometer Exercise DVDs			

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118	66	F	44.2	RE	Sporadically active at Wellness Institute Previous MI Obesity Diabetes Grinding on hip when walking		3		Exercising on a recumbent bike or in a pool to alleviate hip discomfort Smaller, more frequent walks to maintain function Park further away and use other modalities to increase cardiovascular fitness Arthritis aquasize class twice a week Target: 150 minutes of physical activity/week Engage in three 20 minute bike rides Stay accountable with a calendar to track physical activity RPE	Has been able to achieve 2 hours of self-reported physical activity this week Has been using bicycle and walking Has social support: husband Very grateful for CEP sessions, and the non-judgmental environment		RD: Thoughts about physical activity, swimming RD: Support and ideas from a CEP would be helpful RD: Weight watchers online RD: Referral to CEP RD: Finds motivation with having support RD: Has a membership to Wellness Institute, rarely uses
								Not participating in aquasize at Wellness Barrier: time, family visiting and flu	No further resources needed at this time	Had been accumulating 150 minutes of physical activity per week on bike		
								Drastically cut down physical activity lately due to shin and hip discomfort Pain increases with walking, stairs Hip flexibility noticeably less on one side Joints under high stress from excess weight	Relevant stretches for hip Discussed seat height, and maintaining gentle knee bend while biking Stretch consistently while on vacation and resume aquasize and biking upon return Visual reminder of exercise			
119	52	M	48.9	RE	Previously active: biking 30 km/day, swimming. Currently walks and bikes 3 blocks to work	Weight loss to reduce arthritis pain in knees Fulfill a dream of skydiving, must be 250 lbs., current weight of 365 lbs.	5		Purchased membership to City of Winnipeg facilities 150 minutes of physical activity/day 2x 30-45 minutes of swimming, 3x 20 minutes of biking ENCOURAGE exercise class Replace picture of co-worker skydiving on fridge to increase motivation	Using bike 15-20 minutes and swimming 30-45 minutes three times a week Pedometer step count shows 9,000 steps/day in addition to this Motivated Lung capacity has increased No barriers		RD: Motivators for physical activity RD: Swimming in the past, finds barriers RD: Further aid with physical activity RD: Limited by arthritis in knees and back RD: Refer to CEP RD: Improve health

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								Experiencing knee pain, medial patella Sore after exercise	Change biomechanics to alter knee pain Kicking in pool with straight legs Use pedal clips for bike to incorporate hip flexors Raise seat to not lock out knees	Gradually increase activity Step count: average 6,000 steps/day Engages in biking, swimming and walking Attended ENCOURAGE exercise class Purchased resistance tubing Co-worker commented on weight loss, source of motivation Changes outlined in Session 2 have decreased discomfort during swimming and biking		and lose weight RD: Likely needs knee replacement RD: Cycles short distances, swam in the past RD: Contemplation for further activity, wants to be more active RD: Has completed RFIT RD: Reports weight loss of 25 lbs. RD: Achievements with physical activity RD: No physical activity recommendation RD: Busy lately with volunteering, resulted in less time for physical activity RD: Encourage using work day to increase physical activity: carrying boxes, walking over lunch break
									Provide manual for resistance tubing	Exercise at the gym with a friend Found social support Motivated Continued weight loss Engages in a variety of exercises		
								Bilateral knee pain, ITB	Foam roller to stretch knees	Maintained exercise routine and added outdoor biking to regiment Enjoyed ENCOURAGE exercise class Legion activities and volunteer fundraising outside Motivated Continues to receive positive comments regarding weight loss and healthier appearance		
									Leisure Guide Aquasize Went over new exercises with resistance band tubing			

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120	38	F	29	RE	Active throughout the summer: Running Room Group Barrier: time Needing social support	Wanting to be active throughout winter Wanting to establish current fitness level as motivator to improve	2		Information regarding indoor sports for winter Winnipeg Rec League Dakota Community Centre Manitoba Organization of Disc Sports Shapes Personalized home exercise program Methods to track and measure progress			
									Provided handouts for Ebbeling Single Stage Walk Test to establish current fitness level Provided handouts for CPAFLA Curl-ups, back extension and push up tests Provided customized workout plan to integrate home equipment Kettle bell instructional DVD			
121	45	F	46.9	RE								

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