



# My Health eSnapshot

HEALTH. FOR LIFE.

A strategy for improving  
preconception health  
through innovation  
and technology



FINAL REPORT

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# Research Topic

*Preconception health is defined as the health of all individuals during their reproductive years, regardless of gender identity, gender expression or sexual orientation. It is an approach that promotes healthy fertility and focuses on actions that individuals can take to reduce risks, promote healthy lifestyles and increase readiness for pregnancy, whether or not they plan to have children one day [1].*

## Why Preconception Health?

Globally there are challenges from an individual to a systematic level at recognizing preconception health (PCH) risk factors and their impact on reproductive, maternal and child health. About 50% of all pregnancies are unplanned [2]. Waiting until pregnancy may be too late to prevent exposure to risk factors, since the first few weeks are the most critical for a developing fetus. Therefore, it is important that a woman's body is ready for an unexpected pregnancy to support both maternal and fetal health. There are several PCH risk factors that may lead to poor birth outcomes, including genetics, poor nutrition, obesity/underweight, poor oral health, tobacco/alcohol/drug use, chronic diseases, infections, mental health, stress, and environmental toxins. If we shift our attention to PCH and help manage and/or reduce these risk factors, then we have a better chance of improving birth outcomes by reducing the rates of preterm birth, low birth weight, and congenital anomalies, all of which can lead to lifelong medical and developmental concerns or infant mortality [1].

## Background

Wellington-Dufferin-Guelph Public Health (WDGPH) is mandated by the Ministry of Health and Long-Term Care's Ontario Public Health Standards to address PCH [3]; however, there is no standardized

programming. To address this challenge, WDGPH conducted a literature review, environmental scan and community survey from 2013 to 2014 in search for a local evidence-based strategy. The concept of PCH care visits within primary care emerged as a promising strategy in the literature. A need for more research and use of innovative strategies was also highlighted. The community survey added further support for this strategy. The majority of respondents reported that their top source of PCH information was their physician/primary care provider (PCP). Furthermore, the majority of respondents indicated that if their physician/PCP initiated a PCH conversation, they were more likely to follow the advice given. To support this strategy, the Canadian Community Health Survey (2014) identifies that the majority of women in Ontario have a regular medical doctor (94%) and that they have had contact in the last 12 months (86%) [4]. With this information, WDGPH developed and studied an innovative technology-based strategy within the primary care setting.



**94%** of **WOMEN**  
IN ONTARIO

Have a regular  
medical doctor

Identified by the  
Canadian Community  
Health Survey [4]

# Description of Research

## Introduction & Research Goals

This strategy involved the development of an innovative patient-driven electronic PCH risk assessment (RA) tool using tablet technology called *My Health eSnapshot*. *My Health eSnapshot* is a comprehensive PCH RA tool designed to identify risks related to reproductive and sexual health, genetics, nutrition, weight, physical activity, oral health, chronic diseases, infections, immunizations, substance use, environmental toxins, mental health, stress, and more. It also includes a patient handout with evidence-based PCH messages based on risk factors identified by the RA tool. In partnership with Boston Medical Centre, *My Health eSnapshot* was adapted from *The Gabby Preconception Care System* for use in the Canadian physician/PCP setting. *The Gabby System* is a patient-driven RA tool that uses health information technology to deliver preconception care to women in their home through a virtual nurse *Gabby*. The system also creates a customized patient handout to share with their physician/PCP [5]. WDGPH used a health information technology platform called Ocean, created by a Toronto-based company CognisantMD, to program and implement *My Health eSnapshot*. This innovative tool also complements the *Preconception Health Care Tool*, a Canadian evidence-based resource created by the Centre for Effective Practice [6].

To understand the impact of *My Health eSnapshot*, WDGPH conducted a research study.

### **The primary research question asked:**

Can a patient-driven electronic PCH RA tool, for use during physician/PCP visits, increase PCH knowledge and behaviour change among women of reproductive age (15-49 years)?

### **Secondary research questions also looked to:**

Identify the prevalence of the PCH risk factors in the WDG area, assess the process designed to administer the intervention model, and evaluate the user-friendliness of the RA tool and patient handout.

## Research Methods

*MyHealth eSnapshot* was a cohort study that used a mixed method approach. It was studied across seven primary care sites in the WDGPH area from February to June 2016. Research sites were each asked to recruit 120 participants. Eligible participants were: female, between ages 15 and 49, not pregnant, with no hysterectomy, able to read and write English, comfortable using a tablet, active email address and residents of the WDG area. Participants were offered a \$10 grocery gift card incentive.

### **MyHealth eSnapshot was implemented using a three part model, which involved participants:**

- 1** completing the tool in their physician/PCP office with results automatically integrated into their electronic medical record (EMR);
- 2** discussing results with their physician/PCP during their scheduled appointment; and
- 3** receiving a customized patient handout, summarizing their results with key health messages, that is generated and printed from the EMR as a take-home resource

WDGPH collected data from participants through the RA tool and a series of evaluation tools. The RA data was collected through Ocean Studies, a research and survey module on the Ocean platform. One-week and two-month online follow-up surveys were emailed to participants using FluidSurveys. These surveys evaluated the RA tool and the patient handout, asked participants about their experience discussing their results with their physician/PCP, and evaluated participants' knowledge and behaviour change related to the identified PCH risk factors. Key informant interviews were also conducted with primary care staff to identify the benefits, challenges and sustainability of implementing *My Health eSnapshot*.

# Key Findings

## Introduction

The following is an overview of the *My Health eSnapshot* research findings. To ensure participant confidentiality, data analysis involved linking results from the RA and two online follow-up surveys using a private code that was created by the patient and used throughout the study.

## Risk Assessment

A total of 300 participants completed the PCH RA prior to their physician/PCP visit. The majority of participants were between the ages of 20 and 34 years (56%); the majority had either a college diploma or university degree (59%); there was an equal representation of urban and rural residents (43% and 41% respectively); the majority reported that they may want to become pregnant someday (63%), and of those, 50% reported that they would like to become pregnant between the ages of 25 and 30.

All participants were screened for 34 PCH risks. The number of risks identified ranged from 4 to 24 risks across all participants. On average, each participant had 15 risks. The most prevalent risks identified were: Canada's Food Guide not followed (99%), consumed unsafe foods (e.g. fish high in mercury, raw/undercooked foods) or caffeinated beverages (98%), experienced stress in the last 12 months (92%), consumed an alcoholic beverage in the last 12 months (89%), and immunizations not up-to-date (87%).

## One-Week Online Survey

Of the 300 participants who completed the RA, a total of 188 (63%) completed the one-week survey. The majority of participants reported having a positive experience using the RA, including that it was clear and easy to understand (99%), they enjoyed using a tablet (97%), they felt comfortable answering the questions (89%), they were motivated to make positive changes to their health (56%), and that they would recommend the experience to a friend (72%). Of the 188 participants, 86 (46%) had a discussion with their physician/PCP.

The majority reported that completing the RA before their appointment made it easier to have a conversation with their physician/PCP (65%). The majority were also motivated to make positive changes to their health after having a conversation about their results with their physician/PCP (59%). Of the 188 participants, 130 (69%) received and read the patient handout. The majority found it clear (98%), helpful (85%), and liked receiving the handout (82%). More than half also learned something new about their health (57%) and were motivated to make positive changes to their health (59%).

## Two-Month Online Survey

Of the 300 participants who completed the RA, a total of 144 (48%) completed the two-month survey. The majority of participants learned the importance of talking to their physician/PCP about life-long health needs (72%), and how their health now affects their own future health and the health of their future children (51%). Over half of participants were motivated by the study to learn more about their health or to make positive change to their health (63%). Some participants also reported learning about new health concerns that they did not know they had before (36%).



**72% WOMEN**  
of IN THE STUDY

Would recommend  
*My Health eSnapshot*  
to a friend

## Key Informant Interviews

Key informant interviews were conducted with seven primary care staff at four of the six research sites. Most key informants reported benefits to the clinic and to patients from participating in this study, including: being introduced to the Ocean technology, connecting the tablet to the EMR system, having the results well-displayed and easy to find in the EMR, having the ability to generate a customized patient handout, gaining new and easy opportunities to learn more about patients and their risk factors, having a new

opportunity to provide health teaching, and increasing the profile of PCH within the clinic. Key informants also provided valuable feedback about the challenges they experienced with study implementation, including: time, length of the RA tool and patient handout, participant recruitment, and some technological issues (e.g., internet connectivity and printing of the patient handout). The main suggestions for changes to the study model included: shortening the RA tool and patient handout, offering *My Health eSnapshot* at specific appointment types (e.g., physicals, sexual health, and family planning), scheduling adequate time during the PCP appointment and continuing to collaborate with primary care for future implementation. All of the key informants had very positive feedback about the Ocean platform and reported that they would consider using *My Health eSnapshot* in the future, if their suggested changes were made to the intervention model.

## Limitations

Limitations included: target sample size not reached, participant attrition, high non-response rates to some questions, recall bias on 2 month survey, some questions not specific enough to measure PCH risk, unknown number of participating physician/PCPs at each research site, inconsistent model implementation across research sites, and internet/technology issues.

## Conclusions & Recommendations

The *My Health eSnapshot* research study findings are promising. The data analysis demonstrates that the majority of participants reported having a positive experience using *My Health eSnapshot* (RA and patient handout). Primary care staff also reported many benefits to using the *My Health eSnapshot* model of care. While the primary research question relating to PCH knowledge and behavior change could not be answered due to data limitations, the study did contribute to answering secondary research questions. These included identifying the most prevalent PCH risk factors, and evaluating the process and user-friendliness of *My Health eSnapshot*.

At the conclusion of the study, WDGPH created an advisory committee to review the research findings and make recommendations to improve the RA, patient handout, and delivery model. Next steps will include validating the *My Health eSnapshot* RA tool, improving the delivery model, and leading further research, evaluation, and promotion.

*My Health eSnapshot* is the first of its kind in Ontario. This research is contributing to the growing momentum around PCH in Canada and internationally.





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For more information about the  
**My Health eSnapshot** research project,  
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Wellington-Dufferin-Guelph Public Health  
1-800-265-7293

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## Patients

| *“Very easy to complete”*

| *“It helped me to have the courage to speak to my doctor about my mental health”*

| *“Less intimidating and intrusive than talking face to face about personal subjects”*

| *“It’s informative and puts information in front of you that we sometimes tend to ignore”*

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## Primary Care Providers

| *“Patients got to know themselves better”*

| *“Having the handout was useful to reinforce some of the things we had discussed”*

| *“I liked that the tablet connected directly to the EMR”*