

My Health, My Way

Using text messaging to promote healthy eating, active living, and stress reduction with teens at Seattle School-Based Health Centers



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Executive Summary

Text messaging has become an integral part of society and offers a simplistic means of communication on virtually any mobile phone. It can also aid health care professionals and public health practitioners with another method of interacting with the populations they serve. This report will present “My Way,” a practice-oriented public health intervention that uses text messaging to promote health in teens. A University of Washington Community-Oriented Public Health Practice graduate student carried out this project in collaboration with Public Health – Seattle & King County and four Seattle School-Based Health Centers.

Teens are an ideal audience to use text messaging interventions with. Several studies confirm that teens prefer text messaging to other forms of communication, such as email, telephone calls, and talking in person.^{1,2} Teens also desire obtaining health information from trustworthy sources, like health care providers, in a reliable and quick manner.^{3,4} However many teens feel health care providers are inaccessible, which leads them to acquiring health information from more complex and less dependable sources like the Internet.

My Way builds on years of formative research Public Health – Seattle & King County has completed on teen's use of text messaging in the Seattle School-Based Health Centers. The current project aims to address the gap in teen's ability to obtain reliable health information from health care providers by creating a program where teens could receive text messages on topics they identified as important. These topics were nutrition, physical activity, and stress management. The purpose of the My Way pilots were to understand the feasibility of such an intervention by evaluating different enrollment strategies, text message delivery applications, frequency of text messages sent, and evaluation methods for teens.

We conducted two pilots of My Way. In the first pilot we presented passive and active recruitment approaches to School-Based Health Center staff and they could choose their approach. We sent three messages per week for eight weeks to enrolled teens using Microsoft Outlook 2010. Teens were evaluated using a text message and follow-up phone call approach. School-Based Health Center staff was also interviewed to gain feedback on the process. Their feedback guided the changes in the second pilot.

In the second pilot, we identified specific enrollment strategies for the clinic's to use. These were the health care provider recruiting teens, setting up a table during the lunch period to enroll teens, and have all staff involved with recruitment. Teens received two text messages per week for six weeks. Text messages were sent using Call 'Em All, a low-cost web-based program. We used an online survey that was sent in a text message to gain feedback from teens. Teens were offered a \$5.00 Starbucks gift card for completing the survey. They could also fill a paper version out in the School-Based Health Center.

Overall, we came to several conclusions regarding the four process areas we were evaluating.

- First, health care providers and special events, like having a table during the lunch period, lead to higher enrollment numbers.
- Second, Call 'Em All would work best for a large group and is a simple to use system. Microsoft Outlook 2010 would be best for a small group and is widely available.
- Third, teens prefer receiving one to two text messages per week on health information.
- Fourth, offering an incentive and sending an online survey by text message elicits a positive response from teens.

It is recommended that Public Health – Seattle & King County continue with this project. One School-Based Health Center identified they would like to offer this program in the upcoming school year. Future research should look at the affects of text messaging on health outcomes and behavior change.

Introduction

Problem Statement

Adolescence is one of the most transformative stages of the lifespan and spans the ages from 10 to 19. Adolescents, or teens, begin to think independently and explore risk-taking behavior.⁵ Lifestyle behaviors that can influence future health are gradually adopted. Though some may be positive, negative health behaviors, such as smoking, physical inactivity, and poor eating habits, may be considered.⁵ Researchers have linked these behaviors with social, economic, and cultural determinants, particularly economic status. Lower socioeconomic status youths are more likely to engage in negative health behaviors and these can perpetuate poor health outcomes later in life.⁵

The current generation of adolescents faces unique health challenges. Childhood obesity is at epidemic proportions and teens are at increased risk for becoming obese.⁶ Without intervention, teens between the ages of 10 and 13 are 80% more likely to be obese as adults.⁶ Poor health choices, such as physical inactivity and consumption of sugar-sweetened beverages and high caloric foods, have contributed to this. Obesity has detrimental effects on an adolescent, leading to high blood pressure, increased cholesterol levels, musculoskeletal pain, depression, anxiety, and bullying. It can later translate into chronic diseases such as heart disease, asthma, and diabetes.⁷ Therefore, teens require reliable and accurate sources for health information to avert poor health choices and outcomes.

Teens obtain general health information from a wide range of personal sources, including parents, peers, and health care professionals (i.e. doctors and nurses) and impersonal sources (i.e. books, mass media, the Internet).⁸ The Internet is identified as one of the most common places teens' access health information. However, many admit feeling overwhelmed by the number of web sites and express uncertainty over the accuracy of the information.^{3,4,8} Health care

professionals are considered a trustworthy source for quality health information by teens, second only to parents.^{3,4}

Teens also utilize almost exclusively use text messaging as a means of communication. Several national surveys report that teens prefer to communicate by text messaging compared to other forms of communication.^{2,9} The vast majority of 12 to 17 year olds own a cell phone, and of those, nearly 90% send and receive text messages.² Therefore, this medium can open the dialogue between health care providers and teens about health.

Using text messaging as a vehicle for delivering health information in the school-based health center setting could be one piece of the solution for addressing poor health choices in teens. Text messaging could aid in this given the significant role of the health care provider in providing health information, and the sheer abundance of text messages that teens receive and send on a daily basis. Text messaging technology is a relatively inexpensive and easy to use method that can be adopted in virtually any setting. Health care providers can leverage their trust with this population and reach them in a way other interventions cannot. Teens will likely be more receptive to adopting healthy lifestyle choices and build stronger relationships with health care providers.

It is vital that public health practitioners work alongside health care professionals and schools to promote healthy behavior choices in teens and reduce the incidence of childhood obesity. This collaboration can bring together essential resources to assist with promoting healthy behaviors and reduce disparities. These partnerships have recently shown success on improving childhood obesity. Public health officials in King County, Washington reported a decline in obesity rates for the first time in decades. They attributed this success to the work of public health interventions and collaboration with school districts.¹⁰

Purpose of the capstone project

This capstone project builds on the formative research the Communications Team at Public Health – Seattle & King County (PHSKC) has conducted on text messaging as a public health intervention. The Communications Team has been specifically focused on understanding how this intervention would fit in the Seattle School-Based Health Centers (SBHCs) since 2008. The intent of the current project is to expand on this research and evaluate strategies for implementing a text messaging program in SBHCs.

We focused on several strategies, including enrollment methods, text messaging applications, frequency of text message delivery, and evaluation approaches for teens. We also wanted to explore teen receptiveness and utilization of text messages, as well as their motivation for enrolling in such a program. The text messages were on the topics of eating right, getting fit, and stressing less, which we hoped would encourage teens to adopt healthy choices. We selected SBHCs as the site for enrollment because teens trust SBHCs for healthcare services and information.³

Our team consisted of members from Public Health – Seattle & King County, a University of Washington Community Oriented Public Health Practice (COPHP) graduate student, and School-Based Health Center staff. We wanted to explicitly explore how this public health practice intervention could work in the SBHC setting by actually implementing it under “real” circumstances. By doing so, we hoped to gain a deeper understanding of how a program of this type works in practice and then use the feedback we received to improve the program for future use. We intentionally did not explore the affect of text messages on behavioral health outcomes. The scope of this project instead centers on process evaluation and improvement.

Capstone Project Objectives

- Implement a text messaging program that promotes healthy eating, active living, and stress reduction for teens in four Seattle School Based Health Centers.
- Test and manage two low-cost and easy-to-access text messaging applications.
- Explore various enrollment strategies, including passive and active methods.
- Enroll at least 10 to 20 teens at each participating Seattle School Based Health Center.
- Test various evaluation strategies with teens.
- Evaluate the process for implementing a text messaging program with teens.
- Create an implementation guide for organizations who want to start a text messaging program with teens.

Report summary

This report will present “My Way”, a pilot text messaging program for teens. My Way is a practice-oriented public health intervention that was offered to teens at four Seattle SBHCs. Teens who enrolled in the program could elect to receive text messages on “eating right”, “staying fit”, or “stressing less.” The project manager, a University of Washington COPHP graduate student, collaborated with SBHC staff to conduct and evaluate the pilot. The final products include a ‘how-to guide’ for implementing a text messaging program for teens and an action oriented evaluation report.

Aims of Report

- Present literature on the growing popularity of mHealth, specifically text messaging; types of text messaging applications; the text messaging behavior of teens; the use of text messaging as a medium for health promotion with teens; 5210 health messaging; and the role of School-Based Health Centers in promoting health.

- Present the health status and behaviors of adolescents in Seattle, Washington.
- Review the research conducted by the Communications Team at Public Health – Seattle & King County on text-messaging as a public health intervention.
- Present the implementation methodology and findings for the current pilot project, My Way.
- Discuss recommended next steps for Public Health – Seattle & King County.

Literature Review

Introduction to mobile health (mHealth)

Eighty-two percent of Americans own a cell phone and roughly a third of these individuals use their mobile phone to access health information.¹¹ The highest utilizers of mobile phones are low socioeconomic status, low education level, ethnically diverse, and transient populations who rely on mobile phones for communication.⁹ Researchers have suggested using mobile phones as a platform for promoting health given the general acceptance of this tool.⁹ This discipline is referred to as mHealth.

Handel defines mHealth as “any electronic tool, technology, or application designed to interact directly with consumers, with or without the presence of a health care professional, and that provides or uses individualized (personal) information to help a patient better manage his or her health or healthcare.”¹¹ Using mobile phones as a vehicle for providing health information has a number of benefits. mHealth enhances communication with individuals about their personal health and can be used to send reminders about appointments or as a tool for health promotion.¹² mHealth interventions can reach a greater population due to the growing ownership of mobile phones.¹³

Over one-third of American cell phone owners report using their mobile phone to access health information and just over 10% of smartphone users have at least one health app.⁷ mHealth provides health care professionals and public health practitioners with communication options that are easy to use and can reach all demographics.⁷ Of the 92% of low-income families who have a mobile phone, 96% can receive text messages.¹⁴ Mobile phones enable individuals to be in constant communication with others and the devices tend to be small in size, low weight, and rechargeable.¹³ When mobile phones are linked with other devices, such as personal digital assistant (PDA) or medical devices, an

individual can receive real-time data and feedback.⁷ Text messaging is one of the more popular mHealth interventions.

Mobile phone ownership & text messaging behaviors of teens

Teens and young adults spend nearly eight hours per day using different media, such as mobile phones, computers, and television.¹⁵ The trend of technology usage by teens continues to grow, particularly with mobile phones. Cell phone ownership and usage amongst teens have increased significantly in the past decade. Cell phone ownership among teenagers (age 12-18) increases as they move through adolescence. Roughly 60% of 12 year olds owned a cell phone compared to 83% of 17 year olds in 2009, and these numbers continue to rise each year.² The types of phones teen own vary significantly.

Smartphones are devices likened to a “mobile personal computer.”¹⁶ They enable a user to make phone calls, send text messages, take videos or photographs, access the internet, and use applications, or ‘apps.’¹⁶ These types of phones have been growing in popularity compared to simple mobile phones that only have voice and short message service (SMS) capabilities. Nearly a quarter of 12 to 17 year olds own a smartphone.¹ Older teens (ages 16 to 17) are more likely to own a smartphone compared to younger teens.¹ However, over half of teens own a simple mobile phone which enables them to send and receive text messages.¹

There are various types of plans an individual can enroll in for their mobile phone. These include pay-as-you-go, prepaid, unlimited, family plans, and individual contract. Three-quarters of teens are on unlimited text messaging plan.² This allows teens to send and receive an infinite number of text messages. About 40% of teens respectively report they either have a set number of voice calling minutes per month or unlimited monthly minutes.² The majority of teens (70%) are on a family plan while roughly 20% are on a prepaid or pay-as-you-go plan.²

Young adults and adolescents send and receive the most text messages of all age groups.¹⁷ Of the three-quarters of teen who own a cell phone, nearly 90% send or receive text messages.² One-third of teens average sending and receiving nearly 3,000 text messages a month, or the equivalent of over one-hundred a day.² Over two-thirds of teens prefer texting to all other modes of communication (i.e. email, phone calls, instant messaging, talking in-person) and this trend continues to grow.² The prominence of texting in this population reflects the paradigm shift from the use of traditional forms of communication (i.e. landline phone calls, in-person conversations) to digital mediums (i.e. text messaging, email).

The switch from traditional communications to text messaging began in the late 1990s and the popularity skyrocketed over the following decade with teens at the forefront.¹⁸ Little research exists that examines why teens prefer text messaging to other age groups. A very small study of 10 teens in the United Kingdom explored participant's motivation for text messaging. Many used texting as a simple way to coordinate or arrange plans with friends and families while others primarily used it for chatting or gossip.¹⁸ The Pew Research center found similar results and cited the most common reasons for using text messaging as to say hello and chat, report location, micro-coordinate, talk about personal matters, exchange private information, and manage school work.² Teens further expressed they preferred texting because it is quicker, cheaper, convenient, and avoided long conversations.¹⁸

Text messaging as a medium for health promotion with teens

Researchers argue that text messaging can augment health information teens are exposed to in the classroom, home, and on the Internet.⁹ Health care providers can also use text messaging as a tool for helping teens achieve health in the clinical setting.⁹ However, careful considerations must be employed when implementing text messaging programs for teens. Considerations should take into account the specific audience, frequency of messages being sent, and tone of the text message.

A study of 12 to 18 year old teens explored the receptiveness of text messages on nutrition and physical activity.¹⁹ The researchers found several themes related to the style and content of the messages. Words like “always” or “never” were regarded as authoritative and met with resistance from teens. They instead preferred text messages that included practical, personal, and factual information from health experts.¹⁹ In another study, teens received weekly text messages about sexual health from a service called, “Hookup.” The feedback provided by teens on the text message content yielded similar results. Teens appreciated the messages due to the quality and usefulness of the information in the message, short and simple nature of the message, and ease of being able to share the information with friends.²⁰

A number of text messaging programs have been implemented to address sexual and reproductive health for teens. Others programs have focused on nutrition, physical activity, chronic disease prevention, and smoking cessation. “Text4Baby,” “Smoke-free TXT,” “SexInfo,” and “BrdsNBz” are examples of these programs. Very few evaluations have been conducted on the long-term outcomes of text messaging programs.

5210: a simple message to promote healthy behavior choices

With childhood obesity reaching epidemic levels in the United States, various efforts have been tried to address this problem. One model is 5210 messaging. 5210 is an evidenced-based practice messaging strategy developed by a groups of experts at the American Medical Association, Centers for Disease Control and Prevention, and Department of Health and Human Services.²¹ Few studies have exclusively explored the effectiveness of this messaging with teens. This messaging has become more commonplace throughout the United States and has been incorporated into 40% of social marketing campaigns for pediatric obesity prevention.²¹

5210 stands for four simple health messages: eat 5 servings of fruits and vegetables a day, limit recreational screen time to less than 2 hours, participate in 1 hour of physical activity every day, and consume 0 sugar-sweetened beverages each day.²² The goal of these messages is to provide a simple, easy-to-remember phrase to assist individuals in making healthy choices. In an evaluation of 5210, parents regarded the messages as realistic and achievable, particularly limiting sugar-sweetened beverages.²¹

The Maine Youth Overweight Collaborative integrated 5210 into their approach to address obesity across Maine. A three-year evaluation of these efforts found a significant improvement and sustainment in primary care providers approach to youth weight management.^{23,24} Other health promoters have expanded 5210 to include additional health messages. Seattle Children's Hospital, Seattle School-Based Health Centers, and Thurston County Public Health and Social Services Department, for example, expanded 5210 by including '7' for eating breakfast 7 days a week.²⁵

Understanding the technical components of text messaging

What is text messaging?

Short-message service (SMS), or text messaging, is a simple and efficient way to deliver personalized health information to any number of individuals. It is a cost-effective approach that requires minimal resources for the sender and can accommodate virtually any setting.⁹ Text messages must fall within a 160-character limit.¹⁹ This parameter demands the sender to exercise careful thought and creativity for effectively communicating messages.¹⁹ When using text messaging as a method for health promotion, one can utilize different approaches for communication.

Depending on the level of dialogue anticipated, text messaging programs can use push or pull messages. Push messages send messages at a pre-determined, regular frequency whereas pull messages allow the individual to request

information.¹⁵ This can also be referred to as one-way and two-way communication.²⁶ One-way communication, similar to push messages, means that messages are only being sent to the receiver. This does not require a great deal of time or effort for either party.

Two-way communication, much like pull messages, allows for a dialogue between the sender and receiver. The receiver, in this case, knows that they will receive a response from the sender if they reply. This can create more effort for the sender, as they need to respond to the message. This type of communication can be used in the context of health care providers communicating with their patients or health promoters answering questions from senders. Use of two-way text messaging has steadily increased in the past decade and many demographic groups prefer this method of communication.⁹

Types of text messaging applications

Short-Message Service (SMS)

SMS is the traditional delivery method for sending text messages between mobile devices. It is also referred to as Short Message Peer-to-Peer Protocol (SMPP) or "true SMS." This type of text message can be sent between two mobile phones or from one mobile phone to many. Typically these messages are transmitted by a mobile phone carrier and cost a fee. These types of messages are usually sent at a very quick rate and allows for two-way communication.²⁷ Mass SMS software's allow a sender to deliver large quantities of text messages at one time. These systems are computer-based and may be a better alternative when sending messages to multiple recipients.

Simple Mail Transfer Protocol (SMTP)

SMTP is the primary method for delivering emails, and is also referred to as "email to SMS," "web to phone," or "standard delivery."²⁷ Every mobile phone number has the capability to be an email address by using the full ten-digit number with the mobile phone carriers email extension. For example, 1234567890@vtext.com. Sending messages in this manner does not require any cost and transmission occurs through the Internet. A delay in sending, unsuccessful delivery, and

knowledge of the recipients mobile phone carrier are common barriers for SMTP.²⁷

Text messaging as a tool for health promotion

Health care professionals and public health practitioners have been exploring ways to integrate text messaging into the health care setting over the past few decades. Text messaging programs excel at “bridg[ing] gaps in health disparities and reach[ing] across demographics.”²⁹ The uptake of text messaging allows public health practitioners and health care providers with an innovative method for communicating with their intended audience. Many studies have examined how text messaging can be utilized as a health intervention. Text messaging has been used for chronic disease management, appointment reminders, and emergency response communication.

Evaluation of text messaging interventions in the literature has only emerged in the last decade. Overall, researchers have determined text messaging is a suitable and effective method for delivering health messages.²⁸ For example, a randomized-control trial examining the effect of text message reminders on healthcare appointment attendance found that this intervention produced greater attendance than phone-calls, mailed reminders, or no reminder. It was considered a low-cost method that can improve health outcomes for individuals.²⁹ A case-control study examined the effectiveness and acceptability of sending nutrition related text messages compared to mailed brochures to college students. The intervention group was found to make more positive nutrition choices and greater nutritional knowledge.³⁰

School-Based Health Centers role in text messaging programs

Schools are regarded as an important institution for promotion of healthy lifestyles.³¹ School-based health centers (SBHCs) are primary care clinics located within school buildings and serve students from kindergarten to high school. The goal of SBHCs is to reduce the barriers families face by allowing children to receive routine wellness exams, vaccinations, and acute care services at

school.³² These clinic often provide other services, such as mental health, oral health, family outreach, and chronic disease management. Services are provided by nurse practitioners, registered nurses, physician assistants, social workers, physicians, alcohol and drug counselors, and other health professionals.³²

Several studies have demonstrated that SBHCs can be beneficial for adolescent health. One study found that teens that were aware of and used the SBHCs had an increase in knowledge around the areas of substance abuse, reproductive health, and general health status.³³ SBHCs also play a key role in preventative care. SBHCs have been shown to positively contribute to adolescents completing the Human Papilloma Virus (HPV) vaccine series.³⁴ This immunization is notorious among adolescents for not being completed in the recommended timeframe.³⁴

Summary

Considering the high uptake of mobile phone usage among youth, text messaging can be a great way to engage teens in their health. Teens trust the advice provided by health care providers and SBHCs. Therefore, health care providers and SBHCs should leverage this trust to promote health by text messaging. It is important to use an evidence-based messaging model, like 5210, when creating text messages. Other topic areas could be explored as well depending on the interest of teens.

Local Background

Adolescent health in King County, Washington

Obesity affects 12.5 million children in the United States.³⁵ When a child's weight is "at least 10 percent higher than what is recommended for their height and body type," they are considered obese.⁶ Obesity can lead to chronic health problems such as diabetes, cardiovascular disease, and depression. These lifelong health disparities have an imminent effect on the future of this generation. Studies speculate this generation will suffer a decline in life expectancy due to this surge in obesity.³⁶ Black, Hispanic, and lower socioeconomic status children suffer disproportionate rates of obesity.³⁷ These parallels exist with youth residing in King County, Washington.

One in five middle and high school students in King County are considered overweight (Body Mass Index greater than 25) or obese (Body Mass Index greater than 30).³⁸ Many are youth of color or males, with the highest percentage of youth obesity present in South King County.³⁸ The map below demonstrates the vast difference in obesity rates throughout the county, and alludes to the need for interventions to address youth obesity in our region.



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Text messaging as a public health intervention with teens

Public Health – Seattle & King County's (PHSKC) Communications Team has been exploring the use of text messages in health contexts since 2008. Their work has explored technical, legal, and audience issues across multiple public health communications areas including alerts, reminders, and health promotion. One of the primary goals of the Communications Team has been to explore how various technologies, particularly text messaging, can be implemented into practice. PHSKC has recently adopted a text messaging policy for the organization that enables employees to use text messaging as part of their programs. They believe that text messaging is a powerful channel to reach a majority of populations regardless of income, and is particularly appropriate for reaching adolescents since it is often their preferred communication choice.

As part of the Communications Team work, a University of Washington CPHP graduate student (Tiffany Sin) conducted a feasibility assessment to look at the

interest of a text messaging program in the Seattle SBHCs in 2012. Her results concluded teens and providers had significant interest, particularly in messages related to nutrition, physical activity, stress, and other health behavior choices. The positive response from SBHC staff prompted PHSKC to continue their work and further explore how text messaging can be beneficial for this population.

The following year, another CPHP graduate student (the author of this report, Kate Forand) created and tested text messages on a specific health messaging framework with teens in the School Based Health Centers. The framework, 75210, simplifies health messages related to healthy eating and active living. It stands for eat breakfast 7 days a week, consume 5 servings of fruits and vegetables per day, limit screen time to less than 2 hours, engage in 1 hour of physical activity, and consume 0 sugar-sweetened beverages. Seventy-nine text messages were developed. The feedback from teens informed the creation of guidelines for crafting text messages tailored for teens. Teens preferred messages that were humorous, non-authoritative, realistic, timely, and motivating.

School-Based Health Centers in Seattle, Washington

There are ten public high schools and four middle schools in the city of Seattle with an onsite SBHC.³⁹ Although PHSKC oversees the funding allocation from the Seattle Families and Education Levy for these sites, Group Health, Odessa Brown, Neighbor Care, and Swedish Hospital partake as sponsors of individual SBHCs and oversee clinical operations.³⁹ Each site offers a multitude of health care services to students during school hours including medical check-ups, reproductive health care, immunizations, treatment of acute and chronic illnesses, mental health counseling, and more. These services aim to help students learn about healthy lifestyle choices and ways to adopt these into their personal life. One way has been by using 75210.

The Healthy Youth Survey explores the health behaviors youths engage in that can contribute to obesity. Many of the survey questions address the 75210 health messages. Seventy percent of 10th graders enrolled at Seattle Public Schools did

not meet the daily recommended 5 servings of fruits and vegetables and 83% did not partake in the recommended 60 minutes or more of daily physical activity.⁴⁰ Furthermore, 32% did not eat breakfast on the day of the survey and nearly 60% consumed one or more sugar-sweetened beverage over the last week at school.⁴⁰

The lack of healthy behavior choices among Seattle youth has prompted many SBHCs to adopt 75210. Various health education materials, such as handouts and posters, are available at the SBHCs. Health care providers also have checklists that are used during the clinical encounter. This checklist helps youth set goals and priorities so they can work towards adopting healthy behaviors. Posters with the tested text messages from 2013 project were also created and disseminated for posting to all Seattle SBHCs.

My Way: Project summary

The pilot project was marketed to the SBHCs and teens as “My Way” with the slogan “My health, my way: the information you want to eat right, get fit, and stress less!” The intention was to appeal to teens desire for autonomy and independence in making decisions. SBHCs were identified as the primary location for enrolling teens in this project due to the existing relationship between PHSKC and the SBHCs. My Way was first presented at the SBHC managers meeting in August of 2013. Several follow-up contacts were made with the managers to solicit participation as a pilot site. Any SBHC who identified a desire to be a pilot site was selected.

The project manager of My Way then consulted with the Adolescent Services Manager at GroupHealth and the School-Based Health Center Manager at Public Health – Seattle & King County to review any legal obstacles. None were identified. The Institutional Review Board at the University of Washington deemed the project exempt from human subjects review (see appendix A). An electronic letter was sent to the principal of each participating school to inform them of the project (see appendix B). After this process was complete, the project manager met with each SBHC staff to provide an overview of the project, roles and responsibilities, and intended outcomes.

At the conclusion of the first pilot, the SBHC could opt to participate in a second pilot. The intention of the second pilot was to use the feedback from clinic staff and teens to test different approaches for implementation.

Criteria for eligibility and exclusion of teens

Teens had to be enrolled as a student at the high school of the participating SBHC. Eligible participants had to be in grade 9 to 12, own a cell phone with SMS capability, and provide a cell phone number. It was not necessary for teens to

be specifically working towards achieving a health goal. Teens could opt-out at any time by replying "STOP" to the text message.

My Way: Pilot 1

Goal

To implement and evaluate a text messaging intervention to promote nutrition, physical activity, and stress reduction with teens utilizing the School-Based Health Centers.

Objectives

1. Send text messages to teens using a free SMTP delivery application.
2. Test active and passive enrollment strategies that are carried out by SBHC staff.
3. Understand the number of health-related text messages teens prefer to receive per week.
4. Obtain feedback from SBHC staff on text messaging program and implementation process.
5. Test a text message and follow-up phone call evaluation approach to obtain feedback from enrolled teens on their receptiveness and utilization of text messages as well as their motivation for enrolling in the program.

Methods

Objective 1: Send text messages to teens using a free SMTP delivery application.

Microsoft Outlook 2010, a SMTP text messaging application, was selected for the first pilot. This product is widely available in most workplaces and is a familiar, easy-to-use system. There is also no cost associated with sending or receiving text messages when using this system. An email address was created for the project (myway@kingcounty.gov), which appeared as the sender on the mobile phone. Microsoft Outlook 2010 also has the capability to delay the delivery of a message.

This service requires knowledge of the recipient's mobile phone carrier in order to send a text message. After receiving the enrollment forms, the project manager matched the phone number to the mobile phone carrier gateway domain. Teens were divided into groups based on the health topics they selected on the enrollment form.

Objective 2: Test active and passive enrollment strategies that are carried out by SBHC staff.

SBHC staff was educated on various strategies for enrolling teens in the program and given the option to choose the method that best fit their clinic practice. The methods suggested were active (i.e. SBHC staff asking teens to sign up in waiting room or during clinic appointment) and passive (i.e. posting posters, laying out enrollment forms in waiting room, having teens refer program to their peers).

A teen could also refer a friend by filling out an enrollment form on their behalf and informing them of this. Any teen, whether self or friend referred, had to opt-in before receiving any text messages from My Way. Opt-in was completed through an initial text message that was sent at the beginning of the pilot advising teens to respond, "STOP" if they did not want to receive My Way text messages. No incentives were available to offer to teens.

Each clinic was provided with enrollment forms that teens had to complete to be enrolled in the program. The enrollment form collected information about the individual's grade, gender, mobile phone carrier, text messaging plan, and desired health topics (see appendix C). Each enrollment form disclosed the parameters of the program (i.e. frequency and source of text messages) and how to opt-out of the program.

Objective 3: Understand the number of health-related text messages teens prefer to receive per week.

Enrolled teens received three text messages per week on the health topics of their choice for 8 weeks. A schedule was created for each group with the corresponding text message for each day. Messages were sent on Sundays at 8:00 pm, Tuesdays at 7:30 am, and Thursdays at 5:00 pm. A delay delivery was set up for each future message so that messages would send on a specific date and time.

Objective 4: Obtain feedback from SBHC staff on text messaging program and implementation process.

Evaluation information was collected from administrative specialists and health care providers by telephone and in-person interviews. Open-ended questions were asked about the process of recruitment, knowledge of the project, interactions with teens, and future implications of the project. The interview guide can be found in Appendix D. The questions were framed around the diffusion of innovations theory. This theory provides context for how a project, or innovation, is communicated to an intended audience.⁴¹

Objective 5: Test a text message and follow-up phone call evaluation approach to obtain feedback from enrolled teens on their receptiveness and utilization of text messages as well as their motivation for enrolling in the program.

A close-ended questionnaire was created to evaluate teen's response to My Way. The survey questions can be found in Appendix E. These questions were based on the Information Processing Theory, which considers how an intervention affects an individual's exposure, awareness, knowledge, beliefs and attitudes, persistence of attitudes, and actions. Evaluation of phase 1 participants was first initiated by text message, and then follow-up phone calls were made to those who did not respond. No incentives were available at the time of evaluation for these participants.

Results

Objective 1: Send text messages to teens using a free SMTP delivery application.

Microsoft Outlook 2010 has the basic features to send text messages in the format of an email. Although this approach is essentially no-cost if the software is already owned, there are some barriers that made it time intensive for the project manager. First, Microsoft Outlook 2010 does not have delay delivery features on the Mac version of the software. Second, the project manager had to be logged into the software for the delay delivery feature to work. This meant that messages scheduled to send at 7:30 am would only send if the application was running and the account was logged into at that specific time. Therefore, the project manager sent each message individually at the specific time of day they were required to send as she had limited access to a PC.

Another issue that came up with this software was how it displayed on the cell phone itself. During the testing phase, different cell phones and mobile phone carriers would display the message differently. On some mobile phones the message would appear like an email and include to, from, and the message. The message appeared like a text on other mobile phones, such as an iPhone on the Verizon network.

Objective 2: Test active and passive enrollment strategies that are carried out by SBHC staff.

Enrollment began the first week of December 2013 and lasted for three weeks. Three SBHCs were involved and each clinic employed a slightly similar approach to enrolling teens in the program. The administrative specialist, or front desk personnel, was primarily involved in recruiting teens for My Way. These individuals would ask teens that came into the clinic when they had the time or asked specific teens they felt would have an interest in the program.

Other clinical staff (i.e. nurse practitioners, mental health counselors, and school nurses) were also made aware of the program and encouraged to ask teens when appropriate. Many of these staff admitted to forgetting to ask, or did not talk with teens about the program if they heard the administrative specialist mention it to the teen. Posters were placed on bulletin boards inside and outside of the clinic, in exam rooms, and in the waiting room. Enrollment forms and the flyer for teens were available at the check-in desk. One site stapled the flyer and enrollment form together. One clinic relied primarily on the posters and flyers for recruitment.

Each SBHC estimated how many teens they cumulatively tried to recruit. Across all clinics, about 25 teens were asked to sign up for the program. Below, Table 1 shows the grade and gender of the enrolled teens at each clinic.

Table 1: Pilot 1, Grade and gender of enrolled teens by School-Based Health Center

School-Based Health Center	Total teens Enrolled	Grade				Gender	
		9	10	11	12	Male	Female
Franklin	11	0	6	3	2	2	9
Ingraham	0	0	0	0	0	0	0
Nathan Hale	3	1	1	1	0	2	1
Total	14	1	7	4	2	4	10

Of the teens who declined the offer, clinic staff stated they were simply not interested, did not own a cell phone, or felt three text messages per week was too much. However, clinic staff reported teens had a generally positive response to signing up for My Way. An administrative specialist recalled one teen stating, "I really want to get these tips." Table 2 displays the health topics enrolled teens chose by SBHC.

Table 2: Pilot 1, Health topics chosen by enrolled teens

School- Based Health Center	Total teens Enrolled	Health topics		
		Eat Right!	Get Fit!	Stress Less!
Franklin	11	6	8	5
Ingraham	0	0	0	0
Nathan Hale	3	1	0	2
Total	14	7	8	6

Two teens opted out of the program after one week. The remaining twelve teens continued to receive messages until the end of the eight-week pilot.

Objective 3: Understand the number of health-related text messages teens prefer to receive per week.

One SBHC staff member reported to the project manager that a few teens stated three texts per week were too many and therefore they did not sign up for the program because of this. No additional feedback was received on this.

Objective 4: Obtain feedback from SBHC staff on text messaging program and implementation process.

All three SBHCs admitted that recruitment fell at a bad time as each clinic had other projects they were trying to sign teens up for. Because of this, they did not prioritize My Way and therefore attributed the small enrollment numbers to lack of time. One administrative specialist suggested having a table during the lunch period might attract more attention. They further explained they often do this for other projects and offer some type of incentive or prize. Another administrative specialist suggested offering the program in the spring when teens are more likely to be thinking about nutrition and exercise. Lastly, it was suggested to use Facebook as a method for getting information about the program out to teens.

Most SBHCs have a Facebook page that they offered to advertise the program on.

Objective 5: Test a text message and follow-up phone call evaluation approach to obtain feedback from enrolled teens on their receptiveness and utilization of text messages as well as their motivation for enrolling in the program.

Only one teen responded to all evaluation questions. Three teens said they liked receiving health information from My Way while two said they used the information or advice provided in the text message.

Discussion

Our strategies for enrolling teens in My Way did not elicit the recruitment numbers we anticipated. We learned three important lessons based on the feedback from the SBHC staff. **First, when implementing a text messaging program it is vital that it is prioritized among all staff members.** Every clinic equated low enrollment numbers to the program competing with other priorities and limited time to talk with teens about My Way. When one clinic specifically spent a day recruiting teens, they received the most enrollment.

The second lesson we learned was that a passive approach (i.e. hanging posters and laying out brochures) does not encourage teens to enroll. The project manager spoke with a teen at one SBHC who stated she did not even notice the poster on the bulletin board. They suggested making the poster more colorful, larger, and in a place where it would not get lost amongst the other posters and advertisements. **Lastly, the administrative specialists were the individuals most involved in recruitment.** Although other clinical staff was aware of the project, they did not take an active role in enrollment. This is important to note as research previously discussed that teens trust and want health information from health care providers.

Although conclusions cannot be drawn from the limited number of respondents from the teen survey, the teens that did respond to the survey liked and used the information in the text messages. Given the low enrollment numbers, we inquired to SBHCs if they would consider another phase of My Way. With a positive response we decided to revise our enrollment strategies based on the feedback from the SBHC staff. We specifically wanted to see how enrollment numbers are affected when the health care provider is the one selling My Way.

We also decided to test a different text messaging application to see if we could find other methods that were less user-intensive, had delay delivery capability, and could be more versatile. Microsoft Outlook 2010 would be a great option for a text messaging program that has a small group or no budget. Many SBHC staff stated that teen's mobile phone numbers or wireless carriers often change and so this is something to consider as well.

My Way: Pilot 2

Goal

To revise and re-implement the text messaging intervention based on feedback received from SBHC staff during pilot 1.

Objectives

1. Send text messages to teens using a low-cost SMS delivery application.
2. Test specific enrollment strategies that are identified by the SBHC staff and project manager.
3. Obtain feedback from SBHC staff on text messaging program and implementation process.
4. Test an online survey evaluation and incentive approach to obtain feedback from enrolled teens on their receptiveness and utilization of text messages as well as their motivation for enrolling in the program.

Methods

Objective 1: Send text messages to teens using a low-cost SMS delivery application.

In the second pilot, a mass SMS delivery system called, "Call 'Em All" was trialed. Call 'Em All is a low-cost, web-based interface. Text messages are purchased as credits, and one credit equals two text messages. The service we chose cost \$0.09 for one credit. Other pricing plans are available depending on the number of credits or the size of the group you select. Text messages are created as broadcasts and can be sent to multiple contacts. Call 'Em All has their own short code, "292929", which appears as the sender of the text message. To opt-in, an enrollee had to text the keyword "myway" to the short code.

Teens were divided into groups based on the health topics that they chose, similar to the previous pilot. Enrolled teens received two, rather than three, text

messages per week on the health topics of their choice for 6 weeks. Messages were sent on Mondays at 8:00 am and Thursdays at 5:00 pm. These were scheduled in Call 'Em All to automatically send on the specific date and time. After the completion of the broadcast, Call 'Em All creates a report of the messages that delivered and did not deliver. It also collects any responses to the text message in an inbox. The service also manages any contacts that opt-out.

Objective 2: Test specific enrollment strategies that are identified by SBHC staff and project manager.

Staff at the SBHC worked with the project manager to select a specific enrollment strategy. Any staff member at the School-Based Health Center could recruit teens. Staff members included administrative specialists, health care providers, registered nurses, and mental health counselors. A friend could also refer teen by filling out an enrollment form on their behalf and informing them of this. Any teen, whether self or friend referred, had to opt-in using the short code and keyword before receiving any text messages from My Way.

Each clinic received a checklist for enrolling teens and a frequently asked question packet to help answer questions teens may ask about My Way. These materials were revised to reflect the changes made to the text messaging system and other program details. Several posters were created to market My Way and included the short code and keyword.

The enrollment form was the same as the first pilot, except it did not include questions regarding mobile phone carrier (see Appendix F). Each enrollment form disclosed the parameters of the program (i.e. frequency and source of text messages) and how to opt-out of program. The opt-in information was also at the bottom of the enrollment form.

Objective 3: Obtain feedback from SBHC staff on text messaging program and implementation process.

Evaluation information was collected from administrative specialists and health care providers by telephone or in-person interviews. The same open-ended questions from the first pilot were asked about the process of recruitment, knowledge of the project, interactions with teens, and future implications of the project. The interview guide can be found in Appendix D.

Objective 4: Test an online survey evaluation and incentive approach to obtain feedback from enrolled teens on their receptiveness and utilization of text messages as well as their motivation for enrolling in the program.

The same evaluation questions from the first pilot were asked. The approach to evaluate the teens was different, however. An online Survey Monkey was created for teens to fill out. The paper format can be found in Appendix E. Teens were sent the Survey Monkey link via text message and prompted to stop by the SBHC to pick up a \$5 Starbucks Gift Card once completed. Teens could also go to the SBHC to fill out the paper version of the survey.

Results

Objective 1: Send text messages to teens using a low-cost SMS delivery application.

There were few barriers encountered with the Call 'Em All system. After the project manager received the enrollment forms, teens that had already opted in were matched with their enrollment form and assigned a group based on their health topic choice. If a teen did not opt-in, but filled out an enrollment form, a text message was sent from a mobile phone that encouraged them to complete enrollment by texting the keyword to the short code. This elicited some positive responses, but not all teens responded. Call 'Em All does not allow the sending of text messages to a number unless the individual opts-in. Therefore, although 52 teens enrolled, only 30 had opted-in to receive text messages.

Objective 2: Test specific enrollment strategies that are identified by SBHC staff and project manager.

Three SBHC participated in the second pilot of My Way, two of which had participated in the first pilot. The project manager met with clinic staff at each SBHC to discuss specific enrollment approaches. One clinic had the nurse practitioner primarily recruit teens while another clinic had all clinical staff involved in enrollment. The third clinic allowed the project manager to recruit teens at a table outside of the SBHC during one lunch period. This clinic also hung posters around the clinic, displayed enrollment forms at the front desk, and had the administrative specialist enroll teens.

Recruitment lasted for two-weeks in March 2014. At the conclusion of the enrollment period, fifty-two teens had opted in or filled out an enrollment form. The table below shows the enrolled teens by grade and gender at each SBHC.

Table 3: Pilot 2, Grade and gender of enrolled teens by School-Based Health Center

School-Based Health Center	Total teens Enrolled	Grade				Gender	
		9	10	11	12	Male	Female
Ballard	31	5	4	6	15	6	24
Ingraham	15	1	4	2	8	7	8
Nathan Hale	0	0	0	0	0	0	0
Unknown	6	-	-	-	-	-	-
Total	52	6	8	8	23	13	32

There were six teens who opted-in, but did not fill out an enrollment form. Therefore, it is unknown what SBHC they learned about the program from. It can

be assumed that they either texted the keyword to the short code after seeing the poster or brochures. These individuals were still included in the program as they could opt-out at any time had they unintentionally opted-in.

Most teens signed up to receive messages on all health topics. The table below shows the health topics enrolled teens chose to receive text messages on. Teens in the unknown SBHC category received text messages on all topics.

Table 4: Pilot 2, Health topics chosen by enrolled teens

School-Based Health Center	Total teens Enrolled	Health topics		
		Eat Right!	Get Fit!	Stress Less!
Ballard	31	19	22	28
Ingraham	15	15	14	14
Nathan Hale	0	0	0	0
Unknown	6	-	-	-
Total	52	34	36	42

Over the six-weeks that teens received messages, eight teens opted-out of My Way.

Objective 3: Obtain feedback from SBHC staff on text messaging program and implementation process.

The SBHC with the most enrollees was the SBHC who primarily had the health care provider recruit teens. The health care provider stated, "I believe in it [text messaging] and think it's really helpful for teens." They asked teens that came into the SBHC and during patient encounters. They also targeted teens that they were working on weight issues with, as the health care provider identified these individuals as potentially benefitting more from the text messages. The health care provider gave teens a brief overview of the program and then asked if the

teens wanted to enroll. If a teen said they wanted to enroll, the health care provider would have them opt-in right then so the teen would not forget later.

The second SBHC with the most enrollees was the one who allowed the project manager to recruit teens during the lunch period. At this event, many teens referred friends to this program. They were advised to inform the friend to expect a text from My Way to opt-in. Only one other teen was enrolled at this SBHC outside of the lunchtime event. Of the teens that signed up, the most common response was "Okay, I could use that." Those who declined to sign up were simply uninterested or had mobile phone plans that they had to pay per text message.

Objective 4: Test an online survey evaluation and incentive approach to obtain feedback from enrolled teens on their receptiveness and utilization of text messages as well as their motivation for enrolling in the program.

There was a total of eight teens that participated in the online survey. All respondents remembered receiving the text messages from My Way, felt text messages were easy to understand, enjoyed receiving the text messages, and wanted to continue receiving text messages from My Way. The majority of respondents read the text message immediately while the remainder read the text message later that day.

Teens were also asked if they used the information in the text message and seventy-five percent responded "yes." An open-ended follow-up question asked how teens used the information provided in the text message. Table 5 summarizes how teens used the information provided in the text message.

Table 5: Teen responses to “How did you use the information provided in the texts?”

“I made use of the information by trying to do the things even though it wasn’t all the time. I became aware of what to eat and kept the tips in my head for further on.”
“By thinking about what I was eating and sticking to a healthier diet.”
“I get more sleep at night.”
“I use the information and went to bed earlier by getting my homework done as soon as I get home.”
“I followed what it told me to do!”

Teens were also asked their motivation for signing up for My Way. Most teens felt the text messages would encourage them to make healthy behavior choices. One teen stated, “I wanted to get inspired and motivated to eat right.” The table below summarizes their responses.

Table 6: Teen responses to “Why did you sign up for My Way?”

“I signed up for My Way because I wanted [the] kind of [advice] I would receive and wanted to challenge myself by doing what the text suggested.”
“Thought it would provide interesting tips.”
“So that I could make my life a healthier one.”
“Because my doctor recommended it.”
“Health benefits.”
“Because I appreciate living a healthy life and I figured it would have good advice for doing so.”
“I wanted to get inspired and motivated to eat right.”
“I wanted to help relieve stress.”

Discussion

The second pilot of My Way elicited greater enrollment numbers than the first. Teens responded very well to their health care provider recruiting them for My Way. The health care provider said that every teen they asked, with the exception of four, agreed to sign up for the program. ***It is important to note that the health care provider at this clinic had great interest in text messaging as a tool for teens and prioritized it.***

The timing of the enrollment did not come up as a barrier for SBHC staff as in the first pilot. Instead, ***clinic staff at the two other sites said teens seemed generally uninterested in text messaging.*** One staff member said, "If this came out a few years ago, I'm sure a lot of teens would sign up. Now, texting isn't as cool as it used to be and they're using other things like Apps and Instagram." Another clinic suggested using health classes as a venue for introducing My Way.

One SBHC in particular noted their teen population often experiences turnover in their mobile phone number and have a large group of teens that pay per text message. ***Clinic staff noted that a program like this could be "unfair" since they would have to incur the cost of receiving the text message.*** This is an important consideration to note when examining the population a text messaging program is being implementing with.

It is evident that teens were motivated by the convenience of filling out an online survey and receiving an incentive at the end. The feedback received from enrolled teens provides valuable insight on the qualities of My Way. Their responses reflect that they were already motivated to make some type of health behavior change. At a period of the lifespan where health behavior choices are being explored and adopted for adulthood, it is vital that positive health messages are introduced to teens. My Way provided an avenue for this and would likely be best for teens that are interested in making healthy choices.

Conclusion

Teen reliance on text messaging as their primary mode of communication can be a great avenue for health care professionals and public health practitioners to promote health with this population. However, there are important considerations to be made when implementing a text messaging program. These relate to teens perception of a text messaging program, enrollment strategies, and text message delivery application. ***When it comes to teens, messages should be motivating and inspire a teen to take action of their health. They should be sent at an appropriate time of day that correlates with the action.*** For example, a message about breakfast recipes should be sent in the morning before school.

Second, teens may also feel overwhelmed by receiving too many text messages about general health promotion. ***Therefore, programs should limit the amount of text messages sent per week to one or two.*** When considering enrollment strategies, it would be ***best for the health care provider to be the primary individual who recruits teens.*** Most times, these individuals already have an established rapport with the teens and are a trusted source of information. They can also follow-up with the teen for long-term interventions to see how the text messages affected behavior change. Future studies could look into how text messaging can improve biometrics, such as body mass index (BMI) and reported stress levels.

The text messaging delivery application should accommodate to the needs of the organization implementing the program. Microsoft Office 2010 would work best for an organization that wants to test out a text messaging program with a small group of teens. It could also be useful for an organization that would be sending text messages during business hours. Call 'Em All, on the other hand, can serve a greater volume of contacts in a simple, user-friendly way. The system is very low-cost and does not require any special software to run. The one year

cost to send one teen two text messages per week would be \$4.60. This delivery application can also send text messages at any time of the day.

There are some limitations to this evaluation, however. First, a very small number of teens responded to the evaluation questions that may not reflect the opinions of all teens that enrolled in My Way. Second, the health care provider enrollment strategy was only tested in one SBHC and it may not be translatable to other sites. Third, we only tested two text message delivery applications. There are many options available and while Call 'Em All appeared to work better than Microsoft Office, there may be other applications that could work for an organization.

The My Way pilots provide important insight on how a text messaging program can be used as a health promotion intervention for teens. The knowledge gained from exploring enrollment and evaluation strategies as well as text message delivery systems can help health care professionals and public health practitioners create a program suited for teens. Public Health – Seattle & King County should consider continuing the My Way program with the SBHCs, particularly the SBHC with the highest enrollment and teen interest.

Reflection

It has been an incredible opportunity to work with the Communication's Team at PHSKC for the past eighteen months on this project. The innovative work the Communication's Team has undertaken in the area of mHealth is truly exciting. It has, and will continue to, have a positive effect on the audiences they have reached. I am optimistic that this project in particular will eventually catch on with the Seattle SBHCs and be one of many tools for promoting healthy choices with teens.

Carrying out the next steps of my practicum experience, I feel, lead to the success of this project. I had a full understanding of the expectations and history of the project from my practicum experience that I used to my advantage. This was particularly the case in the respect that I already established a relationship with three of the four SBHCs I worked with on this capstone project. This trust allowed me to work closely with the SBHC staff and move things along quicker than if I had to start from scratch.

The timeline for the capstone project, unfortunately, meant low enrollment during the initial pilot. Due to this, we had to consider a second pilot that we originally did not intend on completing. Although this did give us the opportunity to test a new text messaging application, enrollment, and evaluation strategies, it did require revising the timeline and objectives substantially. Reflecting back, I do believe we gained significantly more feedback and were much more successful in the second pilot.

Overall, I anticipated having more SBHC be involved and thought enrolling teens would be much easier. When I tested the messages with teens during my practicum experience, they seemed very interested, as did the clinic staff. Working in the clinic setting, I understood the rationale many clinics expressed – that there simply was too much going on and not enough resources to devote to

this. However, I do feel I reached the goals and objectives agreed upon in the capstone contract. There are a few things I would have done differently that would have strengthened my project, though.

First, I would reframe how I sold the project to the SBHCs. I believe there was some miscommunication regarding what exactly this project meant for the SBHCs. It seemed the impression, for some, was that it was simply a research project. This was not the intent of the project. We wanted to market it as a tool for SBHCs that they owned; I just did the technical piece of sending the messages. I think it would have made a difference if the clinic staff was in charge of the technical piece, but it is questionable that this would have been feasible. Regardless, it would have been more successful if the SBHCs prioritized and took ownership of this project.

Second, I would have liked to have spent more time with the clinic staff to help them choose enrollment strategies. It would have been ideal to have the health care provider as the primary recruiter at all sites. I think this showed as a strength in the second pilot as I tried to compensate for this. Clearly having a health care provider who was motivated and believed in the project made a substantial difference with enrollment numbers.

A major weakness of this project was the lack of evaluation from teens. This text messaging program is for them, and the responses we did get showed us the remarkable effect on their health choices. I suspect the majority of responses came from one school where the health care provider enrolled the most teens. I think this gives a biased view as they appeared to be teens that were already motivated to make changes. However, I do think that is exactly who this project should be targeted towards.

The original grant this project stems from emphasized that the text messaging tool be combined with motivational interviewing during the patient encounter. In

retrospect, it would have been ideal to implement My Way in this context. Public Health – Seattle & King County as well as general public health practitioners should realize the positive effects this type of communication can have with this audience. The few responses we did receive echo what is found in the literature and the trust teens have in SBHCs and health care providers.

Fortunately, this project will continue to grow. One of the SBHCs have indicated that they would like to offer this program to their teens in the upcoming school year. I will be working directly with the health care provider and their clinic staff as well as PHSKC to ensure this work continues. There is the possibility of recruiting another CPHP capstone or practicum student to continue this work. Eventually, it would be helpful for PHSKC to study the health outcomes and behavior changes of teens that sign up for the program and receive text messages over a longer period of time.

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Appendix

Appendix A	Institutional Review Board (IRB) exemption correspondence
Appendix B	Letter to principals template
Appendix C	My Way Pilot 1 enrollment form
Appendix D	Interview guide for SBHC staff
Appendix E	Evaluation questions for enrolled teens
Appendix F	My Way Pilot 2 enrollment form
Appendix G	Capstone project proposal
Appendix H	Capstone project contract
Appendix I	Overview of the organization

Appendix A: Institutional Review Board (IRB) exemption correspondence

HEATHER M. RIECK <hrieck@uw.edu>
To: Kate Forand <kdforand@gmail.com>

Wed, Sep 18, 2013 at 10:04 AM

Hi Kate,

There are no next steps with us! Because the project is not 'research' (as federally defined), you do not need IRB review. If your project will change in a way that might influence whether it is considered 'research', shoot me and email or give me a call and then we will go from there.

Thanks and good luck!

Heather

Heather Rieck, MA
IRB J Review Coordinator
Human Subjects Division
University of Washington
Box 359470
Seattle, WA 98195-9470
Telephone: (206) 616-5576

Please note that we cannot ensure the confidentiality of e-mail communications

Appendix B: Letter to principal's template



TO: (NAME), Principal, (NAME) High School

FROM: Kate Forand, RN, Public Health – Seattle & King County

DATE: 10/15/2013

SUBJECT: Health related text messaging program for teens at the School-Based Health Center

I wanted you to be aware of a new program that your School Based Health Center (SBHC), in collaboration with Public Health – Seattle & King County, is supportive of and planning to launch this winter. Since 2010, Public Health has been exploring with School Based Health Centers (SBHCs) the use of text messaging as a way to promote healthy eating and active living with teens. Past work includes a feasibility assessment and message development and testing. Messages that have resulted include "Don't forget eating breakfast can actually increase your memory! Consider making time in your morning routine" and "Exercising isn't always about having a ball! Swimming, dancing, and hiking are great ways to get in shape!" We have an exciting opportunity this year to put our work into practice by conducting a small collaborative pilot with Public Health – Seattle & King County, Group Health, and the SBHCs. The project will entail implementing and evaluating a text messaging program for teens in the SBHCs.

SBHC clients who opt into the program will receive 3-7 health promotion text messages a week, depending on their interest. We will enroll 10-20 teens beginning in December 2013 at their clinic appointments at the SBHC. Teens will have the opportunity to select health topic areas and how many text messages they want to receive each week. Text messages will be sent for 8-weeks during non-school hours. Teens will not be required to miss any class time for participating in this program. In March 2013, teens will be invited to participate in an online evaluation of the program. Their feedback, as well as that gained from SBHC staff, will help influence the creation of an implementation guide for future use by SBHCs.

Through sending health related text messages, we believe we can aid in instilling positive health behaviors in teens and promote a future of optimal health and wellness. If you have any further questions about this project or would like to offer suggestions for improvements, please feel free to contact me or Hilary Karasz at the email or phone number listed below. We appreciate your support in helping the students at your high school engage in their health.

Contact information

Kate Forand, RN, BSN, MPH, *University of Washington/Public Health – Seattle & King County*
(e) Kathryne.Forand@kingcounty.gov, (p) (508) 965-4979

Hilary Karasz, PhD, *Public Health – Seattle & King County*
(e) Hilary.Karasz@kingcounty.gov, (p) (206) 263-8705

Appendix C: My Way Pilot 1 enrollment form



MyWay ENROLLMENT FORM

Gender ☐ Female ☐ Male Grade ☐ 9 ☐ 10 ☐ 11 ☐ 12

Can you receive text messages on your mobile phone? ☐ Yes ☐ No

Do you pay per text message received on your mobile phone? ☐ Yes ☐ No ☐ Don't know

Select your mobile phone carrier ☐ AT&T
☐ Boost
☐ Clearwire
☐ Sprint
☐ T-mobile
☐ US Cellular
☐ Verizon
☐ Other: _____

Select health topics you want to receive text messages on (Select all that apply) ☐ Nutrition
☐ Physical activity
☐ Stress management

By including my cell phone number below, I agree to receive 3 text messages per week about nutrition, physical activity, and/or stress management. Public Health – Seattle & King County will only send me text messages for this purpose. I can opt-out at any time by texting "Stop" to the number.

Public Health and the School-Based Health Center will not cover the cost my telephone company may charge me to receive text messages. Standard text messaging rates apply.

Occasionally, text messages could get lost or intercepted while in transmission to my cell phone. Therefore, Public Health cannot guarantee message security or that I will receive the messages.

Public Health strongly recommends that I password-protect my phone to prevent others from reading my text messages. It is important to inform Public Health if my cell phone number changes.

The advice provided in the text messages does not replace that of my health care provider. I will contact my health care provider if I have any medical concerns. Any messages sent by me to the sender will not be answered.

Cell phone number: _____

(SCHOOL NAME)

Appendix D: Interview guide for SBHC staff

Evaluation of Enrollment: (NAME) High School

1. What staff members were involved with enrollment?
2. Describe the strategies your clinic used to enroll students.
 - a. What recruitment strategies do you feel worked (or would work) best?
 - b. Did you find recruitment burdensome?
 - c. Did you ask only teens you knew would sign up for the program? Teens that would benefit? A mixture?
3. Where were materials placed in the clinic?
4. About how many students did you speak with about the program?
5. What were the responses from teens who signed up?
6. What were the responses from teens who did not sign up?
7. What questions did teens ask about the program?
8. What changes would you make to the enrollment process? Forms? Posters?
9. Did you feel you knew enough about the program to talk with students?
10. What changes did students suggest?
11. What changes would you suggest?
12. Would you be willing to try again?
13. If the clinic were to implement this program, would you have the resources (i.e. time, money, staff, technology) to do so?

Appendix E: Teen evaluation questionnaire

My Health. My Way.

The information you want to eat right, get fit, and stress less.

Thank you for participating in MyWay! We hope you enjoyed the text messages you received on eating right, getting fit, and stressing less. We'd like to hear what you thought about MyWay. Your feedback will help us improve the program so it can be offered at your Teen Health Center.

After finishing this survey, pick up your \$5 Starbucks gift card at the Teen Health Center.

1. Do you remember receiving any text messages from MyWay?

☐ YES ☐ NO

2. When did you typically read the text messages from MyWay?

☐ IMMEDIATELY ☐ LATER THAT DAY ☐ LATER THAT WEEK ☐ I DIDN'T READ IT

3. Were the messages easy to understand?

☐ YES ☐ NO

4. Did you like receiving health information by text message?

☐ YES ☐ NO

5. Would you like to continue receiving text messages like this?

☐ YES ☐ NO

6. Did you use the information or advice provided in the message?

☐ YES ☐ NO

If yes, how did you make use of this information?

7. Would you recommend MyWay to a friend?

☐ YES ☐ NO

8. Why did you sign up for MyWay?

Appendix F: Pilot 2 enrollment form

My Health. My Way.

The information you want to eat right, get fit, and stress less.

Thank you for participating in MyWay! We hope you enjoyed the text messages you received on eating right, getting fit, and stressing less. We'd like to hear what you thought about MyWay. Your feedback will help us improve the program so it can be offered at your Teen Health Center.

After finishing this survey, pick up your \$5 Starbucks gift card at the Teen Health Center.

1. Do you remember receiving any text messages from MyWay?

☐ YES ☐ NO

2. When did you typically read the text messages from MyWay?

☐ IMMEDIATELY ☐ LATER THAT DAY ☐ LATER THAT WEEK ☐ I DIDN'T READ IT

3. Were the messages easy to understand?

☐ YES ☐ NO

4. Did you like receiving health information by text message?

☐ YES ☐ NO

5. Would you like to continue receiving text messages like this?

☐ YES ☐ NO

6. Did you use the information or advice provided in the message?

☐ YES ☐ NO

If yes, how did you make use of this information?

7. Would you recommend MyWay to a friend?

☐ YES ☐ NO

8. Why did you sign up for MyWay? _____

Public Health
Seattle & King County



Appendix G: Capstone project proposal

My Way:

Promoting healthy eating, active living, and stress management with teens using text messaging

1. What?

a. What are the **objectives** of the project? What do you hope to accomplish?

As a continuation of the work completed during my practicum experience, this capstone project will assist the communications team at Public Health – Seattle & King County with conducting a pilot text-messaging program for teens at the Seattle School-Based Health Centers (SBHCs). In my practicum, I created and tested text messages with teens on sleep, stress, tobacco, alcohol, and the 7-5-2-1-0 concept (eat breakfast 7 days a week, consume 5 servings of fruits and vegetables each day, limit screen time to less than 2 hours, engage in 1 hour of physical activity each day, and consume 0 sugar-sweetened beverages). These messages will be used during an 8-week pilot program with 10 to 20 teens enrolled by 1 to 2 SBHCs. Each teen will complete a pre- and post-evaluation and receive one message per week during the 8-week pilot. Clinical staff involved in the project will also participate in the evaluation process. The evaluations will then be analyzed using quantitative and qualitative methods and compiled into a final report. Lastly, an implementation guide will be developed for future planning and implementing of a text-messaging program for teens.

Objectives:

- Implement a health oriented text-messaging program in 1 to 2 Seattle Public Schools – School Based Health Centers by October 2013.
- Coordinate a delivery system for sending text messages to participating teens.
- Enroll teens in a text-messaging program at each participating SBHC.
- Send at least one text message to enrolled teens every week for 8-weeks.
- Evaluate the project and produce a report of the findings.
- Create an implementation guide for future use by PHSKC and SBHCs to start a text-messaging program with teens.

b. What will be the **product(s)** of this project (e.g., an evaluation report, a strategic plan, a policy analysis, a curriculum, an implementation plan for new programs, educational materials, etc.)?

At the conclusion of the project, an evaluation report will be generated based on the analysis of the pre- and post- surveys as well as additional feedback gained during the project. This will provide an in-depth

examination of the successes and failures of implementation to guide future projects. The recommendations gained from the evaluation report will influence the creation of an implementation guide. This will help organizations, such as PHSKC, by providing a step-by-step process for starting a health-oriented text-messaging program with teens.

c. How will this **benefit** the community or target audience?

By engaging in this project, the participating SBHCs will have the opportunity to offer an innovative health promotion tool for teens that utilize their services. Given the rising rates of childhood obesity, this can be one of many approaches health care providers use to help their patients achieve their health goals and promote healthy behavior choices. They can also serve as a model for other SBHCs to use mobile health and text messaging. Regardless of participation, however, each SBHC will receive an implementation guide and have the opportunity to attend a presentation at the conclusion of the project.

According to research, the target audience (teens) prefers to communicate via text messaging. Therefore, this project will use a communication media very familiar to them. Those that choose to enroll in the program will have the opportunity to identify what health information they would like to receive in a text message. This will ensure teens obtain the most relevant health information to engage them with their health choices. They will also have the option to opt-in and -out of the program at any time or change the types of messages they receive. Also, all messages sent by the program will be ones guided by feedback from and/or tested with teens.

d. What are **your learning objectives** for this project? (e.g., skills, knowledge, perspectives, experiences that you hope to gain through this work) **List 5-10 Individual Learning Objectives for this experience.**

- Research and understand the various options for sending and receiving short message service (SMS) for health communication.
- Implement and manage a SMS system.
- Research and test ways to successfully recruit participation in a text-messaging program for teens.
- Understand the essential components of communicating health information to teens.
- Create a well-designed pre- and post- survey using quantitative and qualitative methods.
- Effectively manage and coordinate a project between organizations (i.e. SBHCs and PHSKC)
- Use both quantitative and qualitative methods to evaluate the project.
- Develop a detailed implementation guide.

e. How will you **present or communicate a summary of your project results** to the agency or community with whom you worked?

At the conclusion of the project, the communications team and those interested at PHSKC and the SBHCs will receive a summary through a presentation, the evaluation report, and implementation guide. The presentation for the SBHCs will likely be at the monthly managers meeting or during the summer retreat; the presentation for PHSKC will be scheduled in May 2014.

2. Where?

a. Where will you conduct your project?

1. Provide a thumbnail sketch (about a paragraph) of the **community** or locale.

The Seattle Public Schools SBHCs will serve as the foundation for recruitment of participants and the gatekeeper of information regarding this project. Ten public high schools and four middle schools throughout the city of Seattle have a SBHC [1]. Although PHSKC oversees the funding allocation from the Seattle Families and Education Levy for these sites, Group Health, Odessa Brown, Neighbor Care, and Swedish Hospital partake as sponsors of individual SBHCs [1]. Each site offers a multitude of health care services to students at the schools including medical check-ups, reproductive healthcare, immunizations, treatment of acute and chronic illnesses, mental health counseling, and more. They especially focus on providing "education on how to live a healthy life" and preventative education on tobacco, alcohol, drug use, injuries, and violence [2].

2. Provide a thumbnail sketch (about a paragraph) of the **agency** with which you will be working. Include address, phone, and contact information.

PHSKC serves as a progressive front for addressing health in Seattle and King County as evidenced by their goal of "protect[ing] and improv[ing] the health and well-being of all people in King County, as defined by per person healthy years lived. Whenever possible, employ strategies, policies and interventions to reduce health disparities" [3]. They look to protect health from a myriad of approaches ranging from tracking disease, preventing chronic conditions, and ensuring access to health care [3]. The communications team at PHSKC serves as the voice of the organization and coordinates with various entities to get information out to the public regarding health.

Public Health – Seattle & King County, Communications Team
Hilary Karasz, site supervisor

3. Why?

a. What is the **problem** you are addressing?

Childhood obesity rates and chronic disease in the United States have risen dramatically in the past few decades. Lifelong health disparities have an imminent impact on the future of this generation, who some studies suggest, may not live longer than their parents. The importance of preventing chronic disease and obesity in this young population not only influences our current state of health, but the future state of health for generations to come. Although Seattle Public Schools do not see as high of rates of obesity compared to other school districts across the nation, this should not undermine its significance.

According to the Healthy Youth Survey in 2010, about 20% of 10th graders were obese or overweight. Of more significant note, however, is the lack of healthy behavior choices teens engage in. Just over 70% of 10th graders did not meet the daily recommended 5 servings of fruits and vegetables and 83% did not partake in the recommended 60 minutes or more of daily physical activity. Furthermore, 32% did not eat breakfast on the day of the survey and nearly 60% consumed one or more sugar-sweetened beverage over the last week at school. These merely skim the surface of statistics indicating the need to promote healthy behavior choices in teens at the Seattle Public Schools.

b. How does this project **fit with the needs and mission** of the community or agency where you will be working?

PHSKC seeks to prevent chronic disease and promote health at every age. Teens are at a crucial age where health habits may still be forming and encouraging healthy ones are key. As text messaging becomes a key component of how PHSKC explores different communication approaches with the public, this project aligns with their progressive edge.

c. **Why** have you chosen **this specific project/solution/approach**—as opposed to other options—to address this problem?

Knowing your audience and their preferences for receiving information can have a serious impact on your success or failure with implementing a project. Research has shown that teens prefer to use text messaging compared to other forms of communication. Given that the vast majority of teens, even those of low socioeconomic status, own a cell phone, a text-messaging program can reach a large audience. Using this approach to promote healthy behavior choices offers a simple and convenient way for teens to get the information they want regarding

health. Also, it involves minimal resources compared to other technologies.

d. Briefly, what **evidence from the literature** can you cite to justify this choice or approach? This should be fleshed out in the full project report.

Over the past decade, cell phone ownership and usage amongst teens has risen dramatically. Hyden & Alwyn (2012) identified that 58% of 12 year olds own a cell phone, up from 18% in 2004. Lenhart, Ling, Campbell, & Purcell (2010) further clarify that in 2010, 75% of 12 to 17 year olds own a cell phone, an increase from 45% in 2004. Of these teen cell phone owners, 88% send or receive text messages and one-third average nearly 3000 text messages a month, or the equivalent of over one-hundred a day (Lenhart, Ling, Campbell, & Purcell, 2010). The vast usage of texting in this population reflects the paradigm shift from the preference for traditional forms of communication (i.e. landline phone calls, in-person conversations) to digital mediums (i.e. text messaging, email).

4. Who?

a. Name and contact information for **UW faculty advisor**
Hendrika Meishcke, H-678 Health Sciences Building,
hendrika@u.washington.edu
(206) 296-4693

b. Name and contact information for **site or agency mentor**
Hilary Karasz, 401 5th Avenue, Seattle, Washington,
Hilary.Karasz@kingcounty.gov
(206) 263-8705

5. How?

a. What **methods** (generally) will you use (analysis of available data, literature review, surveys, focus groups, etc. Does not need to be detailed. Your work plan will describe your "methods" in more depth.)

There are essentially three phases of this project: (1) research, (2) implementation, and (3) evaluation. The first phase, research, will entail finding the best method for sending and managing text messaging to the teens that participate. Since formative research has already been completed regarding the frequency of sending messages and the types of messages teens want, this will not be necessary to complete. After choosing a message delivery system, I will set-up the system and conduct a trial run as necessary during the implementation stage. As we move through the implementation stage, the next step will involve recruiting participation from the SBHCs and enrolling teens. Recruitment will take place at the front desk of the SBHCs. The clinic coordinator will be actively involved in this process. Providers can also refer patients to the program as they deem fit. A pre-survey will be administered at the start of the 8-week

pilot. At the conclusion of the pilot, a post-survey will be administered. Lastly, all feedback from the surveys will be used in the evaluation phase of the project and qualitative analysis will be performed. The results will be compiled into an evaluation report and implementation guide.

b. What **resources** (data, access to human subjects, etc.) will you need to conduct this work?

This project will require a technology system that can manage and send the text messages. At this time, Hilary Karasz and I have not selected which method we will employ; however, it will either be using GovDelivery, SMTP, Gmail or Outlook SMS, or using a county cell phone. We will additionally require participation from the SBHCs and teens.

c. Is it likely that you will need to get Human Subjects or other **approvals or cooperation** for this work?

Since we will be collaborating with the staff of the SBHCs on this as a program improvement project, we do not anticipate requiring IRB approval. We are currently sorting this out, though, and hope to know what we will need to do by September 15th.

6. When?

a. Provide a **timeline** for this work, including the following tasks:

1. **Literature review:** Complete by 10/01/2013
2. **Development of work plan:** Complete by 10/01/2013
3. **Conduct of project (may/should involve steps, tasks)**
 - a) Finalize delivery method of text messages: 10/01/2013
 - b) Meet with SBHC managers to solicit participation: 9/11/2013 @ 8:30am via webinar
 - c) Confirm SBHC participants: 10/31/2013
 - d) Set-up text messaging service: 10/01/2013 to 10/31/2013
 - e) Conduct trial run of project: 11/04/2013 to 11/08/2013
 - f) Begin enrolling teens in program (pre-evaluation with each enrollee): 01/06/2014
 - g) Conclude sending text messages: 03/03/2014
 - h) Conduct post-evaluation with teens and SBHCs: 03/03/2014 to 03/14/2014
 - i) Begin qualitative analysis of project: 03/17/2014
 - j) Conclude qualitative analysis of project: 04/01/2014
4. **Write-up of project**
 - a) First draft: 04/30/2014
 - b) Second draft: 05/16/2014
 - c) Final draft: 06/02/2014

5. Presentation to community and agency

- a) SBHCs manager meeting: June 2014
- b) PHSKC: June 2014

Appendix H: Capstone project contract

COPHP Capstone Project Contract

Name: Kate Forand

Student # 1262441

Phone/e-mail: (508) 965-4979 / kdforand@gmail.com

Name of Agency/project: Public Health – Seattle & King County, Communications team

Address: 401 5th Avenue, Suite 3100, Seattle, Washington, 98104

Phone/e-mail: (206) 263-8705 / Hilary.Karasz@kingcounty.gov

Your Primary Service Deliverables

1. Implement a health oriented text-messaging program in at least 2 Seattle Public Schools – School Based Health Centers by December 2013.
2. Manage a short-message service (SMS) delivery system.
3. Enroll at least 10 to 20 teens in the text messaging program at each participating SBHC by December 2013.
4. Send 3 text messages to enrolled teens every week for 8-weeks.
5. Evaluate the project and produce a report of the findings.
6. Create an implementation guide for future use by PHSKC and SBHCs to start a text-messaging program with teens.

Your Individual Learning Objectives

1. Research and understand the various options for sending and receiving short-message service (SMS) for health communication.
2. Pre-test and manage a short-message service (SMS) system.
3. Research and test ways to successfully recruit participation in a text-messaging program for teens.
4. Understand the essential components of communicating health information to teens.
5. Effectively manage and coordinate a project between organizations (i.e. SBHCs and PHSKC).
6. Research and conduct a process evaluation of the project.
7. Develop a detailed implementation guide.

Your Primary Responsibilities and Duties

1. Research systems available for sending text messages and test system for use in program.
2. Work closely with the participating SBHCs and teens to provide support and guidance as needed.
3. Create an implementation guide for future use by PHSKC and other organizations for a text messaging program with teens.
4. Conduct a thorough evaluation report with specific recommendations and include in the implementation guide.
5. Meet regularly with site supervisor, Hilary Karasz.

As a service learner, you are given the opportunity for a unique and valuable experience. To undertake in this assignment as a representative of the University of Washington, School of Public Health; your faculty advisor; and yourself, you must:

1. Fulfill your agreement as to your duties, hours, and responsibilities to the best of your ability. Be professional—punctual, polite, and respectful of all agency policies, rules and regulations.
2. Respect the confidentiality of clients of the agency.
3. Give notification in advance if you must miss or be late for an agency appointment. If advance notification is impossible, call as soon as possible thereafter.

I have read and agree to the agreement and the guidelines as outlined above.

Student signature

Date

I have read the agreement and agree to supervise or provide supervision for the student above.

On-site Mentor

Date

I have read the agreement and agree to provide consultation to the on-site mentor and academic supervision to the student.

Faculty Advisor

Date

Appendix I: Organizational Profile

1. **History and development (When was the organization formed? Why? How has it developed over time?)**

Public Health – Seattle and King County was officially formed in 1951. This came after the recognition from the City of Seattle and King County officials that there needed to be a specific department to oversee the health and welfare of residents.⁴² Collaboration between the City of Seattle and King County did not originally exist. Instead, the City of Seattle focused primarily on prevention while King County looked more at treatment and curative medicine.⁴² In 1947, though, the two entities banded together their resources and programs. Together they centered on six core public health services: sanitation, vital statistics, maternal and child health services, communicable disease control, laboratory service, and health education.⁴²

Today, Public Health – Seattle and King County has expanded many of the services it provides to the region. The department focuses on three dimensions of public health: health protection, promotion, and provision.⁴³ Various divisions within the department carry out these services. These include: birth and death records, child and youth health, chronic diseases, communicable diseases and immunizations, environmental health, emergency preparedness and medical services, violence and injury prevention, primary care and personal health, and tobacco prevention.⁴³

2. **Organization's mission, goals, services, and values.**

The mission of Public Health – Seattle & King County is to "identify and promote the conditions under which all people can live within healthy communities and can achieve optimum health."⁴⁴

The goal of Public Health – Seattle & King County is to "protect and improve the health and well-being of all people in King County, as defined by per person healthy years lived. Whenever possible, employ strategies, policies, and interventions to reduce health disparities." ⁴⁴

The three primary services, or functions, of Public Health – Seattle & King County are health protection by tracking and preventing disease and other threats, regulating dangerous environmental and workplace exposures, and ensuring the safety of water, air, and food; health promotion by leading efforts to promote health and prevent chronic conditions and injuries; and health provision by helping assure access to high quality health care for all populations.⁴⁴

3. **Whom does it serve? (client demographics, eligibility criteria, etc.)**

Public Health – Seattle & King County serves all residents of King County, Washington. There are over 1.9 million residents of King County and the population continues to grow.⁴³ Although three-quarters of residents are Caucasian, there are over 100 languages spoken here.⁴⁵ Twelve percent of the population is Asian or Pacific Islander while Hispanics and African-American/Blacks make up five percent of the population respectively. The majority of residents are between the ages of 20 and 54.⁴⁵

4. **Geographic service area.**

As previously mentioned, Public Health – Seattle and King County serves all residents of King County. The map below shows the County lines.



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5. Type of organization (non-profit, for-profit, membership, etc.) and funding (major sources, operating budget)

Public Health – Seattle & King County is a local public health department that serves both the City of Seattle and King County. It is under the City of Seattle and King County governments. They receive funding through the General Fund, which is allocated by County Executive Dow Constantine. Public Health – Seattle & King County also receives a number of grants that supports staff, infrastructure, and projects.⁴⁷

6. Federal, state, or local regulations followed.

Public Health – Seattle & King County must abide by federal, state, and local regulations for many of the activities they partake in. The King County Board of Health is also responsible for creating many of the local regulations and codes that organizations, businesses, and individuals must abide by in King County.^{48,49}

7. Governance (board composition, partners, affiliations with external agencies, etc.).

There are 11 members of the King County Board of Health. Eight are elected officials and three are health professionals. The term of service is one to three years.⁵⁰ The purpose of the Board of Health is to “set county-wide policies and regulations to protect and promote the health of King County residents.”⁵⁰ Public Health – Seattle & King County partner with countless community organizations in a number of facets to protect and promote the health of King County residents. These include local hospitals, community health centers, non-profits, and public education.

8. Staff composition (number, disciplines represented, training, organizational structure).

Public Health – Seattle and King County employees 1,500.⁴³ They also oversee the Public Health Reserve Corps, who represent both licensed medical and non-licensed support volunteers.⁵¹ Employees represent a wide-variety of disciplines including health care professionals (i.e. physicians, registered nurses, medical assistants, emergency medical technicians), communication specialists, human resources personnel, epidemiologists, statisticians, and food inspectors. All King

County staff undergoes a variety of trainings and orientations related to their positions.

Dr. David Fleming is the Health Officer and Director of Public Health – Seattle & King County. There are 6 departments that Dr. Fleming directs: administrative services, prevention services, environmental health services, community health, King County emergency medical, and correctional health and rehabilitation services. Public Health – Seattle & King County is merely one of the facets of King County government.^{52,53}

9. Relationship to community and other agencies (partners, collaborators, affiliations).

Public Health – Seattle & King County has strong relationships and ties with the Seattle and King County community. They also collaborate directly with the Washington State Department of Health. Many of their initiatives, such as Global 2 Local and the Community Transformation Grants, rely on partnering with community organizations and stakeholders.⁵⁴

10. Current challenges, visions, and organization's priority needs (list three).

Public Health – Seattle & King County is presently facing substantial economic hardships with a budget gap of about \$30 million in the 2015/2016 biennium. The majority of this is in the Community Health Services division, which operates the public health clinics. There are difficult decisions that will need to be made in the near future regarding staffing and operations. At the same time, Public Health – Seattle & King County is faced with addressing growing health disparities and problems with fewer available resources, higher cost for services, and greater need for public health services. Despite these challenges, public health continues to focus on three priority public health functions: promotion, protection, and provision.⁵⁵