

HPV Social Marketing Campaigns: Novel Applications for Social Media Use

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Ethics Statement



The author, whose name appears on the title page of this work, has obtained, for the research described in this work, either:

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Abstract

Social media is contributing to the decline of traditional media such as newspapers, television, and radio. Public health organizations often conduct awareness campaigns through the media to reach the public with health messages. While many campaigns use social media, few have been formally evaluated and many established best practices are out of date due to the rapidly evolving nature of social media. Despite presenting public health organizations with an opportunity to reach and engage a large population, social media also poses a significant risk of loss of message control. Using a recent, innovative social marketing campaign, this capstone will employ a mixed methods approach to weigh the potential risks and benefits, evaluate three policy options, and recommend promising practices for using social media in HPV-related social marketing campaigns.

Keywords: social media; social marketing theory; Human Papillomavirus; media richness theory; mixed methods; vaccine hesitancy

To Eleanor and William Graham

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List of Acronyms

BC	British Columbia
BC CDC	British Columbia Centre for Disease Control
CAEFISS	Canadian Adverse Events Following Immunization Surveillance System
CCS	Canadian Cancer Society, British Columbia-Yukon Division
CDC	Centers for Disease Control and Prevention (United States)
CIC	Canadian Immunization Committee
HPV	Human Papillomavirus
IMPACT	Canadian Immunization Monitoring Program, ACTive
NACI	National Advisory Committee on Immunizations
OCC	Oral cavity cancer
OPC	Oropharyngeal cancer
PHAC	Public Health Agency of Canada
WHO	World Health Organization

Glossary

Facebook Live	An internal service on Facebook that allows users to livestream onto their newsfeed or page.
Human Papillomavirus	A group of more than 100 viruses, over 40 of which can be transmitted through sexual contact. HPV can lead to infection. While most HPV infections are asymptomatic and resolve themselves, a small number can develop to cancer in men and women.
Livestream	A live transmission of an event over the Internet.
Mobile Application	A software program designed for download and use on mobile devices such as smartphones or tablets with a specific purpose. Commonly known as an 'app.'
Mobile Technology	Hand-held electronic devices that users can use in multiple locations, wirelessly. Includes laptops, smartphone, tablets, and other technologies.
Oral Cavity Cancer	A disease in which malignant cells form in any part of the oral cavity, including the tongue, floor of the mouth, cheek lining, gums, lips, or palate. Most are caused by tobacco or excessive alcohol use. A smaller proportion are caused by HPV infection.
Oropharyngeal Cancer	A disease in which malignant cells form in the middle part of the throat, including the base of the tongue, tonsils, soft palate, and walls of the pharynx. It may be caused by HPV infection or alcohol and tobacco use.
Social Marketing	The application of commercial marketing techniques to encourage a voluntary behaviour change in target audience that results in social benefit.
Vaccine Hesitancy	Doubts or concerns about a vaccine or vaccines that may lead to a delay in vaccination.

Executive Summary

Policy Problem

Social marketing is the application of commercial marketing techniques in order to encourage a target audience to voluntarily adopt a behaviour change that leads to a societal benefit. It is commonly used by public health organizations when building awareness campaigns, helping to personalize campaign materials for an audience who will directly benefit from that information. Social marketing has been in use since the 1950s and incorporates many different types of media; however, the rapid rise of social media offers both new opportunities and challenges for social marketers. On one hand, social media has the potential to be highly effective in transmitting information to a large audience at a small cost. Conversely, social media poses a significant risk in that its interactive nature provides the audience with multiple ways to alter original content. Whether intentional or not, this can lead to a loss of message control in social marketing campaigns. Further, social media has evolved rapidly as it constantly expands to incorporate new technology, meaning that public health organizations using social media best practices established as recently as five years ago are already obsolete.

The policy problem is that best practices for using social media as a communications tool in HPV related social marketing campaigns are out of date. Public health organizations have few practical guides to help develop social media tools, and are likely not using social media as effectively as possible. This capstone examines the trade-off between engagement and message control for social marketing in public health, and recommends promising practices for public health organizations to incorporate into social media content for social marketing campaigns.

Methods

To investigate this policy problem, I evaluated the Canadian Cancer Society, British Columbia-Yukon Division's recent HPV Awareness Campaign, a recent social marketing campaign that dedicated significant resources to developing social media content. This campaign is an excellent case study because it incorporates new social media technologies such as livestream video. In order to evaluate this campaign, I used

a mixed methods approach that incorporated quantitative and qualitative data, as is common in the literature evaluating social marketing campaigns (Cates et al., 2011 & Cates et al., 2014). I partnered with the Canadian Cancer Society, who provided me with the results of an online survey with 351 members of the target audience. From that sample, I contact twenty people who I interviewed about their responses to the campaign. The quantitative results from the survey provide broad demographic trends that were used to better understand the target audience. The qualitative data from the interview transcripts reveals six broad trends that helped to evaluate the success of the HPV Awareness Campaign and provide insights into potential improvements for future iterations of the campaign.

Data Analysis

The quantitative data displayed several demographic trends. The strongest trend was related to gender. While men reported using Facebook less, both genders had high aided recall of the campaign, thus suggesting that Facebook is an effective tool for communicating with both genders. A second important trend was that individuals with higher education levels had better aided recall of the campaign as compared to those with lower education levels. This suggests that the campaign materials may have better targeted those with a higher education level. This is a significant finding because those with a lower education are more likely to suffer from health inequities.

The qualitative data revealed six trends that informed both the criteria for evaluation as well as the policy options provided. First, the interviews determined that the public believes some types of social media, such as Facebook and YouTube, are more appropriate for health information than others, such as Twitter and Instagram. Second, the target audience indicated that while social media is a useful tool, traditional media, especially radio, remains an important channel for communicating with parents. Third, many respondents were wary of false information on social media. Therefore, accountability and transparency are the most important criteria to consider when developing health-related social media content. Fourth, many participants would have preferred for the campaign to feature more diverse representation. Fifth, many respondents emphasized the importance of video and the potential value of livestream

technology, such as Facebook Live. Finally, the target audience responded more positively to social media content that was personalized or relatable.

Policy Options

Based on the data analysis and a review of social marketing literature, I developed three policy options. The first option was increasing the use of informational videos on social media. While video production used to be an expensive endeavour, the advent of Facebook Live makes it a feasible option, as it is free to users and can be filmed from most smartphones. The second option was increasing audience engagement through recruiting volunteers to stimulate activity surrounding campaigns on social media. The third option was increasing ‘mobile capacity’, referring to the extent to which the campaign is accessible from mobile devices such as smartphones and tablets. This option encompasses several potential courses of action, including upgrading websites to be mobile-compatible, and developing an app that incorporates campaign information.

Evaluation Criteria

In order to evaluate the strength of the proposed policy options, I developed seven criteria for evaluation. The primary criterion for evaluation was accountability and transparency, which measure the ability of each option to transmit accurate and reliable information to the audience. I also evaluated equity as a second societal objective. In terms of management objectives, I used cost, time frame, and public opinion as criteria. Finally, I used reach and engagement, as two social media metrics for evaluation.

Policy Analysis

In the policy analysis, video production performed well because it was able to manage the trade-off between engagement and loss of message control. The target audience was supportive of the option because they found the information from videos and Facebook Live events to be highly credible. While the option performed only moderately on engagement, it still allowed for some public interaction. It also performed well on several management metrics such as cost and time frame. In contrast, the

audience engagement option that recruits volunteers to stimulate activity surrounding campaign on social media performed poorly overall. The target audience was much less accepting of this option: while it would allow for a high level of engagement and increase the reach of a campaign, information shared through this option was not viewed as credible. It performed moderately on both cost and time frame. Finally, increasing mobile capacity presented benefits as well as challenges. The option was viewed as a credible source of information and also scored well on engagement, given an appropriate design. However, cost and time frame both pose significant challenges in terms of the options feasibility.

Recommendations

Based on the findings from the policy analysis, I recommend that public health organizations look for way to incorporate video and Facebook Live into HPV social marketing campaigns. Facebook Live events could feature a health care professional who could answer audience questions directly. Following the livestream, the video could be transcribed and posted to various other social media sites. Additionally, I recommend that public health organizations look for ways to increase mobile capacity in the long term. At the minimum, organizations should ensure all websites are mobile-friendly. I would also recommend organizations evaluate the public appetite for a mobile app.

Conclusion

As identified in the policy problem at the outset of this research, the most important takeaway from this analysis remains the trade-off between audience engagement and the credibility of content. Public health organizations must always keep this trade-off in mind when developing social media content. Social media can be used effectively to encourage positive health behaviour change, if public health organizations carefully choose social media tools that ensure information remains credible. While this may reduce the level of engagement, new social media tools such as livestream video ensure content producers maintain some control over the conversation.

Chapter 1. Introduction

Communicating accurate health information can be incredibly challenging within today's cluttered media environment. While information is more readily available than ever, the sheer volume of information can be overwhelming. It can be challenging for public health organizations to make their message heard, and even more difficult for the public itself to determine what information is reliable and accurate. In recent years, public health organizations have increasingly turned to 'social marketing' as a way to strengthen awareness campaigns. Broadly speaking, social marketing is the use of commercial marketing techniques to promote a voluntary behaviour change amongst a target audience that results in a societal benefit (Andreasen, 1995). While social marketing campaigns incorporate many different media types, one emerging trend in social marketing is the inclusion of social media.

Social media encompasses a broad array of Internet and mobile technologies that facilitate online social interaction and communities. Social media includes social networking sites such as Facebook, media sharing sites such as YouTube, and many other services (Dewing, 2010). It is difficult to define social media precisely because it is constantly evolving to accommodate new technologies. However, one consistent characteristic across all social media is that it allows users to engage actively with information rather than receiving it passively (Lefebvre, 2007). Social media allows the public greater choice in the information they consume and the opportunity to engage in conversations about that information. Where traditional media is a one-way communication from content producers to the audience, social media is a two-way conversation where both sides give their input.

Media richness theory suggests that people are more likely to retain information with which they have engaged. Therefore, mediums that promote a high level of engagement are more effective at transmitting information, but also present

opportunities for the public to change content, potentially leading to a loss of message control (Ledford, 2014). Since social media is highly engaging, it has the potential to be an excellent tool in social marketing campaigns; however, it also poses a significant risk to campaigns, in that it provides the broader public with the opportunity to distort the original intended message. Despite this risk, as traditional media such as radio, newspapers and television decline, public health organizations may need to turn to social media as an alternative method of spreading information. Consequently, public health organizations would benefit from promising promising social media practices that are up-to-date with current trends, in order to reap potential benefits and mitigate risk.

To better understand such a trade-off, this capstone examines a recent public health social marketing campaign that devoted significant resources to social media: the HPV Awareness Campaign run by the Canadian Cancer Society, British Columbia-Yukon Division (CCS). Launched in September 2016, the HPV Awareness Campaign was an education and advocacy campaign that targeted the parents of children between the ages of nine and fourteen living in British Columbia. Human Papillomavirus (HPV) is an extremely common sexually transmitted virus that can lead to cancer in males and females. The HPV vaccine protects against several high-risk strains of HPV and, at the time of the campaign, was publically available to grade six girls and some high-risk males. The HPV Awareness Campaign sought to bring attention to the HPV vaccine a preventative health intervention to reduce the burden of cancer in BC.

In the summer of 2016, I worked with the CCS on developing the HPV Awareness Campaign as a co-op student. My time at CCS laid the foundations for this research, and is the source for all background information regarding the HPV Awareness Campaign that appears in this paper. While many social marketing campaigns have incorporated social media, few have been formally evaluated to understand up-to-date and effective practices for using social media to influence the target audience (Gordon, McDermott, Stead, & Angus, 2006; McDermott, Stead, & Hastings, 2005; Stead, Gordon, Angus, & McDermott, 2007; Nowak, Gellin, & MacDonald 2015; MacDonald, Smith, & Appleton, 2012). For example, there have been no studies evaluating the role of Facebook or livestream video as communications tools for HPV-related social marketing campaigns.

Using the HPV Awareness Campaign as a case study, I have reviewed the academic literature on social marketing and social media, gathered and analyzed responses from the target audience, and evaluated potential options for using social media a communications tool. Through this analysis, I weighed the risks and benefits of different options, and recommended some promising practices for using social media in HPV education and advocacy campaigns. As the data is specific to HPV, the findings from this project are most relevant to other HPV-related campaigns. However, this project can also serve as a starting point for further research on using social media in social marketing campaigns in other areas of public health because the options presented are not specific to HPV.

The findings from this paper will be used directly by the CCS to improve future iterations of the HPV Awareness Campaign, which is scheduled to occur on an annual basis in line with BC's school-based vaccination program. The recommendations are also applicable to other non-profit organizations and governments, who run HPV education and advocacy campaigns. Further, because this analysis focused on the HPV vaccine, where misinformation was one of the primary characteristics surrounding the public debate, the findings may apply to other health interventions characterized by misinformation. These may include other vaccinations, or harm reduction strategies.

Chapter 2. Background

2.1. Human Papillomavirus

Human Papillomavirus (HPV) is an extremely common and infectious virus that is transmitted through sexual intercourse, sexual touching, and/or oral sex. An estimated 70% Canadians will be infected during their lifetime (Public Health Agency of Canada [PHAC], 2012). While most HPV infections are asymptomatic and disappear on their own, lingering infection can develop into HPV-associated cancers in males and females. HPV infection is associated with cervical, vaginal, and vulvar cancers in women, penile cancer in males, and anal, oropharyngeal cancer (OPC), and oral cavity cancers (OCC) in both sexes (BC Cancer Agency, 2014).

HPV is a growing public health concern among males in BC. Epidemiological evidence from the United States projects that rates of HPV-associated OPC will exceed that of all other HPV-associated cancers by 2020 (Chaturvedi et al., 2011). Research also shows that men are two to four times more likely to be affected by an OPC than women (Aucluck, Hislop, Bajdik, Zhang, & Rosin, 2010). Men may be more susceptible to HPV-associated cancer because they are more likely to engage in high-risk behaviours including smoking, alcohol consumption, and oral sex (Ernster et al., 2007; Warnakulasuriya, 2009). While rates of cervical cancer are declining due to BC's successful Cervical Cancer Screening Program, statistics show a similar trend towards an increased number of HPV-associated OPC in men (BC Cancer Agency, 2014; Immunize BC, 2012).

In July 2006, Health Canada approved the first HPV vaccine (Gardasil, Merck Canada, Inc.) as a tool for preventing HPV infections that lead to cervical cancer. Initially, the Canadian Immunization Committee (CIC) and the National Advisory Committee on Immunizations (NACI) recommended all females between the ages of

nine and twenty-six receive the HPV vaccine. This recommendation was based on clinical trials where the vaccine was tested on over 60,000 people before it was deemed safe (Agorastos, Chatzigeorgiou, Brotherton, & Garland, 2009). Since licensing, PHAC has monitored vaccine's safety profile through the Canadian Adverse Event Following Immunization Surveillance System (CAEFISS) and the Canadian Immunization Monitoring Program (IMPACT). Neither body has found evidence to suggest that the HPV vaccine has serious adverse side effects (PHAC, 2014). Ongoing research has also shown that the HPV vaccine is effective in preventing HPV infection and the development of HPV-associated external genital lesions in males (Guiliano et al., 2011). Based on this evidence, the CIC and NACI expanded their recommendation for the HPV vaccine to include all females between the ages of nine and forty-five and males between the ages of nine and twenty-six (NACI, 2016; CIC, 2014).

Public funding for the HPV vaccine ranges across Canada. On January 17, 2016, the BC Government announced that, as of September 2017, boys and girls in grade six would receive the HPV vaccine through a publically funded, school-based vaccination program (BC Gov News, 2017). For a full description and timeline of HPV vaccination policy in BC, see Appendix A. Grade six is an ideal time to receive the vaccine for two reasons. First, research has shown that the immune response to the vaccine is twice as strong among adolescents between the age of nine and fourteen compared with those who are fifteen and older (Moreira et al., 2011). Second, the vaccine is also more effective if administered prior to exposure to the virus. This means adolescents should be vaccinated prior to sexual debut (Ogilvie et al., 2011).

Despite federal recommendations and provincial funding, the HPV vaccine has been subject to intense public scrutiny (Casciotti, Smith, Tsui, & Klassen, 2014). Much of the discussion about the HPV vaccine revolves around misinformation, not scientific evidence. For example, some opponents of the HPV vaccine claim the vaccine is associated with adverse side effects, including infertility, paralysis, chronic fatigue syndrome, and death. Other groups oppose the vaccine because it is designed to combat a sexually transmitted virus, and can therefore be interpreted to promote risky sexual behaviour amongst youth. Research specifically addressing this question demonstrated no relationship between the HPV vaccine and risky sexual behaviour

(Bednarczyk, Davis, Ault, Orenstein, & Omer, 2012). Others argue that teaching safe sexual practices eliminates the need for the vaccine. However, HPV is highly infectious, so condoms and other safe sex practices do not fully protect against infection.

Despite significant evidence supporting the safety and efficacy of the vaccine, opponents of the HPV vaccine have established widespread public doubt about the safety, efficacy and necessity of the vaccine. Researchers attribute low HPV vaccine coverage rates to the proliferation of misinformation, which has led to vaccine hesitancy (Zimet, Rosberger, Fisher, Perez, & Stupiansky, 2013; Naus & Ogilvie 2010). This refers to those who delay vaccination because they have questions or doubts about the safety, efficacy or necessity of a vaccine (Dube et al., 2016). A study by Ogilvie et al. (2010), found that parents in BC were less likely to consent to have their daughters receive the HPV vaccine than other adolescent age vaccines because they had concerns about potential adverse side-effects or doubted its necessity. This suggests that vaccine hesitancy is a serious barrier to increase HPV vaccine coverage in BC (Ogilvie et al., 2010). In 2015, the vaccine coverage rate for grade six girls was 64.3%, compared with over 80% for other adolescent age vaccines in BC. There are no publically available statistics regarding male HPV vaccination rates in BC. (BC Centre for Disease Control, 2015).

2.2. The Canadian Cancer Society's HPV Awareness Campaign

Because the HPV vaccine represents a significant opportunity to reduce the burden of cancer, the Canadian Cancer Society, British Columbia-Yukon Division (CCS) launched an education and advocacy campaign in September 2016. The HPV Awareness Campaign had four objectives:

- To increase knowledge regarding the link between HPV infection and cancer in males and females,
- Increase HPV vaccine uptake amongst populations eligible to receive the vaccine through public funding,
- Advocate for the inclusion of all genders in the publically funded, school-based HPV vaccination program, and

- Build partnerships with other health organizations to leverage their influence on parental decision making regarding the HPV vaccine.

The target audience for this campaign was parents of children between the ages of nine and fourteen living in BC, because parents must provide consent for their children to be vaccinated. Like many other education and advocacy campaigns, the HPV Awareness Campaign was developed using social marketing theory. In addition to traditional posters and postcards distributed through schools, the CCS used paid Facebook advertisements, posted links, infographics and text information on their organizational Facebook page, and hosted a Facebook Live event for followers to ask a physician questions about HPV. On Twitter, the CCS tweeted original advocacy and education content, provided links to credible online sources about HPV, and retweeted health professionals. Additionally, the CCS packaged their social media content into a toolkit that was disseminated to stakeholders for use on their social media channels.

The HPV Awareness Campaign ran for two weeks in September 2016 to align with BC's school vaccination program, and the CCS intends to repeat the campaign annually. The campaign plan included a robust, two-fold evaluation framework. First, because the CCS worked closely with a number of external stakeholders, one part of the evaluation focused on stakeholder responses to the campaign. Using an online survey and informal conversations, this aspect of the evaluation sought to understand how stakeholders used the campaign tools, as well as what improvements could be made to make the tools more useful. While this type of feedback is critical to improving future partnerships, it is outside the scope of this project. This project focuses on the second part of the evaluation, which analyzed responses from the target audience. The CCS contracted a market research firm to conduct an online survey with 350 members of the target audience. I performed a secondary analysis of the survey results and supplemented them by interviewing twenty people drawn from the survey population. This project thus added to the initial evaluation plan by providing in-depth, qualitative understandings of reactions to the campaign.

Because the CCS devoted extensive resources to social media, it is an innovative campaign that provides an excellent case study for understanding how social media can be used to effectively communicate information regarding HPV to the public.

Evaluating the successes and challenges of the HPV Awareness Campaign can therefore provide a better understanding of how social media can be used within the framework of social marketing to disseminate public health information. This analysis made specific recommendations for the CCS to improve future iterations of the HPV Awareness Campaign. Furthermore, by situating the HPV Awareness Campaign in the broader literature on social marketing, the lessons from this campaign may be applied to other health topics where misinformation characterizes the public debate surrounding the topic. This may include other vaccinations or harm reduction strategies.

Chapter 3. Literature Review

3.1. Social Marketing Theory

The concept of social marketing was first described in the early 1950s as the use of commercial marketing techniques to promote societal objectives, such as participatory citizenship, through television and radio advertisements (Wiebe, 1952). The most commonly cited definition of social marketing comes from Andreasen (1995): “social marketing is the application of commercial marketing technologies to the analysis, planning and execution of program designed to influence voluntary behaviour of a target audience in order to improve their personal welfare and that of society” (p. 7). This definition encompasses four critical components. First, it shows that the goal of social marketing is voluntary behaviour change. Second, it demonstrates an element of exchange; social marketing highlights the benefits to be gained from the new behaviour. Third, social marketing includes the use of commercial marketing techniques, such as audience segmentation and market research. Finally, social marketing works towards a societal goal rather than profit (Gordon et al., 2006; Luca & Suggs, 2008; Stead et al., 2007).

Andreasen (2002) further expanded this definition to include six benchmarks that must be present for a campaign to be considered ‘social marketing.’ The six benchmarks of social marketing are behaviour change, audience research, exchange, segmentation, marketing mix and competition. Behaviour change describes the goal of a social marketing campaign: a specific change in behaviour resulting from an intervention with a social goal in mind. Audience research describes the process of identifying which demographics are critical to target in order for the intervention to succeed. Good social marketing campaigns test their materials on their target audience prior to the campaign launch. Segmentation refers to the development of different strategies to reach the target audience(s). Exchange refers to the principle that social marketing campaigns

should always highlight the benefit the individual will gain in return for adopting a behaviour change. Marketing mix refers to the application of commercial marketing principles to a social intervention. Competition ensures that social marketing campaigns account for the influence or appeal of alternative behaviours and develop a strategy to reduce the desire among the target audience to adopt or continue socially harmful behaviours.

Social marketing has developed considerably since the 1950s and has been incorporated into government health policy in many countries, including Canada. In 2000, Health Canada published the document *The Health Canada Policy Toolkit for Public Involvement in Decision Making*. The document outlines different policy tools Health Canada uses to engage the public in the development of health policy. It lists social marketing as an important policy tool for informing or educating the public on health policies (Health Canada, 2000). Since then, Health Canada has conducted many social marketing campaigns. For example, between 2000 and 2004, Health Canada ran a campaign called “Back to Sleep” to educate parents on safe sleeping habits for infants (Cotroneo, 2004).

Andreasen’s definition of social marketing provides an understanding of the concept, while the benchmarks identify the critical components all social marketing campaigns must include. The six benchmarks have also been used to frame evaluations of social marketing campaigns. Based on this framework, evaluation literature examining social marketing campaigns has found substantial evidence to suggest that social marketing is an effective framework for shifting patients towards simple behaviour changes. For example, areas that have been shown to be open to such transformation include increasing healthy eating, substance abuse, increasing physical activity, and vaccine uptake (Gordon et al., 2006; McDermott et al. 2005; Stead et al., 2007; Nowak et al., 2015; MacDonald et al., 2012). It is important to note that research focuses on health interventions that require the individual to make a single, small behaviour change, and does not apply to more complex health behaviours.

Studies evaluating HPV social marketing campaigns have also demonstrated success. There is evidence suggesting that social marketing can positively influence

parental decisions to consent to the HPV vaccine for their children (Niccolai & Hansen, 2015; Hertweck et al., 2013). A series of studies conducted in North Carolina found that social marketing effectively increased vaccination rates among preteen males and females, improving the negative impression of the HPV vaccine among mothers of adolescents (Cates, Shafer, Diehl, & Deal, 2011; Cates, Diehl, Crandell, & Coyne-Beasley, 2014; Cates et al., 2015; Cates & Coyne-Beasley, 2015). Further, studies have also shown that HPV social marketing campaigns can increase knowledge about HPV and promote positive attitudes towards the vaccine (Sundstrom et al. 2015). Such outcomes are consistent across different gender, ethnicity, and age. This suggests that social marketing can be used to develop campaigns that target diverse demographics (Hull et al., 2014; Inokuchi, Ramakrishnan, Sapsis, & Friedman, 2009; van Keulen et al. 2013). The CCS considered evidence from these studies in their decision to use social marketing as the foundation for the HPV Awareness Campaign.

3.2. Social Media

While the concept of social marketing has existed for over half a century, social media is a relatively new addition. Social media encompasses a broad array of online and mobile technologies that facilitate social interaction and virtual communities. Social media includes social networking sites (such as Facebook), mobile applications (apps), media sharing sites (such as Pinterest or YouTube), and many other types of services (Dewing, 2010). Rapid evolution is an important characteristic of social media as it is constantly evolving to accommodate new technologies. Social media also allows users to engage with information rather than passively receive it (Lefebvre, 2007).

According to the 2016 Canadian Social Media Monitor, social media use in Canada continues to grow across all demographics. Facebook dominates the social media market, with over 50% of Canadians using it daily. YouTube and Twitter are the second and third most used social media by Canadians (Insights West, 2016). The data also shows that Facebook, YouTube, and Instagram have experienced continued growth in Canadian users, while the number of Canadian Twitter users has recently declined (Insights West 2016). From a marketing perspective, Canadians devote 18% of their time on social media to interacting with brands. Again, Facebook dominates that market:

16% of Canadians 'like' or follow companies, and 8% comment, talk or post about companies on Facebook. This is compared with the 7% of Canadians who follow companies on Twitter, 5% on Instagram, and 4% on LinkedIn (Insights West, 2016).

Although Canadians spend the majority of their time on social media interacting with individuals, social media still represents a potential venue for increasing the reach of social marketing campaigns. A survey conducted at the Second World Non-Profit and Social Marketing Conference found that 89% of attendees believed that the accessible and participatory nature of social media has created new opportunities for social marketing (Beall, Wayman, D'Agostino, Liang, & Perellis, 2012). Further, 75% of attendees agreed that social marketing campaigns must use the power, reach, and influence of social media in order to remain relevant (Beall et al., 2012). As Canadians continue to join social media, it is critical that public health organizations adapt social marketing campaigns in order to have their message heard.

Despite the potential to reach more people, social media also poses a significant risk to health campaigns because its use may result in a loss of message control. Media richness theory states that if individuals have more ways to access and interact with information, they are more likely to retain it. However, increased engagement is also risky because it increases the number of opportunities for message manipulation and loss of message control (Ledford, 2014). Because of this risk, some health organizations have been hesitant to join social media for fear of their message becoming distorted (Keller et al., 2014). However, as social media becomes increasingly common and traditional media declines, the health sector may not be able to avoid social media. While this task may seem daunting, health care providers are viewed as trustworthy and authoritative by the public (Love, Himmelboim, Holton, & Stewart, 2013; Ogilvie et al., 2010). If health care providers were to use their voice on social media to steer online conversations towards evidence, they may be able to reduce message manipulation and maintain control of messaging (Keller et al., 2014).

The risk of message manipulation on social media is particularly serious for vaccination-related social marketing campaigns because anti-vaccine lobby groups have a strong online presence which they use to deliberately spread misinformation (Kata,

2010). In a systematic review of the literature on tools for addressing vaccine hesitancy, Jarrett, Wilson, O'Leary, Eckersberger, and Larson (2015) found evidence to suggest that social media was an effective tool for communicating information about vaccines to habitual social media users and did alleviate vaccine hesitancy among some people. However, they also found that social media created problems for some social marketing campaigns because anti-vaccine groups were able to manipulate social media content. This led to increased vaccine hesitancy among other groups (Jarrett et al., 2015). This suggests there are both potential benefits and risks to using social media as part of a vaccine-related social marketing campaign.

With regards to the HPV vaccine, there are a limited number of studies evaluating the role of social media as a communications tool. These studies look at the role of YouTube, Myspace and commenting features on online news websites (Feinburg et al. 2015; Keelan, Pavri-Garcia, Tomlinson, & Wilson, 2007; Keelan, Pavri, Balakrishnan, & Wilson, 2010; Ache & Wallace 2008; Briones, Nan, Madden, & Waks, 2012). These studies found that while the original content posted on these types of social media was positive, comments from the public were often negative and included deliberately misleading information or links to anti-vaccine websites. While readers may not initially believe information seen in public comments, repeated exposure to anti-vaccine rhetoric may breed to vaccine hesitancy. The studies also found that unless content posted on these types of social media was posted by a health care professional directly, the public was less inclined to believe it, even if the information was scientifically accurate. This is because social media allows for user-generated content of which many people are skeptical. By increasing their social media presence, health care professionals could reply directly to negative comments and redirect individuals to credible sources. Health care professionals would also be able to validate user-generated content, thus making it more trustworthy to the public (Keller, Alain, & Levine, 2014; Patel & Berenson, 2014).

The World Health Organization (WHO) recommends using social media in HPV campaigns to target audiences who habitually use social media (WHO, 2013). However, the WHO offers little practical advice on how to build successful social media tools for HPV communications. While the American Centers for Disease Control and Prevention

(CDC) offers the most advanced set of promising practices for developing and using social media for public health communication, the constantly evolving nature of social media means that many of the tools outlined in this approach are outdated. (CDC, 2011). For example, the CDC toolkit focuses primarily on image sharing through buttons or banners. These types of graphics are largely obsolete on social media today. Similarly, when that toolkit was published, livestream video was not available; today, it is a popular component of social media. Evaluating the HPV Vaccine Campaign is an opportunity to update these recommendations in light of recent social media innovations and provide public health organizations with a new set of promising practices.

3.3. Mobile Technology

Another rapidly developing communications technology is the proliferation of cell phones, hand-held tablets, and other mobile technologies. Mobile technologies are critical considerations in the context of social marketing because, globally, cell phones are the second most common form of communications technology after radio (Lefebvre, 2009). Mobile technologies present opportunities for social marketers to share their message through SMS messages, mobile-friendly websites, and mobile applications (apps). In fact, 75% of attendees at the Second World Non-Profit and Social Marketing Conference agreed that tapping into the power, reach, and influence of mobile technology is paramount to improving future social marketing campaigns (Beall et al., 2012). Mobile technologies are also a significant consideration because a growing number of people are using smartphone as the primary way they access the Internet, with low income people are disproportionately represented in this group (Napoli & Obar, 2014)

Because of their global use, mobile technologies represent an opportunity for social marketing campaigns to dramatically increase their reach. In social marketing, 'place' is one of the key factors. Marketing materials must be located in an appropriate place where consumers will be able to access them and are relevant to their behaviour at the time. For example, in a healthy eating social marketing campaign, posters about fruits and vegetable may be placed in a grocery store in order to prompt consumers. However, this creates challenges for vaccine-related campaigns because social

marketers are unable to put content where individuals make those types of decisions – at home. This is especially true as people turn away from traditional media such as television. The advent of mobile technology allows social marketers to move social marketing tools directly into the homes of individuals (Bernhardt, Mays, & Hall, 2012).

One technique commonly suggested in the literature for capturing the potential of mobile technology is text-based reminder systems on cell phones. Text-based reminder systems send out SMS messages to registered users with a specific call to action. The call to action articulated in these messages can range from simple reminders to look up information online or a more involved ask for participation in grassroots advocacy work (Abroms & Lefebvre, 2009). Text-based reminders via SMS message have been utilized in social marketing campaigns. Evaluation literature suggests that they can be effective at generating behaviour change because they provide simple reminders that reinforce a positive behaviour change that individuals may otherwise forget (Bernhardt et al., 2012; Jarrett et al., 2015). SMS messages have also shown to be effective in increasing knowledge about HPV and other sexually-transmitted disease among teenagers when the content of the messages was developed in conjunction with the target audience (Cates et al., 2015; Cates & Coyne-Beasley, 2014). These studies suggest that cell phones are likely a potential tool for social marketers to embrace.

Another trend in mobile technologies is the proliferation of smartphones. Smartphones are essentially small, hand-held computers that allow users to access the internet, and thereby information, anywhere and anytime (Boulos, Wheeler, Tavares, & Jones, 2011). In a 2016 survey, 76% of Canadians reported owning a smart phone. In 2014, only 55% did (Catalyst, 2016). Smartphones can further improve how social marketers determine the 'place' for their campaigns. Almost all smartphones have location services. By utilizing location services, social marketers can further segment their audiences into distinct demographics and personalize the content they receive (Bernhardt et al., 2012). Audience segmentation is critical to social marketing because it ensures campaign content is relevant and useful to the target audience. Using location services on smartphones represents a potential way to further improve audience segmentation in social marketing.

This rapid growth also demonstrates how mobile technologies are becoming increasingly important, and are changing the way people access information. Because of this, social marketers should consider how individuals who access websites and social media primarily through their smartphone will view their materials. Websites should be easily navigable from all mobile platforms (Abroms & Lefebvre, 2009). Further, websites should prominently feature links that guides individuals to participate in the campaign. There should be multiple options for engagement, ranging from liking or sharing information, to attending events, to independently generating content (Abroms & Lefebvre, 2009). It is important to note that even small instances of engagement are important, because they serve to build relationships between the individual and the organization, and they may have a ripple effect in spreading information through a social network.

Beyond mobile-friendly websites, apps are an opportunity for social marketers to garner attention from their target audience. Apps are software programs specifically designed for download and use on mobile devices such as smartphones or tablets, and have a specific purpose. Apps are important for social marketers to consider for two reasons. First, social media is commonly used through apps. Of the top ten most downloaded apps on Apple devices in 2016, five of them were social media apps which included Snapchat, Facebook Messenger, Instagram, Facebook, and YouTube (Eadicicco, 2016). As the public moves to consuming social media increasingly through apps, social marketers should ensure campaign content on social media is mobile-friendly. Apps may also represent an opportunity to develop a new health app. According to the Catalyst survey, Canadian use of health apps is rising, with one in three Canadians using at least one health app in 2016, compared with only 25% of Canadians in 2015 (Catalyst, 2016). However, public health organizations should also be aware that overall app usage is declining. Canadians now keep, on average, only 18 apps on their smartphones versus 27 in 2014 (Catalyst, 2016). Based on these statistics, there may be interest among Canadians for novel health apps but only if they provide the individual with a direct benefit.

One study on an app-based game promoting moderate drinking behaviour among young people reflects these statistics. In cases where consumers enjoyed the

game, there was a greater chance they developed more moderate drinking habits. Researchers hypothesize because the consumer gained value (enjoyment) from the game, they came to trust the developers, and thus integrate messages from the game into their drinking behaviour (Mulcahy, Russell-Bennet, & Rundle-Thiele, 2015). The game in this study was developed from a commercial marketing model stating that games must be fun, have pleasing aesthetics, provide value for money, and have a high quality design (Okazaki, 2009). While gaming apps may not be appropriate for vaccine-related information, these findings suggest that social marketers can draw on commercial marketing techniques when developing new communications tools.

Beyond the above-noted study, there is little literature evaluating the impact of apps and social marketing in public health or elsewhere. Boulos et al. (2011) conducted a process evaluation during the development of an app intended to assist older individuals manage multiple chronic conditions. They also found that apps must have a clear purpose and be easy to navigate. Importantly, they found that age was becoming less of a barrier to uptake, as ageing populations are increasingly familiar with mobile technologies (Boulos et al., 2011). In terms of barriers, they found cost was strongly related to use; higher cost was directly related with lower use (Boulos et al., 2011). Bowerman & DeLorme (2014) conducted a similar process evaluation during the development of a social marketing app intended to improve marine conservation among boaters. Their findings indicate that individuals in the target audience were receptive to the idea of an app but had concerns about the quality of the functionality and informational content (Bowerman & DeLorme, 2014). Overall, there is little empirical evidence to assess the efficacy of apps in the context of social marketing. What evidence that does exist suggests is that there is potential to help shift consumers towards positive behaviour change, if public health organizations consider the value, quality, and cost of the app.

Chapter 4. Methods

4.1. Purpose

Because 2016 was the first year of a multi-year campaign, the initial HPV Awareness Campaign plan included an extensive evaluation. This project built on the evaluation plan to provide a further, critical examination of responses from the target audience using a mixed methods approach. While social marketing evaluations have traditionally focused on qualitative research, mixed methods approaches are gaining popularity. This is because qualitative data primarily captures the knowledge and behaviours of the target audience while quantitative data is better suited to capturing behaviour change (Helmig & Thaler, 2010; Truong, 2014). Specifically, for this project, quantitative data sought to identify broad trends, while qualitative data was used to understand specific successes and failures. Because responses to the campaign were highly subjective, using a mixed methods approach was particularly useful for this evaluation because the quantitative data did not display many clear trends. The qualitative data helped to fill knowledge gaps the quantitative data could not explain.

The data for this project focused on the campaign's target audience: parents and guardians of children between the ages of nine and fourteen living in BC. Parents and guardians were chosen as the target audience because they must provide consent for a child to receive the HPV vaccine. Understanding how the target audience responded to the campaign is critical to improving future campaign materials. By identifying broad trends in the quantitative data and filling in the knowledge gaps with the qualitative responses, I have analyzed three policy options and evaluated their potential for success. Based on this analysis, I have recommended a course of action appropriate for the HPV Awareness Campaign moving forward and that may be applicable to other social marketing campaigns targeting a similar audience.

4.2. Data Collection & Participant Recruitment

The first component of the data collection for this project was completed by the CCS. The CCS conducted an online survey with a total of 351 participants from the target audience. Individuals with the demographic characteristics of the target audience were recruited through the Angus Reid Forum website. The sample included participants from all regions in British Columbia and the results included data on the age, education, sex, and income of the participants. The questions on the survey sought to assess their ability to recall the campaign, knowledge and attitudes towards the HPV vaccine, and behaviour following the campaign. This methodology is consistent with academic evaluations of HPV social marketing campaigns in the literature, which strive to assess how HPV social marketing campaigns affect the knowledge, attitudes, and behaviours of the target audience (Cates et al., 2011 & Cates et al., 2014).

The second component of the data collection for this project consisted of twenty minute interviews with twenty participants drawn from the survey population. In order to recruit the interview participants, upon completion of the online survey, participants were asked to leave their contact information if they were willing to participate in an interview with a SFU Master's student. In total, 134 people included their contact information. From that sample, I contacted participants, at random, until twenty interviews were complete. The interviews were conducted over the phone in order to include participants from all regions of the province. While the majority of the participants were from the Greater Vancouver area, there was regional representation from Vancouver Island, the Interior, and northern British Columbia. In terms of gender, there were nine women and eleven men. Upon completion, the interviews were transcribed, all personal and identifying information was removed, and the recordings deleted. All interview participants received a \$10 honorarium provided by the CCS. In order to ensure the safety and confidentiality of the participants, this project was submitted to and approved by the SFU Office of Research Ethics.

The purpose of these interviews was to gather detailed responses to the HPV Awareness Campaign to inform and evaluate the policy options. The semi-structured

interviews focused on how individuals perceived the campaign, social media usage, and communications preferences. To see the full interview guide, see Appendix B.

4.3. Data Analysis

The quantitative and qualitative data for this project were gathered concurrently and analyzed with a parsimonious research design using a triangulation (Plano, Clark & Creswell, 2007). In this method, the qualitative and quantitative data were analyzed separately then compared for common themes. The quantitative statistics provided a broad overview of the impact of the campaign while the qualitative data provided an in-depth analysis of responses from the target audience. The themes and trends identified in the two data sets were used to define the criteria for evaluation and for the development of the policy options.

4.3.1. Quantitative

The CCS conducted the primary evaluation of the quantitative data. This project is a secondary analysis of raw data and statistics the CCS provided. I isolated the statistics relevant to social media and recorded them in tables showing the total number of responses and how responses differ demographically. I used age, gender, region, education, and income as groupings. I then used these tables to identify patterns in social media use in HPV Awareness Campaign and their relevance to sub-populations within the target audience. These statistics helped to better understand natural segments within the target audience and the best communications strategies for engagement.

4.3.2. Qualitative

Thematic analysis was the primary qualitative method for this project. As described by Ritchie and Spencer (2002), thematic analysis of interviews involves three steps. First, I read and re-read the transcripts to establish a familiarity with the data. Through this process, I identified key issues and emergent themes. Using the key issues and emergent themes, in combination with my research objectives, I developed a

thematic framework. The thematic framework was then applied to each transcript in order to further develop concrete categories of themes. In the final step, I indexed the themes identified throughout the transcripts using the thematic framework.

4.4. Data Limitations

The data used for this project was subject to a number of constraints which may have limited the policy analysis and final recommendations. First, while the quantitative data included many demographic characteristics, it did not look at differences between ethno-linguistic or cultural groups. This type of demographic data would be useful in further segmenting the target audience. Second, the data gathered for this project did not discuss mobile technologies during the interviews, as it emerged as a potential option later in the research. Third, recruiting participants through the Angus Reid Forum may have resulted in a selection bias as some individuals may be more likely to consent to participate in an online survey than others. Finally, this evaluation did not consider reactions from other stakeholders. Social marketing campaigns, including the HPV Awareness Campaign, lean heavily on partnerships across the health sector to spread information. Including their input in options is critical. While the larger HPV Awareness Campaign plan did conduct an evaluation with stakeholders, it was not within the scope of this project.

Chapter 5. Data Analysis

5.1. Survey Results

5.1.1. Unaided Recall of the HPV Awareness Campaign

The first component of the survey focused on unaided recall of the HPV Awareness Campaign. When asked if they could recall the campaign, 190 of the 351 participants said they could. Those 190 participants were then asked: “Where have you seen or heard the communication for the HPV campaign?”. Table 5.1 summarizes the results from that question. The results show that unaided social media recall for the HPV Awareness Campaign was low with 11% of participants indicating they could recall the campaign from social media. Of that, 9% recalled the campaign on Facebook, compared with 2% on Twitter. One predictor for unaided recall of the campaign on Facebook was gender with 13% of females indicating they could recall the campaign from Facebook compared with 5% of males. In the age category, the results are skewed due to the distribution of respondents. Although the results show 20% in the 18 to 34 range could recall the campaign from Facebook, there were only a total of five respondents in that age range for this question. Based on this, 10% of respondents 35 to 54 may be a more important result given that there were 167 respondents in that category. Residents of Vancouver Island (14%), those with a household income between \$50,000 to \$99,000 (13%), and those with college education (14%) each had the highest proportion of respondents who indicated they recalled the campaign from Facebook.

Table 5.1. Survey responses for unaided recall of HPV Awareness Campaign

	Base Respondents	Facebook	Twitter	Net: Social Media
Total	190	18 (9%)	4 (2%)	21 (11%)
Age				
- 18-34	5	1 (20%)	1 (20%)	2 (40%)
- 35-54	167	17 (10%)	2 (1%)	18 (11%)
- 55+	18	0	1 (6%)	1 (6%)
Gender				
- Male	85	4 (5%)	4 (5%)	7 (8%)
- Female	105	14 (13%)	0	14 (13%)
Region				
- GVRD	95	7 (7%)	4 (4%)	10 (11%)
- Vancouver Island	43	6 (14%)	0	6 (14%)
- Southern Interior	38	4 (11%)	0	4 (11%)
- Northern BC	14	1 (7%)	0	1 (7%)
Household Income				
- <\$50K	31	3 (10%)	1 (3%)	3 (10%)
- \$50-99K	65	9 (14%)	0	9 (14%)
- \$100K +	66	4 (6%)	2 (3%)	6 (9%)
Education				
- High school or less	18	1 (6%)	0	1 (6%)
- Some college	71	9 (13%)	2 (3%)	11 (15%)
- University	101	8 (8%)	2 (2%)	9 (9%)

Notes: Of 351 total survey participants, 190 answered this question. Table 5.1 shows the total responses and breaks down the responses demographically. The number in brackets represents the percentage of respondents who indicated that answer as a proportion of that demographic group. Percentages do not add up to 100% because the survey included other answers outside of the scope of this project, and there thus excluded from the table.

5.1.2. Aided Recall of the HPV Awareness Campaign Facebook Advertising

In order to test aided recall of the campaign, participants were shown one of the Facebook advertisements used throughout the HPV Awareness Campaign and asked “before taking this survey, had you seen the following communication for the HPV campaign or one very similar to it?”. Table 5.2 summarizes the responses from all 351 participants. In total, 19% of respondents could recall seeing the image. Unlike the previous question, gender did not lead to a significant difference with 20% of males and 19% of females responding yes. Aided recall of the advertisement was also distributed evenly across different levels of household income. The most striking result from this question is that 22% of individuals with some college education and 21% of individuals with a university education responded yes, compared with 9% of individuals with high school or less responding no. Age showed similar results. As age increased, respondents were more likely to respond yes. Finally, the results for region were similar to the previous question, with 27% of respondents from Vancouver Island responding yes, thus suggesting high aided and unaided recall among those living on Vancouver Island.

Table 5.2. Survey responses for aided recall of the HPV Awareness Campaign Facebook advertising

	Base Respondents	Yes	No	Not Sure
Total	351	68 (19%)	240 (68%)	34 (12%)
Age				
- 18-34	14	1 (7%)	12 (86%)	1 (7%)
- 35-54	293	57 (19%)	200 (68%)	36 (12%)
- 55+	44	10 (23%)	28 (64%)	6 (14%)
Gender				
- Male	168	33 (20%)	114 (68%)	21 (12%)
- Female	183	35 (19%)	129 (69%)	22 (12%)
Region				
- GVRD	176	32 (18%)	121 (69%)	23 (13%)
- Vancouver Island	77	21 (27%)	47 (61%)	9 (12%)
- Southern Interior	78	12 (15%)	56 (72%)	10 (13%)
- Northern BC	20	3 (15%)	16 (80%)	1 (5%)
Household Income				
- <\$50K	56	11 (20%)	40 (71%)	5 (9%)
- \$50-99K	162	28 (21%)	92 (70%)	12 (9%)
- \$100K+	116	23(20%)	77 (66%)	16 (14%)
Education				
- High school or less	39	2 (5%)	35 (90%)	2 (5%)
- Some College	119	26 (22%)	79 (66%)	12 (12%)
- University	192	40 (21%)	126 (66%)	26 (14%)

Notes: The table shows the total responses and breaks down the responses demographically. The number in brackets represents the percentage of respondents who indicated that answer as a proportion of that demographic group.

5.1.3. General Aided Recall of the HPV Awareness Campaign on Social Media

Another question regarding aided recall showed participants two images used through the campaign and asked: “where have you seen this communication for the HPV campaign?”. Of the 351 participants 90 said they had seen those images. Table 5.3 summarizes the responses indicating the social media where individual had seen the images. The base results to this question showed that 20% of people answered Facebook, 2% Twitter, and 6% the CCS website. Again, Facebook is dominant over all other online media. Broken down demographically, the results are similar to that of Table 5.1 with gender as an important indicator. For this question, 28% of females responded Facebook at a statistically significant level compared with 12% of men. Respondents between the age 34 to 55 were more likely than other age groups to answer Facebook, as were residents from Vancouver Island with 21% and 32% respectively. Unlike the previous tables, the results for household income showed an inverse relationship between income and responding Facebook. Finally, the results suggest that individuals with some post-secondary education were more likely to respond Facebook with 24% for some college and 18% for university. However, these results are likely skewed as only 3 respondents to this question reported having high school or less for education.

Table 5.3. Survey responses for general aided recall of the HPV Awareness Campaign on social media

	Base Respondents	Facebook	Twitter	Organization Website
Total	90	19 (20%)	2 (2%)	6 (6%)
Age				
- 18-34	2	0	0	0
- 35-54	80	17 (21%)	2 (2%)	6 (8%)
- 55+	14	2 (14%)	0	0
Gender				
- Male	50	6 (12%)	2 (4%)	4 (8%)
- Female	46	13 (28%)	0	2 (4%)
Region				
- GVRD	45	6 (13%)	1 (2%)	5 (11%)
- Vancouver Island	28	9 (32%)	0	0
- Southern Interior	19	3 (16%)	1 (5%)	0
- Northern BC	4	1 (5%)	0	2 (50%)
Household Income				
- <\$50K	15	4 (27%)	1 (7%)	1 (7%)
- \$50-99K	39	9 (23%)	1 (3%)	1 (3%)
- \$100K+	35	5 (14%)	0	4 (11%)
Education				
- High school or less	3	0	0	0
- Some College	38	9 (24%)	0	0
- University	55	10 (18%)	2 (4%)	6 (11%)

Notes: Of 351 participants, 90 responded answered this question. The table shows the total responses and breaks down the responses demographically. The number in brackets represents the number of respondents who indicated that answer as a proportion of that demographic group. Percentages do not add up to 100 because the survey included other answers outside of the scope of this project, and there thus excluded from the table.

5.1.4. Survey Trends

Based on these results, I surmised several broad trends. First, Facebook is the dominant social media. Second, while men report using it less, the question regarding aided recall of a Facebook advertisement showed similar recall to that of women. While women may report recalling content from Facebook more, both genders have similar aided recall of the campaign on Facebook. This suggests that Facebook can be used as a tool for targeting men and women. Another trend to consider is high campaign recall on Vancouver Island. For age, the majority of respondents fell into the 34 to 55 range, which may have skewed the data. However, it is highly relevant for the HPV Awareness Campaign to consider that the majority of their target audience falls into this age cohort. In terms of education, the results may suggest that those with some level of post-secondary education have better campaign recall from social media sources than those with a high school or less education. Household income does not show any consistent trends.

5.2. Participant Interviews

The interviews revealed a wide range of reactions and options regarding the campaign, and the HPV vaccine more generally. From the transcripts, I summarized the findings into themes that were brought up consistently across the participants. While opinions varied within some of the specific themes, the same ideas and concepts were discussed by the majority of participants. The following sections discuss the individual themes taken from the interviews. All quotes are taken directly from the interviews and have been stripped of all personal or identifying information. Some quotes have been edited for grammar and clarity.

5.2.1. Facebook is the Dominant Social Media

The first theme that arose was some social media are more useful for sharing health information than others. Almost all participants said Facebook was the best social media site to reach people even if they did not use it themselves. Regarding Facebook, participants commented:

I'm not on Facebook, but yes, that would hit a lot of parents and a lot of kids if they're targeted correctly.

Facebook is good, you know, even if it was just an infographic, that's just popped up and said like, "did you know, boom, fact," right. I think that's a great idea too.

Interview participants also responded that YouTube and Snapchat may be useful social media for communicating with certain demographics. Conversely, participants responded negatively to using Twitter and Instagram for health information. Some comments participants had on other social media included:

YouTube is a highly-watched platform as well and most people can skim ads if they're not interested, so that's good.

I mean speaking as a parent, I have a limited amount of time I can spend on social media and I don't tend to spend it on Twitter, I spend it on Facebook primarily.

I don't like ads on Instagram. I don't want to see ads; I want to see my friends.

5.2.2. Social Media is Not Enough

Many of the participants responded positively the HPV Awareness Campaign content they saw on social media. One respondent said:

I mean social media is the way to go now. Everybody has got a social media page and you know, everybody from young people to old people pretty much, that's how you communicate now.

However, most participants said that, used alone, social media was not enough to reach all parents, and that the HPV Awareness Campaign should have used as many different communications methods as possible. Many participants reported that while some traditional media such as television are becoming less relevant, radio remains one of the best ways to reach the target audience with information, as are posters or brochures. Participants said:

We don't even have cable anymore, so by itself TV no, but yeah, I guess radio maybe, everyone must listen to the radio at some point.

Yeah, somebody who spends a lot of time listening to while driving, you know I spend a lot of time in the car and depends on the website.

These comments show that while many participants responded positively to social media, most preferred a broad approach that incorporated a variety of communications mediums.

5.2.3. More Inclusive Campaign Content

Some participants expressed concerns about a lack of diverse representation in the campaign imagery while others felt the materials and communications channels used focused on too narrow a demographic. With respect to the campaign imagery, one participant said:

It was like very clean, middle class, white. It didn't like reflect my client population for sure, because I work with marginalized populations.

In contrast, some felt the campaign imagery was diverse but the campaign failed to provide resources in languages other than English, which would have been helpful. The participant said:

Looking at the website and the program and there's faces of all colours, there seems to be a very diverse group of individuals on it, but maybe other languages might be good too.

These comments express a concern among the target audience that the campaign did not reach all groups and that steps could be taken to reach more diverse populations.

5.2.4. Accountability and Transparency

In line with the literature, some respondents were concerned about the accuracy of the campaign content, and, more broadly, health information on social media because of user-generated content. With respect to this, one participant said:

I would prefer to go on like the Cancer Society site rather than on Facebook, just because you know people have their own opinion and

once it's out there it's always out there, so you can't really modify or change things like in the Cancer Society website.

Some participants said, while they are sometimes skeptical of information on Facebook, seeing the CCS logo made them trust the information from the HPV Awareness Campaign. For example, one participant said:

I don't need to know every study, but I do want to know from a credible medical source, and I would consider the BC Cancer [Society] the premier medical source, probably even more than my family doctor because they would be more involved with the, like really current research.

Participants also said that providing credible information on Facebook about the HPV vaccine was particularly useful given the age of their children. One interviewee said:

Now, being the ages they are you're not in the family doctor all that frequently anymore, because I probably wouldn't go and make a specific appointment about that vaccine. I would take the poster, the information that is sent to me at the time of making a decision, I would take that from the most credible source.

Similarly, many participants wanted additional information such as the risk, benefits, ingredients, and statistics included in the campaign materials to be more accessible on social media. Together, these comments indicated that the accountability and transparency of information is an important factor social marketers should build into all social media content.

5.2.5. Informational Videos as a Communications Tool

Most participants agreed that video is an effective way to communicate on social media as long as videos are informational rather than advertisements. In a conversation about television advertisements about HPV, one participant commented that she had recently seen a television advertisement for the HPV vaccine, not from the CCS, and found it unappealing because it did not provide any information about the vaccine or HPV. She said:

Come at me with actual information instead of this kid with this long face on TV, you know what I mean.

When the interviews turned to Facebook Live, most participants also agreed that it was a good way to put the target audience in direct contact with a health care provider. With respect to Facebook Live, they said:

It is the way of the future. It's free and not difficult and if you've taken the time to build and inform your audience so that there's people watching then I think it's a great idea.

The interviewees also had several ideas about how to use the recorded livestream video. Transcribing the conversation as an FAQ document, reposting the video on YouTube, and editing the video into several short videos titled with a single question were all proposed by the interviewees. For example, one participant said:

If you took those questions, as you're doing the livestream and put it on your website as frequently asked questions, here are the questions we asked, here are the answers from a medically, you know, from a qualified doctor, that would be, great in my mind as well.

5.2.6. Relatable Content

The final theme that came up was the importance of personalized or relatable content on social media. Most participants said they were more likely to engage with content on Facebook that was conversational or informational rather than advertisements. One participant said:

I think that people are generally a little bit more accepting of organic content. And it comes organically from that sort of page that they know a real person has to sit there and monitor.

Many people also said that they were more likely to engage with content on Facebook that a friend had shared. According to one participant, organizations on Facebook should focus on producing shareable content rather than advertisements. They said:

One of the things that I see used more effectively is things that you can share on Facebook, so articles or something like that, so if it's directing people to a spot, maybe just having some of those articles

themselves that it would have normally directed to being sharable because a lot of people, I see that more than I see ads.

Finally, some interview participants also said that campaign content for the HPV Awareness Campaign would be more relatable if has a community champion or celebrity endorsement. One participant said:

Celebrity endorsements would be helpful too, you know, if there's any celebrities or you know, people who are known that have possibly been impacted with I think other than Michael Douglas, you know, but been affected by something like that would be really I think would be impactful.

Chapter 6. Policy Options

Using the literature review and the themes identified in the data, I propose three potential policy options for public health organizations to consider when using social media. None of the options are mutually exclusive. In fact, all of the options could be implemented in tandem. However, because of the fiscal constraints and limited resources characteristic of most non-profit organizations, implementing all of the options is likely not feasible.

6.1. Video Production

As the themes suggest, incorporating informational videos into social media would likely be beneficial for social marketing campaigns. While organizations may want to produce professional quality videos, cost may be a barrier. Facebook Live presents an opportunity for inexpensive video production. Facebook Live allows people, public figures, and pages to broadcast a live video stream to their followers and friends (Facebook, 2016). Although it is a relatively recent addition, Facebook Live has increased in popularity with many organizations using it to connect with their followers. This represents an opportunity for public health organizations to interact directly with the public. Further, Facebook Live videos are saved and shared on the user's newsfeed once the broadcast is complete. In this option, social marketers could advertise and host a Facebook Live event with a health care professional. After completing the livestream, the organization could also post the full video, make a transcript of the video available as a frequently asked questions document, and edit the full length video to make a series of shorter videos. The CCS hosted one Facebook Live event during the HPV Awareness Campaign. This option would expand on advertising and use of the completed video in future iterations of the HPV Awareness Campaign.

6.2. Audience Engagement

This option seeks to harness the potential benefits of social media as outlined in media richness theory which states that more opportunities to engage with information leads to a better understanding among consumers. It also aligns with the theme of personalized content. In this option, social marketers would seek to generate online engagement from their audience through sharing stories relating to the campaign. There are many ways to do this on social media. Organizations could designate a hashtag and ask followers or fans to share their stories using it. Similarly, organizations could post a story and ask followers and fans to share their own stories in the comments. Organizations could also ask people to share posts that spread information, which allows for a lower level of engagement from the audience. One way that might be particularly advantageous for non-profit organizations to implement this option is through volunteers. Many non-profit organizations have an existing community base. Organizations could ask volunteers to share their stories in order to start the conversation and increase reach.

6.3. Increase Mobile Capacity

As noted in the literature review, mobile technology is becoming increasingly popular and, for some, the primary way they access the Internet. Although mobile technologies were not mentioned in the interviews, social marketers could look to ways to ensure their campaigns are compatible with mobile technologies. First, they could ensure campaign materials such as Facebook advertisements transfer well to mobile platforms. Second, all campaign materials on social media could contain links to websites that are mobile-friendly to ensure the public can continue to access more in-depth information on the topic. In particular, social marketers could ensure their organization website is mobile-friendly. Another route would be to develop an app using information from the campaign. This would ensure the target audience is able to access the information in a personalized, engaging manner. Because campaigns are often one component of an organization's overall work, social marketers may want to consider developing an app that encompasses the organization's entire mission statement, or

work in partnership with other organizations who have similar goals to that of the campaign.

Chapter 7. Evaluation Criteria

In order to evaluate the potential of each policy option, I developed a series of criteria and measures that will determine whether each option will meet the objectives of a social marketing campaign. I divided the criteria into three broad categories: societal objectives, management objectives, and social media metrics. For a summary table of the criteria and measures, see Appendix C.

7.1. Societal Objectives

7.1.1. Accountability and Transparency

The primary objectives of all public health-related social marketing campaigns are to provide the target audience with accurate information from credible sources and promote a positive, voluntary behaviour change. The participant interviews revealed that providing transparent and accountable information on social media is important to the target audience. Because of this, accountability and transparency is the primary criterion I used to evaluate the policy options, as the amount of detail each option would be able to incorporate and the perceived trustworthiness of the information. I measured the detailed information criteria by looking at the amount of information that would be possible to include in each option. For the trustworthiness criteria, I considered the ability to limit user-generated content and include health care professionals or organizations logos as both have shown to increase the credibility of information.

7.1.2. Equity

Participants also identified concerns about the campaign failing to reach diverse populations within the broader target audience. Further, the survey results indicate that those with a higher level of education had better aided recall of the campaign; ensuring

that individuals lower education can access and use the information provided through social marketing campaigns is critical to reducing health inequities. To evaluate equity, the accessibility of health information to marginalized groups was an evaluation criterion and I measured it by describing the ability of each option to present information in such a way that it is accessible to marginalized groups. This may include providing information in languages other than English, plain language explanation, or incorporating culturally sensitive content.

7.2. Management Objectives

From a management perspective, there are several objectives that are important to consider when evaluating policy options, particularly from the non-profit perspective. The most important of these is cost. Given the limited resources available to most non-profits, this criterion evaluated the cost of each option by estimating the total cost of implementation. Similarly, time frame is an important consideration. While some options may be highly beneficial, if their implementation time frame is too long, they may not be feasible. I measured time frame by looking at how quickly an organization could implement each option. Finally, public health organizations must consider public opinion when building social marketing campaigns. While a health professional may believe in the importance of disseminating information through all possible channels, the public may not find all media an appropriate place for health information, as was shown in the interview transcripts. This criterion measured whether public opinion found each option an appropriate medium for health information.

7.3. Social Media Metrics

Finally, I also evaluated each option using a metric adapted from the article “Use of social media in health promotion: Purposes, key performance indicators, and evaluation metrics,” published in 2012 by Neiger et al. The article summarized common criteria for evaluating social media impact in health campaigns into a set of metrics. See Appendix D for the full list of social media metrics from Neiger et al. The article has been cited in 144 published articles evaluating health-related social media activities. For the

purposes of this evaluation, I have adapted the metrics from Neiger et al. (2012) into two criteria. Borrowing directly from Neiger et al., one criterion I used was reach or the number of people who would come in contact with information for each option. I measured this through the number of people an option could potentially reach. For the second criteria, I adapted the three levels of engagement stated in Neiger et al. (2012) into an engagement criterion that looked at how the public would be able to engage with information in each policy option. I measured this through estimating whether the options would provide a low, medium or high level of engagement.

Chapter 8. Policy Analysis

In this section, I applied the criteria and measures to the policy options and ranked each option. This analysis highlights the relative strengths and weaknesses of each option to recommend promising practices. I have summarized the policy analysis results in Table 8.1. For the full policy analysis table, see Appendix E.

Table 8.1. Summary Table of Policy Analysis

	Video Production	Audience Engagement	Increase Mobile Capacity
Accountability & Transparency*	6	2	6
Equity	2	1	2
Cost*	6	4	2
Time Frame	3	2	1
Public Opinion*	6	2	6
Reach	2	3	1
Engagement	2	3	3
Total	27	17	21

Notes: Table 8.1 summarizes the results of the policy analysis. Each option was assigned a value based on a relative scale ranges from one to three. Three indicates the option performed well on the criteria while one indicates the option performed poorly. An asterisk (*) indicates the option was weighted double in the final analysis.

8.1. Applying the Criteria

8.1.1. Video Production

Video production performed well on both societal objectives. For accountability and transparency, video production ranked high because videos can include a large amount and variety of information and can be tailored to a specific audience. This is particularly true for Facebook Live videos that answer audience questions directly, thus ensuring the information is relevant to the target audience. This is also in line with the

principle of audience segmentation in social marketing theory. Video is also an excellent opportunity to include physicians in a campaign. Both the literature and interviews indicated that physician participation lends credibility to information, which would increase the accountability of the video content. Further, one interview participant said that a video or Facebook Live with a physician was particularly appealing for HPV because adolescent children do not see a physician regularly and questions about a vaccine did not warrant a visit to the doctor. In this regard, using informational videos that incorporate physicians or other health care providers is likely a highly accountable and transparent source of information because they allow for the inclusion of a high level of detail and are viewed as trustworthy.

In terms of equity, the option performed moderately. Online videos ensure that people can consume the information when it most convenient to them. This is in contrast to television-based video which requires participation at a set time. With adequate audience research, social marketers could plan a Facebook Live event for a time when the majority of the target audience is available. It should also be noted that Facebook Live videos are automatically posted to the host's Facebook page following a livestream, thus further increasing their accessibility to different groups. One challenge with equity is that of language. Video production in multiple languages is not feasible for many organizations. In some cases, if there is enough public interest and resources, hosting additional Facebook Live events in other languages or posting a translated transcript of the video may be options.

Video production performed well on the management objectives. First, while the cost of video production has traditionally been high, the advent of Facebook Live makes video a more economical option. Facebook Live is free and does not require special equipment, as it can be filmed from any smartphone. Organizations may wish to use additional financial resources for editing, transcription, or advertising. Similarly, the time frame for implementation is short. A Facebook Live video can easily be built into a social marketing plan because it does not require additional information or resources. The CCS had never hosted a Facebook Live before, but was able to incorporate one into the HPV Awareness Campaign with less than three month's notice. While not all interview participants preferred video as a communications method, most responded positively to

the idea of Facebook Live, thus demonstrating the option performed well on public opinion. One respondent initially said she preferred reading text on social media but after discussing the HPV Vaccine Campaign's Facebook Live event, she said she would have made time to watch it if she had known about it.

Video production, as an option, struggles the most with the social media metrics where it performed moderately on both reach and engagement. The ability of a Facebook Live or other video posted directly on an organization's Facebook page is limited in the number of people it will reach. Likely, only people who follow the CCS Facebook page directly will see it. To increase the reach of a video beyond followers, an organization may want to pay for targeted advertisements and produce shorter, shareable videos for Facebook or YouTube. Many of the interviewees said they would be more likely to see advertisements on social media than content posted on the CCS's Facebook page. While many also said they do not like advertising, advertisements that link back to credible, organic content may be successful. Engagement also performed moderately. Videos on Facebook and YouTube allow for liking, commenting, and sharing. Facebook Live would increase engagement by making commenting a participatory action. However, that higher level of engagement is limited to livestream viewers, thus limiting the options for engagement to a small audience.

8.1.2. Audience Engagement

Audience engagement performed poorly on both societal objectives. In terms of accountability and transparency, the option may lead to increased audience skepticism about campaign content because of concerns about the accuracy of user-generated content. This concern was discussed in the literature and echoed in the interviews. Overall, the target audience may not find information presented in this option trustworthy. This option also performed poorly on accountability and transparency because it has limited potential to include a sufficient amount or detailed information. Similarly, casual sharing or discussing health information may lead to small errors based on misunderstandings or incorrect context. Without intense monitoring, this option may further contribute to online misinformation that is characteristic of online discussions about HPV.

The option also struggled with equity. While the range of possibilities for equity is highly variable in the audience engagement option, there is a strong potential for a mismatch between volunteer participants and individuals who would benefit from the information the most. For example, volunteers are likely to be biased towards certain demographics, such as higher education and income. Those people are most likely to interact with people similar to them. However, the survey results show that those with lower education and income were less likely to recall the campaign. This option may lead to further marginalization of people who stand to benefit the most from the HPV vaccine. However, the option may have potential for increasing equity in other ways. If an organization identified a cultural or language group who would benefit from the information but does not have the resources to communicate with that group effectively, recruiting volunteers who speak the language or are familiar with cultural customs may be an effective way to make a campaign more inclusive.

Audience engagement performed slightly better on the management objectives. In terms of cost, the option is likely to have a moderate cost. While there are no direct financial costs to recruiting volunteers, coordination and training will have some additional costs, including staff time. This option would also likely require staff to monitor online comments and user-generated content for appropriateness and accuracy. Similarly, the time frame for this option is in the medium-term, as recruitment, screening, and training are time intensive. If an organization has an existing volunteer base to recruit from, the time frame may be shorter. Finally, this option performed poorly on public opinion. Many of the interviewees reported being uncomfortable discussing the campaign publicly on social media because they did not want to engage with vaccine opponents or discuss sexual health publicly. Engagement from the HPV Awareness Campaign shows a similar trend. On Facebook, most of the engagement on campaign posts was in the form of likes or shares. There were very few comments. Of the small number of comments on the campaign's social media posts, most were anti-vaccine related. Consequently, it may be hard to recruit volunteers willing to engage in online conversation about HPV.

In contrast to the management and societal objectives, audience engagement performed well on the social media metrics. In terms of reach, the option scored well

because volunteers could potentially increase campaign reach exponentially. Each volunteer who shares campaign materials through various social media channels increases the reach of a campaign to their entire social network. By expanding through individual social networks, the campaign is likely to reach a much larger number of people. While engagement for the HPV Awareness Campaign was low, this option represents many potential ways for individuals to engage with the campaign material. It would allow for likes, comments, shares, and offline participation through volunteering. Volunteers also may be able to facilitate increased face-to-face conversations within their personal networks about information seen on social media.

8.1.3. Increase Mobile Capacity

Increasing mobile capacity, either through improving organization websites to be mobile-compatible or developing an app, performed well on both societal objectives. For accountability and transparency, both mobile-compatible websites and apps are good options for incorporating a large amount of detail. Most interviewees responded that they would like to see a small amount of detail or one clear statistic on social media followed by a link to a more in-depth website. Several of the interviewees indicated that if an organization's website is well-organized, there is no limit to the amount of information it can include. They also noted that clearly labeled websites are desirable because they allow the user to navigate a large amount of information and detail with ease. Although the interviews did not discuss the possibility of an app, the finding that suggests well-organized websites allow for the inclusion of a large amount of information can like be applied to apps as well. This option also does not suffer from concerns about user-generated content or message manipulate because the content would not be subject to public editing. Because of this, the option is would like be viewed as trustworthy.

This option also performs moderately on the equity criteria. Literature on mobile technologies suggests that many low income people access the internet primarily on smartphone. Ensuring that campaign materials are easily accessible on mobile platforms will increase the likelihood this particular demographic is exposed to the campaign. While household income did not reveal any significant trends in the quantitative data, income is an important social determinant of health. Low income people stand to benefit

significantly from improved access to preventative health interventions. However, mobile technologies also present some challenges in terms of equity. Providing a large amount of detailed information in multiple languages is likely not feasible for most organizations. If there are specific language groups who are high-risk, this option may not be able to provide them with an adequate level of information.

In terms of the management objectives, increasing mobile capacity is likely to be an expensive undertaking. It requires significant resources to develop and maintain a website or app. This is particularly true if the organization requires an external contractor to develop a new online platform. Similarly, the time frame for implementing this option is likely in the long-term. This option likely requires updating an entire organizational website or developing a new app. In cases where organizations are working in partnership with other stakeholders, consultation is likely to be a slow process. Because of this, increasing mobile capacity performs poorly on both cost and time frame. The one management criteria the option performs well on is public opinion. In general, the literature indicates that people are favourable towards using their smartphone as a way to access the Internet because it is always accessible. In the interviews, some people indicated they were hesitant to use traditional social media such as Facebook for health information because they had privacy concerns. An app may alleviate some these concerns while still providing health information. Further, research on smartphone usage demonstrates there is clearly an appetite for health-related apps. In this case, organizations would want to develop an app with a range of information that incorporates campaign information into a broader, health-related app.

Finally, increasing mobile capacity varies in its performance across the social media metrics. In terms of reach, the option performs poorly. Websites and apps do not have built-in audiences and would depend heavily on social networking sites and advertising to increase their reach. One way to increase the reach would be ensuring the final product includes an array of health information versus a narrow focus. This will increase the likelihood individuals will come across the campaign information through broader search terms. For engagement, how the option has the potential to perform well, depending on the specific design. If the option is used to improve mobile-friendly Facebook content, it may increase engagement. Conversely, most websites are not

intended for engagement and would likely not improve performance on the metric. Finally, apps may allow for a very high level of engagement depending on their design. If an app features a place for questions or conversation, it will have moderate engagement. If it goes a step further and features a system for health tracking or monitoring, it may lead to offline participation and, thus, a high level of engagement.

8.2. Weighting the Criteria

After analyzing each of the options against the criteria, I summarized the results into recommendations for future action. In doing so, I weighted some criteria more heavily than others due to their relative importance. The criteria I weighted more heavily were accountability and transparency, cost, and public opinion. Accountability and transparency is the primary objective of social marketing campaigns. All social marketing campaigns strive to provide accurate and reliable health information that will ultimately influence behaviour. Cost was also weighted heavily because this is the best indicator of whether an option is feasible for a non-profit organization. Final, public opinion was weighted heavily because social marketing theory rests on tailoring interventions to a target audience. Social marketing campaigns can only be successful if it is acceptable to the public.

8.3. Trading-off Accountability and Transparency for Engagement

One important trade-off between the different criteria also become apparent during the analysis which I considered when developing my recommendations. The results demonstrate that options that perform well on the accountability and transparency criterion do not perform as well on the social media metrics. The opposite is also true. This finding is not surprising as it aligns with media richness theory. As there are more and increasingly involved ways to interact with information social media, there is a greater chance the message will be manipulated, whether intentionally or unintentionally. Because the public is aware of this potential corruption of information, media that allows for a high level of engagement may be considered a less trustworthy

source of information. In practice, this trade-off means organizations must be conscious of the level of risk they are willing to take on by weighing the trade-off between engagement and accountability and transparency.

Chapter 9. Recommendations

Based on this analysis, my primary recommendation for public health organizations looking to incorporate social media into social marketing campaigns would be to focus on video production. Videos should be informational, not advertisements for a pharmaceutical product. In order to increase the credibility of a video, ensure the organizational logo is featured prominently and, when possible, incorporate a health care professional such as a physician. In some cases, organizations may have old videos that can be recirculated, however, be wary of out-of-date information as that may lead to confusion among the public. In terms of developing new video content, Facebook Live provides many opportunities because it is inexpensive, allows for the inclusion of detail tailored to the specific audience, and provides opportunities for audience engagement with a lower risk of message manipulation. Further, it is an option that can be easily incorporated into an existing campaign. Because of this, it is a feasible option that is likely to have a positive impact and can be implemented on short notice.

Because the HPV Awareness Campaign incorporated Facebook Live, I would recommend repeating the event annually. If resources are available, advertising the event to drive traffic to the livestream would be beneficial. Additionally, upon completion, the video could be edited into shorter videos, each with a single question. These shorter videos, in addition to the longer, full video, should be made publically available on Facebook and YouTube. The CCS may also want to consider conducting additional audience research to determine if transcribing the video into another language would be valuable.

In addition to video production, I would recommend that public health organizations consider increasing mobile capacity in their long-term planning. Because this option is likely expensive, and requires a long implementation time frame, it is likely not feasible for most organizations to implement immediately. However, because the

option provides a large amount of detail, is viewed as trustworthy, and is an increasingly accessible medium, it is highly desirable in the long-term. A well-designed app would promote a high level of engagement through offline participation, thus reducing opportunities for message manipulation.

There are many potential design options for an app. With respect to the HPV Awareness Campaign, I propose two ideas. The first option is a vaccine tracker for parents to record the vaccines their children have received and find up-to-date information on vaccines. This app would likely need to be developed in partnership with other organizations or government interested in increasing vaccine uptake. The second option would be a health tracking app for reducing cancer risk. This option could be developed without external stakeholders as it would incorporate the CCS's broader mission into a single app. Both options would incorporate information from the HPV Awareness Campaign into a broader health app that would be useful enough for people to keep on their smartphones.

Within both of these recommendations, organizations looking to use social media should also be conscious of increasing diversity within their target audience. In order to effectively reach diverse communities, organizers may have to deploy a wider range of social media tactics or conduct multiple campaigns that more narrowly target specific populations. In order to understand which social media tactics are the most appropriate, more research needs to be undertaken in order to understand how different groups respond to health information on social media.

Chapter 10. Conclusions

Through this research, I have identified several key trends that are important to consider when developing social media content for social marketing campaigns. First, specifically in the context of the CCS's HPV Awareness Campaign, the survey data showed that the demographic trends within the larger target audience are difficult to identify. Although men reported using social media less than women, both genders had high aided recall of the campaign. This suggests that gender does not create natural segments within the target audience. In contrast, education did lead to differences in aided recall. Those with a higher education had better aided recall of the campaign. This finding is significant because those with a lower education are more likely to face health inequities. Social marketing campaigns should work to ensure content appropriately targets groups with lower education. These findings also reiterate the importance of audience research and segmentation, two benchmarks for successful social marketing campaigns.

The qualitative data also revealed six important themes. I found that the target audience believes some types of social media are more appropriate for health information than others. Second, the target audience indicated that while social media is useful, traditional media, especially radio, remains an important communications channel. Third, accountability and transparency are the most important considerations when developing health-related social media content. This is because many people are wary of false information on social media. Fourth, many participants would have liked the campaign to be more diverse in terms of representation. Fifth, was the value of video and the rising importance of livestream technology for communicating health information in an engaging manner. Finally, the target audience was more responsive to social media content that was personalized or relatable.

Based on these trends and themes, I have recommended that public health organizations incorporate informational videos into HPV social marketing campaigns on social media. Videos should not appear as pharmaceutical advertisements. Facebook Live represent a unique opportunity for non-profit organizations because it allows for direct audience engagement while maintaining control of the conversation. It is also available for a low cost and can be implemented on a short timeline. The target audience was highly responsive to the concept, making it an ideal option for social marketing.

My second recommendation was for organizations to look for ways to incorporate mobile technologies. At the very least, organizations should ensure that websites and social media content mobile-friendly. An additional step some organizations may consider is developing an app. While the content of a campaign may be too narrow to warrant an app, building that content into a broader health app may be feasible. In the context of HPV, the CCS could consider a vaccine tracker or a cancer risk app. Like Facebook Live, mobile technology also provides a high level of engagement while balancing accountability and transparency by featuring credible information sources. However, this option does come with a higher cost, and is likely only feasible in the long-term.

Both of these options were recommended because they successfully balance the trade-off between accountability and engagement. This trade-off appeared many times throughout this research and remains the key take away. Media richness theory suggests that as a communications medium provides more avenues for engagement, it becomes more likely to transmit information to the audience. However, as a communications medium becomes more interactive, there is also a higher risk of losing control of the message. This concept was demonstrated in the data; options that provided the highest level of engagement performed poorly on accountability and transparency criteria. With this in mind, social marketers should be wary of the trade-off between higher engagement and decreased accountability when using social media.

This research was subject to several limitations. First, the online survey did not gather demographic information on cultural or linguistic groups. Further research is needed to better understand how diverse communities respond to public health

campaigns on social media. Organizations should consider diversity as a key factor when conducting audience research. Better understanding how diverse groups respond to social media will help to further refine social media tactics to ensure they effectively reach all groups within the target population. In some cases, this may mean employing multiple social media tactics, or conducting simultaneous campaigns that target specific populations more narrowly. Second, this research was conducted from the perspective of the target audience and did not include the perspective of external stakeholders who participated in the campaign. The CCS conducted an evaluation of external stakeholders but it would also be valuable to have a rigorous academic evaluation of stakeholder perspectives in order to establish a broad set of promising practices for social media use. Finally, this research was limited because the data collection did not include questions regarding public perceptions of apps. Additional research that examines the public appetite for an app related to HPV, vaccines, or cancer risk would be useful. It is also important for the CCS to continue evaluation efforts on future iterations of the HPV campaign to determine the impact of any changes.

This research has established a set of promising practices for using social media in HPV social marketing campaigns. The findings were presented to the CCS in a formal evaluation report and will directly influence future iterations of the HPV Awareness Campaign. These findings can also be applied more broadly to other public health campaigns seeking to promote health interventions characterized by misinformation. As social media continues to grow, public health organizations may have to consider social media. While the risk of losing control of the message is very real, this research provides promising practices for effectively managing that risk, and a starting point for further research.

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Appendix A. Timeline of HPV Policy in British Columbia

Table A1: Timeline of HPV Policy in British Columbia

2008	Government of BC announces the first publically funded HPV vaccination program in province after the vaccine was approved by Health Canada in 2006 and the federal government allocated \$300 in the 2007 federal budget to assist provincial vaccination program accommodate the new vaccine. The program provides grade six and nine girls with the HPV vaccine through the publically funded, school-based vaccination program.
2012	The initially HPV vaccine program ends and grade nine girls are no longer routinely given the vaccine. Grade six girls continue to receive the vaccine while grade nine girls are eligible to receive the vaccine through a catch-up program at school if they were not vaccinated previously. All women up to age 21 are now eligible to receive the HPV vaccine through public funding if they present at a public health clinic.
2013	The grade nine, school-based HPV vaccine catch-up program ends. All females in BC up to age 26 are now eligible to receive the HPV vaccine through public funding if they present at a public health clinic.
2015	Government announces a new HPV vaccination program for males living in BC who are at an increased risk of HPV infection. The following males are eligible to receive the HPV vaccine if they present at a public health clinic: <ul style="list-style-type: none"> - Males nine to twenty-six who are: <ul style="list-style-type: none"> • Men who have sex with men including those who are not yet sexually active and who are questioning their sexual orientation, • Street involved, and • Living with HIV, - Males nine to eighteen in the care of the Ministry of Children and Family Development - Males twelve to seventeen in youth custody services, and - Boys and young men in any of these groups who have previously started the vaccine series and have outstanding does.
2017	Government announces that beginning in the 2017/2018 school year all children in grade six will routinely receive the HPV vaccine the the publically funded, school-based HPV vaccination program. At the time of writing, females up to the age of twenty-six and males at an increased risk of HPV infection are eligible to receive the HPV vaccine through public funding if they present at a public health clinic. It currently unclear if catch-up HPV vaccination programs will continue beyond the 2017/2018 school year.

Appendix B. Interview Guide

Table B1: Interview Guide

Target Audience Interview Guide	
<p>Introduction: The Canadian Cancer Society recently conducted the HPV Awareness Campaign to help increase HPV vaccine uptake in British Columbia. The campaign devoted significant resources to social media. This research project will evaluate the impact of social media in the HPV Awareness Campaign. The objective of my research is to develop a set of policy recommendations for public health programmers and planners to consider when developing social media content for similar campaigns. The purpose of this interview is to discuss your reactions to and opinions about the HPV Awareness Campaign in order to inform my recommendations.</p>	
Questions	Probes
Where do you remember seeing the HPV Awareness Campaign?	
What did you like about that campaign?	
What would you change or improve?	
As part of this campaign, the Canadian Cancer Society used social media as a way to reach parents with information about HPV and the HPV vaccine, and to direct them to additional credible sources of information. Where would you like to see health information on social media?	<ul style="list-style-type: none"> - Facebook ads - Organic content on Facebook - Twitter - Instagram - YouTube - Pinterest - Not on social media at all
How do you prefer information to be presented on social media?	<ul style="list-style-type: none"> - Text - Pictures or images - Infographics - Video
Have you heard of Facebook Live?	If no, explain livestream video.
Would you be interested in watching a Facebook Live event with a doctor talking about HPV?	
Do you read public comments on social media?	
Do public comments on social media influence your opinion?	<ul style="list-style-type: none"> - Positive comments - Negative comments
What other types of media are a good way to reach you as a parent?	<ul style="list-style-type: none"> - Radio - Television - Email - Mail - News media

How much information or detail should social media posts about HPV or other health issues include?	- Is this different from other types of media?
Is there anything else you'd like to share about the campaign?	

Appendix C. Criteria and Measures

Table C1: Criteria and Measures Matrix

Societal/Management Objective	Criteria	Measure
Accountability and transparency	Detailed information	How much detail is possible to capture in the data?
	Trustworthiness	Does the target audience trust information coming from this source?
Cost	Cost to organization	What is the estimated cost, including human resources, of the option?
Equity	Accessibility to marginalized groups	Can the information be presented through this option in such a way that is accessible to marginalized group? (For example, does it use plain language? Can it incorporate languages other than English?)
Public Opinion	Appropriateness	Is the target audience receptive to the option as location to engage with health information?
Time Frame	Implementation timeframe	In what time frame could an organization implement the option?
Reach	People reached with information	How many people will be exposed to the information through this option?
Engagement	Audience engagement	<p>What level of engagement does the option provide?</p> <p>Options for engagement:</p> <ul style="list-style-type: none"> - Low = liking or following - Moderate = commenting, asking questions, participating online - High = offline participation

Appendix D. Key Performance Indicators

Table D1 was adapted from Neiger et al. (2012) and used to develop two the criteria for evaluation: reach and engagement. I did not alter the definition of reach. I adapted the metric slightly to measure prospective followers and users of each option. For engagement, I combined the three engagement criteria listed here and combined them into a single criterion that was measured on a low to high scale.

Table D1: Key Performance Indicators from Neiger et al. (2012)

Key Performance Indicator	Definition	Metric
Insights	Consumer feedback from social media applications	Number and types of suggestions or recommendations
Exposure	The number of times content on a social media application is viewed	Visits, clickthroughs, number of comments, number of ratings, number of reviews on rating site, Facebook impressions, views on a video, viewed blog posts (page views), assess popularity (which content is view most often), proportion of posts and videos viewed
Reach	The number of people who have contact with a social media application and the related content	Fan/page likes, number of people participating in discussions, unsubscribed fans, number of followers or subscribers, demographic of subscribers/fans/followers, virality (growth rate of fans, followers, and friends)
Engagement (low)	The number of people who acknowledge agreement or preference for content	Ratings, likes on Facebook posts, like rates, frequency of favourites, likes or dislikes on videos
Engagement (medium)	The number of people who participate in creating, sharing, and using content and the degree to which they influence each other	Posts or tweets by users, user-generated content (eg. Videos), comments on posts, comment rate, number of threads on discussion topics, frequency of new discussions, new topics, downloads, uploads, Klout scores, number of retweets, retweet rate, mentions, the number of time a post, video, or

		link was shared
Engagement (high(The number of people who engage in offline events (which may be in addition to continued online activity) as a consumer or as a program partner, volunteer, or sponsor	Number of people who register for services/make an appointment, number of people who participate in off-line advocacy events as volunteers or sponsors, number of people who attend off-line events as participants, number of people assisted, number of participants satisfied

Note: Adapted from Neiger et al. (2012)

Appendix E. Complete Policy Analysis Matrix

Table E1 illustrates the full policy analysis of each option compared to the objectives and criteria. For each criterion, each option was assigned a value based on a relative scale ranging from one to three. Three indicates the option performed well on the criteria while one indicates the option performed poorly. An asterisk (*) indicates the option was weighted double in the final analysis.

Table E1: Complete Policy Analysis Matrix

Objective	Video Production	Audience Engagement	Increase Mobile Capacity
Accountability and transparency*	<p>This option can include a lot of information. Facebook Live also ensures the information will be highly tailored to the target audience. Therefore, this option performs well on the detailed information criteria.</p> <p>Video that feature a physician and CCS staff are likely to lend credibility to the information. The Literature and interviews suggest having a physician's opinion is important. Video is a good option as children in this age range don't see doctor often. This option also scores well on trustworthiness.</p> <p style="text-align: center;">6</p>	<p>This option has a limited ability to include a lot of detail because the space on social media where conversations take place is limited. This option performs poorly on the detailed information criteria.</p> <p>In this option, there are also concerns about inaccurate, user-generated content as people brought up in the interviews and in the literature review. In the interviews many people said they did not read comments on social media at all. Some people said they would trust commentary from the public only if it were someone they knew personally. This option performs poorly on trustworthiness.</p> <p style="text-align: center;">2</p>	<p>This option has unlimited potential for including a high level of detail if developed properly. Several interviews indicated that if the layout of a website is good, it is possible to include unlimited detail. This finding likely applies to apps as well. This option performs well on the detailed information criteria.</p> <p>Because it is not possible for the public to alter or distort information on an organization's website or app, this option would likely be viewed as trustworthy. This option scores well on trustworthiness.</p> <p style="text-align: center;">6</p>
Equity	<p>This option can lead to a higher level of accessibility because</p>	<p>This option likely struggles with equity because there may be a mix-match</p>	<p>Many low income people use mobile devices as the primary way they access</p>

	<p>videos can be highly tailored to a target audience. Incorporating plain language is feasible. However, this option may struggle with equity because providing videos or Facebook Live events in another language may not be feasible. Because of this, the option performs moderately.</p> <p style="text-align: center;">2</p>	<p>between volunteers and marginalized populations. Volunteers are more likely to be higher income and more educated. This social circles and people they influence are likely to be similar people. The data trends indicated that people with lower education were less likely to recall the campaign. Further, low income people stand to benefit the most from preventative health interventions. However, if an organization identified an at-risk ethno-linguistic group and is able to recruit volunteer from that group, the option may perform better on the option.</p> <p style="text-align: center;">1</p>	<p>the Internet. Ensuring campaign information is mobile friendly will increase their access. However, the option struggles in other regards because it would be difficult to provide the information in multiple languages. Because of this the option performs moderately.</p> <p style="text-align: center;">2</p>
Cost	<p>Video production was previously a costly endeavor but Facebook Live is free for Facebook users and does not require any special equipment as it can be filmed from any smartphone. There may be some costs associated with video editing or transcription, or advertising prior to broadcast and cost will be higher if there is no in-house support to edit and transcribe video. However, these are optional. The option performs well on cost.</p> <p style="text-align: center;">6</p>	<p>This option relies on volunteers which are free but recruiting, training and coordinating volunteers requires considerable staff time. Further staff will likely have to spend considerable time monitoring content generated through this option. This option light on financial resources but heavy on human resources. This option performs moderately on cost.</p> <p style="text-align: center;">4</p>	<p>The option requires devoting significant resources to web and app development in addition to maintaining existing campaign activities. If organization has in-house web development, it will reduce external costs however if starting an app from nothing, will likely require external contracting. The option performs poorly on cost.</p> <p style="text-align: center;">2</p>

<p>Time Frame</p>	<p>Facebook Live videos can be easily incorporated into an existing campaign. CCS had never conducted a Facebook Live event but was able to incorporate one with less than three months' notice. The option performs well on time frame.</p> <p style="text-align: center;">3</p>	<p>It depends on existing volunteer base available to organization. If the organization has to recruit new volunteers, it will take time, as does training. Generating enough content to generate online discussion also may take time. This option performs moderately on time frame.</p> <p style="text-align: center;">2</p>	<p>This option is likely to take quite a bit of time, especially if an external contractor is required. Further, if the organization looks to work in partnership with another organization or government, collaboration and consultation is a slow process. This option performs poorly on time frame.</p> <p style="text-align: center;">1</p>
<p>Public Opinion</p>	<p>Not all interview participants preferred video as their choice of media to consume health information, but most agreed that Facebook Live is an important tool. They had suggestions like transcribing the conversation and posting for people to scan later or using as an FAQ document. One person said they preferred reading on social media but then later said that if she had known about the Facebook Live held during campaign she would have made time to participate. The option performs well on public opinion.</p> <p style="text-align: center;">6</p>	<p>Some people reported being uncomfortable discussing HPV on social media for multiple reasons including privacy concerns, fears regarding user generated content, and the nature of the topic which includes vaccines and sexual health. It may be difficult to recruit volunteers for this option. This option performs moderately on public opinion</p> <p style="text-align: center;">2</p>	<p>The privacy of an app may appeal to some people. Further, as many people report using their phone as primary way of accessing the internet the option would likely be favorable.</p> <p>Many Canadians use health apps so there is likely a market for an app. This option performs well on public opinion.</p> <p style="text-align: center;">6</p>
<p>Reach</p>	<p>Performance for this option is limited by the number of Facebook followers a page has. While it is likely to reach a moderate number of people, advertising may be required to expand that</p>	<p>Reach will increase exponentially in this option as volunteers will share materials with their own personal networks, thus reaching far beyond organizational social media followers. This</p>	<p>Apps are designed for individual interaction rather than group interaction. This means the audience will likely be smaller and not facilitate audience growth.</p>

	audience. The option performs moderately on reach. 2	option performs well on reach. 3	1
Engagement	This option would allow for liking and sharing. Further, it would allow for direct participation in the Facebook Live by facilitating audience question with a health care provider. However, that engagement is limited to livestream viewers. This option performs moderate on engagement. 2	This option allows for many different types of participation. It allows for liking, sharing and commenting. It also allows for offline participation as a volunteer and may facilitate offline conversations about material seen on social media. This option performs well on engagement. 3	This option has the potential to perform well on engagement but is highly dependent on the specific design of the option. While updating a website to be mobile-compatible will not increase engagement, an app may allow for commenting, linking, sharing or offline participation through a health tracker. This option performs well on engagement. 3
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