

Information Seeking Practices of Seniors, Youth and Parents

Preliminary Report

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Executive Summary

This research project was focused on observing people's on-line health information seeking practices in order to obtain insights about health information seekers' information seeking strategies, and the usability of the British Columbia HealthGuide (BCHG) web site. The three key objectives of this research were to:

1. gain further insight into health information consumers' online health information seeking strategies, because information seeking strategies come to bear on the visibility of the BCHG web site to potential users;
2. obtain insights about awareness of the BCHG web site, and usage and usability of the BCHG web site amongst on-line health information seekers;
3. identify challenges BCHG users face in their use of the BCHG web site.

Systematic investigator searches were conducted using online search engines in order to determine whether or not technical changes could increase the (online) visibility of the BCHG web site for BC health information seekers. It was observed through these systematic searches that the BCHG website consistently appeared very low in search engine queries and that the website appeared to be better indexed in Google.ca than in other search engines used during systematic searches.

In addition to the systematic searches, three focus groups were held with people from three age groups: youth (20-24 year olds), seniors (65+ year olds) and parents with young children at home, which included observation of participants' on-line health information seeking practices. This document is a preliminary report that contains 1) findings from our systematic searches aimed at determining the visibility of the BCHG web site on various search engines, undertaken in order to determine how technical changes might improve the site's visibility, and 2) findings from preliminary analysis of the focus groups undertaken in order to gain insight about how the BCHG web site is viewed by on-line health information seekers.¹

¹ Information presented here is based on preliminary analysis of the data collected through observation of participants during focus groups, and data collected through the administration of questionnaires during focus groups. Systematic

Preliminary work² yielded the following findings and recommendations:

1. Youth participants were most dissatisfied with their experience on the BCHG website while seniors were most content with it. Participants in the youth group disliked the fact that information relevant to their concerns (e.g. fever in adults) was categorised under health conditions for ‘age 4 and older’. Seniors liked that there was ample information on the web site.

Recommendation: Cosmetic changes to the BCHG web site which signal to users that they are a unique age group may increase appeal of the BCHG web site to youth.

2. Most of the participants were not aware of the BCHG website, and search strategies participants use to search for on-line health information did not lead them to the BCHG web site.

Recommendation: Increase marketing of the BCHG web site, and consider a marketing campaign that includes messaging about search strategies for obtaining Canadian content on-line.

3. It was observed that none of the participants explored any of the links from the home page of the BCHG web site, other than for the search engine. The physical location of the search engine on the web site’s home page may deter BCHG web site information seekers from pursuing information available through links from the home page.

Recommendation: Conduct further research in order to determine the prevalence of this phenomenon amongst a larger population, and, if a clear preference for exploring the site through a search engine rather than browsing through links persists, consider re-design initiatives that will either support users in gaining better access to the information they desire via a search engine, or will encourage use of links rather than search engines as a means of navigation.

and in depth analysis of focus group transcripts, researchers’ observation notes and logs of participants’ on-line sessions is on-going.

² It is anticipated that more in depth analysis will produce more extensive documentation of phenomenon referred to here, but is unlikely to lead to significant changes in findings or recommendations.

4. Participants all used Google as a search engine, and participants' information seeking behaviours reflected frequent use of the Google search engine.

Recommendation: The search feature on the website should be enhanced as participants in the focus groups expected it to have “Google-like” capabilities, e.g. spelling corrections, and search results accompanied with brief descriptions.

5. The BCHG web site did not rank high in most frequently used search engines, when systematic searches were conducted in order to determine the extent to which the visibility of the web site within search engines may be resulting in lower than anticipated use of the BCHG web site. It was also observed that participants did not explore online search results beyond the first few links on the first page of a search engine. This has implications on the web site's usage frequency.

Recommendation: Search Engine Optimization (SEO) strategies can be applied to the BCHG web site which could include but not be limited to: Real Simple Syndication (RSS) feeds, better meta tagging and increased tagging of keywords within the content of pages and domain forwarding from ‘.com’ and ‘.net’ domain counterparts to the current BCHG web site domain (.org).

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Introduction

The Internet has become a rich source of information for people from all walks of life. It contains an ever-expanding array of information about a range of topics, including health care. The Internet can potentially serve as a 24 x 7 resource for patients and their families (frequently referred to as health information consumers), who seek health related information on-line. There are several ways in which consumers can access online health information, including through medical portals, email lists, search engines, forums/user groups, chat rooms, and through online physician consultation web sites [1-3]. According to Statistics Canada's 2003 figures, 36% of Canadian households used the Internet to obtain health information while 64% of Canadian households had at least one member who used the Internet regularly [4]. Figures were similar for households in British Columbia, 55% of whom had at least one member who regularly used the Internet for health information seeking [5]. In 2003, 49.7% of Canadians and 55.5% of British Columbians reported using the Internet in a typical month to search for health-related information respectively [6].

An estimated 21 million people have been influenced via the information provided by about twenty thousand health-related web sites on the Internet [7]. Consumers trust/mistrust these information resources according to their own perceptions of the web sites' credibility [8, 9]. Studying consumer health information seeking behaviour is therefore important because of the magnitude and diversity of Internet use, diversity of Internet users and potential implications of health information consumers' behaviour on the structure of the health care system, consumer-provider interactions and the quality of medical outcomes [10].

The BC HealthGuide Context

British Columbians have instant access to health information through the British Columbia HealthGuide (BCHG) program which has four components: a handbook, the BC NurseLine; BC HealthFiles and BCHG OnLine (web site). Besides providing access to BC HealthFiles, the BCHG web site provides access to a health information database containing over 35,000 pages. Despite improvements to the BCHG web site which resulted in its re-launch in September 2005, only 1 in 4 British Columbians is aware of BC HealthGuide OnLine. This finding has been consistent since January 2004. Moreover, a population survey on the BCHG website indicated that search engines were the most frequently used (65.5%) resource by health

consumers prior to their use of the BCHG website [11]. Despite this and the fact that 55.5% percent of British Columbians use the Internet to seek health information, only 27% of British Columbians that responded to an online survey on the BCHG website were aware of the HealthFiles [12].

The project whose results are reported here was undertaken in an attempt to explore reasons for lower than anticipated use of the BC Health Guide OnLine web site, with an end goal of optimizing utilization of the BCHG web site. After identifying several possible reasons for lower than anticipated use of the BCHG web site³, we considered two explanations for lower than anticipated use in greater depth: 1) that on-line health information seekers did not easily find the BCHG web site when they conducted on-line health information searches, and 2) that potential BCHG web site users may be finding the site and not returning to it if they are unable to meet their health information needs through their contact with the site.⁴ These two possible explanations for lower than anticipated use of the BCHG web site were pursued through two research strategies.

Systematic searches for on-line health information issues known to be on the BCHG web site were conducted by research staff, in order to determine whether or not the BCHG web site was visible through commonly used search engines. Systematic searches undertaken by researchers were also complemented by searches undertaken by study participants, who were given health information seeking scenarios, and asked to conduct on-line searches related to the scenarios. Systematic searches conducted by researchers and unstructured searches conducted by research participants yielded results suggesting that the visibility of the BCHG web site could be improved through technical optimization strategies, which are discussed at greater length below.

The possibility that on-line health information seekers might find their way to the BCHG web site but may not find what they want once on-line or may be hindered by usability issues was explored by observing on-line health information seekers as they used the BCHG web site to locate information. Health information seekers were observed as they sought information on the BCHG web site, their on-line sessions were logged and captured on a hard drive for further analysis, and health information seekers subsequently completed a questionnaire and participated

³ Possible explanations for lower than anticipated use are provided in appendix 4.

⁴ This latter line of thinking was inspired in part by data that suggested that a high proportion of those who responded to a BCHG on-line survey were first time visitors to the site. This has caused our research team to wonder if users visit the site, fail to find what they are looking for, and subsequently do not return.

in focus groups where they discussed issues related to their use of the BCHG web site.

Research Methodology

Systematic Searches Conducted to Assess the On-line Visibility of the BCHG Web site

Research staff conducted systematic online searches using commonly used search engines, and subsequently observed research participants as they conducted health information seeking tasks, in order to address our first research question (are on-line health information searchers unable to locate the BCHG web site?). The systematic searches were based on the top five problems discussed with the BC NurseLine staff, for each of the populations included in our research (see Table 1 for a list of the health problems explored with each of the populations included in this study). Key phrases based on each of the topics in Table 1 were searched on five online search engines. The selection of these search engines was based on the existing literature [13, 14] that identifies search engines that are used by health consumers. The comScore media Metrix ratings of search engines were also used to identify the most frequently used search engines by English-speakers worldwide [15]. The selected search engines included in this study are shown below.

- Google.ca
- MSN.ca
- Ask.com
- Altavista.ca
- Yahoo.ca

Table 1: Top 5 problem types asked to the BC Nurseline by population category

Youth	Seniors	Parents/Mothers
Fever as Primary Symptom	Prescription Medications	Fever as Primary Symptom
Abdominal Pain/Abnormal Vaginal Bleeding	Nausea/ Vomiting	Nausea/ Vomiting
Nausea/ Vomiting	Other Wellness Issue/ Concern	Rash/Hives
Prescription Medications	Dizziness (Lightheadedness/ Vertigo)	Cough
Fertility/ Pregnancy	Abdominal Pain	Diarrhea

Observations of Users and Focus Groups

Health information seekers were observed as they searched for on-line health information. During their searches, they were observed by research staff, who also asked them questions as they completed their searches. Research staff wrote detailed observational notes, and in addition, the contents of participant's on-line sessions were captured for subsequent analysis. Following on-line searching, participants were asked to complete a brief questionnaire about usability of the BC HealthGuide web site, and demographic information. Finally, participants came together in a focus group to provide further insights about their use of the BCHG web site.

Three population groups were targeted for these sessions. These were youth (20-24 year olds); seniors (65+ year olds); and parents with young children at home. Recruiting notices were posted at local public places such as libraries and recreation centres in Surrey, a location chosen because of the diversity of the population there, and the availability of a facility suitable for holding the portion of the study which required use of a computer lab.

A three-part session was conducted with each of the populations described above. Participants' information seeking strategies and behaviours while searching for on-line health information based on pre-determined scenarios were observed. Participants were first asked to conduct searches as they would at home. Participants were subsequently asked to repeat their searches from within the BCHG web site. By first asking participants to search as they typically would at home, we were able to gain insights about users' search strategies (e.g., that the preferred search engine is Google, and that users do not use the "pages from Canada only" feature when using Google). Data captured during these user driven searches also allowed us to learn more about how people search, the challenges they face in locating information, etc. By having participants begin searching within the BCHG web site during the second part of their sessions, we could see if they were able to locate the information they sought once they got to the BCHG web site, and we could identify what challenges they faced in using the BCHG web site.

The scenarios which research participants were asked to address in their searches were based on the five topics listed in Table 1. The format of the scenarios was adapted from National

Aeronautics and Space Administration's (NASA) Usability Toolkit [16].⁵ Once participants had completed both sets of searches, research staff administered a brief questionnaire which elicited information about aspects of the BCHG web site as well as demographic information. The usability items on the questionnaire (given in Appendix 3) were adapted from John Brooke's System Usability Scale [18]⁶ and NASA's Usability Toolkit [19]. Finally, participants came together for a focus group where they were asked additional questions about their experiences searching the BCHG web site to locate information based on scenarios they were given. Participants' reactions, comments and views about the BCHG web site were obtained during this session.

Results

Systematic Searches

In order to investigate the position of the BCHG web site in search engine queries, key phrases were developed which were entered into a range of search engines, with the goal of determining how far down a list of results returned the BCHG web site appeared. A total of 94 searches were conducted on five search engines (hereafter will be referred as external search engines) and the search engine on the BCHG website as well (hereafter will be referred as internal search engine). Table 2 summarizes the findings from our systematic searches.

Table 2: Summarized results of systematic searches

Total searches	# of times BCHG website turned up on external search engines	# of times BCHG website turned up on the first page of search results	# of times the returned BCHG link(s) (on an external search engine) were relevant	# of times the same queries returned relevant link(s) (on internal search engine)
94	50	20	40	66

⁵ We feel that it is important to reflect on the decision to adapt material from NASA's website. In order to use a validated protocol for this study, published and grey literature was searched for web site usability test protocols. Among the very few that came up, NASA's usability toolkit also came up. Our colleagues also recommended using NASA website's case study which provides a concise description of its development phases (including usability testing with different user groups) along with the actual protocols used during the usability testing processes [17]. The protocols and the described processes were relevant to our research and were therefore adapted for our needs.

⁶ For more information about System Usability Scale (SUS), see Wikipedia's article on SUS at http://en.wikipedia.org/wiki/System_Usability_Scale

Findings

Appearances of a BCHG website's page in search results were systematically tracked and are presented in Appendix 1. The following are prominent findings from the systematic searches:

- Search results that include the BCHG website appear in Canadian searches (i.e.: .ca sites, or Canada indices only) more often than global searches.
- Out of 50 searches that the BCHG web site showed up on in external search engines, the BCHG came up on the first page in only 20 searches.
- Of the 50 times that the BCHG website appeared on external search engines, only 40 times were the results relevant to the search query.
- The BCHG website is better indexed on Google.ca and Yahoo.ca than it is on Altavista.ca.

Discussion of findings

All external search engines displayed 10 results per page and up to five pages per search query were scanned for the BCHG website. Searches on Ask.com and MSN.ca consistently did not return any link to the BCHG website. These two search engines were therefore excluded from subsequent searches and Google.ca, Altavista.ca, and Yahoo.ca were only used for the remaining searches. Searches on Google.ca were conducted with and without the option of “pages from Canada.”⁷ A link for the BCHG website did not come up in the first five pages of searches done unless the “pages from Canada” option was selected. Therefore all subsequent searches on Google.ca were done with this option selected. It was observed that the BCHG website was better indexed in Google.ca than other search engines and that the website did not come up on Ask.com at all. This could be a potential obstacle to the visibility of the website to online users as users may not always type .ca instead of .com for search engines, and search engines do not always identify user's geographical location automatically.

Moreover, the BCHG web site appeared on the first page of search results for 20 times (out of its total 50 appearances). This can have strong implications for the potential usage frequency of the BCHG website and its components because users do not always look beyond the first page of external search engine results, a finding supported by data collected during

⁷ By default, Google.ca searches without selecting the “pages from Canada” option. Selecting this option forces Google.ca to search Canadian websites.

observations of users conducted as part of this study. If people cannot find the site, they will not be able to use the site. User may also develop a 'bad impression' of the BCHG web site if the site appears in a list of returned results but the link leads to information which is not on topic. Hence, it is significant that in search results 40 out of 50 appearances of the website were irrelevant to the search queries. Too many inappropriate results can steer away users from the website. Use of common colloquial terms, which is what most of the participants in the focus groups used in their searches, produced 10 irrelevant results on the external search engines (28 out of 94 queries on the internal search engine produced irrelevant results as well). Optimized keywords to match content of pages indexed can be employed to address this issue.

Observation and Focus Group Sessions

Research Methods and Participants

Participant Characteristics

Individuals that were BC residents, had used the Internet in the past year to look up health information and were fluent in English were recruited for the observation and focus group sessions. Five individuals aged between 21 and 23 years (three females and two males) participated in the 'youth' focus group. All of them were university students who considered themselves expert Internet users. Two males and one female between the age of 38 and 45 participated in the 'parents' focus group. The 'parents' participants had children between the ages of 3 and 19 years of age. Male participants considered themselves as expert Internet users, while the female participant thought of herself as an intermediate Internet user. Gender distribution in the seniors' group was the same as the parents' group, with two men and one woman attending. Seniors ranged in age between 66 and 71. The female participant in the seniors group considered herself a novice Internet user, while one of the males regarded himself as an advanced user and the second male as an intermediate Internet user.

Information Seeking Practices

Each group participant was observed by one research staff member while they completed searches based on five scenarios (see Appendix 2) developed by research staff. In the first part, participants were asked to find information using the Internet as they would search at their homes. In the second part, participants were taken to the BCHG web site's homepage and were again asked to look up information relating to the scenarios.

Findings

Youth

Participants in the youth group skimmed information on the Internet rather than reading thoroughly. They attempted to find specific information quickly and very rarely visit a second page of a search engine's results. Prominent findings are given below.

- None of the participants used any search engine other than Google.ca and they usually preferred to look at the first few hits (search results). A majority of the participants used Wikipedia and said that they used it very frequently. One of the participants said, "Google and Wikipedia are my best friends."
- None of the participants used the "pages from Canada" option on Google.ca.
- The BCHG website did not come up in search results for any of the youth participants.
- Youth did not think of web sites as credible and trustworthy if they had a lot of advertisements on them or did not have '.gov' or '.edu' domain names. This is reflected by one participant who said, "typically sites with ads are less credible."
- Participants tended to use the same search terms and phrases on the BCHG web site as they did on Google.
- Most of the participants did not like the fact that information relating to their age group was listed in the "4 years and older" category. It was not obvious to them that it was in this category that they would find information pertaining to their age group.
- Participants made spelling mistakes frequently and since Google offers correct spelling suggestions, participants did not like the search feature on the BCHG web site as it does not offer spelling corrections and also because the latter did not give brief descriptions/subtitles under its search results. The value of adding a spelling correction tool to the BCHG web site was also identified as a need by BCHG staff with whom we spoke prior to conducting observation and focus groups sessions.

Parents with young children at home

Participants in this group spent more time reading information on the Internet (rather than

skimming it) compared to those in the youth group, especially if the topic at hand was directly related to their children's current condition(s). This group was generally happy with the BCHG website. One of the participants however complained about the lack of "Google-like" features in the web site's search functionality. Prominent findings from observing this group and discussing their BCHG use with them during focus groups are provided below.

- As was the case in the youth group, participants in this group mostly relied on Google.ca and Wikipedia.com to find information. Other search engines employed by this group were Yahoo.ca and ask.com.
- None of the participants used the "pages from Canada" option on Google.ca or similar option on Yahoo.ca.
- Participants tended to use the same search terms and phrases on the BCHG web site as they did on Google.
- Participants made spelling mistakes frequently which had to be pointed out by the observers.
- Two of the three participants were quite content with the BCHG website and commented that they liked the information on this website. One of them said: "The web site [BCHG] has everything that a person might need [relating to medical info]."
- One of the participants was a recent immigrant and seemed to be unhappy with the BCHG website. He expected the web site to help him diagnose his health problems, as web sites he had used in his home country allowed him to do this. He also commented that the BCHG website looked like a government bulletin board. He said that the keywords [in search results] did not prompt him and it took time to scan the results. "It's not comfortable," he said and complained about search results being too broad, "I have to read it all." He was also put off when he came across disclaimers on the web site. Upon seeing the disclaimer, he said, "I don't want to go ahead."

Seniors

It was observed that participants in this group seemed to have the greatest prior knowledge of online health information seeking and relevant online resources, compared to the Youth and Parents groups. Two of the three senior participants reported that they had favourite medical web sites that they usually visited for their health concerns. This was understandable since seniors

might have more health concerns than younger people. This group seemed to be very satisfied with the BCHG website, although one participant complained about the search results not being on target, meaning that he or she was unable to find what he or she intended to. This was the only group in which participants had a “favourite” medical website (which was not the BCHG website) that they frequently visited. Prominent findings are given below.

- Besides using Google.ca, MSN.ca, and Yahoo.ca were used by senior participants to search for information.
- Two of the participants had used BCHG web site in the past.
- Two of the participants were quite content with their experience on the BCHG web site. One of them reflected on the simplicity of the language, “I like this... it’s very simple language” and another participant commented that the BCHG web site is good because it has a lot of information on health issues all at one place.
- Senior participants were keen on learning in detail about the medical conditions that they themselves had.
- One participant felt that running a BCHG web site was a waste of taxpayers’ money because it just duplicates other medical websites. He suggested a focus on more local information and suggested that the general information currently available on the BCHG web site not be included because it is available elsewhere (e.g. through search engines).

Participants’ Comments about the BCHG web site

Participants were asked to complete a brief questionnaire about issues relating to the usability of the BCHG web site, after they had used the web site. The questionnaire addressed four areas of usability:

1. Readability
2. Navigability and search features
3. Web site design
4. Web site language and content

It was interesting to note that although two of the eleven participants had visited the BCHG website before participating in our study, that both of these participants were infrequent users of the web site. Views about the usefulness of the web site were mixed across the three groups of participants. What follows below is a summary of participants’ feedback about the four aspects of usability listed above.

Readability

Seven participants thought that the layout of the pages on the website was easy to follow although some participants complained about the lack of a site map. It is interesting to note here that all of the participants used the search feature of the BCHG web site from its home page rather than using one of the other links on the home page (i.e., BCHG NurseLine, HealthFiles, etc.). Nine participants indicated that the amount of information per page on the website was adequate. One of the youth participants however complained about there being too much text per page and that she would rather have information in a bulleted format rather than in long paragraphs. Another youth participant echoed this view by commenting on the ‘yellow fever’ (BC HealthFile) page’s font being too small and hard to read. He said he was “very bothered” by this and skipped the page without reading it.

Navigability and Search features

Of all three groups of participants, the youth and parents group were the most dissatisfied with the search features of the BCHG web site. It seemed that almost every participant in the youth and parents groups was expecting a “Google-like” search engine which would correct their spelling mistakes and provide brief descriptions and/or subtitles under every search hit/result. However, in the absence of a “Google-like” search engine, five out of eleven participants thought that their search results were not on target and only two thought that finding answers (for the scenarios) was difficult on the web site. Seven of the eleven participants however thought that the search feature was easy to use. As far as general navigability of the web site is concerned, seven participants felt that it was easy to use and eight participants found the web site easy to navigate through and find one’s way around.

Web site Design

Ten of eleven participants found the design of the home page attractive while seven participants agreed that the homepage’s content enticed them to explore the site further. It is interesting to note here that none of the participants explored links on the homepage of the BCHG, except one senior participant who clicked on “Seniors’ Health.” All participants used the search feature directly without exploring any other part of the home page. The physical location of the search engine dialogue box on the web site’s home page may have invited the participants to use this feature directly (without any further exploration of the home page). However,

identifying factors responsible for this particular behaviour will need further investigation. Nine participants agreed that they liked the design of the web site, and indicated that the website had a professional look and the amount of information on the home page was adequate.

Web site Language and Content

Ten of eleven participants agreed that the information provided on the BCHG web site was clear and easy to understand while seven agreed that most people would find the web site very informative.

General Likes and Dislikes Concerning the BCHG Web Site

Only two (seniors) of the eleven participants had visited BCHG web site before participating on our study. When asked whether they would return to the web site, mixed reactions were received from the participants. Youth participants seemed to be most unhappy with their experience using the BCHG web site, while participants from the other two groups generally were happy with the web site. Most of the youth participants were unhappy with the search features on the web site. One of them said, “it took too long to find the right keywords.” Another youth participant commented on the search engine, saying, “the search engine needs refining. It should use keyword indexes for body content, not just the titles. They [BCHG web site] should have abstracts not just titles in search results.”

Likes

All participants felt that the existing graphics and pictures on the BCHG web site were useful. A senior participant commented that pictures are “good for the older generation, for whom it’s hard to see text on the screen right away.” Links to more related information and the amount of information per page were appreciated by the participants in the parents’ group.

Dislikes

All youth participants complained about information relevant to their age group being categorized under links titled ‘age 4 and older.’ One participant said he was unlikely to click on something that said ‘age 4+’ because “it’s not useful for someone who is 18+.” Another said, “I don’t look at something unless it says 18 years old” and another said, “I thought it [information] was just for kids.” All youth participants also disliked the search feature’s capabilities. One of the participants said the “[web] site didn’t have any spell correction.” Another participant echoed

this opinion and said, “if you search the wrong keyword, it’s not too helpful” and that search results should have some detail (and not only the page title) under the result headings. The absence of a site map was also pointed out by a youth participant. It is however important to note here that all youth participants were information science 4th year university students (with extensive computer and Internet knowledge) and their expectations may be different from youth without extensive computer and/or Internet experience. One of the participants from the parents’ group said that a lot of technical details make it hard for lay people to understand the language. An absence of features that would help to diagnose one’s health problem was voiced by seniors and parents alike as a site limitation. Senior participants complained about the text size being too small on the web site.

Discussion

The results of systematic searches emphasized a strong need for the application of search engine optimization (SEO) on the BCHG website. We are aware that there are logistical complications which might restrict the extent to which SEO techniques can be applied to the web site. An important factor in SEO is the relationship between the domain name and the targeted keywords. The current domain name (www.bchealthguide.org) contains the targeted audience group – BC residents – and appropriate keywords (Health Guide), which is appropriate for the web site’s intended use; however, as observed in the focus groups, users were typically more comfortable and familiar with the .com domain name counter parts. Based on the record analysis of ‘*whois.domaintools.com*’,⁸ BC Health Guide (BCHG) already owns the equivalent .com and .net domains. These two domains should be set up to forward requests to the current domain name.

Improve indexing of site contents: Search engines should be able to access a web site with ease. If search engines cannot locate the content, it cannot index the content for people to find it. A good way to create links for internal contents would be through means of a directory, index, or site map. Although there is already a site map in place for BCHG web site, it may not be well optimized to allow access to all contents of the site. Currently, the site map only has one

⁸ whois.domaintools.com is an online domain look up service. According to this website, bchealthguide.com, bchealthguide.org and bchealthguide.net are owned by the provincial government of British Columbia. It is therefore assumed here that the Ministry of Health owns all of these three domains. For a comparison of records associated with the above three domains, see <http://whois.domaintools.com/bchealthguide.com>; <http://whois.domaintools.com/bchealthguide.net>; <http://whois.domaintools.com/bchealthguide.org>.

level of content; if an additional level of content is indexed, it will allow search engines (and human readers) to access the site more easily and more quickly.

In order to rank highly in Google, it is important to place emphasis on the title tag and to target the page content in the first 5120 bytes.

http://www.westbound1.com/loupe/2004summer_2.html

Keywords also help search engines better categorize a website. On top of content that is already written into a webpage, keywords can also be added through use of meta tags. The current home page and a large number of sub-pages do not contain any heading, strong or emphasis tags. Appropriate tags can be used to allow search engine spiders to better understand the website's contents.

Increase Awareness of the BCHG Web Site: From focus groups we found that most of the participants were not aware of the BCHG web site, and their normal search strategies did not lead them to the BCHG web site.

Usability Improvements: It was also observed the participants in the youth group were expecting "Google-like" search capabilities on the BCHG web site that would correct their spelling mistakes and would have brief descriptions or subtitles for all links returned as search hits. The addition of such a feature to the BCHG web site along with improvement of content tagging may contribute to increased satisfaction with the web site, and hence may increase the proportion of return visitors to the site.

Conclusion

Overall, participants were satisfied with the BCHG web site. Seniors were most content with it, and youth were least content with it. The web site's search feature seemed to be too simplistic for participants, who were expecting "Google-like" search capabilities. Google stood out as the preferred search engine across all three groups of participants. An absence of a site map was also identified as a problem by the youth group. It was observed that generally participants misspelled words and therefore relied on Google's corrected suggestions.

Seniors appeared to spend more time searching for on-line health information than participants in other groups. They also appeared to be quite knowledgeable about on-line health information searching, as evidenced by their awareness of favourite websites which they consulted frequently about their health concerns. It was also observed that most of the

participants assessed the trustworthiness of the information that they access online, although different age groups had a different measure of 'trust'. Youth participants for example shared the view that web sites with an '.edu', or '.gov' domain is more reliable than any other. Most of the participants liked that there were pictures on the website to look at which would help them in deciding about their own health problems. An opinion voiced across all three groups of participants was that they would like to see a diagnostic element added to the BCHG website that would help them diagnose a problem and assess the seriousness of their problems. Participants also suggested that a list of causes and symptoms (with pictures) should be added for every health condition listed.

On the technical front, the BCHG web site may need further improvements. The BCHG web site does not rank high in the most frequently used search engines which may affect the web site's usage frequency. Suitable search engine optimization strategies should therefore be implemented in order to reach potential consumers.

Recommendations

Based upon the findings discussed in this report, the following recommendations are made for improving the accessibility and visibility of the BCHG website.

- 1. Search Optimization Techniques (SEO) should be applied to the BCHG web site so that it ranks higher in search engines.**
- 2. The '.com' and '.net' domains should be set up so that potential BCHG users are forwarded to the current '.org' domain.**
- 3. Additional strategies should be employed to increase awareness of the BCHG.**
- 4. Consider the addition of a "Google-like" search feature to the BCHG web site, which will address spelling corrections, and will return search results accompanied with brief descriptions.**

Appendices

Appendix 1: Summary of Systematic Search Results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
fever in children	25 July	Google.ca (without “pages from Canada” option)	40, 90, 000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
fever in children	25 July	Google.ca (with “pages from Canada” option)	976,000	10	2 (20 results)	2 nd page (12 th result)	www.bchealthguide.org/nurseline_fever.stm	Yes (Fever)	Relevant results
fever in children	25 July	Yahoo.ca (without “pages from Canada” option)	14, 400, 000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
fever in children	25 July	Yahoo.ca (with "pages from Canada" option)	517,000	10	2 (20 results)	(2 nd Page) 11 th result	www.bchealthguide.org/kbase/topic/symptom/fevcv/overview.htm	Yes (Fever Seizures)	Relevant results
fever in children	25 July	Ask.com	2,908,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
fever in children	25 July	MSN.ca	2,322,562	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
fever in children	25 July	Altavista.ca (Canada is selected as default option)	16,100,000	10	2 (20 results)	2 nd page (18 th result)	www.bchealthguide.org/kbase/topic/symptom/fevcv/overview.htm	Yes (Fever Seizures)	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
temperature in children	25 July	Google.ca (with "Pages from Canada" option)	1,020,000	10	3 (30 results)	3 rd page (23 rd result)	www.bchealthguide.org/kbase/topic/symptom/fevr3/overview.htm	Yes (Fever, Age 3 and Younger)	Relevant results
temperature in children	25 July	Yahoo.ca (with "pages from Canada" option)	636,000	10	3 (30 results)	3 rd page (28 th result)	www.bchealthguide.org/kbase/topic/symptom/fevcv/overview.htm	Yes (Fever Seizures)	Relevant results
temperature in children	25 July	Altavista.ca	17,400,000	10	4 (40 results)	4 th page (32 nd result)	www.bchealthguide.org/kbase/topic/symptom/fevcv/overview.htm	Yes (Fever Seizures)	Relevant results
running a temperature	25 July	Google.ca (with "Pages from Canada" option)	985,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
running a temperature	25 July	Yahoo.ca (with "pages from Canada" option)	607,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
running a temperature	25 July	Altavista.ca	16,700,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
abdominal pain in adults	25 July	Google.ca (with "Pages from Canada" option)	97,200	10	3 (30 results)	3 rd page (27 th result)	www.bchealthguide.org/healthfiles/hfile681.stm	No (Managing Constipation in Adults)	Relevant results
abdominal pain in adults	25 July	Yahoo.ca (with "pages from Canada" option)	72,400	10	2 (20)	2 nd page (13 th result)	http://www.bchealthguide.org/kbase/nord/nord889.htm	No (Cyclic Vomiting Syndrome)	Relevant Results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
abdominal pain in adults	25 July	Altavista.ca	1,630,000	10	3(30 results)	3 rd page (22 nd result)	http://www.bchealthguide.org/kbase/topic/symptom/cstpn/reinfo.htm	Yes (Chest Pain – Related Information)	Relevant results
stomach ache	25 July	Google.ca (with “Pages from Canada” option)	66,000	10	5 (10 results)	Website did not come up	N.A.	N.A.	Relevant results
stomach ache	25 July	Yahoo.ca (with “pages from Canada” option)	52,400	10	3 (30 results)	3 rd page (30th result)	http://www.bchealthguide.org/kbase/topic/major/hw193731/symptoms.htm	No (Carbon Monoxide Poisoning)	Relevant results
stomach ache	25 July	Altavista.ca	1,950,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
abdominal cramps	25 July	Google.ca (with "Pages from Canada" option)	89,600	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
abdominal cramps	26 July	Yahoo.ca (with "pages from Canada" option)	69,300	10	1 (10 results)	1 st page (3 rd result)	http://www.bchealthguide.org/kbase/topic/symptom/mencl/reinfo.htm	Yes (Menstrual Cramps – Related Information)	Relevant results
abdominal cramps	26 July	Altavista.ca	1,330,000	10	1 (10 results)	1 st page (3 rd result)	http://www.bchealthguide.org/kbase/topic/symptom/mencl/reinfo.htm	Yes (Menstrual Cramps – Related Information)	Relevant results
causes of nausea	26 July	Google.ca (with "Pages from Canada" option)	234,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
causes of nausea	26 July	Yahoo.ca (with "pages from Canada" option)	165,000	10	4 (40 results)	4 th page (37 th result)	http://www.bchealthguide.org/kbase/topic/major/hw263714/descrip.htm	No (Benign Paroxysmal Positional Vertigo (BPPV))	Relevant results
causes of nausea	26 July	Altavista.ca	4,430,000	10	5 (50 pages)	Website did not come up	N.A.	N.A.	Relevant results
spitting up in babies	26 July	Google.ca (with "Pages from Canada" option)	64,600	10	1 (10 pages)	1 st page (1 st result)	http://www.bchealthguide.org/kbase/topic/special/sig54847spec/sec1.htm	Yes (Spitting Up)	Relevant results
spitting up in babies	26 July	Yahoo.ca (with "pages from Canada" option)	2,240	10	1 (10 pages)	1 st page (4 th result)	http://www.bchealthguide.org/kbase/topic/special/sig54847spec/sec1.htm	Yes (Spitting Up)	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
spitting up in babies	26 July	Altavista.ca	515,000	10	5 (50 results)	5 th page (47 th result)	http://www.bchealthguide.org/kbase/topic/special/hw97537/sec3.htm	Yes (Bottle Feeding)	Relevant results
reasons of vomiting	26 July	Google.ca (with "Pages from Canada" option)	109,000	10	1 (10 results)	1 st page (3 rd result)	http://www.bchealthguide.org/kbase/topic/symptom/vom3/overview.htm	Yes (vomiting, Age 3 and younger)	Relevant results
reasons of vomiting	26 July	Yahoo.ca (with "pages from Canada" option)	73,800	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
reasons of vomiting	26 July	Altavista.ca	1,650,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
marijuana use	26 July	Google.ca (with "Pages from Canada" option)	630,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
marijuana use	26 July	Yahoo.ca (with "pages from Canada" option)	1,160,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
marijuana use	26 July	Altavista.ca	23,900,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
smoking weed	26 July	Google.ca (with "Pages from Canada" option)	123,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
smoking weed	26 July	Yahoo.ca (with "pages from Canada" option)	95,900	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results
smoking weed	26 July	Altavista.ca	3,250,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results
effects of recreational drugs	28 July	Google.ca (with "Pages from Canada" option)	282,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results
effects of recreational drugs	28 July	Yahoo.ca (with "pages from Canada" option)	75,800	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
effects of recreational drugs	28 July	Altavista.ca	1,870,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results
eczema	28 July	Google.ca (with "Pages from Canada" option)	296,000	10	3 (30 results)	3 rd page (30 th result)	http://www.bchealthguide.org/kbase/topic/major/hw216104/descrip.htm	Yes (Atopic Dermatitis)	Relevant results
eczema	01 August	Yahoo.ca (with "pages from Canada" option)	278,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
eczema	01 August	Altavista.ca	7,810,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
causes of skin rash	01 August	Google.ca (with "Pages from Canada" option)	4,230,000	10	5 pages (50 results)	Website did not come up	N.A.	N.A.	Relevant results
causes of skin rash	01 August	Yahoo.ca (with "pages from Canada" option)	67,600	10	2 pages (20 results)	2 nd page (12 th result; 16 th result)	http://www.bchealthguide.org/kbase/topic/special/tr6164spec/sec1.htm http://www.bchealthguide.org/kbase/topic/major/hw65253/descrip.htm	Yes (Pityriasis Rosea) No (Ringworm of the skin)	Relevant results
causes of skin rash	01 August	Altavista.ca	2,130,000	10	1 (10 results)	1 st page (10 th page)	http://www.bchealthguide.org/kbase/topic/major/hw65253/	No (Ringworm of the Skin)	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
							descrip.htm		
itchy skin	01 August	Google.ca (with "Pages from Canada" option)	105,000	10	4 (40 results)	4 th page (34 th result)	http://www.bchealthguide.org/kbase/topic/special/tp22268spec/sec1.htm	No (Peanut allergy)	Irrelevant results
itchy skin	01 August	Yahoo.ca (with "pages from Canada" option)	103,000	10	5 pages (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results
itchy skin	01 August	Altavista.ca	2,680,000	10	5 pages (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
birth control methods	01 August	Google.ca (with "Pages from Canada" option)	688,000	10	5 (50 results)	5th page (42nd result)	www.bchealthguide.org/kbase/topic/detail/drug/te7768/detail.htm	Yes (Combination hormonal birth control methods (pills, patch, or ring))	Relevant results
birth control methods	01 August	Yahoo.ca (with "pages from Canada" option)	313,000	10	1 (10 results)	1 st page (5 th result)	http://www.bchealthguide.org/kbase/topic/special/hw237864/sec1.htm	Yes (Birth Control)	Relevant results
birth control methods	04 August	Altavista.ca	7,970,000	10	1 (10 results)	1 st page (5 th and 9 th result)	http://www.bchealthguide.org/kbase/topic/special/hw237864/sec1.htm	Yes (Birth Control) Same page on both results	Relevant results
using the pill	01 August	Google.ca (with "Pages from Canada" option)	446,000	10	5 (50 results)	5 th page (43 rd result)	www.bchealthguide.org/kbase/topic/detail/drug/hw163294/detail.htm	No (Short-acting beta2-agonists for quick relief of asthma)	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
								symptoms)	
using the pill	01 August	Yahoo.ca (with “pages from Canada” option)	289,000	10	3 (30 results)	4 th page (40 results)	http://www.bchealthguide.org/kbase/topic/special/hw237864/sec1.htm	Yes (Birth Control)	Relevant results
using the pill	04 August	Altavista.ca	12,900,000	10	5 (50 results)	5 th page (41 st result)	http://www.bchealthguide.org/kbase/topic/special/hw237864/sec1.htm	Yes (Birth Control)	Relevant results
sexual protection methods	01 August	Google.ca (with “Pages from Canada” option)	494,000	10	3 (30 results)	3 rd page (26 th result)	http://www.bchealthguide.org/kbase/topic/detail/other/hw138685/detail.htm	Yes (Barrier methods of birth control)	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
sexual protection methods	01 August	Yahoo.ca (with "pages from Canada" option)	160,000	10	1 (10 results)	1 st page (4 th result)	http://www.bchealthguide.org/kbase/topic/detail/other/hw138685/detail.htm	Yes (Barrier methods of birth control)	Relevant results
sexual protection methods	04 August	Altavista.ca	3,250,000	10	1 (10 results)	1 st page (3 rd result)	http://www.bchealthguide.org/kbase/topic/special/hw237864/sec1.htm	Yes (Birth Control)	Relevant results
feeling woozy	01 August	Google.ca (with "Pages from Canada" option)	10,400	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results
Feeling woozy	01 August	Yahoo.ca (with "pages from Canada" option)	1,650	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
Feeling woozy	04 August	Altavista.ca	314,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results
light-headedness	01 August	Google.ca (with "Pages from Canada" option)	63,400	10	1 (10 results)	1 st page (1 st result)	http://www.bchealthguide.org/kbase/topic/symptom/dizziness/overview.htm	Yes (Dizziness: Light-headedness and Vertigo)	Relevant results
light-headedness	01 August	Yahoo.ca (with "pages from Canada" option)	11,100	10	1 (10 results)	1 st page (1 st result)	http://www.bchealthguide.org/kbase/topic/symptom/dizziness/overview.htm	Yes (Dizziness: Light-headedness and Vertigo)	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
light-headedness	04 August	Altavista.ca	581,000	10	1 (10 results)	1 st page (1 st and 2 nd result)	http://www.bchealthguide.org/kbase/topic/symptom/dizziness/overview.htm	Yes (Dizziness: Light-headedness and Vertigo) Same page on both results	Relevant results
dizziness in elderly	01 August	Google.ca (with "Pages from Canada" option)	70,300	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
dizziness in elderly	01 August	Yahoo.ca (with "pages from Canada" option)	60,200	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
dizziness in elderly	04 August	Altavista.ca	1,140,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
preventing diarrhea in children	02 August	Google.ca (with "Pages from Canada" option)	191,000	10	2 (20 results)	2 nd page (17 th result)	www.bchealthguide.org/healthfiles/hfile41e.stm	Yes (Traveller's Diarrhea - BC HealthFile #41e)	Relevant results
preventing diarrhea in children	02 August	Yahoo.ca (with "pages from Canada" option)	30,300	10	2 (20 results)	2 nd page (17 th result)	www.bchealthguide.org/healthfiles/hfile41e.stm	Yes (Traveller's Diarrhea - BC HealthFile #41e)	Relevant results
preventing diarrhea in children	04 August	Altavista.ca	783,000	10	2 (20 results)	2 nd page (20 th result)	www.bchealthguide.org/healthfiles/hfile41e.stm	Yes (Traveller's Diarrhea - BC HealthFile #41e)	Relevant results
treating loose stomach	02 August	Google.ca (with "Pages from Canada" option)	64,300	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
treating loose stomach	02 August	Yahoo.ca (with "pages from Canada" option)	2,480	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results
treating loose stomach	04 August	Altavista.ca	588,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results
the runs (Google suggested diarrhea)	02 August	Google.ca (with "Pages from Canada" option)	826,000	10	1 (10 results)	1 st page (10 th result)	www.bchealthguide.org/healthfiles/hfile41e.stm	Yes (Traveller's Diarrhea - BC HealthFile #41e)	Relevant results
the runs (Yahoo did not suggest any medical condition – none of the results)	03 August	Yahoo.ca (with "pages from Canada" option)	9,170,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
were diarrhea related)									
the runs (none of the results were diarrhea related))	04 August	Altavista.ca	218,00,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
scratchy throat	03 August	Google.ca (with "Pages from Canada" option)	12,400	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
scratchy throat	03 August	Yahoo.ca (with "pages from Canada" option)	1,960	10	1 (10 results)	1 st page (1 st and 2 nd result)	http://www.bchealthguide.org/kbase/topic/symptom/sorh/hometr.htm	Yes (Sore Throat) Same page on both results	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
scratchy throat	04 August	Altavista.ca	372,000	10	1 (10 results)	1 st page (1 st and 2 nd result)	http://www.bchealthguide.org/kbase/topic/major/hw54745/descrip.htm	Yes (Strep throat) Same page on both results	Relevant results
home treatments for cough	03 August	Google.ca (with "Pages from Canada" option)	315,000	10	1 (10 results)	1 st page (1 st result)	http://www.bchealthguide.org/kbase/topic/mini/hw65653/hometrt.htm	Yes (Whooping Cough (Pertussis))	Relevant results
home treatments for cough	03 August	Yahoo.ca (with "pages from Canada" option)	56,100	10	2 (20 results)	2 nd page (17 th result)	http://www.bchealthguide.org/kbase/topic/major/hw188548/trtover.htm	No (Cystic Fibrosis)	Relevant results
home treatments for cough	04 August	Altavista.ca	1,640,000	10	3 (30 results)	3 rd page (21 st result)	http://www.bchealthguide.org/kbase/topic/major/hw188548/	No (Cystic Fibrosis)	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
							trtover.htm		
sore throat	03 August	Google.ca (with "Pages from Canada" option)	358,000	10	1 (10 results)	1 st page (2 nd result)	http://www.bchealthguide.org/kbase/topic/symptom/sorh/overview.htm	Yes (Sore Throat)	Relevant results
sore throat	03 August	Yahoo.ca (with "pages from Canada" option)	245,000	10	1 (10 result)	1 st page (3 rd result)	http://www.bchealthguide.org/kbase/topic/symptom/sorh/overview.htm	Yes (Sore Throat)	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
sore throat	04 August	Altavista.ca	6,550,000	10	1 (10 results)	1 st page (4 th and 6 th result)	http://www.bchealthguide.org/kbase/topic/symptom/sorh/overview.htm	Yes (Sore Throat)	Relevant results
seniors health	03 August	Google.ca (with "Pages from Canada" option)	5,530,000	10	2 (20 results)	2 nd page (19 th result)	http://www.bchealthguide.org/seniors.stm	Yes (Senior's health)	Relevant results
seniors health	03 August	Yahoo.ca (with "pages from Canada" option)	3,230,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results
seniors health	04 August	Altavista.ca	32,100,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Relevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
healthy aging	03 August	Google.ca (with "Pages from Canada" option)	1,050,000	10	2 (20 results)	2 nd page (13 th result)	http://www.bchealthguide.org/healthfiles/hfile68j.stm	Yes (Healthy Eating and Healthy Aging for Adults)	Relevant results
healthy aging	03 August	Yahoo.ca (with "pages from Canada" option)	610,000	10	2 (20 results)	2 nd page (19 th result)	http://www.bchealthguide.org/kbase/topic/special/tn9719/conres.htm	Yes (Healthy Aging)	Relevant results
healthy aging	04 August	Altavista.ca	16,600,000	10	2 (20 results)	2 nd page (13 th result)	http://www.bchealthguide.org/healthfiles/hfile68j.stm	Yes (Healthy Eating and Healthy Aging for Adults)	Relevant results
healthy living for elderly	04 August	Google.ca (with "Pages from Canada" option)	361,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results

Search Term	Date Search ran on	Search Engine	# of hits Returned	Results per page	# of Result Pages visited	Position of BCHG website	BCHG URL	Relevant to search query (Page heading)	Same keyword used on BCHGOL returns
healthy living for elderly	03 August	Yahoo.ca (with "pages from Canada" option)	184,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results
healthy living for elderly	04 August	Altavista.ca	4,580,000	10	5 (50 results)	Website did not come up	N.A.	N.A.	Irrelevant results

Appendix 2: Scenario Based Questions

Questions for 20-24 years old

Scenario #1

You were at a party last night and were offered marijuana (in a cigarette) by your friends who suggested that it is a completely harmless and non-addictive drug and many people use it causally. You smoked but felt a little funny afterwards. So you have decided to search more about marijuana use and any effects that it may have. Show us how you would complete such a search on-line.

Scenario #2

You have had a fever since last night but are healthy otherwise. Using the Internet, how will you find out whether there are any serious symptoms that you should look out for in regards to your fever?

Scenario #3

You have had minor abdominal pain for the last few days. The pain is not continuous and the intensity has not increased. Using online resources, show us how you will find home treatments for your condition.

Scenario #4

You have vomited twice in the last 3 hours after having dinner before that. Using online resources show us how you will determine whether your situation is serious or not.

Scenario #5

You have begun a new relationship and want to learn about birth control. By using the Internet, how will you find out about different birth control methods available?

Questions for 65+ year olds

Scenario #1

One of your retired friends has been diagnosed with high blood pressure. Although she has been prescribed a medication, she still wants to learn more about the variety of high blood pressure medications available. Using online resources show us how you will find relevant information for your friend.

Scenario #2

You have vomited twice in the last 3 hours after having dinner before that. Using online resources show us how you will determine whether your situation is serious or not.

Scenario #3

You are the only Internet savvy person among your peers. Your friends have asked you to look up information on several topics relevant to health such as healthy aging, physical activity, prevention of common illnesses, etc. Show us what you will do to find online

information about these topics.

Scenario #4

You have felt dizziness a couple of times in the last two weeks. Show us how you will use the Internet to determine whether your situation is serious or not.

Scenario #5

Your friend has had minor abdominal pain for the last few days. The pain is not continuous and its intensity has not increased. Using online resources, show us how you will find home treatments for your friend's condition.

Questions for Parents with children at home

Scenario #1

Your child has had fever since last night but is healthy otherwise. Using the Internet, how will you find out whether there are any serious symptoms that you should look out for in regards to your child's fever?

Scenario #2

Your 2-month-old child spits up after every feeding. You are concerned about it. Using online resources, how will you find more information relating to your concern?

Scenario #3

Your 4-year-old has developed an itching rash on several parts of her body. She is otherwise healthy and does not have fever. Show us how you will find online information about home treatments for itching rashes.

Scenario #4

You have been coughing frequently for the last two days. You have no other illnesses. How will you use the Internet to find common cough prevention strategies?

Scenario #5

Your child gets diarrhea at least once in two months. Although your child is healthy, you want to learn about diarrhea prevention and its home treatments. Show us how you will use the Internet to find information on these topics.

Appendix 3: Questionnaire

Please write down an appropriate response for each of the following:

1. I am: _____ (Male/Female)
2. My year of birth is: _____
3. My highest level of Education is:
 - _____ Less than grade 9
 - _____ Some high school/High school graduate
 - _____ Some community college
 - _____ Some university/Completed university
 Please specify if any other education or training _____
4. I have a computer at home: _____ (Yes/No)
5. Which of the best phrases best describes how you think of your ability to use the Internet?
 - _____ I am a beginning Internet user
 - _____ I am an intermediate Internet user
 - _____ I am an advanced Internet user

Please rate the following statements according to the following scale:

Strongly Agree = 5
Agree = 4
No Opinion = 3
Disagree = 2
Strongly Disagree = 1

1. This website came up in my searches during today's first session (e.g., by prominent listings on other websites or showing up on the first page of search engine results): _____
2. The home page was attractive: _____
3. The homepage's content made me want to explore the site further: _____

4. The amount of information on the home page was adequate: _____
5. The website had a professional look: _____
6. I liked the design of the website: _____
7. I think that I would like to use this website frequently: _____
8. I thought the website was easy to use: _____
9. I found the website very cumbersome to use: _____
10. I found answers to my questions very easily: _____
11. I would imagine that most people would find this website very informative: _____
12. The search feature on this website was very easy to use: _____
13. My search results were on target: _____
14. The website did not have answers for my questions: _____
15. I found it very difficult to find answers for my questions: _____
16. The information of this website was clear, easy to understand: _____
17. I would imagine that most people would find the information provided on this website too hard to understand: _____
18. It was easy to find my way around the site: _____
19. The layout of the pages on this website was easy to follow: _____
20. I felt that too much information was cramped on one page: _____

Appendix 4: Possible Reasons for lower than anticipated use of BCHG OnLine

1. People do not know about BCHG OnLine. This could occur for at least two reasons:
 - a) This could be a marketing issue due to poor understanding of target audience (poor fit of marketing strategy to the target),
 - b) Potential site users may not be able to easily locate the site on-line when searching for it rather than typing in the site address; the website does not come up in online searches, which is a technical issue.
 - c) Licensing may prohibit technical changes that would allow a universal access to the website.
- 2) The website does not have the information that consumers want or can use. This can reflect social factors such as cultural milieu and beliefs, contexts of use and literacy.
- 3) Information is there but not accessible. This could reflect
 - a. a poor fit between the user and the web site or between user and designer (e.g., users search with common terms and the site design was based on an assumption that users would search using medical terminology).
 - b. Usability (technical aspects and content) may need improvement.

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