

# **Customer Satisfaction with the NC Health Info Web Site: A Pilot Study**

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A sample of NC Health Info web site users was surveyed via the Web in order to investigate their satisfaction with the usefulness and ease of use of the web site. At the NC Health Info users were presented with an optional pop-up survey regarding their reasons for using the web site and its information quality, usefulness, ease of use, and layout. It was found that users are generally satisfied with the content but are doubtful about the actual credibility of the site as well as the site's maintenance of user anonymity and privacy. Age and sex of participants were found to mirror those of both MEDLINEplus users and general health consumers who seek health information on-line. In general, responses for the current study were quite similar to those of a recent survey of the MEDLINEplus web site.

#### Headings:

Evaluation/Surveys

Surveys/Internet

Online searching/Evaluation

Use studies/End-user searching

Use Studies/Internet

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## **I. Introduction**

According to a 2002 Harris Poll, each year “about 110 million adults [within the U.S.] go online to look for health care information (Taylor & Leitman, 2002). These Internet users are health information seekers and consumers, navigating the Web, searching for health information, and selecting the information that they deem useful. This vast number of Internet health consumers demonstrates a great demand for easily accessible health information. Just like other Internet users, they frequent web sites that are useful and easy to use and understand. They also want their privacy protected and sometimes, their anonymity kept, when searching for information on a particular disease that may reflect their personal information or that of a loved one. All of these characteristics of on-line health consumers make it critical for health related web sites to be useful, easy to use and understand, and credible and secure, so their audience is satisfied and leaves with the correct information for which they were seeking and hopefully visits the site again.

More research is needed pertaining to the subject of health information seeking on-line, to more closely examine those who partake in that activity. For example, factors including on-line information needs, why health information is sought on-line, and what determines users’ satisfaction with the answers they’ve found all need to be studied and analyzed more. Research focusing on these issues will contribute to the development of higher quality health resources on-line. The current study aims to contribute to this

needed research by collecting and analyzing data from an online survey designed to gather information (user satisfaction, ease of use, demographic data) regarding user perceptions of a health resource web site called NC Health Info.

## **II. Background**

Detailed characteristics of health information seekers are described in the following literature review section. Also explained are measures of satisfaction that have been proposed and tested while studying user reactions to an assortment of electronic systems. The use of web questionnaires is also addressed as well as the advantages and disadvantages of using such surveys.

### **Health Information Seeking On-line**

Seeking health information is one of the major motives for people to access the Internet (Taylor, 2002; Fox & Rainie, 2000). Most of the estimated 110 million adults in the U.S. that access the Internet to find health information use search engines or web sites acting as portals, rather than going directly to a particular health related web site (Taylor & Leitman, 2002). As in other surveys, a question regarding how participants heard of the NC Health Info web site was included in the current survey. The Harris Poll also found that Internet adult health seekers search for health information about three times a month (Taylor and Leitman, 2002). Women tend to seek health information on-line more so than their male counterparts. In addition, most people seeking on-line health

information are between the ages of 30 and 64 and stem from all kinds of income groups (Fox & Rainie, 2000). Demographic questions were included in the current survey so that the characteristics of the NC Health Info site users can be compared to web users in general.

A study by the Pew Internet & American Life Project (Fox & Rainie, 2000) addressed another aspect of the current study as well, saying that most of the people who are seeking health information on-line are doing so because a friend, relative, or they themselves have certain health issues. The purposes and roles of the NC Health Info web site users were, therefore, investigated.

The Pew report also gathered from its study that many people who search on-line for health information make health related decisions based on the information they find on the Web (Fox & Rainie, 2000). Consequently, it is important for Internet users to be able to identify legitimate web sites that provide health information. In addition, the Pew report related that about 90% of these health consumers “are concerned that a health-related Web site might sell out or give away information about what they did online” (Fox & Rainie, 2000, n.p.). Thus the privacy of the health information seekers must be maintained while they search health related web sites and it should be easy for users to find the web site’s privacy policy for assurance. The current study investigated whether the users of the NC Health Info web site feel that their privacy is being respected while using the site and that the information provided by the site is credible and reliable.

In order for people to continue getting health information on the web, they will need to be satisfied with their on-line searching experience as well as the results they receive. The current study aims to learn more about user satisfaction with health

information searching on-line and to understand the characteristics and motivations of those searching for health information.

### **Evaluating User Satisfaction**

Measuring user satisfaction ideally helps assess a system's effectiveness or ability to perform as needed. User satisfaction can not only increase productivity but also determines if the system will be used at all. Fishbein and Ajzen state the "intention to perform a given behavior is related to particular kinds of attitudes and beliefs, namely, attitudes toward the behavior and subjective norms concerning performance of the behavior" (Fishbein and Ajzen, 1975, p.511). If one applies this statement to web site use, one can see how the perceptions of web site users can affect an on-line searching experience. If the user perceives that the site as hard to navigate or believes it takes too long to find needed information, that user will be likely to not re-visit that web site. User evaluation of web sites is crucial because it is important to know how the system is being used, what parts of the system are working well, and which components need modification.

The issues that influence... [whether a person uses an IS or not] ...are likely to vary with the system, the individual, and the context. If these issues can be identified, developers can take them into account during system design. Note that the emphasis is on IS *use*, not the IS itself. An individual might feel that a system could help improve decision making, but not use it because of lack of convenient access to a terminal, lack of time, etc (Mathieson, 1991, p. 173).

Users have a tendency to use systems in ways that were not expected by the designers and even have expectations of system capabilities that may not have been anticipated by the developers. Evaluation of user satisfaction and attitudes regarding a web site facilitates communication between the users and the site designer, whether the developer is a business, a not-for-profit agency, or other person or organization. It increases the likelihood that people will use the web site, which ultimately could lead to increased knowledge and use of the information that is being provided on the web site.

The concept and practice of measuring user satisfaction sparks debate in the fields of information science and management information systems, among others. Various models and instruments have been proposed to attempt to predict user acceptance and user satisfaction of computer systems.

One model of user acceptance that is cited often in the literature is Davis' (1989) Technology Acceptance Model (TAM). Davis developed the TAM by drawing from theories belonging to various disciplines. Fishbein and Ajzen's (1975) Theory of Reasoned Action as well as "expectancy theory, self-efficacy theory, behavioral decision theory, diffusion of innovations, marketing, [and] human-computer interaction" all provided Davis with a framework upon which to base his theory of user acceptance (Davis, 1989, p. 333). Davis believed that perceived usefulness and perceived ease of use were two main factors affecting a system's use (Davis, 1989). Perceived usefulness is a variable that measures the extent of people's use of a system based on the belief that the system will increase job performance or the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). Perceived ease of use is the "degree to which a person believes that using a particular

system would be free of effort” (Davis, 1989, p. 320). Davis’ study found that “both perceived usefulness and ease of use were significantly correlated with self reported indicants of system use” (Davis, 1989, p. 333). According to Davis’ theory, if users accept a system as useful and easy to use, they would be satisfied with the system and use it.

Concurrently, Doll and Torkzadeh conducted various studies with the intent of developing a potential standard instrument for measuring user satisfaction with computerized systems. They stated that “end-user satisfaction is only one of several relevant measures of end-user computing success” (Doll & Torkzadeh, 1988, p. 272). In 1988 they first proposed their instrument, emphasizing the need for a “standard instrument for measuring end-user satisfaction which includes both information product and ease of use items” (Doll & Torkzadeh, 1988, p. 272). They defined an information product as a “user’s information requirements” (Doll & Torkzadeh, 1988, p. 259). Their experiment’s “results suggest a 12-item instrument that measures five components of end-user satisfaction-content, accuracy, format, ease of use, and timeliness” (Doll & Torkzadeh, 1988, p. 259). Doll and Torkzadeh have taken a more multi-faceted approach, including ease of use and usefulness (the latter in the “content” component) and an additional three components. They mentioned that “user satisfaction may be the critical factor” in determining system success because Fishbein and Ajzen’s theory (1975) “suggest[s] that satisfaction leads to usage rather than usage stimulating satisfaction” (Doll & Torkzadeh, 1988, p. 260). It makes sense that if users voluntarily use a system, then they are satisfied with it.

The existing research on system satisfaction suggests its positive relation to use of a system. This is one reason why satisfaction surveys must continue to be conducted and why both existing and new satisfaction measures must continue to be refined and developed. Not only do web site users benefit from easier to use and more useful web sites, but the web site sponsors and publishers would attract more visitors. As mentioned, there are multiple available measures of satisfaction that can be implemented to evaluate a web site or electronic systems in general. The current study incorporates a few questions and elements from the existing satisfaction measures. However, most of the questions that were used were the same as those that made up a separate study with a similar goal, namely the 2003 MEDLINEplus Visitor Profile Study conducted by Fulcrum Analytics (which will soon be published on <http://www.medlineplus.gov> ). The questionnaire that is common to both surveys addresses both usefulness and usability of the web site.

### **The Use of Web-based Questionnaires**

The use of surveys on the Internet is a relatively new concept and is gaining popularity with not only the research community, but with the commercial sector as well. “[R]esearch within library and information science has shown a clear preference for survey research—predominantly the use of a mailed questionnaire... At the same time, more libraries and other service organizations are attaching surveys to their home pages, gauging use (or buyer) preferences and satisfaction” (Hernon & Schwartz, 2000, p. 117).

There have already been some studies comparing computer-based surveys, in general, with paper-based surveys. In one such study, Kiesler and Sproull (1986) mentioned that “the electronic survey, at least one administered within an organized setting, can elicit good response rates with faster turnaround time and fewer item incompletions than a regular mail survey” (Kiesler and Sproull, 1986, p. 411). However, these “good” response rates were about 8% lower than the response rate of the paper surveys. They also mentioned that electronic surveys save time by automatically storing responses in a database versus contacting participants by other methods such as mail, waiting to receive responses, and then manually entering the collected data (Kiesler and Sproull, 1986). They did not mention that extra time is needed to develop the computerized survey system so the time difference may be null depending on the situation. It can also be said that web surveys may be programmed to handle certain survey characteristics better than paper self-administered surveys to present “items that must be asked in a particular sequence” or to facilitate participants’ skipping “a few questions if they answer a (screen) question in a particular way” (Dillman, 1983, p. 370). An electronic survey participant can also take as much time as she/he wants to complete the survey, provided that it’s not timed (Kiesler and Sproull, p. 1986). This is compared to participants’ taking surveys with a researcher close by or within controlled settings. However, this advantage may be erased when compared to mailed out paper-and-pen surveys since those survey respondents may be able to complete the questionnaire in their own time as well.

Matz (1999) conducted a study comparing response rates associated with web surveys and paper-and-pen surveys in which she mailed out questionnaires to participants

and allowed the web surveys to be completed wherever the participants chose (i.e., home or work). Her results conflicted with those of Kiesler and Sproull (1986) since she found no difference in response time between the two types of surveys. In opposition to Kiesler and Sproull, she also stated that paper questionnaire

[r]espondents felt free to make comments about questions they didn't understand or felt were ambiguous. They often provided different answers to the same question to illustrate the different ways of interpreting it. The Web survey forced respondents to answer in particular ways, with no easy means for providing comments [on close-ended questions] (Matz, 1999, p. 29).

These two studies do differ slightly, which could explain the different suggestions each makes. Matz's study sent out paper surveys so both her web and paper surveys were taken by respondents in a non-controlled setting. On the other hand, Kiesler and Sproull conducted their survey within a controlled setting which may have contributed to the higher response rate that they received for the web survey. By looking at the two studies, one could say that a participant is more likely to answer less truthfully in a controlled survey-taking environment than if a participant had taken a survey in a less controlled survey-taking environment.

There are a number of other possible advantages of using on-line surveys to collect data as compared to traditional methods of implementing surveys such as interviews via phone or face-to-face communication, paper and pen questionnaires, etc. One advantage is that online surveys can ensure survey completion with form validation (Zhang, 1999). This can decrease the number of unanswered questions as well as make sure values entered in specific fields are valid and correct for the particular question. Online surveys can also reach a broad geographic audience since the Internet is accessible any where there is a connection. (This thought is continued in the next

paragraph in which the disadvantages are discussed.) It can also be developed to prevent or lower incomplete responses to increase data quality (i.e., form validation, checking response completeness and validity, reduces duplicate survey entries for the same participant and prompts for better answer format, i.e., number not text) (Zhang, 1999; Kiesler and Sproull, 1986). In addition, “they may increase respondents’ motivation to participate by providing a dynamic and interactive survey process” (Zhang, 1999, p. 58).

Implementing web surveys is not without problems or disadvantages when compared to traditional survey methods.

Biased samples and biased returns are a major problem with Internet-based survey research. Currently, respondents to Internet-based surveys are most likely to be individuals who have access to computer networks, who have the skills to use the survey tools, and who accept and feel comfortable with Internet surveys (Zhang, 1999, p. 58).

This may limit the extent to which web surveys can be applicable to the actual population. However, if a population that is comprised of only Internet users is the intended audience, then half of this problem regarding Internet-based surveys would not apply. The other half of this sampling problem is more complex. Zhang (1999) comments that the digital divide still exists and supposedly includes “... women, people of limited financial resources, members of some racial and ethnic minorities, people of low education levels, and older age groups” who all are less likely to have Internet access and thus less likely to participate in web-based surveys (Zhang, 1999, p. 58). However, reports actually vary on the current existence of a digital divide in terms of the sexes. The 2000 U.S. Census actually reported that women use the Internet slightly more than men (51% of Internet users are women and 49% are men) suggesting that the digital divide between the sexes has possibly vanished (Mineta, Rohde, & Shapiro, 2000).

Even if a person does have Internet access, he/she may not have “the necessary applications or plug-ins to take a survey” (Zhang, 1999, p. 58). For example, older machines may not be able to support JavaScript technology so those machines would not even receive pop-up surveys, preventing their users from taking the survey.

It is also hard to determine if the web survey participants represent the population since these types of surveys usually require self-selection (Zhang, 1999). If a web survey does not restrict its participants, anyone on-line can find the on-line survey and take it, contributing a response that is unknowingly invalid to the researcher (Zhang, 1999, p. 59). A similar problem caused by no survey restriction could be respondents taking the survey more than once, which would also produce inaccurate submitted data and response rates. Code attached to a survey usually can maintain accurate response rates. It can block a computer from sending more than one response for a survey to prevent a person from submitting multiple responses when only one is wanted. However, this may cause a problem if one person takes the survey at a public machine in a library since future users of that computer may not get a chance to partake in the survey from that machine.

A low response rate, which can be a problem for most types of surveys, could occur for a web survey since potential participants could see it as an “impersonalized survey request” (Zhang, 1999, p. 59). Problems involving network traffic, server, software and hardware could also occur and affect a web survey’s response rate (Zhang, 1999). Matz (1999) noted that the response rate was higher for paper surveys than for the web based survey. Zhang (1999) recommends giving potential participants multiple ways of submitting their survey data (web, regular mail, email) to give them the opportunity to

respond in a format most comfortable for them, possibly making it more appealing for them to participate (Zhang, 1999).

Research has shown that participants respond differently when taking self-administered on-line surveys as compared to taking questionnaires or surveys in which they have “direct contact with researchers” (Kiesler & Sproull, 1986, p. 405). This is because

[s]elf administered questionnaires are relatively anonymous and tend to reduce respondents’ concern over presenting themselves in a good light. Hence self-administered questionnaires reduce total reporting and accuracy [i.e. unanswered questions, incompletely answered question] but increase reporting of negative information and attitudes (Kiesler and Sproull, 1986, p. 405).

It has also been found that self-selected survey participants may be biased and thus have underlying motives for taking the survey in the first place, which would result in more extreme responses than if topic-neutral people would have taken the survey (Synodinos, Papacostas, & Okimoto, 1994).

## **Research Questions**

While some problems with on-line surveys remain, a web based survey was used for this study. It was intended to measure user satisfaction of Internet health consumers in response to the following research questions:

1. To what extent are the users of the NC Health Info web site satisfied with their experience, the information they found, and how the information on the web site was presented?

2. What are the demographics of the NC Health Info web site users and how do they compare with those of general web users?
3. Are the results of the NC Health Info survey similar to the findings of MEDLINEplus survey?

### **III. Methods**

The current study involved a web survey based on a questionnaire that was used by the 2003 MEDLINEplus Visitor Profile Study (which will soon be published on <http://www.medlineplus.gov> ). The web survey would pop up any time a user visited the NC Health Info web site, <http://www.nchealthinfo.org>, and asked questions pertaining to the user's satisfaction with the web site's information, layout, and ease of use. Demographic questions were asked as well. The survey was on-line for two weeks (during April-May 2003) and gathered data from 52 users. The study's methods are described in detail in this section.

#### **The System (NC Health Info, <http://www.nchealthinfo.org> )**

NC Health Info is a collaborative effort of the National Library of Medicine, the University of North Carolina (UNC) Health Sciences Library, and the UNC School of Information and Library Science to provide health resources to North Carolina residents. The NC Health Info web site organizes an ever-growing collection of over 2,000 web

sites of health organizations, medical practices, and other health services that serve North Carolina residents. NC Health Info is relatively new to the public; since the web site was officially launched on January 14, 2003 (after a round of usability tests to solve any major problems with the site if necessary). NC Health Info project coordinators decided that a customer satisfaction survey was needed to assess the user satisfaction with the new site. Consequently, a web-based and database-supported survey was developed.

### **Participants**

Participants were recruited via a pop-up window, which asked them to take the survey. This happened when any page on the NC Health web site was visited. The population of the survey was simply any Internet user since the survey didn't restrict anyone who had Internet access from taking it, with one exception. The employees of the UNC Health Sciences Library and the UNC School of Information and Library Science were asked not to participate in the study in order to lessen participant bias, since both institutions were involved in the development of NC Health Info.

### **Survey**

The survey asked 21 questions, which are presented in Appendix C, pertaining to a participant's satisfaction with the web site's layout and the information it provided. The survey also included demographic questions to gain additional information about each

participant, such as age, location, and sex. As stated previously, the survey questions were those used for a similar study of the MEDLINEplus web site, which is a service of the National Institutes of Health (NIH) and the National Library of Medicine (NLM). The MEDLINEplus web site study was conducted by Fulcrum Analytics and put on-line from February 19, 2003 through March 4, 2003. Even though many other instruments exist for evaluating user satisfaction, the current study used the same questions that the MEDLINEplus web site study used since comparison of the two surveys' results was a goal of the current study. Some questions and answer options had to be changed slightly to apply to the NC Health Info web site.

The NC Health Info survey was kept on-line for two weeks, from April 28, 2003 to May 12, 2003. The first page at which the potential participants arrived described the survey and asked for participant consent to proceed. If a participant agreed to the terms and wanted to take the survey, the participant clicked the button marked "Yes, I wish to take the survey" and was taken to the main survey page with all 21 questions. If a person decided not to take the survey, the person would be able to click the "No, I don't wish to take this survey" button or click the "X" in the top right of the window. The person would then be able to continue viewing the NC Health Info web site. The participants were given no incentives for completing the survey.

The code for the survey (which was programmed in ColdFusion) was placed on the server that housed the NC Health Info site. Any time a user visited NC Health Info, a JavaScript pop-up window appeared asking the person to participate in the survey. Response data was collected by a web form using ColdFusion and placed in a Microsoft SQL database. The data was then entered into SPSS for statistical analysis. Participants'

confidentiality and anonymity were protected since each participant was given an automatically generated number as an id with which their answers would be associated. No names or other personally identifying information were collected. Cookies were used to prevent people from taking the survey more than once, at least from the same computer. The cookie that was placed on the machines of those who encountered the survey (both participants and non-participants) was set to expire after the two weeks that the survey was on-line. The cookie was used only to allow the system to tell if a particular machine had seen the pop-up survey by checking whether the cookie existed on the machine. Each cookie that was set had the same generic name so each computer on which the survey popped up had the same named cookie.

We tried to account for a variety of existing computer platforms in order to lessen technical difficulties with the administration of the survey. No JavaScript was used (except to first pop up the survey) since some browsers can't handle it or users may disable that functionality. Consequently, this would prohibit some users from even seeing the survey altogether. Some people disable their computers' cookie setting functionality as well. Since we used cookies to prevent participants from being presented with the survey more than once, we stated in the description of the survey on the page that first pops up, that cookie settings must be turned on or else a person will be presented with the survey each time he/she visited NC Health Info. Otherwise, a person's disabling of cookies on his/her machine would cause the survey to repeatedly pop up each time he/she went to the NC Health Info web site. Disabling of cookies would also give a person more than one opportunity to take the survey on the same computer which would bias/invalidate the survey results. It was also asked of participants to take the survey only

once since it was possible for them to take it on different computers, each one not necessarily having a cookie that said the survey was taken.

There was one major problem that occurred during the survey implementation due to insufficient testing of the survey before it went on-line. Shortly before results were collected as a group and analyzed, the researcher(s) found that the survey answers which a participant had filled out would be erased if they left the survey page momentarily to look at the NC Health Info page. This most likely occurred because of coding errors in the cookie setting since clicking on the hyperlinks of the NC Health Info page that was already open would bring up the survey again if the clicked hyperlink lead to another NC Health Info page. So essentially, if a person visited the NC Health Info page, agreed to do the survey, filled out some survey responses, reviewed the NC Health Info page and possibly explored some hyperlinks on the page, then came back to the survey, all of the previously answered responses would be erased since clicking on the NC Health Info pages brought up new surveys that replaced the one with the filled out responses. Later implementations of this survey will need to change the code involving cookie setting to prevent this error from occurring again.

Another issue, though less problematic, arose when a respondent clicked on a radio button or checkbox in a group. There was no way of making that whole group clear again to have none appear selected. Web surveys may also introduce the problem of participants accidentally closing out of the survey, thus either submitting an incomplete survey or not submitting one at all, decreasing the number of respondents. Finally, the use of cookies may limit the survey popping up on public computers so if one person

took the survey at a machine in a library, other users of that computer would not be able to take the survey since the cookie would have already been set to not show the survey.

We tried to incorporate error handling and ensure correct response formats via built-in ColdFusion tags that limit possible responses for accuracy. For example we limited the response to the question asking a respondent's age to a maximum of 3 integers so the responses would be in a unified number format. We also allowed multiple answers to be recorded when they were possible as well as "Other" answers so respondents could type in an answer that was not included in the listed answer options.

Respondents were also allowed to provide multiple answers for radio buttons that had the "Other" answer option available. Usually radio buttons only allow one answer but it was important to record multiple answers in the case where a participant selected a radio button choice in lieu of the "Other" choice but mistakenly also typed a free-text answer in the text box that is associated with the "Other" choice answer option but did not click the radio button associated with the "Other" choice answer. This is functionally possible since the radio buttons and the text box are interpreted as separate questions by the researcher who developed the program and the computer that records the data.

#### **IV. Results**

##### **Description of respondents**

Out of a total of 847 people who were presented with the pop-up survey when they visited the NC Health Info site, 52 actually completed the survey. Thus, the response rate was 6%. Though it may be low, this response rate is higher than the 4% intercept-to-

completion rate of the 2003 MEDLINEplus Visitor Profile Study, on which the questions of the present study were based. Full details of the survey results including both answer percentages and frequencies are contained in the Appendix for complete review. Keep in mind when reading and reviewing the results that questions 1, 2, 4, and 19 allowed multiple answers so the cumulative percentages will not add up to 100%.

### **Respondents' demographics**

When asked their sex, the majority (64%) of respondents reported themselves as female. The mean age of the respondents was 41. The minimum age was 14, the maximum was 72, and the median was 44. A majority of the respondents were at least college graduates (see Table 1). When asked their highest level of education completed, almost a third said they have a graduate or professional degree. Many of the others said they have completed some college/vocational school or have received college degrees.

**Table 1. Respondents' level of education**

<b>Highest level of education completed</b>	<b>Number</b>	<b>Percent</b>
Current middle or high school student	2	4%
High school graduate	3	6%
Some college/vocational school	10	19%
College graduate	11	21%
Some postgraduate school	2	4%
Graduate/professional degree	15	29%
No response	9	17%

A significant majority of respondents preferred English as their web language. The vast majority of respondents also classified themselves as not Hispanic or Latino. When asked their race, a significant majority of respondents said they were white, as shown in Table 2 below.

**Table 2. Racial background of respondents**

<b>Race</b>	<b>Number</b>	<b>Percent</b>
American Indian or Alaska Native	1	2%
Asian	1	2%
Black or African American	6	12%
Native Hawaiian or Other Pacific Islander	0	0%
White	36	69%
No response	8	15%

**Accessing the site**

Table 3 shows that most respondents were taking the survey in North Carolina.

**Table 3. State where respondents accessed survey**

<b>State</b>	<b>Number</b>	<b>Percent</b>
Washington D.C.	1	2%
Idaho	1	2%
Maryland	2	4%
Michigan	1	2%
North Carolina	37	71%
Oregon	1	2%
No response	9	17%

Of those respondents who took the survey from North Carolina and who answered the question asking them from which county they were taking the survey, the most common answers were Wake and Orange followed by Chatham, Buncombe and Durham counties. Twenty-four of the existing one hundred North Carolina counties were represented in the sample.

When the respondents were asked the location from which they were searching the Web, half said they were searching at home. Searching at work was the next highest response at 14%.

**Table 4. Location from which respondents are searching the Web**

<b>Location</b>	<b>Number</b>	<b>Percent</b>
School/college/university	4	8%
Work	7	14%
Library	1	2%
Physician's office	1	2%
Home	26	50%
Hospital/health care clinic	2	4%
Other	3	6%
No response	8	15%

Respondents were also asked the role in which they were searching NC Health Info. The most common answer was “patient with a specific disease or condition” (see Table 5). The second and third most common answers were “family or friend of patient” and “general health consumer”, respectively.

**Table 5. Respondents' role when searching NC Health Info**

<b>Role</b>	<b>Number</b>	<b>Percent</b>
Educator	1	2%
Patient with a specific disease or condition	14	27%
Secondary student (grades 7-12)	2	4%
Family or friend of patient	10	19%
General health consumer	7	14%
Health care provider (physician, dentist, nurse)	4	8%
Librarian or information professional	1	2%
College/graduate student	1	2%
Other	3	6%
No response	9	17%

When the respondents were asked how they learned about NC Health Info, most respondents either stated that they found the web site through a search engine (29%) or from links from the MEDLINEplus website (23%). When asked why they were visiting the NC Health Info web site, the most common reason (41%) was to find information on a specific disease, condition, diagnosis, or treatment. The next most popular reason (28%)

was searching for health care products or services. There was a tie for the third most common answer (20%) between wanting to find general health information and searching for a health provider (physician, dentist, hospital, etc.). When asked “how frequently do you visit NC Health Info?” the vast majority of respondents (78%) said it was their first time visiting the site.

The most common answer (37%) that respondents chose when asked about their use of the information obtained from NC Health Info was to “improve understanding of disease, condition, diagnosis, or treatment.” Other answers that were among the most frequently chosen were “make a decision about treatment options” (20%), “discuss a disease, condition, diagnosis, or treatment with your doctor” (18%), and “give the information to someone else” (18%).

### **User perceptions of site**

Table 6 shows that most participants agreed that NC Health Info has useful information (75%), has pages and visuals that come up quickly (69%), makes it easy to find the information they are looking for (62%), as well as having a simple/uncluttered layout and good use of graphics (62%). Respondents indicated that NC Health Info was weak in providing good advice on how to lead a healthy lifestyle (39%).

**Table 6. User perceptions of NC Health Info website**

<b>Statement from questionnaire</b>	<b>Respondents expressing agreement</b>	
	<b>Number</b>	<b>Percent</b>
NC Health Info has useful information.	39	75%
NC Health Info makes it easy to find what I am looking for.	32	62%
NC Health Info gives me good advice on how to lead a healthy lifestyle	20	39%
NC Health Info does not try to sell me anything	27	52%
NC Health Info has a simple/uncluttered layout and good use of graphics	32	62%
NC Health Info is a credible source of current and accurate information	28	54%
NC Health Info has pages and visuals that come up quickly	36	69%
NC Health Info does not collect my personal information	27	52%
NC Health Info needs a search tool that finds information on the site quickly and directly.	28	54%

When asked how often they find the information that they're looking for, about half of the respondents said they've only visited the site once before. About a third said they sometimes, frequently, or always find the information they are looking for whereas less than 10% said they never or rarely find the information they're looking for.

In response to the question regarding their overall satisfaction with NC Health Info, 33% of respondents were either very or extremely satisfied, 42% of respondents were satisfied, and about 9% said they were not very satisfied or not at all satisfied.

When asked how likely they are to visit NC Health Info again, almost half (49%) said it was extremely or very likely and 42% said it was likely. Only 9% responded that it was either not very likely or not at all likely. Table 7 shows the degree to which respondents were aware of certain information found on NC Health Info's web site. The topic that was the most noticed (56%) was information on disease and health issues. Topics that were noticed by 48% of the respondents were directories of health care

providers and hospitals and links to other resources. Only 17% of respondents recalled seeing Public Health department web sites.

**Table 7. Respondents' awareness of site resources/scope**

	Respondents that recalled seeing such information		Percent who said this information was extremely or very useful *
	Number	Percent	Percent
Information on clinical trials	19†	37%	18%
Directories of health care providers and hospitals	25	48%	25%
Hospital or clinic web sites	18	35%	10%
Public Health department web sites	9	17%	10%
Library web sites	14	27%	14%
Information on disease and health issues	29	56%	38%
Links to other resources	25‡	48%	20%
Health care provider web sites	21‡	40%	25%
Alternative health provider or services web sites	12§	23%	14%

\*Based on only the responses of those who recalled seeing that information. The rating scale was 1 (not at all useful), 2 (not very useful), 3 (useful), 4 (very useful) and 5 (extremely useful).

† Two of the 19 respondents did not report recalling that they saw the information but did complete the usefulness part of the question.

‡ Two respondents who recalled seeing the information did not complete the usefulness part of the question.

§ One respondent who recalled seeing the information did not complete the usefulness part of the question.

### **Strengths of the site**

Participants were asked to describe in a text box what they liked most about the NC Health Info web site and 26 of the 52 survey respondents answered this question. The most common answer (7 responses) for this question involved the web site's ease of use. Responses included "I found resources easily" and "you can understand the web site." Other common answers (4 responses) mentioned the vast number of resources that are available on the web site as well as the North Carolina and county specific information. It was also stated that the web site content was reliable and of high quality.

### **Suggestions for improvement**

Participants were also asked to describe in a text box what they would like to see added to or improved about the NC Health Info web. Twenty responded to this question. Many (9) responses commented on the difficulty of referring to the site while taking the survey at the same time, which we now know is a technical problem associated with the site and must be fixed before the survey is implemented again. One participant stated that, “The pop-up survey window came up so quickly. I didn't have enough time to assess the website in order to answer the above questions accurately.” While this problem is not associated with the site itself, it does have implications for the survey validity.

### **V. Discussion**

The results of this survey are consistent with findings from other studies, as discussed in the literature review. Just as the 2002 Harris Poll reported, both the current study as well as the MEDLINEplus survey found that more women access their web sites (namely <http://www.nchealthinfo.org> and <http://www.medlineplus.org> ) than do men. The two surveys also found that the mean age of their participants was in the lower 40s, which corresponds with the 2002 Harris Poll that found most Internet health seekers were between the ages of 30 and 64. The findings of the two studies are also similar to a 2001 Harris Poll which found that most people seeking on-line health information find their information through search engines and look for specific health information.

For the most part, the NC Health Info survey respondents felt the site had useful information and made it easy for users to find their intended information. However only

about half of the respondents agreed that NC Health Info is a credible source of information, doesn't sell anything, and doesn't collect personal information. The other half of the responses for these same questions were comprised mostly of "don't know" answers, which were selected among the answer choices. There are at least four possible explanations of why a larger percentage of respondents did not answer more affirmatively to these questions. One reason could be the existence of technical difficulties. Since some participants complained about the survey popping up every time they tried to navigate the site while still taking the survey, it is very possible that they answered "don't know" because they could not determine the answer to questions asking about particular items on the site. Another reason could be the fact that respondents who answered "don't know" weren't looking for those particular kinds of information on the site so they didn't notice them. A third possible reason for the many "don't know" answers is that the site may need to more clearly state that it is indeed a credible source, does not sell anything, and does not collect personal information. Also, respondents may not have understood the mentioning of cookies being used on the first page of the survey and may thus have been slightly suspicious about the site collecting personal information.

The majority of respondents classified themselves as white, non-Hispanic or Latino, preferred English as their web language, and were at least college graduates. The majority of respondents were searching the Internet and accessing the survey from home. These results reflect the digital divide in which members of minority populations have less access to Internet usage (especially at home) and therefore are less likely to participate in a web survey. This may affect the use of the links to Spanish version web sites available from some NC Health Info resources.

When asked, “What do you like most about NC Health Info,” most respondents mentioned that the web site was easy to use. Respondents said the site was “easy to navigate” and they “found resources easily.” The fact that NC Health Info is deemed easy to use by voluntary participants is important for the future use and growth of the web site.

The responses to the question asking what could be improved on the NC Health Info web site show the extent to which the technical difficulties prevented some people from taking the survey problem-free. Most of the responses contained complaints about their inability to explore the site while taking the survey. Hopefully, future implementations of this survey will correct the technical problems and be able to collect data that is more relevant to the web site than the survey.

It is difficult to hypothesize why respondents noticed certain aspects of the site more so than others. However the reasons could be similar to those explaining why there were so many “don’t know” answers to questions about user perceptions of the site. One reason very well could be that the respondents were searching for and finding certain information while ignoring the information that they felt they did not need. For example, no respondents stated that they searched the NC Health Info web site to find alternative health care providers and only 23% of respondents who answered question 6 said they recalled seeing alternative health provider or services web sites. Another example is that the aspect of the site that was the most noticed by respondents (56%) and was considered very or extremely useful by 38% of those who saw it was “Information on disease and health issues.” Interestingly enough, most respondents stated they were visiting NC Health Info to find information on a specific disease, condition, diagnosis, or treatment. Another possible problem is that the technical difficulty may have prevented users from

referring back to the web site to look for the aspects that were in question. Additionally, because so many of the respondents had not previously been to the web site, it is very possible that they were not aware of all of the resources and information that it offered. Lastly, the web site layout may need adjustments to ensure that users are aware of the site's informational offerings. This leaves room for improvement but is a positive start. It should be expected that the site and the information it presents will get better usefulness and ease of use ratings with both time and the fixing of the survey's technical problems.

It is interesting to notice that the results of the current survey on the average correspond with those of the MEDLINEplus survey. Percentages of the most common responses varied at times between the two but often the top few responses were similar if not the same and occurred in the same order. One example of such an incident can be seen in the results for question 12. Both surveys reported a majority of about 61% of respondents who took the survey at home, a lesser percentage (10% and 21%) of respondents taking the survey at work, and an even smaller percentage of about 7% and 10% taking the survey at school. This question possibly indicates where people are most likely to access either site. Thus a majority of visitors can be expected to visit from home. The top three answers for both surveys for question 13 are the same in terms of wording and occur in the same order but are a little less similar, percentage-wise, than those for question 12. For question 13, about a third of the respondents in both surveys said their role was a patient with a specific disease or condition, a lesser percentage (23% and 15%) said their role was a family or friend of a patient, and an even smaller percentage (16% and 13%) were general health consumers.

It seems most people learn about both sites through a search engine and NC Health Info has about a quarter of visitors learning about its site via the MEDLINEplus site which is a good sign that the partnership between the two web sites and projects is working. The majority of NC Health Info visitors are searching for information on a specific disease, condition, diagnosis, or treatment and, not surprisingly, most visitors intend to improve understanding of a disease, condition, diagnosis, or treatment by visiting NC Health Info. This is true for MEDLINEplus visitors as well, only they expect to improve their disease understanding by visiting the MEDLINEplus site. It is interesting to notice that none of the NC Health Info respondents intended to seek an alternative or complementary health provider as a result of using information they obtained from NC Health Info. It would be interesting to find out why this is so, especially since NC Health Info has indexed a sizeable amount of alternative or complementary health related sites.

The demographic information of both surveys' respondent samples is especially similar. Both survey participant samples had a mean age in the lower 40s. A majority of roughly 65% of both samples was female. About 60% of both participant samples reported themselves as college graduates. Both samples overwhelmingly preferred English as their web reading language as well as classified themselves as not Hispanic or Latino, although one must take into account the fact that there are two versions of the MEDLINEplus site -- an English one and a Spanish one. Both samples included about 84% White participants.

Some of the percentage differences for question 2 ("Why are you visiting the NC Health Info web site today") can be due to the fact that the sites are different in their

services. MEDLINEplus offers specific topical health information such as information on breast cancer and its symptoms, and articles about breast cancer, and is not specific to any location. NC Health Info provides directories of health services, providers, and organizations within North Carolina. For example, a woman recently diagnosed with breast cancer might go to MEDLINEplus to learn more about her illness. She then goes to NC Health Info to find web sites with contact information for support groups, oncologists, or hospitals near her North Carolina county.

A probable factor of the percentage difference for question 3 (“How frequently do you visit NC Health Info?”) could be the age of the two sites. The MEDLINEplus web site has existed for over three years whereas NC Health Info had only been online for about two months when the survey was conducted. Therefore it would make sense that most respondents for the NC Health Info survey were visiting the site for the first time.

## **VI. Conclusion**

One limitation of the current study was the technical problem associated with the survey. It is probably safe to say that the fact that the survey kept popping up and erasing previously filled out answers when a survey participant tried to review the web site hurt the response rate as well as prevented some participants from filling out answers to certain questions more accurately. Since the current study was a pilot study, future implementations of the survey will be improved and therefore more robust. Future survey participants will hopefully be less distracted by problems with the survey and be able to focus more on the survey itself. Future implementations of the current study will

therefore be able to collect more complete data and focus more on analyzing the results of a more reliable survey instrument.

Other limitations of the study besides the technical problems mentioned are low response rate and the short time frame in which the survey was implemented. There was also limited flexibility in terms of the questions used since the current study used the same questions as the MEDLINEplus survey (except for those that needed modification to apply to the NC Health Info site) in order to compare the two sets of results. It may have been possible to use different questions to collect more valid measurements of user satisfaction.

The implications of these results suggest that:

1. The survey code must be modified in order to collect better data in future implementations
2. Users may need more time to explore the relatively new NC Health Info web site to be able to answer the questions more fully
3. Respondents seem to be fairly satisfied with the web site and its content but remain doubtful about the level of security, anonymity, and privacy that the site provides
4. More members of minority populations must be contacted in reference to the NC Health Info web site so they too can benefit from the resources provided on the site.

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## Appendix A - Results Tables

1. How did you learn of the NC Health Info web site? Please select **all that apply**:

Answer	Number
Family member or friend	5
Link from UNC Health Sciences Library web site	1
Link from MEDLINEplus web site	12
Link from a web site other than the 2 previously mentioned	5
Web search engine (Yahoo!, Netscape, MSN, Google, etc.)	15
Health organization or association (hospital, clinic, AMA, etc.)	2
Newspaper or magazine article	3
Professional contact or conference	5
Physician, nurse, pharmacist, or other health provider	2
Library	1
TV/radio	2
Other:	4
Don't know	2

2. Why are you visiting the NC Health Info web site today? Please select **all that apply**:

Answer	Number
For a project or presentation	5
Obtain the opinion of a health care provider	3
Find information on alternative treatments, herbals, or vitamins	5
Find information on clinical trials	3
Keep up with breaking health news	9
Search for health care products or services	14
Find general health and wellness information	10
Find health self-help groups	6
Find information on a specific disease, condition, diagnosis, or treatment	21
Find information on medicines or prescription drugs	6
Search for a health care provider (physician, dentist, hospital, etc.)	10
Other:	4

3. How frequently do you visit NC Health Info? Please select **one** of the following:

<b>Times Visited</b>	<b>Number</b>
This is my first visit	40
Less than once every 3 months	2
Once every 2 or 3 months	2
Once a month	1
2 to 3 times a month	2
At least once a week	3
Every day of almost every day	1
no answer	1
<b>Total</b>	<b>52</b>

4. Please indicate what you intend to do as a result of using information you obtained from NC Health Info today or in your most recent visit. Please select **all that apply**:

<b>Intention</b>	<b>Number</b>
Seek further information from a library	7
Discuss a disease, condition, diagnosis, or treatment with your doctor	9
Improve your understanding of a disease, condition, diagnosis, or treatment	19
Make an appointment for a health screening	3
Contact an association or organization	5
Alter your exercise or eating habits	4
Contact a support group	3
Make a decision about treatment options	10
Seek an alternative or complementary health provider	0
Make a doctor's appointment for yourself, a family member, or a friend	8
Use information for a project or presentation	5
Contact a hospital or clinic for further information	6
Give information to someone else	9
Other:	2
Nothing specific will happen	5

5. Please indicate agreement or disagreement with the following statements about NC Health Info.

<b>Statement from questionnaire</b>	<b>Agree</b>	<b>Disagree</b>	<b>Don't Know</b>	<b>No Answer</b>
NC Health Info has useful information.	39	0	11	2
NC Health Info makes it easy to find what I am looking for.	32	3	15	2
NC Health Info gives me good advice on how to lead a healthy lifestyle	20	0	31	1
NC Health Info does not try to sell me anything	27	0	24	1
NC Health Info has a simple/uncluttered layout and good use of graphics	32	2	17	1
NC Health Info is a credible source of current and accurate information	28	0	22	2
NC Health Info has pages and visuals that come up quickly	36	2	13	1
NC Health Info does not collect my personal information	27	1	23	1
NC Health Info needs a search tool that finds information on the site quickly and directly.	28	3	20	1

6. Do you recall seeing the following resources on the NC Health Info web site? Please respond to all items:

	<b>Yes</b>	<b>No</b>	<b>Don't Know</b>	<b>No Answer</b>
Information on clinical trials	17	17	17	1
Directories of health care providers and hospitals	25	7	18	2
Hospital or clinic web sites	18	11	19	4
Public Health department web sites	9	23	17	3
Library web sites	14	19	16	3
Information on disease and health issues	29	8	11	4
Links to other resources	25	11	12	4
Health care provider web sites	21	11	15	5
Alternative health provider or services web sites	12	16	19	5

If yes to above question, how useful was the information?

	<b>Not at all useful</b>	<b>Not Very useful</b>	<b>useful</b>	<b>Very useful</b>	<b>Extremely useful</b>
Information on clinical trials	1	0	9	5	4
Directories of health care providers and hospitals	2	2	8	8	5
Hospital or clinic web sites	0	0	13	4	1
Public Health department web sites	0	0	5	2	2
Library web sites	0	1	6	3	4
Information on disease and health issues	1	1	7	12	8
Links to other resources	0	1	10	4	7
Health care provider web sites	0	2	4	9	4
Alternative health provider or services web sites	0	1	3	4	3

7. What do you like most about the NC Health Info web site?

<b>Characteristic*</b>	<b>Number</b>
<b>Ease of Use</b> ( easy navigation, information is easy to find and understand)	7
<b>North Carolina specific content</b> (including 2 mentioning county specific content)	4
<b>Quality of Content</b> (information is reliable, has variety)	3
<b>Volume</b>	4
<b>Health Content</b> (clinical trials as well as general health focus)	2
Haven't been on site long enough	4

\*This table was borrowed from the MEDLINEplus survey and used here for comparison purposes.

8. What would you like to see added to or improved about the NC Health Info web site?

<b>Characteristic*</b>	<b>Number</b>
<b>Search Function</b>	1
<b>Solve Technical Difficulties</b> (all related to survey itself, not web site)	8
<b>Volume</b>	4
<b>Improved Content</b> (“more complete provider listings”, fix typos)	2
Haven’t been on site long enough	2
Health Information that is not within scope of NC Health Info	2

\*This table was borrowed from the MEDLINEplus survey and used here for comparison purposes.

9. How often do you find the health information you are looking for when you use the NC Health Info web site? Please select **one** of the following:

<b>Find information...</b>	<b>Number</b>
never	1
rarely	3
sometimes	4
frequently	6
always	6
I've only visited this site once before	24
no answer	8
<b>Total</b>	<b>52</b>

10. Overall, how satisfied are you with NC Health Info? Please select **one** of the following:

<b>Level of Satisfaction</b>	<b>Number</b>
not at all satisfied	2
not very satisfied	2
satisfied	22
very satisfied	12
extremely satisfied	5
no answer	9
<b>Total</b>	<b>52</b>

11. How likely are you to visit NC Health Info again? Please select **one** of the following:

<b>Answer</b>	<b>Number</b>
not at all likely	1
not very likely	3
likely	19
very likely	10
extremely likely	12
no answer	7
<b>Total</b>	<b>52</b>

12. From what location are you searching the web and using NC Health Info today? Please select **one** of the following:

<b>Location</b>	<b>Number</b>
school/college/university	4
work	7
library	1
physician office	1
home	26
hospital/health care clinic	2
other	3
no answer	8
<b>Total</b>	<b>52</b>

13. In what role are you using NC Health Info today? Please select **one** that best applies:

	<b>Role</b>	<b>Number</b>
	educator	1
	patient with a specific disease or condition	14
	secondary student (grades 7-12)	2
	family or friend of a patient	10
	general health consumer	7
	health care provider (physician, dentist, nurse)	4
	librarian or information professional	1
	college/graduate student	1
	other	3
	no answer	9
<b>Total</b>		<b>52</b>

14. Are you...(please select one of the following): (male or female)

	<b>Sex</b>	<b>Number</b>
	female	33
	male	11
	no answer	8
<b>Total</b>		<b>52</b>

15. What is your age? (describe in numbers, not text, please)

<b>Age</b>	<b>Calculation</b>
Average	41.33
Min	14
Max	72
Median	43.5

16. Which of the following best describes the highest level of education you have completed? Please select **one** of the following:

<b>Highest education level</b>		<b>Number</b>
	current middle or high school student	2
	high school graduate	3
	some college/vocational school	10
	college graduate	11
	some postgraduate school	2
	graduate/professional degree	15
	no answer	9
<b>Total</b>		<b>52</b>

17. What is your preferred reading language on the Web? Please select **one** of the following:

		<b>Number</b>
	English	42
	Spanish	1
	no answer	9
<b>Total</b>		<b>52</b>

18. How would you describe your ethnic background? Please select **one** of the following:

<b>Ethnicity</b>		<b>Number</b>
	Not Hispanic or Latino	43
	Hispanic or Latino	1
	no answer	8
<b>Total</b>		<b>52</b>

19. How would you describe your racial background? Please select **all that apply**:

	<b>Race</b>	<b>Number</b>
	American Indian or Alaska Native	1
	Asian	1
	Black or African American	6
	Native Hawaiian or Other Pacific Islander	0
	White	36
	No answer	8
<b>Total</b>		<b>52</b>

20. If you are accessing the site from the United States, please select the state from which you are currently accessing NC Health Info.

	<b>State</b>	<b>Number</b>
	Washington D.C.	1
	Idaho	1
	Maryland	2
	Michigan	1
	North Carolina	37
	Oregon	1
	no answer	9
<b>Total</b>		<b>52</b>

21. If you are in North Carolina, please also select the county from which you are accessing NC Health Info.

	<b>County</b>	<b>Number</b>
	Buncombe	2
	Cabarrus	1
	Chatham	3
	Clay	1
	Craven	1
	Cumberland	1
	Currituck	1
	Davie	1
	Duplin	1
	Durham	2
	Guilford	1
	Halifax	1
	Haywood	1
	Lincoln	1
	Mecklenburg	2
	New Hanover	1
	Onslow	1
	Orange	4
	Pasquotank	1
	Pitt	1
	Polk	1
	Randolph	1
	Rutherford	1
	Wake	4
	no answer	17
<b>Total</b>		<b>52</b>

## Appendix B – Survey Introduction and Consent Form



**Hello! You are invited to participate in a User Satisfaction Survey as a part of a research project to assess the NC Health Info web site, which is a collaborative effort to provide health resources to North Carolina residents.**

This brief customer satisfaction survey should take no more than **10** minutes of your time to both read the instructions and answer the 21 short questions.

We need **you** to participate in this survey so we have a better idea of people's satisfaction with the web site. **Your** opinion counts!

Completion of the survey is strictly voluntary and in no way affects any of your rights or privileges to access the NC Health Info Web site. You are free to refuse to participate or withdraw from the study at any time without penalty. Your responses will be kept confidential and anonymous. A cookie will be placed on your machine **ONLY** to prevent you from being presented with the survey more than once. In no way can the cookie be used to track who is taking the survey.

***Please note:***

**If you are an employee of the UNC Health Sciences Library or the UNC School of Information and Library Science, please refrain from taking this survey.**

If you have reviewed the contents of this page please click one of the two buttons below. If you click the "Yes, I wish to take the survey" button, you will continue on to take the survey. If you click the "No, I do not wish to take the survey" button, you will be sent to a window which you can close to get back to the NC Health Info web page.

If you have questions about this survey, please contact Margaret De Young at [deyom@email.unc.edu](mailto:deyom@email.unc.edu) or Dr. Barbara Wildemuth at [wildem@ils.unc.edu](mailto:wildem@ils.unc.edu). You may contact the UNC-CH Academic Affairs Institutional Review Board at [aa-irb@unc.edu](mailto:aa-irb@unc.edu) at any time during this study if you have questions or concerns about your rights as a research participant. Feel free to print this page if you would like it for your records.

If you have seen this page before, it is probably because your computer settings are not compliant with our system's requirements. Please make sure your computer accepts cookies.

Please do not take this survey more than once to ensure data accuracy.

Yes, I wish to take the survey

No, I do not wish to take the survey

## Appendix C – Survey Questions

**Thank you for taking the time to participate in this survey! Please answer each question as best as you can.**

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1. How did you learn of the NC Health Info web site? Please select **all that apply**:

- Family member or friend
- Link from UNC Health Sciences Library web site
- Link from MEDLINEplus web site
- Link from a web site other than the 2 previously mentioned
- Web search engine (Yahoo!, Netscape, MSN, Google, etc.)
- Health organization or association (hospital, clinic, AMA, etc.)
- Newspaper or magazine article
- Professional contact or conference
- Physician, nurse, pharmacist, or other health provider
- Library
- TV/radio
- Other (please specify):
- Don't know

---

2. Why are you visiting the NC Health Info web site today? Please select **all that apply**:

- For a project or presentation
- Obtain the opinion of a health care provider
- Find information on alternative treatments, herbals, or vitamins
- Find information on clinical trials
- Keep up with breaking health news
- Search for health care products or services
- Find general health and wellness information
- Find health self-help groups
- Find information on a specific disease, condition, diagnosis, or treatment
- Find information on medicines or prescription drugs

- Search for a health care provider (physician, dentist, hospital, etc.)
  - Other (please specify):
- 

3. How frequently do you visit NC Health Info? Please select **one** of the following:

- Every day or almost every day
  - At least once a week
  - 2 to 3 times a month
  - Once a month
  - Once every 2 or 3 months
  - Less than once every 3 months
  - This is my first visit
- 

4. Please indicate what you intend to do as a result of using information you obtained from NC Health Info today or in your most recent visit. Please select **all that apply**:

- Seek further information from a library
  - Discuss a disease, condition, diagnosis, or treatment with your doctor
  - Improve your understanding of a disease, condition, diagnosis, or treatment
  - Make an appointment for a health screening
  - Contact an association or organization
  - Alter your exercise or eating habits
  - Contact a support group
  - Make a decision about treatment options
  - Seek an alternative or complementary health provider
  - Make a doctor's appointment for yourself, a family member, or a friend
  - Use information for a project or presentation
  - Contact a hospital or clinic for further information
  - Give information to someone else
  - Other (please specify):
  - Nothing specific
-

5. Please indicate agreement or disagreement with the following statements about NC Health Info.

NC Health Info has useful information

- Agree
- Disagree
- Don't Know

NC Health Info makes it easy to find what I am looking for

- Agree
- Disagree
- Don't Know

NC Health Info gives me good advice on how to lead a healthy lifestyle

- Agree
- Disagree
- Don't Know

NC Health Info does not try to sell anything

- Agree
- Disagree
- Don't Know

NC Health Info has a simple/uncluttered layout and good use of graphics

- Agree
- Disagree
- Don't Know

NC Health Info is a credible source of current and accurate information

- Agree
- Disagree
- Don't Know

NC Health Info has pages and visuals that come up quickly

- Agree
- Disagree
- Don't Know

NC Health Info does not collect my personal information

- Agree
- Disagree
- Don't Know

NC Health Info needs a search tool that finds information on the site quickly and directly

- Agree
- Disagree
- Don't Know

---

6. Do you recall seeing the following resources on the NC Health Info web site? Please respond to all items:

Do you recall seeing information on clinical trials?

- Yes
- No
- Don't Know

If you clicked yes to the above question, how useful was the information?

- Extremely useful
- Very useful
- Useful
- Not very useful
- Not at all useful

Do you recall seeing directories of health care providers and hospitals?

- Yes
- No
- Don't Know

If you clicked yes to the above question, how useful was the information?

- Extremely useful
- Very useful
- Useful
- Not very useful
- Not at all useful

Do you recall seeing hospital or clinic web sites?

- Yes
- No
- Don't Know

If you clicked yes to the above question, how useful was the information?

- Extremely useful
- Very useful
- Useful
- Not very useful
- Not at all useful

Do you recall seeing Public Health department web sites?

- Yes
- No
- Don't Know

If you clicked yes to the above question, how useful was the information?

- Extremely useful
- Very useful
- Useful
- Not very useful
- Not at all useful

Do you recall seeing library web sites?

- Yes
- No
- Don't Know

If you clicked yes to the above question, how useful was the information?

- Extremely useful
- Very useful
- Useful
- Not very useful
- Not at all useful

Do you recall seeing information on diseases and health issues?

- Yes
- No
- Don't Know

If you clicked yes to the above question, how useful was the information?

- Extremely useful
- Very useful

- Useful
- Not very useful
- Not at all useful

Do you recall seeing links to other resources?

- Yes
- No
- Don't Know

If you clicked yes to the above question, how useful was the information?

- Extremely useful
- Very useful
- Useful
- Not very useful
- Not at all useful

Do you recall seeing health care provider web sites?

- Yes
- No
- Don't Know

If you clicked yes to the above question, how useful was the information?

- Extremely useful
- Very useful
- Useful
- Not very useful
- Not at all useful

Do you recall seeing alternative health provider or services web sites?

- Yes
- No
- Don't Know

If you clicked yes to the above question, how useful was the information?

- Extremely useful
- Very useful
- Useful
- Not very useful
- Not at all useful

---

7. What do you like most about the NC Health Info web site?



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8. What would you like to see added to or improved about the NC Health Info web site?



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9. How often do you find the health information you are looking for when you use the NC Health Info web site? Please select **one** of the following:

- Always
- Frequently
- Sometimes
- Rarely
- Never
- I have only visited this site once before

---

10. Overall, how satisfied are you with NC Health Info? Please select **one** of the following:

- Extremely satisfied
- Very satisfied
- Satisfied
- Not very satisfied
- Not at all satisfied

---

11. How likely are you to visit NC Health Info again? Please select **one** of the following:

- Extremely likely
- Very likely
- Likely

- Not very likely
  - Not at all likely
- 

**The following questions are optional. These responses will be used for classification purposes only. If you do not wish to respond to these questions, scroll down to the submit button.**

---

12. From what location are you searching the web and using NC Health Info today? Please select **one** of the following:

- School/college/university
  - Work
  - Library
  - Senior or community center
  - Physician office
  - Home
  - Hospital/health care clinic
  - Other (please specify):
- 

13. In what role are you using NC Health Info today? Please select **one** that best applies:

- Educator
  - Patient with a specific disease or condition
  - Secondary Student (grades 7-12)
  - Family or friend of patient
  - Researcher/Scientist
  - General health consumer
  - Health Care Provider (e.g., Physician, Dentist, Nurse)
  - Librarian or Information Professional
  - College/Graduate Student
  - News Reporter, Media Person
  - Other (please specify):
-

14. Are you...(please select one of the following):

- male
  - female
- 

15. What is your age? (describe in numbers, not text, please)

---

16. Which of the following best describes the highest level of education you have completed? Please select **one** of the following:

- Current middle or high school student
  - Did not complete high school
  - High school graduate
  - Some college/vocational school
  - College graduate
  - Some postgraduate school
  - Graduate/professional degree
- 

17. What is your preferred reading language on the Web? Please select **one** of the following:

- English
  - Spanish
  - Other (please specify):
- 

18. How would you describe your ethnic background? Please select **one** of the following:

- Hispanic or Latino
  - Not Hispanic or Latino
- 


19. How would you describe your racial background? Please select **all that apply**:

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander

White


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20. If you are accessing the site from the United States, please select the state from which you are currently accessing NC Health Info.



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21. If you are in North Carolina, please also select the county from which you are accessing NC Health Info.



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**Appendix D** – Permission to Use Unpublished 2003 MEDLINEplus Visitor Profile  
Study results in current study

From: Susan Fariss <FarissS@mail.nlm.nih.gov>  
To: deyom@email.unc.edu  
Cc: Naomi Miller <MILLERN@mail.nlm.nih.gov>  
Subject: Re: question about NLM Medlineplus survey results  
Date: Thu, 03 Jul 2003 11:17:31 -0400

Maggie:

Finally getting an answer to you. Per Eve-Marie Lacroix, it's okay to use the MEDLINEplus survey results for 2003, just reference them as "to be published on Medlineplus.gov." Also, can we get a copy of the paper? Much appreciate your patience.

Susan Fariss  
NLM