WOMEN'S HEALTH INFORMATION BASED ON WEB RESOURCES: AN ANALYSIS

A thesis submitted to the Mizoram University
for the award of Degree of
DOCTOR OF PHILOSOPHY

in

Library and Information Science
(School of Economics, Management and Information Science)

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Reg. No & Date: MZU/Ph.D/204 of 22.11.2007

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2010

D E C L A R A T I O N

I hereby declare that the thesis entitled "**Women's Health Information Based on Web Resources : An Analysis"** submitted by me has not previously formed the basis for the award of any Degree or Diploma or other similar title of this or any other University or examining body.

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C E R T I F I C A T E

This is to certify that the thesis entitled **"Women's Health Information Based on Web Resources: An Analysis"** submitted by **Shri S.Ravikumar** for the award of **Doctor of Philosophy** in **Library & Information Science** is carried out under my guidance and incorporates the students bonafide research and this has not been submitted for award of any degree in this or any other university or institute of learning

Aizawl, Mizoram   **Dr. S.N. Singh**

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ACKNOWLEDGEMENT

I am heartily thankful to my supervisor, Dr. S.N. Singh, whose encouragement, guidance and support from the initial to the final level enabled me to develop an understanding of the subject.

It gives me a great pleasure to complete and submit this thesis entitled **"Women's Health Information Based on Web Resources: An Analysis",** within a stipulated time. I hope that this work will be of immense value and help to those who work towards developing standard to evaluate Web Resources. It has been my earnest effort to contribute for the future generations in their educational and research pursuits in the field of library and information science and hope that this work may open door for years to come

I remain grateful to the authority of Mizoram University for permitting me to conduct this work. It gives me pleasure to express my heart full gratitude and thanks to Prof. Pravakar Rath, Department of Library and Information Science, Mizoram University, Aizawl. I am thankful to him for his invaluable guidance, continuous encouragement and help in the completion of the dissertation work. I also deeply grateful to Dr. R K Ngurtinkhuma, Sr. Lecturer & Dr. R. N. Mishra, Assistant Professor, of the Department of Library and Information Science, Mizoram University, Aizawl, for their kind support encouragement during my study.

Lastly, I offer my regards and blessings to all of those who supported me in any respect during the completion of the thesis

<div align="right">S.Ravikumar</div>

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List of Abbreviations

ARPANET	Advanced Research Project Administration Network
CUNY	City University of New York Office
DNS	Domain Naming System
DOD	Department of Defence
FTP	File Transfer Protocol
HONCOD	Health on Net Foundation
HTML	Hypertext Markup Language
IAB	Internet Architecture Board
ICT	Information Communication Technology
IP	Internet Protocol
ISOC	Internet Society
METRO	Metropolitan New York Library Council
NBOCC	National Breast & Ovarian Cancer Center
NSFNET	National Science Foundation Network
NYPL	New York Public Library
STAR	Spiral Technology Action Research
TCP	Transmission Control Protocol
TIIAP	Telecommunication & Information Infrastructure Assistance Programme
URL	Uniform Resource Locator

Chapter I

Introduction

Introduction

The society now we are living in is called knowledge society; this is because of explosion of information and interdisciplinary research. Information is the force that is driving the Knowledge society in the current environment. Information is an obligatory resource for Socio-economic development of any country. Knowledge is the foundation of every countries economy. The world is moving from Industrial Society to Knowledge Society. This Knowledge society is flooded with information, because of extensive investigation in all areas.

This baggy growth in information is good in many angles, but from user's point this growth has created many problems to the user's community. As a common man doesn't know which information is authentic one and where to find the authentic information? In today's virtual world, the growth of information and advancement of Information Communication Technology has forced the common man to search many documents to find his relevant and authenticate information. Current situation is like searching a needle in haystack.

The information available on the internet has created many snags for a common man. So to get the pertinent information the searcher has to browse hundreds of WebPages. A WebPage is an electronic document which resides on a web server; generally written in HTML or XML coding language, it may include pictures, sound, animation. On other hand it maybe inert or interactive, usually majority of the sites provide links to other document, which is identified by a URL. A website may contain brows able content, executable content, downloadable content and interactive information. Since WebPages may be published by different entities but in general they can be broadly classified as Business, Informative, News, Entertainment and Personal WebPages.

The large volume of health information resources available on the internet has great potential to improve health, but it is increasingly difficult to discern which resources are accurate or appropriate for users. Because of the potential for harm from misleading and inaccurate health information, many organisations and individuals have published or implemented criteria for evaluating the appropriateness or quality of these resources. Two published reviews of evaluation criteria for health related web sites did not present information on the range of criteria proposed by various authors, and included rating tools that were not developed exclusively for health related sites. Our study reviews criteria currently proposed or employed specifically to evaluate health related web sites

Information and communication technologies have advanced us to a new age as we approach to the 21th century. The percentage of US households with personal computers increased from about 8% in 1984 to 41% in 1997. In 1985, there were approximately 1000 computers with constant connections to the Internet; there are now more than 4 million. A decade ago, the Internet was used only by relatively few scientists and engineers; in 1997, approximately 41.5 million US adults were active users. The volume of information on the World Wide Web is so vast that even the best search engines have catalogued only about 28% of it. Much of the information on the Internet is health related, and researching health information is one of the most popular reasons for using the Internet. In 1997, nearly half of US users spent some time looking for health information or support on the Internet. The Internet is clearly an increasingly powerful channel for interactive health communication—the "next wave" of health communication that enables tailoring of information based on an individual's level of literacy, method and point of access, health status, and psychosocial variables. These technologies can help promote self-care and healthy behaviour and provide access to peer and emotional support given specific needs. Better-informed decisions may be a principal benefit, but as a result, there also may be more appropriate demand for health care services, leading to both improved health status and reduced total costs of illness.

For those with access, health information is more readily available than at any time in history. Answers to nearly any health question are available at any time. The implications of this phenomenon extend to the traditional health system because the growth of the Internet and its ability to support people in making informed health decisions may amplify another trend, the decentralization and democratization of knowledge about medicine and health from traditional health professionals to others. This trend stems from several factors: (1) patients are increasingly interested in participating in clinical decisions; (2) advances in biomedical and public health knowledge have become so rapid, voluminous, and complex that no single clinician can keep up with all of it; (3) efforts to contain costs are limiting clinicians' ability to spend time with patients; (4) health plans and employers are promoting self-care and prevention; (5) the aging global population is increasing the demand for health information and support; and (6) people are increasingly interested in alternative health care approaches.

Furthermore, the internet promises a means of obtaining up-to-date information often not otherwise available, both in developed and (perhaps particularly importantly) in developing countries. At the end of 2000, about 350 million adults were using the internet (Ipsos-Reid, 2001). Eaton (2002) cites figures from Data monitor reporting that one third of Europeans and almost half of Americans use the internet for health information.

Since the early days of internet use, it has been noticeable that mainstream providers of health care information are often initially slow to develop sites, whereas independent organizations and individuals are quick to offer health care information and products of varying degrees of quality, honesty and safety. This situation is sometimes compounded by the fact that health care users may feel alienated by official sites, either because they are wary of the motives of mainstream medicine or because they are searching for information that will be easier to read. It is interesting to note that published criteria addressing the issue of quality do not always include readability, although more recent papers are now addressing this. For example, Croft &

Peterson (2002) used the criterion of accessibility to evaluate the quality of asthma education on the internet, and included in this items such as readability, language and download time.

In addition, some individuals actively search for information about complementary medicine, either because of adverse experiences with mainstream medicine or in desperation for cure. This may be an alternative to discussing complementary medicine with health care practitioners, whom they suspect may disapprove. Such people can be very vulnerable to claims made on unscrupulous sites. The unpredictable nature of gathering information on the internet is further complicated by the fact that different search engines produce very different results for the same search terms, and subtle variations in wording can produce dramatically different findings. It is therefore hard to predict what a user will find.

Additionally, the process by which sites are ranked within search results is a complex one, based on the ease with which the site can be categorized (a process that can be influenced by the search engine used), the site's popularity, the number of other sites that link to it and how many search engines it is listed with. It is easy to see that this process can be manipulated, and that the inherent quality of the site is not always reflected in its ranking or availability on searches.

The internet is becoming an increasingly popular tool for patients seeking medical information. According to Internet World Statistics (2007), approximately two-thirds of the populations in the UK are current internet users. Of those people who browse the World Wide Web, 60–80% have used it to obtain health information (The Harris Poll Group, 2007), and their treatment choices could be influenced by what they read. If we take a special case like infertility, the infertile couple is no different from other 'e-health users'. A recent survey of 200 infertile couples found that nearly half were using the internet for fertility-related information and two-thirds of female users were influenced by online information when seeking

therapy (Huang *et al*., 2003). In order to find fertility-related sites, 91% of infertile patients use internet search engines (Huang *et al*., 2003). Different search engines, such as Google or AltaVista, use different criteria when supplying individuals with a list of relevant sites. Any internet user who accesses information via search engines will almost certainly visit the first few sites listed on the search page before any of the later listed sites. However, the order in which sites appear does not necessarily correlate with the quality of the site (Theodosiou and Green, 2003).

A number of tools have been developed for assessment of website quality (Silberg *et al*., 1997; Kim *et al*., 1999). The most frequently used assessment criteria include content (reliability and accuracy), design and aesthetics (layout and interactivity), currency of information and disclosure of authors and sponsors. (Okamura *et al*. 2002) evaluated 197 fertility websites that an infertile patient in the USA might reasonably visit and reported that fewer than half of the websites satisfied one or more of the four accountability standards (authorship, attribution, disclosure and currency), and only 2% satisfied all four standards. Likewise, (Abusief *et al*. 2007) evaluated website general characteristics as well as adherence to guidelines produced by the American Society for Reproductive Medicine (ASRM, 2004) and the Society for Assisted Reproductive Technology (SART) of 286 SART-registered clinics advertising their services. The authors found that the majority of websites did not follow the ASRM/SART mandatory guidelines for advertising. Furthermore, the publication of success rates did not adhere to the guidelines set by ASRM/SART, potentially misleading patients about chances of success.

Statement of the Problem
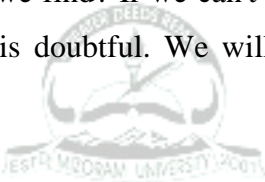
Internet information sources, like other information sources need to be evaluated by the library professionals in order to judge the quality or appropriateness of information. The traditional librarian's role of evaluation, selection and organizing print information, is being extended to the online environment. Of the approximately 1000 million pages comprising the publicly accessible World Wide Web, it has been estimated that only 28 % have been indexed by search engines, and just 8% feature content related to education or science. Due to the sheer volume of Web-based resources, it can be tedious and time-consuming to locate and retrieve meaningful and reliable health content

The Internet is a relatively new and untested information and communication medium. As such, there is need to evaluate, expand, and adapt existing criteria for evaluating the internet resource. It is also needed to develop new techniques for the purpose. The Internet is a ubiquitous medium: aside from questions of affordability, it is very pervasive in both authorship and audience. A web address is now an international information and persuasion medium. The Internet can very well be an unfettered and unregulated medium As such; it is the visitor to a website who must have both tools and responsibility to discern quality websites.

In this present information world, the informational professionals are making efforts to provide better service to the user community; it has been increasingly felt that to serve the reader better our central focus should be towards the user. The different user categories have different information needs depending upon their functions, occupations, responsibilities and duties. The user groups may belong to an intellectual, student, faculties, decision making authorities and a common man. So the information needs vary conspicuously among these categories of users.

So the role of information professional is very crucial, when it comes to the information dissemination end. Their knowledge of the information source that is available in this virtual world has a direct impact on the end user. The

information user is inspired and motivated by the informational professional only. The users are unaware of all the information sources that are available in today's environment. As today there are many publication channels available and in turn much information is published in different media. In this internet age a user can get much information from the World Wide Web. Though the Information Communication Technology has grown into many fold from the year 1969, when the United States, Department of Defense started to network its defense entities and which gave birth to internet technology. But till date many internet users are unaware of the quality and authenticity of the information that they get from various URL (Uniform Resource Locator) The present study will help searchers develop evaluation skills in judging information and helping web content developers increase the credibility of their materials for those looking for quality on the nets. There are several questions we should ask ourselves to judge the quality of information that we find? If we can't answer these questions, the quality of the information is doubtful. We will consider each of these in turn:

* **Authorship**
* **Publishing body**
* **Point of view or bias**
* **Referral to other sources**
* **Verifiability**
* **Currency**
* **How to distinguish propaganda, misinformation and disinformation**
* **The mechanics of determining authorship, publishing body, and currency**

The Internet can be a valuable resource for users seeking health information. The quality of this information is critically important as it could potentially affect health outcomes for millions. Yet the quality of health information on the Internet is extremely variable and difficult to assess. Thus, the choice of appropriate evaluation criteria for the information is both crucial and

challenging. This problem is generally recognized. There is no consensus, however, on how to resolve the problem, and there remain no uniform guidelines for quality assessment of Web-based health information for consumers. A number of websites display rating schemes, and there are "stamps of approvals," but there is little explanation of how those schemes were developed or how the ratings have been applied. The present study will address the above problem and develop a set of criteria for use in assessing the quality of health information on the internet.

Objectives of the study:

It is widely acknowledged that internet is the one of the driving force for this knowledge society. The level and the volume of information available in this space are un-imaginable. The resources that are hosted in WWW covers all the subjects in the universe. Every second one or the other kind of document is hosted on web, day by day this room is becoming crowded with information explosion. Due to this unprecedented growth of information the users are in overcast. As a custodian of knowledge it's the responsibility of the information professionals to evaluate that information which are available in the virtual world before they pass that information to their users. So with the above idea the scholar has taken this study to Evaluate Women's Health Information with the flowing objectives.

- To identify the authentic web resources which are available in the area of health information, particularly women's health?
- To analyze the audience demographic, according to age, education, and gender and browsing location.
- To find out whether the top ten women health issues are covered by the site or not.
- To analyze the users from various geographical location.

- To identify whether the URL has been changed or the site is stopped function during the study period.

Methodology of the study

The current study taken up by the scholar is an evaluator study. For the study the scholars have identified one hundred health site which covers women's health also. To identify these sites the researcher used two search engines namely "Google" and "Yahoo".

The keyword used to retrieve the above subject site is "Health Website" and "Women's Health Website". From using the above two key phrases, the scholar was able to identify one hundred websites at the initial stage. This first phase sample was carefully analyzed by the scholar that whether all the relevant data that is required for the study is available or not. After initial elimination, the sample size came down to seventy three. The study was confined to only seventy three website. Those sites taken for the study was basically no language of the hosting country and the site language. On these criteria the pollster confined to six countries namely United States of America, United Kingdom, Australia, Canada, New Zealand and India, excluding India all other country are English speaking country. Indian sites where taken because though India is multilingual region, all the official communication takes in two languages, one is the vernacular and the other is English, as English is one of the official language in India.

Once the sample size was finalized, the investigator started to observe the individual site on a regular interval of fifteen days from November, 2007 to January 2010. Total eighty four criteria were identified to gauge the sites quality, like downloading speed to the gender of the users. From the eighty four criteria fifty percentage of them where used for regular checking. Some important criteria are Speed, Last Date of Update, Reach, Traffic, User Friendliness etc, Other fifty percent of criteria were used for one time basis like, HonCode, Affiliation of the site, Date of establishment, Hosting country, IP address etc.,

An Excel sheet was prepared with eighty five column and seventy three rows for data entry. On the above basis the scholar regularly observed each and every sites on the above said interval and the collected data's were fed into the excel sheet. After all the relevant was captured the table was cleaned to eliminate redundant and irrelevant entries. These data's were again fed into SPSS table after recoding the data according to the SPSS needs. The investigator used various statistical tools like; Simple Mean, Mann Whitney Test, Cochran's Test and Spearman's rho's Test were used for data analysis.

Hypothesis

Hypothesis is usually considered as the principal instrument in research. Its main function is to suggest new experiments and observations. In fact, many experiments are carried out with the deliberate object of testing hypotheses. Decision-makers often face situations wherein they are interested in testing hypotheses on the basis of available information and then take decisions on the basis of such testing. In Social science, where direct knowledge of population parameters is rare, hypothesis testing is the often used strategy for deciding whether a sample data offer such support for a hypothesis that generalisation can be made. Thus hypothesis testing enables us to make probability statements about populations parameters. The hypothesis may not be proved absolutely, but in practice it is accepted if it has withstood a critical testing. Before we explain how hypotheses are tested through different tests meant for the purpose, it will be appropriate to explain clearly the meaning of a hypothesis and the related concepts for better understanding of the hypothesis testing techniques.

The following hypothesis was formulated for the current research.

1. **Null hypothesis** $H_0 : \mu =$

- Age and education is not a major factor when it comes to web resources users

   Alternative hypothesis $H_a : \mu =$

- Internet resources are widely used by the younger generation specifically between 25-45 age groups and the users with minimum college level education background are the prominent user of these web resources

2. **Null hypothesis** $H_0 : \mu =$

- General health sites don't provide exhaustive information on women health topics.

   Alternative hypothesis $H_a : \mu =$

- Women centric sites provide exhaustive information on women's health compared to general health site.

3. **Null hypothesis** $H_0 : \mu =$

- Site ranking, in-link count and downloading speed doesn't have any relationship.

   Alternative hypothesis $H_a : \mu =$

- The site with better ranking will have good in-link count and better downloading speed.

4. *Null hypothesis* $H_0 : \mu =$

- Use of web resources is not country specific.

Alternative hypothesis $H_a : \mu =$

- Host country has major share of users than compared to the rest of countries.

Chapter II

Literature Review

Literature Review

In the last few years, a number of authors have considered criteria for the evaluation of Internet information sources. They generally take as their starting point criteria such as Katz's (1992) for the evaluation of print reference tools, but Piontek and Garlock (1995) refer to the related   area of collection development criteria. Stoker and Cooke (1995) consider published criteria for evaluation of CD-ROM and online information services.

While most authors agree that traditional criteria apply, there are particular aspects and concerns in the Internet environment that cause some new criteria to arise.

 Authority is of particular concern. Collins (1996) states that the "first priority is to find trustworthy sources on the net. Kovacs (1994) et al. see a role for librarians in assisting users to be critical of sources, seeing the key issues in an electronic environment as:

1. Don't believe everything you read.
2. Who is the author?
3. Is the source credible?

A problem in evaluating authority on the Internet is to obtain information on scope and authority; in print sources, this may come from introductory

notes. Kovacs et al. note a tendency for Internet resources not to offer useful scope notes or contain information about the credentials of the producers. Santa Vicca (1994) notes the "inconsistency of adequate descriptive information regarding the source of the retrieved information." Tillman (1997) considers one of the key indicators of quality to be the ease of identifying the scope and criteria for inclusion; she then decides whether these factors match her needs.

The lack of this kind of meta-information on the Internet also affects evaluation based on the criterion of purpose. Starr (1994) notes that it is often difficult to establish the purpose for which an Internet source was designed.

In evaluating content, Piontek and Garlock make a distinction between sites that only provide links to other resources, and those that provide original information. This is similar to Katz's distinction between control-access-directional sources (e.g., bibliographies as well as indexing and abstracting services) and source-type works (like encyclopedias and fact books). Both have their place, but Grassian (1997) argues that a source should have an appropriate balance between inward-pointing links and outward-pointing links.

Currency, in theory, should be where Internet sources have an advantage over print sources. However, several authors (e.g., Grassian)

point out that it can be difficult to determine the date of update of Internet resources. While many sites explicitly include a date of last revision, many do not.

The non-commercial nature of some information on the Internet can make for less current sources. Stoker and Cooke point out that Internet version of common reference works are often the out-of-copyright older editions.

The traditional criterion of format becomes more critical in the electronic environment when specialized software and hardware are required to access information. Many authors e.g., Caywood (1997) include a criterion of compatibility. This may include consideration of whether sites work with older browsers, such as Lynx, or use common multimedia formats.

Considering ease of use of Internet resources introduces new criteria. Koopman (1994) and Hay coined the criteria "workability" to describe the ease of use of, and connection to, a service. Gurn (1995) introduces a different but related criterion, "conviviality," for the ease with which a user interacts with a service.

A particular aspect of the workability criterion is connectivity--whether, and how easily, one can connect to the site. Santa

Vicca regards this as the most important criterion: "If one cannot access the information, one cannot evaluate the information." Caywood makes connectivity a significant criterion, considering whether a site is frequently overloaded and whether the URL (Uniform Resource Locator) is stable.

Cost is a criterion used for evaluating print resources; it has been given less emphasis in considering Internet resources due to the perception of the Internet as "free." Cassel considers the use of trial periods of fee-based resources as a way of evaluating whether they should be selected for linking from a library site. Increasing concern with cost and the related issue of copyright lead Pratt et al.(1996) to include as one of a number of useful "Guidelines for Internet Resource Selection" a criterion of "cost and copyright." They highlight the need for ease of compliance with any restrictions on dissemination of information from the site.

Yap .K. Y.L, S. Raaj, and A. Chan (2010) The quality of online anticancer drug interaction information varies among online drug databases. The team created OncoRx-IQ, a tool which assesses the information quality of online drug databases for anticancer drug interactions, and a pilot study done with the tool. They have created and pilot-tested OncoRx-IQ, a quality assessment tool, which helps clinicians systematically evaluate the quality and information accuracy of drug databases for anticancer drug interaction

information. This tool can lay the groundwork for future long-term evaluation of online drug interaction information.

Dupere.S, S. Courchesne-O'Neill, and M. O'Neill (2010) The study was from 2000 to 2008, the International Union for Health Promotion and Health Education transformed the Internet Journal of Health Promotion it had inherited into an innovative electronic multilingual capacity building experiment, the Reviews of Health Promotion & Education Online <http://rhpeo.net/index2.html>. Using a variety of sources (content analysis of the papers, site consultation statistics, users' survey), this paper analyzes reflexively the strengths and weaknesses of this experiment that was replaced in October 2009 by an Internet forum.

2009 Weaver III J.B. et al., (2009) The Internet's potential to bolster health promotion and disease prevention efforts has attracted considerable attention. Existing research leaves two things unclear, however: the prevalence of online health and medical information seeking and the distinguishing characteristics of individuals who seek that information. This study seeks to clarify and extend the knowledge base concerning health and medical information use online by profiling adults using Internet medical information (IMI). Secondary analysis of survey data from a large sample (n = 6,119) representative of the Atlanta, GA, area informed this investigation. Five survey questions were used to assess IMI use and general computer and Internet use during the 30 days before the survey was administered.

Five questions were also used to assess respondents' health care system use. Several demographic characteristics were measured. Contrary to most prior research, this study found relatively low prevalence of IMI-seeking behaviour. Specifically, IMI use was reported by 13.2% of all respondents (n = 6,119) and by 21.1% of respondents with Internet access (n = 3,829). Logistic regression models conducted among respondents accessing the Internet in the previous 30 days revealed that, when controlling for several sociodemographic characteristics, home computer ownership, online time per week, and health care system use are all positively linked with IMI-seeking behaviour. The data suggest it may be premature to embrace unilaterally the Internet as an effective asset for health promotion and disease prevention efforts that target the public.

Stinson J.N. et al., (2009) Tried to study the quality and content of English language Internet information about juvenile idiopathic arthritis (JIA) from the perspectives of consumers and healthcare professionals. Key words relevant to JIA were searched across 10 search engines. Quality of information was appraised independently by 2 health professionals, 1 young adult with JIA, and a parent using the DISCERN tool. Concordance of the website content (i.e., accuracy and completeness) with available evidence about the management of JIA was determined. Readability was determined using Flesch-Kincaid grade level and Reading Ease Score. The study highlights the paucity of high quality Internet health information at an appropriate reading level for youth with JIA and their parents.

Brouwer. W, et al., (2009) The Internet has become important for the delivery of behaviour change interventions. This observational study examines how many people visited, registered and revisited a web-based computer-tailored intervention promoting heart-healthy behaviours when it is implemented for use by the general public. Among registered visitors, the association between visitors' characteristics and initiating, completing and revisiting the website and/or its behaviour-specific modules was analyzed. Server statistics showed that 285 146 visitors from unique IP addresses landed on the home page in a 36-month period; of these, >50% left the intervention website within 30 s. In total, 81 574 (28.6%) visitors completed the registration procedure and gained access to the intervention; 99% of registered visitors initiated one module, 91% completed at least one module and 6% revisited the intervention. The majority of the registered visitors were women, medium to highly educated, with a body mass index (BMI) <25. Women, visitors aged 40–50 years, visitors with a medium educational level and visitors with a BMI <25 were more likely to initiate and finish the modules. It is concluded that a heart-healthy computer-tailored Internet program can reach substantial numbers of people, but additional research is needed to develop promotional strategies that reach the high-risk population, i.e. men, older and lower educated persons.

2009 Adams and Bal (2009), The availability of medical and health information on the world wide web has led to a long discussion about the reliability of that information. Various medical, political, and independent

organizations have created user-friendly tools for finding reliable medical/health information on the web and have been faced with the challenge of (re)defining what it means for information to be reliable. Little attention has been given to the work of reviewing web-based information and applying selection criteria to individual sites. In this article, the authors examine how guidelines are applied in practice and discuss how the selection criteria and the practices of applying them reinforce distinctions (such as those between lay and expert, global and local, non-profit and commercial, etc.) that current medical sociology and informatics literature suggests have been broken down by internet technologies and the availability of web-based medical information.

Trotter .M. I and D. W. Morgan (2008) in their prospective questionnaire study investigated access to the Internet and use of the Internet for health related information. Patients attending ENT clinic (204 in 2000; 209 in 2006) were asked two questions: do you have access to the Internet? Have you used the Internet to find health related information? Access to the Internet rose from 43 per cent (88) in 2000 to 70 per cent (147) in 2006, a significant increase (p < 0.001). The Internet was used for health related information by only 32 patients (16%) in 2000 but by 114 (55%) in 2006, a dramatic and significant increase (p < 0.001). Clearly patients and their families are increasingly using the Internet to access and seek health information. Clinicians cannot overlook this aspect of health provision when seeking to facilitate the transmission of information to their patients.

Whitelaw.S, (2008) the claim is made by many that we have reached a point where we are exposed to too much information. This potential phenomenon is particularly prominent in the health field where there is a suggestion that the volume of available information has increased significantly and more importantly that such volume has had detrimental effects on both the overall quality of such information and the ability of people to process and use it. His paper explores the nature and validity of these claims. Within the context of the notion of an `information society', it outlines a range of concerns that have been expressed in relation to this increase, including the simple problem of overload, the potential for less robust information to enter the system and thus the overall quality of available information to decline. This excess of information is seen to act against the benefits that are sought — information can be invalid and people may not have time to reflect and act on excessive information loads. This can result in irrationality or disinformation. The suggestion is made, however, that these concerns are largely unsupported by empirical evidence and are potentially the basis of a panic over the entry of alternative perspectives on health. The pessimistic perspectives are thus balanced by more constructive and optimistic views on this growth and opening up of information production and potential consumption. Seeing information creation as organic and pluralistic, it is suggested that increased information volume can actually be a constructive phenomenon. The paper concludes with the contention that it is unrealistic to expect a return to former circumstances of controlled and

limited information flows. Rather, a series of more pragmatic suggestions is offered within existing circumstances, including differentiating between information rich and poor health areas, addressing structural issues like information access and health literacy, and working towards organizing health information so that it is of a high quality, is physically accessible, relevant to the needs and literacy of groups, and in a usable form.

Marriott J. V., et.al (2008) studied the quality of information related to infertility. The aim of the study was to assess the quality of websites providing information on infertility and its management in the UK. Differences between website types and affiliations were assessed. A Google search for the keyword 'infertility' was performed and 107 relevant websites were identified and categorized by type. Websites were assessed for credibility, accuracy and ease of navigation using predefined criteria. The total scores for all types of websites were low, particularly in the accuracy category. Websites affiliated to the UK National Health Service (NHS) scored higher than those affiliated to private fertility clinics and other clinics providing non-conventional fertility treatment. Specifically, NHS websites were more likely to report success rates (92.9% versus 60% and 0%, P $\leq$ 0.05) and display information about their sources of funding (85.7% versus 15% and 14.8%, P $\leq$ 0.0001). Internet resources available to infertile patients are variable. Differences in the quality of infertility information exist between the different types of websites.

Lorence and Abraham(2008), In their studies of web-based consumer health information, scant attention has been paid to the selective development of differential methodologies for website quality evaluation, or to selective grouping and analysis of specific `domains of uncertainty' in healthcare. Our objective is to introduce a more refined model for website evaluation, and illustrate its application using assessment of websites within an area of ongoing medical uncertainty, back pain. In this exploratory technology assessment, we suggest a model for assessing these `domains of uncertainty' within healthcare, using qualitative assessment of websites and hierarchical concepts. Using such a hierarchy of quality criteria, we review medical information provided by the most frequently accessed websites related to back pain. Websites are evaluated using standardized criteria, with results rated from the viewpoint of the consumer. Results show that standardization of quality rating across subjective content, and between commercial and niche search results can provide a consumer-friendly dimension to health information.

Donnelly et al. (2008) investigated the use of the internet and eHealth amongst adults. Design Focus groups were conducted to explore participants' attitudes to and reasons for health internet use. Three super ordinate themes exploring eHealth behaviours were identified: decline in expert authority, pervasiveness of health information on the internet and empowerment. Results showed participants enjoyed the immediate benefits of eHealth information and felt empowered by increased knowledge, but

they would be reluctant to lose face-to-face consultations with their GP. Their findings illustrate changes in patient identity and a decline in expert authority with ramifications for the practitioner–patient relationship and subsequent implications for health management more generally.

Toms .E.G. and C. Latter (2007) to date most of the research concerning consumer health information has focused on trust and quality of health information websites. In this research, we observed 48 consumers searching for four health-related topics (some of their own choosing) using Google. Using transaction logs, video screen capture, retrospective verbal protocols and self-reported questionnaires, we examined holistically the consumer's search process. Results indicate significant problems in query formulation and in making efficient selections from results lists.
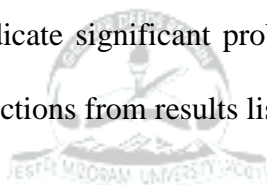
Rennie .C. A, et al., (2007) in their study technical information and quality were assessed using a simple grading system. Readability was assessed using a Simple Measure Of Gobbledygook (SMOG) rating. Twelve organizational, seven academic and seven commercial sites were identified. The average technical scores were 82.3%, 67.9% and 65.2% for each type of site, respectively (P=0.097, one way ANOVA). The average quality scores were 62.2%, 62.6%, and 49.5% for each type of site, respectively (P=0.356, one-way ANOVA). The average SMOG ratings were 16.3, 16.1, and 16.2 for each type of site, respectively (P=0.983, one-way ANOVA). Fifteen of the sites provided details of new and emerging treatments, with

seven providing a detailed discussion. Many websites are now meeting the challenge of providing comprehensive information about AMD and its new treatments. Quality scores were disappointing, with sites needing to provide more evidence of authorship and attribution of information. The majority of sites had SMOG scores above 10, making them difficult for the average person to understand. As physicians we need to help design and direct patients to sites that provide high quality, current information.

Rahmqvist and Bara (2007) examined the trends over five years for patients' seeking online additional health information about their disease/ health problem to what the doctor has been giving, and investigate any differences in information-seeking behaviour according to age, gender, self-perceived health status, living area, and type of medical encounter. Data from three independent surveys conducted in 2000, 2002, and 2005 of a population with a recent experience of outpatient, including 24,800 respondents aged between 20 and 95, were analysed in a trend analysis and a logistic regression regarding background factors that may influence the seeking behaviour. During the study period, there was a significant increase in Internet use in most age groups. The total use among men 20—95 years old increased from 7% in 2000 to 18% in 2005 and from 9% to 25% for women respectively. The predictors for using the Internet as a source of information were: age, gender, self-perceived health status, living area, and the type of medical encounter (first or repeated). In 2005, women aged 20—49 used the Internet as a source to a significantly greater extent than men.

Swedish patients, especially the young and middle-aged, are to a substantial degree using the Internet to gather additional information on their disease. The benefits of this increase include more informed patients; however, there are inherent quality issues that require strategies for ensuring public access to high-quality health information online.

Caron, S., Berton, J., Beydon, L. (2007). conducted a study to examine the quality and stability of information available from the Internet on four anaesthesia-related topics. In January 2006, they searched using four key words (porphyria, scleroderma, transfusion risk, and epidural analgesia risk) with five search engines (Google, HotBot, AltaVista, Excite, and Yahoo). They used a published scoring system (NetScoring) to evaluate the first 15 sites identified by each of these 20 searches. They also used a simple four-point scale to assess the first 100 sites in the Google search on one of our four topics ('epidural analgesia risk'). In November 2006, we conducted a second evaluation, using three search engines (Google, AltaVista, and Yahoo) with 14 synonyms for 'epidural analgesia risk'. The five search engines performed similarly. NetScoring scores were lower for transfusion risk. One or more high-quality sites were identified consistently among the first 15 sites in each search. Quality scored using the simple scale correlated closely with medical content and design by NetScoring and with the number of references. Synonyms of 'epidural analgesia risk' yielded similar results. The quality of accessed information improved somewhat over the 11 month period with Yahoo and AltaVista, but declined with Google. The Internet is

a valuable tool for obtaining medical information, but the quality of websites varies between different topics. A simple rating scale may facilitate the quality scoring on individual websites. Differences in precise search terms used for a given topic did not appear to affect the quality of the information obtained.

Berg M. H., et al., (2007) with the objective to assess the engagement in and satisfaction with an Internet-mediated physical activity intervention with individual supervision in patients with rheumatoid arthritis (RA). The intervention studied was one of the two strategies aimed at enhancing physical activity in RA patients that were being compared in a randomized controlled trial. A total of 82 patients, all experienced in using Internet and e-mail and registered at three different rheumatology out-patient clinics, were randomly allocated to the Internet-mediated individualized intervention (52 weeks). They had access to personal physical activity schedules and received individual supervision by a physical therapist by means of weekly e-mail feedback. In addition, telephone contacts, an online discussion forum, six face-to-face group meetings and electronic newsletters were offered. Besides registration of returned physical activity schedules, engagement and satisfaction were measured through questionnaires. Physical activity schedules with weekly feedback by e-mail, telephone contacts and a limited number of group meetings were frequently used website tools and modes of communication of an Internet-based physical activity intervention, with high-satisfaction rates from RA patients.

Discussion forum and newsletters were less used and appreciated. Caution should be taken when extrapolating the results found to groups of patients who are not experienced Internet and e-mail users or patients with more severe physical disabilities.

Basch et al, (2007) In their study they develop a mechanism for monitoring toxicity symptoms in cancer trials depends on a complex paper-based process. Electronic collection of patient-reported outcomes (PROs) may be more efficient and accurate. An online PRO platform was created including a simple data entry interface, real-time report generation, and an alert system to e-mail clinicians when patients self-report serious toxicities. Feasibility assessment involving 180 chemotherapy patients demonstrated high levels of use at up to 40 follow-up clinic visits per patient over 16 months (85% of patients at any given visit), with high levels of patient and clinician acceptance and satisfaction (>95%). Alerts were used as the basis for delayed chemotherapy treatments, dose modifications, and scheduling changes. These results demonstrate that online patient-reporting is a feasible strategy for chemotherapy toxicity symptom monitoring, and may improve safety and satisfaction with care. Ongoing multi-center research will evaluate the impact of this approach on clinical and administrative outcomes.

Ayers and Kronenfeld (2007) By using the theories of help-seeking behaviour and health-infrmation seeking, in their study demonstrates the
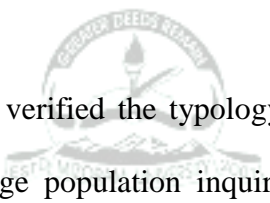
relationship between chronic illness, retrieving health information from the Internet and changing health behaviour. Research on the impact of health information on the Internet and changing health behaviour is fairly new, given the growth of the Internet in recent years. Using US data on Internet use within the US population, multiple regression analysis was performed to explore the relationships between chronic medical conditions and frequency of Internet use, as well as changes in health behaviour due to frequency of Internet use. The findings suggest that it is not merely the presence of a particular chronic illness, but rather the total number of chronic conditions that determine Internet use. Also, the more frequently a person uses the Internet as a source of health information, the more likely they are to change their health behaviour.

2006 Skinner et al, (2006) developed a health portal (www.SmokingZine.org) to carry a case study. As health education and health promotion have a tradition of using information and communication technology (ICT). In recent years, the rapid growth of the Internet has created innovative opportunities for Web-based health education and behaviour change applications—termed eHealth promotion. However, many eHealth promotion applications are developed without an explicit model to guide the design, evaluation, and ongoing improvement of the program. The spiral technology action research (STAR) model was developed to address this need. The model comprises five cycles (listen, plan, do, study, act) that weave together technological development, community involvement, and continuous improvement.

Papadaki. A and J. A .Scott, (2006) The Internet offers a promising medium for delivering nutrition education. This study aimed to evaluate user perceptions and usage patterns of an innovative healthy eating website promoting the Mediterranean diet. The website was evaluated over a 6-month period by female employees of University of Glasgow, aged 25–55 years. User satisfaction with the website was evaluated using a triangulation approach, including website visit counts, questionnaires (31 participants) and focus group interviews (18 participants). Although login frequency decreased over the 6-month study, questionnaires revealed that most sections of the website were viewed as being very helpful and the majority of participants perceived the overall website to be extremely interesting, informative, novel, trustworthy, easy to understand, useful, user-friendly, attractive and encouraging. The recipes section was the most visited and lack of time was the main barrier to using the website on a weekly basis, as recommended. The results of the questionnaires were confirmed by measures of website usage and the feedback provided by the focus group interviews. Several features that would improve the website, such as increased interactivity, nutritional analysis and fruit and vegetable serving content of recipes and more regular updates, were identified from the interviews and will inform future refinements of the website.

Marshall, L. A., Williams, D. (2006). An aspect of the information literacy of health information consumers is explored, in particular whether and how

they evaluate the quality of health   information on the Internet and in printed formats. A total of 32 members of patient support groups in North-East Scotland were recruited to take part in information review groups (a variation of focus group methodology) where discussion focused on a set of health information materials. Data analysis revealed 15 ways in which the participants evaluated quality. The two most important indicators of quality were organizational authority and the use of plain language. They did not find many of the indicators of evidence-based   information. Participants demonstrated lack of confidence about their ability to select quality health information and relied on preselection by authoritative   sources (libraries, support groups, health professionals) and distrusted the Internet.

 Grazi, (2006) in his study verified the typology and needs of people and patients of a single-language population inquiring about a homogeneous group of diseases treated in tertiary reference centres and their reason for writing. Data were extracted and coded from e-mail messages received over 27 months by a non-institutional Web site devoted to surgically treatable hepatopancreatobiliary diseases. Consultation activity was verified by the number of answers and subsequent messages. Main Outcome Measures One thousand forty-seven users sent 1788 messages to one of the Web site addresses; 1179 (94.6%) of them inquired about clinical problems. Data were collected on the demographics of senders and patients, the nature of the clinical problem, and the reasons for the messages. Results A mean of 2.1 messages per day were received. Queries were sent by patients in 260

instances (22.1%) and by others in 750 (63.6%). Two hundred thirty-seven (20.1%) e-mails had medical enclosures. The presence of a malignant disease was reported in 705 messages (59.8%). Description of previously undertaken therapy was present in 613 cases (52.0%). An answer was given to 1177 first messages (94.4%) and a follow-up message was received from 401 users (34.1%). Second messages were characterized by a shorter time to receive an answer (mean, 2.5 ± 3.6 days vs 3.5 ± 5.3 days). Each user sent a mean number of 1.4 ± 0.7 messages (range, 1-8). Web consulting is a powerful tool for patients and health professionals that emerged owing to physician communication problems. Nevertheless, the Internet is still pushing physicians toward a reconsideration of the principles of medical ethics and a re-evaluation of rules and regulations to deal with these new communication methods.

Ferney.S. L and A. L. Marshall (2006) Information and communication technologies (particularly websites and e-mail) have the potential to deliver health behaviour change programs to large numbers of adults at low cost. Controlled trials using these new media to promote physical activity have produced mixed results. User-centered development methods can assist in understanding the preferences of potential participants for website functions and content, and may lead to more effective programs. Eight focus group discussions were conducted with 40 adults after they had accessed a previously trailed physical activity website. The discussions were audio taped, transcribed and interpreted using a themed analysis method. Four key

themes emerged: structure, interactivity, environmental context and content. Preferences were expressed for websites that include simple interactive features, together with information on local community activity opportunities. Particular suggestions included online community notice boards, personalized progress charts, e-mail access to expert advice and access to information on specific local physical activity facilities and services. Website physical activity interventions could usefully include personally relevant interactive and environmentally focused features and services identified through a user-centred development process.

Shaikh, U., Scott, B. J. (2005). In their study the objective was to test and describe a model for evaluating Websites related to breastfeeding. Forty Websites most likely to be accessed by the public were evaluated for extent, accuracy, credibility, presentation, ease of use, and adherence to ethical and medical Internet publishing standards. Extent and accuracy of Website content were determined by a checklist of critical information. The majority of Websites reviewed provided accurate information and complied with the International Code of Marketing of Breast-milk Substitutes. Approximately half the Websites complied with standards of medical Internet publishing. While much information on breastfeeding on the Internet is accurate, there is wide variability in the extent of information, usability of Websites, and compliance with standards of medical Internet publishing. Results of this study may be helpful to health care professionals as a model for evaluating

breastfeeding-related Websites and to highlight considerations when recommending or designing Websites

Maloney.s, D. Ilic, and S. Green (2005) this study aims to determine the quality and validity of information available on the Internet about osteoarthritis and to investigate the best way of sourcing this information. Keywords relevant to osteoarthritis were searched across 15 search engines representing medical, general and meta-search engines. Search engine efficiency was defined as the percentage of unique and relevant websites from all websites returned by each search engine. The quality of relevant information was appraised using the DISCERN tool and the concordance of the information offered by the website with the available evidence about osteoarthritis determined. A total of 3443 websites were retrieved, of which 344 were identified as unique and providing information relevant to osteoarthritis. The overall quality of website information was poor. There was no significant difference between types of search engine in sourcing relevant information; however, the information retrieved from medical search engines was of a higher quality. Less than a third of the websites identified as offering relevant information cited evidence to support their recommendations. Although the overall quality of website information about osteoarthritis was poor, medical search engines may provide consumers with the opportunity to source high-quality health information on the Internet. In the era of evidence-based medicine, one of the main

obstacles to the Internet reaching its potential as a medical resource is the failure of websites to incorporate and attribute evidence-based information.

Baker, L., Rideout, J., Gertler, P., Raube, K. (2005). They studied the effect of a structured electronic communication service on health care spending; comparing doctor office and laboratory spending for a group of patients before and after the service became available to them relative to changes in a control group. In the treatment group, doctor office spending and laboratory spending fell in the period after the service became available, relative to the control group ($p < 0.05$). A rough estimate is that average doctor office spending per treatment group member per month fell $1.71 after availability of the service, and laboratory spending fell roughly $0.12. Spending associated with use of the electronic service was $0.29 per member per month. We conclude that use of structured electronic visits can reduce health care spending.

Ansani, N. T et al., (2005) the quality and reliability of Internet-based arthritis information were studied. 600 arthritis Web sites identified, only 69 were unique and included in the analysis. Fifty-seven percent were .com sites, 20% .org sites, 7% .gov sites, 6% .edu sites, and 10% other sites. Total scores for individual sites reviewed ranged from 3 to 14. Eighty percent of .gov sites, 75% of .edu sites, 29% of other sites, 36% of .com sites, and 21% of .org sites were within the top tertile of scores. No Web site met the criterion for being understandable to people with no more than a sixth-grade reading ability. .Gov sites scored significantly higher overall than .com

sites, .org sites, and other sites. .Edu sites also scored relatively well. The quality of arthritis information on the Internet varied widely. Sites with URLs having suffixes of .gov and .edu were ranked higher than other types of sites.

Isaac, D, et al (2004). The purpose of their study was to assess the content, quality, and type of internet resources available for safety education. Using 19 search engines with search strings targeting major forms of injury, identified resources were classified by audience group, accessibility, and authorship. Two independent reviewers rated each resource on the basis of its content and a set of quality criteria using a three point scale. Overall, 10 (18.2%) resources were of highest quality, four (7.3%) were intermediate, and 41 (74.5%) were not recommended. Eighteen months after the original search, 67.3% of all resources and 90% of the highest quality resources were still on the internet. This study provides a methodology for evaluating child safety resources on the world wide web and demonstrates that most internet resources for safety education are of dubious quality. A rating system such as the one developed for this study may be used to identify valuable internet materials.

Finegan B.A, (2004) The availability of Internet-enabled computers in the operating room (OR) facilitates unparalleled physician access to current peer reviewed research, either in abstract or full text format, a development that provides physicians with an exciting opportunity to incorporate such

findings into clinical practice at the point-of-care. In this report the author describe how the availability of online peer reviewed medical literature altered, in one case a planned surgical procedure and, in the other, the interpretation by the anesthesiologist of the clinical significance of an intraoperative echocardiographic finding. In case one, a free, rather than an intact, internal mammary (IM) artery graft was placed to the left anterior descending coronary artery of a patient with renal failure and an ipsilateral upper extremity arteriovenous fistula. The change occurred after the full text results of a study indicating that steal could well occur during the initiation of dialysis if an intact IM was used were made available to the surgeon. In case two, the occurrence of mild central mitral regurgitation in a Carpentier-Edwards Perimount prosthetic mitral valve was confirmed to be a benign finding after a study detailing the long term performance characteristics of this valve was accessed online in the OR. The benefits and potential pitfalls of searching and interpreting online medical information are discussed.

Theodosiou, L., Green, J. (2003). The quality and safety of websites vary widely and some users are reluctant to access mainstream sites. People are vulnerable to misinformation and exploitation: there is evidence that online purchases have caused morbidity and mortality. This paper reviews the current evidence on the dissemination of health information on the internet and the various strategies that are developing to assess and screen site quality. Such strategies include 'quality assurance' marking, specially designed search engines, and operational criteria for individuals to apply to

sites. It also discusses the medical community's roles and responsibilities in relation to this burgeoning area.

Sheehan, N. et.al (2003). Tried for systematically review and identify HIV drug interaction Web sites of high quality and usefulness for healthcare professionals. Relevant Web sites were identified through a structured search on commonly used search engines. An assessment tool containing 4 domains (content, reliability, access restrictions, ease of navigation) was developed. English and French Web sites were selected for review if they included HIV drug interaction information directed to healthcare professionals. Web sites were excluded if antiretroviral interaction data were not available or were out of date. Commercial online databases and sites that required payment were not included. Seventeen HIV pharmacists from across Canada participated in the review. The Web sites were ranked with total mean scores. Mean scores for each domain were then analyzed. Interrater agreement and ANOVA using the rater as a covariate were determined. Nine Web sites met the criteria for review. Web sites from Toronto General Hospital (Canada), HIVinSite (beta version) (US), and the University of Liverpool (UK) ranked highest for total mean scores and for content. Other Web sites were found to be reliable, accessible, and easy to navigate; however, they did not consistently include unpublished data or data on herbal preparations, recreational drugs, or multiple interactions. Three HIV interaction Web sites of high quality were identified that can be valuable tools for HIV and non-HIV healthcare professionals. Regular

reviews are necessary in order to keep pace with the growing body of HIV interaction data and the constant evolution of Web sites.

Ilic, D., Bessell, T.L., Silagy, C.A., Green, S. (2003) The Internet provides consumers with access to online health information; however, identifying relevant and valid information can be problematic. The objectives was to investigate the efficiency of search-engines, and then to assess the quality of online information pertaining to androgen deficiency in the ageing male (ADAM). METHODS: Keyword searches were performed on nine search-engines (four general and five medical) to identify website information regarding ADAM. Search-engine efficiency was compared by percentage of relevant websites obtained via each search-engine. The quality of information published on each website was assessed using the DISCERN rating tool. Of 4927 websites searched, 47 (1.44%) and 10 (0.60%) relevant websites were identified by general and medical search-engines respectively. The overall quality of online information on ADAM was poor. The quality of websites retrieved using medical search-engines did not differ significantly from those retrieved by general search-engines. Despite the poor quality of online information relating to ADAM, it is evident that medical search-engines are no better than general search-engines in sourcing consumer information relevant to ADAM.

Haagen, E.C, et al (2003). Nowadays, the Internet has a tremendous impact on modern society, including healthcare practice. The study aim was to

characterize current Internet use by IVF and ICSI patients and to identify their preferences regarding Internet applications in fertility care. A total of 163 couples with fertility problems awaiting an IVF or ICSI procedure in the University Medical Centre Nijmegen, The Netherlands, was asked to complete a written questionnaire on Internet use in general, and also for fertility-related problems, preferences regarding Internet applications in fertility care and demographic characteristics. The response rate was 82%. In total, 81% of infertile couples used the Internet. Multivariate logistic regression analysis showed ethnic background and annual family income to be significant predictors of Internet use. Some 66% of Internet users and 54% of the total study population used the Internet for fertility-related problems. The female partners were the main Internet users with regard to fertility-related issues. In terms of preferences of the study participants, the majority favoured personal medical information online. Most infertile couples used the Internet with respect to fertility-related problems and were interested in implementation of Internet applications in fertility care. Healthcare providers should actively participate in the development and implementation of Internet applications in fertility care.

Bouchier, H., Bath, P. A. (2003). Good quality health-related information on the Internet is important for patients and their carers, enabling them to take greater responsibility in healthcare decisions. Carers of people with Alzheimer's disease require access to high quality medical, personal, practical and financial infrmation. The Internet contains large quantities of

health-related information and potentially has an important role to play in providing information for carers of people with Alzheimer's disease. The aim of the study was to evaluate a sample of Websites that provide information about Alzheimer's disease for carers of people with this condition using a selection of Website evaluation tools. A sample of 15 Websites providing information on Alzheimer's disease was evaluated using each of four evaluation tools. The Websites were ranked according to the scores they achieved with each tool. The correlation coefficient of the rankings of the Websites for each pair of tools was determined. There was a significant correlation between four of the six pairs of evaluation tools. Several Websites were ranked highly across the evaluation tools. The study identified problems in using generic health-information Website evaluation tools for sites providing information about specific diseases. The need to develop specific health-information Website evaluation tools and possibilities of how they might be further refined in the future were highlighted.

Benigeri and Pluye, (2003) Disseminating health and medical information on the Internet can improve knowledge transfer from health professionals to the population, and help individuals to maintain and improve their health. There are currently several medical information websites that directly target the general population with the aim of providing information about health problems, self-care and prevention. However, this new technology also hides several shortcomings, such as: (i) uneven quality of medical

information available on the Internet; (ii) difficulties in finding, understanding and using this information; (iii) lack of access for the unconnected population; and (iv) the potential for harm and risks of over-consumption. To be able to overcome these dangers, it is important that public health practitioners and health professionals be involved in the design, dissemination and evaluation of Web-based health and medical information.

Barnes et al, (2003) this study identified the criteria that are valued among Internet users when rating and accessing health information on the World Wide Web. Participants (N = 578) successfully completed a Web-based survey by ranking 12 criteria for evaluating health information. Then, by applying those same evaluation criteria, rated the quality of three preselected health-related websites and indicated their preference for one of the three sites. Six criteria including content, design and aesthetics, currency of information and contact addresses were significant predictors for selecting high-quality health information on the Internet. However, compared to their perceived importance, participants' perceptions about quality health information on the Internet were not consistent when selecting quality websites. This study identified the implications for evaluation criteria among Internet users, health professionals and website developers.

Baker, L., Wagner, T. H., Singer, S., Bundorf, M. K. (2003) The Internet has attracted considerable attention as a means to improve health and health care delivery, but it is not clear how prevalent Internet use for health care really is or what impact it has on health care utilization. Available estimates of use and impact vary widely. Without accurate estimates of use and effects, it is difficult to focus policy discussions or design appropriate policy activities. To measure the extent of Internet use for health care among a representative sample of the US population, to examine the prevalence of e-mail use for health care, and to examine the effects that Internet and e-mail use has on users' knowledge about health care matters and their use of the health care system. Setting and Participants Survey conducted in December 2001 and January 2002 among a sample drawn from a research panel of more than 60 000 US households developed and maintained by Knowledge Networks. Responses were analyzed from 4764 individuals aged 21 years or older who were self-reported Internet users. Main Outcome Measures Self-reported rates in the past year of Internet and e-mail use to obtain information related to health, contact health care professionals, and obtain prescriptions; perceived effects of Internet and e-mail use on health care use. Approximately 40% of respondents with Internet access reported using the Internet to look for advice or information about health or health care in 2001. Six percent reported using e-mail to contact a physician or other health care professional. About one third of those using the Internet for health reported that using the Internet affected a decision about health or their health care, but very few reported impacts on measurable health care

utilization; 94% said that Internet use had no effect on the number of physician visits they had and 93% said it had no effect on the number of telephone contacts. Five percent or less reported use of the Internet to obtain prescriptions or purchase pharmaceutical products. Although many people use the Internet for health information, use is not as common as is sometimes reported. Effects on actual health care utilization are also less substantial than some have claimed. Discussions of the role of the Internet in health care and the development of policies that might influence this role should not presume that use of the Internet for health information is universal or that the Internet strongly influences health care utilization.

Harvey-Berino et al, (2002) In their pilot study examined the acceptability and feasibility of conducting a weight loss maintenance intervention over the Internet. Obese adults participated in a 15-week behavioural weight control intervention and were then randomly assigned to one of the following three maintenance conditions: (a) in-person, therapist-led (TL); (b) Internet, therapist-led (I); and (c) control (C). Both maintenance interventions met biweekly for 22 weeks using the same program content. Results showed that TL participants were more likely to attend their meetings and feel more satisfied with their group assignment. Ho wever, there were no differences between the TL and I groups in overall attrition or number of peer support contacts made. There was also no significant difference in weight loss between the groups. Thus, the Internet may hold promise as a method for maintaining contact with patients to facilitate long-term behaviour change.

Kim, Paul & other (1999) published criteria for specifically evaluating health related information on the World Wide Web, and to identify areas of consensus. 29 published rating tools and journal articles were identified that had explicit criteria for assessing health related web sites. Of the 165 criteria extracted from these tools and articles, 132 (80%) were grouped under one of 12 specific categories and 33 (20%) were grouped as miscellaneous because they lacked specificity or were unique. The most frequently cited criteria were those dealing with content, design and aesthetics of site, disclosure of authors, sponsors, or developers, currency of information (includes frequency of update, freshness, maintenance of site), authority of source, ease of use, and accessibility and availability. The results suggest that many authors agree on key criteria for evaluating health related web sites, and that efforts to develop consensus criteria may be helpful. The next step is to identify and assess a clear, simple set of consensus criteria that the general public can understand and use.

Jadad AR and Gagliardi A, (1998) Identified instruments used to rate Web sites providing health information on the Internet, rate criteria used by them, establish the degree of validation of the instruments, and provide future directions for research in this area. A total of 47 rating instruments were identified. Fourteen provided a description of the criteria used to produce the ratings, and 5 of these provided instructions for their use. None of the instruments identified provided information on the inter-observer reliability and construct validity of the measurements. Many incompletely developed

instruments to evaluate health information exist on the Internet. It is unclear, however, whether they should exist in the first place, whether they measure what they claim to measure, or whether they lead to more good than harm.

In 1998, Jadad & Gagliardi published the first systematic review of the instruments available for evaluating health information on the internet. They found 47 such rating instruments. Fourteen of these provided a description of the criteria used to produce the ratings, but only 5 of the 14 provided instructions for their use. None of these 5 had been validated. This called into question the reliability of the very sites supposedly providing information on reliability.

1998 Eng TR, (1998) Information and communication technologies may help reduce health disparities through their potential for promoting health, preventing disease, and supporting clinical care for all. Unfortunately, those who have preventable health problems and lack health insurance coverage are the least likely to have access to such technologies. Barriers to access include cost, geographic location, illiteracy, disability, and factors related to the capacity of people to use these technologies appropriately and effectively. A goal of universal access to health information and support is proposed to augment existing initiatives to improve the health of individuals and the public. Both public- and private-sector stakeholders, particularly government agencies and private corporations, will need to collaboratively reduce the gap between the health information "haves" and "have-nots." This will include supporting health information technology access in homes

and public places, developing applications for the growing diversity of users, funding research on access-related issues, ensuring the quality of health information and support, enhancing literacy in health and technology, training health information intermediaries, and integrating the concept of universal access to health information and support into health planning processes.

Wyatt JC, (1997) Articulates that surfing the web provides an excellent method for patients and professionals to access clinical knowledge, unless we evaluate the quality of clinical sites and their effects on users, we risk drowning in a sea of poor quality information. Improved technology is not the answer to making better use of this enticing resource. We need to be clearer about the web's clinical role and the evaluation problems that it raises–how to recruit suitable subjects, develop valid and reliable methods of measurement, and carry out many more rigorous evaluations.

Weisbord SD, (1997) In his study found that myoglobin released during muscle injury can precipitate acute renal failure. There are many causes of rhabdomyolysis, including excessive exercise, "crush" injuries, seizures, infections, severe potassium and phosphate depletion, staphylococcal toxins, venoms, and licit and illicit drugs, including ethanol. Intoxication with the liqueur absinthe (derived from oil of wormwood) has not been associated with rhabdomyolysis or acute renal failure. They reported the case of a

patient who was hospitalized after drinking essential oil of wormwood purchased through the Internet.

Sonnenberg FA ,(1997) In his editorial he try to project the Internet growth, popularity, and particularly the segment known as the World Wide Web. Nielsen Media Research recently reported1 that up to 24% of all people in the United States aged 16 years and older had access to the Internet as of March 1996. The universal graphical interface supported by Web browsing programs has made the riches of the Internet available to the masses, including those with little computer knowledge or skill. A large and increasing number of medical sites are available. Recently searched the Web for the key words medical or health and retrieved more than 3 800 000 documents. Internet-related medical publications increased from 0 in 1992 to 107 in 1995. The scope of health-related applications on the Internet is as broad as medicine itself. Most medical schools and many hospitals have Web sites, which, in part, serve as marketing devices, but it also a platform to host health content.

Silberg WM, (1997) Health care professionals and patients alike should view with equal parts delight and concern the exponential growth of the Internet (the Net), and especially its graphical, user-friendly subset, the World Wide Web (the Web), as a medical information delivery tool. Delight because the Internet hosts a large number of high-quality medical resources and poses seemingly endless opportunities to inform, teach, and connect

professionals and patients alike. Concern because the fulfilment of that promise remains discouragingly distant. Technical glitches aside, when it comes to medical information, the Internet too often resembles a cocktail conversation rather than a tool for effective health care communication and decision making. The problem is not too little information but too much, vast chunks of it incomplete, misleading, or inaccurate, and not only in the medical arena. The Net—and especially the Web—has the potential to become the world's largest vanity press.

Impicciatore P, (1997) Studied on healthcare information on the world wide web with the objective to known its authenticity. Methods used was through systematic search by means of two search engines, Yahoo and Excite, of parent oriented web pages relating to home management of feverish children. Reliability of information on the web sites was checked by comparison with published guidelines. 41 web pages were retrieved and considered. 28 web pages gave a temperature above which a child is feverish; 26 pages indicated the optimal site for taking temperature, most recommending rectal measurement; 31 of the 34 pages that mentioned drug treatment recommended paracetamol as an antipyretic; 38 pages recommended non-drug measures, most commonly tepid sponging, dressing lightly, and increasing fluid intake; and 36 pages gave some indication of when a doctor should be called. Only four web pages adhered closely to the main recommendations in the guidelines. The largest deviations were in

sponging procedures and how to take a child's temperature, whereas there was a general agreement in the use of paracetamol.

By 1997, a range of papers had been published. Gomez (1997) discussed the need to assess cancer information on the internet. Wootton (1997) looked at information on women's health and observed: 'Most arguments in favour of regulating and restricting the information that is accessible to patients underestimate the power of the new health care consumers and fail to distinguish between quality of information and quality of knowledge.' This is an observation that articles still echo. Davison (1997) reviewed 167 websites giving dietary information and found that 76 (45%) of these provided information that was not consistent with one or more of the recommendations made in Canadian national guidelines on nutrition, and included information that was essentially advertising. Impicciatore et al (1997) found that only 4 out of 41 web pages offering parenting information adhered closely to the main recommendations of clinical guidelines for managing fever in children set out by El-Rahdi & Carroll (1994).

There has been rapid recent development in the medical literature on the subject of quality and internet regulation and the related area of the impact of the internet on patients and professionals. In 1996 a paper appeared by Mayer & Till with the title 'the internet: a modern Pandora's Box?' In the same year the BMJ's News section contained reports on the growth of unverified health claims on the internet (Bower, 1996), on investigations

into the sales of prescription drugs in both England and France (Dorozynski, 1996;Dyer, 1996) and on 15 deaths in the USA as a result of a herbal stimulant (Josefson, 1996). In addition, an article had appeared on the ethics of online psychotherapy posing the dilemma of what to do about a patient who is voicing suicidal ideation (Lloyd et al, 1996).

Chapter III

Health Care Information on the Web

Introduction to the Internet

It is hard to imagine what life would be without computers. Considering the present scenario, computers have dramatically changed the way they are being used. Earlier, computers were mainly used for scientific calculations and research purposes, but now, they are used for almost anything and everything. We can see the use of computers in various fields like medicine, entertainment, business, education, defence etc. The present generation computers are capable of taking decisions on their own and can think by themselves. A computer is mainly used for speed, accuracy, reliability, storage and retrieval of data. However, this was not sufficient as people began to have high expectations from computers. This led to the Network revolution, which had a very big impact on the IT industry. A group of computers connected with each other is called as a network. Using computers on a network can be for one of the following reasons.

Sharing Hardware — The primary goal of computer networking is to share resources. For example, consider an office that has 50 computers and one high-speed laser printer. This printer can be shared by all the users instead of buying a printer for each computer.

Sharing Software — Information on a single computer can be accessed by other computer in the network.

This avoids multiple copies of the same data on different machines.

Communication   - When several computers are connected to each other, messages can be sent and received.

Networking began sometime around 1969 when the department of Defence (DOD) of the United States started a network called the ARPAnet (Advanced Research Projects Administration Network). This network began in a modest way with one computer in California connected to three computers in Utah. It was an experiment carried out to see whether networking could be reliable. This network was setup by the military to ensure that communications did not break down in case of a ware. The DOD wanted to maintain contacts with military research contractors and universities doing military-funded research. The DOD also wanted allowed other Universities to join the network. Students at these universities adapted themselves to the network and developed much of the software that gives it its present status.

ARPAnet quickly grew to encompass the entire American continent and became a big success. Every university in the country wanted to be a part of this. So finally, it was decided that this network be broken into two parts – MILNET for managing military sites, and the new ARPAnet for managing the non-military sites. During the 1970's other networks like the USENET,

NSFNET came into existence. The NSFNET (National Science Foundation Network) allowed universities and research agencies to link up with its super-computers.

By 1990 many new networks emerged and started getting themselves connected to the existing networks and thus started the tremendous growth of networks and the Internet came into existence. Internet has a major impact on the Information Technology Industry. Major companies like AT & T, Microsoft, and IBM had to rethink and apply their strategies on the Internet. The Internet in the beginning was more of a playground for computer professionals and hacks that were comfortable with the cumbersome and complicated working of the Internet. However, the entire scenario changed when Tim Bereners Lee, a researcher at the European Laboratory for Particle Physics, In Geneva invented the HyperText Markup Language (HTML). This language is based on a point and click mechanism. This concept allows the linking of text, graphics in one document with other documents, no matter where the other document is stored − in the same machine or on a machine anywhere in the globe connected to the Internet. All that has to be done is to click on a phrase or a picture or a document and the appropriate information will be retrieved for you.

The Internet, as a resource of information, is accessible to people across the world and they way in which information is being used is what distinguishes

the information-use maturity of the people. It is not often it becomes imperative for us to reach out and fine little bits of information that are critical for a task to be performed. Ask 100 people who use Internet what it is and you will get 100 different answers. The fact is that the Internet has many things to offer to different people. It can be used as a research tool, a means of communication, a hobby, a marketing tool and just about anything you can think of.

Consider for example, a person decides to go the Switzerland for his vacation and needs some information regarding the places of stay and entertainment there. In order to get this information, he must have gone to his travel agent or any tourist agency or buy some books regarding that place. This would have taken a long time if his had not been connected to the Internet. Since he had access to the internet, he decides to collect the information from the Internet. First, he logs onto the Internet using a browser (Internet Explorer or Netscape Navigator). He then searches for information regarding Switzerland and within a few seconds, his computer displays a range of topics like accommodation, weather, and tourist information etc. about Switzerland. He then clicks on accommodation and immediately, he is displayed a list of all the hotels. He then chooses a hotel to stay and immediately a picture of that hotel appears on the screen, along with the different type's rooms, food, rates and tariffs for the hotel. He then clicks on a room and a photograph of that room appears with different views to and forms the room.

This was just a small example of how the Internet can be beneficial to people in different ways. Internet offers everything to us, and it is up to us to make the decision of what we want from the Internet. Information is scattered on different computers across the globe and retrieving that information can sometimes be very tedious. Previously, the interface to the internet was purely character based and the user had to type in a complicated set of commands and any mistake would result in retyping the whole set of commands. Further, there was limited scope or rather no scope for graphics. Internet in the present generation is totally graphics based which allows the users to adopt a Point and Click mechanism and avoids the tedious tasks of typing in complicated commands.

Internet is a worldwide network of networks connecting millions of users, spread across continents, exchanging thousands of megabytes of information, accessing over 10,000 open databases that covers everything from cooking to astronomy, all at a relatively inexpensive cost. The Internet offers a virtually unlimited amount of information and provides all the tools to access it – You just have to know how to use them. No one is actually in charge for the Internet. The Internet is a peer network. On such kind of networks, there is no centralized administration authority that controls access to all other networks. Each computer on the Internet is responsible for the security of its own system and for setting and for setting up a maintaining individual user.

The Internet is not just one network; it is a network of networks scattered across the globe. Any computer user on the Internet can contact another computer user on the Internet can contact another computer user on the Internet anywhere in the world. This kind of communication works something like the telephone networks where people can contact persons anywhere in the world. The Internet is an information superhighway and is available to anyone who wants to use it. A majority of Internet users are the college students. Although the Internet community is diverse, some shared values have evolved over the pas two decades of its existence and growth. These shared values include freedom of speech and information access, sharing and cooperation. It is because of these values that the internet has no predominant governing body. The closest you could come to a governing body is the Internet Society (ISOC). This society coordinates the activities of several agencies to bring order and direction to such a vast undertaking. That is the reason why there are no formal rules imposed on the Internet users

The Internet has no president or CEO. The constituent networks may have their own CEO's and presidents, but the Internet as a whole does not have a single controller. The ultimate authority on the Internet is the Internet Society, which is a voluntary membership organization, who work is to promote global information exchange through the Internet technology. It appoints a council of invited volunteers called the Internet Architecture

Board (IAB). This IAB is responsible for the technical management and direction of the Internet. The IAB also keeps track of information that uniquely identifies every computer connected to the Internet. For example, each computer on the Internet has unique 32 bit address and no two computers can have the same address. The IAB ensures that certain rules are followed in naming each computer.

No one pays for the Internet as a whole. Instead, everyone pays for their part. For example, the NSF pays for the NSFNET and NASA pay for the NASA Science Internet. Networks get together and decide how to connect themselves and how to fund these interconnections. A college or corporation pay for their connection to some regional network, which in turn pay a national service provider for the Internet access.
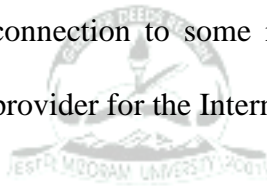
Domain Naming System

The Internet has millions of computer attached to it. But how do we know which computer has what information and how the Internet keeps track of communications between computers. Each computer that is connected to the Internet has its own unique identification called as address. No two computers can have the same address. For example, consider the following address

This kind of addressing system is called the Internet Protocol (IP) Addressing system and it keeps track of millions of users on the Internet.

Each computer on the Internet is called as a *Host* and has its own name and number. The IP addressing system is used in tow formats – letter addressing system and the number addressing system. The letter address is a series of words separated by dots. The above mentioned address is an example of the letter addressing system.

The number addressing system makes use of numbers separated by dots. A numeric address has four parts and is referred to as a dotted quad. For example - 91.918.196.197. Each number in the dotted quad is called an octet and cannot exceed 255. It is recommended that you know the IP address of the host computer you use the most. This will ensure faster access to the host. This dotted quad address is more specific than the lettered IP address. The lettered IP address is mapped to the dotted quad before a machine is accessed this kind of naming convention is called as the *Domain Naming System* (DNS)

Protocols

A protocol is a set of rules computers have to follow in order to achieve transfer of data without any problem. Consider for example, when two persons X and Y hold a conversation. They assume a default rule that when X speaks Y listens and when X's turn gets over Y starts talking with X listens. What would happen if both X and Y talk simultaneously? Neither of them would benefit form this conversation and the actual message with

not be conveyed. The same rule applies to computers while transferring data.

Internet is a packet switching network. The data that is to be transmitted is converted into small packets. The software that is responsible for making the Internet function effectively is TCP/IP. TCP/IP is made of two components – TCP, which stands for *Transmission Control protocol* and IP, which stands for *Internet Protocol.*

TCP   :   Breaks up the data to be sent into little packets. It guarantees that any data sent to the destination computer reaches intact. It makes the whole process appear as if on computer is directly connected to another computer, providing what appears to be a dedicated connection.

IP   :   It is a set of conventions used to pass packets from one host to another. It is responsible for routing the packets to a desired destination IP address. Packets are passed using three kinds if mechanisms: bridges, routers and gateways.

Communication Mechanism

The transfer of data packets on the Internet is governed by some special mechanisms. The type of the source and the destination networks will decide the mechanism to be used.

Bridges   :   They are used to connect two or more networks so that they appear to be a single large network. A bridge scans all packets that come to it. When it sees a packet on one network that is destined for a host on the other network, it copied it over. Usually, the host is not aware that a packet is being bridged. Bridges can only connect networks that are of the same type.

Routers   :   They are used to connect two or more IP networks. The Hosts on the network have to be aware that a router is involved in the data transfer. Routers can attach physically different networks. Routers are slower than bridges because routers have to calculate   and find out how to route   packets especially if the networks operate on different speeds.

Gateways   :   They splice together two different types of protocols. A gateway converts traffic from one set of protocols to

another. For example, a gateway can convert an IP protocol to a Novell Protocol or a NetBEUI protocol.

Host Name

A Host name is one, which uniquely identifies a computer on a network. No tow machines can have the same Host name. A Host name consists of two parts. One par signifies the network name and the other part signifies the name of that computer on that network. For example in www.amazon. com, the 'www' refers to the network and 'amazon' refers to the name of the computer on the network.

Domain

This domain actually identifies the type of network or organization you are connecting to. The following is a list of all the abbreviations that are used for naming the domain.

Domain names

Abbreviation	Represents
edu	Educational institutions
gov	Government departments
com	Commercial organization
org	Professional societies

mil	Military sites
net	Networking organizations
int	International organization

Tab.3.1

The domain name can also be split into two parts where the first part signifies the above mentioned network type and the other part signifies the country name. The country naming could be any one of the following.

Country Abbreviation

Country	Abbreviation
India	in
Australia	au
United Kingdoms	uk
Singapore	sg
Hong Kong	hk
Japan	jp
France	fr
Canada	ca

Tab.3.2

For example, consider the address www.mtvasia.com.sg. This address signifies that mtvasai is a computer on the www network which is a commercial organization on Singapore.

Directory and File Name

This name specifies the path of the target file on the specified computer. This path is often used for html pages.

Internet Tools

The Internet has grown enormously in the last few decades and every year sees new and easier ways of accessing information on the Internet. The following sets of features are considered as core essentials on the Internet.

E-Mail

Today's offices and business are turning into a paperless environment with the advent of e-mail. E-mail is the most used feature on the Internet and all Internet Service Providers (ISP) provide an account for e-mail. There is no postal delay as the mail reaches the recipient immediately. There are many servers on the Internet that provide free e-mail facility to those people who do not have an Internet account. Besides raw speed, an e-mail message isn't restricted to just text. You can send sound, image, video clips and even software. E-mail is also a lot cheaper as it costs the same to send a message to Los Angeles or to Delhi.

NewsGroups

Newsgroups are discussions on a range of topics from recreational activites to scientific research. Some of these newsgroups can be accessed by any Internet Surfer, while others are commercial and you have to subscribe to them. In a newsgroup, you can read any article or write articles and post them.

FTP

FTP stands for File Transfer Protocol. The FTP application is used to transfer files between hosts. FTP downloads files to your server from any remote server that is connected to the Internet. Several FTP sites permit you to access their files without establishing an account with them. These sites are called as Anonymous Sites. You generally login to these sites as anonymous.

Telnet

Telnet is a utility, which will allow you to log-on to another system and allows the user to user to use the resources of the host. Telnet is an Internet exploration that helps you to communicate with a variety of remote systems with which you have an account. Telnet is widely used to access databases and explore public access computer systems. Telnet is more functional than

FTP because it allows users to actually work on the network, not just to send and receive files.

Gopher

This is an Internet-based document retrieval system. The Internet offers a very fascinating world called the Gopher Space in which approximately 5000 Gopher servers are connected. Gopher allows you to gather information from across the internet that could be in the form of text, images, sounds or video. Gopher was developed at the University of Minnesota, and it is a menu driven application that allows you to hop around the globe looking for information in various information libraries or servers.

Uniform Resource Locator (URL)

Uniform Resource Locator is a mechanism that resolves the path and the address a file on the Internet. A URL contains information about the address a file on the Internet. A URL contains information about location of the document. A URL may point to another HTML document or an image. The retrieval method for documents will vary depending on document type and hence, URL will vary. The most common types of URL's are

HTTP URL

This URL is used for retrieving HTML documents on the Internet. An example of an http URL is shown below

http://www.hotmail.com

FTP URL

This URL uses the File Transfer Protocol. FTP is used to transfer files from the server to your machines and vice versa. For example, to access a document called a.txt on the FTP server gatekeeper.dec.com in the directory *public/document,* the URL would be

ftp://gatekeeper.dec.com/public/documents/a.txt

Gopher URL

Gopher Clients use Gopher URL's to connect to Gopher Sites. For example, to visit a Gopher server *gopher.uchicago.edu:70/1* the URL would be

Gopher://gopher.uchicago.edu:70/1

Gopher clients support all the protocols on the Internet, except HTTP. A gopher server displays a menu of topics in an alphabetical order. This menu is exhaustive. Depending on the topic chosen, the appropriate protocol is used to make the information available.

News URL

The news URL is used to any of the Usenet Newsgroups. For example, to access the newsgroup news.answers, the following URL can be used.

News://news.answers

Mailto URL

The mailto URL is used to invoke the e-mail software through a hyperlink. This URL has be used in conjunction with a HTML anchor tag. Assume that on clicking a hyperlink on a HTML document opens the e-mail software that actually sends a mail to rravi@hotmail.com the usage is as follows

<A HREF=mailto:rravi@hotmail.com>Ravi</A>

File URL

All the URL's discussed above access or point to document on remote machines. The file URL is used to access documents on the local disk. For example, to access a file called *help.html* in the directory *C:\web\utils\help.html*

The corresponding URL would be

file://localhost/c:\web\utils\help.html.

Health Information on Web

Introduction

Searching the Web for health information can be a daunting task. Even putting aside those WebPages that simply sells drugs and magic pills, reliable information can be hard to come by. Worse still, it is nearly impossible to tell the difference between information that really is not information at all.

Add to this the fact that health information is complex. Hundreds of press announcements about new drugs and treatments and released every day. Seemingly conflicting study results creep into the mainstream media, confusing us even further. Most of us do not have advanced degrees in area of medicine or allied subjects. Most of us cannot pronounce the name of our own prescriptions, never mind understand the inner workings of molecular relationships. Even our own doctors are subject to the same deluge of information. There are more patients, more costs, and less time. Mistakes will happen. Now, more than ever, it is crucial for us as consumers to understand modern medicine, and in so doing to become partner in our own healthcare. If you are like most people, you probably tried a search tool like Google or Yahoo to locate some kind of health information. You might have been curious about the diagnosis of a friend or, more likely, you have been diagnosed with something yourself, and you did not like what the doctor told you. So you go to your computer, type a

few words into the search engine form, hit 'Enter', and a few minutes you are faced with thousands of citations to site through. After twenty or thirty minutes you find that one page simply leads to another that leads to another. The answer to your original query is elusive. Even if you do find a page that looks promising, small text at the bottom indicates that it was last update in 1997 – hardly cutting edge technology.

To make matters worse, and better, new medical therapies and treatments are being developed for hundreds of diseases and conditions. Hidden among the advertorials for dubious home remedies and low cost pharmaceuticals from the world countries, are solid pronouncements of real advances in medical science. That does not mean that every News released a famous research institute signals the discovery of a cure for cancer or Alzheimer's disease. Many such released simply provide information about new therapies that alleviate symptoms. The issue for us, as consumers, is locating information, and that is where this research comes in.

Searching the Web for Health Information

Here we can find how the medical and health industries employ Web technology, the role of commercial opportunism in this process, and how it can distort or hide the information you may be seeking.

While searching the Web of Health Information, you will learn how Web pages are constructed and how that can affect your search results. Also

included are software tools and search strategies that can save time and reduce the likelihood of your obtaining incorrect information.

We will discuss Web privacy and how to safeguard you during an online search. The names of important organizations, Web sites and portals are provided as well as some perspective on where to get the latest medical new. How to find clinical trials , where to locate institutions that are doing research on the health issues that interest you.

Thus, searching the Web for Health is designed to assist health consumers in obtaining accurate medical information, to empower consumers and their families, and to help them become equal partners in decisions concerning their health.

The Web, Health Information and Users

When it comes to your health, having the best information available is crucial. Unfortunately, the lure of the Web and its easy access can give consumers a false sense of power. Just tape in a few "key words" and there is the answer to our question, or so we think. Although search engines do provide a definitive information service to Internet Users, higher standards are crucial when it comes to medical information because misinformation can have real – possibly dire – consequences.

Browser Basics

Since most of what we will be talking about is on the Internet, it would be a good idea to review the use of your Web browser. While some of this information may seem redundant, you may tip up a few tips to make your Web searching more efficient and rewarding.

Browser

Browser is that piece of software that allows you to access Web pages on the Internet. While most people access the Web with some version of Microsoft's Internet Explorer, other browsers including Netscape, David Gay's Opera, and a few others remain viable alternatives.

Your browser can bring information to you in several ways. You can simply type in a Web address; know as a Universal Resource Location (URL), e.g., http://www.healthfinder.com. You could also start from your default home and begin clicking on links within the browser window.

'Plug-ins', small add-on pieces of software such as Marco Media's Flash or Real Networks Real Player, can be downloaded to your system, Plug-ins allow you to view extended animations, listen to audio files, watch videos, and internet in other ways, using a wide variety of formats, and giving your browser functionality that it may not have had in its original configuration. Many plug-INS are preinstalled in newer browser version.

About URLs

Here are a few common mistakes people make while using their Web browser. These mistakes can affect the quality of your search. First, the Web address. Suppose you are at Google, and you click on a link that seems to be the answer to your web hunting dreams. A few seconds later, one of two things happens. Either you find yourself viewing a rather simplistic Web page that screams 'File not found' or you arrive at page that is unrelated to your search.

With the 'File not found' screen you may still be able to find your information.   Suppose   for   example,   the   Web   address   was http://www.mzu.edu.in/this_is_the_page.html.   Try typing in only the domain name (i.e., the part of the Web address before the '/') like this – http://www.mzu.edu.in. Webmasters occasionally move files or re-organize their Web sites. If a Website becomes too unwieldy or it content increases unexpectedly, the entire site may be reconfigured in a new way. The result is that existing information gets moved around, and the search engine or directory that you originally used to find the page does not yet reflect the changes.

By typing in the domain name only, you are likely to find the home page of the Website that hosted your page. You can also use links from the webpage menu to drill down through the links it provides to possibly find your information. Sometimes Web sites simply run out of steam, shut down, or

get bought by other companies. This can explain why you might arrive at a Web page advertising computers rather than a page displaying the medical report you were expecting to see. In these cases, Web administrators have 'redirected' the Web site address to the hosting company or new owner. If this is the case, you can assume that the Web page for which you were looking is no longer available.

Navigating Web Sites

Web sites can be as simple as a one-page html document that has some text and a few links. They can also be complicated, including frames, audio and video, interactive forms, and hidden codes that track your every click. There may be search boxes that allow you to search only the site you are visiting or you may be able to search the entire Web. Make sure you are aware of which type of Web site you are using.

As part of the research process, you will often have to scroll down long pages of lists. You can, however, save some time by using the 'find' feature. In Microsoft Explorer, for example, click on the 'edit' menu near the top left part of the browser. Scroll through the list options and select 'Find on this page'. Using this tool, you can jump directly to the portion of the page that contains the key word(s) for your search. It really works.

Researching Health Information

There are three things you will need to understand to facilitate your search for health information on the Web. They are:

You're Role as Researcher

Before you begin your search, it is important to have a clear picture of your own motives and knowledge base. Remember: You are looking for real medical information, not product promotions or philosophical statements on magnetism or stone therapy.

How the Web works

You need to understand the various components of the Web, how they work together, and how technology and commercial forces affect the content of the information that is available to you.

How the Medical Industry Uses the Web

Finally, you need to understand how medical research gets published and why one medical story may make it to the CNN news report while another does not.

With an understanding of these issues as the foundation for a health information search, we can now look at some of the more effective ways of extracting the kind of information you are seeking.

First, Search Yourself

The answer you get from any research attempt is only as good as the question you ask. Suppose, for example, you are looking for the latest treatment for stargardt's Disease, but you spell it ' Stargard'. That mistake reduces exponentially your chances of finding the right information or even related information. More important, what happens when you do find

something's of value? Will you recognize it when you see it? Before beginning a search, take time to evaluate your knowledge of the subject and any possible bias you may have for a particular search engine, treatment philosophy, or regimen. If you have any doubt about your expertise in the medical arena, the you must start from scratch and pretend you no nothing about the subject of your inquiry. By starting fresh at the top of the soon-to-be-learned factoids, you can prepare yourself to ask the right questions. There are two steps to this process:

Learn the Vocabulary

This is easier than you think. Well maybe not, but it is easier than I thought it would be. Learning a new vocabulary is all about acclimating. You need to around those words a while to feel comfortable with them. You can do this be pointing your Web browser to http://www.curekalert.org and browsing the thousand of medical press releases. Start by doing a search on the general topic you're interested in, maybe cancer or diabetes. Now use your Web browser and open a second window, point that browser window to http://ww.healthfinder.gov. in the little search form at the top, type in the world 'glossary'. In a moment you will see about seventy medical glossaries listed in your search result. Find the one on cancer and you are set to go. While reading your press releases in one window you can 'copy and paste' them terms you do not understand in the glossary window of

Healthfinder.gov. Spend some time doing this, and you should get a better idea of the kinds of questions you should be asking.

Getting up-to-speed on your subject

Part of your background investigation should include a review of the historical information surrounding your topic, suppose, for example, you are researching diabetes. You will learn that there are two major types. One affects children. While the other, adult-onset type II diabetes, primarily affects adults. It is interesting to note that while both types lead to insufficient insulin production, diabetes, itself, develops in completely different ways. This, any intelligent query into new treatments or clinical trials will depend on how well informed you are about the dieses itself. Do you want to know about type I diabetes or type II? Bone Up!

The Healthy Web

The World Wide Web is only one part of the Internet. The Internet exists to deliver all kinds of information to all kinds of people through computers known as servers. These servers are connected by a variety of networks all over the world. If you have a computer and a modem, you are connected to one of these networks. The 'World Wide Web was coined by Time Berners-Lee, who is considered the originator of the Web. He is currently

Directory of the World Wide Web Consortium, which creates the standards by which the Web operates.

The World Wide Web is only one way of delivering information through the Internet. Internet components include E-mail, File Transfer Protocol (FTTP), Telnet and Newsgroups among others. What makes the Web so special is its ability to make some of those other Internet features available through a Web browser and, more important, its ability to link to related documents. This linking is referred to as *hypertext.*

Hypertext is the concept behind the Hyper Text Markup Language (HTML), which is the original script language of web pages. Anytime you click on a link, you are using hypertext. Other Web scripting languages such as ASP, XHTML, PHP, etc., have improved on the original HTML, but the principles of content association based on hypertext remain unchanged.

The Web is Important

According to the Computer Industry Almanac, there will be more than 945 million Internet users by 2004. In the United States, Nielsen/Net Ratings puts the number of Internet users at 165.7 million in 2002, out of a total U.S. population of 280.5 million.

Virtually every political entity from government offices, to state, city, and country admistrations are connected to the Internet. Every college and university, every major corporation, and most small businesses have an

Internet presence in some form. The Web has become a part of modern life for most of us and is affecting the lives of nearly everyone.

Health Research on the Web: Be Very Sceptical

There is a lot of health related content on the Web. Much of what you will find by searching Google, Yahoo, and other search engines will be, at best, unconfirmed, and possibly even dangerous if you act on it's without checking its authenticity and consulting your doctor. There are several reasons for this and it is important that you understand why we find ourselves in a situation where we have lots of information but little useful knowledge,. Anyone can create a Web Page, or Can they?

Almost every Internet access account comes with a mechanism to create your own Web page. Some users have never bothered to create a Web site, while others have developed elaborate Web sites with all kinds of content. Since there is no enforcement agency governing Web publishing, the Web is a hodgepodge of facts and fantasy. In terms of medical and health content, we see everything from research findings from lading institutions to anecdotal tirades by unhappy recipients of any given treatment.

There are electronic forums where any user can post an authoritative claim about some aspect of health research. Commercial enterprises often emphasize certain aspects of legitimate research finding while diminishing the implications of their findings. And then there are the growing number

of advertorials, the clever melding of a commercial sale pitch with kernels of real knowledge is designed to persuade you to by a particular product.

There are no Laws regulating how information is posted

As we have noted, there are no laws governing how web pages are published because any motivated individual can produce a convincing Web site, regardless of the source of content, Your research must include a way to establish the authenticity of Web site content before you make a decisions about how you will use that information.

Several organizations are attempting to develop standards for health content on the Web.

Plagiarism on the web

Plagiarism, i.e., the unauthorized copying of copyrighted material, is a special consideration on the Web. With regard to health-related content, this particularly important for three reasons:

1. Unqualified content providers can misrepresent their expertise by including unauthorized information on their own site.

2. There is no way that consumers can be sure that all materials has been included in it's entirely.

3. Plagiarism is, quite simply, illegal.

Web sites are either not maintained or are poorly maintained

While it is easy to throw up a Web site, maintaining that Web site is time consuming and potentially costly. Even for large institutions, outdated Web content broken hyperlinks, and poor page formatting add another level of frustration to the search for health information on the Web. Lack of consistent publishing standards in the industry is a major barrier to accessing reliable information.

Web content does not expire

Timing is everything, which is why the Web is leading medium for delivering break through new and information. You can get it right now. The downside is that you can probably see the exact same news page in 3 years because much of it is not dated and most of the outdated materials are never removed. It is important to remember, then, that the information you find on the Web may not be the very latest and most up to date.

Commercialization of the search engines has affected search results

The integration of paid listings into search results has become an increasing problem over the post couple of years. Because of the difficulty of maintaining revenues from banner advertising, many search engines and directories have developed 'position based' preferential listings for Web site owners willing to pay for the privilege of being listed higher in the search engines result page. Suppose for example, you type in the phrase "lung cancer treatment" using the Google search engine. Instead of possibly getting the Abramson Cancer Centre at the University of Pennsylvania as

your first result, you may get a 'sponsored link' from Aventis Pharmaceuticals, Inc. To their credit, Google does identify sponsored listing, but not every search engine is so forth coming.

Motivators

A medical site once reported that, according to 'the lasted research', a certain diet that endorsed the liberal consumption of animal protein was extremely harmful to people and should not be undertaken. The feature story alluded to the irreversible harm that could be done by consuming so much fat. As there was no date on this story, an unsuspecting visitor to the Web site would assume it was current. It was not. Two larger studies that supported that diet claims have since been completed. Furthermore, upon investigating the supporting agencies of this particular Web site, I learned that there were close tie to a prominent animal right organization. It would not be unreasonable to suspect, then that the 'flavour' of the feature story might have been motivated by the agenda of the supporting organization.

How big is the "Health Information on Web"?

The totality of health information on the Internet is sometimes referred to as "the medical web". However, the question of how much information, let alone health information is now on the Internet is difficult to answer. Leading search engines recently claimed to index 3 billion Web pages, and

it has estimated that there are over 100,000 site dedicated to health information. Meanwhile it is estimated that around 60% of the population in the United States access the Internet, with percentages in the United Kingdom and Western Europe slightly lower. A Harris poll conducted in the United States in February 2004 estimated that 111 million American adults used the Internet to access health information.

These figures demonstrate the extent of the problem. Human beings cannot deal with information sources of this magnitude, and the need for systems to manage information has become more urgent on the Internet than it ever was with print resources. In the next few years we are likely to see considerably more efforts put into structuring sources of information on the Internet, just as well-developed structures emerged in the past for printed and published information. In the meantime, books such as Kiley's *"Medical Information on the Internet : A Guide for Health Professionals"* are invaluable in helping clinicians, patients and researchers find their way around the millions of pages on the Web and the hundreds of thousands of other valuable health information sources on Internet.

The number of people who have access to Internet health information may be even greater than these figures suggest. Studies conducted by Pew Internet and American Life Project show that , in many families, one person with particular aptitude and motivation may seek information relating to the disease or health concerns of family members and friends. The same study

reports on the increasing skills levels of these "cyber-savvy" health consumers in seeking and assessing the value of Internet health information, and it documents the depth of knowledge that exists in Internet-based consumer health group enabling people to understand "complex medical information".

A contrary view, however, suggests that much of the hype surrounding health information on the Internet exaggerates the paradigm shift that has occurred. A extensive consumer health literature has been available in print format for most of the second half of the twentieth century, much of which has also been misleading and inaccurate, and several handbooks, bibliographies, indexes, and database have been developed t help health consumers and libraries pick their way through what is a very large amount of information.

Determined patients have also been able to access the medical literature itself, and support groups for a large range of illnesses have developed skills in searching for acquiring, and interpreting this information for their member what has changed is the ease of access to some of this information on the Internet and the ability to communicate it rapidly among consumer groups or health professionals. The question must be asked whether these changes in themselves mean that use of the Internet continues to colour discussions of it.

A New Paradigm?

Many on other hand, suggests that the dissemination of health information on the Internet is indeed a paradigm shift affecting the whole culture of healthcare. A new phenomenon as on of technological determinism, in which new technology will impose a new environment and new modes of disseminating data, will cause "culture changes". "Content sometimes follows form, and the insurgent technologies give rise to new structures of feelings and thought."

These changes are perceived not only to increase the ability of physicians and other health professionals to access high-quality, up-to-date information to support clinical decision making but, to some extent, to impose an obligation on them to access this information. At the same time health professionals find themselves in a different relationship with health consumers. Patients may now have more up-to-date information than their health providers; they may delay necessary consultations and treatment by attempting to self-diagnose and self-treat based on online information; or they may contest physicians' recommendations for treatment, arming themselves with extensive amounts of valid and invalid information from online sources.

The Internet as a communication medium

To many people, the phrase "health information on the Internet" calls to mind a vast array of gateways and Web site that contain or link to documents containing health information of varying quality. It is necessary, however, to distinguish between the Internet – a communications medium supporting a number of applications – and the World Wide Web – a collection of documents accessed by a common software protocol. The Web has been described as the "killer application" of the internet and one which transformed it from an academic network to a mass medium. Recent surveys suggest that more people using the Internet use e-mail than search the World Wide when Web used is categorized by activity, such as searching for weather or news, information on hobbies or other special interests, products and services, health and diseases, and so on. Yet when all the activities are amalgamated, Web searching far outweighs e-mail than as the most common use of the Internet. Nevertheless, other applications do form part of the infrastructure of health information on the Internet, e-mail being one of the most used.

Digital Divide

A vast resource of health information, both good and bad, is available to those with the skill and ability to exploit it. This raises questions of equity of access, and the phrase "digital divide" has been applied to the gap that

exists in most countries between those with ready access to the tools of information and communication technologies and the knowledge that they provide access to, and those without such access or skills. Lack of access may due to socioeconomic factors, geographical factors; educational, attitudinal, and generational factors; or physical disabilities. A further gap between the developed and underdeveloped world in the uptake of technology is evident with the global community, and it may be of even greater significance.

Groups identified as being especially disadvantaged in their uptake tof ICTs include people on low incomes, people with few educational qualifications or with low literacy levels, the unemployed, elderly people, people in isolated or rural areas, peoples and some migrant and ethnic minority groups, often already disadvantaged in terms of education, income, and health status and having profound cultural differences relative to the dominant western culture of the developed world , are also identified as having a very low uptake of ICTs.

Barriers to use of the Internet

Although a number of barriers to Internet use are assumed to be socio-economic, most are not dependent on socioeconomic status alone. Any attempt to address the digital divide and ensure that health information is available to all health consumers and all healthcare providers must take

these potential barriers into account if it is to succeed. The four key issues are

- Physical access to ICTs
- ICTs skills and support
- Attitudes

Physical Access

The main barriers identified as physical access issues are lack of a robust telecommunications infrastructure with sufficient reliable bandwidth for Internet connections, and cost-the ability to purchase, rent , or travel to utilize the necessary equipment without financial hardship. Affordable, routine access is essential for participation in this new information age. Access is not dependent on home ownership, but it can be severely constrained in the workplace, and there are constraints on the type of activity that can be carried out in the public environment of a community access centre or cybercafé.

Physical access also includes provision of access for people with disabilities. Making the Internet accessible to allow all people in the community full participation in communications systems, education, employment, and other economic opportunities, regardless of their physical capacity, is a high priority for much government inhibits screen use, and learning disabilities prevent large numbers of users from participating in the

benefits of the Internet and its rich resources. Libraries, Web developers, governments, and the health community itself need educating in what are now called "adaptive technologies" which include techniques for basic Web document design that meet the "disabled-enabled" criteria of the World Wide Web Consortium (W3C). These criteria are now accepted as a world standard.

Lack of ICT Skills and Support

Lack of ICT skills and supports is another significant factor affecting Internet use. People in many of the disadvantage groups listed in the preceding subsection are often unable to make use of ICTs because of low levels of computing and technology skills and also, very importantly, literacy skills. Although people in professional occupations acquire such skills as part of their employment, manual workers and the unemployed are less likely to be exposed to such opportunities. Young people who do not go on to any form of tertiary education are equally disadvantage. While some skills spread rapidly in communities in which they are seen to have some value, computer skills may not be highly valued by these groups. The interaction of factors such as cost, restricted access to equipment; low educational achievement, and cultural, age, or gender-based exclusion from literacy and computing skills counteracts the dissemination of such skills in disadvantaged communities.

Attitudinal Barriers

Closely aligned with lack of skill and support are cultural and behavioural attitude toward the technology. These may include notions that computers are for "brainy" people, for males or the young, or that they are difficult to use or belong to a middle-class "white" culture. Concerns that personal information is not secure or that computers are "unsafe" for families because of the amount of unsuitable material on the Internet also have an impact on ICT use. In most developed societies the disparities between Internet users have disappeared as they have in the general population in other developed counties. On the other hand, disparities between male and female use of ICTs and therefore access to the Internet are much greater in developing countries. The involvement of women may be as low as 5% in some areas. This has serious implications for women's access to healthcare information, despite the fact that women are predominantly the custodians of family health in their own societies.

Attitudinal barriers can also be culturally based. In cultures that highly value oral culture, personal communication, and strong family and kinship networks, the use of computers for communication purposes may not be a high priority. Such barriers many apply to lowest socioeconomic groups of developed nations, to strongly networked cultural minorities, to indigenous groups emerging from and oral culture, and to non literate rural

communities throughout the world. This is a crucial issue in the dissemination of health information.

Women's Health Information on the Web

Information is vital for health and development, but the world's scientific knowledge remains largely out of reach for many countries. This is due in no small part to financial, technological, and infrastructure challenges, as the term

Digital divide suggests in the recent years the role of information and communication technologies, particularly the Internet, has been central to efforts to remedy the situation. The effective use of these new technologies can enhance the flow of scientific knowledge and contribute to the improvement of the conduct and sharing of health research, the formulation of sound health policy, and the advancement of health services. However, we are far from having exploited this promise. Despite the conventional wisdom that the Internet allows anyone with a computer and a modem to plug into a local phone line and immediately connect to a global network, the reality of the unequal development of the Internet infrastructure undermines the myth of universal access. While part of the problem has to do with the barriers of telecommunications infrastructure investment and regulation, poor nations face additional barriers including the costs and unfamiliarity of using and maintaining equipment and software. In addition the real need of the user's is due to educational, social and cultural differences looked.

In theory globalization provides an opportunity to spread the benefits of the Internet, but opportunities do not guarantee results, and the situation not unexpectedly varies considerably between countries internationally, Internet use is healthy and growing, and today most of the world's capital cities have access to the internet and World Wide Web. Beyond this however, most poor countries still lag considerably in internet uptake which requires local capital and capacity. Health information relevant, timely and appropriate must become unrestricted and affordable worldwide, so that all communities can benefit from this global public good.

Studies have repeatedly shown that one of the major reasons women use the Internet is to find health information. Searches on the Internet retrieve thousands to hundreds of thousands of women's health sites, with information ranging from very specific topics to comprehensive sites. Sites are produced by individuals, government agencies, hospitals, universities, and commercial organisations.

The sites are organised in broad categories. The first group is a list of three major sites that have links to information virtually every woman's health topic. Following are Web sites that have full-text information, and then "webliographies," or sites with links to many other sites.

Overview of Women's Health Website

Today on the Web, we find many types of women's health sites offering information that varies dramatically in quality, reliability, and completeness to begin; we will look at some of the various kinds of sites. The number of topics being almost endless, it was decided to examine sites using this criterion, which created them, and for what purpose?

Governmental Sites

Government agency sites are well represented on this area. Developed countries like US, UK and Australia are dissemination authentic information through various Governmental Sites like http://www.4woman.gov/ this particular site is intended for use by diverse groups including consumers, health care professionals, researchers, educations, and students. Some of the information is quite helpful; well-done sections targeting health professionals, women of colour, and women with disabilities offer materials relating directly to specific need and myriad links to reference tools.
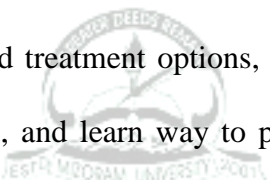
Another type of government site focuses on a specific national research initiative and contains links to each participating institution. An example is the National Centers of Excellence in Women's Health program

http://www.4women.org/owh/coe/index.htm.

Nonprofits and Foundation Advocacy Sites

Sites in this category tend to advance the agenda of their sponsor. They are predictable, narrower in scope than the sites discussed above to varying degrees they reflect the philosophy of sponsoring agency or institution and are not completely objective or neutral. However, if one takes into account the possible bias, these sites often provide high –quality information.

Women's Cancer Network http://www.wcn.org is sponsored by the Gynaecologic Cancer Foundation, an arm of the Society of Gynaecologic Oncologists. Its motto is "Physicians dedicated to preventing, detecting and conquering cancer in women." The site's aim is to help women "understand more about the diseases and treatment options, help them find appropriate cancer treatment specialists, and learn way to prevent the development of cancer.

Women's Health Megasites

This site includes almost every aspect of women's health issues in a variety of formats. They all have full-text articles, include links to other sites and have list of organizations. These are places to turn to first when looking for general or specific information on women's health.

Medlineplus: Women's Health

http://www.nim.nih.gov/medlineplus/

National Institutes of Health (NIH) is an agency of the United States Department of Health and Human Services and is the primary agency of the United States government responsible for biomedical and health-related research. It consists of 27 separate institutes and centers which includes the Office of the Director. Francis S. Collins is the current Director.

The predecessor of the NIH began in 1887 as the Laboratory of Hygiene. It grew and was reorganized in 1930 by the Ransdell Act into the National Institute of Health (singular at the time). As of 2003, the NIH was responsible for 28%—about US$26.4 billion—of the total biomedical

research funding spent annually in the U.S., with most of the rest coming from industry.

The NIH is divided into two parts: the "Extramural" parts of NIH are responsible for the funding of biomedical research outside of NIH, while the "Intramural" parts of NIH conduct research. Intramural research is primarily conducted at the main campus in Bethesda, Maryland and the surrounding communities. The National Institute of Aging and the National Institute on Drug Abuse are located in Baltimore, Maryland, and the National Institute of Environmental Health Sciences is in Research Triangle, North Carolina. The National Institute of Allergy and Infectious Diseases (NIAID) maintain Rocky Mountain Labs in Hamilton, Montana, with an emphasis on virology.

The goal of NIH research is to acquire new knowledge to help prevent, detect, diagnose, and treat disease and disability, from the rarest genetic disorder to the common cold. The NIH mission is to uncover new knowledge that will lead to better health for everyone. NIH works toward that mission by conducting research in its own laboratories, supporting the research of non-Federal scientists (in universities, medical schools, hospitals, and research institutions throughout the country and abroad), helping in the training of research investigators, and fostering communication of medical and health sciences information.

From the National Library of Medicine, this site offers a plethora of links to government, educational, and commercial sites on a large variety of women's topics. Almost all subjects have Spanish language information included. Links to pre-done PubMed searches are included. MEDLINE plus is a definite first stop sources.

Healthfinder: women

http://www.healthfinder.gov

This site is sponsored by healthfinder, from the department of Health and Human Services and the National Women's Health Information Center, this site includes links to full text information on a variety of women's health issues, news, organizations, how to make smart health choices, and resources for specific groups such as working mothers, lesbian parents, and retirees. The search engine for the entire healthfinder database is also available.

Healthfinder**,** a government Web site where you will find information and tools to help you and those you care about stay healthy.

The Content when making decisions about your health, it's important to know where to go to get the latest, most reliable information. healthfinder.gov has resources on a wide range of health topics selected from over 1,600 government and non-profit organizations to bring you the best, most reliable health information on the Internet. The site invites the

users to review the content guidelines to learn more about how resources on healthfinder.gov are reviewed and selected.

ADAM.com: Women's Health

http://adam.com

This site includes detailed information on women's health topics, anatomical images and illustrations of surgical procedures, new items, and information on tests and procedures. It includes discussion boards on a variety of women's health topics.

Allhealth.org: Women's Health

http://www.allhealth.org

America's health care system is always a work in progress. Every year brings new challenges and new proposed solutions. In the heat of debate, opinion leaders need an unbiased source of information so they can understand the roots of the nation's health care problems and the trade-offs posed by competing proposals for change.

The Alliance for Health Reform exists to provide that information. They offer a full array of resources and viewpoints, in a number of formats, to elected officials and their staffs, journalists, policy analysts and advocates.

A nonpartisan, nonprofit group, the Alliance believes that all in the U.S. should have health coverage at a reasonable cost. But we do not lobby for any particular blueprint, nor do we take positions on legislation. Senator Jay Rockefeller of West Virginia is our founder and honorary chairman and Senator Susan M. Collins of Maine serves as honorary co-chairman. The diverse board includes distinguished leaders from the fields of health care, business, labor and consumer advocacy. Ed Howard, an attorney long active in national health care issues, heads the Alliance's staff.

Since 1991, the Alliance has organized more than 200 forums in Washington and around the nation, each presenting a balance of expert views. Our forums on Capitol Hill have become so popular that we often receive more than 250 registrations in a day's time. We cosponsor an annual retreat for senior congressional legislative staff dealing with health matters. We have briefed reporters, editorial writers and producers in newsrooms across the country on health policy debates in Washington and how they affect local citizens. The Alliance also has published five highly regarded guides for journalists on covering health issues, with a sixth scheduled to appear this fall.

In addition, we produce issue briefs regularly on current topics such as "The Uninsured and Rising Health Costs" and "HSAs and High-Deductible Health Plans: A Primer." The Alliance's media resource service assists journalists nationwide to develop articles and broadcasts on health care issues. We also maintain an online Find-an-Expert service for reporters

which allows finely tuned searches designed for the differing needs of print and broadcast journalists.

This site is from iVillage.com, this site includes detailed information on women's health topics, this site has the feature of "Ask The Expert", a vitural check-up that includes visual examples for breast exam, and an osteoporosis risk profile. Health topics include general information along with question and answers.

AMA Health Insight: Women's Health

http://www.ama-assn.org

Consumer information on women's health topics is provided from the American Medical Association
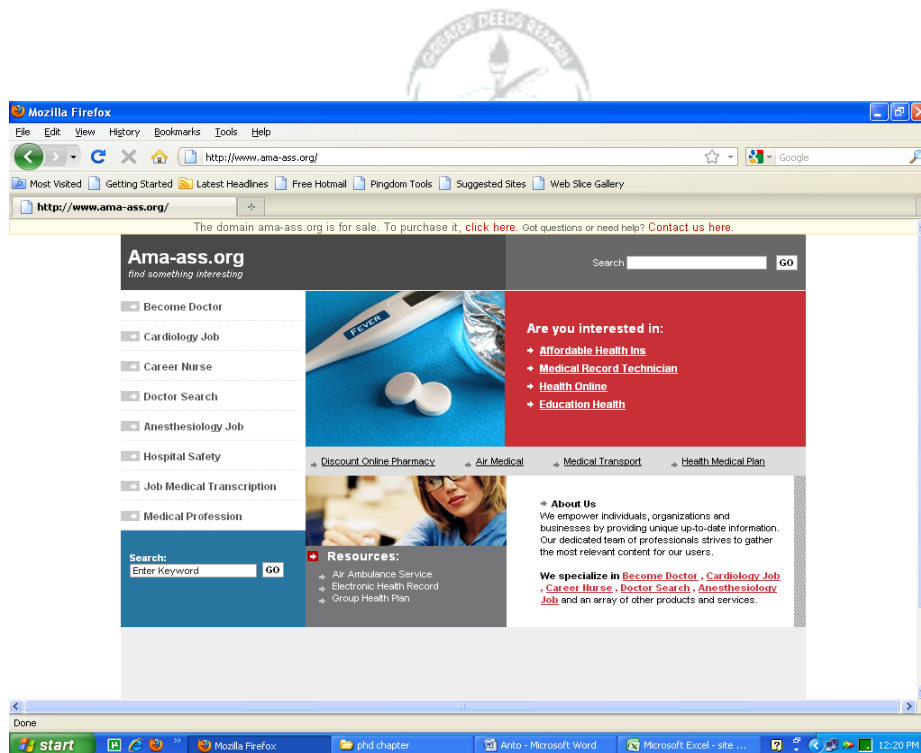
Ama-ass.org empowers individuals, organizations and businesses by providing unique up-to-date information. The dedicated team of professionals strives to gather the most relevant content for the users.

Estronaut

http://www.estronaut.com

A forum for women's health, this site includes original articles on varieties of women's health topics.
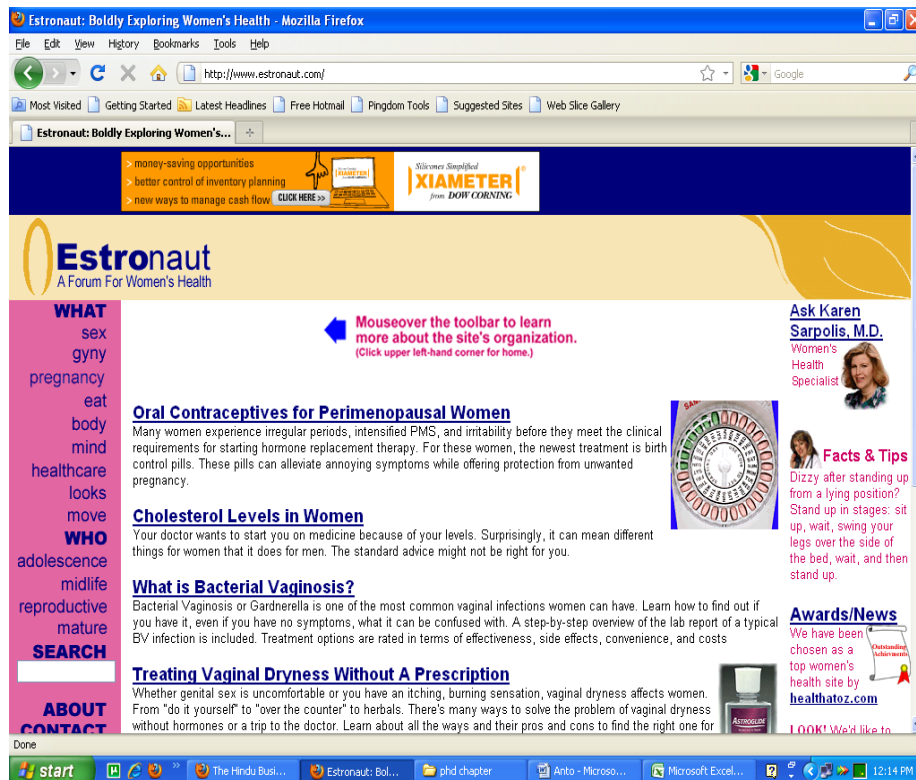
A Forum for Women's Health was developed and is maintained by Gennex Healthcare Technologies, Inc.

HealthGate: Women's Health

http://www.healthgate.com

This site includes featured weekly articles, news, health calculators, and dictionary

InteliHealth: Women's Health

http://www.intelihealth.com

The "Women's Health section of this by Johns Hopkins includes featured articles, "Ask the Doc," and e-mail health newsletter, and current news. It includes a search engine.

Aetna InteliHealth's mission is to empower people with trusted solutions for healthier lives. We accomplish this by providing credible information from the most trusted sources, including Harvard Medical School and Columbia University College of Dental Medicine. Established in 1996, Aetna InteliHealth has become one of the leading online health information companies in the world. Our health information includes health news and content as well as access to tools and risk assessments. Aetna InteliHealth is

a subsidiary of Aetna and is funded by Aetna to the extent not funded by revenues from operations.

Mayo Clinic Women's Health Center

http://www.mayohealth.org

This mayo Clinic site includes headlines, health quizzes, ask a Mayo physician and reference articles. It also has a search option to locate specific women's health subjects. A unique feature of the Mayo site is an audio dictionary that pronounces medical terms

http://www.mayoclinic.com/
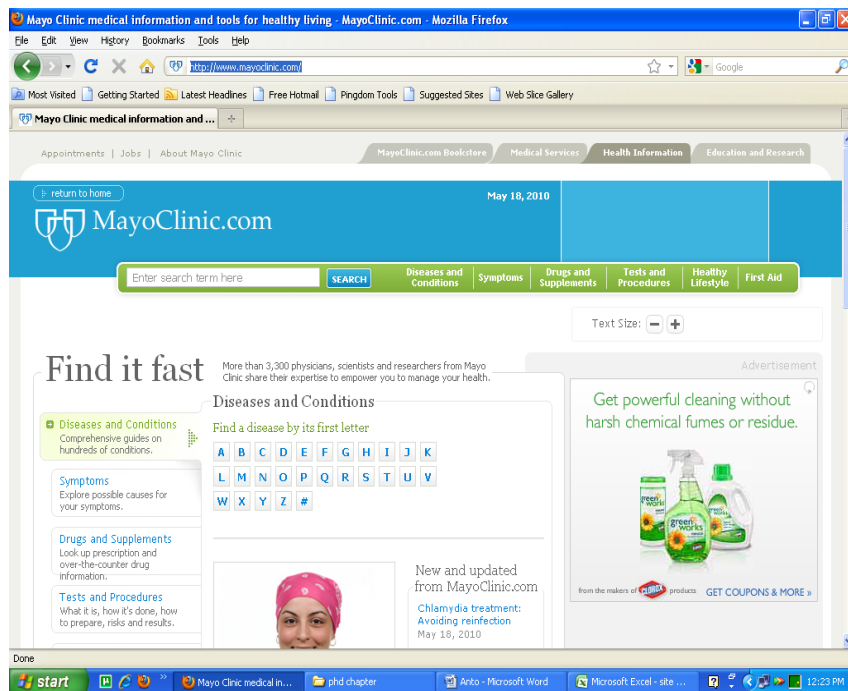
Mayo Clinic is a not-for-profit medical practice dedicated to the diagnosis and treatment of virtually every type of complex illness. Mayo Clinic staff members work together to meet your needs. You will see as many doctors,

specialists and other health care professionals as needed to provide comprehensive diagnosis, understandable answers and effective treatment.

Mayo provides clinic and hospital services at its locations in Rochester, Minn.; Jacksonville, Fla.; and Phoenix and Scottsdale, Ariz. Every medical service you need is available on our campuses, and physicians devote the time you need to be fully understood and cared for.

The Mayo Clinic logo represents the three underpinnings that continue our reputation as a pioneer and innovator in medicine - patient care, medical research and academic education.

It is part of Mayo Clinic's mission to serve as a reliable source of health information.

Mayo Clinic's three main Web sites provide information and services from the world's first and largest integrated, not-for-profit group medical practice. Manage your health with information and tools that reflect the expertise of Mayo's 3,400 physicians and scientists, learn how to access medical services, and discover Mayo's medical research and education offerings.

Health Information

Manage your health with our useful and up-to-date information in more than 35 disease and lifestyle categories.

Medical Services

Learn about medical services at Mayo Clinic, how to make an appointment and the unique Mayo Clinic Model of Care.

Education and Research

Explore the world of medical research and education at Mayo Clinic, from laboratory and clinical trials to our schools for aspiring and current medical professionals.

OBGYN.net: The Obstetrics & Gynaecology Networks

http://www/obgyn.net

This site includes areas for health practitioners, consumers, and the medical industry. Although sometimes hard to navigate, it contains a large variety of articles on many women's health topics. It also contains information in both Spanish and Portuguese.
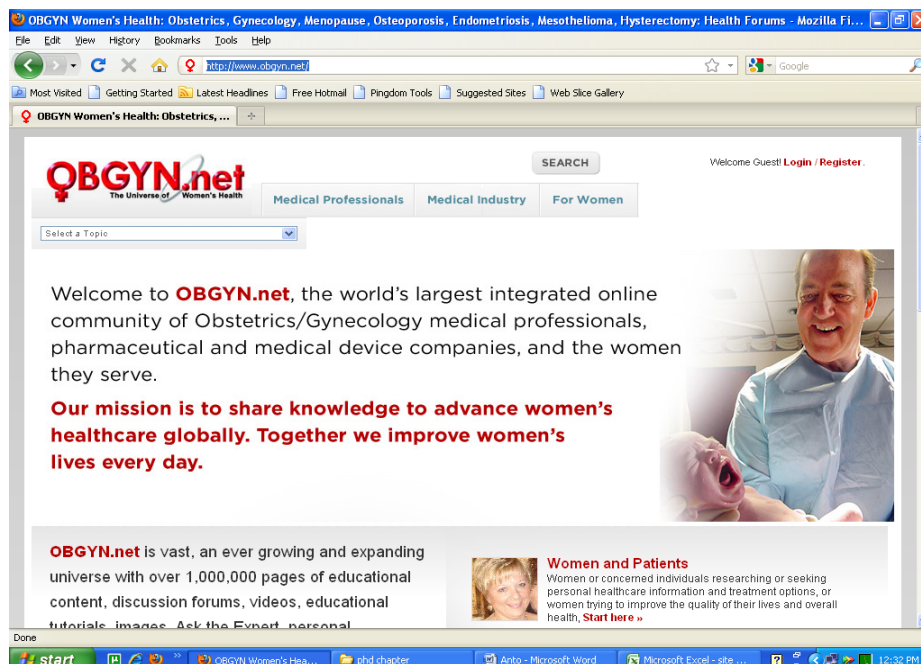
OBGYN.net are proud to be the World Wide Web's most comprehensive international resource center for professionals in Obstetrics and Gynecology

, the medical industry, and the women they serve. OBGYN.net offers: up-to-the-minute reference information, an event calendar, clinical reference collections, powerful search tools, discussion forums, electronic journals, and a place for you to publish your own articles. OBGYN.net closes the circle on women's healthcare providing a platform for interaction between women, healthcare providers and the medical industry. OBGYN.net is the online platform for the advancement of women's health globally.

Standards are high at OBGYN.net. We are guided by a board of respected medical professionals, serving as advisors for the project's development. And they sincerely believe "OBGYN.net represents the world" - our International Representatives bring a truly global perspective made possible by today's Internet. OBGYN.net communications resources eliminate boundaries and provide collaborative opportunities never before possible.

They are embarking on a great new era in women's health. OBGYN.net will be here for you to help you take advantage of all the wonderful opportunities available. The best is yet to come!

OnHealth: Women's Health

http://www.onhealth.com

OnHealth contains a list of women's health topics, A-Z, and "Ask our Experts" section, as well as live talk shows from Cleveland Clinic and Surgery shows from Stanford University Medical Centre.

WebMD: Healthy Women

http://my.webmd.com

Along with featured articles, the site provides chat capability, message boards, news, and an "Ask the Experts" section. Information on specific health topics is available through a search engine.

http://www.webmd.com/

WebMD provides valuable health information, tools for managing your health, and support to those who seek information. You can trust that our content is timely and credible

WebMD has created an organization that we believe fulfils the promise of health information on the Internet. We provide credible information, supportive communities, and in-depth reference material about health subjects that matter to you. We are a source for original and timely health information as well as material from well known content providers.

The WebMD content staffs blends award-winning expertise in journalism, content creation, community services, expert commentary, and medical review to give our users a variety of ways to find what they are looking for.

And that, we believe, requires dedicated, full-time staff professionals with state-of-the-art expertise in:

  **** Health news for the public

  * Creating and maintaining up-to-date medical reference content databases

  * Medical imagery, graphics, and animation

  * Communities

  * Live web events

  * User experience

* Interactive tools

Our board-certified physicians, award-winning journalists, and trained community moderators are solely dedicated to your daily information experience on WebMD. Our content staff includes individuals who hold advanced degrees in journalism, medical illustration, health communications, clinical informatics, nursing, and medicine.

Most of us at WebMD Health have spent our entire careers dedicated to helping people find the health and medical information, support, and services they need -- even before there was an Internet! We are dedicated to providing quality health information and to upholding the integrity of our editorial process.

As serious as we are about credibility, we also know that at times, health information can and should be engaging, exciting, and entertaining.

We pride ourselves in knowing our audience's needs and delivering the most appropriate experience. We know that there is a difference between using a health site for health "performance" issues (e.g., flat abs) vs. health research needs (e.g., "What is type 2 diabetes?") vs. community support (e.g., "Does anyone else feel like me?") vs. e-commerce. Our mission is to fulfill all these needs in the most appropriate ways possible.

We are committed to improving our site. We will continue to publish even more content, communities, and services to help make your life better, to help you find your way when faced with healthcare decisions, and to help you feel better about the health of you and your family.

WellnessWeb: Women's Health Center

http://www.wellweb.com

WellnessWeb offers a unique site that includes e-mail discussion alongside specific articles on women's health. Another feature is the "Surgery Center" that discusses pre and post operative care, as well as illustration of the surgical procedure.

Healthy.net : Women's Health – Natural & Alternative Approaches

http://www.healthy.net

This site has information on a variety of alternative and complementary medicines in women's health, including pages on Integrative Medicine and Women's Health," "Naturopathic Medicine and Women's Health," "Herbs and Women's Health," "Homeopathy and women's Health,", Nutrition's and Women's Health," and Acupuncture." It also includes checklists to us when calling your doctor or for doctor visits. Healthy.net is a large source of wellness, integrative medicine, and alternative therapies.

OWL: National Older Women's League

http://www.owl-national.org

OWL us a "national membership organization that seeks to improve the status and quality of life of midlife and older women." The site has information on heart disease and osteoporosis, as well as gender inequality issues social security, and Medicare facts

National women's Health Resource Centre

http://www.healthywomen.org

Supplying health care consumers with women's health information is the goal of the National Women's Health Resource Center. A question and answer segment and links to topical Web sites provide users with valuable information on a variety of women's health topics. This topic covers depression, diabetes, osteoporosis, and thyroid disease to name a few memberships is an option but information is accessible to all users of the site. Professional searches on personal health topics are available, but there fee for non-members
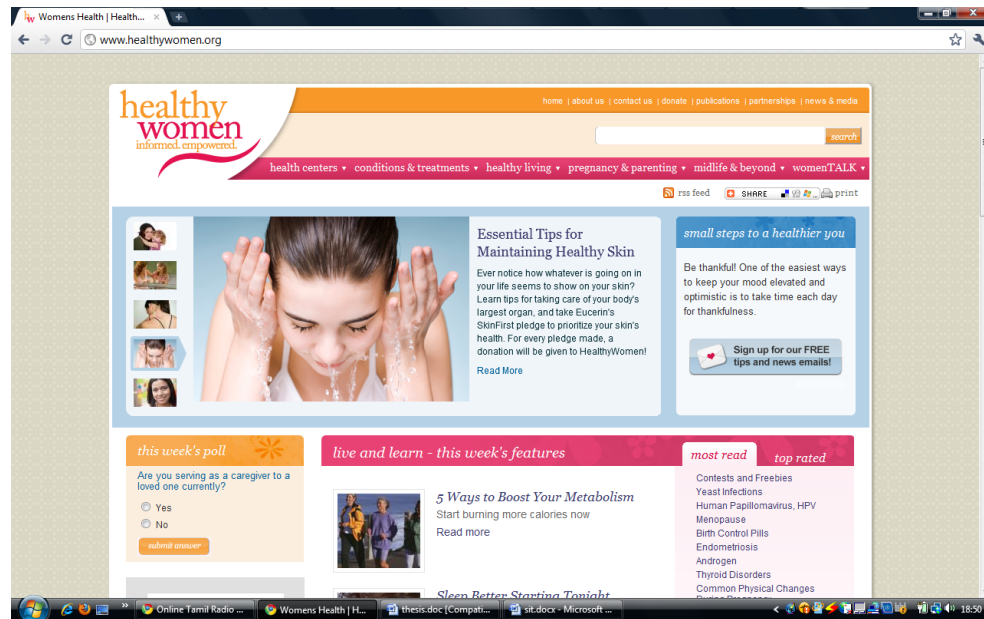
Women with DisAabilities

http://www.4women.gov

This Web site, compiled by the National Women's Health Information Centre, is intended to provide health information for women with disabilities or women who care for a person(s) with a disability. General resources about critical health issues for a variety of disabilities are provided including physical, neurological, hearing, speech and visual impairment. It will also provide information on psychiatric, learning and development disabilities. The health issues addressed include sexuality, abuse, parenting and substance abuse.

NOAH- Health site

http://www.noah-health.org

In 1994, four New York City library organizations joined forces to establish a single website to provide end-users a place on the World Wide Web to reach reliable consumer health information. The organizations: The City University of New York Office of Library Services (CUNY); the Metropolitan New York Library Council (METRO); The New York Academy of Medicine Library (NYAM); and The New York Public Library (NYPL) - later joined by the Queens Borough Public Library and the Brooklyn Public Library - had as a goal the development of a website which would provide health care information easily accessible and understandable to the layperson. The result was NOAH: New York Online Access to Health.

NOAH began in October 1994 as a demonstration project partially funded by the U. S. Department of Commerce, Telecommunications and Information Infrastructure Assistance Program (TIIAP). The original partner library agencies sponsoring the Web site contributed funds and expertise. The united efforts combined the resources of various types of libraries with health agencies in an effort to offer health information at public-access computers in public locations.

NOAH is directed by two groups composed of representatives from the partner organizations: the steering committee and the content committee. The steering committee decides on issues such as the budget, new sponsors, and funding sources. The content committee manages the scope of NOAH, suggests topics based on the needs of the patrons who use the partner libraries, and recruits other librarians to participate in NOAH as volunteer page editors.

The site is currently managed by one part-time librarian and many volunteer page editors. The NOAH redesign was begun in May of 2003, utilizing the talents of many people

Healthcentral

http://www.healthcentral.com

HealthCentral's mission is to empower millions of people to improve and take control of their health and well-being. Their r 35+ sites provide clinical resources and real-life support to those with life-changing conditions.
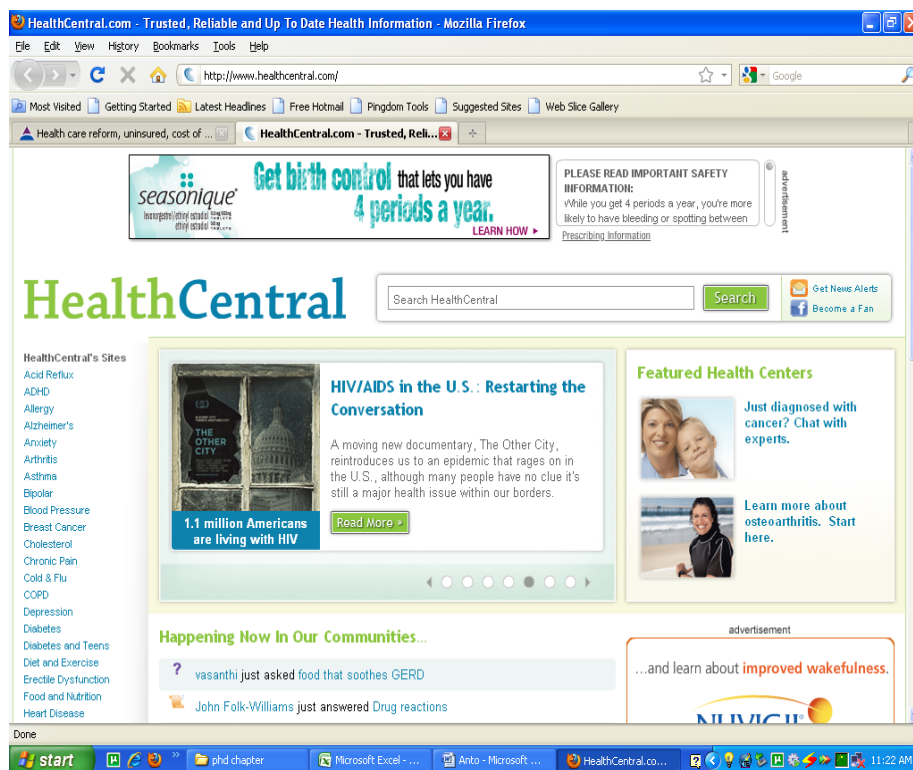
Their wellness resources and tools help people to live healthier, more fulfilled lives. The site serves more than 16.4 million visitors each month. HealthCentral's product releases have appeared in the Wall Street Journal, New York Times, Good Morning America, The View, and more.

Medicinenet

http://www.medicinenet.com/script/main/hp.asp

MedicineNet, Inc. - Owned and Operated by WebMD and part of the WebMD Network MedicineNet.com is an online, healthcare media publishing company. It provides easy-to-read, in-depth, authoritative medical information for consumers via its robust, user-friendly, interactive website.

Since 1996, MedicineNet.com has had a highly accomplished, uniquely experienced team of qualified executives in the fields of medicine, healthcare, Internet technology, and business to bring you the most comprehensive, sought-after healthcare information anywhere. Nationally recognized, doctor-produced by a network of more than 70 U.S. board-

certified physicians, MedicineNet.com is the trusted source for online health and medical information. The doctors of MedicineNet are also proud to author Webster's *New World™ Medical Dictionary* First, Second and Third Editions (May, 2008) John Wiley & Sons, Inc. MedicineNet, Inc.'s main office is in San Clemente, Calif., and the corporate office is in New York City.

Seekwellness

http://www.seekwellness.com/
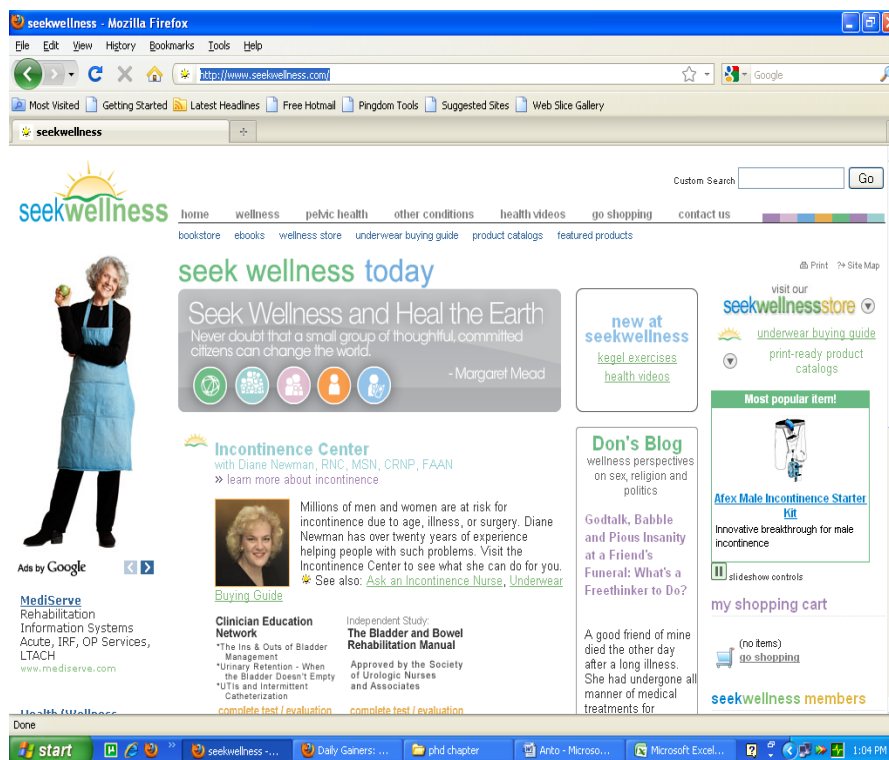
SeekWellness.com is a website owned by a group of professional health care providers and consumers.

Our mission is very simple: Through SeekWellness.com, we will encourage, empower, and support health care consumers to improve their level of wellness by providing information, services and products, all chosen with the consumer's best interests in mind.

Funds to maintain SeekWellness.com are provided by private investors, advertisements, sponsorships and consulting arrangements with various companies, all of which are displayed within the website pages.

Women's Health

http://www.womens-health.com/

Womens-Health.com has been launched with the idea that women love to help other women achieve the goals that they've always envisioned. Women wake up with new problems, situations, and endeavors every single day. The site believes that the best way to help a woman through any situation

that their hectic lives may bring is through individual interaction with other women that have worn the same shoes. To further help stimulate credible discussions we have established an exclusive partnership to offer our members up to the minute news and features for all Women's Health issues. Our extensive library will be provided by a network of over 20k licensed and practicing physicians with full articles and streaming video.

The Feminist Health

http://www.feminist.com/

Feminist.com is a thriving online community fostering awareness, education and activism for women all across the world. It serves as the Internet's definitive hub for resources and information dedicated to women's equality,

justice, wellness and safety. Like a "feminist Google," Feminist.com facilitates connections between women and the many, varied organizations serving their needs and interests worldwide.

As a library, a promoter of activism, a networking engine, and an Internet "home" for women all over the world, Feminist.com advances women-friendly organizations, increases civic involvement, and promotes self-sufficiency, spiritual health and general wellness. We make the global personal by connecting individuals to new ideas, information, organizations and each other, and by providing a safe space for diverse dialogue.

Our online community empowers people to transform and re-imagine the roles of women and men and encourages people to break barriers so they can be full human beings in the world. For the past decade, Feminist.com has connected individuals with organizations, resources, and each other. The site assist our visitors in finding the causes, issues and organizations that resonate with them, leveraging the massive potential of the Internet to connect, educate, and empower.

Over the last decade, the non-profit Feminist.com has provided millions of visitors with quality news, original articles, exclusive interviews, anti-violence resources (including a comprehensive anti-violence resource guide in partnership with V-Day), and the critically acclaimed Ask Amy column by noted author and activist Amy Richards (Manifesta, Grassroots) with advice and information on issues impacting women and girls.

It also feature columns continually updated by organizations such as Amnesty International, Circle the Earth, Equality Now, Men Can Stop Rape, the Nobel Women's Initiative, Omega Institute, the Younger Women's Task Force, and various other vital columns. Women all over the world are actively connecting to information, organizations and each other, through the useful and varied links, activism alerts, event listings, and women-owned business listings offered at Feminist.com.

Women's Health Statewide

http://www.whs.sa.gov.au/
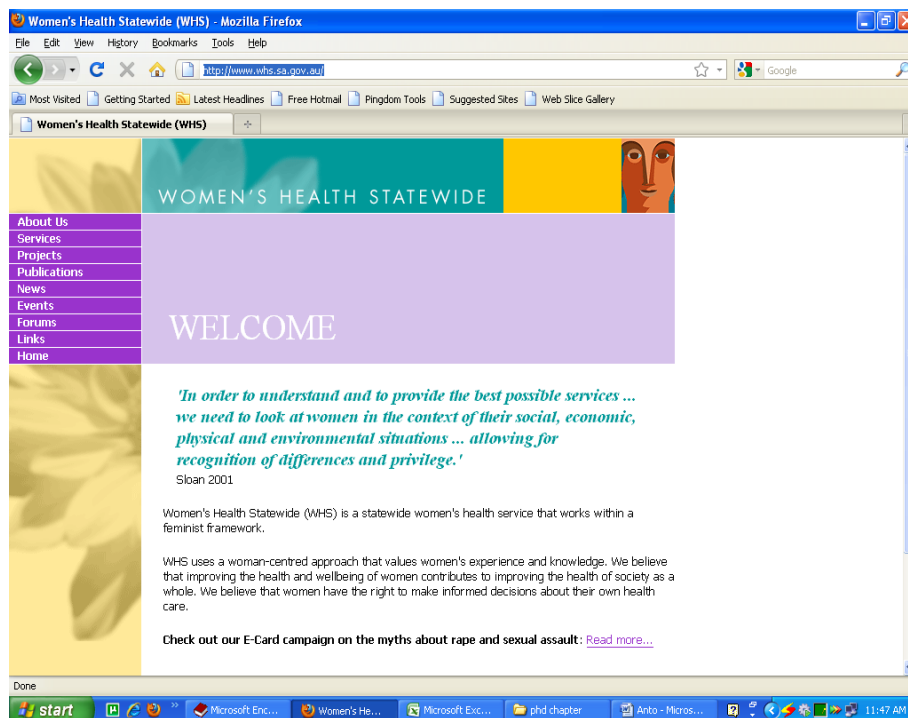
In 1973-74 Commonwealth grants were made to women's health centres in Darwin, Melbourne, Sydney and Perth. Women's shelters were also being established under this program. It was in this climate that Women's

Liberation House organised a meeting in 1974 to consider the question of a women's health centre for Adelaide. There was considerable support for the idea and a decision was made to apply to the Commonwealth for funding.

These women saw the health centre as being for women who were tired of having to go to unsympathetic, or hostile male doctors, and who wanted a different sort of medical and health service. They believed they had a right to such a service and that there were many other women who felt the same way but hadn't yet recognised the possibility of a better service.

The Hindmarsh Centre was opened officially in February, 1976.

The feminist principles of the founding members informed the style and range of services and activities undertaken. It led to an emphasis on providing a service for individual women which incorporated treatment with education and information about how our bodies work, how conditions develop and how they may be prevented. Attention was given to the social and environmental circumstances which could be relevant to treatment and prevention. They took an "holistic" approach which attempted to address the needs of the whole person rather than just symptoms or specific parts of the body.

Self-help and discussion groups "in which women learn and share information about their health with other women" were recognised as important - particularly in relation to developing confidence amongst women in their perceptions of their health needs. Their approach also involved an understanding of the importance of taking action in and with the

community in an attempt to ensure that the health system would be more responsive to the demands of women and that other aspects of the social environment which had an impact on women's health could be addressed.

The Centre began with just a few workers, including a doctor. By 1979 it had eleven workers, at an equivalent of six full-time positions. There were three part-time doctors, two nurses, an information/research worker, an Italian and a Greek worker, two very part-time group workers and an administrator. Usually workers contributed to the service on the basis of their skills and training in these or other relevant areas. A small library was quickly developed and a range of pamphlets written and published to provide information on women's health.

As a result of numerous events incorporating much public and parliamentary debate, in 1976 the South Australian Health Commission Act came into force and provided a framework for re-organisation and coordination of health services for the "benefit of the people". It's main objective and responsibility was to "promote the health and well-being of the people of this State". It was to be accountable to the Government [through the Minister] for funding, resource allocation and for planning and development of appropriate and effective services. It was also to be accountable to the community and the people through a system of Advisory Committees.

It was this Act which provided the framework for the establishment of Adelaide Women's Community Health Centre [AWCHC] in 1980, for the

Elizabeth, Southern & Dale Street Centres set up in the northern, southern and western metropolitan regions respectively.

In November, 1995 the Health Centre was de-incorporated and formally merged with the Women's and Children's Hospital in a Government-directed effort to streamline services and create greater efficiencies in the public health sector [the other women's community health services at Elizabeth, Dale Street and Southern were amalgamated with the community health services in their respective regions]. A Memorandum of Understanding was drawn up with the Women's and Children's Hospital which outlines the responsibilities of the two organisations. Shortly after the amalgamation our name was formally changed to Women's Health Statewide.

In July 2004, The Women's & Children's Hospital and Women's Health Statewide became part of the new Children, Youth & Women's Health Service.

Women's Cancer Network

http://www.wcn.org/

The mission of the Women's Cancer Network is to keep women informed and to enable them to be their own health advocates. The Women's Cancer Network was developed by The Gynecologic Cancer Foundation (GCF).

The WCN is an interactive web site dedicated to informing women around the world about gynecologic cancers. Our goal is to assist women who have developed cancer, as well as their families, to understand more about the

disease, learn about treatment options, and gain access to new or experimental therapies.

International Women's Health Coalition

http://www.iwhc.org/
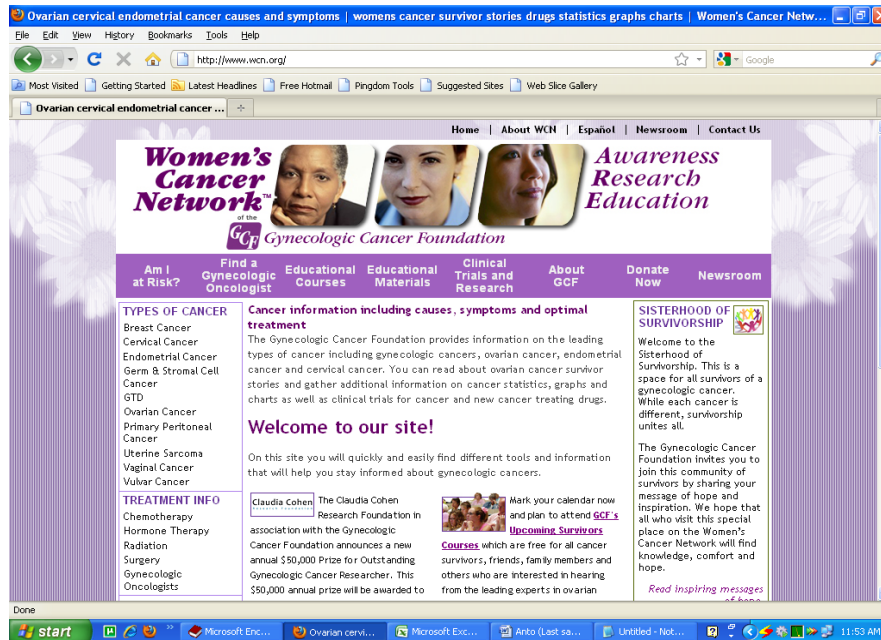
The International Women's Health Coalition (IWHC) promotes and protects the sexual and reproductive rights and health (SRRH) of all women and young people, particularly in Africa, Asia, and Latin America, by helping to develop effective health and population policies, programs, and funding.
Social and economic justice, the foundations of global well-being, can only be achieved by ensuring women's human rights, health, and equality. Accordingly, IWHC envisions a world in which women:
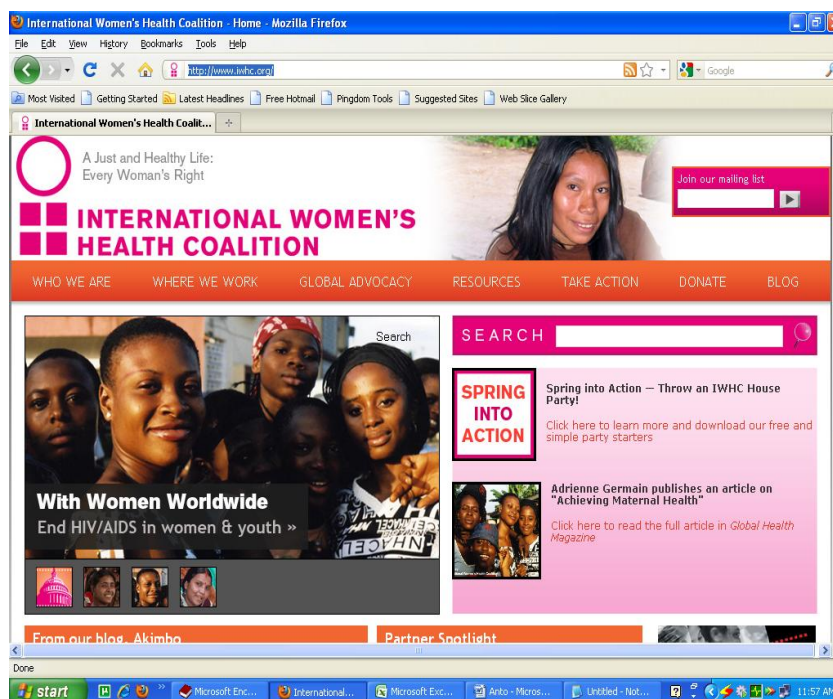
* are equally and effectively engaged in decisions that concern their sexual and reproductive rights and health;

* experience a healthy and satisfying sexual life free from discrimination, coercion, and violence;

* can make free and informed choices about childbearing;

* have access to the information and services they need to enhance and protect their health.

Global progress on SRRH requires effective participation by local leaders, advocates, service providers and, especially, women and young people. The Coalition bridges two worlds: the powerful global actors that determine policies and funding for health in low- and middle-income countries, and women and young people affected by their decisions. Persuading those who control global and national policies and budgets to invest in girls and

women, particularly in vital but politically contentious matters of sexuality and gender equality, requires:

* women and youth leaders with vision, skills, and strong organizational bases who can both access mainstream institutions and mobilize civil society;

* multiple, powerful stakeholders from diverse constituencies who are willing and able to contribute to building consensus on actions for SRRH and to work together in pluralistic alliances; and

* skilled, evidence- and experience-based advocacy to generate political will for action.

Childbirth

http://www.childbirth.org/

Childbrith.org is a web space which is dedicated toward childbirth. This site tries to education its users on various topics like pregnancy, childbirth, baby care, post pregnancy care and many more.

Feminist Women's Health Center

http://www.fwhc.org/

Established in 1979, FWHC is a non-profit organization that promotes and protects a woman's right to choose and receive reproductive health care. FWHC (of Washington State) was founded in Yakima, WA by Beverly W. and Deborah L. to bring reproductive choice to women in the large rural area known as Central Washington, were modelled upon the early feminist clinics in Los Angeles. Today only 14 non-profit abortion-providing feminist health centres remain across the country. In Washington State we are known as Cedar River Clinics and serve over 8,000 women annually at three clinics located in Yakima, Renton and Tacoma, WA.

The organisation have a vision of a world where all women freely make their own decisions regarding their bodies, reproduction, and sexuality -- a world where all women can fulfil their own unique potential and live healthy whole lives. To achieve reproductive freedom, we provide abortion and reproductive health services and information, so women may determine their own destinies.

Dedicated to women's reproductive freedom, health and equality, Feminist Women's Health Centre/Cedar River Clinics is a social justice organization that combines direct services (abortion, birth control, reproductive healthcare), with advocacy and activism (to preserve and expand access) and community education (to demystify health information and empower women's health decisions.)

The site provides woman-centred health care in a safe environment that promotes empowerment, mutual trust, and compassion.

The institution values the equality of all women, and do not discriminate in the provision of health care services based upon age, ethnicity, race, language, income, sexual orientation, disability, body size, nation of origin, citizenship, cultural heritage or religion.

This society believes reproductive and sexual freedom is fundamental human rights for all women worldwide.

National Breast and Ovarian Cancer Centre

http://www.nbocc.org.au

National Breast and Ovarian Cancer Centre (NBOCC) is Australia's national authority and source of evidence-based information on breast and ovarian cancer. Funded by the Australian Government, NBOCC works in partnership with health professionals, cancer organisations, researchers, governments and those diagnosed to improve outcomes in breast and ovarian cancer.
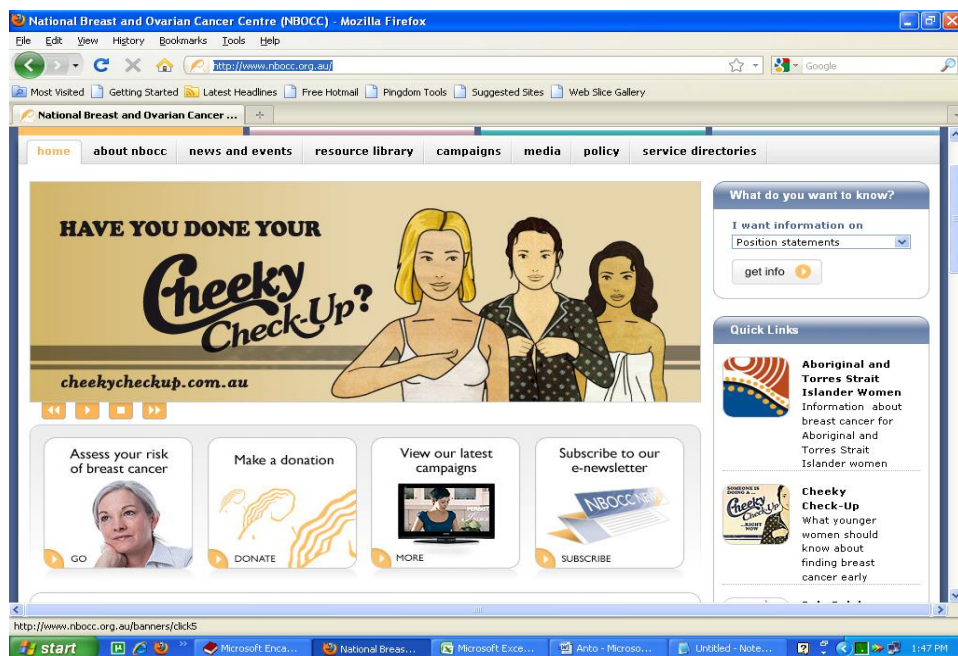
NBOCC plays a vital role in the translation of worldwide cancer research into meaningful and evidence-based information to:

   * guide the work of Australian health professionals

   * improve health service delivery

   * inform people with breast or ovarian cancer about all aspects of their diagnosis and

Treatment

* inform and provide advice on policy development

* raise community awareness about these diseases.

Charlotte Libov on Women's Health

http://www.libov.com/
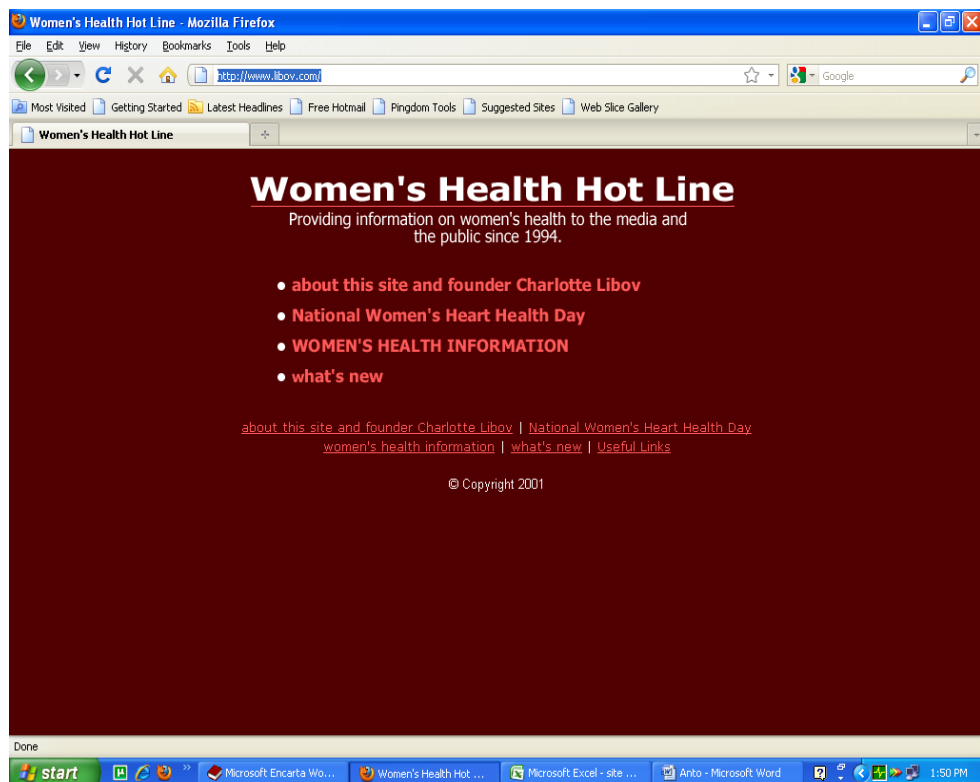
This site was created and is maintained by women's health advocate Charlotte Libov for the purpose of enhancing public education about women's health issues. The ideas and suggestions contained in this site are not intended as a substitute for consulting with your physician. All matters regarding health require medical supervision.

Rosenthal Center

http://www.rosenthal.hs.columbia.edu/

Complementary and alternative medicine, commonly known as CAM, focuses on maintaining a healthy lifestyle, treating illness and preventing disease. It embraces a holistic approach to wellness, addressing our physical, emotional, and spiritual needs through a variety of therapies and practices, many of which are centuries old.

Based at Columbia University's College of Physicians & Surgeons, Department of Rehabilitation Medicine, the Rosenthal Center is one of the first comprehensive programs at a major medical center to examine alternative therapies with academic focus and scientific rigor.

The Rosenthal Center's mission is to contribute to the informed research and practice of complementary and alternative medicine and to foster the development of a more comprehensive and inclusive medical system.

The Center has three goals:

   * To conduct and facilitate scientific research on the mechanisms of action, effectiveness and safety of complementary and alternative medicine

   * To provide medical professionals with education that promotes the understanding of CAM options and their integration with conventional medicine

   * To be a leading information resource that spurs collaboration among the international medical community

In all we do, we embrace environmentally protective policies that conserve botanical resources and respect traditional medical knowledge.

Healthscout

HealthScout.com, winner of eHealthcareworld's Silver Award for Best Health Portal, is one of the most visited and respected consumer health sites. HealthScout is a leading provider of personalized health management tools including health alerts, newsletters, Latest Recalls, Mini-Checkups, and family health pages. Reaching over 1.2 million unique users monthly, HealthScout.com is consistently ranked among the top 5 consumer health sites by comScore.

The HealthScout Network is a leading Internet provider and distributor of consumer health information, news and tools. The HealthScout Network hosts Health sections for over 200 affiliates including Yahoo, iWon, USAToday.com, InfoSpace and NBCi. Network sites have access to HealthScout's syndicated personalized daily health news on over 800 topics, health information and interactive health management tools. HealthScout is part of HealthCentral.

Life123 for Healthy Life

http://www.life123.com/

Life123 covers the best of everything on Topics spanning 13 Life Categories, including: Arts & Culture, Beauty & Style, Cars and Vehicles, Career & Money, Crafts & Hobbies, Food & Drink, Health & Wellness,

Holidays & Entertaining, Home & Garden, Parenting & Family, Relationships, Sports & Recreation, and Technology.

Life123 is the place to start when you need practical expertise---fast. We exist to help people quickly find information on a wide range of life topics. Life 123 provides the best answers to life's questions. Dependable content you can count on from our staff of seasoned writers and editors. Life 123 delivers practical insights into things that really make a difference. Like impact on your wallet. What to avoid. The bottom line. And more. Every topic is easy to read and even easier to act on. If you're looking for the fastest way to know-how, Life123 is for you.

Canadian Women's Health Network

http://www.cwhn.ca/
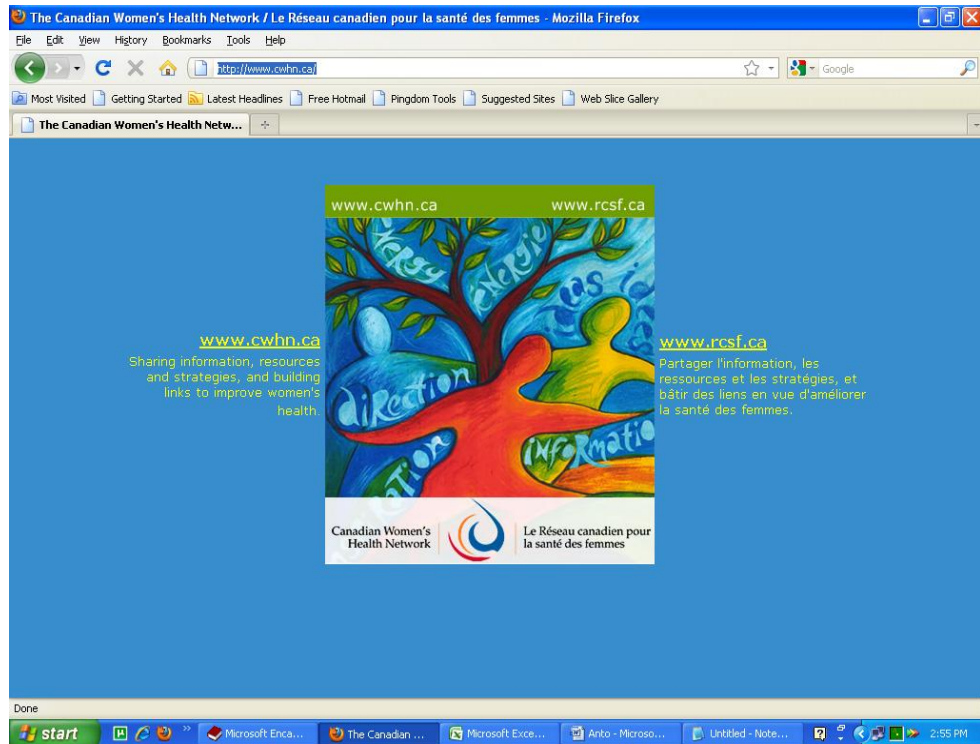
The Canadian Women's Health Network (CWHN) was created in 1993 as a voluntary national organization to improve the health and lives of girls and women in Canada and the world by collecting, producing, distributing and sharing knowledge, ideas, education, information, resources, strategies and inspirations.

We are a far-reaching web of researchers and activists, mothers, daughters, caregivers, and family members, people working in community clinics and on hospital floors, at the university, in provincial and federal health ministries, and in women's organizations, all dedicated to bettering women's health and equality.

We are guided by a woman-centred vision of health and wellness and believe that in order to improve the health status of women we must address social and economic conditions such as education, housing, environment and gender which all impact on health.

We recognize and respect the diverse needs and realities of women's lives, and take an active stance to prevent discrimination based on gender, race, religion, sexual orientation, age, ability, language and geographic region.

We function in English and French, and endeavor to provide access to materials in other languages and alternative formats.

The Canadian Women's Health Network (CWHN):

   * Establishes a visible national presence for women's health in Canada.

   * Works to change inequitable health policies and practices.

   * Provides easy access to reliable health information, resources and research.

   * Produces user-friendly materials and resources.

   * Promotes and develops links to information and action networks.

   * Acts as a knowledge broker between and among researchers, clinicians, decision-

      makers, women and the public.

   * Contributes women's voices and expertise to health research, planning and policy.

   * Acts as a forum for critical debate on women's health research and policy issues.

* Monitors emerging issues and trends affecting women's health.

* Encourages community-based participatory research.

* Serves as a vital information link between women and Canada's health system.

Centers for Disease Control and Prevention

http://www.cdc.gov/women/

The Centers for Disease Control and Prevention, for over 60 years, CDC has been dedicated to protecting health and promoting quality of life through the prevention and control of disease, injury, and disability. They are committed to programs that reduce the health and economic consequences of the leading causes of death and disability, thereby ensuring a long, productive, healthy life for all people.

Women's Health

http://www.womenshealth.gov

The Office on Women's Health (OWH) was established in 1991 within the U.S. Department of Health and Human Services. Its Vision is to ensure that "All Women and Girls are Healthier and Have a Better Sense of Well Being."

Its mission is to "provide leadership to promote health equity for women and girls through sex/gender-specific approaches." The strategy OWH uses to achieve its mission and vision is through the development of innovative programs, by educating health professionals, and motivating behavior change in consumers through the dissemination of health information.

Office of Research on Women's Health

http://orwh.od.nih.gov/

The Office of Research on Women's Health (ORWH) serves as a focal point for women's health research at the NIH. Established in September 1990 within the Office of the Director. ORWH

- Coordinates and serves as a focal point for women's health research funded by the NIH

- Promotes, stimulates, and supports efforts to improve the health of women through biomedical and behavioral research on the roles of

sex (biological characteristics of being female or male) and gender (social influences based on sex) in health and disease

- Works in partnership with the NIH institutes and centers to ensure that women's health research is part of the scientific framework at NIH and throughout the scientific community

- Advises the NIH Director and staff on matters relating to research on women's health

- Strengthens and enhances research related to diseases, disorders, and conditions that affect women

- Ensures that research conducted and supported by NIH adequately addresses issues regarding women's health

- Ensures that women are appropriately represented in biomedical and biobehavioral research studies supported by NIH;

- Develops opportunities for and supports recruitment, retention, re-entry, and advancement of women in biomedical careers; and

- Supports research on women's health issues.

ORWH works in partnership with the NIH institutes and centers to ensure that women's health research is part of the scientific framework at NIH and throughout the scientific community.

World Health Organization

http://www.who.int/topics/womens_health/en/

WHO is the directing and coordinating authority for health within the United Nations system? It is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends.

The American Congress of Obstetricians' and Gynaecologists

http://www.acog.org/

Founded in 1951 in Chicago, Illinois, ACOG has over 52,000 members and is the nation's leading group of professionals providing health care for women. Now based in Washington, DC, it is a private, voluntary, nonprofit membership organization.

ACOG works primarily in four areas:

Serving as a strong advocate for quality health care for women.

Maintaining the highest standards of clinical practice and continuing education for its members.

Promoting patient education and stimulating patient understanding of and involvement in medical care.

Increasing awareness among its members and the public of the changing issues facing women's health care.

American Medical Women Association

<http://www.amwa-doc.org/>

The American Medical Women's Association empowers women to lead in improving health for all within a model that reflects the unique perspective of women.

The American Medical Women's Association is an organization which functions at the local, national, and international level to advance women in medicine and improve women's health. We achieve this by providing and developing leadership, advocacy, education, expertise, mentoring, and through building strategic alliances.

The American Medical Women's Association (AMWA) is an organization of women physicians, medical students and other persons dedicated to serving as the unique voice for women's health and the advancement of women in medicine. The organization was founded by Dr. Bertha VanHoosen in 1915 in Chicago, at a time when women physicians were an under-represented minority. As women in medicine increase in numbers, new problems and issues arise that were not anticipated. AMWA has been addressing these issues for 94 years.

Association of Professors of Gynaecologist and Obstetrics

http://www.apgo.org

APGO has grown from a group of 15 volunteers to an elite, professional membership association of 1500 individual members and 190 U.S., Canadian and institutional member departments. The Association of Professors of Gynecology and Obstetrics promotes excellence in women's health care by providing optimal resources and support to educators who inspire, instruct, develop and empower women's health care providers of tomorrow. APGO has achieved this growth through the vision of its dedicated leadership - the APGO Board - as well as its loyal and growing membership.

Our Bodies Ourselves
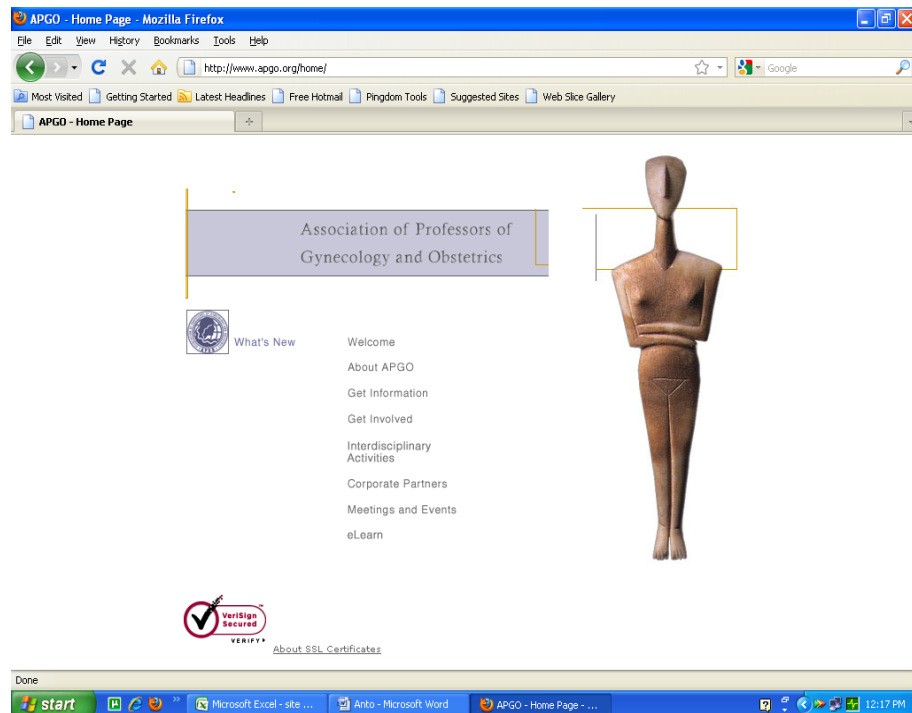
http://www.ourbodiesourselves.org/

Our Bodies Ourselves (OBOS), also known as the Boston Women's Health Book Collective (BWHBC), is a non-profit, public interest women's health education, advocacy, and consulting organization. Beginning in 1970 with the publication of the first edition of Our Bodies, Ourselves, OBOS has inspired the women's health movement by:

Producing books that make accurate health and medical information accessible to a broad audience by weaving women's stories into a framework of practical, clearly written text   Identifying and collaborating with exemplary individuals and organizations that provide services, generate research and policy analysis, and organize for social change

Inspiring and empowering women to become engaged in the political aspects of sustaining good health for themselves and their communities OBOS introduced these key ideas into the public discourse on women's health:

- Those women, as informed health consumers, are catalysts for social change

- Those women can become their own health experts, particularly through discussing issues of health and sexuality with each other

- Those health consumers have a right to know about controversies surrounding medical practices and about where consensus among medical experts may be forming

- Those women comprise the largest segment of health workers, health consumers, and health decision-makers for their families and communities, but are underrepresented in positions of influence and policy making

That a pathology/disease approach to normal life events (birthing, menopause, aging, death) is not an effective way in which to consider health or structure a health system

American Academy of Family Physicians

http://familydoctor.org/online/famdocen/home.html

This Web site is operated by the American Academy of Family Physicians (AAFP), a national medical organizations representing more than 93,700 family physicians, family practice residents and medical students. All of the information on this site has been written and reviewed by physicians and patient education professionals at the AAFP.

Jacobs Institute of Women's Health

http://www.jiwh.org/

The Jacobs Institute of Women's Health (JIWH) is a non-profit organization working to improve health care for women through research, dialogue, and information dissemination.

Identify and study women's health care issues involving the interaction of medical and social systems. Facilitate informed dialogue and foster awareness among consumers and providers alike Promote problem resolution, interdisciplinary coordination and information dissemination at the regional, national and international levels

The Jacobs Institute works to continuously improve the health care of women across their lifespan and in all populations. The Jacobs Institute promotes environments where an interdisciplinary audience, including health care professionals, researchers, policymakers, consumers, and advocates come together to discuss ways to advance women's health.

National women's Health Network

http://nwhn.org/

The National Women's Health Network was founded in 1975 to give women a greater voice within the healthcare system. NWHN is a membership-based organization supported by 8,000 individuals and organizations nationwide. The organization do not accept financial

support from pharmaceutical companies, tobacco companies or medical device manufacturers.

The National Women's Health Network improves the health of all women by developing and promoting a critical analysis of health issues in order to affect policy and support consumer decision-making. The Network aspires to a health care system that is guided by social justice and reflects the needs of diverse women.

NWHN is committed to advancing women's health by working towards the long-term goals of:

Ensuring that women have self-determination in all aspects of their reproductive and sexual health Creating a cultural and medical shift in how menopause is perceived and addressed

Establishing universal access to health care that meets the needs of diverse women To accomplish these goals we shape policy and consumer health decisions and options by developing and promoting a critical analysis of health issues. NWHN monitors the actions of federal regulatory and funding agencies, industry and the health professions, identifies abuses and makes change by exposing the abuse and catalyzing grassroots action.

NWHN has established core values to guide us in our work as advocates for women's health:

They value women's descriptions of their own experiences and believe that health policy should reflect the diversity of women's experiences.

The organisation believes that evidence rather than profit should drive the services offered and information that is made available to women to inform their health decision making and practices.

Centers for Disease Control and Prevention

http://www.cdc.gov/
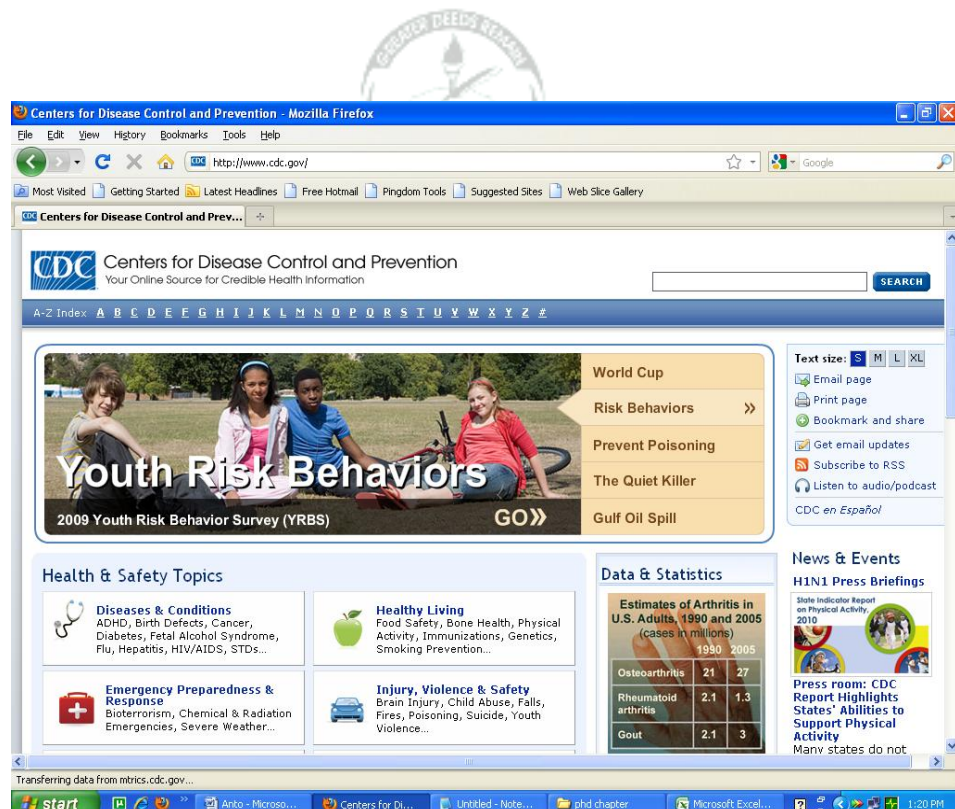
CDC.gov is CDC's primary online communication channel. Annually, there are close to 500 million page views to the site, averaging 41 million page views per month. CDC.gov provides users with credible, reliable health information on:

 * Data and Statistics

* Diseases and Conditions

* Emergencies and Disasters

* Environmental Health

* Healthy Living

* Injury, Violence and Safety

* Life Stages and Populations

* Travelers' Health

* Workplace Safety and Health

* And more…

Chapter IV

Data Analysis

Analysis of data: After the data have been collected, the researcher turns to the task of analysing them. The analysis of data requires a number of closely related operations such as establishment of categories, the application of these categories to raw data through coding, tabulation and then drawing statistical inferences. The unwieldy data should necessarily be condensed into a few manageable groups and tables for further analysis. Thus researcher should classify the raw data into some purposeful and usable categories. Coding cooperation is usually done at this stage through which the categories of data are transformed into symbols that may be tabulated and counted. Editing is the procedure that improves the quality of the data for coding. With coding the stage is ready for tabulation. Tabulation is a part of the technical procedure wherein the classified data are put in the form of tables. The mechanical devices can be made use of at this juncture. A great deal of data, especially in large inquiries, is tabulated by computers. Computers not only save time but also make it possible to study large number of variables affecting a problem simultaneously.

Analysis work after tabulation is generally based on the computation of various percentages coefficients, etc., by applying various well defined statistical formulae. In the process of analysis relationships or differences supporting or conflicting with original or new hypotheses should be subjected to tests of significance to determine with what validity data can be said to indicate any conclusions. For instance, if there are two samples of weekly wages each sample being drawn from factories in different parts of the same city, giving two different mean values, then our problem may be whether the two mean values are significantly different or the different mean values, then our problem may be whether the two mean values are significantly different or the difference is just a matter of chance. Through the use of statistical tests we can establish whether such a difference is a real one or is the result of random fluctuations. If the difference happens to be real, the inference will be that the two samples come from different universe and if the difference is due to chance, the conclusion would be that the two

samples belong to the same universe. Similarly, the technique of analysis of variance can help us in analysing whether three or more varieties of seeds frown on certain fields yields significantly different results or not. In brief, the researcher can analyse the collected data with the help of various statistical measures.

Profile of the Website

Analysis by Type of site

Table 4.1 Profile Websites				
			Subject	Total
Sl.No		Women Health	General Health	
		n = 42	n = 31	N = 73
I	Type of Site			
	Government	4	4	8
		9.5%	12.9%	11.0%
	Organization	24	6	30
		57.1%	19.4%	41.1%
	Commerical	13	17	30
		31.0%	54.8%	41.1%
	Network	1	3	4
		2.4%	9.7%	5.5%
	International	0	1	1
		0.0%	3.2%	1.4%
II	Hosting Country			
	Unknown	3	1	4
		7.1%	3.2%	5.5%
	USA	30	21	51
		71.4%	67.7%	69.9%
	UK	2	3	5
		4.8%	9.7%	6.8%
	Canada	2	0	2
		4.8%	0.0%	2.7%
	Australia	2	0	2
		4.8%	0.0%	2.7%

	India	1	4	5
		2.4%	12.9%	6.8%
	Spain	1	0	1
		2.4%	0.0%	1.4%
	Newzeland	1	2	3
		2.4%	6.5%	4.1%
III	**Audience**			
	Health Care Professionals	2	0	2
		4.8%	0.0%	2.7%
	Patients	0	1	1
		0.0%	3.2%	1.4%
	Women's	40	1	41
		95.2%	3.2%	56.2%
	All Kinds of Audience	0	29	29
		0.0%	93.5%	39.7%

A total of 73 (n) websites was taken for the study. All the samples were classified into five categories based on their domain type, like Government (.gov), Organization (.org), Commercial (.com), Network (.net), and International (.int).
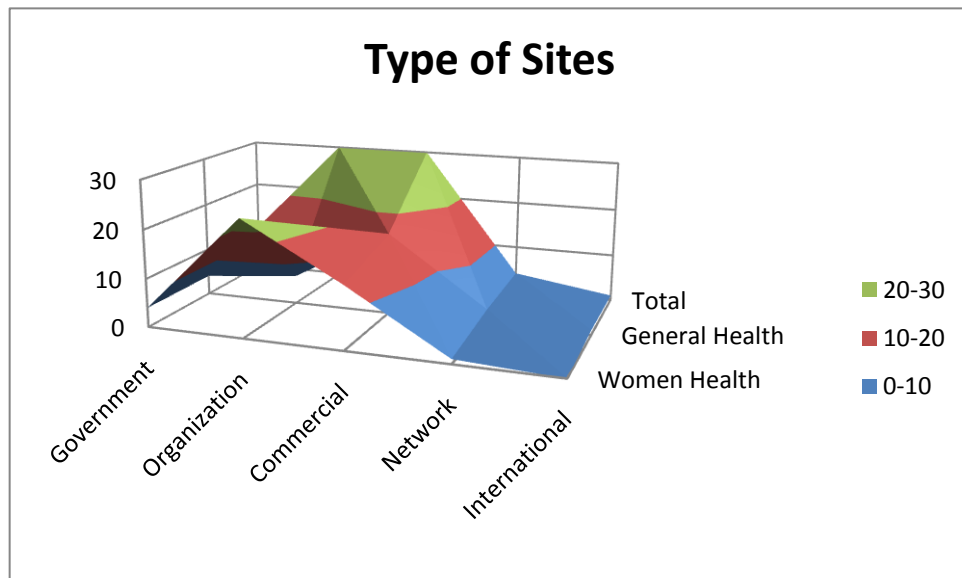
Fig. 4.1

Further these sites were grouped into two groups according to their audience, i.e., Women's health site, which is devoted exclusively for

females and the second group i.e., is General health sites which caters the need of all kinds of audience

From the total sample 8 sites falls under the Government domain. Out of which four each is equally distributed between Women's health site and General health site. As a whole 42 sites falls under Women's health and 31 are General Health site.

The next domain is Organization, there are 30 sites in this segment out of this 24 are women's health site, this around (57.1%) and six are General health site, which is around (19.4). The next major fragment is Commercial domain under which again 30 sites are falling, 13 (31.0%) are Women's health site and 17 (54.8%) are General health site. The next domain of the study is Network domain, a total of four site (5.5%) falls under this category, 1 (2.4%) Women's health site and 3 (9.7%) General site falls under this area. The last domain is International; it has very less representation in the sample size that is around (1.4%), the one site falls under General health class.
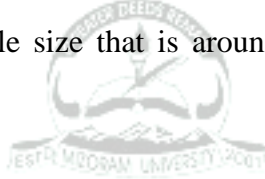
Analysis by hosting country

The website under the study is hosted from various Geographical locations. The site under the study was taken only from English speaking country. The site was broadly classified into five groups according to their host country.
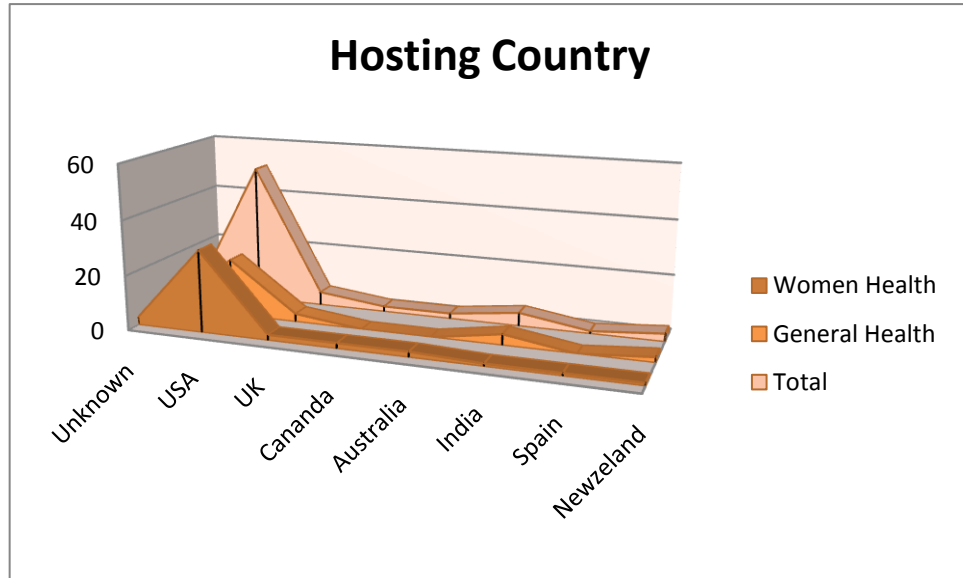
Fig. 4.2

Majority of the sites under the study are hosted from USA, as many as 51 sites out of 73 sites. From the sample we can see a clear bias, (69.8%) of the site are hosted from USA. From the total 51 sties, 30 (71.4%) of the sites are Women's health site and 21 (67.7%) are the General health site. Next to USA, UK and Indian sites are coming second in the list, each country have five sites each. During the study period four (5.5%) of sites hosting place, was unable to be traced. The next country falling in the list is Newzeland a total of 3 site (4.1%) , one(2.4%) under Women's health site and 2 (6.5%) under General health site. Canada & Australia also falls under the same place in the list with 2 (2.7%) hosted from their. These two (4. 8%) sites fall under the Women's health site. Falling list in the table is Spain from only one site is their in the sample. The one (2.4%) site falls under Women's health site.

Analysis by sites Audience

Whenever a website is designed and hosted, it's hosted to cater the need of specific audience, unless the audience needs is identified a website cannot serve the users to the maximum. To study the sites audience ship under the study, all the site were classified under four broad categories like Healthcare professionals, Patients, women and General audience.
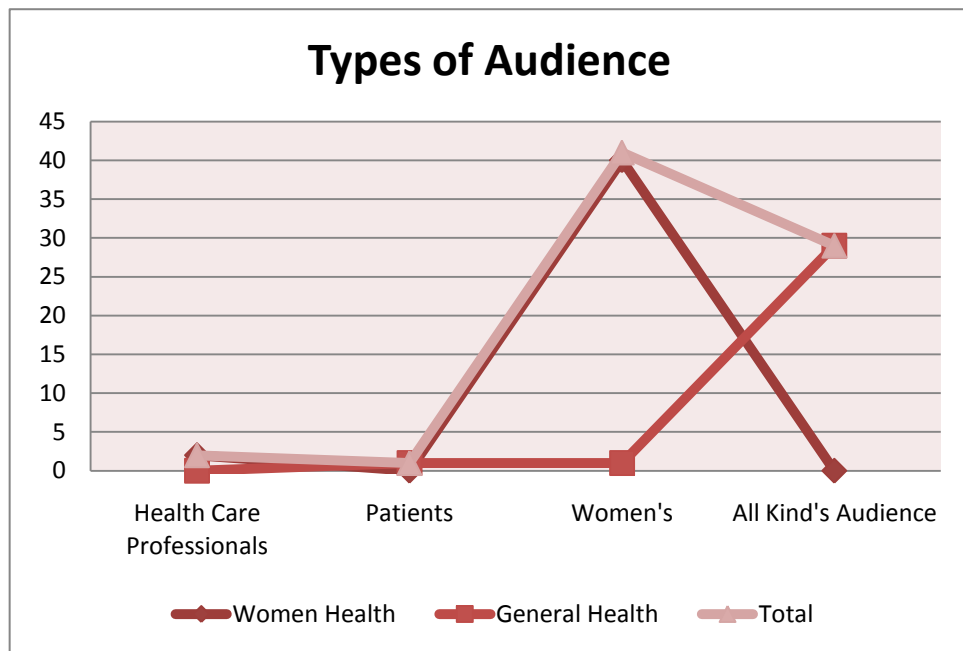
Fig. 4.3

According to the table exclusive sites which is targeted towards female community is 41 (56.2%). The next user groups are the General audience. Their percentage is (39.7%) that is 29 sites out of 73 falls under this category. Health care professionals and patients have very less presence in our study sample. Only two sites (2.7%) falls under Health care professionals and only one (1.4%) site fall under the patient category.

Analysis by User Friendliness

Table User Friendliness

Sl.No		Subject		Total N = 73
		Women Health Site n = 42	General Health Site n = 31	
1	Home Page Attractive	39 (92.9)	31 (100)	70 (95.9)
2	Identification of Location In the Page	39 (92.90)	29 (93.50)	68 (93.20)
3	Availability of Content Indicator	40 (95.20)	27 (87.10)	67 (91.80)
4	Identification of Site Sponsor	39 (92.90)	29 (93.50)	68 (93.20)
5	Sponsor Contact Information	26 (61.90)	24 (77.40)	50 (68.50)
6	Date of Establishment	29 (69.00)	24 (77.40)	53 (72.60)
7	Availability of Sitemap	17 (40.50)	21 (67.70)	38 (52.10)
8	Availability of Search Option	31 (73.80)	27 (87.10)	58 (79.50)

Tab 4.2

A case study of UNICEF UK has revealed that if one is going to concentrate on Web's user behaviour and if the site is fine tuned, it can change many things. In the above case study reveals that the fundraising site of UNICEF was studied and certain modification were done in some page like www.unicef.org.uk/photogalleries and www.univef.org.uk/celebrity. In the first page there was 40 percent increase in visit to this page in 15 month. In the second page "the charity" has seen an increase in website traffic by 23 percent within one year.

Krishna. K.M, He discusses the problem associated with sending of information in website through Internet.

A total eight characters was identified to gauge the user friendliness of the sites. From the total 73 sites under the study, 70 (95.9%) sites home page

were attractive. To be more specific 39 out of 42 women's health sites were attractive that is (92.9 %). All 31 General health portals are attractive, that is 100% of the site under this category are attractive.
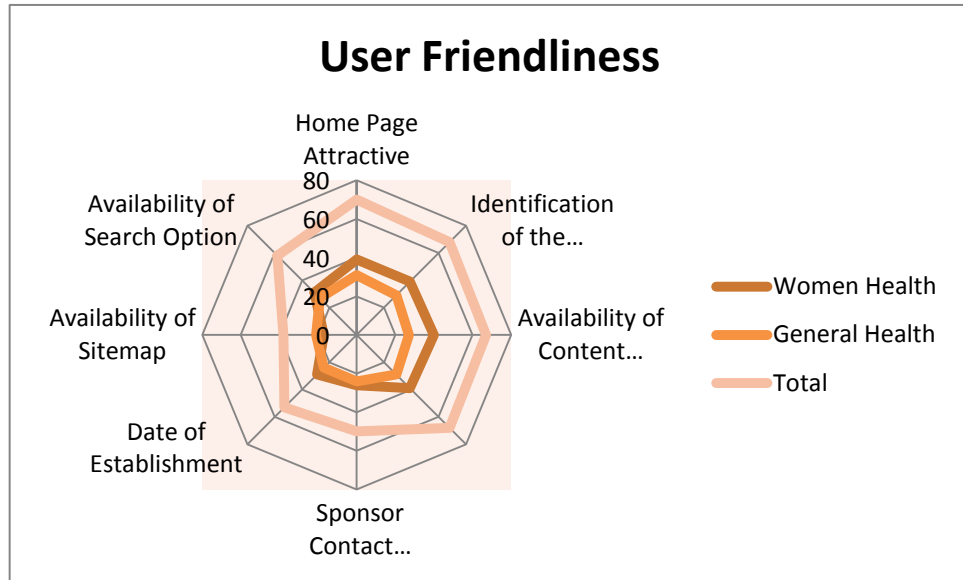
Fig. 4.4

The second category is identification of location in the page. Of the total 73 sites, 68(93.2) of the users can identify their location in the page. When we go more deep into each category wise, i.e., Women's health site out 42 (N) sites 39 (92, 9%), the users can identify their location. In case of General health site in 29 out of 31 sites, the user can identify their location.

The next category is the availability of content indicator, as a whole 91.8% i.e., is 67 out of 73 sites hand content indicator.

The next indicator was availability of site sponsor; this indicator was very much present in the majority of the site. In percentage wise (93.2%) of the sites provided the site sponsors detail.

The next character was the availability of Establishment date, which is very relevant information from the user's point of view. When we compare the

above factor with other factors, this particular character has less presence, only (72.6%), i.e., 53 out of 73 are only providing the above details.

Another important factor which can be helpful to determine the user friendliness of the site is availability of Sitemap.   Majority of the sites under the study doesn't have the sitemap, only 38 (52.2%) of them had sitemap.   Looking it more specifically its noticed that General health (40.5%) are in better position when compared to the Women's health site.

The last and the most important characteristic is the availability of search option, (79.5%) i.e., only 58 sites has the search option.

Analysis by Navigation and Browsers Compatibility.

Table Navigation and Browser Compatibility

Sl.No		Subject		Total N = 73
		Women Health Site n = 42	General Health Site n = 31	
I	Ease of Navigation			
	Movement Within Site	36	27	63
		85.7%	87.1%	86.3%
	Directions For Using Site	9	17	26
		21.4%	54.8%	35.6%
	Directions are clear and Easy to Follow	8	14	22
		19.0%	45.2%	30.1%
	Link to Other Pages	35	29	64
		83.3%	93.5%	87.7%
	Internal & External Link Work Properly	35	22	57
		83.3%	71.0%	78.1%
II	Compatibility of Browser	42	31	73
	Netscape/Internet Explorer	100.0%	100.0%	100.0%

Tab 4.3

Most of the sites are designed in such a way that the user can navigate within the site without any ease. As a whole 63 (86.3%) sites among the study sample have the quality of easy movement within the site.

The next criteria for the study under this heading are that whether the site has given any direction to use the site. Here from the empirical data we can see that only 26(35.6%) site out of 73 (N) has this feature

The next factor for analysis is the direction given by the site is clear or not. Again we can see that here also the response level is very less, only 30% that is 22 sites direction is clear and easy to fallow. The next character is for the study is the availability of link to other page outside the website. Here we can see that majority of the sites have given link to other pages, i.e., 64 (87.7) have given links to other pages.
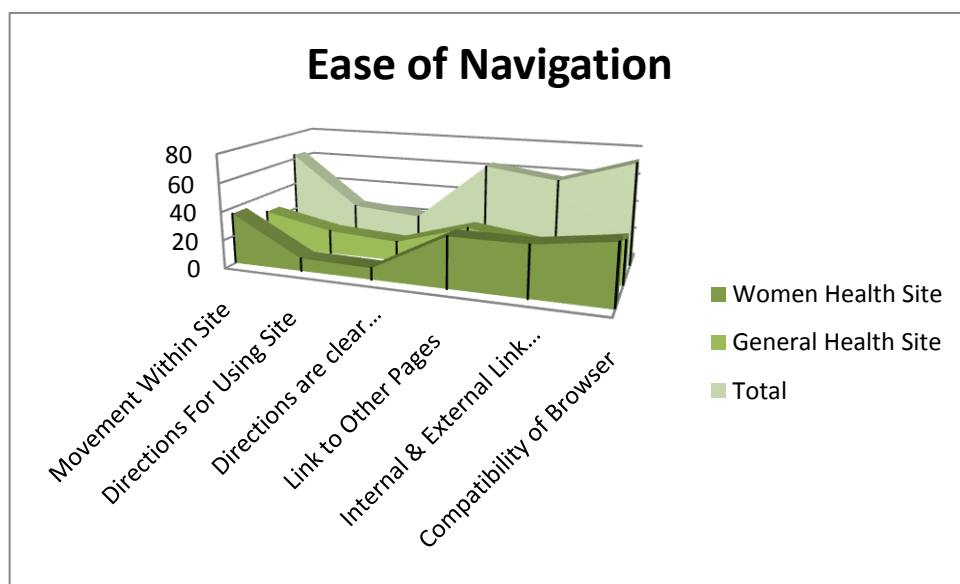
Fig. 4.5

The next entity for the study is the functioning of the internal and external links. For the women's health site out of 42, 35 sites internal and external links were working properly, and as many as 6.7% sites internal and external links were not working. In case of General site 22 out of 31 are working properly. The last one is the browser capability; from the above

table it is clear that under the study are 100% compatible with both Internet Explorer and Netscape.

Analysis by Content Presentation and Use of Multimedia

Table Content Presentation and Use of Multi Media

Sl.No		Subject		Total N = 73
		Women Health Site n = 42	**General Health Site n = 31**	
I	**Content Presentation**			
	Content is Worth	38	29	67
		90.5%	93.5%	91.8%
	Organization of Information	42	31	73
		100.0%	100.0%	100.0%
	Consistent Use of Format	41	30	71
		97.6%	96.8%	97.3%
	Easy to find Information	26	22	48
		61.9%	71.0%	65.8%
	Links Organized	34	27	61
		81.0%	87.1%	83.6%
II	**Use of Multi Media**			
	Graphics/Audio/Video	11	23	34
		26.2%	74.2%	46.6%
	Graphics/Animations/Sound	9	23	32
		21.4%	74.2%	43.8%

Tab. 4.4

In this section the analysis has two parts one exclusively deals with how content is presented in the particular site. To gage this criteria five properties under this section was identified those are, "Content is worth", "Organization of Information", "Consistent Use of Format", "Easy to find information" and "Links Organized"

From the sample around 91.8% websites information is worth, when we further subdivide into General Health Site and Women's Health site. General Health Site content is in better position than the Women's Health site. Only 90.5% of the Women's Health site's content is worth whereas

General Health Site has an upper hand as 93.5% of his category site is more worth.

The next property for discussion is how the information is organized, what order the website is maintaining to display their content. During the study and from the data collected from various sites it's clear that all 73 (100%) sites are maintain some kind of sequence to host their information on their site.
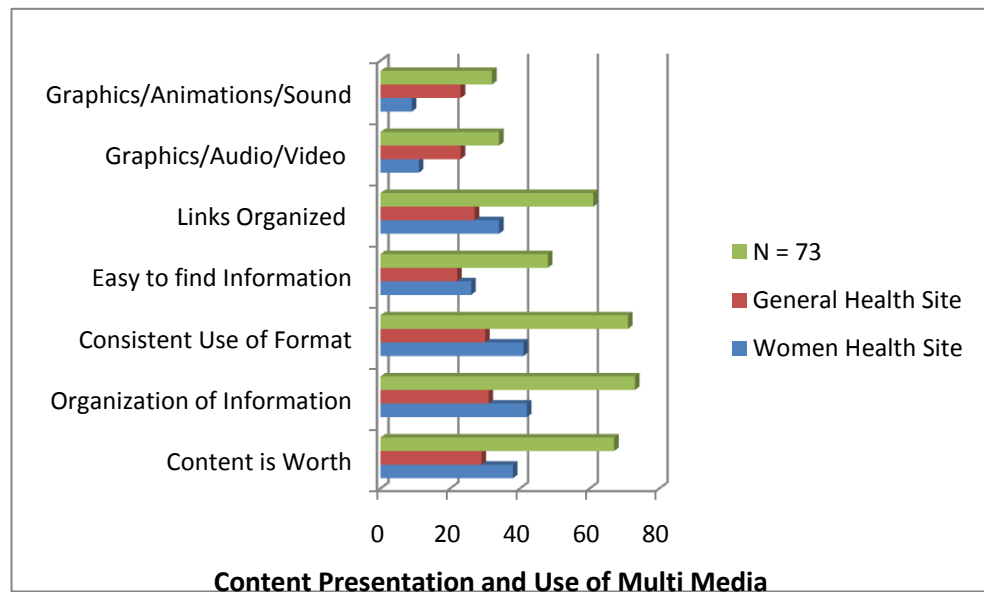
Fig. 4.6

The subsequent property for discussion is the Consistent Use of Format to host their information. From the collected data under this category it's clear that majority of the samples under the study maintain consistency in displaying their information on their site.   Around 97.3% of the site under the study is maintaining consistency.

After that the property for discussion is how user is able to find their information from the particular site, is finding their relevant information is easy or not. Under this category what the data was collected was not so promising. Only in 65.8 % site the user are in a position to find their relevant information without any ease.

The last article for discussing is how links are organized within and outside the site. Under this section we can see from the table that 61 out of 73 sites have organized their links in an organized manner.

The second section for analysis is how the Audio Visual materials are used by various sites under the study. The use of Audio and Video by all site is only nominal only 34 (46.6%) are having AV material in their site. When we analysis it more deeply we can see that General Health site are using AV material more effectively than the Women's Health Site.

The next category is the use of Animation by the various sites under the study. In this category also the General Health Sites are using the Animation technology in a better way. As many as 74.2% of, General Health Sites are using the above technology, whereas only 21.4% of Women's Health Sites using the same.

Analysis by quality of the Websites

Table Quality of the Websites

Sl.No		Subject		Total N = 73
		Women Health Site n = 42	General Health Site n = 31	
	Last Date of Revision	6	12	18
		14.3%	38.7%	24.7%
	Outdated Info Removed	0	5	5
		.0%	16.1%	6.8%
	Working Person's Link	22	22	44
		52.4%	71.0%	60.3%
	Link to Other Sites	33	24	57
		78.6%	77.4%	78.1%
	Hon Code	8	11	19
		19.0%	35.5%	26.0%
	Site Statistics	0	2	2
		.0%	6.5%	2.7%
	Link to International	0	1	1

	Organization			
		.0%	3.2%	1.4%
	Discussion Forum	13	13	26
		31.0%	41.9%	35.6%
	Editorial Board	14	15	29
		33.3%	48.4%	39.7%

Tab. 4.5

To measure the quality of the sites under study as many as nine criteria was identified. We will see one by one. The first criteria for analysis are availability of last date of revision of the sites content. As a whole only 24.7% sites have the above information. When we see separately the two categories , Women's Health Site only 6 out of 42 N have the above information, on other hand 12 out of 31 of General Health Site have the above information. The next property for discussion is Removal of Outdated Information from the site, in this criteria also the response in very poor from the sample data, only 5 site are regularly removing outdated information from their site, i.e., only 6.8% are performing the above activity regularly.

Quality of the Websites
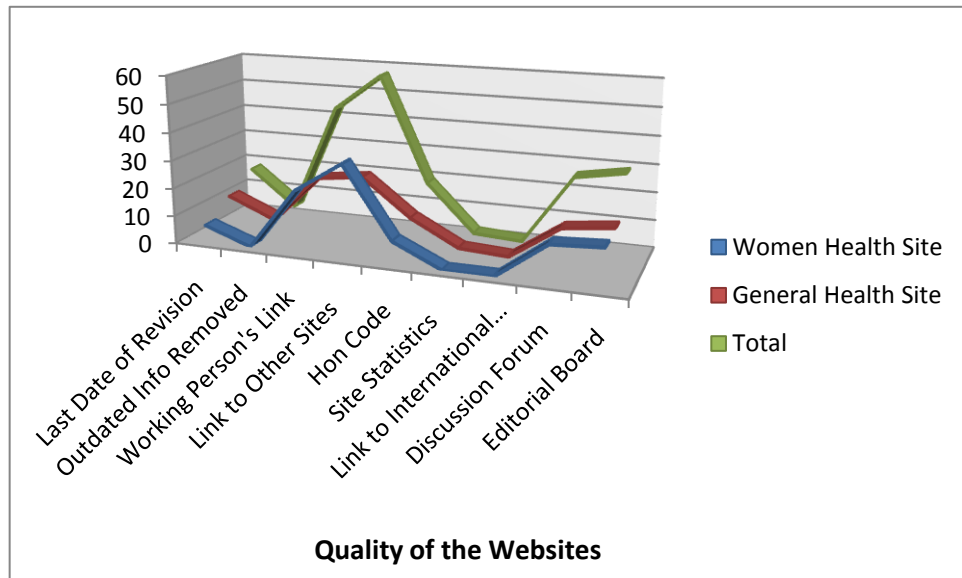
Fig. 4.7

The next quality for analysis is whether the site provides any workings persons links, so that the user can interact authorities who are responsible

the hosted information. In this case we can see that 44 (60.3%) are providing link to working person. To know better on each type of site we can see that General Health Site are in better position with (71.0%) , whereas only (52.4%) of Women's Health Site are only providing the above facility to the users community.

The subsequent feature for discussion is "Useful Links to other sites ", here from the table we can see that as many as 78.1% from the total sites are providing links to other pages, which is useful for the user community. In this section both type of sites are providing links to various kinds of sources more are less in a similar manner.

Hon Code affiliation is another criteria for discussion under this category. Health on the Net Foundation (HON) is a not-for-profit organization founded in 1995 under the auspices of the Geneva Ministry of Health and based in Geneva, Switzerland. HON Foundation issued a code of conduct (HONcode) for medical and health Web sites to address reliability and usefulness of medical information on the Internet. HONCode is not designed to rate the veracity of the information provided by a Web site. Rather, the code only states that the site holds to the standards, so that readers can know the source and purpose of the medical information presented. The HONcode is voluntary, which means that webmasters and information providers can apply for HONcode certification. Following this, the website is reviewed by a specialized team of health and legal professionals. The HONcode certification is a dynamic state and is extended every year according to site compliance. It is the oldest and the most used ethical and trustworthy code for medical and health related information available on the Internet. From the above table we notice that this certification is very less among the sample website under the study, only 26.0% of sites are having this affiliation.

The other point for discussion is availability of Site statistics in the website; this particular information is very useful for the user to know how many users have visited the site before, which is easy way to know the quality of the site. But this important criteria are less notice in the sites under the

study, i.e., only 2.7% of the sites provide this particular information. Another point which is less notice in the websites is the Link given to international organization like WHO, only 1 site out of 73 N has given link to international organization. The next section for analysis is availability of any Discussion forum in the website. Around 35.6% of sites are providing the above feature to the users. The last charter for analysis is the presence of Editorial Board which is responsible for the sites content. As a whole only 39.7% of the site have Editorial Board which check the quality of the content before hosting it on the site. When this compared between General Health Site and Women's Health Site , we can notice from the table that General Health Site are in a better position with 48.4 % compared to its counterpart where only 33.3 % of these sites have the above board.

Analysis by Site Link, Loading Time and Traffic

Sl.No	Properties	Subject		Total N = 73
		Women Health Site n = 42	General Health Site n = 31	
I	Site Inlink	622.14	17166.39	7647.78
		1825	58312	38555
	Mean Rank of Site Inlink	27.85	49.40	
	Mann-Whitney U	266.5		
	Wilcoxon W	1169.5		
	Z	-4.292		
	Asymp. Sig. (2-tailed)	.000		
II	Average Loading Time	1.12	14.69	6.89
		1.21	64.32	42.08
	Mean Rank of Average Loading Time	27.98		49.23
	Test Statistics			
	Mann-Whitney U	272.00		
	Wilcoxon W	1175.00		
	Z	-4.23		
	Asymp. Sig. (2-tailed)	.00		

III	Traffic Three Month	3117498.93	164201.59	1863358.96
		1E+07	4E+05	8E+06
	Mean Rank of Traffic Three Month	44.05	27.45	
	Mann-Whitney U	355.000		
	Wilcoxon W	851.000		
	Z	-3.305		
	Asymp. Sig. (2-tailed)	.001		

Tab. 4.6

To analyze the above category, the Statistical tool "Mann Whitney" was used to study whether there is any correlation existing among the three for the two types of the sites

Mann Whitney

In statistics, the Mann–Whitney U test (also called the Mann–Whitney–Wilcoxon (MWW), Wilcoxon rank-sum test, or Wilcoxon–Mann–Whitney test) is a non-parametric test for assessing whether two independent samples of observations have equally large values. It is one of the best-known non-parametric significance tests.

Mann-Whitney U test is the alternative test to the t-test. Mann-Whitney U test is a non-parametric test that is used to compare two population means that come from the same population. Mann-Whitney U test is also used to test whether two population means are equal or not. Mann-Whitney U test was developed by Wilcoxon in 1945. It is used for equal sample sizes, and is used to test the median of two populations. Usually Mann-Whitney U test is used when the data is ordinal. Wilcoxon rank sum, Kendall's and Mann-Whitney U test are similar tests and in the case of ties, Mann-Whitney U test is equivalent to the chi-square test.

Assumptions in Mann-Whitney U test:

Mann-Whitney U test is a non parametric test, hence it does not assume any assumptions related to the distribution. There are, however, some assumptions that are assumed in Mann-Whitney U test. The following are the assumptions for Mann-Whitney U Test:

1. Mann-Whitney U test assumes that the sample drawn from the population is random.

2. In Mann-Whitney U test, Independence within the samples and mutual independence is assumed.

3. Ordinal measurement scale is assumed in Mann-Whitney U test.

Calculation of Mann-Whitney U test:

Calculation of Mann-Whitney U test:

To calculate the value of Mann-Whitney U test, we use the following formula:

$$U = n_1 n_2 + \frac{n_2(n_2+1)}{2} - \sum_{i=n_1+1}^{n_2} R_i$$

Where:
U=Mann-Whitney U test
N_1 = sample size one
N2= Sample size two
R_i = Rank of the sample size

From the above table it's clear that Site In link, The Average Loading Time and the Traffic of the sites are related. From the above analysis we can conclude that site in link has a negative impact on the average loading time and a positive impact on the site traffic.

When we further analyze the data according to the site's subject we can see that the Mean of Women's Health Site is 622.14 and for General Health Site it is 17166.39, from the data it is clear that General Health Sites are have better in link count but when its compared with the Women's Health Site. Women's Health Site which has less in links compared to its counterpart. As a whole Women's Health Site is having good download speed with an average of 1.12 sec where as its 14.69 sec for the General Health Site. The next one is the traffic which is also has a link with the other two properties.

The traffic for the Women's Health Site is 3117498.93 and for General Health Site it 164201.59. From the above data it is clear that less the Site in link, less the Average Loading time, if these two properties are less than the traffic is high. From the above table we can conclude that if the site has more in link it has a better reach and coverage but this hampers the Average Loading Time and the Traffic for that particular group of sites. By and large we can say that General Health Site are in better position than Women's Health Site in site in link but on other hand Women's Health site are in better position in Average Load Time and Site Traffic.

Analysis by Top Ten Diseases Covered by the Website

Table Top Ten Diseases Covered by the Websites

Subject	Subject		Total N = 73
	Women Health Site n = 42	General Health Site n = 31	
Cancer	27 (64.29)	29 (93.55)	56 (76.71)
Heart	25 (59.52)	28 (90.32)	53 (72.60)
Diabetes	23 (54.76)	27 (87.10)	50 (68.49)
Stroke	22 (52.38)	27 (87.10)	49 (67.12)
Flu	24 (57.14)	25 (80.65)	49 (67.12)
Kidney	22 (52.38)	27 (87.10)	49 (67.12)
Alzheimer	21 (50.00)	26 (83.87)	47 (64.38)
COPD	18 (42.86)	26 (83.87)	44 (60.27)
Injuries	20 (47.62)	24 (77.42)	44 (60.27)
Blood	17 (40.48)	22 (70.97)	39 (53.42)
Test Statistics			
Cochran's Q	30.442[a]	20.887[a]	46.098[a]
df	9	9	9
Asymp. Sig.	0.000	0.013	0.000

Tab. 4.7

To measure the quantity of subject covered in each site the scholar identified "Top 10" diseases which affect women folks more often .Cochran's Test was performed to analyze the percentage of difference between each diseases covered in the two type of the site.

Cochran's Test

In the analysis of two-way randomized block designs where the response variable can take only two possible outcomes (coded as 0 and 1), the Cochran test (also called Cochran Q test) is a non-parametric statistical test of whether k treatments have identical effects. It is named for William Gemmell Cochran.

The Cochran test statistic is

$$T = k(k-1) \sum_{j=1}^{k} \left(X_{\bullet j} - \frac{N}{k} \right)^2 \Bigg/ \sum_{i=1}^{b} X_{i\bullet}(k - X_{i\bullet})$$

Where

      k is the number of treatments
      $X_{\bullet j}$ is the column total for the jth treatment
      b is the number of blocks
      $X_{i\bullet}$ is the row total for the ith block
      N is the grand total

From the above table we can point it out that Cancer, Heart and Flu is the top three diseases, which have their prominence. Blood related diseases and Injuries is the two disease which are least covered by both the sites.

To study deep about the two sites, from the table it's clear that General Health Site are providing better coverage than the Women's Health Site.

Analysis by Top Five and Bottom Five Ranking Websites in Five English Speaking Country

In this section we will try to analyze from the 73 sites under the study, what are top five sites and how these sites are ranked among the five English

speaking countries? The five English speaking countries taken for the current study is USA, UK, Australia, Canada and India. When we compare top five site, there is strong correlation pattern is existing among the five countries. For example Medicine.net falls first in USA, Australia and India, in UK and Canada it falls second in the line. Form the table it's clear that Medicine.net is in the top position. The next site which is ranked in top five in the five countries is Medline Plus, in USA and Australia its ranking third, in UK and India its ranking fourth, while it's ranking fifth in Canada. WebMD is another prominent health website, which is catering health information for years. In UK its ranking first, its ranking second in Australia and Canada while its ranking third in India and fifth in USA. Office of Research on Women Health ranks third fourth in USA, Australia, and Canada and fifth in India.
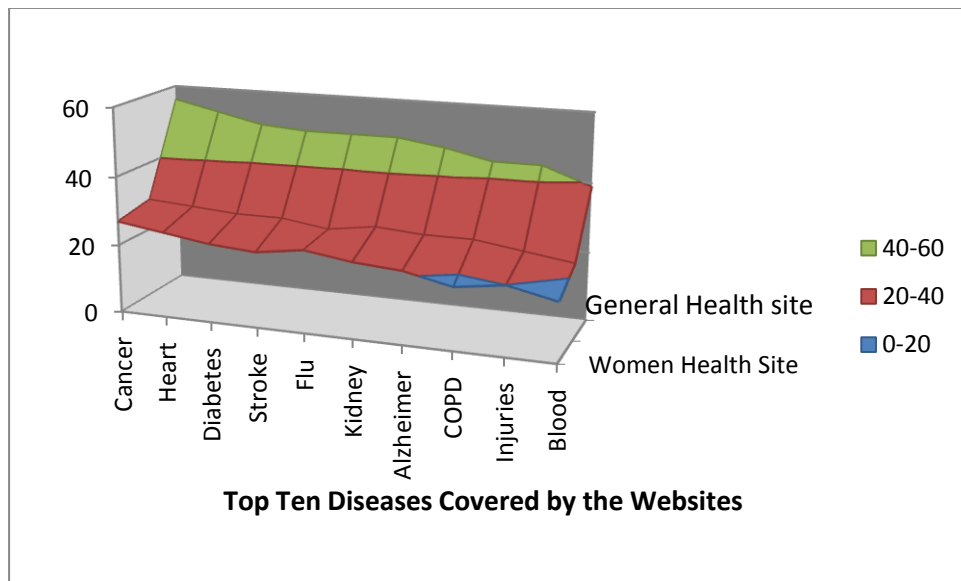

Fig.4.8

Your Total Health ranks first in Canada and third in UK, these are five sites which are widely used in the five English speaking countries.

In the bottom five it's clear from the table that the pattern is different from top five. In bottom their no correlation between the countries and the site, each country has different bottom five sites.

Analysis by Spearman's Rank Correlation: Women's Health Websites in Five Selected English Speaking Countries.

In statistics, Spearman's rank correlation coefficient or Spearman's rho, named after Charles Spearman and often denoted by the Greek letter ρ (rho) or as rs, is a non-parametric measure of statistical dependence between two variables. It assesses how well the relationship between two variables can be described using a monotonic function. If there are no repeated data values, a perfect Spearman correlation of +1 or −1 occurs when each of the variables is a perfect monotone function of the other.

The Spearman correlation coefficient is often thought of as being the Pearson correlation coefficient between the ranked variables. In practice, however, a simpler procedure is normally used to calculate ρ. The *n* raw scores X_i, Y_i are converted to ranks x_i, y_i, and the differences $d_i = x_i - y_i$ between the ranks of each observation on the two variables are calculated.

If there are no tied ranks, then ρ is given by

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}.$$

If tied ranks exist, Pearson's correlation coefficient between ranks should be used for the calculation:

$$\rho = \frac{\sum_i (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_i (x_i - \bar{x})^2 \sum_i (y_i - \bar{y})^2}}.$$

One has to assign the same rank to each of the equal values. It is an average of their positions in the ascending order of the values.

When we computed rank correlation using Spearman's method, the correlation came out in such way that Indian ranking pattern is correlated with other developed countries. USA's ranking pattern is matching with the Indian ranking order. Next in the order is UK's prototype is matching with

Indian categorize. In the same way Australia and Canada pattern is more or less ranking same to Indian pattern.

Analysis by users: Age, Education and Browsing Location

From the available data it's clear that users between the age group 35-64 are using these health sites in better way when it's compared with the age group 18-34. When it comes to the education background of the user, the users having college and graduate school environment are accessing the site more than those who are having no college and some college education backdrop. The last one is the browsing location of the users; from the available data it's clear that users are accessing these from home when compared to school or work place.

Testing of Hypothesis

Hypothesis-testing: After analysing the data as, researcher is in a position to test the hypotheses, if any, he dad formulated earlier. Do the facts support the hypotheses or they happen to be contrary? This is the usual question which should be answered while testing hypotheses. Various tests, such as Chi square test, t-test, F-test, have been developed by statisticians for the purpose. The hypotheses may by test through the use of one or more of such test, depending upon the nature and object of research inquiry. Hypothesis-testing will result in ether accepting the hypothesis or in rejecting it.   If the researcher had no hypotheses to start with, generalisation established on the basis of data my by stated as hypotheses to be tested by subsequent researches in time to come.

 If a hypothesis is tested and upheld several times, it may be possible for the researcher to arrive at generalisation, i.e., to build a theory. As a matter of fact, the real value of research lies in its ability to arrive at certain generalisations. If the researcher had not hypothesis to start with, he might seek to explain his findings on the basis of some theory. It is known as

interpretation. The process of interpretation may quite often trigger off new questions which in turn may lead to further researches.

1. *Null hypothesis H $_0$: $\mu =$*

- Age and education is not a major factor when it comes to web resources users

Alternative hypothesis H $_a$: $\mu =$

- Internet resources are widely used by the younger generation specifically between 25-45 age groups and the users with minimum college level education background are the prominent user of these web resources

Women's health site		
Age	Under Reach	Over Reach
18-24	10	8
25-34	13	10
35-44	16	8
45-54	7	11
55-64	5	5
65+	1	1
F-test	0.398227	
Chi	0.054341	

Tab. 5.1
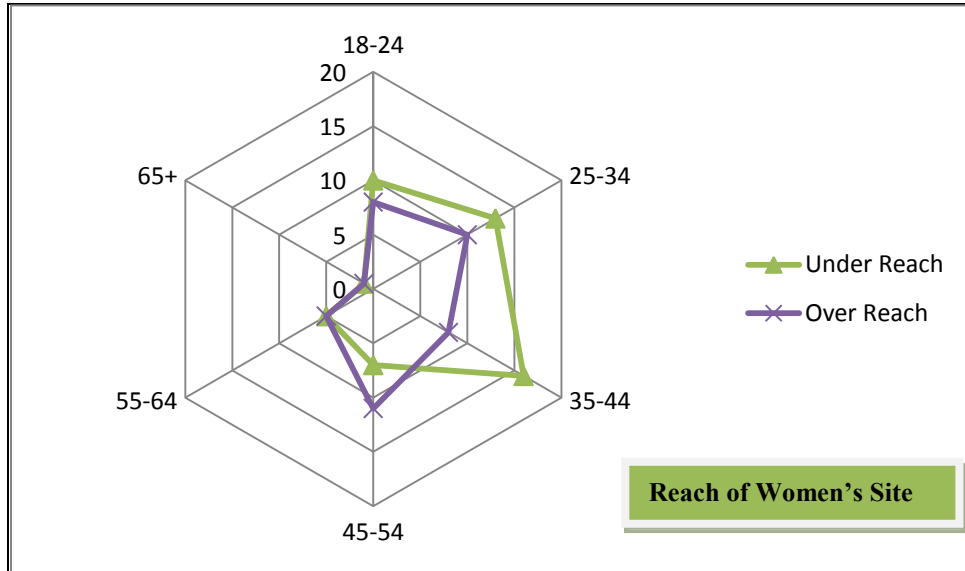
Fig. 5.1

The Women's health site observed value of z is 0.054341 which is the acceptance region since R:|z|>1.96 and thus, Null Hypothesis is rejected and Alternate Hypothesis is accepted.

General Health site		
Age	Under Reach	Over Reach
18-24	15	4
25-34	17	4
35-44	8	11
45-54	5	14
55-64	2	17
65+	5	9
F-test		0.776628051
Chi		9.15902E-19

Tab.5.2
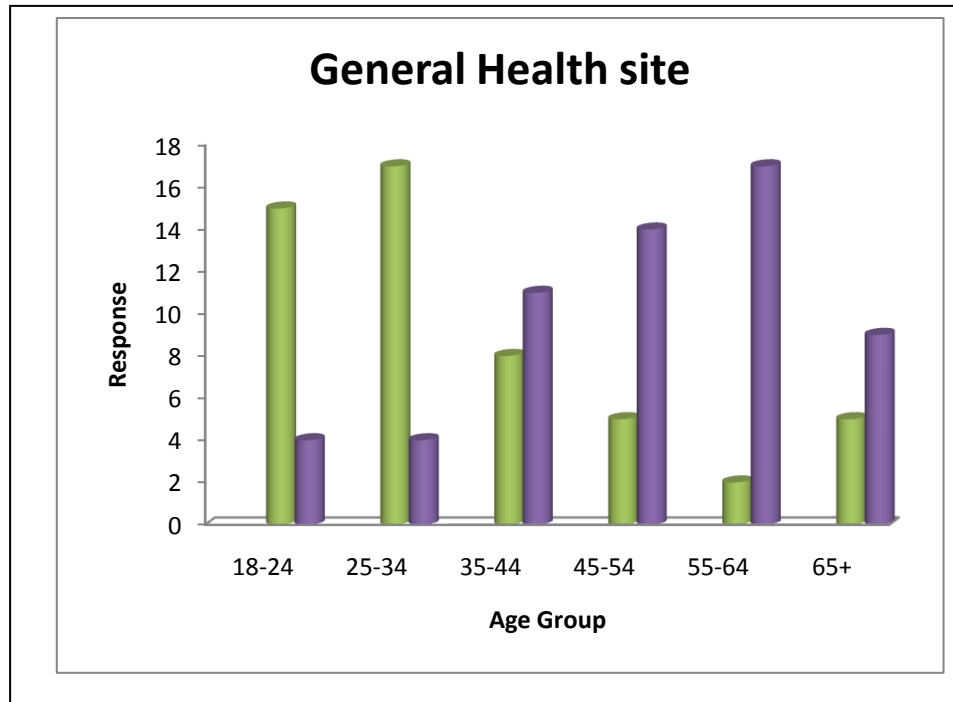
Fig. 5.2

The General health site's observed value of z is 9.15902 which is not in the acceptance region since R:|z|<1.96 and thus, Null Hypothesis is accepted.

2. **Null hypothesis $H_0 : \mu =$**

- General health sites don't provide exhaustive information on women's health topics.

   Alternative hypothesis $H_a : \mu =$

- Women centric sites provide exhaustive information on women's health topics compared to general health site.

Coverage of Top 10 Women's Diseases

Health Topics	Women Health Site	General Health Site	Total
	N = 42	N = 31	N=73
Cancer	27	29	56
Heart	25	28	53
Diabetes	23	27	50
Stroke	22	27	49
Flu	24	25	49
Kidney	22	27	49
Alzheimer	21	26	47
COPD	18	26	44
Injuries	20	24	44
Blood	17	22	39
		test	0.230418

Tab.5.3
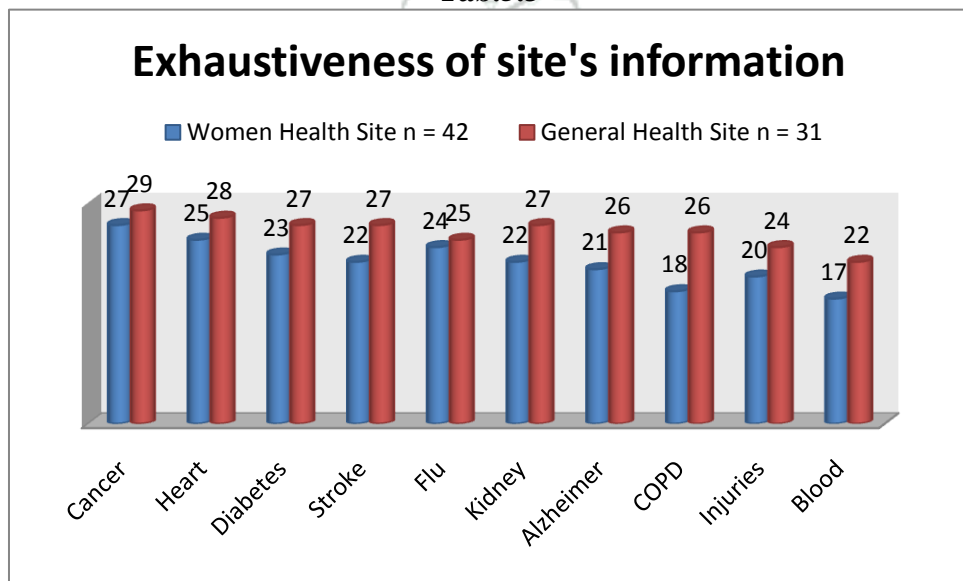
Fig. 5.3

From the above table we can notice that General health site's has better coverage than the subject specific sites. The above data was tested with help of *f-test* .The result is = 0.230418 which is less than the critical level. Thus, the null hypothesis is accepted and the alternative hypothesis is rejected.

3. *Null hypothesis* $H_0 : \mu =$

- Site ranking, in-link count and downloading speed doesn't have any relationship.

Alternative hypothesis $H_a : \mu =$

- Site ranking, in-link count and downloading speed have relationship.

Mann-Whitney Test

Sl.No	Site Properties	Subject		Total
		Women Health Site	**General Health Site**	**N = 73**
		n = 42	**n = 31**	
I	Site In-link	622.14	17166.39	7647.78
2	Average Loading Time	1.12	14.69	6.89
3	Traffic Three Month	3117499	164201.6	1863359

Tab.5.4

To analyse whether there is any kind of correlation- ship is existing between the three properties **Mann-Whitney Test** was performed and from the above table we can conclude that all three properties are interrelated two properties are having a positive correlation. We notice from the above table that site's rank and in-link count has an adverse impact on the downloading speed of the site. From over data we can reject Null hypothesis is rejected and Alternate hypothesis is accepted.

4. **Null hypothesis** $H_0 : \mu =$

- Use of web resources is not country specific.

Alternative hypothesis $H_a : \mu =$

- Host country has major share of users than compared to the rest of countries.

Rank correlation method was used to test the above hypothesis. From the total no. of seventy three sites only fifty three sites had the details regarding hosting country. Those fifty three sites were ranked according to hosting country. After ranking it was found that only thirteen out of fifty three sites host country and its top user country was different, i.e., 76.5 perent of the site host country and the top user country are same. So from this inference we can concul that Null hypothesis is rejected and Alternate hypothesis is rejected.
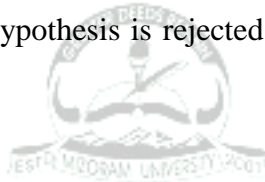
Findings

This part is an important section of the thesis, always a research must conclude with the finding of the study, where the investigator has to describe the outcome of his study. Same way this study has following findings:

From the study it is found, that from the five types of domains, two domains namely Organisation & Commercial are having better coverage on the subject matter related to women's health. From thirty organisation site thirteen sites covers all the top ten women's health topic, in case of commercial site eighteen of them are providing in depth overage of women's health topics. Cancer and heart related topic is the top two areas where majority of sites provide better information than other areas like diabetes or flue. Blood related diseases finds less importance among the

sites under the study. Only thirty nine from total seventy three N covers blood related topics in their sites. Further it was found that General health site has a better coverage on all topics and better reach to the audience, when it's compared with women's health sites.

It is found that user friendliness of the sites were analysed with help of few charters like, Home page attractiveness, Content Indictor, Location in the page and Sites sponsor details. All these characters are covered by majority of the sites; more than 90% of the sites are having positive response to the above characters.

Another important factor to use to analysis the sites quality is availability of site map, search option and movement within the site. These three factors have mixed response between the two subject sites. It is found that 58 out of 73 N have the search option, 10 out of 73 N sites have faced problem in movement within the sites and 52% of sites have sitemap features.

From the study it's found that 99% of sites under the study were using a particular format to display the content on their site, during the study period the scholar didn't find any change in the display format from one webpage to other, all the sites were maintaining their uniform and unique pattern in letter font, colour, table format and using audio visual files in their site.

Browser compatibility is one of the important factors from the user point of view, as there are many browsers available in the internet for free, because of this feature the web developer has to keep in mind that the hosted site is compatible with majority of the browser available. In current study two widely used browsers Internet Explorer and Netscape Navigator was taken to check the compatibility of the site and it was found that all 73 N were compatible with both the browsers.

From the study it's found that all sites are getting good in link but no sites are giving any external link to any international origination like World Health Organisation.

Another important factor to evaluate the quality of the site is, how frequent the site is updated and how frequent the out dated information is removed from the site. From the study it was found that both Women's health site and General health site are not providing the information regarding when was the last time the site was updated; only 18 out of 73 N sites are providing the sites updating information. When we come to the next factor, removing the outdated information from the site it was found that only 5 sites under the study were regularly removing the outdated information from their site and at this point it was noticed that those five sites which are regularly removing the outdated information fall under the General health site category.

HonCode affiliation is another factor which helps the users of the health website to come to a conclusion that the site which they are browsing is an authentic website. From the study it was found that 19 sites out of which 8 were Women's health site and 11 were General health site which had the affiliation of HonCode.

Displaying the sites statistics on sites will give a clear picture to the user that how many people have accessed the site till that point of time. It was astonished to know that only 2 from the total 73 N are providing the above feature on their site.

Sites inter activeness is a feature which tell us about the sites user friendliness. From the current study it was found that 44 sites provided Editorial detail of the site and 46 sites are providing discussions forum like email, chat and video conference.

The web world is a dynamic is dynamic environment were change is constant. When it come to URL it was found that 9 sites URL was changed during the study period. When it was deeply analysed it was found that 2 sites falls under Government and Organisation domain, 4 under Commercial domain and 1 under International domain.

Suggestions

❖ The individual sites have to conduct a local needs assessment and map existing services. These tasks should include identification and collation of existing national and local data and consultation with the users and staffs in a range of sectors and organisations related to Health Information.

❖ The sites have to host the contents on the pages keeping in mind the quality not the quantity of information. Each website has to follow some basic standards, for e.g., HON Code standards for hosting health information.

❖ The WebPages must not have too much multimedia or image files and also the internal and external links which will hamper the sites downloading time which in turn will affect the users.

❖ Every country has to develop robust clinical governance procedures. These will include risk assessment (workforce capacity/recruitment; locating premises); methods of monitoring and evaluating services; audit strategy; safe guarding policy.

❖ In future scholars may think to take web resources as area of research and try to evaluate the resource on the basis subject and its quality.

❖ The users of E-health information have keep in mind that, that information that is available on the virtual world is only supplementary information not the primary information. Always get the first hand information from your physician, don't act according to the information on various WebPages.

Conclusion

Health issues affect the rich and poor alike throughout the world. A patient is unlikely to have the knowledge about their disease. It is currently the fashion among public to visit internet cafe to meet their medical information requirements. Although large volume of information is available on the internet, unfortunately, all information is not regulated. The sponsored information is likely to b biased and business oriented. It is required that the content of such information is collectively and critically evaluated.

Given the evolving state of the internet, it may be difficult or even inappropriate to develop a static tool or system for assessing health related websites. Our results suggest that may authors agree on key criteria, and that efforts to develop consensus criteria may be helpful. The next step is to identify and assess a clear, simple set of consensus criteria that the general public can understand and use. Tools that integrate them need to developed and validated, and their ultimate impact and effectiveness in assisting the public with health related decisions should be monitored to ensure that they remain useful.

The literature review above provides an overview of methods that may be used to evaluate websites (and, indeed, to an extent other information media and content). Examples of evaluations using each method have been provided. A full evaluation of sites would include user studies, inspection methods to further examine usability issues and also quality indicators, contextual inquiry to look at the relevance and appropriateness of the site for various actual and potential user groups, as well as possible log analysis

retrospectively examining use. Clearly, such an in-depth analysis would be beyond the means, both financially and with regard to expertise, of most potential evaluators. On the other hand, it is difficult to judge which elements should take priority. Information needs analysis, for example, may be as important as issues of usability where the consumer base is not well known (even though, according to research by Coulter et al. this is often not a priority).

Information providers and disseminators need to be aware of a number of interdependent and wide ranging issues that require addressing both pre- and post-implementation of a system, even if budget, time or other constraints preclude a full in-depth analysis of each. The Web—now available on digital interactive television as well as from a standard PC terminal and soon to be ubiquitous—is only one of a number of digital 'platforms' that are providing exciting new means of information delivery. It is only by being cognizant always of the (potential) users, however, including their needs, preferences and abilities in the electronic arena that the full potential to inform and educate may come to fruition.
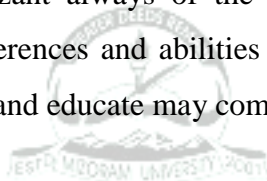
This study is one of the first to examine how health issues are and should be communicated and evaluated on the Internet. It aimed to research and consolidates recommendations across the fields of health communication, risk communication, and Internet evaluations to develop a website evaluation that was tailored specifically for Women'sl health websites and topics. Consistent with other findings (Berland et al., 2001; Gagliardi & Jadad, 2002; Jadad, & Gagliardi, 1998), this research found varying degrees of consistency among and between previous evaluations and demonstrated the importance of establishing a set of standard website evaluation criteria McLeod, 1998), and that relying on an overall evaluation score could mask individual strengths and weaknesses

In conclusion, there exists a body of literature providing evaluation criteria for websites, and those criteria should be validated and adapted to fit the topic of interest. This research provides the skeletal framework for such a

task; the development (and pilot testing) of a tailored website evaluation tool provides a research base and evaluation framework for future health communication projects. The study contributes to additional evaluation development and validation, even outside the realm of Women's health and results can provide the websites that were part of the website evaluation tool's pilot test, and possibly other related ones, with a basis for improving their sites' content, appearance, audience, and access capabilities.

Because the link between the traditional and virtual health information is not clear to many people, public health practitioners have the responsibility to communicate this link accurately, effectively, and safely – in every possible venue. Behaviours, additional research should examine how the lack of peer-review and dynamic quality of the Internet affect the quality of health information online, as well as the resulting health effects of that information.

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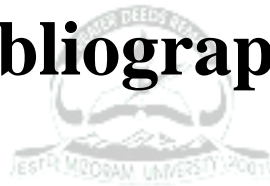
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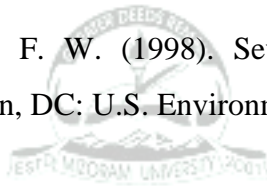
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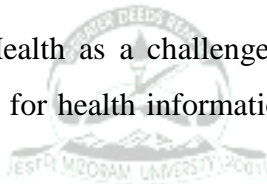
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Appendix

RATINGS CHART FOR EVALUATION WOMEN'S HEALTH RELATED WEB SITE

Site Title: _____

Subject: _____

URL: _____

Web Site Developer/Copyright:_____

Hosting Country: _____

Type of site:

| .gov | .edu | .org | .com | .net |

Audience:

| Health Care Professionals | Patients | Women's | All Kinds of Audience |

Evaluate the Web site you have selected according to the criteria described below. Circle "Y" for "Yes", "N" for "No", "NA" for "Not Applicable".

S.No	Details for evaluating the website	Y	N	NA
1	**Speed**			
	A. The homepage downloads efficiently.			
2	**Home page**			
	A. The homepage is attractive, has strong eye appeal.			
	B. You can tell where you are immediately (clear title, description, image captions, etc.)			
	C. There is an index, table of contents, or some other clear indicator of the contents of the site.			
	D. Site sponsor/provider is clearly identified.			

	E. Information/method for contacting sponsor/provider is readily available.			
	F. Copyright date or date site was established is easy to determine.			
3	**Sitemap provision is provided**			
4	**Search option**			
5	**Ease of navigation**			
	A. User is able to move around within the site with ease.			
	B. Directions for using the site are provided if necessary.			
	C. Directions are clear and easy to follow.			
	D. The links to other pages within the site are helpful and appropriate.			
	E. Internal and external links are working properly (no dead ends, no incorrect links, etc.)			
6	**Use of multimedia**			
	A. Each graphic, audio file, video file, etc., serves a clear purpose.			
	B. The graphics, animations, sounds clips, etc., make a significant contribution to the site.			
7	**Browser compatibility**			
	A. Site is equally effective with a variety of browsers such as Netscape and Internet Explorer.			
8	**Content Presentation**			
	A. There is sufficient information to make the site worth			

	visiting.			
	B. The information is clearly labeled and organized.			
	C. The same basic format is used consistently throughout site.			
	D. Information is easy to find (no more than three clicks, for example).			
	E. Lists of links are well organized and easy to use.			
9	**Top Ten Women's Health tops are covered or not**			
	A. Heart Disease			
	B. Cancer			
	C. Stroke			
	D. Chronic Obstructive Pulmonary Disease (COPD)			
	E. Alzheimer's Disease			
	F. Injuries			
	G. Type 2 Diabetes			
	H. Flu			
	I. Kidney Disease			
	J. Blood Poisoning (septicemia or sepsis)			
10	**Currency**			
	A. The date of last revision is clearly labeled. Date last revised			
	B. Out-dated material has been removed.			
11	**Availability of further information**			

	A. Working link is provided to a contact person or address for further information.			
	B. Links to other useful Web sites are provided.			
12	**Hon Code**			
13	**Availability of Site Statistics**			
14	**Links (** Is the site providing any link to any International Organization like WHO is provided or not, if yes kindly list the top three organizations only)			
	a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____ h. _____ i. _____ j. _____			
15	**Availability of Discussion Forum**			
16	**Details about Editorial Board**			
17	**Whether URL was changed during the study period**			