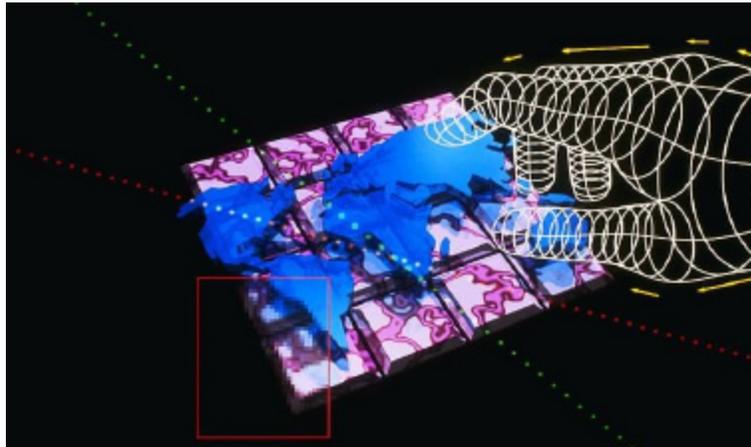


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**SURVEY OF HEALTH INFORMATION WEBSITES IN MEXICO  
AND ANALYSIS OF DATA ON ETHICS AND EQUITY IN HEALTH**

Gladys Faba Beaumont  
Pierre Abis Duperval

National Institute of Public Health (Mexico)  
Information Center for Healthcare Decision-Making  
[*Centro de Información para Decisiones en Salud*]

Cuernavaca, Mexico  
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## Introduction

The population's access to information on websites is increasingly associated with *social participation*, *democracy*, and what is commonly referred to as *the empowerment of social groups*. Soon such access will no doubt become a country development indicator, just as electric power, the telephone, and television are today.

The rapid evolution of Internet technology and the speed at which it has permeated such a wide diversity of societies have turned "time" into a determinant of phenomena that are still big mysteries today, such as the relationship between supply and demand, as well as the quality and usefulness of information available in cyberspace.

The proliferation of Internet websites has had no respect for borders. Consequently, its development has included a certain degree of chaos for more than two decades now in terms of the different publication formats, preparation of website content, interaction among websites, as well as interaction between websites and their visitors.

Currently, there is a broad range of websites offering a variety of contents and services, everything from the personal homepages of the general public, companies, government agencies, up to major corporations and international organizations. While the objectives and ends of the information these sites publish vary, the statistics indicate that most offer services and commercial products (Table 1). Websites providing scientific information are less prevalent and their formats range from brief summaries, to news or recommendations regarding scientific articles, to journalistic endeavors, and up through scientific publications/journals.

Table 1. Domain names registered under “.mx” in Mexico

March 2003

.com.mx	68,338
.gob.mx	1,757
.net.mx	607
.edu.mx	1,794
.org.mx	3,102
.mx	172
TOTAL	75,770

Source: Network International Center – Mexico ([www.nic.mx](http://www.nic.mx))

With respect to health, there are numerous websites designed to orient various groups of the population in the prevention/treatment of disease and in healthcare that make use a number of different information sources and resources. However, little is known about their editorial guidelines and procedures, selection criteria, or accuracy of information. Likewise, there is no way to precisely know the original sources of information or who controls the content of publications.

Recent years have witnessed an expansion of contents and tools supporting formal education processes, including some envisaged as continuing education forums, billed as virtual schools and/or universities offering a number of institutionally-accredited courses and degree programs. Just how effective these media are is unknown, although some recently published articles point out that levels of learning among virtual students do not surpass those of their traditional counterparts and, depending on the type of user, are lower than those achieved in teacher-led classrooms.<sup>1</sup> Consequently, it would appear that much remains to be done before the day that interactive media can be as effective as the traditional teacher-classroom paradigm.

Hand-in-glove with the evolution of the virtual publication have been a reduction in the amount of time and distance of access, the diversity of information sources and resources, and, in many cases, lower costs. These factors are able to transform interactive media into resources that strengthen

people's ability to consult, to learn, and to inform themselves, thus facilitating greater opportunities to form opinions, participate, and make decisions.

Given the growing importance of the Internet and virtual interactive media as a means of disseminating scientific information for decision-making and providing guidance to population on its healthcare matters, there is a need to arrive at a consensus as to the effectiveness of certain indicators and tools, with a view to evaluating the information content of these media and identifying their impact on users. In this rapidly expanding and ever-diversifying area, it is advisable to initiate follow-up monitoring activities that not only help evaluate the quality and usefulness of information, but also gain a better understanding of the population's real and latent demand for information. Accordingly, this could ultimately lead to the development of tools for information suppliers that would help regulate the supply of and demand for information in this very complex market.

## **Background**

Of all the fields of knowledge, health is the one with the greatest concentration of scientific output, historically accounting for between 45 and 48% of the world's scientific output. As Internet website records suggest, health is also one of the fields concentrating the greatest amount of information and number of users. It is estimated that more than 25 million people seek medical information on the Internet, where there are at least 100,000 health-related websites. Unfortunately, however, only half of these sites are supervised by physicians.<sup>2</sup>

Impact assessments of health-related websites have been based on procedures involving quantitative measurement, which fail to objectively reflect their real features or difficulties/limitations of formats and content. Evaluation geared toward measuring the quality of content is considered a complex undertaking, owing to this internal chaos in which the various Internet networks have evolved, as pointed out earlier, and consequently, to the great diversity of

existing contents, formats, and users. So perhaps this difficulty may be due to the absence of criteria and regulatory guidelines for virtual media.<sup>3</sup>

Some institutions have begun to develop resources aimed at defining criteria that would enable them to evaluate website contents and make use of the tools available thereon. However, experimental efforts can still be observed that cannot be replicated in the universe of the Internet.

Jakob Nielsen holds that quantitative evaluation methods of quality and use of information available in virtual media are not very illustrative. Instead, he recommends the use of the tools of qualitative analysis<sup>4</sup> and consultation with small groups of users where their behavior can be observed and one can directly ascertain the various operations carried out by the user and, hence, the forms of interaction with website resources, as this procedure is more reliable than taking note of the user's opinion.<sup>5</sup>

In their effort to evaluate town council websites in parts of Catalonia, Fenoll and Lluca state that: "The survey points out serious deficiencies, such as the lack of interaction with citizens, the lack of an adequate system of web pages retrieval and diffusion, and the practically non-existent use of standard autodescriptive languages (metadata)." <sup>6</sup>

This document presents the findings of an initial survey and analysis of a group of health-related websites. These sites were selected in order to gain an understanding of the importance or weight of information content in equity and bioethics in health, understanding that these are two areas underlie the regulatory principles of new health system reforms, and of the Mexican health system in particular.

## **Objectives**

This study proposes to:

- Test a survey and analytical methodology of the content and format of websites publishing information on equity and bioethics;
- Identify local health-related websites offering information on these subjects;
- Determine the characteristics of the supply of information;
- Prepare a first mapping of websites that deal with these subjects;
- Present thematic profiles of the contents published on the identified websites;
- Identify the institutional backing for the dissemination of information on these subjects;
- Identify the technical and technological tools operating on these websites and analyze their utility; and
- Provide elements of analysis to facilitate the development of a strategy of useful, good-quality communication with a view to overcoming potential gaps between the supply of, demand for, and any deficient areas of information for the different website users.

### **Primary Objective**

This exercise (incorporated into the general content of the panel discussions to be held during sessions of the Sixth Regional Congress for Information on Health Sciences) is designed to help identify indicators for evaluating health-related websites and as a means for recommending elements to help strengthen aspects of the design and preparation of website contents on the subjects of equity in health and bioethics.

### **Problem and Pertinent Questions to Ask**

Where virtual media are having a progressive impact on the cultural, educational, and social life of populations, it becomes necessary to initiate

efforts for identifying simple tools in order to help evaluate the contents and use of scientific information published on these websites by users.

The pertinent questions that form the basis of this study are as follows:

- a) What level of importance is relegated to information on equity and bioethics in health on local government agency websites?
- b) How comprehensible is the information provided in this regard?
- c) To what type of information do users interested in bioethics and equity in health have access?
- d) How up-to-date is such information?
- e) Are quick and simple tools available in order to consult and locate information?
- f) Are the means for verifying information specified on the website?
- g) Are website components organized in such a way as to be in keeping with the stated mission and objectives?

## **Methodology**

### a) Study Sample

The Google, Altavista, Lycos, Vivísimo, and Dogpile search engines were used to find Mexican websites specializing in bioethics, equity, and health; however, only [www.bioeticamex.com](http://www.bioeticamex.com) and the website of the National Institute of Health Public ([www.insp.mx](http://www.insp.mx)), which operates the Virtual Health Library (VHL). The remaining sites are all located on institutional servers outside the country. Moreover, site [bioeticamex.com](http://bioeticamex.com) could not be reviewed, as it was not operational at the time this report was prepared.

In view of the scarcity of websites that publish information exclusively on equity and bioethics in health, the decision was made to limit the study sample to the websites administered by Mexico's individual state health secretariats (31 in all) and the site operated by the Federal Health Secretariat. The general assumption for this decision being that because these are the institutions in

charge of promoting the health system reform process, they could incorporate the components of equity and bioethics as guiding principles and would likely publish them on their websites.

The review of Web pages conducted established that of the country's 31 state websites only 17 were operating with a relative degree of normalcy and thus, were those examined in this study. Also included in this group of sites was the one administered by the National Institute of Health Public.

With a view to addressing websites of institutions that are more widely associated with health research and the development of health policy in the country, some nongovernmental websites were also selected for study. These included websites of the Mexican Health Foundation (*Fundación Mexicana para la Salud*), and Virtual Adolescent Health Literature (ADOLEC) Library of Mexico, that although administered by government agencies (the Mexican Social Security Institute and the National Institute of Health Public, respectively), their format and content are controlled by the technical and publishing guidelines of an international agency, PAHO/BIREME.

#### b) Indicators

Some indicators applicable to the operating conditions and content of the selected websites were identified and are indicated in the table below.



	accessed subject matter)? h) Sections or services restricted to users (subscribers)?
Website navigation	a) Relevance of the titles (titles clearly reflect section content)? b) Navigation between sections and pages is smooth, simple, and fast? c) Access to the site is fast or sluggish? d) Tools used are easily accessible and user-friendly? e) Search engine quality (identify accurate information, junk, or mixed information)?
Service evaluation system	a) Offers a section for users to provide feedback? b) Use and publication of statistics on access; origin of the consultation; navigation time; successful/unsuccessful use of search engines c) Statistics published regularly?

The procedure used to review each website was as follows:

- I. The procedure began with a general overview of each site.
- II. A search for website identification data was conducted, specifying the administrating institution and verifying that its mission and website administration procedures were disclosed.
- III. The thematic profile was identified (i.e. determine if format components are pertinent to the site's specialized subjects, which would indicate whether there was a clear concept of how to disseminate information to users).
- IV. A review of the format was performed in a linear search process, taking care to visit each of section of the format and to analyze each of its components, as well as the use of images and any additional elements of content. Also taken into account was the existence of links to other sites and, where provided, were reviewed to determine the consistency of alternative sources of information. Sitemaps were studied in order to determine the general structure of website sections and contents.
- V. For the purposes of this study, publishing policy was considered an important element, as this is an indicator of whether there are any

procedures in place for the selection and validation of information, and to determine if there was a conscious effort to provide for the internal consistency of contents, which could also indicate some explicit purpose for disseminating the contents.

- VI. A review of the content was carried out to determine whether the information was generated by the same institution that administered the website or, alternatively, if it originated from known sources. Also taken into account was the type of information (i.e. whether based on scientific research, scientific articles, technical documentation, or information for dissemination). The consistency of information was analyzed taking into account whether section titles reflected the content of the texts published. Each one of the subject matter sections was examined to determine whether it disclosed any procedure used to validate its content.
- VII. Each site was reviewed to determine if tools were available to help users search and locate information of interest; for example, access to databases, information dissemination services, access to electronic bulletin board systems or e-mail addresses for user questions and responses, a section to provide users guidance on how to use the website, discussion forums, and subscriber services.
- VIII. Website navigation conditions were reviewed to determine if users could move quickly and easily from one section to another, or if navigation required several steps.
- IX. Sites were examined to determine whether any statistics were available on the flow of traffic, the type of frequent user, and average consultation time.

## Analysis of the Data

Analysis of the data was based on the following indicators: website identification data; website format; website content; website publishing policy; website services/resources; website navigation; and service evaluation system.

### 1. Institutional origin of websites

Of the websites examined, 85 percent are sponsored by governmental agencies; 10 percent by nongovernmental organizations, and 5 percent by academic institutions (see Table 1).

Most governmental agencies operating websites (75%) indicate their mission thereon—the healthcare of the population. However, only in very few cases do the health agencies of the state governments mention *equity* as being a regulatory principle of its policy. Nor have the state governments specified the principles of *quality* and *financial protection* as important elements of their programs, which it inferred by the absence of information regarding these subjects on their websites. The mission statement of the Federal Health Secretariat's (SSA) website mentions “universal access to comprehensive and high-quality healthcare services that satisfy the needs and expectations of the population,” yet, as will be seen further on, the components of that website do not provide organized, systematized information on equity and health or bioethics.

Table III. Type of Health Institutions in Operating the Websites Selected

Type of Institution	Proportion	
	Number	%
Governmental	17	85.0
Academic	1	5.0
Nongovernmental	2	10.0
Total	20	100.0

## 2. *Website format*

On the whole, the sections that make up the websites of the selected institutions concern their administrative and programmatic areas of those institutions. The sections most frequently encountered in the websites examined were as follows: (a) "About Our Institution"; (b) "Infrastructure"; (c) "Policy Framework"; (d) "Programs"; and (e) "Statistics," the latter of which publish general and state-level data on mortality/morbidity and service data.

Most of these websites present information in text format, supported in some cases by images; original texts are used, prepared by the institutions themselves or by federal government agencies.

The structure of sections is indicated in the sitemap. Moreover, the information in headers is quite consistent with the information given in the sections and with the type of information offered. However, this survey has found that the layout of the sections is focused more on the objective of providing information on the institution's programs and functions, rather than on providing information and orientation to users.

The format of the Federal Health Secretariat's (SSA) website is quite diversified. Accordingly, its sections may be classified as follows: a) information on programs; b) health legislation and policy framework; c) user or public orientation; d) intersectoral linkage (i.e. linkage of that agency with other government agencies); e) infrastructure, technology and pharmaceuticals; f) health policy, including statements by senior government policy-makers and health system political ideology; g) current news, summarizing newspaper accounts of the different news events and happenings in health; and h) technical information and national/state health statistics.

Within the structure of the sections is a wide range of areas for consultation; however, most such areas do not include information to help users navigate the site in terms of their potential questions or needs. Some sections are very useful, such as the one on "health events and courses," but

the format does not provide instructions on how to consult nor for whom the information is intended, thus leaving visitors of some sections with a number of unanswered questions.

In terms of basic website components, the contents of priority programs do not provide users with easy-to-read and use information.

The most frequently visited sections that were reviewed during this survey included: migrant health; women's health; social health insurance, pharmaceuticals, and procedural transactions.

Equity-related topics associated with patient rights, disease prevention, and access to healthcare services, were only observed in the "legislative" component.

It bears mentioning that there were text-font related difficulties in almost all sections examined in the selected websites; at times the font was too small and hindered the user's ability to consult very important issues, such as the availability of medical services.

The format of the Virtual Health Library is based on thematic arrangement of its contents. Accordingly, the content of each section was previously defined by a publication board that identified as the website's primary objective to disseminate information to health professionals with a view to supporting their decision-making, and consequently, to provide information with a view to help improve their performance. The Virtual Health Library oriented primarily to health system staff and health professionals working in the areas of healthcare, health promotion, and disease prevention.

The different sections of the website are divided as follows: a) Priority Programs; b) Healthcare Quality, Responsiveness and Efficiency; c) Health Sector Reform; and d) Information Resources for Decision-making (Effective Medical Practice Bulletin). The definition of these sections is based on the classification of subject matter used to guide the implementation of the

strategic components of the health sector reform process, including equity, quality, compassion, decentralization, and financial protection.

The sitemap exactly reflects the structure of Virtual Health Library subject matter, meaning that its organization and content are defined by subjects that have already been established as useful elements for decision-making.

The format of the National Institute of Public Health's website provides sections containing information on the mission, objectives, and activities of the Institute and its research centers, with emphasis on research and education. Some of the site's sections include summaries of the historical background and organizational structure of the Institute. Part of the format is devoted to the master's degree programs of the School of Public Health and to outlines of educational materials. Additionally, the format contains components for each of the Institute's research centers, as well as for the Public Health Journal (*Revista de Salud Pública*).

The format also provides links for access to information resources such as the National Survey on Nutrition, *The Health Atlas 2003 (El Atlas de la Salud 2003)*, The Center for Health Data Collection and Analysis (NAAIS), and the Virtual Library. The format also provides links to the databases of foreign journals, which marks a departure from the links seen on other websites because it represents a conscious effort to provide access to sources of scientific and statistical data. Moreover, the NAAIS database is one of the few available in Mexico containing scientific and technical information on the reform process. And although the availability of information on equity and bioethics at this source is very limited, it does provide ample documentation on the management of the health reform process and its financing.

The website of the Mexican Health Foundation (FUNSALUD) has a very structured format. Its principal sections are: a) *Origin and Nature of the Foundation*, providing information on FUNSALUD's by-laws; b) *Organization and Operation*, laying out its organizational structure; c) *Institutional Profiles*; d)

*Institutional Objectives*, stating the mechanisms and strategies for supporting research in the different areas, including disease prevention; and e) *Critical Opinion Center*, offering critical analysis of the Foundation's social and economic policy.

### 3. Website Content

On the whole, the texts published on the websites of the individual state health secretariats are original technical documentation, prepared by the different areas comprising the institutions that operate these websites. Most of these websites provide statistical data from original sources and regulatory documentation, and no effort has been made to systematize or edit this information so as to make it more comprehensible for users, which is an indication that the content of such texts has not been designed for clearly defined groups of users. Thus, the type of users to whom this information is geared has not been specified.

The website of the Federal Health Secretariat (SSA), due to its abundant number of components or sections, has a great diversity of contents. Most of the texts featured in the various sections are technical documents prepared by the different agencies of the SSA or by other health sector institutions. This site also features links to texts prepared by various agencies, including the Secretariat of Social Development, the Secretariat of the Environment and Natural Resources, the Secretariat of the Comptroller and Administrative Development, and the Human Rights Commission. In contrast to previous years, this represents an important departure in the role and conception of the Federal Health Secretariat, which is progressively expanding the concept of health by linking it to the social, environmental, and sanitary conditions of the various segments of the population.

The sections of this website also offer information to the public, but as in most of the sites examined, there is no publication policy in place to adapt the contents of the information to the questions and needs of users. For instance,

some sections do not provide for all the steps needed for the user to complete his consultation, or offer information with all the components in order to make the contents more understandable. In other cases, the technical documents available for consultation were prepared to support technical processes , and thus, do not necessarily lend themselves as a source of information for the general public. This is not indicated in the contents, hindering comprehension of the documents and, consequently, their use.

While most sections of the Virtual Health Library's (VHL) website facilitate access to full-text scientific publications and databases, some of the components—namely the different bulletins—show evidence of efforts to organize and systematize updated scientific data to support the healthcare decision-making processes of primary care units, in accordance with the health needs of this level of care. The site also publishes edited press releases emphasizing the contributions to scientific knowledge made in the healthcare of the population. One of the basic principles guiding the selection of information is that such texts be published in scientific sources where they have been reviewed by editorial staff, and that the texts of sections edited for readers be concise and simple. These are complemented with the availability of full text versions and a significant number of articles registered in national databases.

#### 4. *Publishing policy*

Of all the websites examined, the Virtual Health Library was the only one that had a publishing board and a procedure to validate information. In the rests of the websites toured, no evidence was found to support the existence of a publishing board or of a legal protection system governing the use of information (disclaimer). Moreover, these sites did not provide references to support the contents of the information or the margins of safety with which data can be utilized by the users.

At the Virtual Health Library, editing work is based in the definition of subject matter lines that are closely related to strategic public health problems, defined in most health programs coordinated by the Federal Health Secretariat. Specific topics are selected and updated once a month, whereas the selection of articles and technical documents is carried out pursuant to a system of review. This process includes the validation of information in databases by professionals specializing in the subject matter and who are involved in the healthcare programs. These measures are taken in order to ensure that the information addresses the questions decisionmakers encounter in their everyday professional life.

#### 5. *Statistics on access*

Some 20% of state health secretariat websites provide for a comment section, but none publish statistical information on user access. Consequently, there is no way to know the extent to which these sites are consulted or their impact.

Of the remaining sites reviewed, only the Virtual Health Library provides statistics on user access, published monthly (Table IV and Figure I).

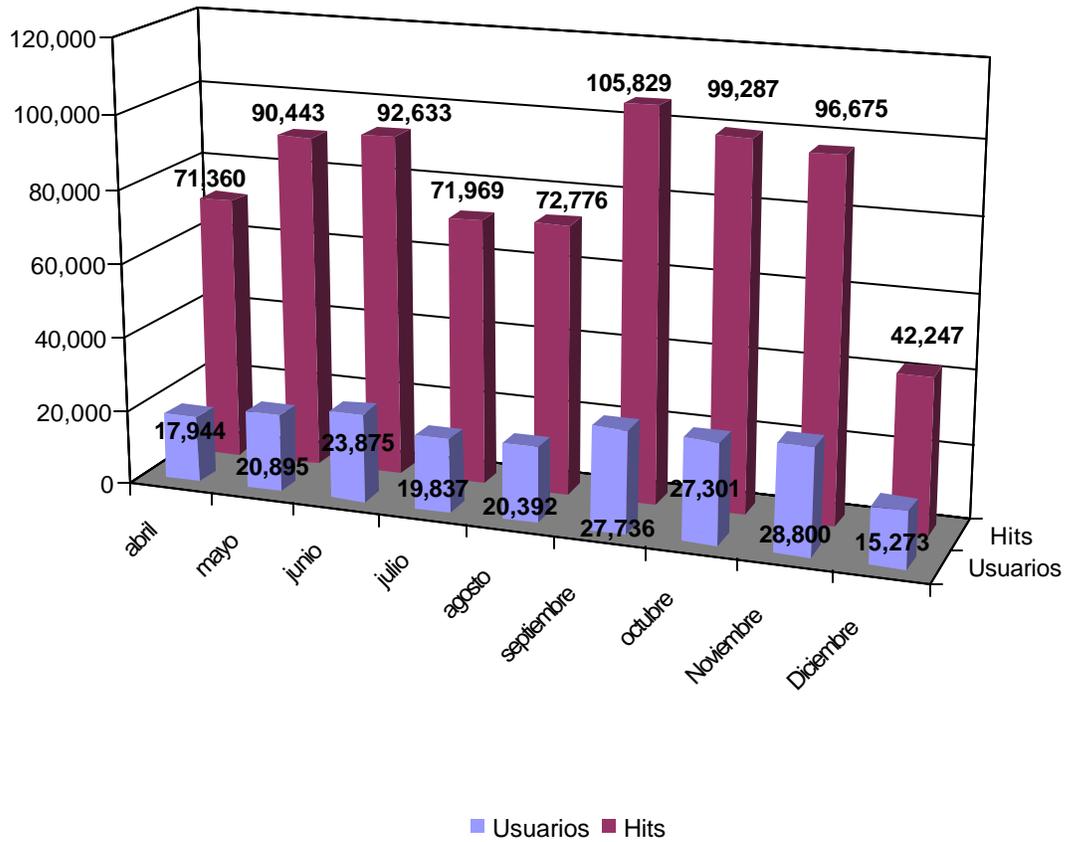
TABLE IV. General Access Statistics, VHL - Mexico

Total number of pages consulted	1,310,632
Number of registered users (*)	770
Day with the most pages consulted	6,073
Day with the most users connected	1,205
Registered user countries of origin	23 countries
Mexicans	72%

Source: VHL Mexico, April - December 2002

(\*)Registered users are those who consult the different sections of the VHL on a regular basis.

Figure I. Frequency of individual users and hits



Source: VHL Mexico, April - December 2002

INSERT TEXT IN BAR GRAPH ABOVE

Hits

Users

April May June July August September October November December

#### 4. *Bioethics and equity*

The state health secretariat websites reviewed as well as the VHL - ADOLEC site, do not provide information on bioethics and equity in health, except for a few statistics generated from indicator data (poverty, violence, etc.) associated with these subject matter areas. The websites publishing the most information on these topics are the Virtual Health Library - Mexico, the National Institute of Health Public, and the Mexican Health Foundation. Of these, VHL's site has the largest collection of documents on these subject matter areas (Table II).

Table V. Profile of Equity and Bioethics by type of website

Websites	Thematic profile located
	Equity
	Social security
	Health sector financing
	Decentralization
	Poverty and health
	Gender and health
	Violence
	Bioethics
	Health sector reform Economic implications of health
	Health sector financing Bioethics Health sector privatization
	Gender and health Domestic violence Bioethics

The VHL-Mexico provides information on bioethics and equity in two groups or blocks, the first includes documents on equity in health, while the other offers documents on topics associated with equity, such as health-sector financing, social security, decentralization, violence, poverty, and bioethics.

Some of these documents were prepared by international health agencies (i.e. PAHO) as well as local health agencies from countries throughout the region.

- a) Equity: the documents available on this subject matter focus on social scenarios, inequity in the access health services by population segment, democratic organization, social well-being, and access.
- b) Social security: geared primarily toward protection, safety, and social participation.
- c) Decentralization: primarily focused on health-sector reform processes and decentralization.
- d) Violence: primarily focused on domestic/sexual violence and child abuse.
- e) Bioethics: focused on the right of patients and publication of codes of ethics.

The essence of information on equity and bioethics in health sought by the Federal Health Secretariat is basically incorporated into documents on health programs targeting vulnerable groups of the population such as child health, women's health, migrant health, the program "*Contigo en la Salud*;" in addition to social health insurance.

- a) Women's health: focus on protecting women (legislation).
- b) Migrant health: contains topics associated with migrant living conditions, the development of training programs, the prevention and control of disease, and health promotion.
- c) *Contigo en la Salud*: focuses on the development of programs to encourage the individual's integral development, and address the serious gaps facing large segments of the population.
- d) Social health insurance: addresses the main components of the National Health Program (2001-2006) geared toward financial protection of the population and the mechanisms of participation.

The Mexican Health Foundation has a variety of publications focusing on health-sector reform and the economic implications of health.

## **Main Findings**

The review of selected websites revealed a lack of information on bioethics and equity in health, despite the fact that one of the central missions of most of the institutions operating these sites is to provide access to health services and to improve the quality of care.

In the few instances of sites that do offer information on equity and bioethics (VHL, INSP and FUNSALUD), the contents of the information provided did not relay the idea of an integrated concept of equity, not all components are represented, and editing control of texts is not up to the task of transmitting information that can be understood by and is suitable to the needs of the user population. Accordingly, this would indicate that who publish information on the Internet do not believe there is a need to provide information on these subject matter areas to the population or to health professionals, who actually need a more comprehensive and up-to-date understanding of these matters, since they represent significant components of the philosophy and principles of health system reform processes.

The state health secretariats are behind with regard to including information on these topics in their websites, despite the fact that health policy is currently focusing more attention on the status of sector reform and resolving the problems of inequity and bioethics.

With regard to the availability of tools to facilitate access and consult website components, this review found that these sites have elementary resources which, in many cases, are insufficient to ensure relatively trouble-free navigation through the various sections. Generally speaking, the links provided do not respond as quickly as they should and users may be blocked from opening files or experience considerable delays in doing so. Very few resources for consultation are available on search engines, which require linear navigation and are, for the most part, non-interactive.

In general the website components examined are geared toward the needs of their sponsoring institutions in terms of publishing their internal structures, functions, and main programs. Consequently, they are used more to transmit and promote their own activities and achievements.

## Conclusions

This survey provides insightful information as to the structures, format, and content of websites operated by government agencies in the field of health. Accordingly, the following limitations/difficulties were observed:

1. These sites provide only limited information on equity and bioethics in health.
2. Website structure and content are geared toward a highly diversified model of information supply.
3. Website tools used to navigate and search for information are insufficient, cause delays, or otherwise complicate the search process.
4. Most of the components offered do not contain complete information and lack tools to verify information.
5. Websites do not have programs to register users, which would provide a mirror to reflect website successes or weaknesses.
6. Websites do not have a system to count user “hits” on subject matter, thus preventing these sites from identifying the most frequently sought information and designing more adequate contents based on the types of consultation.
7. Most of these websites cannot be accessed through popular search engines.
8. Sites restrict access to users with to outdated software platforms.
9. Numerous “bugs” were detected in the processes.

## **Recommendations**

Although this is a small study of an experimental nature, carried out over an excessively short period of time, we consider that it would be very useful to initiate a project to carefully analyze websites with a view to considering the relevance of their contents and to suggest guidelines for website editing that include clearly defined objectives and impact.

The topic of equity and knowledge of bioethics today represent fundamental tools for managing electronic information that has a greater projection and impact on those who use these resources. It is important to have a conceptual scheme to facilitate the flow of information on the main foundations of the reform process, especially for health professionals involved in the administration and management of services and human resources education. For these groups of users, it is a good idea to develop conceptual maps supported by validated texts that help to advance comprehensive understanding of the primary components of health reform, such as equity, quality, as well as financial and social protection of service users .

Understanding that some government institutions could join the task of disseminating information about these subjects on their websites, in the medium term we suggest that a study be conducted to consult users regarding the pertinence, understanding, and relevance of the topics offered.

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## **ANNEXES**

1. General characteristics of Internet sites reviewed
2. Examples of documents published in Mexico on equity in health and bioethics, classified by subject profile