

\* Original Article

## **International initiatives for quality control of health information on the Web**

**Ilza Leite Lopes**

Professor/Doctor - University of Brasilia/School of Information Sciences  
ilzall@unb.br

DOI:10.3395/reciis.v6i2.530en

---

### **Abstract**

Presents the initiatives of international organisms, private institutions and non-governmental organizations, health professionals and academic authors that has positioned to get better the control of the health information quality in the Internet. Identifies the main Codes of conduct for Web pages established by representative entities in the area of Health, besides the projects of quality certification with the attribution of seals that attest the principles in the respective Codes of conduct. Detaches the programs of accreditation of Web pages accomplished by government organisms or for class entities demonstrating the concern of health professionals involved in that process and concludes with the institutions that offer trustmarks for accreditation of Web pages that assist the guidelines developed in the European Union, Spain and United States.

Keywords: Health information quality; Internet; Codes of Conduct; Quality seals; Web pages accreditation.

### **Introduction**

Scientific literature has described issues related to the quality of information made available on Web pages by health professionals, academic authors, professional associations, and non-governmental institutions, as well as national and international organisations that have been developing regulatory tools and codes of conduct aimed at establishing ethical standards for health information available on the Web. Since 1996, several institutions comprised of health professionals and multidisciplinary groups have developed and defined specific actions, which have resulted in guidelines that are respected and followed by the health community. The reliability of information on the Web has been the subject of editorials in scientific journals of various fields, especially in the field of health, and these articles warn readers about the need for caution with regards to specialised information. Despite the positive aspects inherent to the diversity of information available to an exponentially growing public, the tools for evaluating this information must be constantly reassessed and adjusted because of technological advancements and constant changes in the Internet environment.

Based on these assumptions, the present study aimed to assess the initiatives of international organisations and health professionals described in the literature on the topic of the quality of information available on the Web.

## **Initiatives for quality control of health information on the Web**

Several studies and institutional quality criteria demonstrate an international consensus in the field of health regarding the issue of information quality among governmental institutions, non-governmental organisations, professional associations, health professionals, and professionals from various related fields.

In 1996, the non-profit organisation Health On the Net (HON) Foundation was created in Geneva, Switzerland. The HON Foundation developed a set of eight principles for basic ethical standards with the main objective of guiding Web page creation in the Medical and Health-related fields. These principles, together with physicians, information providers, citizens, patients, and webmasters are defined in the Code of Conduct (HONcode) and refer to: authority, complementarity, confidentiality, attributions, justifiability, transparency of authorship, transparency of sponsorship, and honesty in advertising and editorial policy.

The HON Foundation Code has been supported by many institutions, including approximately 44 medical insurance companies from 23 countries that endorse its principles of information quality.

The HON Foundation's set of ethical principles provides users with greater confidence and lends credibility to available information. Furthermore, websites in the health field that adhere to the HONcode can place the membership seal on their homepage after implementing its principles. In Brazil, many health-related Web pages meet these ethical principles and contain the HON Foundation certification seal.

The British Healthcare Internet Association (BHIA) is a non-profit organisation that has aimed to improve the quality of medical information on the Web since 1996. Consisting of physicians, editors, web designers, and information technology professionals, among others, the BHIA develops activities for implementing quality standards in the use of information technologies and encourages innovations in health information networks.

According to Galloway (1996), the quality standard for Web publications should meet the following recommendations defined by BHIA experts: author identification and credentials, target audience to which the Web page is designed, presentation of references and in-text citations, presentation of the provider institution's goals, date of text update, author's contact information and the address of the institution providing the information, reference to the funding institution, and application of copyright to the text on the Web.

It should be noted that the standards developed by BHIA experts partially resemble those presented by the Health Information Technology Institute (HITI) and similar institutions with regards to the quality indicators that should be observed by Web page providers and those that produce the information .

In an editorial published in the *Journal of the American Medical Association (JAMA)* in April 1997, Silberg *et al.* (1997) reported the first criteria to evaluate, control, and guarantee the quality of medical information on the Web. Extensively cited in the literature on health information quality, the authors warned about the difficulties inherent to the spread of incomplete, misleading, and inaccurate information in all fields of knowledge. They emphasised the importance of the traditional criteria that have been used for publication in the sciences

since the invention of the press, noting that the standards by which science discloses new knowledge are able to differentiate, for instance, an editorial from an advertisement, an educational piece from a promotion, and scientific evidence from personal opinion. They claim that those Web pages that follow these standards develop a respected identity, establish a level of trust with their readers, and serve as a forum of excellence for the advancement of scientific knowledge, benefiting the public in general. Given this assumption, these authors suggest that the same nucleus of basic quality criteria that help users navigate through traditional printed information can be applied to the digital world.

In Brazil, there are agencies responsible for regulating medical ethics, such as the Federal Medical Council (Conselho Federal de Medicina - CFM), Rio de Janeiro's Regional Council of Medicine (Conselho Regional de Medicina do Rio de Janeiro - CREMERJ), São Paulo's Regional Council of Medicine (Conselho Regional de Medicina de São Paulo - CREMESP), the Brazilian Medical Association (Associação Médica Brasileira - AMB), and several other institutions involved with the educational and professional aspects of health that seek to regulate information available on the Web.

*The Guidelines of ethical principles for medical and health sites on the Internet*, created by São Paulo's Regional Council of Medicine (CREMESP) defined, in 2003, ethical principles and conduct criteria for Web pages. These guidelines introduced a set of concepts to be applied to information on the Web, including: transparency, honesty, quality, free and informed consent, privacy, medical ethics and responsibility, and origin. Regarding quality, they stated that:

Health information provided on the Internet should be accurate, current, easy to understand, written objectively, and scientifically based. Likewise, products and services should be accurately and clearly presented and described. Health tips and counselling should be provided by qualified professionals, based on studies, research, protocols, consensus, and clinical practice. Websites with educational or scientific purposes should guarantee autonomy and independence from their editorial policy and practices, with no affiliation or interference from eventual sponsors. The date of publication or revision of the information should be visible, so that the user knows how current the site is. Websites should cite all sources used for information, content selection criteria, and the site's editorial policy, with an emphasis on the name and contact of those responsible (CONSELHO REGIONAL DE MEDICINA DE SÃO PAULO, 2003).

The literature notes that the growth of the Web in recent years is reflected not only in the increased number of servers, documents, services, and users, but also in the diversification of the services offered, such as file transfer, e-mail, and the Web itself. Therefore, new types of documents and services (multimedia documents, interactive services, and others), and the very use of the Web beyond the academic community, brought some fundamental consequences that are directly related to this growth, including difficulty in monitoring the latest updates and developments and evaluating the quality of the recovered data, given the decentralisation of information production and the lack of mechanisms for information quality control.

For consumers, the content of institutional pages or any documents available on the Web require filters to minimise the excess information. How can one determine the quality of this decentralised and floating information? Seeking the solution to this problem, information

experts have been independently presenting the criteria or filters for evaluating quality since 1997.

According to Lopes (2006), emphasis is given to information units from countries such as the United States, France, Canada, Spain, and the United Kingdom, which are aware of their responsibilities to their users and provide checklists with questions aimed at evaluating information quality. Amongst the issues cited as being most relevant, emphasis is given to those issues related to the authorship of texts available on the Web, indicating the author's credentials and the name of the institution with which the author is affiliated at the time the text was produced, including the institution's logo and its physical and electronic addresses.

The central idea is the same, i.e., the lists contain categories and subcategories of critical problems related to the quality of information on the Web and usually identify these criteria with the categories presented by the *American Agency for Health Care Policy and Research (AHCPR)* of the *Health Information Technology Institute (HITI)* for the field of Health in the document entitled "*Criteria for assessing the quality of Health information on the Internet*", which defines the following categories: credibility, content, formal presentation of the site, links, design, interactivity, and advertising, as shown in Table 1.

**Table 1** – Quality criteria defined by the Health Information Technology Institute (HITI) for evaluating health information

Quality Criteria	Indicators
1. Credibility	a: Source b: Context c: Currency d: Relevance/Utility e: Editorial Review Process
2. Content	a: Accuracy b: Hierarchy of Evidence c: Accuracy of sources d: Institutional Notices e: Completeness
3. Site Presentation	a: Goal b: Site Profile
4. Links	a: Selection b: Architecture c: Content d: Back linkages
5. Design	a: Accessibility b: Navigability c: Internal search engine
6. Interactivity	a: Mechanism for feedback b: Discussion Forum c: Explanation of Algorithms
7. Advertising	a: Alerts

Source: Hiti, 1999.

Five indicators have been established by the Agency for determining credibility of health information on the Web, and the source of the medical information was considered to be the first element for establishing credibility and quality. These elements include the display of the name of the institution or organisation responsible for the information, in addition to the author's name and title. The credibility criterion also involves the presentation of indicators of the currency of information, relevance, and editorial review process.

Regarding content, the Agency has defined some basic indicators for evaluation: precision and accuracy of the information; proof of scientific evidence; and notice boards describing the limitations, objectives, coverage, authority, and currency of the information. All of these

components must be described in a language that is accessible not only to health professionals, but, in particular, for lay people. The Agency further defines the completeness of the information, emphasising that the treatment of a particular topic should be understandable and balanced. For site presentation criterion, it is recommended that the institutional goals be included to describe the page profile to the consumers. Regarding the criterion of link or hyperlink presentation, issues related to the selection of links, connections to other pages, architecture, relevance of content, and back linkages are addressed. The design criterion aims to evaluate issues of page conception, accessibility, navigability, and internal search engine. In the interactivity and announcement criteria, mechanisms for feedback, discussion forums, and advertisements are subject to analysis regarding the quality of the information provided.

In France, the Ministry of Health and Solidarity<sup>1</sup> has translated and released the HITI's evaluation criteria, thereby validating the institution's efforts to establish guidelines to improve the quality of Health information. Based on the thorough analysis of Health-related Web pages, and supported by the consensus of an interdisciplinary team in the field, the recommended criteria were: source credibility, context, currency, utility, editorial review process, accuracy of content, evidence on which it is based, citation of original sources, purpose of the document, and target audience, in addition to quality criteria regarding the design, links, logical organisation, and architecture, among other components. These criteria, established at the peak of Web page creation, served as a consensual landmark for several institutions in the development of similar criteria that ensure the quality of Health information on the Web.

The DISCERN project, developed by the UK National Health Service Executive Research and Development Program in 1999, is another international initiative for health information quality control and is based at Oxford University's Institute of Health Sciences. The DISCERN's main purpose is to enable judgements on the quality of information in medical treatments using a set of criteria presented in the form of an online questionnaire. Consisting of health professionals and researchers from Oxford University, the DISCERN project offers an opportunity to evaluate the quality of health information in the United Kingdom.

The Commission of the European Communities presented a plan of action at an event called *Communication eEurope: an Information Society for all* that was politically endorsed by the European Council in the year 2000. The aim of the plan of action was to develop a set of criteria for the quality of information on the Web in the field of health that represented the interests of all member states. The set of criteria established by the Commission was based on broad consensus among experts, authorities, and users and corresponds almost entirely to the criteria developed by the HITI, namely: transparency and honesty, similar to the HITI credibility criteria; authority, similar to the content criterion; privacy and data protection; currency of information; responsibility; and accessibility. The quality criteria for Web pages in the field of health were developed from extensive consultations with public and private health information representatives and providers, industry representatives, government officials, and representatives from ministries and international and non-governmental organisations.

Until 2005, the Plan also foresaw the implementation of fostering actions for the creation of public health services on the Web. Additionally, it clarified actions that should be adopted by

---

<sup>1</sup> Ministère Sante et Solidarité. Available at: <<http://www.sante.gouv.fr>> Accessed on April 22, 2011.

countries in the European Community to make information as accessible as possible to the citizens and developed initiatives to implement quality criteria for Web pages.

The expectation was that the regional and national health authorities, the most relevant health professional associations, and the providers of medical information on the Web would implement the quality criteria for Web pages in an appropriate manner for both information providers and consumers. Additionally, educational campaigns about the existing quality standards and the availability of information in multiple languages were also planned for webmasters and users. Furthermore, the exchange of experiences between the countries of the European Community was expected to ensure the implementation of the established quality criteria for the health field.

In Spain, the Official College of Physicians of Barcelona (Colégio Oficial de Médicos de Barcelona - COMB) developed the Accredited Medical Web Program (Programa de Web Médica Acreditada - WMA) in 1999 to assure the quality control of medical information on the Web. The system consists of a Code of Conduct with eight basic principles and a quality seal. The principles of the Code of Conduct include the following aspects: identification of those responsible for the page; readily comprehensible and easily understood content; confidentiality, control and validation, publicity and funding sources; virtual consultation that assures professional secrecy; and responsibility in the use of the quality seal, according to Mayer and Bruguera (1999).

The WMA's accreditation process includes a permanent committee and a commission of experts that decide on page accreditation, depending on the adaptation and recommendations of the Code of Conduct. The multidisciplinary team consists of physicians, lawyers, ethics committee, system analysts, and Web page designers.

It can be noted that almost all of the institutional initiatives that grant quality seals mainly follow the HON Foundation criteria from Switzerland, which are considered by many authors to be the "gold standard", according to Lampe and Doupe (1999) and Garcia (2005), for being the most disseminated worldwide and for being the initiative with the largest number of Web pages accredited by the HONcode seal.

Project Quality Medical Websites (Proyecto Webs Medical de Calidad - PWMC), also developed in Spain in the year 2000, aims to improve Spanish-language Web pages by applying assessment tools. The project is supported by the Spanish Association of Paediatrics and Primary Care (Asociación Española de Pediatría y Atención Primaria), the Spanish Association of Allergy and Clinical Immunology (Asociación Española de Alergia and Clínica Inmunológica), the Argentine Society of Paediatrics (Sociedad Argentina de Pediatría), the Asturias, Cantabria, Castilla and León Paediatric Society (Asociación de Pediatría de Asturias, Cantabria y Castilla y León), and the Primary Care Paediatrics Association of Andalucía (Asociación de Pediatría de Atención Primaria de Andalucía).

The principles of the PWMC's Code of Conduct are similar to the European Union's initiatives and the HITI criteria and include transparency and honesty, authorship, privacy, security and confidentiality, up-to-date contents, methods of communication with Web users, and accessibility and usability. The quality seal is displayed on Web pages that pass a rigorous process of certification, which is periodically verified by specialists, to ensure compliance with the Code of Conduct principles.

According to Garcia, Montesinos, and Boyer (2004), the heterogeneity of health information offered on the Internet is a reality. Information evaluated by the best professionals and information without any scientific endorsements co-exists in the same electronic environment.

It should be noted that the basic goals of most assessment tools are primarily directed towards accreditation, certification, and self-regulation and towards the systems of qualification and granting quality seals. In this context, health information consumers on the Web can infer that the pages with these seals comply with a series of quality requirements guaranteed by the certifying institutions.

Table 2 shows a summary of the initiatives of international organisations concerning the studies and applications related to the quality of health information.

**Table 2 - Institutional initiatives to validate health information**

Year	Institution	Country	Product	Description
1996	British Healthcare Internet Association (BHIA)	United Kingdom	Quality Standards for Medical publishing on the Web	Presents 8 criteria for websites
1996	Health on the Net (HON) Foundation	Switzerland	HON Code of Conduct  Quality seal	Presents 8 criteria for websites
1997	British Library & Oxford University	United Kingdom	DISCERN	Evaluation tool
1997	Centrale Santé	France	NETScoring	Presents 8 criteria for evaluation
1997	Health Information Technology Institute (HITI)	U.S.A.	White paper  Policy paper  IQ Tool	Presents 8 criteria for quality and an evaluation instrument
1999	"Colégio Oficial de Médicos de Barcelona"	Spain	Code of Conduct  Quality seal	Presents 7 criteria for evaluation
1999	Ministère de la Santé et de la Protection Sociale	France	Translation and adaptation of HITI documents	Quality criteria and evaluation tool
2000	Health Internet Ethics	U.S.A.	Hi-Ethics guidelines	Presents 4 criteria for websites
2000	MedPICS-European Union Project	European community	Certification and Accreditation	Presents 10 categories of criteria for websites.
2000	"Proyecto Webs Médicas de Calidad" (PWMC)	Spanish-speaking Countries	Ethical code  PWMC quality seal	Presents 12 quality criteria

2001	American Accreditation of Healthcare Commission (URAC)	U.S.A.	Health website accreditation program	Presents 53 criteria for websites
2001	TNO Prevention and Health Institute	The Netherlands	Certification and accreditation	Criteria not identified
2002	Commission of the European Communities	European community	Quality criteria for health-related websites	Presents 6 criteria for websites

Source: Data collected from the literature for the present study.

## Codes of Conduct

The codes of conduct or medical ethics mentioned in the literature that were developed by traditionally recognised institutions are composed of a set of principles that serve as a guide for providers of health information on the Web and that guide Web page creation.

In the United States, the Internet Healthcare Coalition has been developing a Code of Ethics for Web page creation since 1999. The declaration of principles from the Code emphasises that information on health, products, and services has the potential to both improve and damage health; therefore, organisations and individuals that provide Web-based health information have the obligation to be reliable, provide high-quality content, protect users' privacy, and adhere to the standards of best practice for commerce and professional services related to health care.

The Code stipulates that any person using the Web for health-related reasons has the right to expect that organisations and individuals that provide health information, products, or online services have adopted the following principles: impartiality, honesty, quality, consent for the use of personal data, privacy, professionalism in online health care, responsible partnership, and Code compliance monitoring.

According to Rippen and Risk (2000), all persons using the Internet with the purpose of searching for health information should have, in principle, the right to obtain quality information and services. Moreover, the authors state that the codes of ethics and/or conduct, based on expert opinions, offer a safe route for information providers to organise their Web pages.

Winker *et al.* (2000) described the basic principles of the American Medical Association (AMA) in the *Guidelines for medical and health information sites on the Internet*. The principles that establish the rules of conduct for the Web are based on the same standards that govern medical journals, including the peer review process, authorship, funding and sponsorship, separation of content and advertisement, confidentiality and privacy principles, and principles that regulate the electronic commerce of the AMA's products and services.

Lampe and Doupi (2000) presented a study on the Codes of Ethics for Health Information on the Internet at the 5<sup>th</sup> World Congress on the Internet in Medicine. The authors compared the objectives, scope, and principles of the Codes, revealing that three new codes were published in the year 2000 alone, reflecting the interests of different groups. The first from the AMA is dedicated to the scientific society; the second is the Internet Healthcare Coalition and is aimed



at companies and universities; and the third is the Health Internet Ethics Coalition, directed at a consortium in the medical field. The authors demonstrated consensus between the codes of conduct using the oldest known code developed by the HON Foundation in 1996, which is considered to be the “gold standard” for comparison.

Table 3 shows the codes of conduct for Web pages organised chronologically.

**Table 3 – Codes of conduct for Web pages**

Year	Codes	Institution	Country	Description
1996	HONcode	HON Foundation	Switzerland	Presents 8 principles
1996	Quality Standards for medical publishing on the Web	British Healthcare Internet Association (BHIA)	United Kingdom	Presents 8 principles
1999	e-Health Code of Ethics	Internet Healthcare Coalition	U.S.A.	Presents 8 principles
2000	AMA Guidelines	American Medical Association (AMA)	U.S.A.	Presents 4 principles
2000	Hi-Ethics Guidelines	Health Internet Ethics	U.S.A.	Presents 14 principles
2002	Quality criteria for health-related websites	Commission of the European Communities	European Union	Presents 6 principles

Source: BHIA, 2005; eEurope 2002, 2002; Hon Foundation , 2001; Internet Health Coalition, 2011; Winker , 2009.

The codes of conduct have been considered in the literature as guides for developing quality Web pages, assisting health information providers in implementing pages with contents that adopt the standards recommended by experts, which somehow ensures greater credibility of available information.

### **Quality assurance through the use of seals on Web pages**

The process of Web page certification consists of determining whether the health-related content pages meets the criteria for quality seals established by traditionally accredited institutions. The seals confer a quality certification standard that ensures site visitors that the Website contains professional content that is free from conflicts of interest.

In BIREME’s document on the *Health Information Locator (Localizador de Informação em Saúde – LIS) method - criteria for selection of health information sources available on the Internet*, published in 2002, the following definition is adopted for certification:

Certification seals are provided through the voluntary or mandatory adoption of a code of ethics that regulates the information content available and the services provided by institutional, commercial, and personal sites (BIREME, 2002).

Located in Switzerland, the HON Foundation is considered to be the first institutional initiative for the evaluation of health-related Web pages. It began evaluating sites in 1996, and the

HONcode logo can now be found on more than 3,000 health-related Web pages. The Code of Conduct established by the Foundation includes eight basic principles with standards of ethics and conducts established in conjunction with health professionals, information providers, citizens, patients, and webmasters. The HON Foundation provides a questionnaire with questions that are directed to help consumers evaluate whether a certain Web page follows the recommendations cited in the HONcode principles.

The Foundation aims to implement projects on the Internet and Telemedicine that will benefit the field of health and is supported by the state's Ministry of Health, in addition to donations from other sources, including the Swiss Institute for Bioinformatics and the company Sun Microsystems.

The HON Foundation grants the quality certification seal to Web pages that meet the eight basic principles of its Code of Conduct. The certification seal serves as a guarantee of credibility of available information, especially for health professional users.

Institutions based in several countries have adhered to the HONcode and are interested in improving the content of their Web pages, a prerequisite for maintaining the HON quality certification seal.

According to Dorman (2002, 2010), the HON team evaluates sites and assigns a personalised identification number to the institutions, which receive a link activated by the HON. If the institution fails to comply with the principles of the Code of Conduct, the HON reserves the right to discontinue the link.

Pacios *et al.* (2004) conducted a study at the Federal University of São Paulo (Universidade Federal de São Paulo) on the ethics of Brazilian Medical and health-related sites based on HON's ethical principles and determined that only 30% of the 40 sites analysed met principle five of "justification", and only 28% met principle four of "attributions". The fifth principle requires that statements made about any benefit of a treatment, product, or service be supported by clear references to source data, as stated in principle four of attributions. The authors stated that access to users who seek websites in the medical, nursing, psychology, and related fields results in a worrisome vulnerability of these users to accessing poor quality information.

The Centre for Health Information Quality (CHIQ) is a development agency created in 1997 in the United Kingdom that aims to develop standards for health information for the public. The CHIQ was established by the government's National Health Service (NHS) and works with information producers and providers. Its main activities include: the counselling of health information producers and providers, offering training programs, evaluating information services, and monitoring the continued quality of the health information services. Two sets of manuals related to the quality of health information were developed to achieve these goals. These manuals were directed at information producers and reviewers and are based on the principle that all health information should be accurate, clear, and relevant.

The CHIQ's accuracy principle aims to evaluate the following indicators: consistency of information, continuity, and currency, including referenced sources, authorship data, funders, and editorial standards. The principle of clarity involves text communication, presentation, and

issues related to information content. Regarding the principle of relevance, it assesses indicators that identify the target-audience and their different information needs.

These three principles gave rise to the quality seal developed by the CHIQ, which is financed by the United Kingdom’s Department of Health, to produce a Web page called HiQuality. This page was designed to help consumers and researchers evaluate the quality of health information. CHIQ also develops manuals for quality Web page presentation, directed at the producers.

The literature has recorded several studies that recommend the use of quality seals for health-related Web pages, and we quote, among others: Mayer (2009), Batalla Martinez (2009) and Domingo (2009).

Table 4 shows institutions that provide quality seals to certify Web pages that meet the principles of their Codes of conduct.

**Table 4** – Quality seals for Web pages

Year	Institution	Country	Product	Description
1996	HON Foundation	Switzerland	HONcode Seal	Certifies Web pages that meet 8 basic principles
1997	Centre for Health Information Quality (CHIQ)	United Kingdom	CHIQ Quality Seal	Certifies Web pages that meet 3 basic principles
1999	Colegio Oficial de Médicos de Barcelona	Spain	WMA’s Quality Seal	Certifies Web pages that meet 9 basic principles
2000	Health Internet Ethics	U.S.A.	Hi-Ethics Seal	Certifies Web pages that meet 14 basic principles
2000	Consortium of institutions	European Union	Medcertain label	Certifies Web pages that meet 14 basic principles
2000	Consortium of institutions	Spanish language	PWMC’s Quality Seal	Certifies Web pages that meet 6 basic principles
2001	American Accreditation Healthcare Commission	U.S.A.	URAC’s Seal	Certifies Web pages that meet 8 basic principles

Source: Eysenbach et al., 2001; Hon Foundation, 2011; Internet Health Coalition, 2011; Mayer et al., 2008; Proyecto Webs Médicas de Calidad, 2011; Richards, 2004; URAC, 2011.

### **Web page accreditation**

In the United States, Health Internet Ethics (Hi-Ethics) is a consortium of 15 American commercial health-related companies that was created in May of 2000. The Hi-Ethics’ main goal is the certification of Web pages that adopt the principles established by the consortium. These principles are intended to ensure that health services on the Web reflect the high-quality and ethical standards defined by an information privacy policy. Another principle states that the inclusion of advertisements on Web pages certified by the consortium should be presented in a standardised manner to assure the distinction between health information content and

mere advertising. Information content quality is preserved by ethical principles that are consistent with those established by governmental institutions of the field of health. Furthermore, the principles require the identification of authorship, author credentials, date of creation, update of the information, author's affiliation, Web page sponsors, and the authors' and Web designers' addresses. The certification of Web pages is guaranteed by a cooperative program contract between the consortium coordinator, Hi Ethics Inc., and the Utilisation Review Accreditation Commission (URAC) for the accreditation of Web pages with URAC's quality seal, whose current name is the American Accreditation Healthcare Commission.

With over 10 years of experience creating quality and responsibility standards for healthcare companies, the American Accreditation HealthCare Commission developed quality standards that have been applied to more than 50 quality standards in the field of health since 2001. The standards were developed in conjunction with member organisations of the Commission, which includes legislators, insurance and health plan companies, service and product distribution industries, and consumers. The Commission's goal is to promote the accreditation of Web pages that meet the established quality standards by affixing a certification seal on the page. The Commission is a non-profit organisation and is known for its leadership in promoting quality health information and its accreditation and certification programs. Web pages that receive the certification seal are evaluated every year by a set of programs developed by the Commission and are also subject to consumer judgment.

In a published article on accreditation programs for health-related Web pages in the United States, Ohliger (2001) stressed the need to use evaluation programs based on legislation to minimise the proliferation of Web pages without quality content, which could bring serious consequences to the citizens. The role played by the URAC in the process of Web page evaluation was emphasised, highlighting the issue of a contract with the consumers regarding the use of their personal information and the matter of the editorial policy to ensure the quality of the health information content. The standards established by the URAC are, in many points, coincident with those defined by the HITI, especially with regards to credibility indicators and Web page content.

The MedPICS Certification and Rating of Trustworthy Health Information on the Net (MedCERTAIN) was created in 2000 for the European Union. MedCERTAIN is a system based on metadata technology that uses standardised vocabulary and filters for identifying quality content in Web pages. It is an international project of the European Union administered by a consortium of three partners: the University of Heidelberg/Department of Clinical Social Medicine in Germany, the University of Bristol/Institute for Learning and Research Technology in England, and the Finnish National Research and Development Centre for Welfare and Health/Office for Healthcare Technology Assessment in Finland.

MedCERTAIN provides a technical infrastructure and a conceptual basis for an international system of self-qualification and third-party accreditation regarding health information on the Web. The project's main objective is to establish a reliable global network of health information on the Web, enabling citizens to evaluate the relevance of the information for their own needs and qualifying them to make decisions about this information. The MedCERTAIN has established a completely functional program for self-qualification and third-party accreditation of Web pages, enabling consumers and professionals to filter information that is harmful to health and identify and select information of the highest quality. The system aims to provide a

transparent mark, i.e., a trust mark system, that will allow lay people to feel secure about the quality of information offered on the Web. The system also encourages health information providers to follow respected codes of ethics and conduct and encourages medical societies to develop criteria for the quality of information for patients of each specialty in the field of health.

Table 5 shows the institutions that offer “trustmarks” for the accreditation of Web pages that meet the principles of the accreditation institutions in the European Union, Spain, and United States.

**Table 5 - Trustmarks** for the accreditation of Web pages

Year	Institution	Country	Product	Description
1999	Official College of Physicians of Barcelona	Spain	WMA Seal	Certifies Web pages that meet 9 basic principles
2000	Health Internet Ethics	U.S.A.	Hi-Ethics Seal	Certifies Web pages that meet 14 basic principles
2000	Consortium of institutions	European Union	Medcertain label	Certifies Web pages that meet 14 basic principles
2001	American Accreditation Healthcare Commission	U.S.A.	URAC Seal	Certifies Web pages that meet 8 basic principles

Source: Eysenbach et al., 2001; Internet Health Coalition, 2011; Mayer, et al, 2008; URAC, 2011.

### **Other initiatives for evaluating Web page quality**

In France, the cooperative work conducted at the Chu-de-Rouen University Hospital Centre (Centre Hospitalaire Universitaire – Chu-de-Rouen) since 1997 consists of a multidisciplinary group that includes health professionals, engineers, lawyers, librarians, and physicians. This group, which is supported by representatives of professional organisations in the field of health, developed a set of continually updated criteria, called NETScoring (Score du Net) that can be used to evaluate the quality of the health information on the Web. They defined 8 categories of criteria that include 49 indicators for measuring the quality of information on the Web (NETSCORING, 2005).

The categories focus on the criteria of credibility, content, links, design, interactivity, and accessibility, all inspired by the HITI criteria, in addition to criteria related to quantitative and ethical aspects. Each criterion receives a specific weight, namely: essential criterion, weighing 0 to 9; important criterion, weighing 0 to 6; and minor criterion, weighing 0 to 3. The total of these criteria provides the respective measure of page performance.

Different levels of assessment tools were established to facilitate the development of evaluation actions using NETScoring, namely: simplified level for Web page visitors; complete and professional level for the consultant and webmaster; and an advanced professional level for the information provider, consultant, and webmaster.

In an effort to record the international initiatives for quality control of health information on the Web, Risk and Dzenowagis (2001) stated that there is an explosion of such information

available on the Web and that this excess shows that there is currently a global environment for the storage and dissemination of information that transcends geographic boundaries, cultures, and languages. Risk focused the international efforts for the development of Web pages that obey the ethical standards for the field of Health and compared 13 institutions from several countries, regarding their goals, members, target audience, and quality assessment tools used.

The contributions from Codes of conduct, certification of quality information using seals on Web pages, accreditation of sites by accrediting institutions, and other initiatives for the evaluation of health information content, have been expanding in several countries.

In Brazil, the Federal Council of Medicine and the Regional Councils of Medicine of Rio de Janeiro and São Paulo are mobilising towards the regulation of medical and health-related Web pages in the country, defining concepts and actions to preserve information credibility.

Emphasis should be given to the importance and repercussions of the World Health Organisation's *Guide for finding safe information*, translated and adapted for Brazil by the Health Surveillance Centre of São Paulo (CENTRO DE VIGILÂNCIA SANITÁRIA DO ESTADO DE SÃO PAULO, 2011). The Guide warns that Web pages should cite all the sources used to obtain the information, with emphasis on the name and contact information of those responsible, publication dates, and the clear identification of sponsors and aims of the page, which consolidates the criteria identified and recommended in the literature.

## **Conclusions**

It is worth noting that there has been a constant expansion of studies worldwide regarding the quality of health information on the Web in the past 10 years. The actions of health and medical professionals; professional associations; and governmental and non-governmental organisations of several countries, notably the United States, Canada, France, Spain, and the United Kingdom, and more recently Brazil, with the Brazilian regulatory agencies in the health field, have been integral in transforming the quality of Health information on the Web.

International literature warns about the danger that information available on the Web can pose to internet users, and the concern of those involved in these studies demonstrate the need to establish self-regulatory mechanisms that, together with the actions of health information providers, will minimise the problem of content reliability.

Therefore, the introduction of a set of health information quality criteria, tested and approved by international literature, physicians, and experts of all sub-areas of health into the Brazilian scenario may prove to be especially important for the reorganisation of this scenario of uncertainties, in which the commercial interests have prevailed at the expense of proven scientific knowledge, jeopardising the health of individuals of all social classes.

## **References**

BATALLA MARTINEZ, C. Sellos de calidad en las páginas Web: una ayuda para el usuário. *Atencion Primária*, v. 41, n. 10, 2009. Available at: <<http://www.elsevier.es/en/node/2076614>>. Accessed in: 08 out. 2011.

BIREME. Latin American and Caribbean Center on Health Sciences Information. Metodologia LIS: critérios para seleção de fontes de informação em Saúde disponíveis na Internet. 2002. Available at: <<http://www.bireme.br>>. Accessed in: 24 jul. 2011.

BHIA. Quality Standards for Medical publishing on the Web. Available at: <<http://www.bhia.org/Provenance.htm>>. Accessed in: 04 out 2011.

CENTRE HOSPITALIER UNIVERSITAIRE DE ROUEN. **Informations de Santé sur Internet**. Available at: <[http://www.sante.gouv.fr/htm/pointsur/qualite/chu\\_rouen.htm](http://www.sante.gouv.fr/htm/pointsur/qualite/chu_rouen.htm)>. Accessed in: 20 set. 2011.

CENTRO DE VIGILÂNCIA SANITÁRIA DE SÃO PAULO. **Guia para encontrar informações seguras**. Available at: <<http://www.cvs.saude.sp.gov.br/medical.asp>>. Accessed in: 08 out. 2011.

CONSELHO REGIONAL DE MEDICINA DE SÃO PAULO. **Manual de princípios éticos para sítios de medicina e saúde na Internet**. São Paulo, 2003. Available at: <<http://www.cremesp.org.br/?siteAcao=PublicacoesConteudoSumario&id=26>>. Accessed in: 22 abr. 2011.

DISCERN PROJECT. Available at: <<http://www.discern.uk>> Accessed in: 22 abr. 2011.

DOMINGO, S. El boom de los sellos de calidad de webs sanitarios. **Diario Médico**, Ene. 2009. Available at: <<http://www.diariomedico.com/2009/01/29/area-profesional/gestion/el-boom-de-los-sellos-de-calidad-de-webs-sanitarios>>. Accessed in: 08 out. 2011.

DORMAN, S. M. Health On the Net Foundation: advocating for Quality Health Information. **Journal of School Health**, v. 72, n. 2, p. 86, Feb. 2002.

eEUROPE 2002: Quality Criteria for Health related Websites. **Journal of Medical Internet Research**, v. 4, n. 3, p. e15, 2002. Available at: <<http://www.jmir.org/2002/3/e15/index.htm>> Accessed in: 22 Jul. 2011.

EYSENBACH, G. et al. A framework for improving the quality of health information on the world-wide-web and bettering public (e-)health: the MedCertain approach. **Journal of Medical Internet Research**. v 3. n. 5, 8 p., 2001. Available at: <[http://www.medcertaim.org/pdf/MedCERTAIN\\_approach](http://www.medcertaim.org/pdf/MedCERTAIN_approach)> Accessed in: 14 fev. 2006.

GARCIA, S.; MONTESINOS, E.; BOYER, C. Iniciativas en Español para la evaluación de contenidos biomédicos en Internet. Available at: <[http://www.informetica.org/104/papers/Garcia\\_70.pdf](http://www.informetica.org/104/papers/Garcia_70.pdf)> Accessed in: 21 abr. 2010.

HITI. **Criteria for Assessing the Quality of Health Information on the Internet**, 1999. Available at: <<http://www.hitiWeb.mitrectek.org/docs/criteria.html>> Accessed in: 13 mar. 2002.

HON FOUNDATION. Código de conduta para sites Web em Medicina e Saúde. (HONcode). Available at: <<http://www.hon.ch/HONcode/Portuguese>>. Accessed in: 21 set. 2011.

INTERNET HEALTH COALITION. **eHealth Code of Ethics**. Available at: <http://www.ihealthcoalition.org/ehealth-code-of-ethics/>. Accessed in: 10 set 2011.

LAMPE, K; DOUPI, P. Ethical Codes for Internet Health Information – consensus in the horizon. Available at: <<http://www.mdf.be/mednet2000/program/op72.html>> Accessed in: 27 mar. 2011.

MAYER, M.A. et al. La vision de los responsables de Web Medicas Acreditadas sobre la utilidad de los sellos y sistemas de acreditación. In: CONGRESO NACIONAL DE INFORMATICA EN SALUD. **Inforsalud**, 2008. Available at: <[http://wma.comb.es/Upload/Documents/Mayer\\_Leis\\_Inforsalud2008\\_53.pdf](http://wma.comb.es/Upload/Documents/Mayer_Leis_Inforsalud2008_53.pdf)>. Accessed in: 08 out. 2011.

MAYER, M. Á.; LEIS, Á.; SANZ, F. Información sobre salud en Internet y sellos de confianza como indicadores de calidad: el caso de las vacunas. **Atención Primaria**, v. 41, n. 10, p. 534-544, 2009.

NETSCORING. **Critères de qualité de l'information de santé sur l'Inter**. Available at: <[http://www.sante.gouv.fr/htm/pointsur/qualite/criteres\\_qual.htm](http://www.sante.gouv.fr/htm/pointsur/qualite/criteres_qual.htm)> Accessed in: 15 set. 2005.

OHLIGER, P. C. Legal matters: new accreditation Program for Health Web sites. **Drug Benefit Trends**, v. 13, n. 4, p. 21-22, 25, 2001. Available at: <<http://www.medscape.com/viewarticle/409987?srd=search>> Accessed in: 19 Ago. 2004.

PACIOS, M. et al. A ética dos *sites* de Medicina e Saúde frente aos princípios éticos da Health on the Net Foundation - HON. **Revista Bioética**, v. 28, n. 2, p. 483-496, 2010.

PROYETO WEBS MÉDICAS DE CALIDAD (PWMC). Available at: <<http://www.pwmc.orgque.htm>> Accessed in: 22 set. 2011.

RICHARDS, D. Centre for Health InformationQuality (CHIQ). **Evidence-Based Dentistry**. v.5, n.4, p. 108-109, 2004. Available at: <<http://www.nature.com/ebd/journal/v5/n4/full/6400289a.html>> . Accessed in: 08 out. 2011

RIPPEN, H.; RISK, A. Policy proposal: e-Health Code of Ethics. **Journal of Medical Internet Research**, v. 2, n. 2, p. e9, 2000. Available at: <<http://www.jmir.org/2000/2/e9/index.htm>> Accessed in: 29 set. 2009.

RISK, A.; DZENOWAGIS, J. Review of Internet Health information quality initiatives. **Journal of Medical Internet Research**, v. 3, n. 4, p. e28, 2001.

URAC. American Accreditation Healthcare Commission. General questions about URAC Accreditation. Available at: <<https://www.urac.org/healthcare/accreditation/>> . Accessed in: 03 out. 2011.

WINKER, M. A. et al. **Guidelines for Medical and Health information sites on the Internet: principles governing AMA Web sites**. Available at: <<http://www.ama-assn.org/ama/pub/category/1905.html>> Accessed in: 18 out. 2009.

Received: 11/10/2011

Accepted: 29/06/2012