Health on the internet:
proposals for quality and certification

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The services offered by the internet are producing significant changes in many fields of communication. This phenomenon is particularly present in the area of health, as it is one of the most intensive sectors in the use of online information. Different organisations and institutions have set up quality initiatives with various implementation strategies, as well as proposals to resolve the problems identified with regard to the use of health information available on the internet. In this paper we also present the quality and certification programme Web Mèdica Acreditada that stands out in Spain.

Keywords

Internet, health, quality, accreditation, certification, credibility.

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The services offered by the internet are producing significant changes in many fields of communication, in science, personal relations and access to information. This phenomenon is particularly present in the area of health, as it is one of the most intensive sectors in the use of online information and has a large number of potential beneficiaries, due to the resolution of problems of geographical distance between patients and health professionals, the reduction in costs and infrastructure and waiting times, as well as access to large amounts of information and its management. It is therefore a new communication tool that is characterised by interaction between users, personalisation of the consumer relationship, ease of publishing content of any kind, universality and lack of control, as well as ease and simplicity of updating the content.

Notwithstanding this, we must also consider the existence of a number of risks that must be avoided. Health information obtained from the internet can give a false feeling of confidence in patients that, on exercising their autonomy, may lead to incorrect decisions or even decisions that can endanger their own health. Users are using the internet increasingly as a source of health information, as shown by several of the studies carried out. Between 50% and 80% of adult internet users habitually look for information on health in general and on their own and other illnesses.

According to the last survey published by Red.es ("Panel of households, XVII wave" July-September 2007), 42% of Spanish homes are connected to the internet, and 53.5% of the population (including those over 15) use the internet. Of these users, 70.9% consider themselves to be frequent users (i.e. 37.9% of the population aged 15 or more). In the survey for January-March 2007, 42.6% of users had searched for information related to health, compared with 24.4% for January-March 2004 (in the United States this figure was 80% in 2006). 25.7% of the queries were made

to the public administration via the network for health services.

All this has created new and different needs. Firstly, greater control is essential of the quality of the websites with health content, creating accreditation systems that have standards and reference criteria to evaluate these websites, guaranteeing that this information will be of adequate use for patients and users in general, and that professionals can also base their decisions on this information and comment on this information's suitability and application in each case. Secondly, it can facilitate the guided improvement of health education for the public at large, opening up new perspectives and useful tools for non-professional internet users.

Given this situation, different initiatives have been set up and recommendations, strategies and good practices have been drawn up in order to guarantee a minimum quality of health-related websites and to protect users and patients with regard to the misleading, false or confused information that abounds on the internet. In the survey carried out in 2005 by the Health on the Net Foundation (HON 2005), 59% of the participants would be in favour of certifying websites, compared with 25.3% who would disagree.

Proposals to improve the quality of information on the internet

Since 1996, different proposals have arisen to improve the quality of health-related websites. The most elementary are limited to providing recommended quality criteria for health-related websites and propose codes of ethics and conduct which those responsible for the websites can sign up to voluntarily. A more sophisticated system consists of guaranteeing the quality of the format and content of a website by an independent organisation systematically reviewing it.

Among the first of these initiatives we might highlight the proposal by HON, consisting of a quality seal that could freely be included on any website that voluntarily signed up to a series of criteria, without anyone checking whether these criteria were being complied with. Currently this initiative is carrying out an active review of the websites that have joined its scheme and it can be considered as a third party review system. Other initiatives characterised by the non-controlled subscription to a code of conduct are Hi-Ethics and the Internet Healthcare Coalition. The American Medical Association (AMA)[1] is another example where, in addition to drawing up a guide of recommendations, they also review the websites related to the aforementioned institution and compare the quality of their scientific content with similar criteria to those of a scientific publication. So there are differing degrees or levels of accreditation and of quality control, all with their own characteristics, that determine to what extent users can trust the information supplied, a trust that can be considered directly proportional to the depth of quality control carried out. In the United States, the organisation URAC,[2] in which several different American scientific institutions and societies collaborate, also grants a seal of accreditation, with the idea of regulating and guaranteeing the quality of the information and the safety of the data exchanged on the internet, in all those health-related activities supported online. Moreover, there is a large number of initiatives with the common objective of offering guidance to internet users on what good quality health-related websites should be like or, in any case, to advise on the limitations and precautions that should be adopted with these websites and information they contain on specific aspects such as recommendations concerning treatments, for the use of children or even for the use of health professionals.

In Spain, of note is the accreditation system known as the Web Mèdica Acreditada (Accredited Medical Website), set up by the Official College of Physicians of Barcelona in 1999 and which has established itself as a quality reference point for Spanish and Catalan-language websites. This initiative, as reflected in a survey published in 2005 by the Health on the Net Foundation,[3] ranks fifth among the systems for

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1 AMA: <http://www.ama-assn.org/ama/pub/category/1905.html>

2 URAC: <http://www.urac.org>

3 HON Foundation: <http://www.hon.ch>

accreditation and quality seals for the best-known health-related websites in the world.

The European Union, as a supra-national institution and reflecting the importance and concern of this issue, established in 2000 a working group with representatives from all member States, scientific societies, the pharmaceutical industry, universities, user associations, the World Health Organisation (WHO), etc. to draw up quality criteria that should be followed by health-related websites, establishing a common point of reference based on which the different agents working in this area could adapt the recommendations to the needs and characteristics of each organisation and country. Finally, in 2002, the definitive document was published with the aforementioned recommendations.[4]

The existing quality initiatives have different strategies of implementation, as well as differing proposals to resolve the problems identified. These initiatives, recommendations and accreditation systems have been the object of different studies in order to further our knowledge of their differentials and classify them appropriately. According to the existence or not of an external evaluation process and, if one exists, the methodology used to carry out this evaluation, as well as how the recommendations are implemented, various mechanisms are defined, proposed to improve the quality of health-related websites, which can be classified as follows:

− **Codes of conduct:** consisting of a number of quality criteria that any interested websites can sign up to voluntarily.

− **Quality seals:** which can be included on the websites with the undertaking to follow a series of quality criteria.

− **User guides:** a number of recommendations to guide users on how they should interact with health-related websites.

− **Filters and classification portals:** that manually or automatically classify and/or filter resources and websites.

− **Third party certification:** based on verifying compliance with a series of quality criteria, describing the website's

characteristics and often granting a seal that certifies the website has been reviewed and how.

Table 1 shows the best-known initiatives, presented according to the different strategies on which they are based.

The Web Mèdica Acreditada Quality Programme

Firstly, we should note that there are no other medical accreditation systems that have offered general data on the characteristics of the websites that form part of their quality programme. Secondly, as pointed out by an international study carried out by the Health on the Net foundation (HON 2005), we should underline that this is one of the leading accreditation entities in Spain and the world. And, thirdly, if we take into account the fact that most of the websites accredited by this quality programme are Spanish, the data provided below allow us to draw up a very approximate profile of accredited medical websites in Spain.

The quality programme of the Web Mèdica Acreditada (WMA)[5] is promoted by the Official College of Physicians of Barcelona[6] and is aimed at all websites in Spain and Latin America that offer health information and services via the internet in which professional doctors participate and collaborate, as well as other health professionals. This quality initiative applies the review and recommendation of a set of quality criteria specific for medical websites and of the medical deontological code. This programme incorporates the experience and advances promoted by projects of the Directorate General of Health and Consumers of the European Union (EU) and of the Safer Action Plan Plus for a safer internet also of the EU, in which it actively plays a part. This quality programme is characterised by being voluntary, free and transparent, so that the websites following the process of review and the incorporation, if applicable, of certain recommendations obtain the WMA accreditation seal, which they show on their site.

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4 eEurope 2002: Quality Criteria for Health related websites: <http://www.jmir.org/2002/3/e15/>

5 Web Mèdica Acreditada: <http://wma.comb.es>

6 Col·legi Oficial de Metges de Barcelona: <http://www.comb.cat>

Table 1. Quality initiatives for health-related websites

| Mechanism	Initiatives
Codes of conduct	*Internet Health Coalition* *American Medical Association* *e-Europe* *Hi-Ethics*
User guides	*DISCERN* *Net Scoring*
Filters and classification portals	*OMNI* *CISMeF* *AQuMED*
Third party certification	*MedCIRCLE* *Health on the Net Code (HON)* *Proyecto Webs Médicas de Calidad* *URAC* *Web Mèdica Acreditada (WMA)*

Source: author.

At 31 December 2007, a total of 1,148 applications had been received via the form available on the WMA website. These applications are from the period between July 1999 (when the service started up) and 31 December 2007. Out of the total of 1,148 applications received up to this date, 524 accreditations have been awarded. During 2001 and 2002, a larger number of applications were made, with 171 and 165, respectively. Excluding erroneous applications (n = 41) and websites that did not ultimately enter the accreditation process (n = 108), the percentage of websites that have completed accreditation out of the total applications received was 55.66%. These data may be surprising but sometimes the changes suggested imply extra work for those in charge of the websites which, on many occasions, cannot be undertaken due to a lack of resources or because, as happens in a few cases, the characteristics of the website require significant changes in content, which makes their adaptation unviable. On the other hand, a large number of websites that did not conclude the accreditation process disappeared in the first few months of their existence. Out of the total websites that have been accredited (n = 524), in this period of time 67 have disappeared (13%);

most of these disappearances occurred in websites that had applied for accreditation between 1999 and 2001. This might be explained by the fact that, during these years, there was great interest in the internet and in creating services online without the necessary support to ensure their continuation, and many of these sites are no longer in operation. These disappearances mean that the number of accredited websites at 31 December 2008 totalled 457.

Of all the websites accredited by the WMA, 56% (n = 258) have at least one other seal of approval. The distribution of seals on these websites is shown in figure 1. Health on the Net certification is the one most frequently associated with websites accredited by the WMA. Among "Other" there are their own codes, DobleU, eHealth Ethics, TNM and Trust_e. The two most frequent seals found (HON and pWMC) are specific for the health area. The most frequent certification of a general nature is that of the Internet Quality Agency (IQUA)[7] promoted by the Consell de l'Audiovisual de Catalunya. It should be noted that a little more than half the websites have at least two accreditations (especially health seals). The possible reasons for this are diverse but, in a study carried out by the WMA, those in charge noted that

7 IQUA: <http://www.iqua.net>

Figure 1. Other quality seals present on websites accredited by the WMA
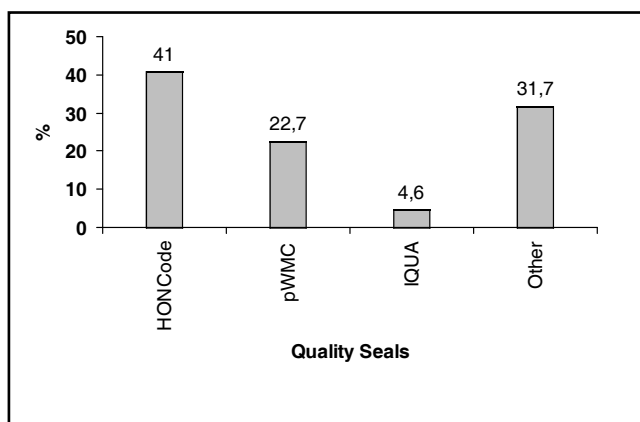
HONCode: Health on the Net
pWMC: Proyecto Webs Médicas de Calidad,
IQUA: Agència de Qualitat d'Internet

Source: WMA.

having more than one quality seal is related to the perception of greater quality, on the one hand, and that there is no single seal of reference.

Table 2 shows the sources of funding declared by the accredited websites. We should note that 240 websites (52.5%) answer this question when filling in the questionnaire to apply for accreditation. The data suggest that many of the websites are the result of voluntary initiatives, no so much of entities but rather of people and, therefore and as can be seen subsequently in their review, their real cost is not reflected or is so low (hosting, etc.) that those in charge of making the application do not feel it necessary to even note it down. This lack of means (voluntary) entails the closing down of websites and an excessive effort to access quality standards in health-related websites. The declaration of the source of finance of websites is a standard of quality and trust, clearly informing users of how it is funded. On the other hand, we are also witnessing the appearance of seals and codes of doubtful independence and origin, in which there may be non-declared financial agreements.

Table 3 contains information on the types of websites accredited. The type of healthcare centres is the most numerous, followed by the websites of scientific and professional associations and personal websites. In the survey carried out by WMA, among those responsible for accre-

Table 2. Sources of funding of accredited websites

Types of funding	No. websites	% out of 240
Private contributions	84	35.00
Sponsored by pharmaceutical industry	58	24.26
Member fees	44	18.33
Advertising	29	12.08
Public funds	24	10.00
Sponsored by non-profit organisations	22	9.16
Sponsored by health firms	14	5.83
Donations	11	4.58
Subscription	10	4.16
Sale of products and other services	10	4.16
Venture capital	1	0.41
Other	28	11.66

Source: WMA.

dited websites, the reasons of professional ethics are those considered most important for applying for the accreditation seal. The number of accredited websites of public administrations, universities and research centres is not high, and this could be attributed to the fact that these centres do not consider such certification to be necessary.

Table 4 shows clearly that, among the accredited websites, the desire to serve society in general or health professionals in particular is of special importance.

In general, the accredited websites declare that they were designed more with regard to content than to a type of audience. On the other hand, it should be noted that almost half of them are aimed at health professionals, while more than half are aimed at non-health professionals who are looking for health-related information. We must bear in mind that there are websites aimed both at health professionals and also patients/users. These data can be completed by

Table 3. Categories of websites accredited

Types of websites	No. websites	% total
Healthcare centres	135	29.5
Scientific and Professional associations	91	20
Professional personal websites	70	15.3
Publishers and media	19	4.15
Other educational institutions	21	4.43
Patient or support group associations	19	4.15
Pharmaceutical companies	18	3.79
NGOs	14	2.95
R&D institutions	10	2.32
Universities	11	2.32
Other companies	8	1.68
State administrations	4	0.84
Other	37	8.09

Source: WMA.

Table 4. Overall objective declared by those res-ponsible for the accredited websites

Overall objective	No. websites Spain	Total no. websites	% total
General information	177	206	45.07
Scientific education	152	179	39.16
Training	29	37	8.09
No reply	25	25	5.47
Support groups	10	10	2.18

Source: WMA.

noting that around 19% of the websites offer the possibility of online queries and that 31.7% have a restricted zone for health professionals, although still only in 61 cases (because they are intranets or because they believe that the content might be misinterpreted by non-professional users). Access to a restricted zone is provided via payment in the case of fifteen websites (in many cases resulting from training activities).

Finally, we have also looked at the languages used by the accredited websites, as shown in table 6. These data show, on the one hand, that the number of websites with Catalan as one of their languages total 28.22% of the accredited websites and this can be related to the fact that the initiative is promoted by the Official College of Physicians of Barcelona, one of the professionals colleges with the largest number of members in Spain. On the other hand, we also observe that Spanish is used on 435 websites (95.18% of all the websites) and we can relate this to the large presence of this language on the internet and the large number of potential users throughout the world at whom the content is aimed. It should also be noted that Catalan is used exclusively on 17 of the websites and that no website uses Catalan and English as its two languages. We should also note that English is present on a fifth of the websites.

Conclusions

The effort made by the different independent institutions, governments and the European Union to offer proposals and solutions to improve the quality of content and websites with health information is patent. Some authors have questioned the actual usefulness of accreditation systems, due to different problems that have still not been properly evaluated. One of the problems proposed lies in the fact that individual users do not recognise the meaning of the seals or codes of conduct or are unaware of which aspects are being certified on the websites. It has also been suggested that these users do not have the necessary time nor do they dedicate the effort expected of them to understand or use the tools that the different quality initiatives are offering them. This aspect is still a relatively unknown issue and a challenge for researchers and those in charge of public health, requiring studies to investigate further the use and veritable usefulness of these initiatives for the population at large.

The quality and future effectiveness of certification for health-related websites may depend on the use of new technological resources, including a new generation of in-telligent tools offered by the internet. The semantic website

Table 5. The targets for accredited websites

Audience	No. websites	% of 457
Adults: patients and/or users	242	52.95
Specialist doctors	240	52.51
Family doctors/GPs	172	37.63
Other health professionals	168	36.76
Medical students	156	34.13
Researchers	121	26.47
Children and teenagers: patients and/or users	49	10.72

Source: WMA.

Table 6. Languages present on WMA accredited websites

Languages	No. websites	%
Spanish	284	62.14
Spanish - Catalan	67	14.66
Spanish - English	39	8.53
Catalan	17	3.71
Catalan - Spanish - English	45	9.84
English	5	1.09

Source: WMA.

understood as an extension of the current concept of website is providing the possibility to structure information to a greater extent, producing relations between resources and content in order to improve interoperability between people and machines. Semantic websites and automated monitoring, applied to the initiatives that are reviewing content and the description the characteristics of health-related websites, may constitute an interesting contribution that provides users with greater knowledge of the type of information they are accessing, so that this information may be used by search engines that better understand what users are really looking for and they will obtain more thorough, descriptive and detailed information on the content of websites that have been searched.

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