Doctors - the role of creating and promoting high quality medical information on the Internet

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At the present time, in an era of progress, it seems obvious that there is room for conflicts of interests between the aspiration to achieve maximum financial benefit and producing high quality medical information. Doctors are the most important element of any commercial medical portal. In general, the strategy of each medical portal should take into consideration two extremely different principles. The first principle is "honesty". In this area, the goal of providing correct information should precede financial benefits (from advertising and banners). In this case, financial benefits are a result of professional activity aimed at promoting good medicine on Net, rather than by attracting "fast" visitors to generate profit through big "usage statistics". Conversely, the second principle is "dishonesty" If the main target is to achieve financial benefit via different psychological and sociological tricks to attract the attention of visitors to an advertising (i.e. to sell and promote drug, to advertise a treatment method, etc.) or to present only the big-picture usage statistics as an argument in attracting more medical companies to advertise on the portal. In this model of two extremes, many medical Internet portals or WWW pages can be placed in between. The main role of physicians, when serving medical information, is to honor the principle of informed choice and informed consent to diagnosis and treatment and to inform patients honestly about the possible forms of therapies. This obligation forces the doctor or other medical professional to promote and participate in initiatives concentrated around the "honesty" pole. The quality of medical information will become a crucial problem in the future, when it is expected that the role of the Internet and distance learning in educating physicians and providing health promotion will grow even further. In opposition to big medical portals, in which one can encounter more problems arising from the size and rigidity of commercial structures, small, flexible virtual medical communities may be the core of solution to this problem. The return to basic ideas of the Internet, by creating such communities, could be a good place for doctors to start their activity on the net. I believe that by increasing the availability of critical review information available on the net, it will become possible to secure the financial sources needed to promote this form of activity.

Introduction

The role of the Internet in global communications is still increasing. When using the Internet or other, similar tools, enabling remote communications (in healthcare) becomes an important part of the mission of this medium. For many years, the number of health-related websites has been increasing and, subsequently, the problem of quality of medical information and its suitability for use in patient-to-doctor and doctor-to-doctor consultation has arisen. Independently from this discussion, various forms of health-related Internet contacts are utilized by many individuals. This paper attempts to formulate the rules for critical evaluation of (commercial) web institutions and to consider, again, the possible "power" of small, non-profit groups of experts as well as the activities of clinical centers to create health-oriented Internet communities as an alternative to the present, overwhelming, trends.

Internet and distance learning

The Internet was initially strongly associated with scientific research as well as contacts between academic centres. Using the Internet for distance learning was also the main target of this network prior to its commercial use, and is, in fact, still popular and still progressing today. Achieving the goal of educating (by the Net) was previously postulated by academic centres and experts, who focused the attention of participants around their knowledge. The next step observed in the history of the Polish Internet was to use web technology to present information about academic or science-related institutions (1992), including learning topics (1994) with case descriptions, materials for patients and patients' families or lay-people. The first Polish virtual medical journal "Galen" was established in 1994 and folded after one year (1995). Since then, private homepages of many professionals contain have appeared, containing educational material based on medical literature and individual experience - this can be dubbed "expert-based knowledge".

The most important role of the Internet in this area (until today) focused on exchanging medical knowledge and experience mailing lists (including lek-med@achilles.wam.lodz.pl (1994), lekarze@polscy-lekarze.org (1996) and a dedicated cardiology mailing list of the Polish Cardiac Society and the Polish Society of Arterial Hypertension (kardio-l@man.torun.pl)).

In non-profit medical Internet services, two major trends exist. First - building a small, but effective medical community on the Internet (i.e. the LEKARZE mailing list, created in 1996 by dr. Adam Poradzisz); second - to participate in the creation of a virtual environment of medical societies (1996, the Polish Cardiac Society). In 1996/97, the most important step towards the creation of medical Internet services in Poland was the action called "Internet dla Lekarzy" (Internet for Physicians) . This was done by the Stefan Batory Foundation, basing on a grant from the Open Society Institute, owned by George Soros. This program would finance most key projects in the years 1997-2000. During this time the Internet in our country changed its face again and became far more available at home (first by using modems, then by developing dedicated networks). This process is still taking place today.

The most fruitful examples of distance learning are observed within postgraduate medical studies. The Internet offers possibilities of continuing one's medical education and, by remote contacts, increasing the efficiency of CME hours (also including medical specialization - mandatory in some countries).

Internet in Continuos Medical Education - the case of Canada

In 1998, the Royal College of Physicians and Surgeons of Canada launched a pilot program called "Maintenance of Competence" (MOCOMP in short) to evaluate and improve the knowledge of Canadian physicians. Dr Adam Poradzisz, a Polish doctor working in Canada, decided to invite a small group of Polish physicians to participate in this program (via the Internet). The action was meant as an experiment to confirm that the Internet was indeed capable of being used as an advanced form of education. Dr Poradzisz felt that Polish doctors had professional knowledge and could be educated on a level comparable to their colleagues in Canada. Polish physicians (including myself) have finished the course (after one year of participation) quite successfully, using only the Internet, without any need to travel and physically visit places in Canada. Technically, the effort was based on computer software, installed on PCs and Macs, containing elements for organizing self-education and giving credits for each documented hour of self-education. All information was sent to the managing centre in Canada, where it was verified and presented to a tutor, who informed users on how and which elements of their education should be improved and which credits they required for certification. This program was a pilot for prepared after one year; the next step in establishing a system of continuous medical education in Canada. This project (called "Maintenance of Certification"), now far improved, is the main tool for evaluating specialist education in Canada. The Internet site of this project is located at http://rcpsc.medical.org/english/maintenance. The program is based upon a diary (now either accessible as a web-diary or installed, as previously, on PCs or MACs), where all acceptable forms and activities of education are recorded. Each piece of information about the time spent on studying, with sizeable descriptions of subjects, professional outcomes, as well as answers and decisions, is recorded. The same approach is also applied to whenever the study material requires monitoring changes in a patient's condition. The motivation behind selecting specific topics must be provided using prepared forms. Additionally, a "Maintenance of Certification" center collects information about participation in medical events and conferences, as well as about publications printed in medical journals or delivered at seminars by participants. The managing center generates periodical reports and final reports after each year of education.

"Maintenance of Certifications" is an important example, confirming that distance learning is becoming an important form of postgraduate education in medicine. Of course, it is really difficult to complete virtual student education or specialization courses requiring practical knowledge only by using the Net. However, it should be remembered that students are in fact graduate and specialized doctors, who already possess significant knowledge and wish to improve and update their skills. Therefore, using distance learning techniques is highly desirable.

The role of medical libraries and scientific societies in distance learning

Distance learning needs to offer educational materials including books, publications and other audiovisuals. Common to various projects is the crucial requirement to adapt medical libraries to a new role in the global village era. Some may say that the role of libraries does not change in a substantial way, but with the use of digitalized carriers of information, the methods of conducting activities must, in fact, undergo substantial change.

The main role of the medical library is to store and present professional information, including traditional books, journals and digitalized data on CD-roms, on a network and to share it by webpages open to visitors. In my opinion, as indicated in an article on this subject presented at a medical libraries conference in 1999, the penetration of the Internet into the scientific domain calls for a more proactive approach on the part of medical libraries. Activities of medical libraries were in the previous centuries limited to traditional relationships between an institution and the people using its services - physically visiting the library and looking into its stored collections of books or journals. Now, library activities must expand to cover remote distribution of information, which has nothing to do with the organization's place of residence. In the future, common relations between libraries, institutions and internet portals will doubtlessly be quite interesting. We can already observe a tendency to establish projects, in which medical portals serve as a source of high-quality extensive medical information, very often requested directly from research institutes, editors of medical journals or medical libraries.

A good example of such an approach is the Cochrane library (http://www.cochrane.org/), which is much like a research institution. Another example is the Docguide (http://www.docguide.com), which has the appearance of a review and journal library. Cochrane focuses its attention on promoting Evidence-Based Medicine, by creating independent analyses of trials as well by preparing, maintaining and promoting the accessibility of systematic reviews of the effects of healthcare interventions. In contrast, Docguide is a valuable independent network institution, preparing reviews from most known and current medical journals and creating its own educational papers (webcasts). As another example, one can point to numerous scientific societies, which use their webpages to present integrated educational materials containing medical journals edited by each society, authority-accepted standards of diagnosis and therapy based upon Evidence-Based Medicine and plenty of clinical cases or other forms of educational information. These societies often provide separate pages, which include information for patients, their families and supportive groups. A good example (in the US) is Chestnet (http://www.chestnet.org/) served by the American College of Chest Physicians. The homegrown service of the Polish Cardiac Society (http://www.ptkardio.pl), in whose preparation I have participated, can also be mentioned here.

Asking and answering questions - the most widely used form of telemedicine/teleconsultation and distance learning

It would be impossible to trace the first professional contact between physicians through the Internet. It would almost certainly be an e-mail message. Since this time, three services - e-mail, WWW and FTP have served physicians in discussing, reading and creating resources, as well as retrieving electronic documents (files), including software. The oldest form of communication (albeit one still most frequently used) is through asking and answering questions. This form was codified as a FAQ, but we should now try to understand all the different forms of interaction and archiving information, by using various technologies. The most popular methods are:

- e-mail - including mailing lists and discussion groups (this is chronologically the oldest form of Internet communications; present long before WWW was invented. Mailing lists and usenet groups are still very popular today),
- WWW boards - named after the popular Matt Wright software used to serve e-mail-based discussions on the Web (this is a modification of a typical mailing Web archive, where messages sent by users are at the same time placed on a website using the common gateway interface (cgi) and distributed to other users through the mail server),
- webchat (internet cafe) - enables simultaneous discussions: each message written by any participant is displayed in a common window, along with a nickname identifying the author (this software has evolved from old terminal discussion software, which allowed interactions between pairs of persons - text written be each participant was displayed in into one of the two available textboxes).

In Poland, I have has opportunities to use and participate in the creation of all these technologies. Each can be helpful, but, undoubtedly, the standard e-mail protocol augmented by proven listserver software, offers the highest security. For confidential correspondence, I recommended standard e-mail, enriched by an electronic signature system and virus protection, which is nowadays built into mail servers. This method makes it possible to stop viruses contained in e-mail messages before these messages are delivered to the recipient. As concerns Web technology, an equally high level of security can be achieved by using the Secure Socket Layer (SSL) with appropriate keys. Such approach is commonly used in e-comerce and banking transactions, and it is sometimes enriched by additional access verification systems, usually based on 128-bit or longer encryption keys.

A modern outlook on the problem of medical information quality on the Net

The problem of maintaining adequate quality of medical websites and other Internet-based information services is broadly discussed at every e-health congress. The first networking institution which attempted to formulate the basic principles of good quality of medical information on the Internet was the “Health on Net Foundation” in Geneva (http://www.hon.ch). This foundation produced eight principles, which define formal and ethical directions for providers, relating particularly to the means of delivering valuable medical content using WWW services. (http://www.hon.ch/HONcode/Conduct.html). The Health on Net Foundation (HON) certifies services by planting certificate information on their sites. The HON logo may be placed on any accepted service, provided that all principles are met. This is a bit of a problem, because HON only evaluates the formal structure of the text as well as the qualifications of its authors and reviewers - it does not itself conduct peer reviews of the material. Another organization involved in establishing extended criteria is the European Commission. Its principles are as follows:

- Transparency and Honesty
- Authority
- Privacy and data protection
- Updating of information
- Accountability
- Accessibility

Each resource listed below contains many complete opinions and certification principles. Documents usually provide links to webpages of projects dealing with the quality of medical information on the Internet, such as as DISCERN (http://discern.org.uk/), QUICK (http://www.quick.org.uk/), Biomec (http://biome.ac.uk/) and MedCIRCLE (http://www.medcircle.org/). DISCERN and QUICK are simple systems based on a question-and-answer mechanism, helping Internet users in self-rating web portals (DISCERN is meant for medical professionals rather than for laypeople and QUICK can be used by all individuals, because it is written in a simple, easy to understand language, complemented by suggestive graphical examples and schemes). Biomec has been set up by medical librarians and it contains a list of rated resources along with a dedicated search engine. The most sizeable project seems to be MedCIRCLE, initiated by G. Eysenbach and his team. This project is not finished yet. Authors currently plan to create network gateways, working like proxy servers, which would automatically compare the retrieved material to evaluation rules/criteria (written in a special language) and use this filter to select the results provided to the user, along with the appropriate ratings (labelling process). Technically, this project combines the idea of search engines with proxy or gateway services. It will be freely available to end users, allowing them to locate medical websites in combination with their rating information. MedCIRCLE will employ a database of evaluated services. In Poland, problems involving certification of the medical Internet services were broadly discussed during a panel session of the 5th Polish Medical Internet Conference in 2000 in Poznan. For that conference, I prepared a Web page (http://www.am.torun.pl/certify/), meant to inform readers about issues of quality rating in medicine and to allow all Internet users to vote on this subject - for or against introduction and preparation (under the auspices of the Polish Internet Medical Society (http://www.psim.pl/)) of voluntary certificates. The results of the poll, similarly to an independent survey conducted by the well-known Polish medical journal "Medycyna Praktyczna", were 66% for and 34% against, although only 99 persons voted.

The panel resulted in a a decision to create such a rating system, but significant obstacles were later encountered, Including - but not limited to - the need to engage many people (including authorities) and prepare appropriate technical tools. This led to a suspension of the initiative up till today. MedCIRCLE (and previously MedCERTAIN) are still at early stages of development, despite their significant budgets. In my opinion, before commencing such projects, careful analysis of the benefit/cost ratio should be conducted. If the aim of the project is to create voluminous rating systems, then it becomes impractical to assess all the medical websites, of which there are millions. Moreover, ranking a service as good or bad is not certain and would require defining clear criteria. The reason such projects fail seems trivial. Each day, more and more medical information is accumulated all over the world and no professional team would be able to evaluate all this data. This bottleneck has, in fact, altered my opinion on the subject. I am currently inclined to promote user education rather than brute force in creating sprawling certifying institutions, working at tortoise speed. It should also be noted that in this era of rapid progress, the emergence of commercial Internet seems to pose a risk of creating conflicts of interest between the aspirations to achieve maximum financial benefit and the need to present quality medical information.

Doctors are the most important element of any commercial medical portal. In general, the strategy of each medical portal should take into consideration two extremely different principles. The first principle is "honesty". In this area, the goal of providing correct information should precede financial benefits (from advertising and banners). In this case, financial benefits are a result of professional activity aimed at promoting good medicine on Net, rather than by attracting "fast" visitors to generate profit through big "usage statistics". Conversely, the second principle is "dishonesty" If the main target is to achieve financial benefit via different psychological and sociological tricks to attract the attention of visitors to an advertising (i.e. to sell and promote drug, to advertise a treatment method, etc.) or to present only the big-picture usage statistics as an argument in attracting more medical companies to advertise on the portal. In this model of two extremes, many medical Internet portals or WWW pages can be placed in between. The main role of physicians, when serving medical information, is to honor the principle of informed choice and informed consent to diagnosis and treatment and to inform patients honestly about the possible forms of therapies. This obligation forces the doctor or other medical professional to promote and participate in initiatives concentrated around the "honesty" pole. The quality of medical information will become a crucial problem in the future, when it is expected that the role of the Internet and distance learning in educating physicians and providing health promotion will grow even further. In opposition to big medical portals, in which one can encounter more problems arising from the size and rigidity of commercial structures (which, therefore, are less inclined to undertake bold initiatives), small, flexible virtual medical communities may be the core of solution to this problem. The return to basic ideas of the Internet, by creating such communities, could be a good place for doctors to start their activity on the net. I believe that by increasing the availability of critical review information available on the net, it will become possible to secure the financial sources needed to promote this form of activity.

Conclusions

The Internet has, since its creation, become a great tool for distance learning. Different forms of such education can be implemented. The Internet is also the biggest collections of excellent informative material, created using multimedia technologies and based on human heritage (including medical information). On the other hand, however, the global network also contains an enormous quantity of waste, which must be carefully rejected through a constantly present filtering process. Many publication describe the fatal outcomes of using inappropriate medical advices (sometimes obtained from the Internet). Unfortunately, the creation of automatic filtering has not been possible until today. An alternative remains, however: widespread education of all Internet users on how to protect themselves. Doctors should play a crucial role in this process by organizing activities as well as being present in every Internet community. The cost of public education seems to be of little significance and the effects can be very fruitful. In the future, it would be quite desirable to perform research, on how well education can improve the ability to properly select material by various groups of Internet users.

I would like to recognize the help of Dr Adam Poradzisz from Edmonton (Canada) in writing this presentation and providing remarks. Dr Poradzisz is a renowned facilitator of cooperation between Polish physicians living and working abroad and those present in our country using Internet tools. He has also initiated the LEKARZE mailing list (http://polscy-lekarze.net/).

After writing this presentation dr. Poradzisz has sent a message describing practical use of the Internet by one of our colleagues during his stay in Canada.

In a few hours, Marcin Napierała is expected to explain (using the LEKARZE platform) how the CME in Alberta is organized. He has had a chance to participate in distance learning organized by the local university. This learning system allows the presenter to use all the available audio-visual media and it also allows participants to employ interactive tools (duplex voice transmission, chat rooms) in order to enhance the reception of the presented material. I have previously contacted the University of Alberta Centre using an Internet satellite link from an ISP located in Edmonton about 4000 km away, while Marcin used a local connection. He will keep on following his CME from Zielona Gora, upon returning to Poland.

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