Digital Marketing

The rise of e-health: Current trends and topics on online health communications

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Abstract The increasing reliance on the internet by the healthcare community at large has been shaping the practice of health communication by opening 'the way to the use of interactive health communications tools (for example, Web sites, Internet-based games, online press rooms, disease symptoms simulations, opinion polls, seminars, etc.), which are often designed as part of larger health communication interventions'.[1] Professional and personal blogs, podcasts, chat rooms and forums have also become a prominent source of health information among different kinds of audiences. E-health emerged as a general buzzword after 1999 and is defined as 'a field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies'.[1,2] Ultimately, the internet is increasingly being perceived as an important communication channel and is functioning as some of the more established channels. This review of current trends and topics related to online health communication aims to highlight key factors that may affect the quality, use and audience-specific perception of online health communications as well as to providing examples of common internet uses by different kinds of health organisations. It also argues that internet-based interventions should still rely on the key mantras of strategic health communication and be part of an integrated approach with other communication areas and activities.

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INTRODUCTION: WHY E-COMMUNICATIONS?

Over the last few years, internet use has dramatically increased worldwide. In the United States, new internet users grew from 66 to 73 per cent in 2006.[3] A 2007 survey showed that '71% of American adults use the Internet'.[3] Half of new users subscribe to broadband reflecting the overall consumer desire to take full advantage of the internet potential as well as new technologies.[4]

Similarly, around 75 per cent of Canadians have a computer in their home and spend an average of 13.5 hours per week online.[5] While the United States is still the country in the world with the highest number of internet users, a few European countries and Australia have the highest internet penetration (percentage of the population who use the internet).[6] Instead, Asia is the leading world region for internet usage.[6] Africa and the Middle East still behind but several local and international initiatives have been focusing on eliminating the digital divide.[7]

These statistics and many other similar data have made a compelling case for the inclusion of e-communications as part of comprehensive interventions aimed at behavioural or social change. This is especially important in the healthcare field where an increasing number of ordinary people, professionals and organisations are relying on the internet for information and other purposes. In fact, 80 per cent of US internet users look for health and medical information online.[3] Ninety-eight per cent of US physicians are online[8] and 'spend at least 50 minutes per night online researching disease information, drug information, and to a lesser degree, Continuing Medical Education (CME) information'.[9] Similarly, searching for medical or health-related information is 'the third most popular use after e-mail and general browsing' among internet users in Canadian households.[10] Use of sophisticated and visually appealing websites, podcasts, webinars, chat forums and other interactive tools has become widespread among different kinds of health organisations. Interactive health communications (IHC) is a well-established area of health communication and has been defined as the 'interaction of an individual — consumer, patient, caregiver or professional — with or through an electronic device or communication technology to access or transmit health information or to receive guidance and support on a health-related issue'.[11] While IHC include also the use of other technologies, such as the telephone and computer programs, the internet has rapidly become one of the most important IHC channels.

While this is indeed a technological revolution in health communication, this paper observes that the internet is increasingly acting as more established media and remains one of the many strategic channels used to reach different kinds of audiences. Undoubtedly, 'for those who have regular access to it, the Internet has contributed to the merging of cultural perspectives and the understanding of many diseases'.[1] However, the fact that many interactions are mediated by technology has been shaping 'the quality and implications of communication by depriving it of nonverbal expressions (eg, facial expressions, gestures) and other influences (eg, the potential impact of different venues — formal versus informal venues — on healthcare or business conversations) that are normally common in face-to-face encounters'[1] or other kinds of communications. Obviously, this observation also applies to other kinds of media, such as print media. Several features of internet-based tools are, however, better positioned than those of more traditional media channels to compensate — at least in part — for some of the attributes of interpersonal communication channels. Awareness and use of such features — including audio and video files, animation, virtual support groups, audience feedback mechanisms, disease simulators and others — as well as the quality of the information being posted and the source credibility are essential to creating the feeling of connectedness the internet may elicit among many of its users. As for other kinds of mass media channels, the internet is not intended to replace the

human touch of interpersonal communications but for some of its applications (eg virtual support groups, professional and consumer blogs, virtual rallies, etc), it is well positioned to build and maintain communities and groups that share similar values and interests and whose members feel connected to each other.

Still, the process of communicating about health and illness — whether online or offline should continue to rely on evidence-based and audience-centred strategic health communication models, which should inspire the development of tailored communication strategies, messages, activities and tools and aim to individual or social behavioural change or to serving specific organisational goals. If adequately used, the internet can play a significant role in the process of changing health behaviour or motivating the adoption and use of new health services and products. Yet, its effectiveness may be maximised when internet-based strategies are used as part of an integrated approach to communication, which relies on different strategic areas (eg, interpersonal communications, public relations, community mobilisation, professional medical communications, etc) and tools.[1] The past decade has been witnessing the integration of new technologies with old mantras of health communication, which are all based on the importance of understanding situations, constituencies, audiences and needs.

This paper reviews key factors and topics that may influence the quality and implications of internet-mediated communications and outlines how audience and disease-specific issues may affect the perception and use of online health communications interventions. It also reviews common trends on internet applications and uses by professional, patient and advocacy organisations.

KEY ISSUES IN ONLINE HEALTH COMMUNICATIONS

The internet has become a widely used media for a number of social tasks. 'In health care, technology-mediated communications have provided a private forum to discuss sensitive matters, connect with others who may have experienced similar health issues, network, and learn about new medical solutions, among others. They have also affected provider–patient relationships. For example, some physicians may complain about the number of unnecessary questions and concerns that patients may raise because of non-credible medical facts found on the Internet. Yet the Internet and other technology advances have improved the ability of patients and the general public to participate in personal and public health decisions'.[1] Results of a 2006 survey of healthcare professionals describe that about 23–31 per cent of study participants reported 'more than 80% interaction with web informed patients in their daily practice'.[12]

As for other media the internet cannot substitute the feelings of closeness and social rapport elicited by face-to-face encounters and other forms of interpersonal communications, which are 'distinct in their usage'.[13] Still, the dynamics and principles of interpersonal behaviour should still inform and shape all online health communications.[1] This may help compensate — at least in part — for the lack of nonverbal clues or the potential influence of specific kinds of venues that are instead important factors in interpersonal communications.[1] Overall, intended audiences need to understand and share common meanings with the information source as well as trust its credibility regardless of whether communication takes place online or offline.

Other key issues in online health communication are common to other strategic communications areas[1] and include:

- A true understanding of situations and needs as well as audience characteristics and health literacy levels.[1]
- The quality and scientific resonance of the information being presented.
- The development of well-defined goals and objectives for the online health communication intervention.
- 'A behaviour-oriented mindset',[1] which should prompt consideration for the kind of behaviour online communications seek to influence.
- The information's graphic appeal — Showing instead of telling is a good practice in most forms of communications and, in the case of internet-based communications, it is both an obvious opportunity and a strategic imperative. Somewhat, this may have a different weight for internet uses that seek to expand the circulation of print materials or create online access to specific information (eg online libraries, e-journals, e-books, etc) but it is a prominent factor for all other internet applications.
- The cultural competence of online information and tools, which should be designed to reach across cultural boundaries and intended audiences' ideas of health and illness.[1]

Increasingly, the internet is acting and being used as more traditional media. Data from a study by Flanagin and Metgzer showed that 'conversation features of the Internet align with mediated interpersonal technology (the telephone and electronic mail)'.[13] Similarly, internet use for giving and retrieving information is widespread. Information-related features are often used in ways that are similar to more traditional mass media channels, including print, broadcast and books.[13]

Still, the influence of the internet and other related technologies 'varies from population to population and group to group. It is related to media access as well as specific media uses and preferences among members of intended audiences'.[1] The accuracy and quality of the information retrieved or exchanged on the internet is a key issue that may affect perception of the overall field of online health communications as well as its use among some audiences. Table 1 includes examples of some of the key factors that influence online communications quality in the healthcare field. These features and many others that may be specific to a given health issue or audience should be considered in evaluating the quality of online health communications. The table draws upon the author's professional experience as well as a review of some of the existing literature on the subject.[1,14–18]

Internet use has also raised concerns about the issues of patient privacy, equal access to information and the increasing digital divide between different generations

Table 1: Features influencing online communications quality

• Evidence-based, referenced and regularly updated information
• Peer review or professional authorship process
• Transparency about information source and/or health organisation's history, mission, activities and goals
• Information endorsement by key opinion leaders (KOLs) and other health organisations
• Source accreditation by reputable accrediting institutions
• Grant and conflict of interest disclosure
• Clarity on intended use of personal data
• Reputable and/or community-based sources and spokespeople
• Culturally competent format that translates into visual and graphic appeal, and adequate use of language
• Easy navigation
• Audience-driven resources and tools, including audience feedback mechanisms
• Inclusion of design features and tools that help create bridges among different key audiences
• Integration with services and other health communication interventions

and cultures, developed and developing countries, and, in the US and other developed countries, 'those who can take advantage of this additional resource and those who cannot'.[1] Internet access and computer skills, or the lack of thereof, are becoming key factors in determining health literacy levels among different kinds of audiences.[1] Finally, internet use has presented the field of health communication 'with an opportunity to contribute to public awareness and policy efforts that can expand access to this channel for health information as well as limit the potential harm to individual and public health that may derive from inaccurate Internet-based sources'.[1]

FACTORS IN THE PERCEPTION AND USE OF ONLINE HEALTH COMMUNICATIONS

The use and acceptance of many communication channels including online, are influenced by common audience-specific factors that affect how messages are digested, and behaviour change adopted by intended audiences. These include:

- The frequency of audience exposure to online health messages and more in general to the internet
- Health literacy levels
- Cultural, individual, motivational, socioeconomic, age, language and gender-specific factors
- The health issue's relevance among intended audiences and the level of priority they assign to it
- The ability of internet-based communications to elicit feelings of self-efficacy and empowerment and effectively involve intended audience in seeking the change that would lead to new health behaviours[1] and/or compliance to prevention and treatment strategies.

Moreover, perception and use of the internet among different audiences may be related to level of concern about privacy issues, prior experiences and the ability to discern among different sources of online information. Not surprisingly, among consumers 'most trusted sources of online health information include the personal doctor', medical universities and federal government websites.[19] Physician preferences for online information sources may vary according to physician specialty and task specificity. For example, Drezner reports that physicians treating HIV patients regarded the free Medline searches of MedScape and the National Library of Medicine as the most useful features of these websites.[20] A study conducted to evaluate internet practice patterns of radiologists shows that Google is the most used search engine to identify radiologic information.[21] The same study highlights that while '45% of participants use the Web for CME', 'most practicing radiologists still prefer traditional educational resources for radiologic information and radiology education'.[21] These include 'institutionally run courses' which are regarded as a very effective and efficient method of CME.[21]

In planning online health communication interventions, practitioners should be aware of and contribute to removing existing barriers to the use of internet-based tools and communications. For example, in the public health sector, positive perceptions and enthusiasm about the internet potential 'still outspace actual utilisation'.[22] As shown by reports of surveys administered to public health professionals or providers at county health departments, limited knowledge or access to new technologies such as high-speed connection, lack of staff training or organisational constraints are among the barriers to a much more widespread utilisation of online health communications.[22]

Audience and disease-specific factors should be taken into account to tailor

communications to specific needs and situations and use the internet appropriately. For example, Reeves reports that people coping with HIV infection regard the internet as a source of empowerment since it helps increase social support and makes possible to help others.[23] Conversely, a study by Bernhardt and others showed that African Americans and European Americans who participated in a study on internet communications on human genetics were interested in the internet potential but expressed concern on the credibility and accuracy of online information.[24] Study participants also reported lack of trust in many websites and feared a lost of privacy.[24] Finally, internet use and effectiveness is always enhanced by the inclusion of e-communications interventions as part of an integrated approach to health communication where other kinds of media and channels are used to communicate and reinforce health messages, mobilise and engage communities and provide relevant services. Other authors also support the importance of integrating internet use with services[18] and other communication approaches, which is consistent with current models[1,25] for strategic health communications.

INTERNET USE BY PROFESSIONAL, PATIENT AND ADVOCACY ORGANISATIONS

Use of the internet by health organisations of different sizes tends to go through distinct phases, which can be defined as *ongoing communications and research phase*, *organisational publicity* and *interactive exchange of health information*. In the *ongoing communications and research phase*, the internet is primarily used to research health information as well as to communicate with others via e-mail or share files and documents. The *organisational publicity phase* is usually marked by the development and launch of a website that establishes the organisation's web presence and includes information on its mission, goals, strategic areas of focus, activities, advisory board and key contacts. Depending on the organisation's size and budget, this initial website can be very simple or already include interactive features and more sophisticated internet tools that are characteristics of the phase defined as *interactive exchange of health information*. As the organisations progresses in its growth and develops further activities and insights in the health field of interest, interactive features such as discussion forums, disease simulators, audio and video files, virtual support groups, member-only webpages, online surveys, blogs, podcasts, advocacy tools, audience-feedback mechanisms and other interactive tools are developed to create an online community of users as well as to publicise with them offline events such as fundraisers, conferences and other kinds of meetings. Gilbert makes somewhat similar observations about different phases of internet use by environmental organisations.[26,27]

A review of the web presence of ten US-based health organisations[28–37] — including five professional medical organisations and five voluntary and/or patient/advocacy health organisations — revealed some common patterns on internet use. Table 2 summarises some of the most common uses highlighted by this review.

Of notice, fundraising pages and volunteer opportunities were more prominently displayed on patient and consumer organisations webpages while progress reports or calls to action on health advocacy issues tended to be more evidently showcased by professional health organisations. Media relations or news sections were prominently displayed on the homepage of most of the organisations

Table 2: Most common uses of the internet by health organisations

Professional health organisations	Voluntary, patient and advocacy organisations
Organisational visibility	Organisational visibility
Advocacy	Advocacy
Continuing medical education (CME)	Virtual support groups for patients and family caregivers
Disease-specific resources	Fundraising
Professional networking	Volunteer recruitment
Media/press relations	Disease profiling/risk assessment tools
Dissemination of new health policies/ standards of care	Media relations
Online publications and reports	Disease-specific materials and reports
Fundraising	Publicity of ongoing activities/programmes/events (online and offline)
Publicity of ongoing activities/programmes/ events (online and offline)	

reviewed. This reflects an increasingly reported trend according to which 75.9 per cent of journalists in recent studies view the internet as a serious journalistic tool and 68.5 per cent are logged on all the times.[38]

Regardless of their level of prominence, all internet uses highlighted in Table 2 match common uses of other kinds of communication channels such as print, broadcast, publications, interpersonal communication channels, community mobilisation events and activities, as well as more traditional approaches to professional medical communications. Moreover, as Brainard observes there may be some differences between the use of the internet by mainstream and more traditional health organisations and their newer counterparts. 'Traditional groups use the Internet for organizational maintenance whereas newer groups use it for more radical pursuits of empowerment, advocacy, and the provision of solidary benefits'.[39] Overall, this observation can also apply to the use of other kinds of communication channels.

Podcasts, other kinds of audio and video files, blogs, disease simulators, discussion forums and other interactive tools were selectively used to match the specificity of tasks and audiences. For example, podcasts (audio/media shows or episodes that are broadcast over the internet and can be downloaded for use in digital media players or iPod) have emerged as 'a convenient CME option' that enables users to take their CME 'to go'.[40] Online tours of websites are used to introduce new web features, launch new websites and help users become familiar with the site's navigation.[29]

Obviously, the most sophisticated online tools are only within the reach of large organisations that can dedicate significant budgets to the development of their online presence. Much smaller or budget-concerned organisations are still in the ongoing communications and research or organisational publicity phases and have a much more modest web presence that does not include interactive tools. Several initiatives and organisations both in developed and developing countries have been funding different aspects of internet access, connection and interactivity to increase its use by smaller nonprofit health organisations.

For example, the National Library of Medicine funds organisations in underserved or rural areas of the United States 'to initiate access' or 'expand the

bandwidth of their existing services'.[41] Publishers, foundations and different kinds of companies are collaborating with the World Health Organization or other institutions to fund access to the internet, create global libraries or enable its use in school-based curricula and other public health interventions in the developing world.[42–45] Women Connect!, a project of the Pacific Institute for Women's Health and the Annenberg Center for Communications of the University of Southern California, helped women's health organisation in different African countries to connect to the internet.[45] Many other similar initiatives are attempting to address the existing digital divide between different audiences and countries as well as issues of privacy, internet literacy and credibility of online information.

Still, while the impact of the internet is starting to be well documented in regard to areas such as provider–patient communications[46,47] and access to health information during times of disease and health crises,[48] evaluation of the impact of the internet on health behaviours is still relatively new[49] and requires further disease- and audience-specific exploration.

CONCLUSIONS

The internet is undoubtedly one of the biggest social revolutions of our times and has a great potential to contribute to improving worldwide health outcomes by increasing health literacy and access to information. Still — as for all other health communication channels — the internet is not a magic bullet and should be always considered and used as part of an integrated approach to health communication. 'Communication, and more specifically health communication, is a common part of social exchanges and contexts, from personal and professional encounters to the mass media [including the Internet] and traditional forms of expressions such as theatre and poetry, as well as informal conversations in barber shops, churches, restaurants, markets or other public places'.[1,50] Health communication plans 'should reflect this diversity of communication approaches and channels to match how communication actually takes place'.[1]

The increasing use of the internet by different audiences in the healthcare field makes a compelling case for the inclusion of e-communications as part of all health communications and public health interventions in those regions of the world where access to this technology is widespread among intended audiences. The internet is increasingly acting and being used as more established media pointing to the fact that we are witnessing a technology-based revolution more than a revolution in the theory and practice of health communication. As in other areas of health communication, behavioural and social outcomes should inspire and motivate the design of internet-based interventions and be measured by future studies. In fact, most of the factors that are discussed in this review and affect perception and use of the internet among different audiences are common to other kinds of health-related interventions and may also affect the impact of online health communications.

Health communication can play a fundamental role in helping advocate for expanded internet literacy and access; raise awareness of different online tools and their use; increase understanding of general criteria to assess source credibility as well as help address issues of information privacy and impact evaluation. Finally, when using the internet or 'any form of technology to communicate about health matters, it is important to remember and apply all general principles and values that pertain to interpersonal communications. Gender, age, and cultural, ethnic, and geographical factors as well as literacy

levels still influence technology-mediated communications and should be considered. This is about using one of the many kinds of media to have a heart-to-heart discussion about health and health behaviors'.[1]

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