Dr. Google: Navigating the world of online health information

Marc Jutras[1]
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The influence of the Internet is so pervasive in Canada that online connectivity has become inescapably molded into many aspects of everyday life. Up to 89% of Canadian households are currently connected to the Internet, and social media websites rank among the most highly visited pages by Canadian Internet users.[1] In fact, Canadians are the most active Facebook users globally, with over 19 million users who log on at least monthly.[2] Due to the explosion in popularity of social media in Canada and across the world over the previous decade, the dynamics of Internet marketing have shifted, with an increasing proportion of marketers currently targeting social media users.[3] Coupled with the fact that many individuals often turn to the Internet as a major source for health information, these trends indicate that the average Canadian Internet user may be exposed to many health–related advertisements and biased sources of information, even during routine browsing of social media pages.[4,5] An awareness of these trends is helpful for healthcare professionals to better anticipate the types of information that patients might be exposed to, as well as to provide education and guidance on navigating the online world as an informed Internet user.

Basics of search engine optimization and online advertising

Online advertising has changed dramatically since the first classic rectangular banner ad went live in 1994.[6] In the present era, Internet marketers have increasingly focused on search engines as a means of reaching the largest potential pool of customers, and paid advertisements currently constitute a major source of revenue for search engines like Google and Yahoo.[7,8] These paid advertisements appear at the top of search engine listings above "organic" search results (i.e., the nonpaid search results), under headings such as "Ads" or "Sponsored". After search terms related to legal, educational, and financial services, search terms related to healthcare are among the terms with the highest average cost–per–click (CPC) rates, serving as a testament to the size of the online health industry.[9] Aside from sponsored search engine listings, Search Engine Optimization (SEO) strategies have emerged as another cornerstone of modern Internet marketing. Through SEO, webmasters make use of efficient keywords, tags, and titles in order to have their webpages rank highly in the organic results of major search engines.[10] When a search engine like Google indexes the content of a webpage, it uses an algorithm that analyzes the keywords and tags on that webpage to determine how highly that page will rank in its search results, regardless of the reliability of the information presented on that page.[10] An ongoing risk therefore exists that misinformation might be propagated via search engines. As an example, a recent study evaluating Google search results for simple queries that include the phrase "human papillomavirus vaccine" revealed that up to 27% of results contained highly dissuasive and/or factually inaccurate information about the vaccine.[11] As a result, Internet users must always be wary of both commercialized advertisements and the inadvertent promotion of misinformation that can occur when conducting online searches related to healthcare topics.

Next steps: Social media marketing

Following the rise of social media websites like MySpace and Facebook in the early 2000s, a broader arsenal of tools and options became available to Internet marketers than ever before. With the advent of marketing technology that made it possible to correlate Internet cookies from search engines like Google with cookies from social networking websites like Facebook, marketers soon gained the ability to display customized ads on social media websites based on a user's previous Google searches.[12] Social media advertising has grown exponentially in recent years, with revenue for these particular types of ads projected to reach $11 billion USD in 2017 in the United States alone.[3] Unfortunately, the rise of social media marketing has also ushered in new avenues of deceptive online marketing practices. For example, unscrupulous marketers might utilize fraudulent social media profiles to distribute biased product reviews, with recent conservative estimates placing the rate of such fraudulent reviews at approximately 15%.[13] This is particularly concerning given that research has indicated that Internet users might place more value on product reviews written by other online customers, compared with professional reviews written by experts.[14] These observations are of no small significance in the online health industry, where up to 42% of Internet users in the United States routinely search for diet and weight loss information, for example, and the annual revenue generated by the online vitamin and nutritional supplement market targeted to such searches is approximately $7 billion USD.[15,16] Considering these trends of consumer behaviour within a climate of Internet marketing practices such as SEO, customized social media advertisements, and fraudulent product reviews, it is evident that the uninformed consumer is particularly vulnerable to the tactics and manipulation of deceptive marketers when browsing health information on the Internet.

Web 2.0 and a new era of online health information

Although examples abound of inaccurate sources of online health information, healthcare professionals can, with a simple understanding of the basic workings of the Internet, begin to combat this problem and help their patients avoid falling victim to the veritable maze of deceptive marketing and unfounded claims that exist on the web. In fact, some physicians have even taken a proactive approach to this issue by establishing their own personal blogs and websites. As an example, internal medicine physician Kevin Pho founded KevinMD.com in 2004, a website which has grown to become a leading social media platform in the healthcare sector and currently receives contributions from over 2,000 authors.[17] An important feature of this website is that it embodies many aspects of so–called "Web 2.0", a conceptual term used to describe modern websites that include such features as user–generated content, interactivity, and connectivity with other social media

[1]MD Program, Faculty of Medicine, University of British Columbia, Vancouver, BC, Canada

Correspondence
Marc Jutras (mjjutras@gmail.com)

platforms, among others.[18] Interestingly, a recent study examining the dissemination of vaccination information compared representative anti–vaccine and pro–vaccine websites and found that the anti–vaccine websites took advantage of more features of Web 2.0, including user connectivity and testimonials, relative to the pro–vaccine websites, which were mostly formal, encyclopedia–like resources.[19] Although the implications of these findings remain to be clarified through further research, it is conceivable, given the ongoing rise in popularity of social media, that the average Internet user might respond more favourably to health websites incorporating features of Web 2.0.[2] For instance, it has been suggested that the interactivity afforded by social media might be particularly conducive to engaging the public more effectively with specific topics such as health promotion.[20] Moreover, social media and Web 2.0 might resonate especially well with certain patient populations, such as pediatrics.[21] With this in mind, an opportunity exists for the establishment of more websites run by healthcare professionals, incorporating key features of Web 2.0, in order to temper the online pollution of misinformation that currently exists.

The fact that patients will seek health information online is an inescapable reality of the present era. Among many physicians, the traditional approach to this problem has often been to dismiss all sources of online health information as untrustworthy and to scold patients any time they confess to entering symptoms in an online search box. Rather than adopting this simplistic approach, it could be argued that modern physicians have a duty to take a more proactive approach and inform themselves about the Internet to understand the types of information that their patients will encounter. For physicians who are so motivated, helping to establish reputable sources of online, patient–friendly information that incorporate features of Web 2.0 and that will reach the largest audience possible could help to pioneer a new era of online health information. By this strategy, we might reach a day where reputable websites overshadow the commercialized and biased ones, and Dr. Google might become a trustworthy source of health information, rather than one to be avoided altogether.

References

1. CIRA Internet Factbook 2016. 2016.
2. Olivereira M. More Canadians use Facebook daily than anywhere else in the world [Internet]. Toronto: The Canadian Press; 2013. Available from: http://business.financialpost.com/fp-tech-desk/more-canadians-use-facebook-daily-than-anywhere-else-in-the-world?__lsa=cdac-4c27.
3. BIA Kelsey. U.S. social ad revenues to reach $11B in 2017 [Internet]. Chantilly: BIA Kelsey; 2013. Available from: http://www.biakelsey.com/u-s-social-ad-revenues-to-reach-11b-in-2017/.
4. Gann B. Giving patients choice and control: health informatics on the patient journey. *Yearb Med Inform*. 2012;7:70-73.
5. Schwartz KL, Roe T, Northrup J, Meza J, Seifeldin R, Neale AV. Family medicine patients' use of the Internet for health information: a MetroNet study. *J Am Board Fam Med*. 2006 Jan-Feb;19(1):39-45.
6. Edwards, J. Behold: the first banner ad ever — From 1994 [Internet]. New York: Business Insider; 2013. Available from: http://www.businessinsider.com/behold-the-first-banner-ad-ever--from-1994-2013-2.
7. Google. Alphabet announces fourth quarter and fiscal year 2015 results [Internet]. Mountain View: Google; 2016. Available from: https://abc.xyz/investor/news/earnings/2015/Q4_google_earnings/.
8. Yahoo. Yahoo reports third quarter 2016 results [Internet]. Sunnyvale: Yahoo; 2016. Available from: https://investor.yahoo.net/ReleaseDetail.cfm?releaseid=994224.
9. Statista. Average cost per click in Google AdWords in selected industries in the United States in 1st quarter 2012, 2013 and 2014 (in U.S. dollars) [Internet]. Hamburg: Statista; 2016. Available from: https://www.statista.com/statistics/263800/cost-per-click-per-segment-in-us-search-engine-marketing/.
10. Google. Search engine optimization starter guide [Internet]. Mountain View: Google; 2008. Available from: http://static.googleusercontent.com/media/www.google.com/en//webmasters/docs/search-engine-optimization-starter-guide.pdf
11. Pias-Peleteiro L, Cortes-Bordoy J, Martinon-Torres F. Dr. Google: what about the human papillomavirus vaccine? *Hum Vaccin Immunother*. 2013 Aug;9(8):1712-1719.
12. Kenshoo. Kenshoo expands audience management solutions to help marketers improve results from search and Facebook ad campaigns [Internet]. San Francisco: Kenshoo; 2014. Available from: https://kenshoo.com/audiences-ida-pr/.
13. Sussin J, Thompson E. The consequences of fake fans, 'likes' and reviews on social networks. 2012 July 24, 2012.
14. Li M, Huang L, Tan CH, Wei KK. Helpfulness of online product reviews as seen by consumers: source and content. *Int J Electron Comm*. 2014;17(4):101-136.
15. McCully SN, Don BP, Updegraff JA. Using the Internet to help with diet, weight, and physical activity: results from the Health Information National Trends Survey (HINTS). *J Med Internet Res*. 2013 Aug 1;15(8):e148.
16. IBIS World. Online vitamin and supplement sales in the US: Market research report [Internet]. Los Angeles: IBIS World. Available from: https://www.ibisworld.com/industry/online-vitamin-supplement-sales.html.
17. Kevin Pho. About KevinMD.com [Internet]. Boston; Kevin Pho; 2016. Available from: http://www.kevinmd.com/blog/about-kevin-md.
18. Cormode G, Krishnamurthy B. Key differences between Web 1.0 and Web 2.0. 2008 May 20, 2008;13(6).
19. Grant L, Hausman BL, Cashion M, Lucchesi N, Patel K, Roberts J. Vaccination persuasion online: a qualitative study of two provaccine and two vaccine-skeptical websites. *J Med Internet Res*. 2015 May 29;17(5):e133.
20. Levac JJ, O'Sullivan T. Social media and its use in health promotion. *IJHS*. 2010 February 1, 2010;1(1):47-53.
21. Romano R, Baum N. How pediatric surgeons use social media to attract new patients. *Eur J Pediatr Surg*. 2014 Aug;24(4):313-316.