International Review of Business Research Papers
Vol. 3 No. 3 August 2007 Pp. 325-332

Is there a need for an improved health information website in New Zealand?

Helen M Scott* and W Guy Scott**

Introduction and aims: The quality of health-related information on the internet is highly variable and many consumers would have difficulty evaluating what they find.

The aims of this study were to construct a checklist and use this to evaluate general health information websites in New Zealand.

Methods and data: A scorecard was developed and used to rate New Zealand websites. The results from the 2004 survey and the findings from the review of existing internet websites were used to develop policy advice to owners and users of health information websites.

Results: We developed a 16 point scoring system to evaluate the quality and safety of health information websites. While most websites scored well on most of the criteria, many users would have difficulty evaluating the quality and determining when the data were last updated.

Conclusions and implications: We consider that all websites evaluated could be improved and that there is a place for an improved officially endorsed New Zealand health information website. This site should contain information on how to evaluate data sourced from the internet and have links to a range of useful and trustworthy health information sites.

Field of research: Economics

1. Introduction and aims

Allocative efficiency would be improved if consumers of health services had better information. The internet is a valuable source of health related information and is a potential answer to the problem of asymmetric information in that providers of health care are almost always better informed about health and health care interventions than are consumers. However, some sites contain unreliable, misleading or harmful data.

In 2004 a survey (G. Scott et al., 2005a; W. G. Scott et al., 2005b) was conducted in Wellington, New Zealand to determine what health information was sought from the internet, and how the information was used and valued. It took searchers on average 0.47 hours and cost $12 (opportunity cost of time) to find the information. The data found were considered to be useful and given an average value of $60. (See also tables 1 and 2.)

* Helen Scott, ScottEconomics, PO Box 14403, Wellington, New Zealand. Email: scotteconomics@xtra.co.nz

** Dr Guy Scott, Department of Applied and International Economics, Massey University, Wellington campus, Private Box 756, Wellington, New Zealand. Email: g.scott@massey.ac.nz

We would like to thank our colleagues for peer review of this paper.

Most people wanted information on; general health and nutrition, a specific illness, or a medicine. The top 5 types of information sought are summarised in table 1.

Table 1: Top 5 topics searched

Topic: On average, searchers were looking for two topics	**% of respondents**
1 General health and nutrition information	45.2
2 A specific illness	42.1
3 Medicines	40.5
4 Non-medicine health products	21.4
5 Alternative medical treatments	19.8

On finding the information, the main actions were to; talk with friends and family, contact a general medical practitioner, or change some aspect of eating or drinking. The top five actions taken after finding this information are summarised in table 2.

Table 2: Top 5 actions taken as a result of the search

Action: On average, respondents took three actions as a result of their search	**% of respondents**
1 Talked to family member, friend, neighbour, or workmate	57.9
2 Contacted general medical practitioner	35.7
3 Changed eating and/or drinking habits	33.3
4 Bookmarked the website for future reference	22.2
5 Bought a health product from a health store	19.8

The aims of the current study were to construct a checklist and use this to evaluate general health information websites in New Zealand.

2. Methods and data

We reviewed the literature on evaluating the quality of consumer health information on the internet and found the following journal articles and web based resources to be most useful; Boyer, California Medical Association, Canadian Health Network, Clark, Eysenbach, Gattoni and Sicola, Health On The Net Foundation, Kim, MedlinePlus, National Center for Complementary and Alternative Medicine, Thompson, WHO, Winker. (Boyer *et al.*, 1998; California Medical Association, 2005; Canadian Health Network, 2005; Clark, 2002; Eysenbach *et al.*, 2002; Gattoni & Sicola, 2005; Health On the Net Foundation, 1998; Kim *et al.*, 1999; MedlinePlus, 2004; National Center for Complementary and Alternative Medicine, 2002; Thompson, 1999; WHO, 2004; M. Winker *et al.*, 2005; M. A. Winker *et al.*, 2000).

For the purposes of our study we found four of the above sources to be of most value. WHO (WHO, 2004) provided five general criteria for evaluating web information (accuracy, authority, currency, coverage, objectivity) and a link to a US government health website (MedlinePlus, 2004) that provides more specific information and links to government health websites of other countries. The American Medical Association (M. Winker et al., 2005) has developed a comprehensive set of guidelines and standards that designers of medical information

websites will find useful. A valuable check list for consumers of medical information is to be found on the Californian Medical Association's website (California Medical Association, 2005). The Health On The Net Foundation (Boyer et al., 1998; Health On the Net Foundation, 1998) published a set of good practice and quality guidelines (HON Code of Conduct (HONcode) for medical and health web sites) aimed specifically at information providers but also of worth to users of such web based information.

Using information found as described above and the results from our previous study (G. Scott et al., 2005a; W. G. Scott et al., 2005b) we constructed a set of criteria (score card) against which the more general medical and health websites could be judged.

We used the search phrases, "New Zealand health information" and the following search engines to find general health websites. Google and the following New Zealand specific search engines were used: Access NZ, Anzwers, NZS.com, NZ Explorer, Pipers NZ, SearchNZ, Te Puna Web Directory, Yahoo Australia & NZ, and WebSearch. The scorecard was used to rate general health websites specific to New Zealand. For each criterion achieved a score of 1 was given, if only partially met a score of 0.5 was allotted, otherwise a zero was recorded. Searches were conducted in mid 2005.

3. Results

The scoring criteria we constructed are as follows:

1. Easy to find: A website, if it is to be of value, must be quick and easy to find.

2. Guidelines for evaluating information quality: A short checklist of criteria that will assist users to evaluate the site and the quality of the information posted.

3. Owner clearly identified: Knowing the identity of the owner will assist in identifying possible conflicts of interest and bias.

4. Clear statement of purpose: The website's objectives should be transparent as this will assist in assessing the relevance to the searcher of the information posted on the website.

5. Email contact details for webmaster/ owner: A user should be able to contact the site owner to obtain further information about the owner, the content suppliers, the information on the site, and to register complaints or suggestions.

6. Date website updated/ created: The date the website was last updated is needed so that currency of the content may be judged.

7. Information sources and credentials of providers: The editorial process and content review should be transparent. Some sources will be more authoritive, accurate and more objective than others.

8. Source of funding/ sponsorship for the website: All websites have creation maintenance and administrative costs and the sources of funding will help in making informed decisions on content quality and possible bias. Both commercial and non-commercial contributors of funding, services or material should be identified.

9. Advertising (if any) clearly distinguishable from other content: Presence of advertising as such is not a problem provided it is not intrusive, does not saturate the site and is clearly identifiable.

10. Full disclosure of any product or service being promoted or offered for sale: Full disclosure of any potential conflicts of interest should be made.

11. Language and communication style suitable for target audience: Jargon and acronyms that the user will have difficulty in understanding may hinder informed decision making.

12. Contact details and/ or links to other websites for more specific health information or diagnosis: A general health website should provide general information. Attempting to make a website all embracing and inclusive will detract from its functionality and its capacity to communicate important information. However, the information uncovered may raise other more specific questions. Accordingly, a general health information website should not give the impression of replacing a health care professional for specific advice, but there should be links to more specialised sites.

13. Guidance on when to contact an appropriate health professional / support group: The web site developers have a responsibility to inform consumers that if certain symptoms are present a health professional should be consulted for diagnosis and treatment.

14. Easy to navigate within the website: Users should be able to find their way within the site and back to where they started without getting lost in an electronic maze.

15. Confidentiality of user protected: Is the site open access or is the user required to register and provide personal information? If registration is required before the information on the website can be accessed it is important that users satisfy themselves that such data will be kept confidential, not given to third parties and/ or used for promotional or selling purposes.

16. Access free of charge: An access fee will deter many potential users. In particular those consumers in greatest need of health care are often least able to pay for advice and treatment (Hart, 1971).

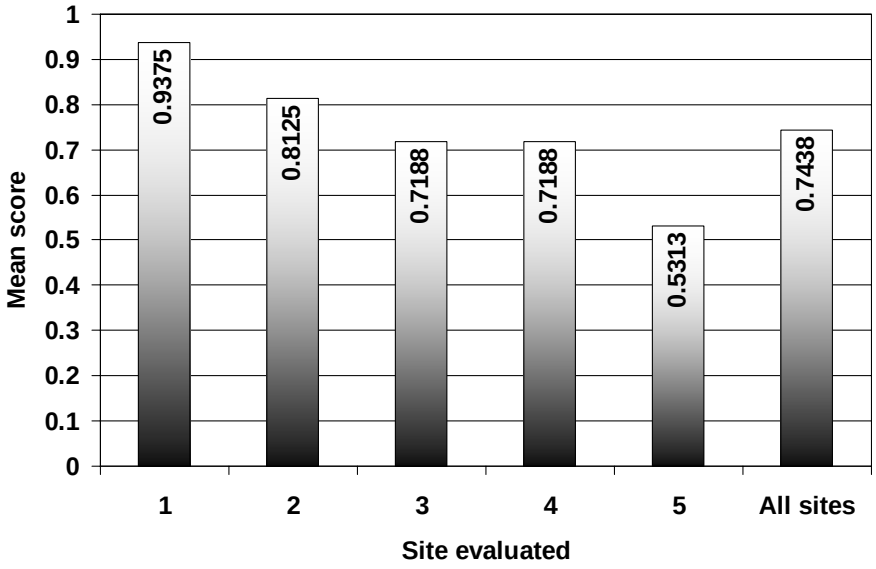
We found five websites that met our inclusion criteria of a general consumer health information website specific to New Zealand. These websites are listed in table 3 but cannot be identified in figure 1.

Table 3: New Zealand websites providing consumers with general health information

Name	Owner	URL
Everybody	CMPMedica (NZ) Ltd	http://www.everybody.co.nz/
Family Doctor	The Online Services Group (N.Z)	http://www.familydoctor.co.nz/index.asp
New Zealand Ministry of Health Manatū Hauora	New Zealand Ministry of Health Manatū Hauora	http://www.moh.govt.nz/moh.nsf
The Health Network	THNC consulting and publishing	http://www.health.net.nz/
The New Zealand Health Network	NZHealth.net.nz Ltd	http://www.nzhealth.net.nz/

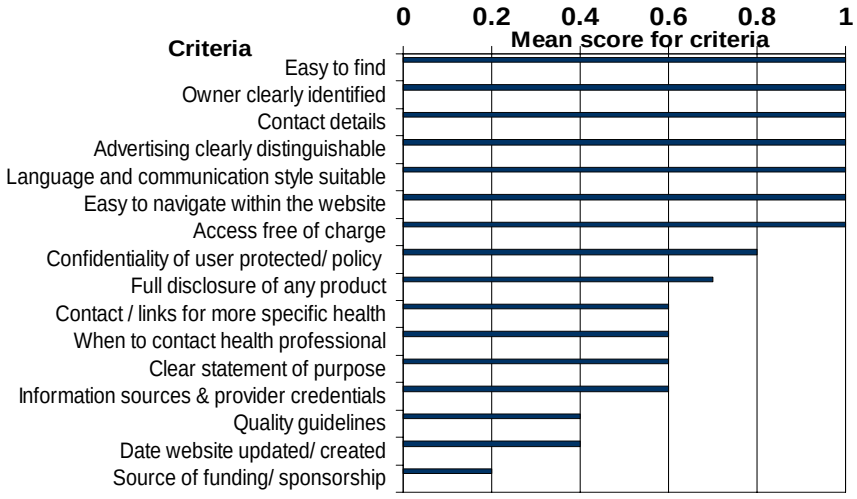
The mean score over all websites and over all criteria was 0.7438 but the mean scores per site ranged from 0.5313 to 0.9375. Application of a paired t-test found a highly significant difference between the highest and lowest scored site (p=0.005 that the two samples came from the same population). Figure 1 presents these scores by website.

Figure 1: Mean score by website evaluated



Mean scores by criteria ranged from 0.2 to 1 and application of a paired t-test found a statistically significant difference between the highest and lowest scored criteria (p=0.016 that the two samples came from the same population). Figure 2 presents these mean scores by criteria.

Figure 2: Mean score by criteria



4. Discussion

The number of websites evaluated is low because of our stringent selection criteria. The following types of website were excluded; directories (such as library catalogues and the Librarian's Index to the Internet), article data bases (such as Medline, which can be accessed free of charge through PubMed), specialised sites, such as those produced by medical professional associations (for example, New Zealand Dermatological Society) and health and disability support groups (for example, Diabetes New Zealand, and Arthritis New Zealand). Such sites did not qualify, as we wished to consider general health information websites from which there should be links to more specialised sources of information. The sample size would have greatly expanded had these specialised sites been included.

All websites scored well on: "easy to find, owner clearly identified, contact details, advertising clearly distinguishable, language and communication style suitable, easy to navigate within the website, and access free of charge". However, there is room for improvement on: "confidentiality of the user is protected, full disclosure of any product, contact / links for more specific health information, when to contact a health professional, clear statement of purpose, information sources and provider credentials, quality guidelines, date website updated/ created, and source of funding/ sponsorship". Most of the websites had insufficient information on date of creation and data updating, and funding sources. In our opinion websites must address all of the criteria on our list to qualify as "a safe and unbiased provider of consumer health information website". Even an official government website should clearly state the source of funding, for example, by stating that the website is supported by state funding and is not influenced by purveyors of health services.

Although we found statistically significant differences between the highest and lowest scored websites and between the highest and lowest scored criteria, the sample size is low and the results need to be interpreted with caution. We applied equal weightings to all criteria but individual users of the internet and website designers may well wish to place more importance on some criteria over others. Additional research would be required to establish weighting preferences and to evaluate more specialised websites.

Many of the criteria we used to rate general health information web sites could be applied to any web site intended to provide information that is unbiased, accurate and up-to-date.

5. Conclusion

We consider that all websites evaluated could be improved and that there is a place for an improved officially endorsed New Zealand health information website. This site should contain information on how to evaluate data sourced from the internet and have links to a range of other useful and trustworthy health information sites. It is particularly disturbing that some health information websites do not provide the consumer with independent peer reviewed guidelines with which to assess information and website quality.

References

Boyer, C., Selby, M., & Appel, R. 1998. The Health On the Net Code of Conduct for medical and health web sites. *Medinfo, 9 Pt 2*, 1163-1166.

California Medical Association. 2005. How to Evaluate Medical Information Found on the Internet, February 25, 1999. Retrieved 1 November, from http://new.cmanet.org/publicdoc.cfm/60/0/GENER/99

Canadian Health Network. 2005, 25 October. How to find the most trustworthy health information web sites. from http://www.canadian-health-network.ca/servlet/ContentServer?cid=1042668266229&pagename=CHN-RCS%2FPage%2FShellStaticContentPageTemplate&c=Page&lang=En

Clark, E. J. 2002. Health care web sites: are they reliable? *J Med Syst, 26*(6), 519-528.

Eysenbach, G., Powell, J., Kuss, O., & Sa, E. R. 2002. Empirical studies assessing the quality of health information for consumers on the world wide web: a systematic review. *Jama, 287*(20), 2691-2700.

Gattoni, F., & Sicola, C. 2005. How to evaluate the quality of health related websites. *Radiol Med (Torino), 109*(3), 280-287.

Hart, J. T. 1971. The inverse care rule. *The Lancet*, 405-412.

Health On the Net Foundation. 1998. HON code of conduct (HON code) for medical and health web sites. 9 Pt 2, from http://www.hon.ch/HONcode/conduct.html

Kim, P., Eng, T. R., Deering, M. J., & Maxfield, A. 1999. Published criteria for evaluating health related web sites: review. *Bmj, 318*(7184), 647-649.

MedlinePlus. 2004. MedlinePlus guide to healthy web surfing. Retrieved 25 October, 2005, from http://www.nlm.nih.gov/medlineplus/healthywebsurfing.html

National Center for Complementary and Alternative Medicine. 2002. 10 things to know about evaluating medical resources on the web. NCCAM Publication No. D142. Retrieved 25 October, 2005, from ttp://nccam.nih.gov/health/webresources/

Scott, G., Scott, H., & Auld, T. 2005a. The role of the internet in correcting for asymmetrical information. *iHEA 5th World Congress*. July 10 - 13, Barcelona Spain, July 10 - 13. International Health Economics Association.

Scott, W. G., Scott, H. M., & Auld, T., S. 2005b. Consumer access to health nformation on the internet. *Australia and New Zealand Health Policy, 2*(13), doi:10.1186/1743-8462-1182-1113.

Thompson, K. M. 1999. Health insight: a consumer's guide to taking charge of health information. Retrieved 30 January, 2005, from http://www.health-insight.com

WHO. (2004). Internet concepts, Module 1. Retrieved 25 October, 2005, from http://www.who.int/hinari/training/module%201%20Workbook.pdf

Winker, M., Flanagin, A., B, C.-L., White, J., Andrews, K., Kennett, R. L., et al. 2005. Guidelines for Medical and Health Information Sites on the Internet: American Medical Association.

Winker, M. A., Flanagin, A., Chi-Lum, B., White, J., Andrews, K., Kennett, R. L., et al. 2000. Guidelines for medical and health information sites on the internet: principles governing AMA web sites. American Medical Association. *Jama, 283*(12), 1600-1606.