

14 Medicine and the Internet

Stewart Jessamine is the Principal Technical Specialist at Medsafe the agency responsible for monitoring the safety quality and efficacy of medicines in New Zealand.

Searching the internet library
Continuing medical education and professional development
Internet security and medical practice
Communicating with patients
Prescribing for New Zealand based patients
Practising “virtual” medicine
Integration of the internet into day-to-day practice

“The internet is the world’s greatest library surrounded by the world’s largest flea market. The problem is that it’s almost impossible to tell which of the two you are currently visiting” – Anon.

Over the past ten years information technology has revolutionised the world of business, including the practice of medicine, and provided the general public for the first time with the tools needed to find, collect, and analyse medical information. The internet has decreased the asymmetry of information between doctors and patients and changed the relationship between doctors and patients.

As with all revolutions the medical information revolution challenges the status quo and creates a number of threats and opportunities for doctors. The rest of this chapter tries to identify some of these threats and opportunities and aims to provide some guidance on how both you and your patients can determine whether you are in the internet library or the flea market. This chapter should be read along with the Medical Council of New Zealand’s “*Statement on use of the Internet*”. The statement sets out the legal and ethical framework as well as the Council’s ethical expectations of medical practitioners who are, or intend to, use the internet to deliver services to their patients.

Searching the internet library

The internet contains a vast number of useful medical information resources; unfortunately they are hidden amongst a sea of opinion, conjecture and misinformation. Open any internet search engine and type in “medicine” and you will find millions of sites containing medical information.

Most of these sites are not peer reviewed and are not subject to the publishing and review rules that we expect of evidence-based medical information. To determine the value of information you find on the internet, you therefore have to check each article you review for the basics of quality evidence-based medicine namely:

- Who authored the article? What are their qualifications?

- Have they disclosed any potential conflicts of interest?
- Is the article appropriately referenced and are these references from acceptable peer-reviewed sources?
- Where is the article published? Is the journal subject to adequate peer-review?
- Does the website disclose any potential conflicts of interest, such as who has paid for the site to be maintained?

In order to make things simpler, authors such as Silberg *et al* proposed in 1997, using these types of questions to form a code of standards for internet health sites.¹ This proposal was picked up by the Health on the Net Foundation (HON) and developed into a Code of Conduct. In addition, the HON Foundation developed databases of health information resources that have been assessed as meeting the requirements of their Code. Practitioners intending to publish information on the internet should follow the HON Code of conduct when writing and publishing.

As with any form of medical literature review, when searching the internet it is best to stick to mainstream, peer-reviewed, evidenced-based information resources. The availability of electronic copies of a number of the mainstream medical journals makes internet literature review easier, and abstracts of some of the lead articles in these journals can be obtained free of charge from their websites. Another key information resource is Pubmed; this database contains all articles and letters published in over two hundred peer-reviewed medical journals from around the world. Abstract data can be obtained for free from Pubmed, and you can purchase copies of complete articles from the website; alternatively you can use Pubmed to identify the key references and then search them out at your local medical school library.

Since we are all practising medicine in New Zealand, local information is essential when we make decisions about patients. The Ministry of Health, PHARMAC, the New Zealand Guidelines Group, and Medsafe (the New Zealand Medicines and Medical Devices Safety Authority) all maintain websites that contain information relevant to medical decision-making. For example, the Medsafe website contains the latest medicines safety and prescribing information for over a thousand of the most commonly used medicines in this country, as well as an electronic version of its publication *Prescriber Update* and information for consumers.

The following websites are a mix of sites endorsed by the Health on the Net Foundation and websites I have found to be useful:

General Search Engine	www.google.co.nz
MEDLINEplus	http://www.nlm.nih.gov/medlineplus/
Pubmed	http://www.ncbi.nlm.nih.gov/
Medscape	http://www.medscape.com
British Medical Journal (BMJ)	http://bmj.com
The Lancet	http://thelancet.com
JAMA	http://jama.ama-assn.org/
New England Journal of Medicine (NEJM)	http://content.nejm.org/
Bandolier Journal	http://www.jr2.ox.ac.uk/bandolier/whatnew.html
Health on the Net Foundation (HON)	http://www.hon.ch
Intelihealth	http://intelihealth.com
Medsafe	http://www.medsafe.govt.nz

PHARMAC	http://www.pharmac.govt.nz
New Zealand Ministry of Health	http://www.moh.govt.nz
New Zealand Guidelines Group	http://www.nzgg.govt.nz
New Zealand Medical Journal	http://www.nzma.org.nz/journal/
Goodfellow Unit	http://www.auckland.ac.nz/goodfellow/
Royal NZ College of General Practitioners	http://www.rnzcgp.org.nz
Medical Council of New Zealand	http://www.mcnz.org.nz

Using a number of these resources as the first points of reference for searching for health information on the internet should keep both you and your patients in the highest quality part of the internet library. Useful sources of supplementary information include patient (or disease) oriented websites maintained by national patient organisations, such as the Heart Foundation or the Multiple Sclerosis Society. In addition to information these websites often contain links to other information resources, and chat rooms where patients can discuss subjects such as best treatment options. Unfortunately many patient chat rooms are poorly overseen and in some cases contain a great deal of misleading information. Applying the basic rules for quality evidence-based medicine (described above) when reviewing or discussing data obtained from chat rooms and discussion groups should help you sort out the evidence from the opinion. Discussing these rules with your patients and getting them to use them when reviewing internet health sites themselves is a good strategy to empower patients.

Continuing medical education and professional development

Just as the internet has changed the asymmetry of information between doctor and patient, it has also created the means to address the asymmetry between generalist and specialist medical practitioners. It is now relatively easy for any doctor to identify and contact specialists anywhere in the world with an interest in a particular medical condition. While interaction with these specialists through internet discussion groups has the potential to improve patient outcomes, in reality such initiatives are only just developing and probably have little relevance for day-to-day medical practice. Due to the lack of infrastructure the same can also be said for telemedicine (a consultation where a specialist interviews and “examines” the patient by video link from a regional hospital). While telemedicine has tremendous potential for managing patients with common diseases, it isn’t likely that we will be routinely using it in general practice in the near future.

Despite the reservations many practitioners have about the role of information technology in medical practice, the internet has become an important source of continuing medical education (CME) in New Zealand. Resources to obtain CME points can be found at a number of local sites including the Goodfellow Unit and the Royal New Zealand College of General Practitioners.

Internet security and medical practice

The internet offers an opportunity to streamline aspects of the business of medical practice such as sending and receiving patient data, e.g. referrals to specialists, obtaining data about patients, such as blood test results or NHI number, and making claims from funding agencies. Yet it took several years’ effort to solve the

problems of patient privacy, confidentiality, data security and verification of the identity of users of the system before the New Zealand health intranet was able to begin to deliver services.

The internet is essentially an unsecured network and unless you take adequate precautions, the data on your computers, and computer terminals themselves, can be captured (hacked) and read by persons outside of your medical practice. Before you embark on any process that involves you, or your practice, sending or receiving information about patients over the internet you should consider whether the system you are using is secure and able to maintain patient confidentiality and privacy. The website of the Privacy Commissioner (<http://www.privacy.org.nz>) sets out the Commissioner's requirements for data security. You should seek professional advice if you are not sure about the security of your system or network.

Communicating with patients

The use of email as a means of communicating with patients significantly increases the problems of confidentiality, privacy, and data security. The most obvious issues are: how do you determine that the person asking the question is actually the patient named on the email and not some other member of the household who has access to the family computer? what can you do to be assured that any results sent by email will be read by the patient only? and is this information so sensitive it is inappropriate to send it by email? Some subjects and test results are more confidential and sensitive than others, so before deciding to use email routinely as a communication tool with patients, it is worth identifying in advance what data you are comfortable sending to patients and what data or subjects you would only discuss with a patient as part of a consultation. You can then discuss your internet information release policy with your patient before seeking their consent to send data to them by email. You can also use this opportunity to discuss with them your schedule of charges for responding to questions or requests for comment via email. As with all other forms of communication with patients, email communication must comply with the Code of the Health and Disability Services Consumer's Rights.

Prescribing for New Zealand based patients

Inevitably you will be asked either to prescribe by email for one of your own patients, or to write a prescription to allow your patient to obtain a medicine they have decided to buy over the internet. The current New Zealand legislation does not permit prescriptions to be issued by email, so you should avoid this activity. If a patient needs a prescription and they are out of your immediate vicinity, a telephone script to a pharmacy followed by faxing, and sending a written prescription to that pharmacy is required.

The issue of prescribing to allow a patient to import a medicine purchased over the internet while legal, raises a number of ethical and practical questions. It is illegal for a patient to be in possession of a prescription medicine other than that obtained by filling a prescription written by a registered medical practitioner. Prescription medicines purchased over the internet are therefore likely to be stopped at the border and the patient asked for proof that they have a prescription. Many

medicines purchased on the internet are likely to be counterfeit medicines and as such prescribers need to consider whether they are prepared to facilitate patient access to a medicine delivered through the uncontrolled route of the internet before writing a prescription. In coming to this decision, prescribers should consider whether the patient actually needs the medicine, and then consider if they are able to satisfy themselves that the medicine being imported meets the necessary standards of safety, quality and efficacy or in fact even contains the stated active ingredient. These are important considerations as a decision to facilitate access by prescribing may expose the medical practitioner to legal liabilities if harmful consequences arise from the patient's use of the medicine purchased on the internet⁴.

Practising “virtual” medicine

Of all the issues raised by the internet the emergence of “virtual” medicine practitioners is the issue of highest concern. Virtual medicine describes the situation where the entire medical consultation, including the writing and dispensing of a medicine, takes place over the internet, often without the knowledge of the regular medical attendant. These services are being supplied by a number of medical practitioners around the world and the quality of the advice offered and the professional standards applied by these doctors vary enormously.

Virtual medical practice creates a number of new problems in addition to those identified above, such as confirming the identity of the patient requesting advice, the accuracy of the data presented in any case history, the need for a physical examination, and assessing the validity of the request for the medication. It also raises significant ethical questions about patient safety, professional responsibility and duty of care, and the legality of prescribing for patients in another country where the prescribing doctor is not registered to practise medicine.

The Medical Council of New Zealand has promulgated a “*Statement on the use of the Internet*”. This statement contains advice on internet security and confidentiality and stresses the need to keep complete electronic records of all consultations. In addition the *Statement* clearly says that under the Medicines Act it is illegal for doctors to prescribe medicines for patients unless the patient has had a face-to-face consultation with the doctor, or another medical practitioner who can verify physical data and patient identity. Doctors should only prescribe for patients under their care in circumstances where they have previously seen or examined the patient and the doctor is confident that a physical examination would not add critical information about the management of the patient. Internationally medical licensing authorities such as the Medical Council and the Federation of State Boards of America, and regulatory authorities such as Medsafe, have indicated that they are prepared to prosecute doctors involved in virtual medical practice. Medsafe has already successfully prosecuted a pharmacy that was supplying prescription medicines to consumers in the United States, and is investigating several cases where doctors are signing, or countersigning, prescriptions for patients overseas to allow medicines to be dispensed from New Zealand pharmacies. This activity is contrary to best medical and pharmacy practice and the Medical Council's *Statement on use of the Internet*, and the recent decision by the Pharmacy Council to add a new clause to its Code of Ethics to

prohibit pharmacists from selling medicines intended for the treatment of chronic diseases to patients outside of New Zealand, are examples of how the professions are no longer prepared to tolerate these activities.

Practitioners of virtual medicine are subject to prosecution and disciplinary action in New Zealand for all activities they undertake in their “virtual medical practice” irrespective of the country of residence of their patients. However, it is now reasonably clear that virtual medicine practitioners are also likely to be liable for prosecution and action against them in the Courts in the patient’s country of residence. Before embarking on any scheme to prescribe over the internet you should take legal advice on your potential liabilities in both New Zealand law and in the law of the countries where your patients reside. You should also check that the terms of your medical practice (malpractice) insurance would cover you for care of patients in other countries.

Integration of the internet into day-to-day practice

Although we have been living with the information revolution for more than ten years, the major impacts are still to be realized at general practice level. Establishing standards and guidelines for incorporating new technology into medical practice will therefore remain a challenge for doctors and registration bodies, such as the Medical Council, for some time. Coping with these demands will require a change in how we think about medical education and medical practice.

The pressure for doctors to be better informed and to keep up to date with new developments is steadily increasing as more patients make use of new information resources. Integration of these resources into our medical practice and the provision of patient guidance on how to use them effectively may offer a chance for the interaction between doctors and patients to move beyond the adversarial approach felt by many doctors of today, towards an informed and collaborative partnership in the future.

Creating a website for your practice to inform your patients of your opening and closing times, after-hours arrangements, charges and privacy and email policy, is a start to establishing this new partnership. Constructing your website to encourage your patients to use it to obtain information from the evidence-based health resources described above should improve the quality of your interaction with patients and go a long way towards ensuring that everyone can come out of the internet revolution a winner.

References

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