

Chapter 13 Telemedicine and the Internet

CASE STUDIES

Case study: clinicians use of online information in New South Wales, Australia

Westbrook and colleagues²⁸ studied the use by 55 000 clinicians (doctors, nurses, and allied health professionals) of an online information resource – the Clinical Information Access Program (CIAP) – in the state of New South Wales, Australia, and how this use related to their clinical practice. By analysing the site's 'web-log', they were able to calculate that over a 7-month period in 2000–01 there were 48.5 'search sessions' per 100 clinicians every month, in which they searched the database bibliography for specific clinical information. There were also

231.6 'text hits' per 100 clinicians to single-source databases, in which the clinicians accessed a particular medical text that they were looking for. At the same time, Westbrook and colleagues found that these bibliographic searches in CIAP correlated very strongly with levels of patient admissions to hospital across the state. This suggested that the clinicians were using CIAP to get information about their patient's clinical condition, and how it should be managed. They concluded, therefore, that 'access to online clinical information is prompted by patient care questions and thus have the potential to influence clinical decisions.'

Case study: cultural assumptions on UK web sites for breast and prostate cancer

Seale⁵² has analysed the gender stereotypes that underlie popular UK websites for breast cancer and prostate cancer. On breast cancer sites, women were portrayed as having to make decisions about matters *other* than their immediate treatment, such as their future fertility, their childcare problems, the difficulties of telling their children about the diagnosis and their physical appearance. They were also expected to sometimes change their minds, to have the right to opt out of the decision-making process, and to consult fully with families and friends. In contrast, men with prostate cancer were portrayed as more isolated, less connected to family and friends, and more obliged to take an active and decisive role in making decisions about treatment (even to see themselves, rather than their doctors, as

being the chief decision-makers), and to make those decisions without consulting with their families and friends. There was no discussion of the many stresses this decision-making might cause the men, and few personal stories of their cancer experience were given. Thus, Seale suggests that clinicians should be aware of the role of the underlying gender expectations 'that men and women feel obliged to consider when making decisions about their cancer treatments'. These underlying stereotypes may help explain to clinicians why some men with cancer do not fully consider the views of their family, do not take non-medical factors into account, and find it difficult to let doctors influence their decision-making; while for women with cancer, they may explain why they may seem indecisive, may want to opt out of decision-making, or to make treatment decisions based on other criteria.

Case study 1: telemedicine in Dhaka, Bangladesh

Vassallo⁵⁹ and colleagues in 2001 described a successful telemedicine link between the Centre for Rehabilitation of the Paralysed (CRP) in Dhaka, and a variety of medical specialists in neurology, orthopaedics, rheumatology, nephrology and paediatrics working in the UK and Nepal. Using digital cameras and an email link, images of patients, X-rays, electrocardio-

grams, or other tests, were sent to the specialists for advice and a second opinion. In 70 per cent of referrals, initial email replies were received by the CRP within 1 day of referral, and 100 per cent were received within 3 days. Referral was judged to be successful in 89 per cent of cases, in terms of clarifying the diagnosis, changing the treatment, or reassuring the patient.

Case study 2: telemedicine in Arkhangelsk region, Russia

Sørensen and colleagues⁶⁰ in 1999 described the use of telemedicine in Arkhangelsk region, north-western Russia, which is an area about the size of France but with a population of only 1.5 million. Beginning in 1994, telemedicine links were established between medical specialists at the regional hospital in Arkhangelsk, and hospitals in remote areas, such as Kotlas (700 km) and Velsk (500 km), and later with local hospitals in Koryazhma, Nyandoma and Severodvinsk. From these remote centres, still pictures taken with a digital camera of patients'

notes, X-rays, electrocardiograms, and laboratory tests and sent either as email attachments, or directly from computers (via the VIDA still-image system) to the specialists, for an opinion. Given the enormous distances in north-western Russia, and the high cost of transporting patients to Arkhangelsk, this was a more cost-effective way of getting a specialist opinion on these patients, and thus enabling them to be treated at their local hospital. The same system, but incorporating telephones with a loudspeaker, has been used for distance learning and the exchange of information between the doctors in Arkhangelsk and medical colleagues in Tromsø, Norway.

Case study 3: telemedicine in Alto Amazonas, Peru

Martínez and colleagues⁶¹ in 2004 studied the development of a rural telemedicine system in the Peruvian province of Alto Amazonas, an area twice the size of Belgium. It is an undeveloped region with few roads (95 per cent of health-care facilities are accessible only by river), and only 2 per cent of the province's health-care facilities have telephone lines. Health care is provided by a network of local rural 'health posts' linked to regional 'health centres'. Since 2000–01, equipment for radio communications (VHF, HF and WiFi) has been installed in 39 localities: a provincial hospital, seven health centres, and 31 health posts. Staff in the local health posts can now transmit voice messages (especially for

emergency cases), as well as email message to the health centres, which in turn can then communicate via the Internet with medical authorities in the capital city, Lima. The study illustrated the usefulness of this link-up for a variety of purposes: consultations with specialist physicians; giving epidemiological surveillance reports; ordering medical equipment; distance learning for staff; and relaying information to the authorities on outbreaks of disease, natural disasters, or medical emergencies. It also reduced the time needed to evacuate emergency cases to hospital, and in 28 per cent of these cases the use of the system was life-saving for the patient. Overall, telemedicine helped to improve the diagnostic and therapeutic capacity of the health posts.