# 6

There is absolutely no reason why future university programmes will not head in the same direction as our current sports teams, and this will be supported by the eHealth environments of the future, which will allow such 'superstar' teachers to be fitted easily into prearranged courses and programmes, anytime, anywhere.

consumers. Some specialists who are particularly good teachers will probably gradually migrate into the role of 'world authority' in certain areas. This is already happening in commercial university programmes, where some individual professors, mainly in areas such as business and economics and from universities like Yale and Harvard, have already become educational 'superstars'. Students will now enrol as much to hear their lectures as to take a particular course, and teachers will increasingly be employed to 'headline' particular teaching programmes, to attract students. There is a parallel here with how sports teams buy individuals with special talents to ensure success both on the field and financially. There is absolutely no reason why future university programmes will not head in the same direction as our current sports teams, and this will be supported by the eHealth environments of the future, which will allow such 'superstar' teachers, many of whom will come from the health world, to be fitted easily into prearranged courses and programmes, anytime, anywhere. Health education programmes will become more flexible and will be available ubiquitously.

## A future distributed eHealth care environment

All of this will require a focus on distributed or enterprise systems of information and communications technology, and countries around the world are now beginning to address the variety of technical issues involved.

The health system has to meet the challenges contained in the recent crucially important report from the Committee on Quality Healthcare in America, published by the Institute of Medicine (Ross *et al*, 2001). This influential report notes that 'information technology must play a central role in the redesign of the healthcare system' and suggests that the United States needs a renewed national commitment to build an information infrastructure to support health care delivery, and that 'commitment should lead to the elimination of most handwritten clinical data by the end of the decade'. For that to happen, the health system has to think seriously about its basic infrastructure requirements, and in the next century these will increasingly involve close collaboration with telecommunications providers.

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*THEMATIC PAPER – TELEPSYCHIATRY*

# Cost issues with telepsychiatry in the United States

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Videoconferencing has increased patient access to psychiatric care by linking specialists at academic or regional health centres with primary health care professionals in shortage areas (Hilty *et al*, 1999, 2002). Preliminary studies have demonstrated positive outcomes and user satisfaction (Hilty *et al*, 2002). Information is still being sought regarding costs because of a paucity of clinical outcome studies, cost data and randomised trials.

The overall effectiveness of telepsychiatry has recently been evaluated (Hilty *et al*, 2004*a*). Ideally, effectiveness should be considered in terms of the patient, the provider of services, the programme receiving services, the community receiving services and society at large. Telepsychiatry appears effective with regard to access to care, quality of care (in terms of outcomes, reliability, satisfaction and comparison with in-person care), education and the empowerment of rural communities. It may be premature to claim it is cost-effective because of a lack of data. This article reviews the cost data, discusses issues that affect costs and makes recommendations to reduce costs.

## Methods

A comprehensive review of the telepsychiatric literature was conducted in the Medline, PubMed, PsychInfo, EMBASE, Science Citation Index, Social Sciences Citation Index and Telemedicine Information Exchange databases (1965 to July 2003). Key words included 'telepsychiatry', 'telemedicine', 'videoconferencing' and 'costs'. Article titles and abstracts were reviewed by the first author and references were reviewed for additional potential articles.

## Results

Currently, there are over 50 telepsychiatry programmes in the USA and another 14 in Canada (Hilty *et al*, 2004*b*). Nearly all telepsychiatry services use dial-up integrated service digital network (ISDN) or T1 lines, and transmit at 128–512 kbit/s (there is typically a 0.3 s audio and video delay at the lower end of this range). Satellite transmission is eight times as costly and almost always involves a 0.5–1.0 s delay in communication between parties.

Telepsychiatry works well in a number of regards. Most studies have shown it to be diagnostically reliable compared with in-person care for a wide range of diagnoses for adults, children and geriatric populations (Hilty *et al*, 2004*b*). It appears to be generally acceptable to patients. Telepsychiatry appears to allow the building of relationships, with clear advantages over telephone consultation and few disadvantages compared with in-person care. It may improve outcomes; for example, in a study by Nesbitt *et al* of specialty consultation to primary care providers, including telepsychiatry, specialists changed the diagnosis in 91% of cases and recommended medication changes in 57%. Subsequently, 56% of patients showed clinical improvement (further details available from TSN on request).

Formal studies of cost-effectiveness are limited because:

❍ the scope of data collection is often limited
❍ cross-sectional rather than longitudinal measurement is done
❍ data have not been collected in a systematic, controlled, prospective fashion.

One meta-analysis found that only 38 of 551 articles contained any quantifiable cost data (Whitten *et al*, 2000). Ideally, direct and indirect costs should be collected for patients, clinics, providers and society at large. Many detailed guidelines have been published with recommendations for the assessment of cost-effectiveness measures in health provider systems (Weinstein *et al*, 1996; Hailey & Crowe, 2000; Hilty *et al*, 2004*b*).

### Costs of telepsychiatry services

Direct costs include equipment, installation of lines and other supplies. Fixed costs include the rental cost of lines, salaries and wages, as well as administrative expenses. Variable costs include data transmission costs, fees for service, and maintenance and upgrades of equipment. Costs are dependent on utilisation; for example, a break-even cost analysis is used in Alberta, Canada (Hilty *et al*, 2004*b*). In addition, the cost of telepsychiatry may seem high compared with that of 'usual care' in remote rural communities, where 'usual care' is often no care at all.

Telepsychiatry is in general less expensive for patients than a conventional consultation, largely because it reduces both travel and time away from work. Studies have been inconsistent in their estimation of whether telepsychiatry services are less expensive, as expensive or more expensive than outreach services that involve personal contact with the patient. Telepsychiatry, though, appears to be cost-effective in terms of reducing the numbers of patient transfers (e.g. Alessi, 1999) and hospital use (e.g. Lyketsos *et al*, 2001). Communities have been able to treat their patients locally and they have therefore retained money that would otherwise have been lost to suburban centres upon referral (Dimand *et al*, 2004).

The ongoing costs of maintaining telepsychiatry services have been a major problem throughout the United States. Start-up grants generally pay for technology, but not for staff coordination and long-term psychiatric (physician) service. Insurance or third-party payers have agreed to fund physician time in most regards, although they often require preliminary educational and administrative interventions. County mental health systems often deny telepsychiatry claims, partly in order to keep costs low but also because the services are provided outside of their system, in the medical sector. This is a problem because patients receive 60% of their mental health services from the medical sector, which they generally prefer because it generates less stigma and gives patients the ability to maintain their relationship with the primary care provider, and because of what is widely perceived to be inadequate care in the mental health sector.

Federal programmes have been established with high specialist reimbursement for some rural patients, but telepsychiatry services do not qualify. This is because telepsychiatry consultations are viewed as being provided 'outside' the designated clinics.

When rural agencies have funds available, contracts with academic consultation–liaison services have proved successful in terms of patient outcomes. The use of residents with faculty supervision appears to reduce costs and provides them with a meaningful learning experience. Consultation–liaison services benefit from an expansion in the scope of their work to the out-patient sector and improved reimbursement (e.g. salary and benefits, as reimbursement for an in-patient medical centre consultation is limited) (Bourgeois *et al*, 2003).

*Telepsychiatry appears effective with regard to access to care, quality of care, education and the empowerment of rural communities. It may be premature to claim it is cost-effective because of a lack of data.*

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## Discussion

Little information is available about the cost-effectiveness and cost–benefit of telepsychiatry programmes; and data need to be collected in a standard, prospective, preferably longitudinal fashion. However, cost-effectiveness could be improved by use of a consultation–liaison model, whereby the telepsychiatrist evaluates the patient and makes recommendations for management by the primary care provider, who thereby gains skills that could benefit patients and the community setting. This educational role of telepsychiatry is especially important for the primary care providers of rural communities, in which 20% of the US population lives.

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# Telepsychiatry in Europe

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Telepsychiatry, the use of videoconferencing in mental health care, has been piloted in European settings as diverse as northern Norway and inner London. These studies have been initiated to improve access to services and have been limited in scale. Nevertheless, some common themes have emerged.

## Telepsychiatry in Norway

Gammon *et al* (1996) surveyed the use of videoconferencing in mental health services in northern Norway in 1995. Over six months, 1028 persons participated in 140 videoconferencing sessions from 35 institutions. The uses of videoconferencing included meetings (50%), supervision, training and teaching (31%), clinical consultations (14%) and tests or demonstrations (5%). The forms of contact that videoconferencing replaced included travel (59%), no contact (25%), telephone (14%) and mail or fax (2%). No problems were reported in 55% of the sessions. The majority of users reported that they were satisfied or very satisfied with the facility. The low rate of clinical videoconferencing reflects a reluctance of key professionals to offer services this way. This network has continued to grow.

Gammon *et al* (1998) also reported the use of videoconferencing for psychotherapy supervision, over 384 kbit/s integrated service digital network (ISDN) connections. Trainees had five face-to-face sessions, alternating weekly with videoconferencing. The quality of supervision could be satisfactorily maintained by videoconferencing, for up to half of the 70 hours required for training. A precondition for this estimate was that the supervision dyad should meet face to face and establish a relationship characterised by mutual trust and respect. Major concerns reported by the participants were the loss of non-verbal cues and the effects this had on spontaneity, the expression of personal emotional material, and the experience of social and emotional presence.

## Telepsychiatry in Finland

Mielonen *et al* (1998) reported on the use of videoconferencing in Oulu, where videoconferencing at 384 kbit/s was used for family therapy, occupational counselling, clinical consultation and teaching. In 1996, video-