is a code of connection, which sets out minimum conditions that organisations must meet if they wish to gain access to NHSnet (Asadi and Akhlaghi, 2002). The most obvious way of reducing the risk of unauthorised access to computer data across the internet is to control traffic across the interface between the NHS local area network and the external internet.

Technology offers some safeguards in firewalls and encryption protocols. However, firewalls require regular and frequent updating and are effective only against traffic that goes through them. In addition, neither firewalls nor encryption can stop people who misappropriate medical records for malicious reasons and/or economic gain.

The legal issue is not whether electronic systems can provide airtight security, but whether they can protect privacy as well as or better than paper systems. Warner (1998) said that agencies delivering care would need to ensure rigorous ways of protecting patients’ electronic records.

**Patient privacy**

Patient privacy during telehealth consultations should be maintained as much as possible, although it is understandable that privacy might be limited when such technology is used (Mair and Whitten, 2000).

Healthcare professionals should ask patients if they have any questions that might require more privacy than provided. It is important to explain to patients that privacy and confidentiality cannot be guaranteed in telemedicine, as medical records can be shared with other practitioners involved in their care. The nature of the professional-patient relationship changes dramatically, as telemedicine challenges traditional concepts of privacy and confidentiality (Telemedicine Association of Oregon, 2004).

As Asadi and Akhlaghi (2002) pointed out, the legal aspect of confidentiality focuses on the relationships between individuals rather than the systems by which they communicate. In the UK, there are three primary pieces of legislation that are relevant to the legal and ethical aspects of telemedicine:

- Data Protection Act 1984;
- Computer Misuse Act 1990;
- Data Protection Act 1998.

### CHALLENGES

Heinzelmann et al (2006) identified several problems encountered by healthcare professionals while using telemedicine. These range from staff discomfort with new technology to those who are concerned that telemedicine threatens healthcare practice. Its future may well therefore depend on human and socioeconomic factors rather than the ability of the technology itself.

Successful integration of telemedicine into existing structures requires organisations to develop policies, procedures, guidelines and strategies to guide and govern professionals and ensure patient and staff safety. Burmahl (2000) said that effective planning was vital for effective implementation. Hardware – the devices themselves – should be compatible with each other and suitable for their purpose. Although difficult, this is relatively straightforward compared with the culture change telemedicine demands.

Healthcare leaders and managers need to examine and, if appropriate, reconfigure entire systems of work, particularly where custom and practice may not be as efficient as is needed. Individual staff need to examine their role and activities and minimise process duplication and waste.

Most established tools/models for change management are suitable as a structure for implementing telemedicine. Perednia and Allen (1995) highlighted the need to make change elements – such as identifying goals, evaluating effectiveness, accountability, communication and periodical re-evaluation – specific to telemedicine.

Integration of telemedicine into staff development initiatives may prove useful in helping staff to accept it, leading to greater use. Burmahl (2000) said staff training should be a priority to raise awareness and expand the scope of telemedicine.

There has recently been a shift towards health promotion and illness prevention. Heinzelmann et al (2006) argued that healthcare providers are therefore less dependent on skilled and costly staff as part of a multidisciplinary approach to care delivery.

Providers are increasingly moving from financial criteria for evaluation to a more holistic analysis based on performance, in which Heinzelmann et al (2006) saw a key role for telemedicine. The technology offers a mechanism for providing cost-effective, targeted care but, before it is universally accepted, its benefits need to be demonstrated to providers, patient advocate groups and, perhaps above all, patients.

Heinzelmann et al (2006) illustrated some of the major challenges facing telemedicine in an environment with increasing emphasis...