Telemedicine in healthcare 2: the legal and ethical aspects of using new technology

An outline of the legal and ethical factors, including patient confidentiality, that nurses need to consider when designing and implementing telemedicine systems

INTRODUCTION

Despite increasing use of telemedicine, there has been little discussion about the ethical and legal issues surrounding it. Anecdotal evidence, particularly on patients with spinal cord injuries, suggests that new concepts present new legal and ethical challenges to practice. These challenges initially appear to fit into two main categories: issues relating to conventional medicine; and those specific to telemedicine. A less obvious third category relates to jurisdictional issues, where the legal implications of using telemedicine depend on local laws and healthcare practice (Asadi and Akhlaghi, 2002). Layman (2003) identified “info-ethics”, that is, applying ethical issues to telecommunication and information technologies.

Telemedicine has a range of applications, outlined in part 1 of this series (Sarhan, 2008). It can be used to access expertise and is already used in several areas including cardiology, dermatology, home monitoring and information for patients and carers.

LEGAL AND ETHICAL ISSUES

As with conventional healthcare, confidentiality, consent and non-maleficence are basic principles in telemedicine. Brahams (1995) warned that unforeseen medical and legal issues could arise from increased but inefficient or ineffective use of telemedicine.

Brahams outlined three core issues:

- Responsibilities and potential liabilities of healthcare professionals;
- Duty to maintain confidentiality and privacy of patients’ records;
- Jurisdictional problems associated with cross-border consultations.

The British Medical Association (2005) provided three principles to guide practice:

- Patients’ right to privacy regarding medical details and records;
- Patients’ privacy should be maintained unless waived in a meaningful way;
- Disclosure of information should be related to the prevailing medical condition to fulfil the immediate and specific purpose of treatment.

Data security

Rapid implementation of telemedicine, combined with major social change and mobility, means ongoing discussion is needed across international boundaries by governments and professional organisations. Stanberry (1998) built on Bloom’s (1997) foundations to offer a generic overview of legal and ethical issues (Table 1). Jones (1997) added development and security of the electronic patient record (EPR). The health and safety of staff using equipment needs to be considered (Jones, 1997).

Data transmission

Telemedicine relies on transmitting data. This means secure networks and data transmissions are critical to confidentiality and privacy.

These considerations led to a debate between the NHS Information Management Group and the BMA on access to the NHS network (NHSnet). The approach adopted

PRACTICE POINTS

- Nurse leaders and managers considering telemedicine initiatives must address the legal and ethical issues involved in its implementation.
- Healthcare professionals involved in conducting telehealth consultations need to consider issues around patient confidentiality and remember that individual practitioners should bear ultimate responsibility for this.
- More research is needed on the effectiveness of telemedicine in healthcare.
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. Peredinia 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.

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**TABLE 1. LEGAL AND ETHICAL ISSUES IN TELEMEDICINE**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Content</th>
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</thead>
<tbody>
<tr>
<td>Issues that are fundamental to both telemedicine and healthcare ethics</td>
<td>Autonomy and consent; confidentiality and other aspects of the patient-professional relationship; non-maleficence and beneficence; justice and access</td>
</tr>
<tr>
<td>Political issues</td>
<td>National and cross-border (PCT/health authority) reimbursement of patients and professionals for the cost of care and contract arrangements; national programmes and strategies; funding and political direction</td>
</tr>
<tr>
<td>Issues relating to the use of telemedicine</td>
<td>Consent to information sharing; confidentiality; privacy and data protection; information security management</td>
</tr>
<tr>
<td>Responsibility, liability and good-practice guidelines, protocols and best cross-border practice</td>
<td>Duty of care; registration and training; indemnity insurance; clinical governance and risk management; provenance and content of published guidelines, standards and protocols; jurisdiction and choice of law; mobility of patients and professionals; health in the EU internal market</td>
</tr>
<tr>
<td>Issues relating to the supply of telemedicine</td>
<td>Directives on electronic commerce and distance selling; advertising of medical and pharmaceutical products; media and broadcasting regulations</td>
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<tr>
<td>Standards, functionality and compatibility of medical devices, product liability and safety</td>
<td>Medical device regulations; CE marking; drug regulatory agency approval; directives on product liability and general product safety</td>
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<tr>
<td>Intellectual property rights</td>
<td>Copyrights, patents, trademarks, design rights; passing off and other infringements; exploitation</td>
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Source: Stanberry (1998)
practice in depth

on self care and multidisciplinary care.

Further clinical trials to determine the effectiveness of telemedicine are needed.

Attitudes

Society is becoming increasingly dependent on advanced technology (Liederman and Morefield, 2003) and this is reflected in attitudes towards telemedicine. Adopting telemedicine generates a more open environment where defensive medicine is reduced, care is enhanced and costs are better controlled. These factors present a compelling case for easing licensing restrictions for telemedicine across international borders (Liederman and Morefield, 2003).

Technical challenges are an ever-present issue. To establish effective connectivity and to ensure that the technology works in remote communities, extensive bandwidth resources are required. Bandwidth is the transmission capacity of a system over a period of time. The term usually refers to the speeds of internet services; faster ones have a higher bandwidth than slower ones.

The view that bandwidth, like computer memory, doubles each year is optimistic. Regular evaluation of telemedicine modalities should be conducted to ensure that bandwidth for updates and modifications is adequate.

There is some evidence that telemedicine provides adequate healthcare at a reasonable cost. In some situations the cost-effectiveness of telemedicine appears to be obvious, such as the doc@HOME system that helps patients with chronic obstructive pulmonary disease self manage their condition (Lomas, 2009). However, healthcare providers will want stronger evidence of its indirect economic benefits.

Metrics for telemedicine outcomes should be developed to demonstrate sufficient evidence of socioeconomic benefit to justify ongoing investment. Evaluation should include social, cultural, organisational and policy aspects. It is evident it will decrease the cost per contact between patient and healthcare professional (Field, 1996).

Heinzelmann et al (2006) said that behaviours related to the use of technology are influenced by culture, knowledge, attitudes, beliefs, practices and routines. Telemedicine in the future will be guided by patients’ behaviour and perceptions of its applications. This is shown by the following:

- Increased use of the internet for healthcare information;
- Increased demands to access medical services more quickly;
- Growing frustration with current services;
- Greater patient involvement in decision making;
- High levels of patient satisfaction with telemedicine;
- Increased use of the internet and mobile phones (Heinzelmann et al, 2006; Nesbit et al, 2005).

To ensure that telemedicine improves healthcare provision, equipment, processes and procedures must be user friendly to enable its growth, acceptance and use (Telemedicine Association of Oregon, 2004).

It is important to examine providers’ views as these will influence implementation. Providers identified several trends in relation to telemedicine including: anticipated shortages in doctor and nursing workforce; professionals such as HCAs have a larger role; and increased need for communication among various providers (Richards et al, 2005; Hibbert et al, 2004; Wood, 2003).

CONCLUSION

The implementation, integration and improvement of telemedicine requires governments and healthcare organisations to develop rigorous policies, procedures and strategies.

According to Wootton et al (2006), critical issues need to be addressed in such policies as part of a fourfold commitment to:

- Encourage and provide funding for telemedicine research;
- Develop a plan for implementation;
- Assess major structural changes needed in organisations to incorporate telemedicine;
- Develop a process of quality control and continuing audit.

Other issues that need to be addressed include: legal and ethical concerns; human and cultural factors, such as resistance to change; lack of infrastructure; linguistic differences and illiteracy; and technical and organisational factors (Craig and Patterson, 2006).

REFERENCES


