



Title	Telepathology: Guidelines and Technical Standards, Literature Review
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Aim

To perform a thorough literature review of technology standards and guidelines that could contribute to the ongoing implementation of a telepathology technological platform for the province of Québec.

Conclusions and results

Telepathology is the practice of remote anatomical pathology between two or more distant facilities using a microscope (or a slide scanner), a telecommunications medium, and a workstation for the consulting pathologist. Its aim is to provide pathology services at a distance when an on-site pathologist is unavailable. Two types of telepathology are: static telepathology (involves capturing, digitizing, and transmitting images of a gross or microscopic specimen to a consulting pathologist), and dynamic telepathology (involves real-time transmitting and viewing of histological images from a microscope located at a distant facility). Both types have their advantages, drawbacks, and applications and are useful in diagnosis, obtaining a second medical opinion, or teletraining.

Our analysis shows:

1. A virtual slide is the best solution to most problems associated with distance and the lack of pathologists at remote hospitals, and it constitutes the best compromise.
2. In spite of its promising advantages, dynamic telepathology is not often used.
3. The main technological issue concerns difficult interoperability between the various components, eg, microscope, camera, personal computer, and digitizer.
4. The most important technical issues involve data security and archiving, especially when dealing with secure networks and intranets.
5. Organizationally, adequate training of all telepathology personnel (new user-pathologists, pathology technicians, surgeons, etc.) in virtual environments is a critical prerequisite, along with medical accreditation,

confidentiality, payment of fees, professional liability, and other unresolved medicolegal problems. In addition, standardizing the digital-image generation process among various teams is crucial to minimize the risk of error.

6. The ethical, legal, and economic issues associated with telepathology should be examined to facilitate the deployment of technology.

Methods

We reviewed the literature published between Jan. 1997 and Dec. 2007. Databases queried included Medline (via PubMed), Database of Abstracts of Reviews of Effects (DARE), National Health Service Economic Evaluation Database (NHS-EED), Telemedicine Information Exchange (TIE), The Cochrane Library, and the International Network of Agencies for Health Technology Assessment (INAHTA). We surveyed trade journals and consulted article references, Web sites, and pamphlets from virtual microscopy and telepathology equipment suppliers. The literature watch ended in July 2008.

Further research/reviews required

On-site tests will be required in the future. No such tests have been conducted because telepathology technologies did not exist in Québec at the time of publishing. Discussions regarding the legal aspects of possible options for static telepathology archiving are also required.