

Telemedicine

Psychology



Telemedicine is a general term used to describe the use of modern telecommunications and information technologies to provide clinical care to remote patients. One of the most technologically and clinically evolved areas of telemedicine is teleradiology. This subspecialty utilizes the electronic transmission of radiological images from one location to another for purposes of interpretation, or consultation, or learning. The highly improved capacity of the internet and the speed of transmission have enabled a much wider use of teleradiology with centers operating worldwide in differing time zones to provide daytime reports for “ after-hours” imaging services. Explored for nearly 50 years and now an established part of routine health services, teleradiology is poised to be telemedicine's largest field. It has improved workflow both in terms of range and variety of work, and is predicted to significantly improve service to rural areas especially in view of the current shortage of radiologists. Teleradiology works on the store-and-forward approach which is based on the collection of data in digital form at an initiating site, and aggregation and storage for further transmission to a receiving site (Thrall, 2007). Telemetry of data rather than televised face-to-face or voice contact between patients and caregivers is used in this service. Teleradiology links between sites are easily established given the availability of low-cost PC-based workstations, and the improved data compression and transmission techniques such as digital imaging and communication in medicine (DICOM), and picture archiving and communication system (PACS). It is possible to view computed tomography (CT), magnetic resonance (MR), ultrasound (US), x-ray angio, mammography, nuclear medicine, or secondary capture as DICOM images. One technique that is most commonly associated with teleradiology is CT, since it is already acquired in a digital format and <https://assignbuster.com/telemedicine/>

requires an immediate interpretation by a radiologist. However, teleradiology is rarely applied to angiography, as it normally requires the on-site presence of a radiologist. The promises and pitfalls of teleradiology are still being debated (Bradley, 2008; Maynard, 2008). In these times of shortage of radiologists, teleradiology has become an imperative need for healthcare facilities which are constrained to subcontract some of their imaging interpretation needs. In particular, small hospitals with no staff radiologist can requisition the services of teleradiology providers worldwide, and get their radiological images interpreted within minutes (European Society of Radiology, 2004). Teleradiology enables a clinical radiologist to seek a second opinion from a specialist without transferring the patient, thereby reducing patient discomfort and improving efficiency of treatment. Images of complex problems could be transferred from general hospitals not having the requisite expertise to tertiary centers for evaluation and advice. Besides helping reduce workload on the available radiologists, teleradiology provides a financially advantageous alternative to having radiologists available twenty-four hours a day. The technology is also a means of getting a rapid report between time zones in cases of emergency out of hours when no radiologist is immediately available. Teleradiology can also become a means of professional development for clinical radiologists with case presentations or tutorials provided by educational centers (European Society of Radiology, 2004). This would be particularly important in the case of rural health practitioners, who may not be able to leave their work to take part in professional educational meetings. Thus, essentially, teleradiology not only improves the quality of life for radiologists, but it also improves the quality of interpretations provided for patients (Bradley, 2008). The real and potential

<https://assignbuster.com/telemedicine/>

problems of teleradiology include the restricted interaction between the referring clinician and the reporting radiologist. This kind of impairment of verbal communication between the clinician and the radiologist, together with the difficulty of having multi-disciplinary meetings in teleradiology could hamper the management of problematic cases e. g., cancer (European Society of Radiology, 2004). Also, as the radiologist is hardly associated with the referring physician or the patient, the question arises as to whether the radiologist is ultimately accountable to the referring physician, the patient, the hospital, or the insurance company (Maynard, 2008). Wording of the report could lead to clinical problems. For instance, health care notions could vary between countries. Thus, recommendations for further imaging which might be the appropriate in the country where the teleradiology service is provided may not be right in the country of the patient. One of the main criticisms of the technology is about teleradiology leading radiology to become a commodity (Maynard, 2008). Also, according to Maynard, there is the fear that, as radiology becomes more and more subspecialized, it might become an issue as to who is best qualified to interpret the findings.

References Bradley WG., 2008. Off-site teleradiology: The pros. *Radiology*, 248: 337-341. European Society of Radiology, 2004. Teleradiology. November 2004. Web. 23 September 2011.