



UNION EUROPÉENNE DES MÉDECINS SPÉCIALISTES

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Tele-Nuclear Medicine in the UEMS Community

Introduction

Context: Tele-nuclear medicine is a branch of general telemedicine, which is the transmission of medical data from one point to another, for the purpose of consultation and/or interpretation by medical professionals. As such, it has to be distinguished from tele-care and tele-health, which are more centred on the patient, the patient's access to information and remote monitoring of the patient by health professionals. It is also clear that direct treatment is beyond the scope of telemedicine (which excludes metabolic radiation therapy in the case of nuclear medicine).

Telemedicine must be seen as an application of the generalised development of *servers* for the archiving and communication of radiological pictures (PACS), histological, dermatological and ophthalmological images, laboratory results and clinical data - frequently centralised in an electronic patient record (EPR). Transmission of the data can take place via the simple exchange of CDROMs, local or extended area networks (LAN, WLAN), the Internet (Email attachments, VPN) or dedicated networks ("health nets").

Consultation only: Generally the data are available on-line to allow the remote consultation of critical information by the clinician engaged in the treatment of the patient. Diagnosticians of course have equal access to the data of these servers – even remotely.

Remote consultation of selected data is also frequently used for "academic" purposes, such as continuous medical education, distance learning, database building (e.g. research applied to orphan diseases) or provision of expert advice.

Protection of the *privacy* of the patient is the main issue in the above applications, but this can be ensured through anonymisation and encryption of data, restriction and traceability of their access by means of registration and passwords, and their confidential handling by the human users. Such users can also include the patients themselves, when they request digital copies of their medical data (for second opinions or when travelling).

Interpretation: Whether the data are related to diagnostic imaging, histology or functional tests, it is clear that why and how they are recorded plays an important part in their relevance, quality and interpretability. Telemedicine tends to dissociate the interpretation of the data from the rest of the examination, namely:

- Evaluation of the *clinical condition* of the patient, from the information produced by the clinician, by direct examination (thyroid) or, increasingly, from the various laboratory servers.
- The decision to perform a specific examination (based on the indications), and its *modalities* (choice of tracer, area to be investigated, selection of acquisition mode and timing, quality controls), either on an individual basis or based on established guidelines.
- *Monitoring* of the patient during the examination (cardiac, pulmonary studies).

- Comparison with *local standards*, especially the range of normals in a specific institution when applying a specific method.
- *Discussion* of the interpretation, either with the referring clinician or in multidisciplinary meetings.

It is arguable that the transmission of much of this information is possible using the least (telephone) or most (X-window etc.) sophisticated means of communication. All too often, however, such means are not deployed, and telemedicine is understood as the mere transmission of raw image data and a non-committal written report.

Efforts to preserve the quality of service must therefore converge on the transmission of the conditions affecting the (distant) interpretation of imaging data, and one should refrain from interpreting data for which those conditions are unclear.

The practitioner: Physicians seldom work in isolation: they refer patients to colleagues they know and trust, and they are very careful in the selection of partners in their practice. Things are no different in telemedicine. Many telemedicine groups have been started by close colleagues or trainees at the same institution. The importance of personal connections is demonstrated by the fact that the most successful applications of tele-radiology are the distribution of work between the branches of large firms, the distant interpretation of images by the physicians of the US Army, the solo practitioner associated with a large institution ("peak clipping") and the after hours transcontinental "night hawk" service, whose physicians are all trained in the US. For an individual, the affiliation with a registered, professional organisation (firm, group) committed to the pursuit of quality and the respect of patient's rights would thus be an asset.

Regulation of tele-nuclear medicine

Several issues have to be addressed if the patient and the practitioner are to be assured that the benefits of telemedicine are to be maximised and its inconveniences minimised.

The patient: The role of the patient is conspicuously absent from the preoccupations of most people dealing with telemedicine: the patient is expected to be compliant, though he or she is the first to suffer if there is a significant loss of quality. The rights of the patient have to be respected, at least in the following respects:

- Since the patient has little control over the consequences of the practice of telemedicine, he or she should at least be asked to *consent* to it.
- The patient is entitled to a guarantee of the *quality of the service* in terms of the qualifications and (re-)certification of the reader, the delay in the response, the confidential handling of data, and the transparency of the procedure.
- The patient must receive an assurance that the service will be charged only once and at the right price, and the costs should be *refunded* by the patient's medical aid.

The law: The legal issues to be addressed include:

- The *responsibility* of the remote reader. The Law of Medicine states that the physician in charge of the patient remains responsible, but there is a trend to consider that both the clinician and the diagnostician share responsibility in the selection – and in any resultant side-effects – of the examination. It must also be clear that a doctor has to be present at the place of examination.
- The *liability* in the event of an accident. Private international law specifies that the jurisdiction of the place of the accident is applicable. This should be enshrined in the telemedicine code of practice.
- The *registration* of the specialist: this is a thorny issue. The remote reader is currently requested to be registered in the country – and possibly accredited in the hospital – where the examination takes place, in addition to his or her usual place of practice. This requirement is based on the interpretation that the reader is virtually present at the place of the examination. However,

nothing forbids another interpretation, where the patient is considered as virtually consulting the reader at his usual place of practice. The latter interpretation would probably only require one registration for the reader (at his usual place of practice). It would also imply that the patient initiates the transaction and that the fee is set at the place of practice of the reader.

- The *medical fee* is another difficult question to be answered prior to any transaction. Since most patient–physician interactions mentioned above are absent, a full medical fee might appear exaggerated. In the European context, the refunding of medical acts across borders requires preliminary agreement by the medical aid, and is thus not practical on a large scale. A specific fee thus has to be set, and should preferably be valid throughout Europe. It would still be possible for a patient to consult his local hospital and to be billed (and hopefully refunded) the local fee, while the hospital refers the images to a remote reader, who would be paid at a set tariff; however, this would need prior arrangement with the medical aid of each country.

The qualifications: Since the possibilities of control are reduced with physical distance, the criteria for the qualification of telemedicine practitioners should be at least as stringent as those applying to conventional practitioners. In addition to the initial qualification (in nuclear medicine), telemedicine practitioners should be able to prove that they comply with the requirements of *continuous medical education* and remain qualified.

Depending upon the geographical scale on which telemedicine is practiced, various additional qualifications should be required, and be the subject of a license:

- On a *national* scale, knowledge of the technology of telemedicine, its local rules and regulations and the rules of deontology should be required and tested.
- On a *trans-national* scale, knowledge of European rules and regulations pertaining to telemedicine, the medical aid regimens and variations in pathological conditions, and at least a written and oral knowledge of medical English (and the foreign national language), should be required and tested.

Licensing and re-licensing should be implemented.

“Good telemedicine practice” (GTP) and auditing: As mentioned above, the transmission of information concerning the clinical condition of the patient, the modalities of the examination (including QC) and the local standards is essential to the good practice of telemedicine. Adherence to these GTP principles can be taught, but cannot be verified in each individual case: regular auditing on the model of *ISO/EFQM* is essential. Failing the audit would result in loss of the license.

It goes without saying that both the reader AND the provider of the data must comply with GTP.

Telemedicine should thus be practiced only by registered physicians who have passed the official examination, have been licensed (and re-licensed) and have been successfully audited regarding their practice of good telemedicine.

W.J. Pilloy

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