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Running a Teleradiology Business: Practical Issues & Challenges

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Eurad Consult is a provider of diagnostic radiology reporting services with an output of over 40,000 MRI reports per year. Our remote reporting services provide continuity in radiology departments within optimal turnaround times. However, teleradiology still poses operational challenges for our company that are not helped by a lack of harmonised EU regulations, and the challenges of data security, technological integration and quality assurance, the solutions to which will be explored further in this article.

Firstly, let me summarise how our company structures its services. Every report is subject to a double reading. This means that at least two radiology experts have to agree on the contents of each report, before it goes to the next step. Then the following steps are in place to ensure the best result possible:

- Discrepancy scores are given for each report and evaluated in monthly reports;
- Top linguistic editing of every report by professional native speakers;
- Full compliance with the most strict security and privacy legislation in force in each respective country;
- Full liability insurance;
- Monthly reviews of customer quality reports, and
- Permanent on-site operational IT assistance.

Since each of our radiology experts analyses thousands of images per year, they develop very specific knowledge that offers a high level of expertise for any subspecialty required. A full-time radiologist can produce as many as 10,000 MRI reports per annum. All our radiology experts possess the necessary licences in line with local legislation and their qualifications are EU registered and accredited.

Quality Assurance

Eurad Consult has developed and implemented our own quality process, where every step of the procedure is professionally monitored and validated. Our "central reading model" includes:

- All our top radiologists have undergone proper training, credentialing and accreditation;
- Registration in the country of service delivery;
- Dedicated reading centres are mainly used because de-localised diagnostic reading sessions "at home" would not allow the same physical quality process;
- Appointment of a Medical Director (Chief Radiologist); and
- Periodic supervision by the Eurad Medical Advisory Board, periodic external audits and daily internal quality monitoring.

Challenges in Workflow Management

Service delivery processes in teleradiology are not without glitches. Each of our services is broken down into several key process flows that allow us to monitor each part of the chain from the reception of the information, to the primary read, to SLA reporting and, finally, billing. Each of these is subject to validation to ensure completeness and consistency of information from first receipt of the set of images to be reported on, after which

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clinical information is input, to the reporting process where we must ensure medical and language consistency in a timely turnaround window. We must also report on any discrepancies and send a quality report to the customer.

Problems crop up during this process. For example, insufficient visibility on images received, loss of images or electronic requests, inconsistencies between images and requests or problems of a technical nature such as limited integration of clinical information with no HL7 link. The solution has been provided by the use of business intelligence software for automated validation checks. The goals of these are improved data control, efficiency gains and improved communication.

We can therefore create a daily operational report that looks at, for example, what is missing, from which hospital and for which study. These validation checks allow faster detection and retrieval of incomplete studies, decreased overall turnaround time and increased customer satisfaction due to quicker results. For the radiologist, it ensures there are no incomplete studies in the work list and for our administration there is a natural shift to quality monitoring instead of running around putting out fires.

RIS-PACS Integration a Further Challenge

The advent of RIS-PACS has brought more efficient imaging services. As well as improved integrity of clinical information and decreased turnaround times, e.g. for CR: from 20 to 30/35 rep./h (>50%), it allows better clinical governance, including an improved overreading and discrepancy grading system, the easy availability of previous exams and increased satisfaction for radiologists, customers and administrative staff.

Challenges posed by service level agreement reporting (SLAs) such as lack of manpower to track input data for quality reporting, and turnaround time of reports, were also overcome through the automation of SLA reporting and billing processes based on business intelligence. The goals were automated data tracking, tracking of the number of validated reports, improved turnaround time and the ability to view discrepancy grades resulting from the double reading process. Finally, the billing system was greatly improved with invoicing of patient details in electronic format, enabling us to answer questions about correct invoicing of exams.

Security a Key Priority

It goes without saying that teleradiology service providers should ensure the utmost security and privacy of transmitted patient data. In the UK, this is covered by the Data Protection Act 1998 and at an EU level, directive 95/46/EC ensures an adequate level of protection for the rights and freedoms of data subjects in relation to the processing of personal data. Problems arise due to the fact that data storage space is limited and exams are automatically removed when storage capacity limits are reached.

We operate a "First-In, First-Out" principle that guarantees that data storage lasts from three to six months. This means that even though the time necessary for clinical diagnosis is a mere 24 hours, the response time for any additional questions from referring clinicians is a maximum of six months. Ensuring data confidentiality is also a priority. We use a VPN and secure email to guarantee this. For data integrity we use DICOM standards and lossless compression. We also provide a facility for the receiver to prove that the sender did in fact send the data, as well as "secure collaboration solutions" for tracking and nonrepudiation of file modifications.

Clinical Governance a Key Challenge

There is no doubt that good clinical governance in teleradiology is of primary importance. Internal audits and self-assessment should become part of the normal workflow. Clinical governance covers the areas of:

- Strategic Capacity and Capability – Planning, communication and governance arrangements, and cultural behaviour aspects.
- Risk Management – Incident reporting, prevention and control of risk.
- Staff Management and Performance – Recruitment, workforce planning, appraisals.
- Education, Training and Continuous Professional Development – Professional re-validation, management development, confidentiality and data protection.
- Information Management – Patient records, etc.
- Communication – Patient and public, external partners, internal, board and organisation-wide.

EU Must Lead the Way

Current ESR Guidelines exist in the fields of registration and education/revalidation but this is not yet supported by any EU-wide requirement, with different regulations in Member States confusing the matter. There is a need for reinforcement at a European level to provide uniform regulations for registration, accreditation and revalidation. According to the guidelines, all radiologists have to be subject to the regulations in the country of each patient's residence. However, the challenge is how to fulfil requirements for each country where services are delivered.

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includes a "European Template for a Certificate of Current Professional Status". This would cover teleradiologists registered in another EU Member State, who should be required to provide such a European Certificate from his/her Medical Regulatory Body before obtaining registration in another EU Member State. satisfaction due to quicker results. For the radiologist, it ensures there are no incomplete studies in the work list and for our administration there is a natural shift to quality monitoring instead of running around putting out fires.

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