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The Future of Teleradiology

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Information technology has revolutionised the profession of radiology and nuclear medicine. It has made a filmless department and the viewing of radiological examinations from remote computers anywhere in the hospital or even at home a possibility. In fact, we can now send out imaging studies that are made during out-of-office hours to night-hawk services, located inside or outside of the country, expecting to find the full written radiology reports the next morning. Information technology, in short, is behind the genesis of teleradiology. In this article I will focus on how teleradiology will profoundly change the way we practice our profession, evolving into an almost complete outsourcing of radiology services.

Global isation: Changing the Way We Work

Because radiology examinations can so easily be sent over high-speed broadband connections to anywhere in the world at ever reducing costs, there is no longer any obligation for the radiology report to be written by the in-house radiologist in the hospital where the images have been acquired. In a global economy, the in-house radiologist is in direct competition with all other suppliers of radiology services worldwide. Economic law dictates that this competition will be won by radiologists in countries that offer cheapest labour. In these countries, teleradiology hubs will rise, handling the bulk of radiology examinations made worldwide. Because of their high-volume throughput, these centres will develop unmatched concentration of expertise and industry-level quality controls (e.g., by using double or triple readings in every examination). Teleradiology hubs will become leading centres for scientific excellence.

Cost Benefits in Outsourcing

There are sound economic laws that predict the rise of the outsourcing model of radiology services, envisaging a time when these will be outsourced to countries where this can be done in a more cost-effective way. Thus, if radiology services are outsourced to intelligent, motivated and well-trained radiologists in low-wage developing countries who do the work at a fraction of the cost, from the macro-economic point of view, all will benefit. After all, this means that wealthier countries now have access to cheaper radiology services. The advantages of outsourcing radiology have been recognised by analysts and policy-makers alike. To quote Dan Griswold, a trade analyst from the Cato Institute, in Washington DC "Hospitals can send radiology exams to India and cut the cost in half and control spiraling health costs."

In low-wage countries, entrepreneurs are carefully weighing business opportunities, making careful analyses of the market and their own strengths and weaknesses. Some have already decided to take the leap, as for example Dr Arjun Kalyanpur, CEO of Teleradiology Solutions and Dr. Ashis Dhawad, COO of TeleDiagnosys Services, both based in India, who provide night-hawk services mainly to US hospitals. Others are likely to follow suit. These examples show that the business concept is a viable one and also prove that patients, insurers and governments in the developed world accept the principles of radiology outsourcing. The main factors that limit outsourcing are licensing issues and a relative lack of well-trained radiologists in low-wage countries.

Future of Radiology Outsourcing

It is time for radiologists to take the issue of outsourcing seriously and deal with the relevant issues. For example: How much of our work will be influenced? How should we define our role in “new” radiology? How will practices change? Consider these points in turn. Data indicates that more than 90% of all radiology examinations could be outsourced. Take, as an example, the average radiology practice in The Netherlands. CT, MRI and conventional radiographs, that can be readily sent for remote reporting, make up 23, 16 and 35% of total production, respectively, when expressed in a time-related production parameter. Ultrasound examinations, accounting for 19% of production, could be sent out for remote reporting in practices where technicians perform the examinations and images are reviewed at a later time by the radiologist, as is custom in the United States. In fact, only 6% of radiology production in vascular and interventional radiology are exempt from potential outsourcing.

When defining our role in light of radiology outsourcing, it should be clarified that a radiologist’s job entails more than making the radiology report. An entire chain of processes has taken place before the radiology exam is actually ready for reporting. Also, the relevance of findings in the radiology report must be carefully analysed. These tasks are the responsibility of the radiologist and are part of his “imaging consultant” function (see table below).

In patient care, radiologists guard the patients’ individual diagnostic work-up in its entirety and tailor the examination to the specific clinical needs. Radiologists check whether an examination is justified and as such, protect the medical system against self-referrals and manage workflow and quality assurance of imaging departments. Being the imaging consultant to the other clinicians in the hospital identifies the “added value” of the radiologist.

Diversifying Our Role

It has been estimated that radiologists spend on average 70% of their working time on imaging consultancy activities and 30% on reading examinations and writing radiology reports. Although exact data on time expenditure is lacking, clearly, when the task of writing the radiology report is being outsourced, radiologists should stress their role as imaging consultants. In fact, strengthening our role as clinical doctors with a greater input in the management of individual patient care will make our work more challenging, interesting and rewarding. Assuming responsibility for the quality of the entire diagnostic imaging process also implies that the inhouse radiologist should control the quality of the outsourcing radiology service. Therefore, it is critically important that outsourcing is a service between the in-house radiologist and the remote radiologists writing the reports.

Inevitably, problems in coding and billing will occur. Most reimbursement systems are based on a fee-per-report basis, and do not take into account consultancy activities. Historically, this made sense because radiology reporting and clinical activities involved in a report were done by an individual radiologist/group. Outsourcing physically separates these activities – but reimbursement is still given for writing the report only. It is therefore urgent to adapt the coding and billing system, to take into account the activities of radiologists outside of writing reports. It is in our interest and to make our added value visible to our colleagues, patients, the general public, and to reimbursement agencies.

We must expect resistance to these changes, which have in general served the interest of radiologists well. Especially now, we witness a shortage of radiologists against a back- ground of steadily rising consumption of radiology services in many countries. At a fixed high price per radiology report, these factors tend to increase the income of individual radiologists. But the very same elements of rising demand for radiology, rising costs and shortage of radiologists will favour radiology outsourcing. When outsourcing really takes off, the price of a radiology report will fall sharply and the radiologist depending on a fee-per-report scheme will be hurt by a double whammy: he is allowed to produce only a limited number of radiology reports, and this at a sharply decreased unit price.

Conclusion

In summary, we as radiologists should first and foremost accept the idea that radiology outsourcing will likely become a real issue in the near future. We should accept that most of our radiology reports may be produced by outside contractors in low-wage countries. To address this, we need to emphasise our added value to patient care by strengthening our role as imaging consultants. We should safeguard the quality of the entire diagnostic imaging process, which includes controlling the quality of the outsourced reporting. Outsourcing should be a service between radiologists. We should reconsider the appropriateness of the fee-per-report reimbursement scheme. This is a responsibility shared between individual radiologists, national radiology societies and supra-national organisations such as the ESR and the UEMS in Europe, and the ACR in the US.

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