
Volume 8 - Issue 3, 2008 - Country Focus: Radiology in Belgium

Web-Based Learning Creates Top-Level Radiology Residents:

Experience of a Belgian Radiology Department

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Ghent University Hospital (UZ Ghent) has 1,000 beds in the hospital in total, and 500 doctors. The radiology department is staffed by 22 full-time radiologists and a further 15 radiologists in training with another six training at peripheral hospitals. We offer every modern radiological exam, including thoraco-abdominal, multi-detector CT, ultrasound, three MRI machines, angio-, PET/CT, and general radiological exams. We process on average 160,000 patients per year, with a total of 200,000 exams per annum.

Experience of a Belgian Radiology Department

I am a general radiologist with a subspecialty in musculoskeletal radiology and teaching, with e-learning as a special focus. I did my PhD on dynamic contrast enhanced MRI in bone and soft tissue tumours over 15 years ago. I am still researching this topic as well as cartilage and meniscus transplantation, and whole-body MRI in bone marrow diseases. I am also active in national and international radiological societies, including the education committee of the European Society of Radiology and in professional defence at EU level for the UEMS, and the Belgian Society of Radiology. I am also on the board of the European Journal of Radiology.

PACS in our Department

We made a very rapid and seamless transition to PACS over four years ago. The advantages are that it provides a faster service, images are much more readily available, reports are visible very rapidly, there are no lost images and in terms of income for the department, the tariffication system is much better with a 99.9% reimbursement level for exams. Prior to PACS, there was a 3 – 4 % rate of income loss due to poor registration of reports. The quality of reporting is also higher.

Though implementing PACS was difficult at first, it is now well absorbed into our daily working lives. Not only this, but the ability to compare scans to previous ones is now much improved to the pre-PACS era and with speech recognition we now require less administrative support. However, transcription is not always 100% accurate so it doesn't cut out the human element completely. This may waste a certain amount of time but it is still faster than before.

High Demand Exams

In conventional radiology, thorax exams are in the highest demand at our hospital, compounded by the demands placed by ICU and surgery. This is followed by conventional radiology of the bone and joints, imaging of tumours and MRI of the head, spine and musculo-skeletal system, where we have waiting lists. PET/CT for oncology is also in high demand.

We also provide specialised exams in fields of special research and are pioneering research e.g. in prostate spectroscopy, whole-body MRI and MRI of the cartilage. In our core lab we do multi-centre studies for other parties, mainly in tissue engineering. We provide these extra imaging services in Phase II, III and IV studies for companies such as large pharmaceuticals who want to trial new medicines by performing imaging of test case patients. We currently have 100 of these kinds of studies running.

MRI is the only area in which we have a waiting list and in two months we will install a fourth MRI machine and run the service from 7am to 10pm

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every weekday plus 8am to 4pm on Saturdays. Maximising operating hours helps.

Education & Training

We educate residents using the EU training charter for radiologists initiated by the ESR and UEMS. After the general medical training period of seven years, residents who choose radiology have a five-year training period including three years at the UMC department of radiology and one to two years at a peripheral centre to experience both pathologies.

Before the five-year period, residents have entrance exams on radiological anatomy and the radiology of diseases. The advantage of this exam is that residents enter at a higher level. Residents get local teaching and inter-hospital training from four different Belgian universities for two years at the end of their training. In the Flemish part of Belgium there is an exam during year two to determine competency. In the French part, this occurs at the end of year one.

An exit exam at the start of year five allows radiologists-in-training to use their remaining time to improve weak areas of learning. We also have objectives clearly stated for residents. We stimulate them to go to internal meetings. They must publish at least one article and give at least one oral presentation before they can qualify as a radiologist.

eLearning

In 2003, we began an e-learning programme at undergraduate level. We still perform basic concept training using traditional methods, but web-based learning is available to students anywhere to improve their interpretation skills and learn how to order appropriate exams. The students have had a positive response to the system - this site gets hundreds of thousands of hits every year. It speeds up learning and reinforces lessons already given. It took two years to get the system running as effectively as possible, and now students are more independent than ever.

We are also pioneering a web-based system that is used for exams. We have a large classroom in which there are 100 PCs installed and use it to perform 3,000 exams every year. We allow a maximum of two minutes per question and can easily examine large groups this way. Students are already used to the system due to using the web-based tools for learning, so it is less stressful on them. After the exam is concluded, it takes only five minutes to see exam results and assess if the students are good. In my opinion, it helps recruit the best students for radiology.

Published on : Fri, 1 Aug 2008