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## Volume 8 - Issue 3, 2008 - Cover Story: Managing Imaging Education of the Future

### Transforming Imaging Education in Sweden: Subspecialisation Reflects Impact of Digital Age

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**The imaging education system in Sweden is undergoing a transformation that will ultimately exploit the advantages offered by the digital era. Not only are activities in the radiology department changing and developing, but its structure and content is also under audit. Radiology is being customised to adapt to the changing landscape towards imaging of functions in combination with imaging of structure and more knowledge in physiology and medical biology. Imaging of morphology and functional/molecular structures is melding together in a new specialty that will change the organisation and how it works in several aspects. The most striking news is that radiology and nuclear medicine are harmonised by this new specialty. The new specialty also sets new demands on arrangements for training, documentation during training and eventually on the hospital organisation.**

During the last two years, specialist educational matters in Sweden have been the focus of reorganisation. Following a government commission, a new specialist structure was created for medical specialties, put into practice during 2006. The specialties are arranged in a structure with so-called base and branch specialties. Focus is set at the quality of specialist education and specialist competence is achieved after five years of training with tutorial. In Sweden, it is possible to get licensed for more than one specialty, and to achieve a branch specialty you must also achieve the base specialty to which your planned branch is attached.

#### How the New System Works

The new structure involves a common general medical education of three years. With the option to spend one of the five years of the specialty education focusing on the subspecialty subject, both foundation as well as specialist medical training can be completed in a minimum of six years. The order of training is not set, which means that the education can start with the subspecialty subject and follows with the specialty. The scientific content of the education will also increase and during training an individual scientific work has to be completed. The most important part of the curricula are the goals, of which 12 are medical; three are dealing with management, three with communication and three with science, evidence and quality matters.

In detail, the former specialties of medical radiology, paediatric radiology, neuroradiology, nuclear medicine and clinical physiology have melded together to form a base specialty containing both structural and functional imaging as well as interventional radiology. This means that the European Curriculum for Clinical Radiology is not entirely suitable for the specialist education in Sweden. The new curriculum for all specialties will be approved as a constitution of the Swedish National Board of Health and Welfare in the second quarter this year. The upshot of this is that not only the department head and the tutor approve the license application before authorisation of the Swedish National Board of Health and Welfare but also, two external specialists will review and approve each application.

#### Re-designing Radiology

A group consisting of members from the national societies for medical radiology and the branch specialties are working together to form the new specialty. The main discussion is how to design the specialty education and the content in the general core education. The main difference for radiology is that the specialist-to-be will have more knowledge in physiology, biology and functional imaging than the previous ones. This will make them better suited for advanced imaging with CT, MR and ultrasound and they will also be prepared for the rapidly increasing hybrid imaging with SPECT/CT, PET/CT and in the future also PET/MR.

When trying to define learning goals and what to cover in the base specialty it is obvious that the base is too broad to be appropriately covered by one specialist. There is a need for sub-specialisation in the field of organs or age. It is important to stress that general or emergency imaging has to be one field. It will not be possible to cover all modalities, all organ systems and all ages without losing a deeper knowledge and therefore concentration in one or two fields is needed. In this area, the European curricula is easy to adopt.

## Defining New Learning Methods

In the new specialty, learning methods are also defined in the constitution. Theoretical studies and practical elements as well as clinical rounds and scientific meetings are defined as methods of learning. The most important activity for the Swedish Society of Medical Radiology, SFMR, is the annual congress, Röntgenveckan, which is held each autumn.

SFMR with all its sub-specialty societies is the main organiser together with the Swedish Society of Radiographers. The national societies for radiation physics, oral diagnostic radiology, and medical secretaries are also invited to participate. Approximately 1,500 delegates visit the congress and the technical exhibition. The next Röntgenveckan will be held in Uppsala, August 25 - 29 2008 and I invite you all to visit the congress.

## Digital Radiology & Education

Imaging in Sweden revolves almost entirely around RIS/ PACS, which has enabled a multidisciplinary approach to clinical rounds, with imaging at the heart of this. Making rounds using a relevant mixture of specialists, with radiology as the connection point is a great way to take care of patients and to increase knowledge and is also a great learning occasion during training. Digital radiology has opened the new possibility of distance rounds and today several departments have chosen longdistance multidisciplinary rounds.

Finally, the new organisation of the imaging department and the new specialty will push imaging forward. In Sweden, we have a mixture of organisations ranging from nuclear medicine and radiology organised as an individual department to a situation where they are completely separated. In many hospitals there are collaborations between radiology and nuclear medicine irrespective of organisation, and the growing activity with PET/CT increases the demand for such collaborations. In order to use all the equipment in an efficient way it should be put together even if the radiologists, or imaging specialists, need to specialise in organs or age.

The creation of imaging centres taking care of both structural and functional/molecular imaging including interventions seems to be the most proper way to take care of patients, at least at larger hospitals or universities. Of course, the necessary qualifications are of utmost importance also for such a department. In several of the university hospitals in Sweden such imaging centres have been established or are underway. A few have a more reluctant strategy which might leave them behind in education, science and development.

## Conclusion

To sum up, collaboration between education and science is needed to develop imaging of the future and since radiology is still rapidly transforming it is becoming more important to audit the possibilities offered by specialist education. The aim is that our specialists-to-be are more prepared to meet the new imaging era.

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