

**International Day of Radiology 2015
Interview on paediatric imaging
Denmark / Prof. Karin Kastberg Petersen**



**INTERNATIONAL
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Paediatric imaging in Denmark

An interview with Karin Kastberg Petersen, consultant paediatric radiologist and associate professor at Aarhus University Hospital, in cooperation with consultant paediatric radiologists Graziella Andersen, Karen Damgaard Pedersen and Mette Ramsdal Poulsen.

European Society of Radiology: What is paediatric imaging? What age are the patients, and how is it different from regular imaging?

Karin Kastberg Petersen: Paediatric radiology is a subspecialty of radiology. In paediatric radiology, we diagnose injuries and diseases of newborns, infants, children and adolescents up to the age of 18 using imaging techniques and equipment specifically designed for this group. Performing paediatric radiology requires knowledge of the anatomy, physiology, diseases and behaviour of children. Doctors and technicians are specifically educated and trained, although there is no formal diploma examination.

ESR: Since when has paediatric imaging been a specialty in its own right?

KKP: Paediatric imaging is still not a specialty in its own right in Denmark, because we do not have children's hospitals. In the department of radiology of university hospitals, you have doctors, nurses and technicians dedicated to paediatric imaging. The staff have specific education and training including participation in national and international courses in paediatric radiology. It is mandatory for radiologists to do two years of work in paediatric radiology to be considered a paediatric radiologist, although the title is not officially recognised by the authorities.

ESR: Which imaging modalities are usually used to examine paediatric patients? Does this change depending on the age of the patient?

KKP: All modalities are used but the predominant one is ultrasound – especially during the neonatal period.

ESR: Some imaging techniques, like x-ray and computed tomography (CT), use ionising radiation. What risk does this radiation pose to paediatric patients? What kind of safety measures are in place to protect children?

KKP: Using irradiating techniques in children may cause mutations and induce cancer. Children are twice as sensitive as adults to radiation. Therefore examinations that provide a maximum of diagnostic information and a minimum of physical harm (such as ionising radiation) and psychological damage are always considered. Furthermore the Danish National Health Board requires that doctors and technicians working in paediatric radiology have a particular interest in and knowledge of the field.

ESR: Do general radiologists always use lower radiation doses when imaging children; are there any guidelines to follow?

KKP: Yes, they do and they follow the existing guidelines for imaging of children. For instance, all departments working with children have written guidelines for every kind of examination in all modalities. Only equipment which uses minimal doses of radiation is used and all examinations follow the ALARA (As Low As Reasonably Achievable) principle.

ESR: How aware are parents and relatives about the risks of radiation exposure? How do you address the issue with them?

KKP: The awareness is very different from family to family. Radiologists always answer questions from parents and relatives relating to risks before the examination, but most paediatric radiologists do not proactively discuss the risk of radiation with parents and relatives. Some departments have information leaflets about the risks of radiation exposure, which are given to the parents before the examination.

ESR: Undergoing an imaging examination, especially a long procedure like magnetic resonance imaging (MRI), can be an uncomfortable and sometimes frightening experience for some children. How can it be made more bearable?

KKP: It is very important for both the child and the parents to be informed about the procedures and be introduced to the equipment and the environment before the actual examination. If possible, we supply some entertainment, i.e. a movie or some music. This is not possible for MRI, so, in some cases, it is necessary to sedate patients if they are too impatient.

ESR: Access to modern imaging equipment is important for paediatric imaging. Are hospitals in Norway equipped to provide the necessary exams?

KKP: Paediatric imaging is prioritised by hospitals in Denmark and only up-to-date, high quality equipment is used for children. Furthermore, every second year the Danish National Health Board reviews the permission given to certain departments to perform highly specialised radiological examinations. These departments are mainly found at university hospitals.

ESR: What has changed in paediatric radiology during your lifetime?

KKP: Cross-sectional imaging has improved enormously. Furthermore, digital development has contributed to optimising imaging, reducing radiation and facilitating communication. Image-guided interventional procedures have increased over the last 20 years.

ESR: Where do you see the next developments in your field?

KKP: I would foresee developments in prenatal diagnosis and treatment, and in functional imaging combining nuclear medicine with CT and MRI. Molecular biology will also become very important. I also think there will be significant developments in communication systems. Developments are only limited by imagination.