



Paediatric imaging in Slovakia

An interview with Kateřina Novotná, paediatric radiologist at the Faculty Hospital F.D. Roosevelta in Banská Bystrica.

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

Kateřina Novotná: Paediatric patients include all children, ranging from new-born infants to 18-year-old teenagers.

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

KN: In Slovakia, paediatric imaging has not been separated from general imaging as a subspecialty. In children's faculty hospitals, there are specialised radiologists who only practise paediatric imaging.

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

KN: The methods most commonly used to examine children are ultrasound and x-ray. They often suffice to obtain the required results. In serious cases that require further diagnosis, we mostly use magnetic resonance imaging (MRI) or low-dose computed tomography (CT) and positron emission tomography combined with CT (PET/CT). At the beginning of the diagnostic process, we prefer methods that do not use ionising radiation, regardless of age.

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

KN: Techniques using ionising radiation such as x-ray and CT have some undeniable benefits but also carry a risk for the growing organism that is a child. The most basic safety measure is to carefully consider the indication for each required exam.

For examinations using ionising radiation, we examine only the area of interest and use the lowest possible dose to obtain images with the required quality.

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

KN: In children, we always endeavour to use low-dose examination protocols. We fully respect the main rule of Council Directive 97/43/Euratom, which is to image with doses as low as reasonably achievable (the ALARA principle), and we implement European imaging referral guidelines. Most imaging protocols for children were created following these recommendations.

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

KN: The doctor who prescribes the exam has to explain to the child's parents or carers what kind of procedure is going to be performed and what kind of risks it carries. To make sure they understand the risk of the upcoming procedure, parents and relatives have to sign an informed consent form. Right before the examination, the radiologist will explain the procedure to them once again.

On the hospital's official website, we also have documents about risks and benefits of imaging methods. Any questions regarding these issues are welcome and answered by a competent specialist.

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

KN: In new-borns, small children and restless and non-cooperating kids, we provide general anaesthesia. In older children, we try to explain to them what kind of examination is being done and how we will proceed. In some cases, with very frightened children, we let one of the parents stay with the child during the procedure.

ESR: How many imaging exams are performed on paediatric patients in Slovakia each year?

KN: In Slovakia, there are three specialised children's faculty hospitals. They perform approximately 180,000 to 200,000 paediatric imaging exams per year.

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

KN: The vast majority of hospitals in our country, and especially the specialised ones, are equipped with modern imaging facilities, which can provide exams that meet modern standards.

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

KN: There has been a tremendous upswing in modern digital imaging technologies and archiving and communication systems. The quality of imaging is better, the procedures are not as long, and diagnostics and therapies are mostly individualised. This is applicable not just to the field of paediatric imaging, but also to imaging in general.

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

KN: I expect a further improvement in molecular imaging and advanced technologies, which will provide us with safer and more exact diagnosis in children patients' management.



***Kateřina Novotná** is a leading paediatric radiologist at the Faculty Hospital F.D. Roosevelta in Banská Bystrica. She graduated from the faculty of general medicine of Charles University in Hradec Králové in 1995, and immediately started working at the Faculty Hospital F.D. Roosevelta. She completed her postgraduate studies in 2002 and obtained her degree in radiology in 2008.*

Dr. Novotná has worked in paediatric radiology since 1996 and rose to her current position after the establishment of the paediatric hospital in Banská Bystrica.

She also dedicates her time to educating younger peers who specialise in CT and MRI.