

**International Day of Radiology 2015**  
**Interview on paediatric imaging**  
**Ukraine / Prof. Julia Ishchuk**



**INTERNATIONAL  
DAY OF  
RADIOLOGY**  
AN INITIATIVE OF THE ESR, ACR AND RSNA

**Paediatric imaging in Ukraine**

**An interview with Julia Ishchuk, paediatric radiologist and head of the x-ray and ultrasound diagnostic department at Kiev City Children's Clinical Hospital No.2.**

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

**Julia Ishchuk:** Paediatric imaging involves imaging of foetuses, infants, children and teenagers, so children from birth up to 18 years. Paediatric imaging has specific features and requires dedicated technical parameters and interpretation, as well as specialised doctors and laboratory assistants. Compared with adult imaging, paediatric imaging requires different low-dose protocols, image parameters and interpretation of results.

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

**Ji:** The creation of the first department of paediatric radiology in 1991 laid the groundwork for paediatric radiology in Ukraine. The department was funded under the leadership of Prof. Spuzyak at the Kharkov Medical Academy of Postgraduate Education. The department's main task is to train radiologists working in paediatric hospitals and highly qualified specialists through clinical internships, residencies and postgraduate programmes.

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

**Ji:** We know that children are more radiosensitive than adults. Ultrasound and magnetic resonance imaging (MRI) are two modalities that do not involve ionising radiation and are therefore preferred in paediatric practice. In Ukraine, x-rays often tend to be used in paediatric patients because they are a cheap, non-invasive, fast and widely available modality. Computed tomography (CT) should only be performed if absolutely necessary and using specific low-dose protocols. The choice and conduct of imaging modalities depend on the child's age. Special methods are used in foetuses and little children; for example, prenatal ultrasound and specific ultrasound techniques in newborns, such as neurosonography, ultrasound of thymus and hip, ultrasound diagnosis of wry neck disease, etc.

**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?**

**Ji:** The individual risk from a necessary imaging exam is generally quite small when compared against the benefit of an accurate diagnosis. But everything should be done to minimise this risk, first and foremost by reducing unnecessary exposure to ionising radiation. It is important to adjust equipment settings to optimise radiation exposure to paediatric patients for all types of imaging exams.

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

**Ji:** The 'As Low As Reasonably Achievable' (ALARA) principle should always be applied in paediatric patients. One should also follow specific paediatric protocols and technique charts.

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

**Jl:** As a rule, parents often ask questions about the negative effects of x-rays on their children. The radiologists and technologists are there to answer all their questions and explain the importance of diagnosing a sick child. We also explain how we reduce dose for examining children and carefully use individual protective measures.

**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?**

**Jl:** It is important to create a pleasant and friendly atmosphere in the diagnostic department, using child-friendly technologies to limit children's fears. It is also important that parents and doctors tell the child about this procedure. We recommend the child does not eat or drink anything several hours before the examination, especially if a sedative or anaesthesia will be used.

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

**Jl:** At Kiev City Children's Clinical Hospital No.2, we conducted over 26,500 x-rays examinations (producing 45,800 x-ray images) and about 7,000 ultrasound examinations in 2014. We don't have any CT or MR scanners at this hospital, so we must send children to another medical centre when necessary. MR and CT examinations are rarely needed and represent approximately 15–20 examinations a year for our hospital.

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

**Jl:** Modern imaging equipment is very important for quality paediatric imaging. Unfortunately, modern equipment, especially in children's hospitals, is a big problem in Ukraine. State programmes providing curative establishments with modern equipment do not work well. A sponsoring organisation or patron sometimes offers the equipment. But private clinics in Ukraine all have the necessary modern equipment.

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

**Jl:** The number of radiological examinations in paediatric patients increases every year. Paediatricians, child traumatologists, allergists, urologists, gastroenterologists and other specialists increasingly demand the help of radiologists. The development of technology and medical imaging equipment has allowed us to carry out radiological procedures in complex scenarios. The number of different training courses for paediatric radiologists has increased over the past few years.

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

**Jl:** In the future I would hope all the necessary modern imaging equipment is established in children's hospitals. The skills and qualification of radiologists will improve, and so will the possibility to freely use and master different imaging techniques. We must continue to educate and train specialists, and increase the exchange of experience and knowledge at an international level. We must further reduce dose to prevent possible risks, especially in young patients.



*Julia Ishchuk is a paediatric radiologist and head of the x-ray and ultrasound diagnostic department at Kiev City Children's Clinical Hospital No.2, which provides 24/7 highly skilled help to the children of Kiev in paediatrics, surgery, otolaryngology, infectious diseases, paediatric allergology, traumatology, neonatology and intensive therapy.*

*Dr. Ishchuk graduated from Bogomolets National Medical University in 2006, after completing an internship at the National Medical Academy of Postgraduate Education, in Ukraine. She then specialised in paediatric radiology and in ultrasound diagnostics at Kharkov Medical Academy of Postgraduate Education, and trained in echocardiography at Ukrainian Children's Cardiac Centre.*

*Dr. Ishchuk has been a member of the European Society of Radiology since 2008.*