> “The speed to get the image on the screen is impressive – from 2 to 13 seconds. This is especially important when you understand that we need to perform multi-dimension images for each trauma patient.”

DR. NADEZHDA POZDEYEVA
Head of the Radiology Department
Scientific Research Institute of Traumatology and Orthopaedics, Irkutsk, Russia

Digitally transforming a historic Siberian trauma hospital

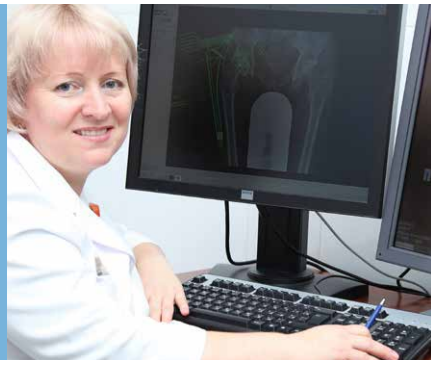
Irkutsk Institute of Traumatology and Orthopaedics improves diagnosis, patient care and workflow with broad range of digital solutions

AGFA HealthCare

Digitally transforming a historic Siberian trauma hospital

Interviewees NADEZHDA A. POZDEYEVA, Head of the Radiology Department and JULIANA V. PICHUGINA, Radiologist
Scientific Research Institute of Traumatology and Orthopaedics, Irkutsk, Russia

> “Our experience cooperating with Agfa HealthCare can be characterized by: information availability, reliability and responsibility.”
>
> **DR. NADEZHDA POZDEYEVA**



The cold and remote region of Siberia carries with it its own health challenges, many of which are addressed by the Irkutsk Institute of Traumatology and Orthopaedics. “The main challenges faced by our hospital are injuries and both congenital and acquired musculoskeletal abnormalities,” explains Nadezhda Pozdeyeva, Head of the Radiology Department. Over the past few years, the hospital has been transforming its radiology department by implementing a full series of Agfa HealthCare digital solutions. The goals of the project are to obtain more informative images, reduce radiation exposure to patients and staff, and improve the quality of diagnoses.

“Our region is experiencing some pretty disheartening trends towards increases in injuries and musculoskeletal problems,” continues Dr. Pozdeyeva. “It’s directly related to the life here: car accidents, workplace injuries and illnesses, and even icy footpaths all play a role in increasing the number of injuries we see.” At the same time, fewer young people are being attracted to the medical profession, she says.

The Russian Ministry of Health has also published requirements regarding the implementation of digital technology. All these factors contributed to a growing awareness within the Institute for the need to find solutions to improve the efficiency and effectiveness of the radiology department, by implementing advanced and modern digital imaging technologies.

Value for money, reliability, functionality, service & support

The Institute considered a number of manufacturers, attending various conferences on radiology and imaging. “We had no experience of working with digital systems, but we were very willing to learn,” explains radiologist Juliana Pichugina. “There was a range of requirements for the new systems: the best value for money, reliability and functionality, and availability of service and support.”

The hospital chose to acquire several direct (DR) and computed (CR) radiography solutions: the DX-D 300, DX-D 100 and DX-D 400, which is combined with a DX-G CR digitizer, for greater versatility.

A family of DR solutions to meet wide-ranging needs

The DX-D 100 is a mobile DR system that can be operated with one finger, yet provides high-quality images. “We use it in the trauma operating room, in order to check during operations that bone fragments match and to precisely position fixing and holding mechanisms. It also transmits the images directly to the desktops of physicians for diagnosis and archiving, via the Wi-Fi router we installed in the operating room.”

The hospital uses the DX-D 300 multifunctional, fixed U-shaped DR system with the full leg full spine (FLFS) option to provide digital images of the lower limbs and spine. “This is especially convenient for planning surgery procedures using the IMPAX Orthopaedic Tools,” explains Dr. Pozdeyeva. “The DX-D 300 offers us a rich functionality, and we can use it with a gurney, which allows us to examine bedridden patients.”

For heavier patients, the universal DX-D 400 system has an elevating table that can be lowered to 50 cm above the floor, reducing the strain on the medical staff. “The speed to get the image on the screen is impressive – from 2 to 13 seconds. This is especially important when you understand that we need to perform multi-dimension images for each trauma patient,” Dr. Pozdeyeva highlights.

The exam-independent, gold-standard MUSICA image processing software provides very high quality images, automatically analyzing the characteristics of each image and optimizing processing. “And using needle detectors for certain examinations also provides significant radiation dose reduction for the patients,” Dr. Pozdeyeva adds.

Image management suite and specialized tools for orthopaedics

The SE suite is ideal for taking small enterprises from analog to digital. It offers a modular design that enables the manipulation, management and centralization of medical imaging data. A complete solution from the

DID YOU KNOW?

- In the early 19th century, many Russian artists, officers, and nobles were sent into exile in Siberia for their part in the Decembrist revolt against Tsar Nicholas I. Irkutsk became the major center of intellectual and social life for these exiles.
- The Irkutsk Institute of Traumatology and Orthopaedics was established in March 1946 to handle reconstructive surgery, traumatology and orthopaedics. Patients from the Second World War were treated within the institution. It is the only hospital specializing in traumatology and orthopaedics in Siberia and the Russian Far East.

"There was a range of requirements for the new systems: the best value for money, reliability and functionality, and availability of service and support."

JULIANA PICHUGINA
Radiologist

Agfa HealthCare's contribution

- Close cooperation with hospital administration, physicians and technical service, as well as city authorities, to ensure that the stringent preparations were properly carried out.
- Delivery and installation of all equipment and solutions in accordance with the delivery schedule.
- Creative solutions to challenges such as the use of the DX-G during implementation to allow the hospital's regular work to go on.
- An active role in the preparation of the rooms, acting in a coordinated way during equipment delivery and installation.

moment it is implemented, it requires no additional upgrades, making it a very cost-effective solution. The hospital also implemented the IMPAX Orthopaedic Tools, which are used to apply digital templates and to complete measurements in preparation for orthopaedic surgery.

A 'historic' installation

The implementation team faced a further unusual challenge: "The hospital building is a historic monument of the city of Irkutsk," explains Dr. Pozdeyeva. "On the one hand, this meant we needed to preserve the building's appearance as much as possible. But on the other hand, the engineering was extremely outdated. So before the installation, we carried out a complete check of the sub-floors, electric networks heating and water supply systems. These were then aligned with the requirements for the equipment installation. In a new building, of course, these modern requirements would be built in, so there would be no delay or additional costs."

In addition, the implementation team had to ensure that the hospital and its patients were not impacted during the installations. By installing the DX-G digitizer for temporary use, the hospital could already carry out the necessary studies in digital format, using the wards' X-ray machines. And despite these challenges, the team implemented all of the solutions in accordance with the delivery schedule.

"Together, these solutions have significantly enhanced our ability to diagnose, to plan operations and to transmit and store data in the network," concludes Dr. Pozdeyeva. "Furthermore, our experience cooperating with Agfa HealthCare can be characterized by: information availability, reliability and responsibility."

Agfa HealthCare's solutions

DR and CR solutions

- DX-D 100: mobile direct digital X-ray unit
- DX-D 300: floor-mounted DR with fully motorized U-arm
- DX-D 400: scalable, floor-mounted DR solution with elevating table option
- DX-G: CR solution uniting superb image quality, potential dose reduction and a drop-and-go buffer-based workflow

The SE Suite

- A portfolio of data management software, created specifically to address the needs of smaller imaging environments, such as private practices; small imaging centers; orthopaedic, chiropractic and veterinary centers; and imaging clinics.

IMPAX Orthopaedic Tools

- Digital pre-operative planning and templating tools for orthopaedic surgeons.

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