

**Speech by**  
**Minister of Health of the Russian Federation**  
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**at IAEA scientific forum**  
**Nuclear Techniques in Human Health:**  
**Prevention, Diagnosis and Treatment**

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**Dear colleagues,**

On behalf of the Russian Ministry of Health I would like to greet participants of the scientific forum, and to thank its organizers for invitation to take part in it.

**IAEA** sums up a 50-year experience of using nuclear technologies in medicine. I would like to highlight the **essential role** of this powerful international entity. It ensures complex development of nuclear medicine in line with required quality and safety standards. It promotes common educational and scientific environment, and enables sharing of experience.

For example, the program for advanced training of medical physicists and radiation oncology therapists in CIS countries is implemented under IAEA. The Federal Medical and Biological Agency of Russia will host this program from 2017.

**Nuclear medicine and radiation therapy are one of the main priorities of medical science and healthcare in Russia.** They are covered as a separate unit in the state program of healthcare development.

To implement it, the **Concept of Nuclear Medicine Development in the Russian Federation until 2020** has been developed. It implies improvement of the regulatory system and infrastructure, introduction of new technologies and assurance of their safe use, training of medical, engineering and technical staff, and research and development.

**The experience of complex development of nuclear medicine** in Russia - such a big and diverse country in terms of climate, geography, society, economy and demography - will certainly be useful for the international community.

We do our best to make nuclear medicine and radiation therapy **locally available**. To achieve this, a **three-level system of specialized health centers** is developed in Russia: regional, interregional and federal ones. This system ensures provision of all nuclear medicine and radiation therapy services, **including active radionuclide and hadron therapy**, for patients with oncological, cardiovascular and neurodegenerative **diseases**.

**Control and supervision at all lifecycle stages of the radioactive materials used for medical purposes** is critical for the use of nuclear technologies in medicine. There is an effective common state service in Russia that guarantees safe use of modern nuclear technologies in medicine.

**Federal specialized health centers are attached to leading centers of nuclear physics**. They coordinate the entire system and act as a base for new technologies development by delivering the huge experience of nuclear physics to medicine.

This year, Russia has launched a **C235 proton accelerator** with unique specifications in the new *Center for Nuclear Medicine and Radiation Therapy of the Federal Medical and Biological Agency of Russia* in Dimitrovgrad. This development is a result of successful cooperation between the Russian *Joint Institute for Nuclear Research* and IBA. Ongoing research and technology activities allow decreasing the proton beam diameter from 5 to 1-1.5 mm. This improves accuracy and reduces injury rate of proton therapy. It is especially relevant for brain, skull base and eyeball tumors.

The first **proton therapy complex** fully designed in Russia was also commissioned. **It is based on a compact accelerator with the patient positioning system accurate up to half-millimeter**.

A **carbon therapy** project is being implemented together with the People's Republic of China.

**For brachytherapy new classes of microsources** based on **nanotechnology** are created. **Gallium arsenide detectors** are designed for low-dose X-ray radiography with color visualization. This method helps to determine not only density, but also composition of examined objects.

A priority direction developed in Russia is **new-generation radiopharmaceuticals**. They include:

gallium-68- and zirconium-89-based pharmaceuticals for effective PET diagnosis of bone metastases and tumor angiogenesis;

original targeted drugs based on iodine-131 and technetium-99 isotopes for treatment of chromaffin tumors, neuroblastomas, melanomas;

drugs based on nanoporous particles for targeted nuclear delivery of Auger electron emitter (indium-111) into cells of several tumor types *and others*.

**Digital information technologies** for radiation therapy are rapidly developed.

Thus, **the integrated approach to the development of nuclear medicine and radiation therapy in the Russian Federation** will help not only to make it more affordable to the population, but also to use the most advanced and effective technologies by 2020.

**Dear colleagues,**

Achievements of science and medicine should belong to the entire international community.

IAEA is the intellectual and coordination center that helps to choose and spread the best practices in nuclear medicine and radiation therapy.

On behalf of representatives of the healthcare sector let me thank IAEA for a great contribution in the development of global healthcare and medical science!

**Russia is open to cooperation!**

**Thank you!**