Medical Radiation Safety Research Center(MRSRC)

Director
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Major research goals

The Medical Radiation Safety Research Center (MRSRC) was established as one of the Nuclear Safety Research Centers designated by Nuclear Safety and Security Commission(NSSC) in 2013.
The research goal of MRSRC is to advance the medical radiation safety management system and the medical radiation dose assessment technology and to advance its regulation technology. The final goal of this center is to promote safety of patients and healthcare professionals in the field of nuclear medicine and radiation oncology by advancing medical radiation safety management system in Korea. MRSRC is currently playing a central role in South Korea in safety of medical radiation by closely discussing issues with NSSC and Korea Institute of Nuclear Safety(KINS).

Major research topics

1. Development of safety management technology for medical exposure of patients, including their comforters and carers, and volunteers in biomedical research in nuclear medicine
2. Development of radiation protection technology for radiation workers in nuclear medicine
3. Development of technology on radiation safety regulation for radiotherapy
4. Development of regulation technology for quality assurance in radiotherapy system
5. Upgrade safety management system of radiotherapy

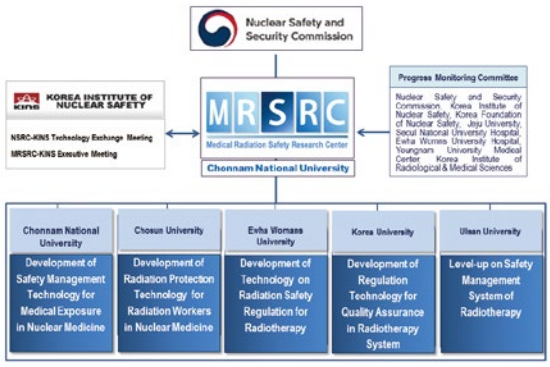
Major achievements

1. Development of the 1st diagnostic reference levels for nuclear medicine imaging in Korea
2. Building a nuclear medicine safety information system(NMSIS) website that provides information on the radiation protection of patients in nuclear medicine(www.nmsis.kr)
3. Establishment of dose constraints for comforters and carers in nuclear medicine procedures in Korea
4. Establishment of dose constraints for radiation workers in nuclear medicine in Korea
5. Development of measurement method of occupational external exposures dose of radiation workers
6. Evaluation of the small field dosimetry method

using data measured by various radiation detectors
7. Development of assessment methods for shielding of radiotherapy facilities
8. Development of external audit techniques for linear accelerator based on radiotherapy equipment
9. Development of a measurement system, an estimation system and a management system for external audit of linear accelerator based on radiotherapy equipment
10. Development of safety equipment advanced technology for linear accelerator treatment room

Representative figures of major achievements

The 1st MRSR Center Symposium held on September 23, 2016 at Chonnam National University Medical School with former NSSC chairman, General Director of Chonnam National University Hospital, a member of the National Assembly, presenters and researchers at our center.



A multidisciplinary research framework of MRSRC

Major relevant publications

1. Development of diagnostic reference levels for nuclear medicine imaging [NSTAR report]
2. Development of nuclear medicine safety information system for radiation protection of patients in nuclear medicine [NSTAR report]
3. Establishment of dose constraints for radiation workers in nuclear medicine [NSTAR report]
4. A survey of current measuring equipment and the guideline for small field dosimetry [NSTAR report]
5. Evaluation structural shielding for safety and protection in radiation therapy [NSTAR report]
6. Son J, Baek T, Lee B, et al. A comparison of the quality assurance of four dosimetric tools for intensity modulated radiation therapy. Radiol Oncol. 2015;49:307-13.
7. Keum M, Park JH, Park SH, Ahn SD. Evaluation of effective dose conversion coefficients for Korean adults during medical x-ray examinations up to 150 keV through comparison with ICRP Publication 74 and ICRP Publication 116. J Radiol Prot. 2014;34:191-9.

Research networks

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3. Department of Radiation Oncology, Mokdong Hospital, Ewha Womans University School of Medicine, Seoul, Korea.
4. Department of Bio-convergence Engineering, Korea University, Seoul, Korea.
5. Neurosurgery, Ulsan University Hospital, University of Ulsan College of Medicine, Ulsan, Korea

※ homepage: www.mrsrc.kr