

Akita University Hospital

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Safeguarding Medical Information During Disasters

The role of the Division of Medical Informatics

Akita University Hospital, which sees approximately 1,800 patients a day, is designated as an advanced treatment hospital—a medical institution that performs highly specialized and advanced medicine. We have striven to maximize our use of medical information in order to create a system that eliminates wait time as much as possible so we can provide examinations that reduce the burden placed on patients. The medical information recorded in the system includes the patient's personal information and results from blood tests, CT scans, MRIs, chest x-rays, EKGs, and more. This data is then shared with doctors, nurses, or others involved in clinical practice. Our role as the Division of Medical Informatics is to enhance patient convenience and create an environment that will allow our hospital's information system and network infrastructure to function stably even during a disaster.

Medical information backup system

We upgrade the servers and client computers that manage medical information at our hospital to a new system every five to six years to ensure durability. The server racks must be relocated or removed with every upgrade, so we cannot

secure them to the floor. To protect the servers from earthquakes, we used to employ a method that would connect the racks and keep them upright. With that system, however, we had to deal with the nuisance of reconnecting the racks every time we upgraded.

The reason we made the leap and installed a seismic isolation system when upgrading to our current, eighth-generation system was to prevent the server racks from falling over. Our building suffered no significant damage during the Great East Japan Earthquake, and our information systems did not suffer physical damage, either. While Akita Prefecture is known for having few earthquakes, I was not able to dispel the concern of the server racks falling with the earthquake-proofing method we were using.

I am not an expert on earthquakes, but THK's miniature seismic isolation system allowed me to become familiar with the product's internal mechanisms. With the seismic isolation simulation vehicle, I was also able to experience how effective this technology is against tremors equivalent to those felt during the Great East Japan Earthquake. I decided to install seismic isolation systems made from Linear Motion (LM) Guides because I was confident they would be able to protect our equipment from vertical and horizontal ground motion during an earthquake, and because they can be installed easily, without needing to be secured to the floor.

We successfully installed the seismic isolation systems under our server racks in November 2017 without needing to shut down our equipment. Finally, we installed a total of 17 systems. Considering the trends of AI use in the medical field, the digitization of medical information will likely continue to accelerate. In order to provide patients with prompt service by safeguarding their important information and quickly making it available to the hospital, we intend to continue promoting the seismic isolation of our servers as necessary to protect them from earthquakes.



Seismic isolation systems used to prevent the server racks from falling over during an earthquake