



Case Study

Iizuka Hospital

Rigorous demands for editing capabilities at the medical examination site led to LCD pen tablets



DTU-2231/Medical

Iizuka Hospital, which handles about 2,000 outpatients per day, started full operation of its digitized medical records system in July 2012. Driven by a belief that the key to the accumulation of medically useful data is the ease of data input at the medical examination site, the hospital bought 270 DTU-2231/Medical LCD pen tablets because of its rigorous demands for editing capabilities.

General hospital that plays a central role in medical care in the Chikuho region Located in Iizuka City in the center of Fukuoka Prefecture, Iizuka Hospital is a general hospital that has played a central role in medical care in the Chikuho region ever since it opened in 1918. With 1,116 beds, 31 wards and more than 2,300 employees, including 281 doctors, Iizuka Hospital is effectively the regional medical center. As well as its promotion of region-based medical care, it is also a designated hospital for clinical postgraduate training that attracts residents from all over Japan and boasts a top-class track record domestically. Its top-ranking every year as a municipal hospital (based on residents rankings) is further proof of its popularity in Japan.

Freedom from the restrictions of paper-based medical records and further promotion of team-based medical care

Hironori Hisakawa, head of the Information System Office, explains the concept of team-based medical care. "A big feature of our hospital is team-based medical care. For example, the nutrition support team consists of people from various professions, such as doctors, nurses, medical technicians and registered dietitians, so that it can provide each patient with the best possible nutritional management. We embarked on the digitization of medical records because we believed that paper-based medical records would impede our effects to increase the quality of the treatment and services provided by these sorts of cross-departmental and multidisciplinary teams. Staff dispersed across this large hospital can now share patient information without any time lag.

How to make the best use of medical records?

However, it took about eight years from the hospital's initial decision to consider a digital medical card system before the Project to Introduce Digital Medical Records could start properly. The Department of General Medicine's Masatomo Kiyota, who took part in the study team right from the beginning as the project leader, recounts his experience when he visited the prestigious Mayo Clinic in America. "It was in 2005, but they were still using paper to record the daily treatments. Mayo is a big hospital with 30,000 employees. They also have plenty of money and no shortage of people or time. But they still hadn't moved to digital medical records. I wondered why this was."

Editing capabilities enhanced after repeated feedback from onsite staff

The Project to Introduce Digital Medical Records officially started in 2001 after a period of lengthy investigations. After looking for a low-cost way of digitizing their medical records that would still involve their information system that had been built up over many years, and with due consideration having been given to its ease of use onsite, the hospital decided to develop its own digital medical records system.

"We thought it would be difficult to develop the system all by ourselves, so we looked for a partner who could help build the system with us. After repeated system demos and inspections a joint development structure for digital medical records was created between Iizuka Hospital, Aso Information System and the system vendor," says Mr. Hisakawa.



Using a development technique called agile development, they accurately elicited the system requirements by continually showed the system to onsite staff during its development and asking for their feedback. "We identified the functions needed by the hospital by repeatedly asking for feedback from doctors, nurses and other hospital staff. We managed to create our own digital medical records system after repeated iterations of the PDCA cycle," says Mr. Hisakawa. The doctors requested improved editing functionality. "A keyword that cropped up a lot in discussions was "PowerPoint". They wanted a system that allowed them to paste photos and write text, like in PowerPoint. I'm proud of the fact that the editing function for our digital medical cards has achieved this."

LCD pen tablets are indispensable to the creation of a digital medical card system

In order to create a digital medical records system with the advanced editing functionality required by the hospital, the device to be used became a big factor. "For example, if you want to take a photo, paste it in and use a pen to write about the symptoms on it, you can do this easily without any hassle by using a camera and a pen tablet. Because you can record things with photos, it is very useful when you need to view changes in symptoms, such as rashes," says Dr. Kiyota. Mr. Hisakawa from the Information System Office agrees. "I thought that a pen tablet was indispensable for the creation of digital medical records that would allow doctors to freely express what they were thinking. They can put items, such as photos, pictures or text, anywhere they like in the medical records screen and can also resize them at will. They can add quick hand-written comments to images and schemas that have been pasted in. The only device that allows you to reproduce images as if you are writing on paper is an LCD pen tablet," says Dr. Kiyota as well. The project team members all agreed that the adoption of an LCD pen tablet was indispensable.

The DTU-2231/Medical LCD pen tablet has a 21.5 inch wide HD display with full HD resolution (1,920 x 1,080). The medical record and filing system, which used to take up two screens, can now be displayed in just one screen. The cordless and batteryless pen is as light as a pencil and reproduces line thickness and shading according to the amount of pen pressure that you apply. The digital medical records system commenced operations in July 2012 in the wards and

in October of the same year for outpatients. LCD pen tablets were accordingly installed in outpatient examination rooms in all departments at the nurse stations in the wards. They also placed importance on ease of input in terms authenticating the medical records. They registered the hand-written signatures of all the doctors beforehand and allowed them to paste their signatures into the record with an electronic pen when they had finished entering the information. This made it possible to see at a glance who had written the record.

"You can write in the same way that you would for a paper-based record and you can electronically check who wrote it and when. The pen tablet now allows doctors who had struggled with keyboard-based digital medical records to write the way they used to and even to sign, reducing stress enormously," says Dr. Kiyota, explaining the advantages of the hand-written signature method.

Becoming the lynchpin for regional medical information

The fact that a digital medical records system has started at Iizuka Hospital, the medical center for the Chikugo region, is hugely significant. "Iizuka Hospital treats many patients and has lots of doctors. The ability to record the high quality treatment of patients across various cases and store it in a database for future analysis is a valuable asset. I hope that the results of this analysis will allow us to provide valuable feedback to the region in the future," says Dr. Kiyota, expressing her hope that digital medical records can play a pillar role in regional medical care. As a general hospital that plays a key role in the region, the hospital will also need to link its digital medical records system and various other information systems to other medical institutions in the area. The good use of information lies at the heart of good medical care.



Iizuka Hospital <http://aih-net.com/>
A general hospital that plays a key role in regional medical care under the credo of "We Deliver The Best - Our goal is "sincere care and sincere service". Has 37 departments and cares for 46,000 emergency patients per year. Also engages in kaizen (continuous improvement) activities such as TQM in order to enhance its care and service. Has obtained ISO 14001 and ISO 9001.