Improve medical services with Intel® architecture-based tablets

Renji Hospital Shanghai Jiao Tong University School of Medicine enables enhanced mobile patient care with Intel® Atom™ processor-based business tablets, improving work efficiency and quality of healthcare services

Founded in 1844, Renji Hospital Shanghai Jiao Tong University School of Medicine needed to provide a more convenient work environment to medical staffs and better services for patients. To achieve this vision, Renji Hospital set up the Renji Medical Cloud Computing Platform*, which combines advanced mobile technology with existing medical resources. The platform enables mobile medical treatment through better medical resources, services, and management.

CHALLENGES

- **Allow easy ward rounds.** Ease the burden of ward rounds for doctors by allowing them to check complete medical records, medical histories, vital signs, and other patient information without the need to carry paper-based clinical information.
- **Improve work efficiency.** Enhance nursing staff efficiency and productivity by significantly reducing and often eliminating the time wasted on digitizing patient records, which frequently causes information delay and errors.
- **Expand the quality of patient services.** Improve diet services for patients by reducing pressure on kitchen workers, improving the diet management process and reducing the chance of errors.

SOLUTION

- **Utilize tablets based on Intel® Atom™ processor.** Extend digital medical information stored in traditional computers to let medical staff use mobile devices to collect and manage patient information in real time and provide services more efficiently through mobile diet ordering and optimized healthcare workflow.

TECHNOLOGY RESULTS

- **Customized mobile platform.** Mobilized the hospital information system by adjusting system interfaces to meet different roles and operating habits of employees.
- **Efficient medical management.** Combining medical applications with an optimized system interface on mobile devices allowed doctors and nurses to improve and accelerate patient diagnosis and treatment and retrieve information in real time.
- **Digitized diet management.** New digital healthcare system allowed the healthcare staff to formulate dietary rules systematically based on patient records and doctor's advice.

BUSINESS VALUE

- **Significantly improved work efficiency.** Reduced workload and pressure on doctors and nurses. Doctor-patient consultations, which used to take 30 to 45 minutes, can now be finished in 15 minutes. Kitchen workers can also provide enhanced diet services to patients.
- **Improved patient satisfaction.** Bringing information services to patients' bedsides has cut the chance of manual errors. Since kitchen workers can provide enhanced diet services to patients. satisfaction has climbed to 95 percent.
- **Enhanced quality of medical services.** With mobile medical techniques, the hospital can implement quality surveillance on doctors' advice and quantitative management of healthcare, improving the overall healthcare level and quality of services.

"Intel® architecture-based tablets have excellent operating performance and industry-proven stability and reliability that meet our mobile medical needs. Now our medical staff benefits from more stable and reliable equipment with faster processing to facilitate patient diagnosis and medical services, while improving our work efficiency and quality of services."

Meng Lili
Director
Information Center
Renji Hospital Shanghai
Jiao Tong University School of Medicine

A more systematic approach to medical operations

Renji Hospital's hospital information system (HIS) includes all kinds of doctor-patient data, which healthcare staff can easily check on computers. But care takers had to go to specific locations to manually input patient data.

"Since computer terminals are in certain locations, it became increasingly difficult
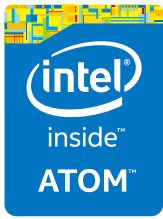
Intel® Atom™ processor-based tablets optimize healthcare workflow and improve work efficiency and medical service delivery

for doctors and nurses to get timely access to the HIS. They had to go back and forth among wards and operating rooms to check or record patient information," explained Meng Lili, director of the Information Center at Renji Hospital.

This made a huge impact on the efficiency and productivity of the medical staff. When doctors went to the wards, for example, they needed to use bulky trolleys to transport information and often carried either too much or too little patient data. Meanwhile, nurses had to manually record patients' vital signs and then encode the information into the HIS. This wasted time and effort and increased errors in information records.

The hospital kitchen also needed a more systematic approach. Daily diet has significant influence on patients' health. But it was hard for kitchen workers to keep up with patient's individual dietary needs.

"We have 40 kitchen workers going back and forth among over 2,000 beds every day," explained Lili. "They have to strictly follow doctors' advice to arrange individualized diets for patients. This became almost impossible."

With such pressing problems, Renji Hospital needed to overhaul its HIS, extending the HIS services to beds, providing convenient data input and access for doctors and nurses, and enabling kitchen workers to more easily manage patients' diets.

Digitizing medical operations through mobile solutions

The booming development of mobile information technology boosted Renji Hospital's confidence in implementing mobile solutions to respond to the challenges its HIS presented.

The hospital equipped doctors, nurses, and kitchen workers with tablets based on Intel Atom processors. Using the tablets, they can interact with the HIS system whenever and wherever they need to. The system interface also adjusts to their roles, needs, and habits.

The new mobile medical solutions give doctors better performance, reliability, and compatibility. Doctors and nurses can efficiently manage patients' diagnosis and treatment information through their mobile devices. With the tablets' image processing capabilities, the medical staff can now check surveillance videos from operating tables and other videos in real time, which helps the hospital reduce possible disputes between doctors and patients.

One doctor said, "The tablet runs very quickly and operates very smoothly. This is what we need. The tablet shows the information we want most. We don't need to check information manually, since it's displayed in real time. Nurses also love using the tablets because they can finish their task in 15 minutes instead of 30 to 45 minutes. They can also easily input patients' vital signs, which not only saves time, but also reduces their workload. They are also happy with the tablets' long battery life, which allows them to use the devices for a full day on just one battery charge."

Using the Intel® architecture-based tablets also enabled Renji Hospital to formulate custom diets based on patients' diseases, age, and other information on the HIS.

"Through this mobile solution, patients' satisfaction with our diet services has reached 95 percent," said Lili. "The efficiency and accuracy of diet arrangements and patients' compliance have also been improved. Our all-around

nutrition management has greatly improved, along with the efficiency and quality of service among our staff."

With the advantages of mobile medical solutions, Renji Hospital hopes to continue cooperating with Intel in other fields, including using Intel architecture-based tablets for ambulances, extending the application model and scale of mobile medical treatment and providing better medical services for patients.

Find the solution that's right for your organization. Learn more about tablets and 2 in 1 devices for business by exploring **IT Center**, Intel's resource for the IT industry. View success stories from your peers: **Business Success Stories for IT Managers**.

LESSONS LEARNED

- Intel® architecture-based tablets are an ideal platform for mobile medical solutions, with excellent operating performance plus industry-proven stability and reliability. .

- Tablets based on Intel® Atom™ processors are compatible with a wide range of operating systems and applications to mobilize existing hospital information system (HIS) while promoting efficient and systematic mobile medical services.

- As a advocate of mobile medical services, Intel is committed to making it easier for medical practitioners to use mobile medical applications.