



# Hangzhou First People's Hospital uses Motorola to improve its Outpatient Infusion Management System



Hangzhou First People's Hospital's new Outpatient Infusion Management System is "patient-centric" as seen in its safe intravenous infusion procedure and real-time convenient call system. It reduces the chance of error by hospital personnel, reduces work stress and improves overall efficiency.



## Company Overview

Founded in 1923, the First People's Hospital of Hangzhou is the largest Grade Three Class A municipal general hospital in Hangzhou, China. It is home to medical therapy, teaching, scientific research, preventive medicine and public health service centres and houses a range of related disciplines, including pharmacy, radiology, pathology, nursing management, emergency treatment, health screening, obstetrics and a medical history quality control centre. With an established track record, achievements in advanced research and highly professional medical staff, the 80 year-old hospital is highly regarded by its patients and their relatives. It has been awarded for being the "Model Hospital among the People's Trusted Hospitals".



## The Challenge: Managing the arduous task of outpatient infusion management

Outpatient infusion services represent an important part of the hospital's programs, and involve a heavy workload, countless procedures and endless operational details. Any error poses a risk to patient safety. At the same time, high daily human traffic, consisting of patients and their family members at the infusion services department has hampered nursing management.

The First People's Hospital of Hangzhou has been facing an increasing patient load, with a daily average of 300 outpatient infusions. Its highest per-day record was 1,300 infusions. To improve the quality of its outpatient infusion services, the hospital has been adopting advanced technology and management methods over the past few years. According to the hospital's Deputy Director, Mr Wang Gang, the hospital began to collaborate with Baxter Healthcare Trading (Shanghai) Co., Ltd a few years ago to ensure the safety of drug usage for outpatient infusion. A Medical Ward Intravenous Infusion Dispensary Centre was established to centralise drug dispensing. Designated pharmacists were responsible for verifying the dosage and time of all infusion drugs.

## Customer Profile



### Company

Hangzhou First People's Hospital

### Location

Hangzhou, China

### Industry

Healthcare

### Products

Motorola MC50 EDA, WS5100 and AP300 wireless switch infrastructure

### Partner

Enjoyor Technology Group (Hangzhou)



**Solution**

The nursing officer uses the MC50 to identify the right patient with the right infusion bag by scanning his or her identity barcode. At the same time, the nursing officer can respond quickly to patient's call for help, which is displayed on the MC50. Information is transferred to the backend system accurately, wirelessly and securely via the WS5100 and AP300 wireless switch infrastructure

**Benefits**

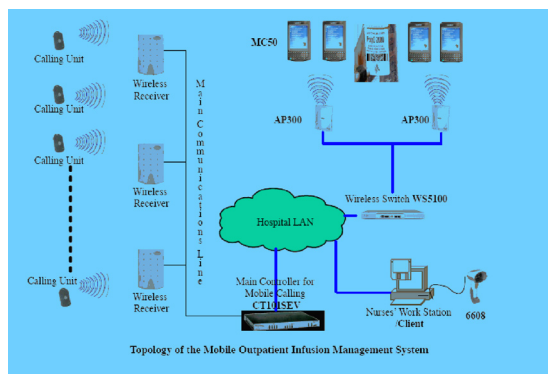
- Eliminate errors in infusion
- Improve environment and order in infusion centre
- Saves time
- Records information accurately
- Improves service quality

Subsequently, the hospital co-founded a Clinical Information System Laboratory with the Zhejiang University of Traditional Chinese Medicine, which sets the foundation for advanced outpatient infusion information management.

A Medical Ward Intravenous Infusion Dispensary Centre alone cannot eliminate the inherent safety risks in traditional infusion process which require patient identity and drugs to be manually verified. Thus, in early 2007, the hospital implemented an Outpatient Infusion Management System with Motorola and its partner EnjoyorTechnology Group (Hangzhou).

**The Solution: Revamped Outpatient Infusion Management System**

The new Outpatient Infusion Management Mobile Solution uses Motorola MC50 enterprise digital assistants (EDA), WS5100 wireless switches and AP300 access ports. By incorporating barcode scanning, mobile computing technology and a wireless network, the solution enables nursing officers to accurately verify patient identity and drug barcodes, promptly respond to a patient's call for help at the right time and place, and make precise records of processed information.



The system offers a work flow that substantially improves nursing efficiency and reduces work stress of the nurses by allowing accurate

collection, transmission and management of information. By responding to the needs of its patients real-time, the hospital enhances patient satisfaction and provides more people-oriented services.

Generally, upon receiving a patient's infusion instructions and infusion drug, the nursing officer will print out the patient identity barcode label and infusion bag barcode label with a barcode printer to create an association between a patient identity and his or her drug. Next, the nursing officer will reconcile the patient's identity with the infusion bag by scanning his or her identity barcode with the MC50. This ensures the right drug is provided for the right patient.

During infusion, the patient may call for assistance by pressing the wireless call button on the infusion device. Call information is displayed on the nursing officer's MC50, and based on the infusion and patient information displayed, the nursing officer can then respond quickly to the patient's needs, reducing vital response time.

If further verification is required, the nursing officer just needs to re-scan the patient's identity barcode and the infusion drug barcode with the MC50. This eliminates the need for the nursing officer to travel between the patient and the treatment room, which helps to improve patient service. When infusion is completed, the nursing officer again scans the patient identity barcode and saves all the information. The MC50 EDA from Motorola is the heart of the entire process. It is the first commercial enterprise digital assistant that integrates an improved PDA architecture with optimised performance for corporate application programmes. With a battery that can last up to a month on standby mode, the small and portable MC50 is ideal for use by nursing officers. It is strong, durable and can withstand a 1.5 metre drop to the floor.

The device has a scratch-proof surface that can be cleaned using an alcoholic wipe, thus meeting the strict hygiene requirement of the hospital. In addition, the MC50 has features like advanced data capture, multi-language support and easy data communication with the wireless local area networks.

The Motorola WS5100 and AP300 wireless switch and infrastructure is the heart of the hospital wireless LAN infrastructure. It enhances the value of the Outpatient Infusion Management Mobile Solution by enabling voice and data mobility. Its integrated structure is easy to deploy, reducing and simplifying management while offering safety, expandability and ease of use.

The Outpatient Infusion Management Mobile Solution provides the following unique features and benefits:

### **1. Infusion Process Re-engineering**

Compared with the hospital's original outpatient infusion process, the new system replaces manual processes with secure digital data. Previously, there was much greater chance of error as patient information had to be manually verified. Now the MC50 mobile computer, which picks up information from barcodes, lowers the work stress of the nursing officers and reduces the chance of errors. In the past, patients had to shout for the nurses when they needed help; now, they do so by using the wireless calling units on their seats. The MC50 carried by the nurses will display the patient's seat number and basic information. Gone are the days of noise and chaos that were once prevalent in the infusion centre.

### **2. Mobile Information Support**

The system provides real-time information support for the hospital's information records system and for medical staff through the MC50 and Motorola's seamless wireless system.

### **3. Barcode Identification**

Traditional outpatient infusion management systems only perform barcode identification for infusion drugs, without taking into account patient identification and patient-drug matching. The new Outpatient Infusion Management System is an innovative solution that ensures an accurate and safe infusion process by adopting a double association labelling method that not only ensures the right drug and right patient, but also ensures the right drug is for the right patient.

### **4. Complete Integration of Technological Framework**

The System incorporates Motorola's barcode, wireless network and mobile computing technologies, and integrates wireless call and middleware data extraction technologies to establish a complete framework for the infusion management system.

### **5. "People-Centric"**

The infusion centre in a hospital's outpatient clinic is often crowded, and installing a paging system would only add more stress to the busy environment. To resolve this issue, Motorola's Enterprise Mobility business installs wireless communication calling unit without the need for connecting wires. Installation of the calling unit is being implemented by Motorola and its business partner, Enjoyor Technology Group (Hangzhou), usually at night and during low traffic hours to avoid disruption of hospital services.

### **The Benefits: Improved management and service**

Test results show that the new Outpatient Infusion Management System, reduces the time spent servicing individual patients by half – a huge improvement in efficiency and an effective reduction of nurses' workload. A nursing officer commented that the outpatient infusion management system removed the tedium of tallying, and effectively eliminated the inherent safety risks of patients having identical names or of staff mishearing names.

Many patients have noted that the earlier commotion and noise in the infusion centre has gone, and that nurses work faster and are more prompt in their service.

"The system does not only offer convenience to the patients, it also improves service quality," said Mr Wang Gang. The MC50 mobile terminal not only displays the seat number of the patient who requires attention, but also the specific time of the call and the time the patient is attended. This enables the hospital's management to have a thorough understanding of the service promptness of its nurses, and provides good reference for assessments. By streamlining outpatient infusion workflow, simplifying the verification of information on drug execution procedures, and accurately measuring nurses' workload, it provides greater clarity for better department management.



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