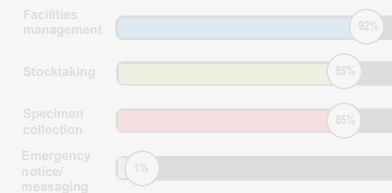
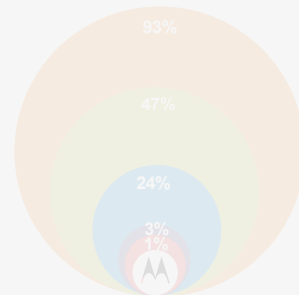
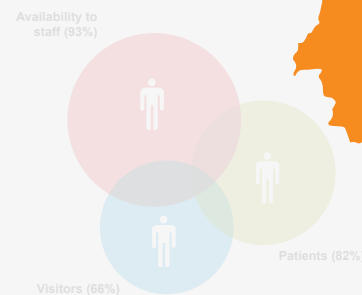
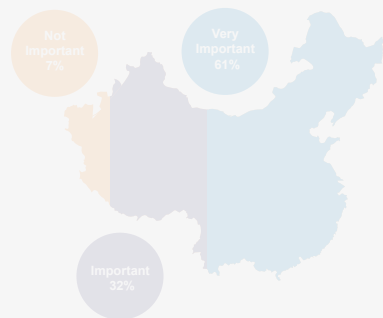
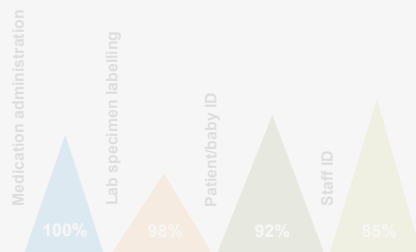
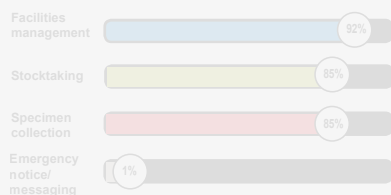
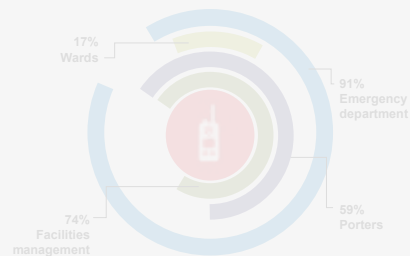


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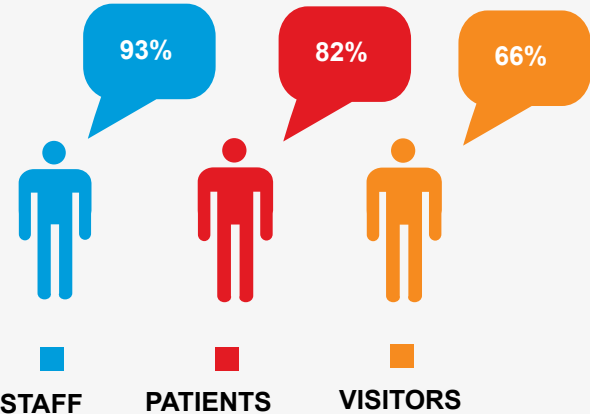
# The Growing Value of Mobile Technology in Hospitals

## The China Experience

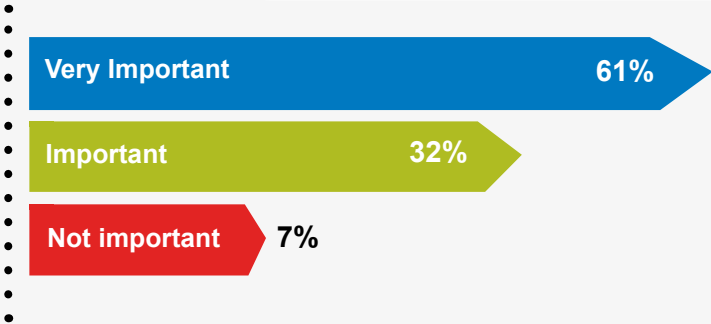
Survey conducted by  
IDG Connect on behalf of  
Motorola

# Hospitals Are Making Targeted Choices On Mobile Technology

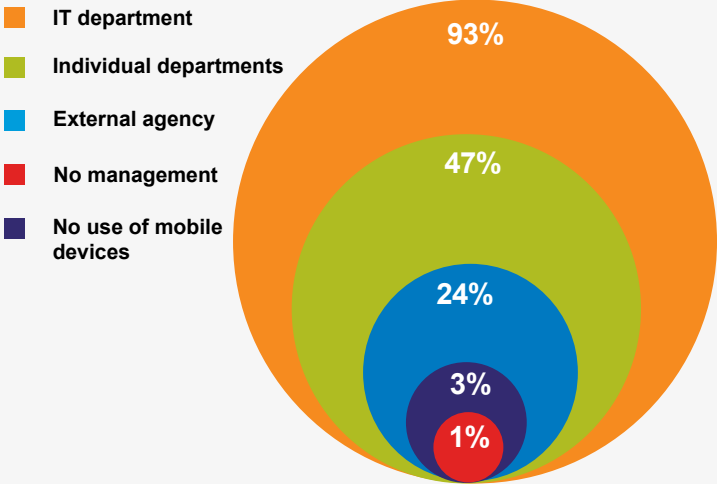
The hospitals in China provide easy access to WiFi



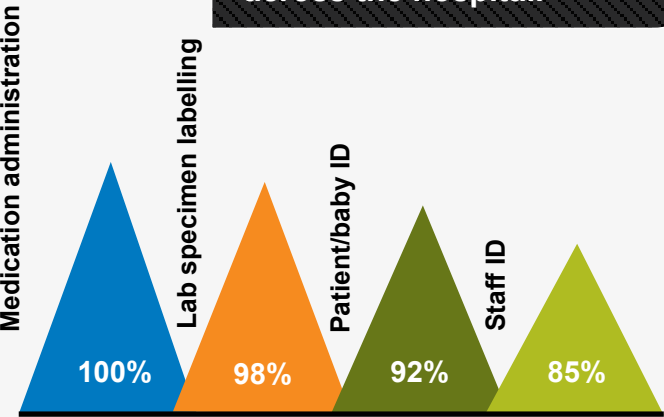
The majority of hospitals believe in having access to clinical data on the go



Although the IT department is the leading manager of mobile technology, other departments within hospitals play an active role



Barcode and RFID have a key tracking role to play across the hospital.



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# Who Did We Talk To?

## Who, What, Why

Hospitals are complex organisations that need to keep track of rapidly changing populations of patients, their medical histories and their test results. It literally is a matter of life and death.

And that is just the tip of the iceberg. Any large hospital will have hundreds of medical staff who are constantly moving around wards, clinics, the emergency department and even operating theatres. Some of these staff will be regular employees, while some may be transients.

Meanwhile in the background there are operational teams aiming to ensure that hospital facilities are kept up to scratch, that equipment is available and working, and that medical staff are properly supported.

At the heart of all this activity is the patient.

And surrounding the patient in a modern hospital is wireless technology. The specialised, life-enhancing technology of diagnostics, prescription and monitoring sits side-by-side with the technology that supports any large enterprise – communications, stock control, security and people management.

We wanted to know how hospitals are using mobile technology specifically to help clinicians and operational staff in their day-to-day work. We are not just talking about the smartphones and tablets we might find in commercial organisations - we wanted to extend our investigation into other mobile technologies, such as RFID and barcoding, to see which technologies are deemed appropriate in which situations.

To find the answers, we spoke to 100 hospitals across China. Our survey targeted hospitals that have more than 400 managed beds – as we felt that they would have deployed more technology than those with fewer beds.

This paper describes our findings.

## Further reading

<http://importanceoftech.com/importance-of-technology-in-hospitals>

<http://www.beckershospitalreview.com/healthcare-information-technology/10-technologies-to-keep-hospitals-competitive.html> specifically on telehealth and mobile devices

<http://www.forbes.com/sites/realspin/2012/05/16/is-better-technology-still-the-future-of-healthcare/>

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# Bar Codes, RFID and Real-Time Location Systems Keep Tabs on People and Assets

We wanted to know how hospitals are currently tracking people and equipment.

In the hospital environment, tracking technologies are regularly used for tasks such as:

- Labelling samples to ensure the lab returns the right results
- Dispensing the correct drugs for each patient
- Finding patients, doctors and nurses within the building
- Restricting access to places, people and drugs
- Accessing patient information while attending to the patient

Getting the right test results for the right patient and then delivering the correct medication is vital to patient care. Barcode technology is firmly entrenched as an inexpensive way of identifying and tracking patients and important information relating to the patients.

Research over the years has clearly shown that barcode technology can, for example, minimise the risk of errors and adverse reactions in medication dispensing. All the hospitals in our survey use these technologies for medication administration, as well as for lab specimen labelling and patient identification.

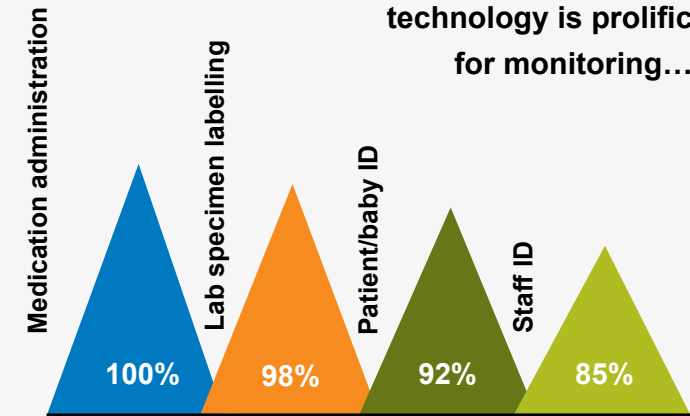
We also found that hospitals use barcode technology for staff ID as part of the drive to improve security within the hospital.

There were concerns about poor barcoding a few years ago, but hospitals continue to use it because it is cheap and mostly effective. For that reason it is likely to live on in tandem with the more modern technologies of RFID and real-time location tracking.

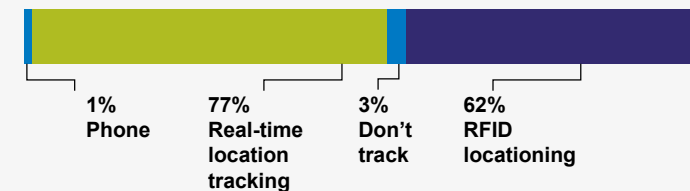
When we asked if barcode technology was used outside patient care, such as tracking inventory and assets, the responses suggested that usage here is very low. Asset misplacement and loss is a major issue for hospitals with so much equipment constantly being transported around the premises, as well as potentially leaving the building. Technologies such as RFID and real-time location tracking are the preferred route for asset tracking, although they are more expensive than barcodes.

The technologies are also invaluable for patients who are at risk of wandering around the premises.

## The use of barcode and RFID technology is prolific for monitoring...



## Use of technology in keeping track of assets and people



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# Staff Are the Greatest Beneficiaries of WiFi and Radio

## Use of WiFi

Being connected anywhere, anytime is becoming the norm for many. Just look at the number of hotspots springing up in public places – restaurants, railway trains, even hotels. So it is no surprise that WiFi is now becoming standard in hospitals too .

So far it is staff that benefits most, with a massive 93% having access to WiFi. It is interesting to note though the high numbers of hospitals that have also made the technology available to patients, and to a slightly lesser extent to visitors. It seems that hospitals are building on functional capabilities to enhance the patient and visitor experience.

WiFi should enable all staff to work on the move. As our research shows in the following pages, hospitals do consider mobile access for clinicians to be very important, though the desk-based workstation still has an important role to play.

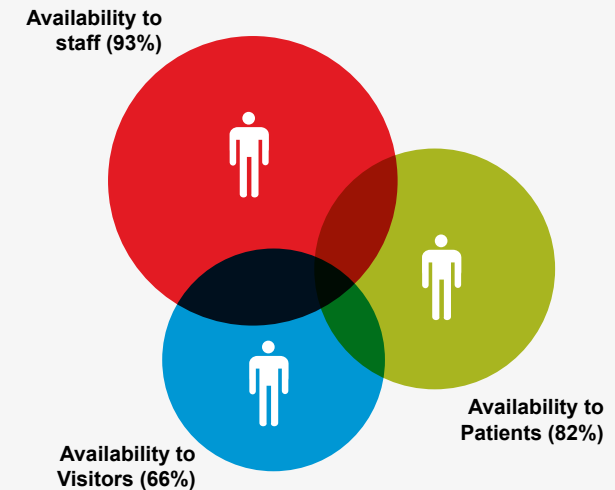
When we asked about the use of two-way radio, we were to a large extent expecting to hear that facilities management and internal operations were the greatest users. Instead we found that the emergency medical team is the power user here, with 91% of hospitals telling us they use the technology in the emergency department.

We also found a widespread use of radios in facilities management and by porters. Some 17% of wards use radios as well. The number of hospitals not using radio at all was negligible. Security was not mentioned by any respondent specifically, but could well be part of the facilities management function.

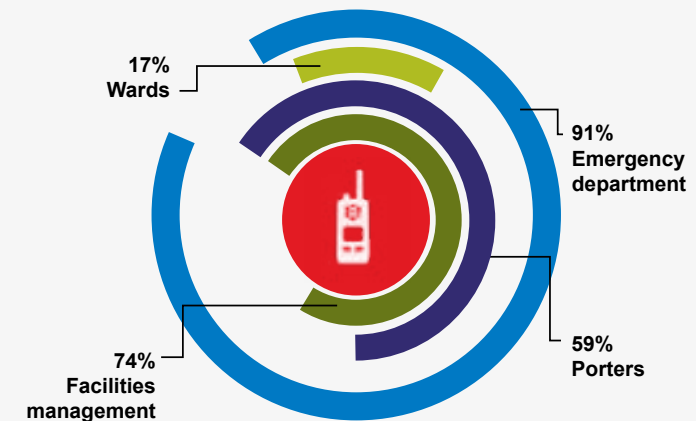
### Further reading

<http://www.wi-fi.org/knowledge-center/white-papers/wi-fi%C2%AE-healthcare-solution-growing-hospital-communication-needs-2011>

## The hospitals in China provide easy access to WiFi



## The dependency on two-way radio



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# Hospitals Support Mobile Access to Patient Data While Nursing Task Management is Evolving

## Bedside Care

Over 90% of the hospitals in our survey believed that access to patient clinical data on the move is important, with over 60% of those rating it as highly important. This is hardly surprising in an environment where speed is of the essence, and where bulky files of paper have traditionally ruled. Hospitals have clearly embraced the idea of using devices such as tablets to give better bedside patient care.

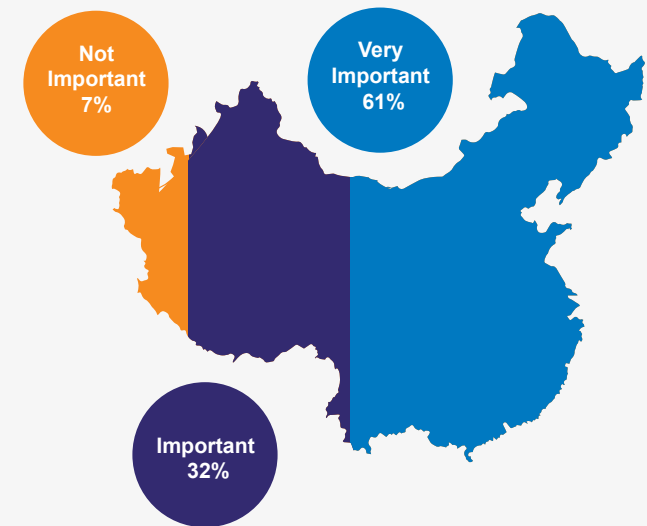
That fits well with our findings about the availability of WiFi in hospitals. Without the WiFi availability, patient data on the move would not be possible.

We had thought that with the arrival of WiFi and mobile devices, nursing administration might track these new developments. That is only true to a certain extent, if our survey around task allocation is anything to go by.

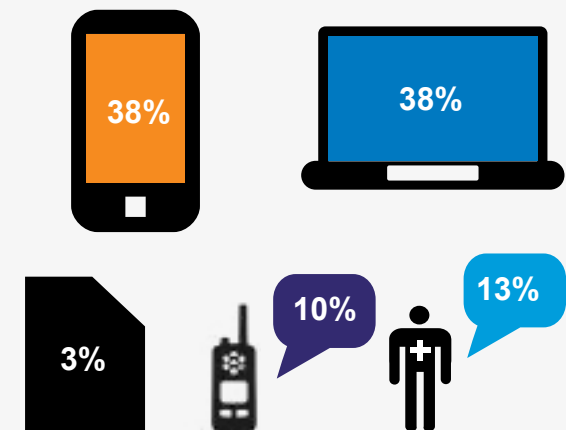
While WiFi is available to staff in 93% of hospitals, in 38% nursing tasks are still allocated primarily via a desktop PC. Moreover, 13% are mostly verbal instructions, and 10% focus on two-way radio. That said, 36% do use mobile devices as their primary method of issuing instructions, and we would expect to see that grow as hospitals take further advantage of wireless networks.

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## The importance rating of mobile access to clinical data



## The various methods of allocating nursing staff tasks:





# Mobile Computers Are Used to Drive Efficiency in Internal Operations

There are three clear areas where mobile technology has taken hold: facilities management, stocktaking and specimen collection. All of these are by their nature tasks best done on the move, so mobile technology is an ideal solution to increasing accuracy and efficiency.

A few hospitals said they were using mobile technology for emergency notices and messaging. Just 3% said they planned to introduce mobile devices in the next 12 months, and there was no respondent who said they would not be using the technology.

It is not just medical staff who can benefit from mobile technology. We wanted to see how facilities management and all the other backroom staff were incorporating anytime, anyplace working into their processes.

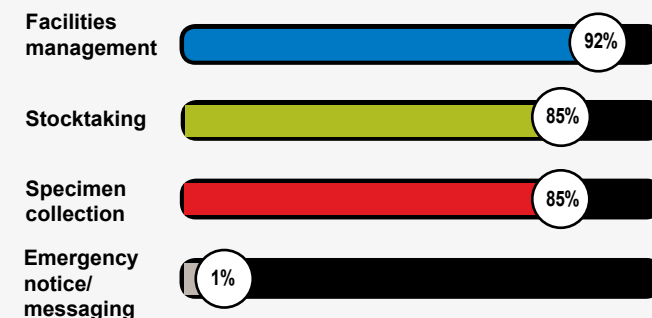
## IT Departments Lay Claim to Management of Mobile Devices

We asked hospitals who currently manages mobile devices, including security updates, application updates, and replacement of lost phones.

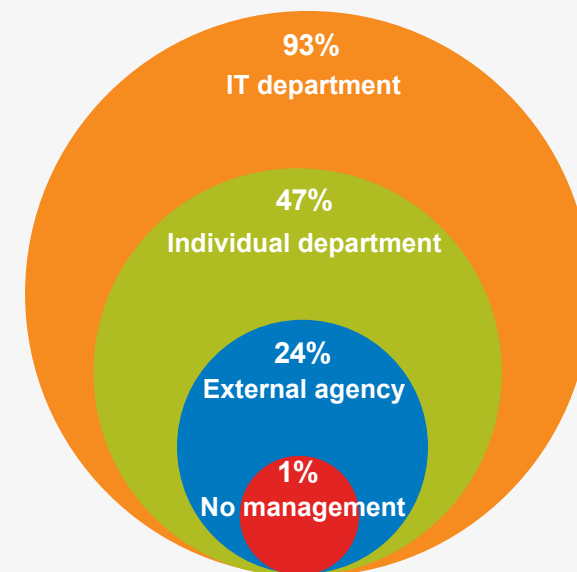
The results were interesting. Nearly all IT departments lay claim to management, but they are not alone. Our respondents told us that management is also handled in 47% of cases by individual departments, while external agencies were said to be managers in 24% of cases.

This could mean that hospitals are sharing management tasks across departments, or that in some cases there is no clear definition of who is running the show. We would expect IT to take the lead in rolling out updates because it is a technical task and it needs to be managed centrally. If individual departments are doing anything more than basic management, this could result in duplication of effort, or more likely some tasks falling between the cracks.

## Mobile devices drive efficiency in internal operations



## Taking responsibility for managing mobile devices:



# China's Hospitals Are Embracing Mobile Technology

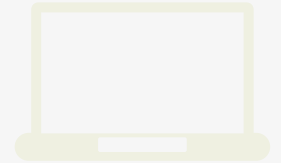
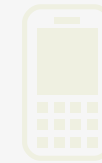
Mobile technology certainly has a stronghold in hospitals in China, and clinicians see a strong benefit in having access to patient data wherever they are. There is still room for growth here though.

Despite the increasing availability of WiFi access, mobile devices are used in just a third of cases to allocate tasks to nurses. Streamlining this process seems to be a bit of a slow burner, with multiple methods still in use.

Barcode and RFID technology are clearly seen as the most appropriate tools for tracking of assets, medications and samples, and to some extent, people. The use of this technology is found throughout hospitals, both in clinical and operational tasks. It is well embedded, and new mobile technologies would have to prove their worth to displace them in our view.

When people need to talk in a hurry, many still depend on two-way radios, especially in emergency medicine and, to a lesser extent, on the wards. Arguably WiFi does not offer a better alternative over voice, so we are not expecting new data networks to change this approach.

The management of the WiFi-enabled devices that do exist poses interesting questions. With IT departments, individual departments and third parties claiming some responsibility, we wonder if hospitals have an overall plan or whether they will experience management and operational issues as the use of mobile technology grows.



## Conclusion

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