



DELIVERING BETTER PATIENT CARE WITH GREATER EFFICIENCY

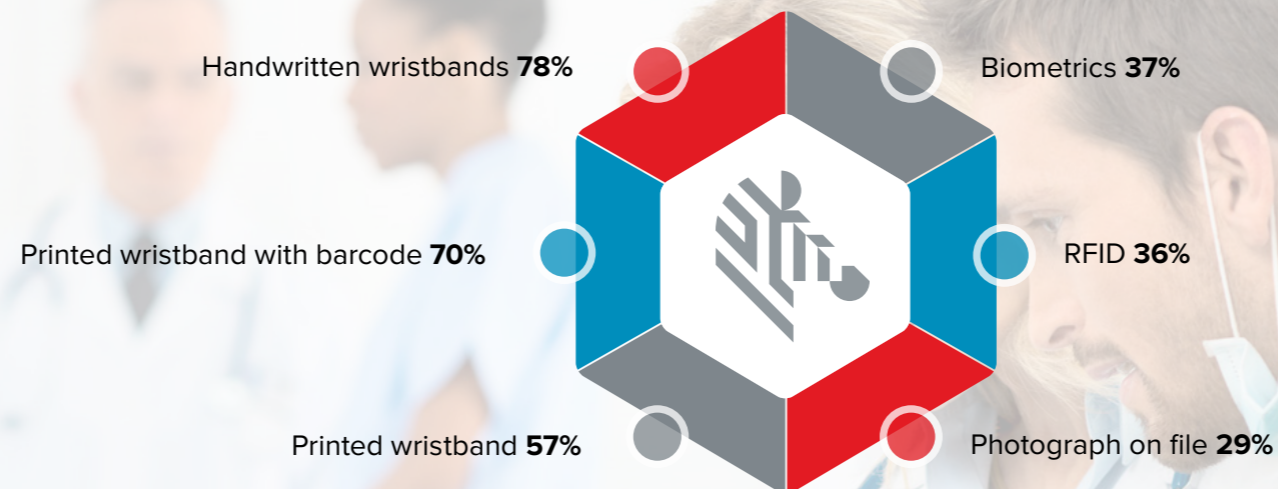
PATIENT IDENTIFICATION TECHNOLOGIES AND ASSOCIATED APPLICATIONS IN EUROPEAN HOSPITALS

Survey conducted by IDG Connect on behalf of Zebra Technologies

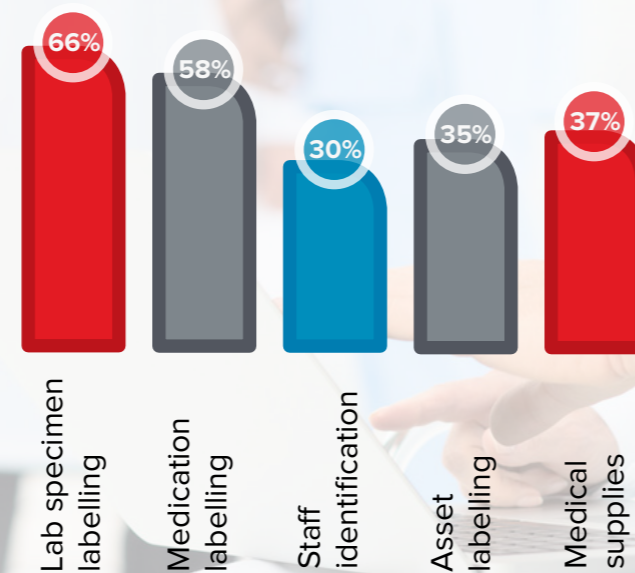


Infographic summary

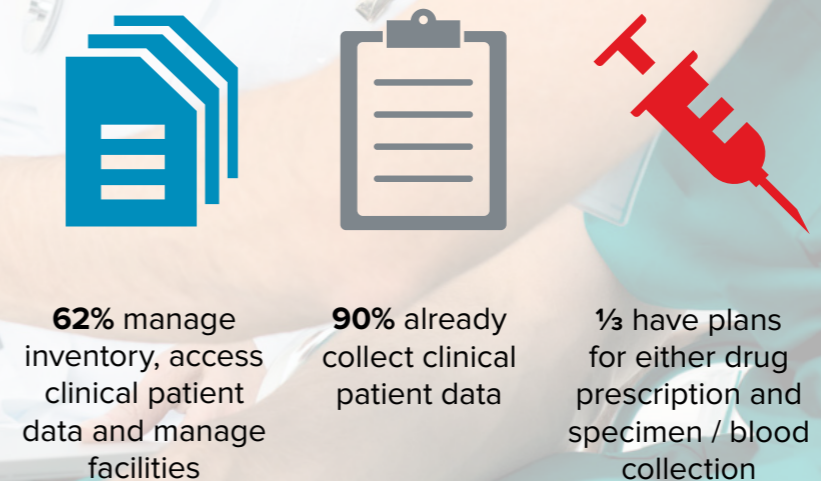
MOST HOSPITALS USE MULTIPLE PATIENT ID METHODS



APART FROM PATIENT ID WHERE ELSE IS BARCODING USED TODAY?



MOBILE DEVICES ARE USED FOR MULTIPLE APPLICATIONS



Infographic summary

TOP 4 PERCEIVED BARRIERS TO ID TECHNOLOGY



Potential costs



Technology integration



Staff resistance



Data entry errors

5 NETWORK IMPROVEMENTS HOSPITALS NEED NOW

1

Accessibility for more users

2

Wider coverage across the premises

3

Tighter security

4

Improved performance

5

Greater privacy



Purpose of the survey



Challenges in healthcare today

Today's health services in both the public and the private sector are faced with the difficult challenge of delivering optimum patient outcomes within highly constrained budgets. Excellence in patient care is high on the agenda which means staff at the point of delivery need the time and tools to give the best care possible. At the same time, non-medical staff are expected to become more efficient to reduce costs.

In addition, public hospitals are being driven by government directives such as the requirement to become paper-free, while still working towards cutting costs. Private hospitals are driven by the desire to improve efficiency for the sake of the bottom line and to be increasingly competitive in the area of patient service.

Yet all this has to happen at a time when an ageing population has more complex health needs. How do hospitals balance all these demands?

As leading providers to the healthcare world we know that mobile technology can help to deliver better services through improved accuracy and efficiency across all the functions in a hospital from the bedside through to facilities management. However we recognise that hospitals do have to overcome real and perceived barriers to utilising mobile technology effectively.



Purpose of the survey



The focus of this paper

In this paper we are focusing on data collection and dissemination within France, Germany, Italy and the United Kingdom. We wanted to explore how hospitals are managing data collection and retrieval today and their plans for the future. In particular we were keen to know:

- How patients are identified and where improvements can be made for greater service and accuracy
- How technology is being used to match patients with specimens and medications correctly
- Where mobile technology is being used to collect and retrieve clinical and non-clinical data
- The status of the underlying networks that support mobile technology and where hospitals feel they need to improve

Who did we ask?

We interviewed IT representatives of hospitals of different sizes in both public and private healthcare in countries across Europe to build a picture of general trends.



Patient identification today



Identifying patients accurately is vital in giving the right care to the right person to protect the patient and the hospital and its employees from incidents. We wanted to know whether hospitals are evaluating the wide choices for patient ID available for use today and in the future.

It became clear very quickly that hospitals have no single approach to patient identification and that almost all are using multiple methods. Despite many advances in ID techniques 78% of respondents said they are still using the time-honoured approach of handwritten wristbands. This is a concern, given that of all the methods available they are the most susceptible to failure through problems such as illegibility and fading, and are the least efficient.

The better news is that the second most popular ID method, at 70%, is printed wristbands that include barcodes. Barcoding is a very useful option as it offers opportunities to store more data on the wristband and need only be entered once. At 57% printed wristbands are the third most popular. While not as versatile as barcodes,

at least printed wristbands are likely to be legible.

Currently just over a third said they use RFID (radio frequency identification) and biometrics as alternative ID technologies.

We also wanted to see if identification methods varied according to whether staff were checking ID verbally, visually or with technology. We found little difference. In each case about three-quarters currently use handwritten wristbands, while over half use printed wristbands with barcodes and half use printed wristbands.

Country highlights

For many questions in our survey the responses from different countries were aligned. It's worth mentioning some highlighted differences.



Patient identification today



The figures suggest that Italy is to some extent leading the way in more efficient ways to identify patients with nearly three-quarters of Italian respondents saying they use printed wristbands alongside barcodes while only half still use handwritten wristbands.

Although 70% of French hospitals use printed wristbands with barcodes, nearly 90% continue to use hand-written wristbands.

What does this mean?

The results of the survey show a very mixed picture. There appears to be no overriding policy for identifying patients within a hospital and a potentially confusing selection of methods is being used, from the basic to advanced technology.

It seems unlikely that this approach is the most efficient or the best way forward for patient care. We suggest that it may be valuable to make an assessment of how patient

ID methods help or hinder the delivery of patient care and develop a long-term strategy that runs right across the organisation from department to department and ward to ward.

As part of that evaluation hospitals need to look closely at what they perceive to be the challenges in adopting new technology and consider if these are real barriers to progress. That's what we looked at next.



Challenges in ID technology



If hospitals are not seizing the opportunity to use more efficient methods of identifying patients, the question is why not?

We asked hospitals to rate the challenges they saw as barriers to implementing effective ID technology on a scale of 1-8 from “not a challenge at all” to “a very significant challenge.”

Our analysis found that fear of potential costs topped the list. Certainly we would agree there is some investment involved, but there are other factors to consider. Will the technology help to meet the goals of improved service and efficiency savings? Will the improved accuracy significantly reduce the potential for mistakes in medication, surgery and care? These are all benefits that are difficult to quantify but need to be balanced against cost.

The second greatest concern was around integrating technology within and across the organisation. This can certainly be an issue for any hospital group that has grown

organically or has legacy technology to manage. In this case a technology partner can help with the bigger picture as well as integrating new ID technology into current systems.

We know that hard-pressed staff are likely to resist anything that could be difficult to learn and use, so it's no surprise that this was the third most cited issue. Nursing staff are also worried that it will mean more time away from patient care. It's worth exploring with staff how technology designed especially for their needs offers an easier way of working with less administration that's user-friendly and easy to adopt. Education and training are vital.

Fear of data entry errors when registering patients is a worry for some, yet there are already quite major issues with handwritten or typed labels. Implementing more advanced technologies such as barcodes or RFID can actually reduce the potential for error, as data need only be input once rather than multiple times.



Challenges in ID technology



For some there was a perception that the relationship with the patient was compromised by repeated verification of identity. Some also worried about cultural issues – that patients would feel “branded”. Given that accurate ID is vital to the well-being and care of patients, and that most hospitals already use some form of ID process, we believe that these are issues that will fall away over time.

Finally there were concerns about differences in processes across wards and hospitals. It’s possible that if staff are moving between wards different processes will thwart efficiency, and this is an issue that senior management need to consider, not just for patient identification but for the way the whole hospital operates.

Country highlights

Responses did suggest different concerns across the countries. The practical concerns of cost, error and IT integration dominate in the UK and Italy. German respondents were more concerned about the reception

from staff to perceived workload increases and time away from patients, as well as cost. In France it was concerns about the reaction of patients that topped the agenda – would patients take offence at what they felt was “labelling” and continual checking of their ID?

What does this mean?

Hospitals are genuinely concerned about a wide range of issues around introducing new ID technology. Yet there are proven benefits and it is worth looking at how other hospitals have assessed and overcome the doubts to achieve their goals of improved patient care and lower costs.

Many of the options for patient ID depend on the use of wristbands. For our next set of questions we looked at the factors involved in purchasing these.



Choosing the right wristbands



As excellence in patient care is very important in today's hospitals it's no surprise that comfort tops the list when we look at factors to consider when purchasing wristbands. To be truly beneficial wristbands need to be easy to use and provide sufficient space for valuable information. And if wristbands don't have the right resistance to the environment their usefulness will be short-lived. With budgets always in mind, price is important too, underlining the need to achieve the greatest value from purchases.

Delving further into the factors that lessen the value of wristbands we asked specifically about the factors that inhibit usability and accuracy. Size and the limitations on information and its presentation were cited by over half of respondents. That's not surprising when so many are still using handwritten wristbands. Wristband colours, handwritten information and information fading during a stay were also mentioned by about a third of respondents.

Country highlights

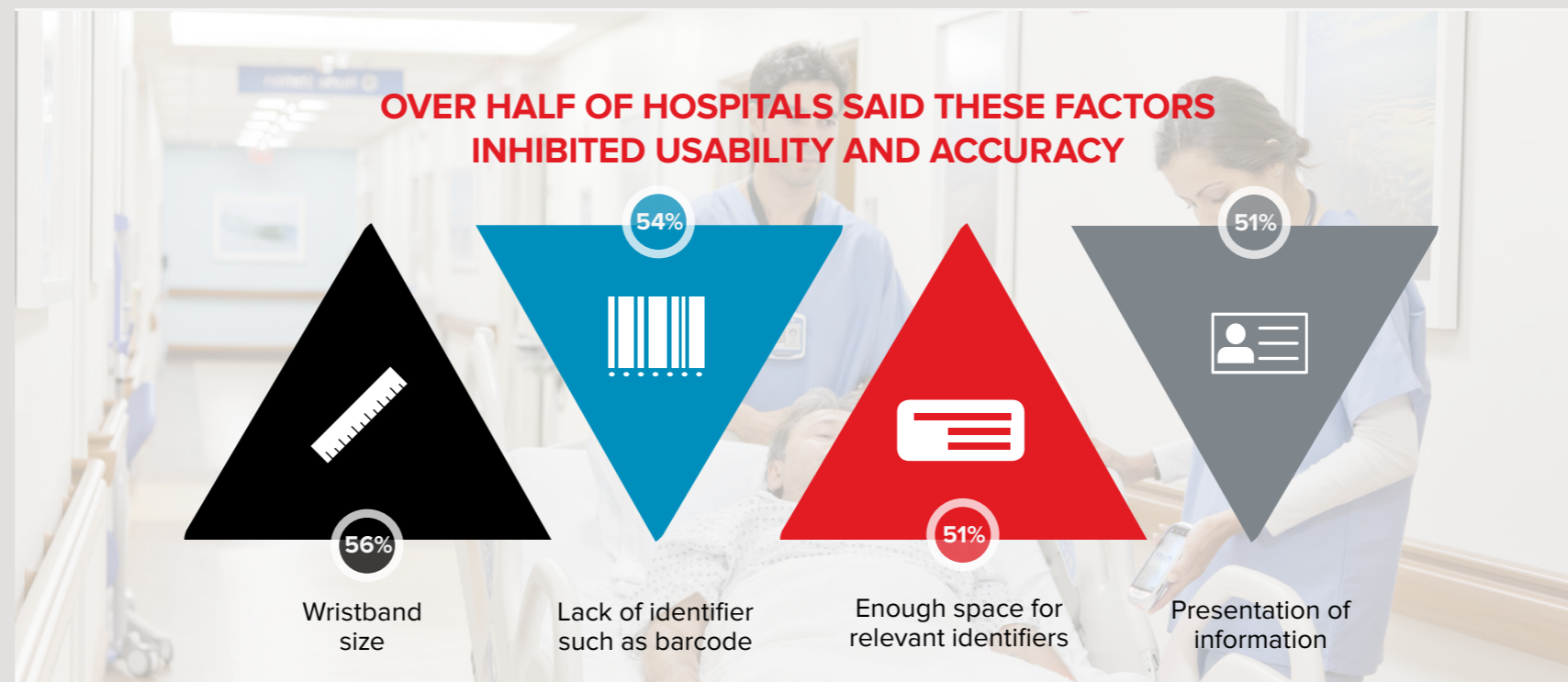
Comfort for patients was a top three issue for respondents in all countries. Interestingly, price was the number one issue in UK but actually didn't feature in the top three of any of the other countries.

What does this mean?

What we can clearly see from these responses is that hospitals want long-lasting wristbands that are capable of holding a wide range of easy-to-read information without becoming uncomfortable. Cost has to be factored in, but only amongst many other considerations. This suggests that hospitals are in many ways aware that at least as far as wristbands are concerned a variety of factors need to be considered to balance value, usability and accuracy against cost.



Choosing the right wristbands



Hospital-wide applications of barcodes and RFID



We know that barcoding and RFID both offer opportunities to store a great deal of information in a small space while entering it only once. That means that this technology can be used for purposes beyond patient ID with a hospital. We were interested to know if hospitals are making the most of the opportunity.

Our findings show two things. One, there is a drive towards using these technologies in a variety of applications. Two, as with patient ID, hospitals do not seem to have settled on one particular approach, with both technologies either in use or planned.

In the clinical context hospitals are already on the way to using these technologies for lab specimen and medication labelling, which can be used to match with patients using the same technology. Not only is this faster but it vastly reduces the possibilities of providing the wrong tests, giving the wrong medication or even delivering the wrong surgery. We found that more than 80% of hospitals are using or planning to use barcoding and RFID in lab

specimen labelling. That number is closer to 90% for medication labelling.

Protecting the hospital from misplacing assets and supplies is another application of these technologies that is gaining traction. Just under 90% of hospitals use or plan to use barcoding for asset labelling and more than four-fifths say the same with regard to RFID. We have similar numbers for medical supplies. In both cases it's about stemming losses of supplies and also about simply knowing where hospital property is on a day-by-day basis so that it can be retrieved and used efficiently wherever it is left.

Country highlights

For every country the top application currently using barcoding and RFID is patient identification - with France leading the way at over 90%.



Hospital-wide applications of barcodes and RFID



The UK appears to be the most enamoured of the technologies, with well over 90% of respondents saying they use or plan to use both technologies for all applications.

Italian respondents are the least keen on RFID but are more active on the barcoding front, with the highest number of respondents saying they already use barcoding for staff ID – an application that isn't much in evidence in other countries.

Germany's responses are mixed, with barcoding in use by over 60% for lab specimen labelling and around half for medication labelling. Asset and medical supplies labelling is less advanced.

The same sort of balance is also visible in France's responses with medication and lab specimen labelling more advanced than assets and medical supplies.

What does this mean?

Many hospitals do not have plans to use either technology for critical applications where they can be extremely useful (in areas such as specimen and medication labelling) and we wonder why. It's likely to be a mix of many factors such as lack of understanding of the benefits, fears of complexity and resistance to change.

Those hospitals who are not yet committed to this strategy would do well to consider how they can bring consistency and greater accuracy to tasks across the hospital using proven technology while also driving greater value from their established networks.

Labelling is just part of that strategy. Mobilising clinical and non-clinical teams is an important aspect, and that's what we look at next.



Use of mobile devices



We were interested to know how mobile devices are being used in clinical and non-clinical applications. To that end we asked about the range of applications in use and planned for the future, and who was using those mobile devices.

It was interesting to find that collecting clinical patient data is by far the most popular application today with around 90% of hospitals saying they do this now and almost 100% will do so at some point in the future.

If we look in more depth at clinical applications, many of which are critical, we find that over half of hospitals are using mobile devices to access patient data and biology prescriptions for diagnosis. The area we're likely to see greatest growth is specimen and blood collection, where only a third of hospitals currently use mobile technology but nearly all the rest have plans to do so.

Away from the bedside over half of hospitals use mobile devices for inventory management and facilities management. Over a third claim to have mobilised logistics,

management of staff communication by email and text, bed management, meals ordering, and enabling clinician e-help and case conferencing.

These results are very much in line with who is currently using mobile technology. On the clinical side around 80% of nurses and many nursing managers are using mobile devices at the point of care. Just over half of doctors and over a third of consultants also use mobile devices already. Plans suggest that the number of nurses and their managers, doctors and consultants using devices will climb to at least 90% in the near future.

Away from the wards, just under half of managers use devices, and this number is set to double. Currently there are not quite as many users amongst non-clinical staff, such as maintenance, meal ordering, and logistics, but even here we can expect nearly 80% of staff to use devices in the near future.



Use of mobile devices



Country highlights

The UK appears to be ahead of the game, with 97% saying they already use mobile technology to collect clinical patient data. Even the less popular applications of case conferencing and meal ordering are expected to be used by 85% and 82% of hospitals, respectively, at some point in the future.

Collecting clinical data is highly popular in all countries. Accessing data is mostly popular, but less so in Germany where a quarter say they have no plans for this application.

Inventory management is universally prevalent and so too is facilities management.

While Italian and German respondents generally agree that most applications will grow, there is less enthusiasm in France for the less popular applications of staff communication, case conferencing and meal ordering.

Nurses and head of nursing are the power users in all

countries. The UK also claims that around three-quarters of doctors use mobile technology while less than 40% of German doctors currently do the same.

What does this mean?

Mobile technology offers huge opportunities for clinical staff to work more efficiently at the bedside as well as non-clinical staff across the hospital.

There are two key issues that hospitals can consider. The first is whether clinical and non-clinical staff are being fully empowered to take advantage of mobile technology and the applications available to improve effectiveness. Second, is the mobile technology in use or being planned the most appropriate for the task in hand, or should hospitals be evaluating more closely the range of more user-specific technologies available that can give the ease of use, reliability, durability and more that a hospital environment needs?



WLANS/WiFi networks to support applications



If clinical and non-clinical staff are to leverage the benefits of mobile devices and identification through technology then they need fast, simple access to a WLAN/WiFi network that can help them collect, share and retrieve information.

We wanted to know how hospitals felt about the network access they are currently providing and where they would like to make improvements.

Our first question was about who actually has access to networks. We found that 90% of medical staff already have access and that will become nearly 100% over time. Three-quarters of administrative staff have access and over time that number will rise to 90%.

In terms of patient service we believe network access to keep in touch with the outside world is becoming increasingly a requirement, so we're not surprised that 40% of patients are already allowed to log on, with plans for that to rise again to nearly 100%. Visitor access is lagging slightly, but again that will rise to 80% in the future.

So having ascertained that most clinical, non-clinical, patients and visitors will have access to the network at some point, we wanted to discover if hospitals felt their networks were up to the task. Could they be improved, and if so, where? We asked about medical, non-medical and patients/visitors, and while the numbers differed between groups, we found the priorities were more or less the same.

For medical, non-medical and patients/visitors, by far the greatest area that hospitals would like to improve now is accessibility for more users. Less than 10% thought there was no need for improvement here. That ties in with a strong belief that wider coverage across the premises is needed.

We also asked about security and privacy. Only 10% felt that security doesn't need improving, and privacy of data used by medical staff is also high on the must-do list.



WLANS/WiFi networks to support applications



Less urgent is network performance but even here only 14% feel there is no room for improvement. Unsurprisingly, staff needs are more important than those of patients and visitors.

Lower priority is given to voice and video, and outdoor access is of the least concern.

Country highlights

The UK again appears to be in the vanguard of supporting mobilisation with effective networks. Around 90% of UK hospitals offer network access to medical and non-medical staff and that will extend to others in the future.

While most French hospitals are aiming to give medical staff access in the future a third have no plans to extend that to visitors.

In Germany around 20% of hospitals will not be offering access to administrative staff or visitors. While greater accessibility is the key priority across all the groups,

German hospitals also show slightly greater concern around privacy and security.

Italian hospitals have plans to double the number of patients with access and to grow visitor access in the future too. Privacy is also a concern right now.

What does this mean?

Using mobile devices alongside technologies such as barcoding and RFID can help a hospital extract greater value from its network infrastructure. But to do that, the network must be delivering the right level of performance with the flexibility to grow. Hospitals should be asking themselves whether they have plans in place to deliver the service that clinical and non-clinical staff need to enable greater efficiency in the way they do their jobs.



Conclusion

Technology represents an opportunity to improve efficiency, productivity and patient care, but only if it is deployed appropriately. Will everyone be able to access all the information they need to perform a task completely?

Our survey suggests that while hospitals are making some headway towards enabling staff with greater mobilisation and applications on both the clinical and non-clinical side, there are areas where efficiency is potentially being hindered by lack of clarity of policy.

Patient identification

Hospitals in Europe are using technology in patient ID and associated applications but barcoding and RFID are just two of the multitude of methods in use. Do hospitals have policies, and if not why not? If they do, are such policies working hard enough to improve efficiency and accuracy?

Cost appears to be a major perceived challenge in introducing more advanced and effective technologies. With little policy in evidence we wonder if this is an area that has been fully explored in terms of cost/benefit analysis. Hospitals may find further evaluation enlightening.

In some countries there are also cultural concerns. But do patients really object to being labelled and checked? If lives are at risk and the best treatment is afforded through the most efficient patient ID, then it's a matter of education and use to change attitudes.

Mobile technology

Access to mobile technology and supporting networks is clearly seen as important for medical staff, with nursing staff being strong users of mobile devices.

As they are at the bedside constantly this is a great opportunity to improve effectiveness in collecting and accessing data. We can see that many hospitals are well on the way to extending applications across critical and non-critical applications. Hospitals need to make sure that staff

understand the benefits of technology in how they can do their jobs more effectively with less administration rather than more.

Networks

Networks are constantly under pressure as users, devices and applications grow. We're pleased to see that most hospitals do recognise they need to constantly evaluate and improve their networks to meet demands.

About Zebra Technologies

Zebra builds tracking technology and solutions that generate actionable information and insight, giving companies unprecedented visibility into their businesses by giving physical things a digital voice.

To speak to a representative, click [here](#) or call 0800 328 2424 (or if outside the UK, 00420 533 336 123). Alternatively, email us at contact.emea@zebra.com or visit www.zebra.com/healthcare

