



# ***A prescription for error-proofing and increased productivity in the hospital***

Applying mobility to improve patient safety and address staffing shortages



***Mobility gives your healthcare workers the gift of time —  
time they can utilize to deliver higher quality patient care.***





## THE GLOBAL HEALTHCARE DILEMMA

Hospitals all over the world are faced with a major issue — how to reduce the errors that take place every day — errors that are measured not just in dollars, but also in harm to patients. The problem is already sizable — the Institute of Medicine reported in a recent study that medication errors alone cause sickness, injury or death to at least 1.5 million patients in the U.S., at a conservative cost of \$3.5 billion each year.<sup>1</sup> And due to a combination of factors, the problem is growing at an alarming rate. Advancements in medicine are helping people live longer, resulting in a rapidly growing aging population — during the next 25 years, the over-65 population will increase five times faster than the under-65 segment, and over-85 is the fastest growing demographic. And as this aging population grows and places increased demands on the world's healthcare systems, a worldwide nursing shortage has reached crisis proportions. Due to an aging nursing workforce and fewer people choosing nursing as a career, 69 nations in every corner of the world are experiencing a shortage that affects the quality of healthcare<sup>2</sup>, with a shortage of one million nurses in the U.S. alone predicted by the year 2020.<sup>3</sup>

Understaffed nursing levels are already blamed for nearly one fourth of unanticipated events in hospitals that resulted in death, injury or permanent loss of function.<sup>3</sup> How can today's hospitals reduce errors when the current nursing shortage requires fewer nurses to cover more patients in less time? And what can hospitals do today to prepare for the impending increase in the nursing shortage in a world that will require more nursing services than ever?

### RX: MOBILITY

Motorola offers powerful enterprise mobility solutions that place all the tools healthcare workers need in the literal palms of their hands — tools that not only provide the double and triple checks necessary to dramatically reduce errors, but also significantly improve productivity by eliminating manual paper-and-pen based, error-laden processes. Mobility arms healthcare workers with handheld mobile computers enabled with best-in-class partner applications and a wireless anywhere anytime connection to the hospital's computer network. As a result, hospitals can dramatically improve the accuracy and efficiency of every day tasks — from medication administration and specimen collection to patient monitoring, medical rounds and more.



### Medication administration

Without mobility, there are many steps in medication administration that are not only time consuming, but also present many opportunities for error. Typically, nurses must check the kardex system in the central nursing station for orders, transcribe that information via paper and pen, compare the handwritten information to the patient chart, check the patient wristband to verify identity, and then transcribe the updated information back into the kardex system in the nurses station. Armed with a mobile computer with bar code scanning capability, nurses can scan the patient wristband, the medication and their own ID card in seconds, ensuring that the right patient receives the right medication, the right dose, by the right route, at the right time. In addition, since the patient's record is updated in real time, the next shift can always see medication that was administered by the prior shift. The danger of a patient receiving a duplicate dose of medication at shift change due to a lag time in manual data entry is eliminated. With mobility, nurses can administer medication more quickly and accurately, helping to avoid costly errors.

### Patient monitoring

Without mobility, nurses must be physically located at the centralized nursing station to view patient vital signs and the status of medical equipment in the patient's room — from EKG machines to respirators and more. And in the event equipment needs to be adjusted, nurses must physically visit the patient

room. But with a wireless mobile computer, nursing staff has the ability to check patient vital signs and even make needed adjustments to medical equipment, all while moving through the hospital as needed.

With mobility, this task can be performed literally on the run, enabling nurses to deliver higher quality patient care, and significantly improving productivity by eliminating the time spent constantly traveling to either the central nursing station or the patient's room to perform this critical task.

### Specimen collection

Without mobility, nurses and laboratory technicians must locate and check paperwork to determine what tests have been ordered, verify patient identify through a visual check of the patient wristband, and then manually label the patient specimen. Any error in any of these steps can have disastrous results. The wrong specimen could be collected; the specimen could be placed in the wrong container; the specimen could be collected incorrectly, for example, from a patient that just ate breakfast for a test that required fasting; or the collection of the right specimen, but from the wrong patient — an error which, if unnoticed, could result in a patient receiving either the wrong medication or no treatment for their condition. But in a hospital environment where staff carry mobile devices capable of scanning bar codes, a quick scan of the bar code on the specimen order, the patient wristband and the specimen label container provides a three-way check for accuracy. Through mobility, patient safety in the specimen collection process is completely protected.

***Mobility provides the double and triple checks necessary to dramatically reduce errors — especially critical in the healthcare environment.***



# *mobility*

## ***Empower your healthcare workers to deliver better care ...with Motorola mobility solutions.***

With Motorola's enterprise mobility solutions, hospitals all around the world can eliminate the many paper-and-pen based processes, dramatically boosting the productivity of staff that is often overworked, and removing the possibility of errors inherent in manual procedures. Staff can accomplish much more in less time. The error-proofing resulting from the automation of procedures helps increase the quality of patient care, reduces the potential risk and liability, and increases the confidence of healthcare workers — regardless of how long a shift they might be required to work. And since your healthcare workers have the time they need to provide better levels of care for their patients, they are more satisfied with their jobs, helping reduce turnover. But perhaps the biggest benefit is for your patients, who, through the power of mobility, receive safer and more personalized care from a highly efficient medical staff.



Your staff can feel confident that, even when pushed for time, the right specimen is collected from the right patient at the right time, and placed in the right container, ensuring the right results — and the right course of treatment for patients.

## Medical rounds

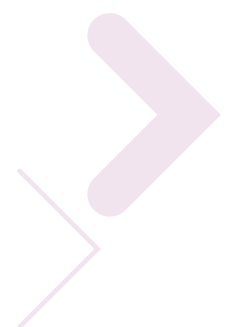
Without mobility, rounds are scheduled manually, test results must be located before rounding begins, data on each patient is collected manually at patient bedside, and data is then entered into the computer at the end of the round. In addition to being an inefficient use of time, this 'double-touching' of the data presents double the opportunity for errors. But when physicians and nurses are armed with mobile computing devices, that world of information that is required to conduct rounds is right there at the press of a button — from test results to patient history and more. Patients can be assessed with confidence — quickly as well as accurately. And mobility delivers even more value through the ability to order tests and medication in real time, scan items as they are used at bedside, and dynamically re-order rounds to ensure that more urgent patients are always seen first. More efficient processing of tests and medication orders improves the quality of care; loss protection is increased through better capture of billable items utilized in a patient's room; and through the power of automation, all the administrative tasks associated with conducting rounds are performed faster than ever and more reliably. And the resulting

increase in productivity provides healthcare workers with the time they need to deliver more personalized attention to each patient.

## Asset management

Without mobility, the real-time location of the myriad of equipment moving throughout the hospital, from monitors and IV pumps to wheelchairs and more, is unknown. Yet in the healthcare environment, where life-threatening emergencies are daily occurrences, the ability to locate equipment when it is needed is crucial. Traditionally, manual processes are used to track equipment. Not only is this a very time consuming and expensive task, but frequently, assets cannot be located in real time, further reducing productivity when staff is forced to search room by room and floor by floor for a critical piece of equipment that is needed immediately. But when hospitals choose to place RFID tags on all equipment, RFID readers located throughout the hospital automatically note the location of equipment as it moves, providing real-time visibility into the whereabouts of each and every piece of tagged hospital equipment. Mobility delivers a major increase in productivity through the complete automation of asset management.

In addition, the ability to track the exact location of medical equipment also improves the productivity and quality of the asset maintenance function. Biomedical engineers can locate equipment scheduled for maintenance quickly and easily, ensuring timely and efficient maintenance.





## Hospital inventory

Without mobility, conducting inventory manually for the many items in a hospital is a very time consuming task, prone to error due to the sheer volume of items that must be counted. The inevitable inaccuracies force hospitals to maintain high levels of stock to ensure that critical items are always available. With mobility, staff armed with a mobile computer with bar code scanning capabilities can quickly and easily take inventory in just a fraction of the time it takes to conduct a manual inventory. And the increase in productivity frees healthcare workers to focus on tasks that are more critical and directly related to patient care. In addition, the ability to take inventory more frequently and the increased accuracy and real-time visibility enable a reduction in stocking levels, saving costs without risking an out-of-stock on a critical item.

## Transfusion verification

Without mobility, managing, tracking and verifying blood slated for transfusion is fraught with manual steps that introduce the possibility for dangerous error — such as the transfusion of the wrong blood. The long paper trail allows for errors at many points in the tracking process, from incorrect labeling of blood at the bedside of the donor to an error in identifying the recipient patient due a similarity in names. With mobility, all paper-and-pen processes associated with tracking blood are eliminated — reducing the opportunity for error. When tracking is enabled through either a bar code label or RFID tag, blood products are easily tracked from the moment the blood is drawn to the moment it is

administered to a patient in need. Stocking is more accurate, ensuring the right blood is always available for patients when they need it. Real-time inventory visibility ensures that staff can see product that is closest to expiring, allowing more timely dispensing of blood products, and protecting against costly waste. But the most important benefit is to the patient. The potential risks associated with receiving the wrong blood are dramatically reduced.

## Breast milk tracking

Without mobility, mothers in the hospital are right to be concerned about whether their baby is receiving the right milk. The manual identification process leaves much room for error — if mother, baby or milk is misidentified, the wrong milk can be fed to the wrong baby. But with mobility, end-to-end tracking of milk begins with expressing and ends with feeding. A healthcare worker armed with a mobile bar code scanner and printer in maternity ensures that the milk container is properly labeled. Once the mother expresses her milk, another quick scan of the bar code label provides the nurse with the proper storage location. Another scan of the milk and the wristband of mother and baby ensures that the right milk is pulled from inventory and fed to the infant. Mobility replaces time-consuming error prone manual processes. And the three-way identity check of mother, baby, and milk can be performed in seconds, providing peace of mind for both parents and hospital staff that babies receive the right milk, and reducing administrative paperwork to provide nurses with more time to better care for the newest citizens of the world.

***Mobility significantly improves productivity in the hospital by eliminating manual paper-and-pen error-laden processes.***



Lionville

# Motorola: A total solution

## **Best-in-class products and technology**

When you're ready to implement mobility in your healthcare facility, turn to Motorola for ease, simplicity and best-in-class technology. Motorola's proven products span all areas of enterprise mobility — from handheld, wearable and vehicle-mount mobile computers to corded and cordless bar code scanners to wireless LAN infrastructure and RFID readers. And as a leading pioneer of mobility, Motorola offers a true understanding of mobility and its unique challenges — it is Motorola who drove the market with the development of many industry firsts, and with over 900 patents to date, Motorola continues to deliver products that set the bar for performance, durability and functionality.

## **Superior manageability**

Motorola solutions also offer the ultimate in cost-efficient manageability. And where day-to-day management of mobility solutions is traditionally very time consuming and costly, Motorola offers a centralized command center that allows your IT staff to remotely provision, monitor, troubleshoot and update the mobile devices and applications in use in your facility, regardless of where they may be.

## **A world of applications and services**

In conjunction with our best-in-class partner network, Motorola offers everything you need, from hardware, applications and management solutions to integration with your existing technology environment, assistance with design and implementation, and ongoing maintenance and support. Through the worldwide reach of our highly collaborative, award-winning partner ecosystem, we can deliver what you need when you need it — from hardware to an unmatched array of industry-specific applications to seamless integration with your front- and back-end systems. Our partnerships with many of the world's leading healthcare service providers ensure that your Motorola mobility solution integrates easily with best-in-class software solutions in the healthcare industry. And our critical support services, designed for critical environments, keep your Motorola devices up and running — and in like-new condition.

## **A platform for today and tomorrow**

Our platform approach ensures that you have the flexibility to select the right devices for various types of healthcare workers — from integrated voice and data devices for physicians and nurses to bar code scanners for administrative staff. Applications can be easily ported between devices to maximize your application development dollars. The unification of operating systems, processors and more translates into a simpler technology infrastructure that reduces IT staff support time and costs — and paves the way for migration to future technologies as your business needs grow and new functionality and standards become available.

## **Enterprise-class security**

Regardless of the size of your hospital and whether you have tens, hundreds or thousands of users, Motorola provides the security you need to safeguard your wireless network, mobile devices and company data. A comprehensive suite of security mechanisms offers end-to-end layered security that enables you to deploy the right level of security, when and where you need it. In addition to support for all the latest security protocols, Motorola's enterprise mobility solutions are upgradeable, ensuring that your system will be able to take advantage of new security standards as they emerge — without the need and expense of a forklift upgrade.

## **Real healthcare expertise...through proven healthcare deployments**

Our industry leadership brings you proven performance and reliability — many of the world's largest organizations across industries depend on Motorola solutions every day to streamline and error-proof business processes. Our deep expertise in the healthcare industry enables us to create a solution that is tailored to address the issues in your industry — and the specific issues inside your organization.

With Motorola, you can count on the health of your mobility solution...so you can focus on the health of your patients.

**For more information on how Motorola mobility solutions can help your hospital reduce errors and provide more time for your healthcare workers to improve the quality of care for your patients, contact us at +1.800.722.6234 or +1.631.738.2400 or visit [www.motorola.com](http://www.motorola.com)**

***With Motorola, you can count on the health of your mobility solution...so you can focus on the health of your patients.***





- (1) Institute of Medicine, Report Brief July 2006, Preventing Medication Errors
- (2) Penn State, The College of Health & Human Development, Worldwide Nursing Shortage Has Reached Crisis Proportions, June 28 2002, [http://www.hhdev.psu.edu/news/news\\_res/6\\_28\\_02\\_nursing.html](http://www.hhdev.psu.edu/news/news_res/6_28_02_nursing.html)
- (3) U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Nursing Education in Five States: 2005, <http://bhpr.hrsa.gov/healthworkforce/reports/nurseed/intro.htm>

