APPLICATION BRIEF

Improving patient safety, worker productivity and cost efficiency with the Motorola MC55



In the critical hospital environment, the MC55 provides the toolset that physicians and nurses need to improve efficiency as well as the quality of patient care. This powerful pocket-sized rugged device provides a crucial voice connection; a real-time connection to a wealth of patient information, medical databases and hospital applications that enable on-the-spot action; and advanced data capture capabilities such as bar code scanning to automate data input — and reduce errors.

Today's healthcare challenges

Across the globe, the healthcare industry is facing three critical and inter-related issues: patient safety, efficiency of healthcare professionals and escalating costs. Patient safety is paramount, measured not only in terms of risk for the healthcare institution, but more importantly, in human lives. In the United States alone, errors in medication administration cause sickness, injury or death to 1.5 million patients at an estimated cost of $3.5 billion.[1]

Worker efficiency is another primary concern, driven heavily by a worldwide nursing shortage — which also affects patient safety. Educational funding restrictions, lack of teaching faculty and facilities, an aging nursing population and medical advancements that have increased the average life expectancy are driving this shortage to crisis proportions. Over the next 25 years, the over-65 population is expected to increase five times faster than the under-65 segment, and over-85 is the fastest growing demographic.[2] The number of new nurses entering the workforce cannot outpace the large and rapidly growing aging population, creating a critically understaffed and overworked nursing workforce in virtually every corner of the world — affecting 69 nations[2] and generating a predicted shortage of one million nurses in the U.S. alone by 2020.[3] As a result, the nurse to patient ratio has dramatically increased. The need to handle more patients per day creates the demand for tools to improve productivity, not only to improve on-the-job satisfaction, but to protect patient safety — 93 percent of hospital RNs have reported that they do not have adequate time on the job to maintain patient safety, detect complications early, and collaborate with other team members.[4]

And finally, healthcare costs continue to spiral upwards, driven by a number of factors, including:

- An increase in the uninsured population
- Litigation costs due to medical errors
- Increased costs for medication and medical product

KEY BENEFITS

The MC55 provides a true enterprise wide solution – inside/outside, in any facility, even at home, allowing workers to provide the best care no matter where they are or where the patient is.

- Improves patient safety with fail safe medication administration and patient monitoring
- Improves quality of care with real time communication and access to patient records
- Improves worker productivity and efficiency
- Eliminates costly data entry errors
- Expedites test ordering, specimen collection and lab results
- Enables turn-by-turn real-time navigation for field healthcare workers
- Reduces capital and operational expenditures by eliminating the need for multiple devices per worker

- New government regulations — including drug safety reporting requirements; the Health Insurance Portability and Accountability Act (HIPAA), which protects the security and privacy of sensitive health data; and Payment Card Industry Data Security Standards (PCI DSS), which protects sensitive patient financial information.

The solution: Motorola's MC55 Enterprise Digital Assistant (EDA)

Motorola's MC55 offers the perfect blend of form and function for the healthcare industry, marrying consumer-styling and rugged design with wireless voice and data, a high performance architecture and the many advanced features required to automate and error-proof everyday tasks. Doctors, nurses and more enjoy the power of a desktop computer, a mobile phone, a camera, a bar code scanner and a walkie talkie — all in a single pocketable and rugged mobile device. With the MC55 in hand, healthcare workers can act as efficiently and effectively as possible, no matter where they may be — at a patient's bedside, in the hallway, between buildings in a campus environment, out to lunch or even at home.

Now, nurses and physicians no longer need to waste precious time walking to the nurse's station to access the computer to order tests or check for results. Up-to-the-minute patient records can be accessed with just a few keystrokes — no need to travel back to the filing cabinets to locate the physical file. The ability to scan bar codes enables a crucial double check to ensure that the right medication is about to be given to the right patient — before the medication is administered. And with mobile voice and text messaging, your healthcare workers are virtually networked together, available in seconds to respond to an emergency situation or answer an important question.

The power to act in real time helps doctors, nurses and others to automate and streamline day-to-day tasks, providing the efficiency increase required to navigate staffing shortages and increased patient volumes — without adding employees. And the ability to insert double-checks into your processes helps reduce mistakes — improving patient safety and the quality of care.

Designed to meet the needs of physicians, nurses and more

When you choose the Motorola MC55, you choose a mobile device that is truly designed for life in the critical environment of healthcare:

Comprehensive wireless voice and data functionality

Your workers enjoy a constant data connection to back-end business applications, as well as constant voice connection for instant accessibility. Support for 802.11a/b/g, complete with Voice over IP (VoIP), provides extremely cost effective mobile voice and data inside the healthcare campus — without the typical in-building coverage issues associated with cellular connections. And the GSM/GPRS/EDGE wireless WAN (WWAN) radio keeps workers connected when they leave the four walls. And Bluetooth® provides a convenient wireless connection to personal peripherals, such as headsets and printers.

Rugged design

The MC55 is built to endure all day use in the hospital environment. The IP54 sealing ensures reliable operation in spite of exposure to liquids and dust — from rain to spills and frequent wipe downs as needed throughout the day. And to ensure reliable operation despite the inevitable everyday bumps and drops, the MC55 is subjected to two impact tests. Where most other mobile devices offer only a drop specification, the MC55 also offers a tumble specification — an endurance stress test performed in a rotating box. And while the typical drop test is performed at ambient temperature, Motorola's drop test is performed across the entire operating temperature range. As a result, you are assured of the utmost in durability: the MC55 continues to perform without issue after 500 consecutive

1.6 ft./.5m drops — as well as a 4 ft./1.2m drop to concrete across the operating temperature range.

Easy-to-use consumer styling
While the MC55 is rugged inside and out, it also offers sleek consumer styling. The MC55 is comfortable to hold, while well-placed buttons enable one-handed operation and intuitive use — so your healthcare workers remain focused on the task at hand instead of the technology in hand. Regardless of whether your workers are inside your facility or out in the bright sunlight, the 3.5 inch high definition QVGA color display is easy to view.

Toll quality voice
Where many mobile computers are designed primarily for data with voice as an afterthought, the MC55 is designed from the inside out for voice as well as data. The result is superior voice quality — and superior voice functionality. The MC55 supports push-to-talk (PTT) walkie-talkie style communications as well as full duplex voice — while handset, speakerphone and Bluetooth headset modes provide the flexibility to meet the needs of the moment.

High performance architecture
A high performance architecture provides the processing power and memory to run virtually any application, enabling your healthcare workers to easily access the many needed applications throughout the day — from patient records to drug databases as well as Internet access to search the Web for needed information.

Advanced data capture options
Motorola's world-class bar code scanning technology enables first time, every time capture of virtually any 1D or 2D bar code. Instead of handwritten information, a split-second scan of a bar code automates data collection — eliminating paper forms, manual data entry and errors throughout hospital processes. A high resolution 2-megapixel auto-focus flash-enabled color camera enables new applications in the healthcare field that can help improve the quality and speed of care — especially in emergency situations.

Applications: The MC55 in action

The MC55 changes everyday life for the better for nurses, physicians and pharmacists in hospitals and other acute care facilities, as well as home health care workers:

Hospitals/Acute Care

Nursing

- **Medication/transfusion administration.** Whether your nurses are administering medication or a blood transfusion, a quick scan of the bar code on the patient's wristband and the medication or blood bag instantly verifies that the right patient is about to receive the right product at the right time — and the right way. Deadly errors become preventable, protecting patient safety and reducing risk and the associated liability.
- **Specimen collection.** With the MC55 in hand, nurses can scan the bar code on a specimen collection order, the patient wristband and the bar code on the specimen container to ensure that the right specimen is collected from the right patient, and is placed in the right container. Errors that could result in a patient receiving the wrong diagnosis and the wrong medication can be prevented.
- **Patient rounds.** The ability to enter vital signs, medication administration and more directly into the electronic patient record right at bedside ensures not only the accurate capture of information, but that up-to-the-minute patient records are always available. The lag time inherent when information is noted on paper and later entered in the computer is virtually eliminated, preventing potential confusion at the change of shifts, where nurses may inadvertently disturb a patient to re-take vital signs — or administer a wrongful second dose of medication.

- **Patient monitoring.** Now, nurses can monitor patient vital signs and the status of medical equipment — such as EKG machines, respirators and medication pumps — and even adjust equipment as needed while they move throughout the hospital. No need to return periodically to the patient room or the nursing station. And alarms can alert nurses if a heart rate or blood pressure drops or another potentially life-threatening situation arises, ensuring the most rapid possible response to an incident — literally in seconds.
- **Nurse call.** With mobile nursecall, patients and co-workers can always reach nurses instantly, and nurses can in turn reach physicians, other nurses and co-workers as needed — for example, a nurse can reach a group of pediatric doctors to ask an urgent question for a child in intensive care.

Physicians

- **Medical Rounds.** With an MC55 in hand, physicians are equipped to perform more thorough medicals rounds more rapidly, improving assessment as well as the quality of patient care.
  - Tests and medication can be ordered in real-time — instead of giving a paper order to a nurse or other assistant to process.
  - Up-to-the-minute electronic patient records provide instant access to patient history, drug allergies, medication records and more.
  - Test results can be instantly emailed to the physician.
  - Access to the Internet and hospital intranet provides clinical decision support and the very latest medical information regardless of location — from patient bedside to a restaurant.
  - Access to email and voicemail enables physicians to easily identify and respond to critical messages in a timely fashion.
  - Real-time mobile voice ensures that the physician can always be reached, and are always available for critical questions and consultations.

Pharmacists/Pharmacy

- **Drug administration.** Pharmacists can review patient records and check for drug allergies and interactions before medication is dispensed, helping prevent potentially life-threatening errors.
- **Real-time track and trace of prescription medication.** When the bar code on medication is scanned along with the patient wristband at bedside, in the event of a recall, pharmacists can instantly see which patients might have ingested tainted drugs, allowing the swift action required to best protect patient health.
- **Mobile voice.** Pharmacists are often on the move throughout the hospital, but with mobile voice, they are never out of touch, and easy to reach for urgent questions.
- **Drug management.** To prevent the need for constant trips back and forth to the pharmacy, a small stock of frequently utilized medication is often stored on each ward floor. The pharmacist is responsible for maintaining these 'mini pharmacies'. With mobility, nurses and physicians simply need to scan the bar code labels on medication as it is removed from the storage area. A real-time running inventory is updated, allowing pharmacists to determine when and what to replace to prevent an out-of-stock situation — without the need to visit each floor and audit each medication cabinet. As a result, common drugs are always readily available, allowing nurses to fulfill medication orders faster.

Administrative

- **Schedule management.** In the dynamic environment of healthcare, schedules are always changing. When doctors and nurses have an MC55 in hand, they can easily access real time schedules for work, patient tests, operating rooms and more. A notification email can alert healthcare workers when schedules change, ensuring timely transportation of patients to prevent unnecessarily long wait times for tests — and protecting healthcare worker productivity as well as the patient experience.

- **Bed management.** In privatized healthcare, bed management is crucial to providing timely care — and managing revenue and cost. Hospital administrators need to know which patient is in which bed and the expected length of stay in order to best manage the often long waiting list for surgeries and other procedures. A quick scan of the wristband can allow nurses to access an electronic bed management application to update the expected length of stay, providing administrators with the visibility into patient turnover and bed availability they need to better schedule incoming patients.

Home Healthcare Workers

- **Mobile patient records.** With an MC55 in hand, midwives, community and visiting nursing services and more can access up-to-date patient data in the field to determine the best course of care for home-based patients.
- **Real-time navigation.** The ability to access real-time turn-by-turn directions helps home health workers arrive on schedule — even if there is a local traffic jam.
- **Task management.** Physicians can easily provide a list of specific tasks for home healthcare workers to perform, complete with detailed instructions, ensuring that the mobile nurse knows exactly how to best care for each home-based patient.
- **Schedule management.** Often, situations may arise throughout the day that require a change in the schedule — for example, a mother may go into labor, or a patient with a wound may develop a complication. When the MC55 replaces paper-based schedules, dynamic schedule changes can be easily made in real time, ensuring that patient visits are always prioritized properly.
- **Wound management.** If a visiting nurse is unsure about whether a wound is progressing properly, the integrated high resolution color camera enables workers to instantly take and transmit a photograph in real time to a physician back in the hospital, enabling a more accurate on-the-spot assessment for better patient care.



The MC55 provides mobile healthcare workers outside your four walls with the real-time voice and data connection needed to act efficiently and effectively. Real-time access to up-to-the-minute patient records enables better decision-making. Wound management is improved — the ability to take and transmit a picture in real time to a physician in the hospital ensures the most accurate diagnosis and determination of the best course of care. Nurses can quickly scan the bar codes on medication bottles and medical supplies to quickly and accurately determine replenishment needs. And the ability to provide a detailed task list, complete with instructions and check boxes, improves accountability and ensures all tasks are performed completely — and correctly.



When a large medical institution with over 700 employees utilized mobile computing devices to eliminate paper-based patient records, the result was a substantial savings in time and money. The switch to electronic records provided physicians with 500 extra hours per year — valuable time to spend caring for more patients. Not only are the physicians more productive, the mobile devices eliminated the need for desktop computers to be installed in every examining room, saving the medical organization millions of dollars per year in capital and operating expenses associated with purchasing, installing and managing wired computers.

The MC55 advantage: The benefits of mobility

The Motorola MC55 addresses the three core issues healthcare organizations all over the world are facing, enabling:

A substantial efficiency improvement

The MC55 delivers dramatic improvements in efficiency. In the palm of their hands, your workers have the power they need to not only streamline but also error-proof work processes. The need to handwrite information — which is then often manually entered into a computer — is eliminated, along with the inevitable errors that occur with the transcription of handwriting and keyboard data entry. Workers now have more time to devote to the more critical patient-related tasks. In fact, according to Motorola's Healthcare Mobility Market Barometer Study, which involved physicians as well as nurses, 56 percent of all respondents reported that the use of an integrated voice and data mobile device saved approximately 25 to 75 minutes per day — an effective gain of roughly two to six extra hours per week. And over half of the physicians reported being able to see an additional 3.8 patients per day – 19 patients per week (based on a five day work week).[5] The result is a true workforce multiplier that enables the same staff to spend more quality time with patients as well as handle more patients, improving productivity as well as on-the-job satisfaction.

A significant increase in patient safety and the quality of patient care

According to Motorola's Healthcare Mobility Market Barometer Study, the number one application driving the deployment of mobile devices in the healthcare industry is medication administration.[5] Half of all nurses surveyed credit a mobile device with error reduction on the job. The MC55 provides all the possible features that can help protect patient health, all in a single device. A real-time data connection and integrated bar code scanning allow nurses to verify that the right patient is about to receive the right medication, at the right time, by the right method, dramatically reducing the opportunity for the number one and most expensive error in hospitals today — the erroneous administration of medication. In addition, the ability to order tests, obtain test results, view patient records and more, all in real time, improves the patient experience as well as the overall quality of care.

A major reduction in costs

As errors are reduced, so are the high costs associated with those errors — from the costs of litigation to the cost of insurance. Additionally, providing a single device for voice and data significantly reduces capital and operational costs. The ability to replace a cell phone, VoIP phone, pager, walkie-talkie, bar code scanner and camera with a single pocketable device dramatically reduces the number of devices you need to purchase and manage. Unlike desktop computers, mobile devices do not require the costly installation of network cables and power outlets, and they can be easily managed remotely, from a centralized location, greatly reducing support costs.

Summary: An end-to-end solution that makes financial sense

In addition to addressing key business challenges, the MC55 is a financially sound investment capable of delivering a rapid return on investment (ROI) and a low total cost of ownership (TCO), while also meeting the most stringent IT requirements.

The MC55 is easy to cost-justify. The MC55 addresses the three major issues in healthcare today, improving staff productivity and reducing errors as well as costs. In addition, Motorola's flagship rugged design delivers an average three to five year lifecycle — a lifespan that is two to three times that of the average consumer-grade PDA. The standards based device easily integrates into your existing technology environment, enabling rapid cost-effective deployment with minimal business disruption. Integration with your existing PBX not only allows you to extend the desk phone feature set to the MC55, it also allows you to more fully leverage and reduce the TCO on your existing technology investments. And since most Motorola mobile computers share a common architecture, the Mobility Platform Architecture (MPA), porting applications from and to other Motorola mobile devices is easy and cost-effective, helping preserve any existing and new investment in application development.

In addition, the MC55 meets the most stringent IT requirements. Wireless solutions generally create two concerns for IT departments — security and manageability. Integrated support for all of today's wireless security protocols combines with the toolset in the Motorola Mobility Suite, ensuring the security of the data on your mobile devices as well as your network — and providing cost-effective compliance with HIPAA and other government regulations. And while the majority of the cost of any mobility solution is generally the cost associated with ongoing device management, Motorola's Mobility Services Platform (another major Motorola differentiator) dramatically simplifies and reduces the cost of deploying and managing your MC55 and other Motorola mobile devices. With MSP, your IT department can remotely stage, provision, monitor and troubleshoot devices — regardless of whether they are on another floor, in another city, or on the other side of the world.

And last, since your MC55 mobile computers will be used for truly mission critical communications, uptime is equally critical. In the unlikely event a device requires repair, Motorola's Service from the Start with Comprehensive Coverage will help you keep the devices in the hands of your healthcare workers, as well as protect against unforeseen repair expenses. This unique service sets the standard for post-deployment support by including normal wear and tear in addition to accidental damage to internal and external components — including the stylus, screen protector, and even the hand strap – all at no additional charge.

For more information

For more information on how you can put Motorola's MC55 to work in your healthcare organization, please visit us on the Web at www.motorola.com/mc55, access our global directory at www.motorola.com/enterprisemobility/contactus or contact your local Motorola authorized partner.

About Motorola Enterprise Mobility Solutions

Every day, businesses of all sizes all over the world count on Motorola Enterprise Mobility Solutions to maximize employee effectiveness, improve customer service, and increase supply chain velocity. When you choose Motorola for your mobility solution, you get the peace of mind that comes with choosing an industry leader as your technology partner. Motorola offers the proven expertise and technology you need to achieve maximum value and a fast return on investment — as well as first hand experience in virtually every size business in nearly every major industry. Our end-to-end solutions offer the simplicity of a single accountable source — regardless of the number of vendors involved. Our comprehensive product offering includes: rugged and enterprise class mobile computers with extensive advanced data capture and wireless communications options; business-class smartphones; rugged two-way radios for always on voice communications; private wide area and local area wireless and outside the four walls – and to network multiple business locations; comprehensive RFID infrastructure, including fixed, mobile and handheld RFID readers; a partner channel delivering best-in-class applications; software solutions that enable centralized and remote management of every aspect of your mobility solution; and a complete range of pre-and post-deployment services to help get and keep your mobility solution up and running at peak performance every day of the year.



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Footnotes:

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