





# Facing Tough Challenges

In the healthcare industry today, it is absolutely critical to provide the most advanced patient safety, excellent care and most efficient communication between medical professionals. Fortunately, this has been made possible through affordable and life-saving Health Information Technologies (HIT) for medical facilities around the world.

The shift towards HIT is clear. According to the Healthcare Information and Management Systems Society, nearly 65% of U.S. hospitals purchased a Clinical Decision Support application for the first time in 2010. Additionally, the American Recovery and Reinvestment Act expects more than \$19 billion to be invested into HIT to improve the quality, safety and efficiency of healthcare systems. So which HIT system is being identified as the strongest investment? Today, bar code scanning has become a leading technology for point-of-care, administrative, laboratory and pharmacy applications in the healthcare industry. With the ability to capture data without human interference, bar code scanners have proven to be the most cost-effective identification technology today.

From patient admittance to post care services, bar code scanning has revolutionized the way hospitals collect information. Automating manual processes through this technology provides patients with the best care and improves the productivity of any medical team in the process.

# Top Challenges for Healthcare:

- Updating Patient Medical Records
- Medical Staff Productivity
- Precise Pharmaceutical Dispensing
- Laboratory Specimen Tracking
- Inventory Management
- Positively Matching Patients with Medications
- Supplies and Equipment Tracking
- Accurate Patient Billing



# Things to Conside

**Cost of a Mistake**: As humans, we accept our tendency to make mistakes; however, the healthcare industry has not. Even the smallest amount of negligence has the potential to cause not only a major lawsuit, but the loss of life. With medical errors responsible for more than 200,000 deaths each year in the U.S. alone, the healthcare industry can no longer afford to make mistakes.<sup>1</sup>

Bar code scanners provide the accuracy and assurance of collecting the right information the first time, significantly improving patient safety. In fact, bar code scanning can reduce potential errors during medication administration by over 50%. Now, multiply this risk reduction across nearly every healthcare application and imagine the difference. Loss of Productivity: According to Healthcare IT News, nurses spend 25% of their time on indirect patient care activities.<sup>2</sup> Although the nature of this industry breeds redundancy, there is a clear opportunity to bring medical professionals back to direct patient care activities. By using bar code scanners to capture critical information during the natural flow of patient care activities, more time will be available for direct patient care due to a more productive medical team.

1. The Scientific American's Deaths from Avoidable Medical Error (2009-08-10)

2. http://www.healthcareitnews.com/news/ survey-shows-nurses-spend-most-their-timepaperwork *"Nurses spend 25 percent of their time on indirect patient care activities"* 

## Benefits of Data Capture

**Real-Time Communication:** Bar code readers provide an efficient and accurate real-time communication platform by collecting, analyzing and reporting information at the source. Additionally, these devices eliminate costly communication breakdowns and allow the medical staff to make informed decisions based on up-to-the-minute data as opposed to partial and outdated information.

**Speed and Accuracy:** In an industry where every second counts, healthcare facilities need technology to promote speed during activities. Bar code readers from Datalogic ADC are known for their high performance capabilities with quick scanning rates and outstanding reliability. Not only are these readers fast, but they provide completely accurate data capture and recall, which is the most critical component to look for when selecting a bar code reader for a healthcare environment.

**Productivity:** Bar code technology has completely transformed manual data collection and entry. By capturing and communicating data at the source, medical professionals are able to perform the same tasks with more productivity. Eliminating time-consuming manual processes allows nursing staff to spend more time diagnosing and treating patients. Increased productivity reduces costs, providing clear benefits to the medical facility.

# Choosing the Right Solution

**Cleaning:** To protect patients and employees, shared equipment must be kept in a clean, sanitary condition; yet, routine cleaning with harsh disinfectant solutions will typically erode the plastic enclosure, potentially damaging the scanner's internal components. To solve this challenge, Datalogic ADC's Disinfectant-Ready enclosures are designed to withstand daily cleaning with harsh cleaning solutions that effectively fight germs and bacteria. These enclosures are designed with special chemical-resistant plastic materials protecting the enclosure from cracks, discoloration, swelling and hardening. Coupled with industry leading sealing ratings, Datalogic bar

The following are examples of chemicals that can be used on Datalogic's Healthcare bar code readers: PRODUCT **CHEMICAL CONTENT** Sani-Cloth® HB, Quaternary Ammonium Chloride solution Sani-Cloth<sup>®</sup> Plus, Super Sani-Cloth® Hepacide Quat II Virucidal disinfectant cleaner **Alcohol Wipes** 70% Isopropyl Alcohol CaviWipes™ Isopropanol 10-20%; Ethylene Glycol Monobutyl Ether 1-5% Virex<sup>®</sup> 256 n-Alkyl Dimethyl Benzyl Ammonium Chloride; Didecyl Dimethyl Ammonium Chloride 409<sup>®</sup> Glass and Surface n-Alkyl Dimethyl Benzyl Ammonium Cleaner Chloride; n-Propoxypropanol Windex<sup>®</sup> Blue Isopropyl Alcohol Clorox<sup>®</sup> Bleach Sodium Hypochlorite; Sodium Hydroxide 100% Gentle dish soap and water

code scanners are further protected against the intrusion of damaging chemical solutions and other liquids.

The Disinfectant-Ready enclosures are treated with silver ion-based additives, proven to protect against micro-organisms on the scanner's surface when tested against standard JIS Z 2801:2000. The enclosures are tested in compliance with this internationally recognized standard.

**Durability:** Durability is important to consider when selecting a bar code reader for mobile scanning applications. For example, mobile medication carts move with the nurses during patient care activities, increasing the likelihood that the scanner could be dropped.

For applications requiring durability, select a bar code reader with a drop-to-concrete specification of 1.5 m / 5 ft or greater. Also consider the IP Sealing rating indicating the level of protection against dust and water (the higher the rating, the more protection). An IP rating of at least 52 is ideal. Datalogic ADC offers rugged devices to fit any application need. **Ergonomics:** Choosing a bar code reader with a comfortable ergonomic design is important to help prevent repetitive strain injuries. For patient care and administrative tasks, Datalogic ADC recommends a reader weighing less than 284 grams / 10 ounces for all-day use. For use inside a pharmacy or laboratory, an omnidirectional reader accepting diverse scanning styles (i.e. sweeping or presentation) will provide the operator with better ergonomics.

**Power Supply and Consumption:** Low battery consumption and recharge time for cordless scanners are critical for successful implementation into the healthcare industry. If the operator has to switch or recharge batteries during a shift, it takes away from patient care duties. It also may require extra batteries, adding to the cost of the investment. Selecting a reader with sufficient battery life is worth the additional cost. Ideally, it is recommended that the reader should meet or exceed the following specifications:

- Battery Draw (Idle/Not charging): Less than 200 m
- Battery Draw (While charging): Less than 850 mA
- Recharging Time: Less than 3 hours
- Battery Life: Greater than 8 hours (1 scan / second)

**Mobility Requirements:** Another critical decision is determining the form factor required. Due to the extensive amount of mobility required in patient care activities, cordless readers are essential. For instance, cordless bar code readers can travel with nurses on medication carts while being connected to the base station, enabling free movement and eliminating the risk of medical staff or patients tripping on dangerous cables.

Corded scanners are useful for general administrative activities that do not require mobility. Tasks such as creating billing invoices or updating patient medical records can be easily accomplished with a corded scanner. With the same reliability and performance of a cordless solution, corded scanners are much more cost effective; thus, choosing this form factor for the appropriate applications can help save on costs. **Reading Symbologies:** Collecting, recording and managing even the smallest amount of information can help save a life. Today, the healthcare industry is demanding more data storage and two-dimensional (2D) codes and stacked (composite) codes are the perfect solution. Although onedimensional (1D) bar codes are still used, 2D codes can store up to 1,800 characters versus approximately 30 characters in 1D codes. 2D symbologies are quickly becoming the standard for applications such as on-patient wristbands or medication labeling.

Bar code readers are built with different reading capabilities, so it is critical to select the right reader based on the symbologies that need to be read and the environment where it will be used. For instance, linear imagers are perfect for laboratory and administrative applications due to the common usage of 1D codes. In contrast, a 2D area imager is generally needed in patient care activities due to the mixed use of both 1D and 2D bar codes. Datalogic ADC designs and manufactures both 1D and 2D readers. The wide array of available scanning solutions allows Datalogic customers to select the right scanner for each application, environment and scanning needs.

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### Patient Care

**Bedside Medication Administration**: Most hospitals are bound to a specific "Code of Care" to prevent errors when administering medications. For instance, "The Five Patient Rights" was adopted in the U.S. guaranteeing that the "right patient" receives "the right drug" at the "right time" in the "right dose" through the "right route." Bar Code Medication Administration (BCMA) systems are a critical component of these codes.

Datalogic ADC has developed a BCMA system called Perfect Match<sup>™</sup> to protect patients against preventable errors. This system works by first scanning a patient's hospital wristband and medical record. If the two bar codes are a Perfect Match, the reader will beep and show a 'Green Spot' directly on the bar code. The bar codes associated with the medication and the medication labels are then scanned. If the nurse receives another Perfect Match, the patient has been positively matched with his or her medication. It's that simple! The Perfect Match is made possible through software on the host system confirming the match and providing feedback through the reader to the operator. This is actually a feature of the Datalogic STAR Cordless System<sup>™</sup> radio with bi-directional communication, which allows data to transmit from the reader to the host system and vice versa.

#### Patient Electronic Medical Records (EMR):

Without a bar code data capture system in place, medical professionals often update patient records in 'batches' to save time. Without timely data entry, patients are at risk to decision making based on outdated records or errors caused by manual data entry.

Fortunately, bar code readers ensure nurses can update patient EMRs with critical data while simultaneously performing patient care activities. By automating this manual process, the opportunity for human error is eliminated and productivity is significantly enhanced. Furthermore, reporting patient information in real-time reduces the chance of errors resulting from outdated information.

## Shhhh...

Datalogic ADC's patented Green Spot is the perfect solution for scanning in both noisy and quiet hospital environments. The Green Spot provides additional feedback for the operator when the scan 'beep' cannot be heard due to noise. It also allows the reader to be silenced when working in a quiet environment with sleeping patients. This technology is critical for safety and improves the quality of care for patients.



## Laboratory

**Specimen Tracking**: Bar code readers can be used to track specimen samples through the lab to ensure the proper specimen is collected, correct tests are performed and the right results are delivered to patients as quickly as possible. Tracking specimens in a laboratory setting is where samples are scanned systematically with a bar code reader in each step of the analysis process from collection to the results.

**Speed of Diagnosis**: Without the use of bar code data capture, it can take an average of three laboratory workers up to 24 hours after receiving a sample to register the requests on the system.<sup>3</sup> Bar code scanning technology, however, offers significant enhancements to lab productivity and accuracy. In fact, laboratory tasks can be performed in 50% less time and with better data quality when using bar code readers.<sup>3</sup> As a result, the lab can report faster results, allowing doctors to make timely diagnoses.

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Accuracy of Test: Laboratory workers generally manage hundreds of specimen samples and tests at one time. Accurate management is critical because samples cannot be identified without a proper label. If the samples are labeled incorrectly or mixed up accidentally, patient safety issues will inevitably follow. In addition, poorly performed or managed tests commonly result in negative experiences for patients and can increase the overall cost of care if repeated testing is required.

By using Datalogic ADC's bar code readers, hospitals can improve the accuracy of sampling, labeling and analyzing specimens, reducing the chance of collecting the wrong sample and improving patient safety and care.

3. www.e-healthinsider.com



### Pharmacy

**Electronic Ordering:** Once a patient's medical record has been updated, bar code readers can automatically notify the pharmacy of a new prescription order. When the medication label is scanned, the data can be immediately uploaded onto the hospital or HIT system, making the information accessible in the pharmacy. This improves overall efficiency, error-proofs the ordering process and gives pharmacy staff access to real-time patient information.

**Order Filling:** When filling an order, It is critical for the pharmacist to not only reference the correct order, but validate that the order itself is correct. This process guarantees the patient will be given the right medication and dosage; however, it can be very time consuming when completed manually. Fortunately, the traditional bar code application of 'picking' and 'packing' can be used to improve this process. Similar to picking an item in a warehouse and matching it to a pick list, a pharmacist can scan the bar code label on the prescription and the patient's medical record to confirm a Perfect Match.

**Inventory Management:** Bar code readers can update pharmacy systems as medications are scanned on the order "pick list" during prescription filling. With real-time inventory updates, pharmacies can create major productivity gains. These systems can also reduce costs, forecast future prescription orders and track recalled or expired medications.

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## Administrative

Admittance: When patients are first admitted to the hospital, bar code readers can help create the patient's unique medical record and wristband, which both use identical bar codes. Scanning a patient's driver license or ID card allows the administrator to collect accurate data about the patient at the first point of contact, which is critical for the remaining activities during the patient's visit.

Patient Billing: To avoid disputes with patients and insurance companies, hospitals can use bar code readers to create accurate and timely billing statements. This can be done by recording each activity performed and linking it directly to the patient's bill, developing the statement as procedures are completed. Automating the billing process not only saves administrators time, but generates accurate and comprehensive billing statements for patients. **Tracking Equipment and Supplies:** Bar code systems are used to track equipment to provide productivity gains for medical staff. For frequently used equipment such as wheel chairs or medication carts, it is important to know if the equipment has been checked out and returned. Bar code readers from Datalogic ADC can easily provide this type of tracking and reporting.

This system allows hospitals to manage a perpetual inventory to improve supply chain efficiencies. Bar coding can also determine how often items are used, which can justify new purchases or indicate items that can be eliminated to provide the most cost effective budgeting.

# **CALCOLOGIC**

# **Product Recommendations**

#### Gryphon<sup>™</sup> 4000-HC Series

- A wide variety of model and technology options, packed with features and functionality for healthcare applications.
- Disinfectant-Ready enclosure withstands daily cleaning with harsh chemicals commonly used for healthcare.
- Mobility options include the Datalogic STAR Cordless System<sup>™</sup> narrow band radio or Bluetooth<sup>®</sup> wireless technology.
- Datalogic ADC's patented 'Green Spot' improves user feedback in quiet hospital environments.
- Perfect Match for patient verification and medication administration

# Alternative Product Suggestions



QuickScan<sup>™</sup> QD2100, QD2300

Economical scanning solution

(QD2100) or Laser (QD2300)

Durable and dependable.

technology.

available with Linear Imaging

Ouick and efficient readers are

lightweight and simple to use.

#### Magellan™ 1100i

- No moving parts for improved reliability.
- Illumix<sup>™</sup> intelligent illumination technology for low light environments.
- Omnidirectional scan volume is ideal for presentation and sweep scanning.
- Small footprint for space constrained locations.
- Ergonomic design for hands-free or handheld use.
- Datalogic ADC's patented Green Spot good-read indicator improves user feedback.

# o or Corded model Gryphon models for healthcare with Disinfectant-Ready enclosures.



#### **Inventory Management**

#### PowerScan<sup>™</sup> 8000 Series

- Top performance in tough environments, such as pharmaceutical manufacturing, sterile processing and laboratory services including cold storage.
- Mobility options include the Datalogic STAR Cordless System<sup>™</sup> narrow band radio or Bluetooth<sup>®</sup> wireless technology.
- Datalogic ADC's patented Green Spot and 3GL<sup>\*</sup> good-read indicator improves user feedback .



Dual position stand/charging station allows either desk or wall mounting.



Gryphon models are also available in White or Black for applications not requiring Disinfectant-Ready enclosures.



#### Bedside Care

#### Memor<sup>™</sup> Mobile Computer

- Ergonomic, compact and robust
- Microsoft Windows Mobile® 6.1 or Windows CE 5.0
- Summit embedded IEEE 802.11 abg radio with CCX V4 connectivity and security
- Bluetooth<sup>®</sup> wireless technology
- Laser with Green Spot patented good read confirmation
- Wide aspect 2D imager
- User-accessible micro SD memory slot

# Selecting a Partner

Datalogic ADC has an established partner network that provides exceptional levels of support to customers interested in purchasing Datalogic ADC products. Our partners can provide services such as fast delivery, technical support, vertical applications and solutions, configuration assistance, integration, financing as well as educational programs and partner marketing.

To determine the type of partner you need, look closely at what is needed to fulfill your business requirements. For example, if you need to replace hardware for your current data collection system, a technology partner such as a Systems Integrator would be appropriate to manage the installation, ensure compatibility with the existing infrastructure and provide training and on-going support.

Datalogic ADC Representatives can assist your company in locating and choosing the appropriate partner to meet your current business needs.

# Protecting Your Technology Investment

When it comes to the service of your Datalogic ADC product, nobody can do it better than us. We are the company that designed and built your data capture product and we have the highest expectations regarding its performance. No other service provider can deliver the years of experience, quality assurance, access to factory upgrades and cost savings for your Datalogic ADC product.

Datalogic ADC offers a wide and complete range of postsales services to protect your investment in ADC products, making your data capture systems more efficient, reducing maintenance and assistance costs, while ensuring maximum productivity and profitability.

The EASEOFCARE Service Programs provide customers with the best life-cycle maintenance at a cost effective price. Datalogic ADC programs include, 3 and 5 year coverage options at the time of product sale. Furthermore, all the EASEOFCARE programs for Mobile Computers also include the Wavelink TE and Avalanche software maintenance for the selected service program duration.

# Additional Resources

#### **Industry Resources for**

#### Established Bar Code Symbologies:

 AIM Global - http://www.aimglobal.org GS1 - http://www.gs1.org

#### Information from Datalogic ADC

#### White Papers

- "Selecting the Proper Radio Technology to Meet Your Mobile Data Collection Needs"
- "The Growing Requirements for 2D Imaging Technology"

#### eBook

• The Art of the Code - Your Resource Guide for Communicating with Bar Code Symbologies.

#### **Our Differentiators**

- The Datalogic Green Spot
- Illumix<sup>™</sup> Intelligent Illumination Technology
- Disinfectant-Ready Enclosures for Healthcare Environments.
- Perfect Match Data Verification for Healthcare Environments.
- To download these and others go to: www.adc.datalogic.com





www.adc.datalogic.com

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Product specifications are subject to change without notice.



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