

USING **AUTOMATED DATA CAPTURE** TO IMPROVE HOSPITAL SUPPLY CHAIN MANAGEMENT & PATIENT CARE



Going Beyond The Mark!

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"AT NO TIME IN OUR HISTORY IS HEALTHCARE AND HOSPITAL EFFICIENCY SO CRUCIAL. THE LOCATION AND SAFETY OF EVERY MEDICAL AND SURGICAL DEVICE, EVERY BLOOD AND TISSUE SAMPLE...EVERY MEDICATION, AND EVERY MEDICAL STAFF PERSON ARE CRITICAL TO EFFICIENT AND COMPREHENSIVE PATIENT CARE."

Keeping People Safer...Creating Smarter Hospitals

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At no time in our history is healthcare and hospital efficiency so crucial. The location and safety of every medical and surgical device, every blood and tissue sample, every vaccine and oral medication, and every medical and staff person is critical to efficient and comprehensive patient care. Error-free function throughout hospitals and healthcare facilities rests on smooth execution of:

- Healthcare supply chain management - the overseeing of medical resources and services from manufacturer to patient, and
- Contact tracing - knowledge of the locations of essential equipment and personnel

Relying on manual methods to locate essential hospital employees and oversee supply chain management lacks the effectiveness necessary to ensure proper care. Issues with different departments following different workflows, and using different systems set the stage for inadequate management of recalled and expired pharmaceuticals which threatened patient safety, staff safety, and reputation.

Outdated and manual supply chain management also affects patient care. According to a 2017 survey among 400 hospital stakeholders conducted by Cardinal Health and SERMO, one out of three nurses spend an hour or more searching for vital medical equipment.

USING **RFID** TO IMPROVE HOSPITAL SUPPLY CHAIN MANAGEMENT & PATIENT CARE

When frontline clinicians spend 17 percent of their workweek, on average, managing inventory issues (that's around 2 hours per shift), the safety of patients suffers. In fact, about two-thirds of service line leaders were found to wish that they did not need to attend to supply chain management at all. Inventory problems extend to the OR and clinical procedures areas, too, where essential equipment and supplies cannot afford to be misplaced or run out-of-stock.





Security is another factor in creating the trustworthy, safe environment necessary for optimum patient care. Whether medical staff members are tracked to ensure availability, determine the best routes to get surgery personnel to the operating theater, uphold hygienic standards, such as washing hands, and oversee patient tracking, contact tracing takes center stage for organized personnel management.

Yet less than 10 percent of hospitals utilize RFID technology, with 78% of hospital staff continuing to rely on slow and error-prone manual supply chain management.

“The reason why healthcare costs are so high is hospitals keep buying things they already have and waste money,” according to Mark Roberti, RFID Journal founder and editor.

To put it simply, hospitals are so focused on saving lives that they are slow to turn to new technologies that save money. Ironically, with RFID innovations, hospital staff can actually spend more time concentrating on patient care because they no longer need to waste time running around to find medical supplies.

The implementation of effective healthcare supply chain processes and systems

improve hospital revenue cycle challenges, according to the survey. With 64 percent of respondents declaring financial issues as their hospital's most formidable hurdle, the majority of healthcare administrators concurred that automated healthcare supply management is the answer. In fact, respondents agreed that implementing more data-driven and automated tools could save their hospitals more than \$500,000. Imagine the boost in acute patient safety, simply by removing expired, recalled, and overstocked pharmaceuticals, ensuring all necessary equipment is in stock and on hand for procedures, and getting patients and personnel to their locations taking the fastest routes possible.

PROOF THAT THE NEWEST RFID TECHNOLOGY REMOVES HOSPITAL EFFICIENCY BOTTLENECKS

Radio Frequency Identification (RFID) is poised to transform medication, equipment, and personnel management. Automated technology provides supply chain data and analytics: workflows are improved, costs are reduced, and patient safety is enhanced.

RFID works by utilizing radio waves to collect and transfer data embedded in tags attached to equipment, containers, wristbands, or other objects to be tracked.

Early adopters of RFID are manufacturers that primarily use this technology to track goods moving throughout warehouses. In recent years, the healthcare sector began to take advantage of the transforming RFID capabilities of capturing data automatically without the need for human intervention. They discovered that the possibility of human error is effectively eliminated for data entry, collection, and analysis. Additionally, RFID does not require tagged objects to be within line-of-sight for readers to capture information—Another particularly attractive feature of this groundbreaking technology.



THE CHALLENGES

Limited supply chain visibility

Manual tracking of inventory

Overstocked at OR's & cath labs

Stock shortages

Accidental use of expired items

Misplaced inventory & equipment

THE IMPLICATIONS

High cost of logistics

Wasting valuable staff time

High inventory cost

Delayed surgery & revenue loss

Compromised patient safety

Increased hospital costs

The following case studies demonstrate the overwhelming success of implementing RFID technology within hospital settings.

RFID CASE STUDIES

CRITICAL SUPPLY MANAGEMENT & AUTOMATED REORDERING

Manual inventory management resulted in missed revenue and wasteful spending, according to Daniel Moreno, RN, MS of Adventist White Memorial Hospital, Los Angeles. After implementing RFID and smart cabinets to control inventory, he discovered that his hospital was discarding \$15,000 to \$20,000 per month on expired products. He also calculated that some \$900 worth of supplies were virtually given away to patients without charging for them, because the products had no charge codes. “It was almost \$46,000 in supplies that did not have charge codes that we found when we implemented the RFID system.”

PATIENT SECURITY

The amazing efficiency of RFID technology goes beyond inventory—It brings an added level of patient security and safety. RFID has the potential to address the critical issue of medical errors, the third-leading cause of death in the United States according to research performed by the Mayo Clinic. Pharmaceuticals and blood samples that are tracked throughout a hospital could lead to timely, correct diagnoses and medication. In a 2010 study involving 81 clinical scenarios involving administering IV medications, injections, and taking blood samples, RFID technology accurately recognized patients and their appropriate clinical actions—The trial was 100 percent error-free.

IMPLANT INVENTORY MANAGEMENT & ACCESS

Annual inventory reports at Herzeliya Medical Center were the cause of expensive disputes with medical suppliers. Each side could not agree upon the amount of implants consumed over the past year—Manual counts by nurses allowed for numerous human errors: expired products, paperwork mistakes, and shelving problems. Doron Karmi, the hospital’s Chief Technology of Operations Officer, installed three LogiTag RFID SmartCabinets in the cath-lab. Inventory was placed inside the cabinets, locked by electronic doors, and could only be opened by a pre-approved RFID tag swipe. Information about individuals that accessed the cabinets, and specifically what they removed, became record. The accurate overview of implant inventory put an end to destructive disputes with valued suppliers.



TRACKING SECURITY ACCESS OF PERSONNEL

In October of 2018, Paul Zieske and Daniel Siegal, MD, of Henry Ford Health System, built a prototype using Apple's Indoor Mapping Data Format (IMDF) technology to expedite patient transport and housekeeping services at Henry Ford Hospital in Detroit. Zieske called their system, NavvTrack® system, a real "game changer" in health care. "It shows the very precise location of workers with a little call-out with their name on the screen and the floor that they're on...Think about GPS on your phone outdoors. Now you can do that indoors." Dr. Siegal adds that NavvTrack® affords the opportunity to improve routine tasks, such as cleaning hospital rooms and overseeing patient transport. This same system can also control access to restricted entry and exit points throughout a healthcare facility.



SURGICAL TOOL TRACKING

Leading hospitals, including the Mayo Clinic's Saint Mary's Hospital and Rush University Medical Center, deployed RFID location tracking technology to account for required surgical tools before, during, and after procedures. Counting by hand affects operating room turnover time and compromises patient safety, because accuracy is in question when time constraints, untrained personnel, and incorrect instrument lists are involved in surgical tool inventory. RFID tagging and tracking technology was found to ensure the availability of all necessary tools in the operating room prior to the start of a procedure and prevented accidentally leaving surgical items inside a patient afterwards. RFID surgical tool tracking avoided taking precious time out to locate a missing tool in the surgical suite, with labor costs of upwards of \$1,800 per hour.



FDA UDI TRACKING

One of the Northwell Health Hospitals began deploying an RFID system in May of 2017. This RFID system located rolling monitors, IV stands, wheelchairs, and other key equipment within a particular zone in real-time. Management realized increased efficiency without adding personnel, and they observed trends in usage that helped them to maximize sterilization and maintenance processes. The RFID systems streamlined the assignment of UDIs, Unique Device Identification labeling mandated by the FDA on all medical devices. Furthermore, RFID enhanced the validation and authentication throughout the device's lifespan. For instance, a case of knee replacement parts was shipped from the surgical supplier to the hospital and then to the surgical suite. Once a particular part was used in surgery, the remainders were returned to hospital storage. The supply chain of usage complies with FDA requirements while capturing vital asset management, patient care, and billing information.

TRACKING STAFF AND PATIENTS

Accurate patient tracking using RFID technology improves patient and staff safety in many instances. A 2012 research study found that RFID systems proved 100% accuracy when tracking wandering patients, especially those suffering from dementia and Alzheimer's. RFID is also successfully employed in matching newborns to their mothers and preventing abductions. One North Carolina hospital successfully prevented an instance of infant abduction thanks to RFID location detection.



THE RFID & IoT GAME-CHANGERS

Putting RFID systems to work in hospital and healthcare settings yields a myriad of amazing results. Fit the particular RFID technology to your specific needs and experience startling improvements in efficiency almost overnight:

RFID SMART CABINET

The only complete digital management solution that tracks all types of items, including implants, regardless of their size/shape or position/angle on the shelf.

Simply tag the item with an RFID tag, scan the item to upload it into the system, and then place it into the Smart Cabinet. When a nurse removes the item, an automatic notification is triggered and sent to the supplier. The supplier is also automatically notified when inventory runs low. A returned item also triggers a notification. When that item is used, it is scanned into the Smart reporting station. Any RFID tagged item—from medical devices to implants, like orthopedic screws, to surgical equipment—is tracked to streamline hospital workloads.

This complete solution locks the door on high valued items and allows for remote content management, wireless connectivity to a central data warehouse, cloud connectivity to all



- 98% Charge capture
- 100% ROI by optimizing inventory
- 48% Fewer hours spent on administrative tasks for staff
- 20% Reduction of high value medical device inventory
- Elimination of stock-outs & expired items

necessary parties, and item level management and traceability.

The RFID Smart Cabinet removes human and administrative errors!

Accurate consignment is assured, expired and out-of-stock items are eliminated, all without the need for manual intervention. Simplify item inventory tasks with easy-to-understand reports that automatically report real-time movement of tagged equipment, tools, and pharmaceuticals. Manage access to inventory, manage critical supply, and automate billing and reordering tasks. Get a handle on which item is taken, who removed that item, and for which procedure.

Cath labs, vascular, neurosurgery, ophthalmology, EP lab, orthopedic, plastic surgery, gastro, and angio—Over 530 healthcare units rely on an RFID Smart Cabinet to accurately manage consignment stock and valuable medical devices in real-time. Chose the perfect style to store and track your high-value inventory, equipped with shelves, drawers, or long items.

THE RFID & IoT GAME-CHANGERS

RFID SMART CABINET FOR NARCOTICS AND CONTROLLED SUBSTANCES

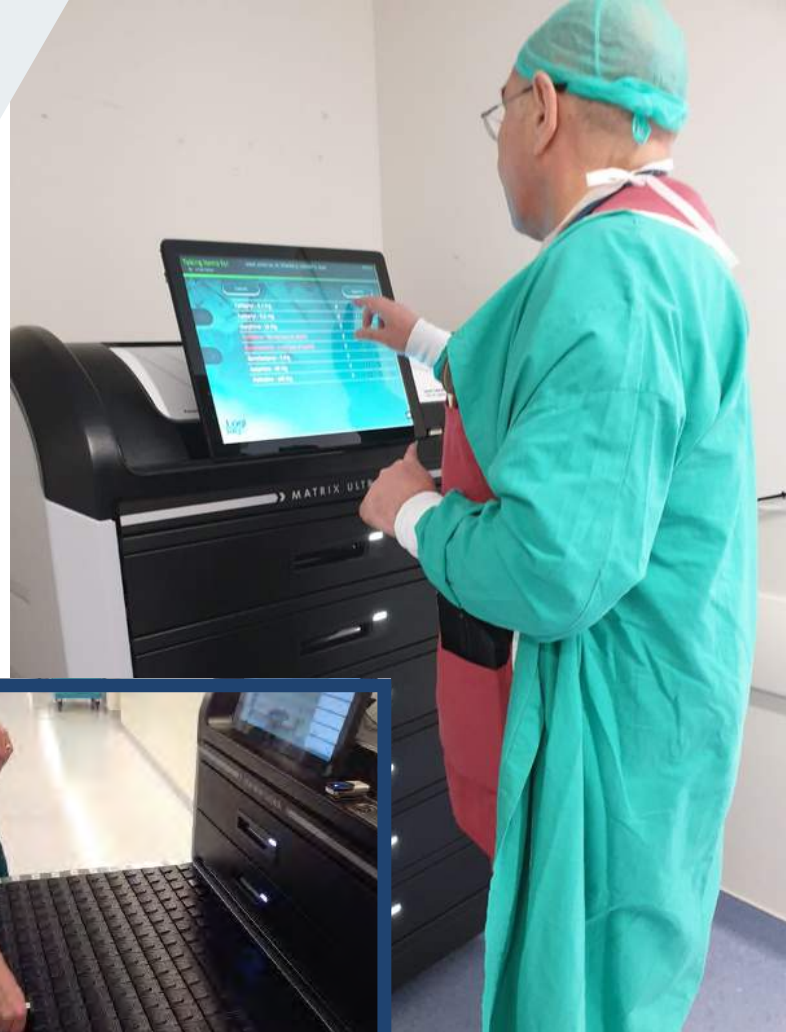
The only RFID system that enables secured reconciliation of these substances by adhering with the drug administration.

RFID RESTOCK TAG

The patented digital inventory management system designed with medical materials managers in mind. The tag's functionality relies on a two-bin lean Kanban nomenclature and a combination of RFID tech and cloud-based software.

These go-anywhere tags fit any storage throughout the hospital: an OR supply room, nursing supply storage room, pharmacy, and wherever critical stock is held. The RFID tags are easily adjustable, adapting to all supply change updates with a simple click of a button to show order status in real-time on a digital display. Regular restocking reports and automated restocking requests are sent instantly, as they occur, to hospital ERP systems.

- 40% one-time reduction in supply room inventory
- Eliminate manual counting and stock-outs



THE RFID & IoT GAME-CHANGERS

LOGITAG SNAP & GO

Supports RFID with visual recognition technology, machine learning, and AI technology for charge capture in the OR of expensive implants, low-cost sutures, and everything in between.

"Snap" an item and record it into your hospital's system.



Never miss another item used in a procedure, even in the absence of barcodes. Know the exact cost of a medical procedure based on the costs of actual items used. Remove the guesswork of patient billing. Track recalled items quickly and accurately.

Transform your hospital's item master into a uniform database for all items utilized in the OR. After capturing a quick snapshot of items used in the surgical procedure, the snapshot is processed by OCR (optical character recognition) into machine-readable data. In just a few seconds, the item is identified in LogiTag's Global database and then added to the hospital's item



master, or placed into the LogiTag Backoffice until missing info can be completed.

- 100% documentation compliance
- Available 24/7, running on local servers

LOGIPLATFORM CLOUD-WEB SERVER

The end-to-end software solution for managing your LogiTag Snap & Go™ and SmartCabinet inventory. Rely on it to seamlessly update hospital and supplier reports, along with patient records, instantly. Receive alerts to restock inventory. Connect using an existing mobile network and a secure cloud server. No additional infrastructure is needed.

- Eliminate last-minute shipments & stock-outs
- 24/7 customer support
- Full integration with existing ERP databases
- Collects info from hybrid networks (hospital, cell data, WiFi) without the need to install an operating system.

THE RFID & IoT GAME-CHANGERS

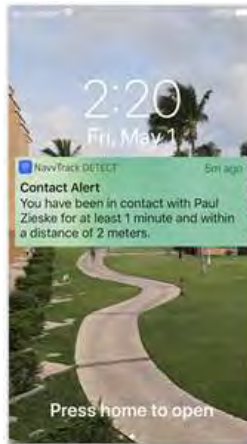
NAVTRACK® INDOOR NAVIGATION AND LOCATION SERVICES PLATFORM

Contact tracing that improves productivity while protecting privacy. Keep track of mobile workers to enhance efficient, high-quality patient care. Think of NavTrack® as your optimum patient care traffic control, giving you a birds-eye view of location, movement, time on task, and tasks performed by housekeeping, couriers, transport, supply chain, and food services. Such awareness produces more productivity with less supervision required for fast patient transport, thorough cleaning, and expedited room turnover.

By tracking movements of key personnel, NavTrack® Contact Tracing Software holds the key to the prevention of infectious disease transmission. Safe social distancing protocols are ensured. Theft or misplacement of patient belongings is also reduced.

NavvTrack® runs on the same concept as your smartphone's GPS location software.

It uses Apple's Indoor Positioning to create an electronic "fingerprint" on your existing wireless network. High-quality indoor maps show real-time locations of staff when they enable the NavTrack app on their phones.



Teams can message each other for easeful communication anywhere within the hospital.

- Crowdsourced RTLS® (Real Time Location System) provides immediate supervision and communication
- No new infrastructure required

FAR BEYOND MERE CONTACT TRACING:

SPEED - IMPLEMENT & DEPLOY QUICKLY

- Apple's indoor positioning & IMDF are proven technologies

SCALE - EXPANDS WITH YOUR NEEDS

- Build additional modules onto the core location platform
- Mobile-first strategy
- Comprehensive geofencing capabilities

SAVINGS - LITTLE TO NO INFRASTRUCTURE

- Utilizes your existing WiFi
- WiFi augmented with Bluetooth beacons/badges
- People & equipment on the same platform

ADDITIONAL **RFID** SOLUTIONS

ADDITIONAL RFID AND FDA UDI SOLUTIONS

Healthcare data collection and analysis is made so much easier with RFID technology. Affix RFID tags to items, include FDA UDI info on the tags, and then monitor their movements on a software map of your hospital.

The applications for RFID use in your hospital are endless. We'll list just a few here, in addition to those cited in this paper's case studies:

- Track misplaced medical devices and equipment, blood samples and pallets of medications, pharmaceuticals moving through the manufacturing chain, and supply inventories in real-time
- Track surgical tools in the OR and ensure proper sterilization prior to use
- Confirm FDA UDI information on medical devices is compliant prior to submitting for registration using BarcodeOS scanners and software
- Tracking of staff and patients in real-time as they move throughout the hospital in order to reduce wait times, avoid traffic jams, locate patients, and verify patient information



- Improve the speed and accuracy of current procedures, providing an audit trail for any instances involving patients and staff
- Ensure error-free inventory audits with quick, precise location of devices, tools, equipment, and containers by viewing them on a real-time map of your healthcare facility using RFID location tracking.
- Receive real-time alerts when items are moved, unauthorized personnel access restricted areas, and temperature thresholds are exceeded for drugs in storage
- Authenticate lifesaving medications to avoid counterfeits
- Ensure that hygiene standards and regulations, such as frequent washing of hands or sanitizing, are followed precisely



CONCLUSION IMPLEMENTING RFID INTO YOUR HOSPITAL ENVIRONMENT

RFID technology is no longer confined to inventory audits. From reducing supply overstocks, to contact tracing for infection control, to better management of prescription info in patient records, to tracking crucial medical devices necessary for life support, RFID is of paramount importance for the smooth functioning of healthcare management.

Which RFID solution best suits your hospital's needs?

Browse the catalog of RFID tracking and location hardware and software systems from ID Integration. Then reach out to our RFID team to incorporate the most current RFID innovations to improve your hospital's workflow.

Rely on ID Integration for the latest groundbreaking solutions for reliable, efficient, and cost-saving performance.

For over 20 years, our development team strives to discover and offer a wide range of data integration technologies to simplify data collection and analysis while eliminating errors. Seek out our wide-ranging expertise for custom RFID systems for healthcare, hospital, and pharmaceutical business sectors.



Call the RFID experts at ID Integration, Inc. at (425) 438-2533 to discuss your hospital or healthcare facility goals!

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