

Bridging the Gap: How RFID Technology is Shaping Healthcare Security in 2024

Anticipating Healthcare Safety and Security Trends

In the ever-evolving landscape of healthcare, anticipation is a powerful tool. Healthcare providers across the globe are not just keeping up with the latest safety and security trends; they are proactively shaping the future of healthcare security. Central to this transformation is the innovative use of Radio-Frequency Identification (RFID) technology, revolutionizing the way access control is managed within the walls of hospitals.

This strategic shift not only promises enhanced safeguards and heightened protection for healthcare professionals, doctors, and the sanctity of patient confidentiality, but it also sets the stage for remarkable advancements in hospital efficiency. By deploying hands-free identification systems that underpin both access and inventory management, healthcare institutions are poised to unlock a new era of operational excellence.

A recent [report](#) by McKinsey underscores the significance of this technological leap. As of 2023, the realm of Fixed Technology Hospital Services and Technology (HST) has yet to realize its full potential, but the trajectory is clear: healthcare technology adoption is on the rise, and HST is poised to become the fastest-growing sector in healthcare.

As we peer into the future, solid growth in this sector is anticipated, driven by a wave of technology adoption by healthcare providers and payers who are increasingly focused on enhancing efficiency. By 2026, a remarkable 10 percent Compound Annual Growth Rate (CAGR) is expected, catapulting HST to an impressive \$81 billion industry. This projection represents a one-percentage-point increase in CAGR compared to estimates made just a year prior, highlighting the mounting demand from healthcare stakeholders striving for operational excellence.

While the innovative use of Radio-Frequency Identification (RFID) technology is driving transformative changes in healthcare security and access control, the healthcare landscape is not without its challenges. Hospitals are facing an array of pressures and demands, both internal and external, that require them to adapt and evolve their systems.

Drivers Putting Pressure on Healthcare Safety and Security in The Hospital Environment

Hospitals are diligently focused on mitigating risks across various facets of their operations—which include infection control, physical security, asset management, real-time location services, and authentication. These domains face formidable challenges stemming from the extensive proliferation and reliance on devices within the healthcare sector, a substantial surge in the number of individuals served, and escalating demands imposed by both regulatory bodies and stakeholders.

Within the healthcare industry, four overarching macro drivers persistently exert pressure on hospitals to adapt their systems. These adaptations are essential to ensure their continued ability to deliver high-quality care within a rapidly expanding public healthcare landscape.

- **Driver 1:** There will be more users and new role types in clinical settings, driving the need for process improvements that keep patients and staff safe.
- **Driver 2:** There will be more connected and mobile devices overall, challenging data security efforts with a wider and more complex threat surface.
- **Driver 3:** HIPAA compliance continues to pressure drivers 1 and 2, looming heavy financial fines and jail time for violations to ensure patient confidentiality.
- **Driver 4:** The impetus to improve productivity and ROI will not abate.

In response to these drivers, hospitals have swiftly executed strategies that yield broad-reaching advantages. While some of these advantages have been realized in areas such as hospital inventory management, RFID technology is emerging as a critical enabler that extends its benefits even further.

By combining hospital inventory management and security/access control systems with Radio-Frequency Identification (RFID) technology, healthcare facilities stand to gain the most compelling benefits:

Enhanced Security

- **Access Control:** RFID can be used to control access to various parts of the hospital, ensuring that only authorized personnel can enter restricted areas. This helps prevent unauthorized access to sensitive patient data, medication storage areas, and other secure zones.
- **Patient Safety:** RFID can be employed for infant protection and patient tracking, ensuring that newborns are matched with the correct mothers and that patients are located quickly in case of emergencies.

Increased Patient Safety

- **Medication Administration:** RFID can be used to verify medication administration, ensuring that patients receive the correct medications and dosages, reducing the risk of medication errors.
- **Asset Tracking:** Hospitals can track the location and usage of medical equipment and devices, reducing the risk of equipment-related incidents that could harm patients.

Improved Inventory Management

- **Real-Time Tracking:** RFID enables real-time tracking of medical supplies, equipment, and medications. This ensures that inventory levels are accurate, and staff can quickly locate and restock items when needed.
- **Reduced Stockouts and Overstock:** Hospitals can optimize inventory levels, reducing the likelihood of stockouts (which can impact patient care) and overstock (which can lead to wastage).

Streamlined Workflows

- **Efficient Check-In/Check-Out:** RFID-enabled badges or tags can simplify the check-in and check-out process for hospital staff, making it quicker and more convenient.
- **Automated Documentation:** RFID can automate documentation processes, reducing the administrative burden on healthcare professionals and ensuring accuracy in recording inventory movements.

Hospital Strategic Adoption Trends

Having examined the driving forces compelling healthcare institutions to evolve their systems and enhance security, next is to turn to a pivotal aspect of the healthcare industry's response—adoption trends in Radio-Frequency Identification (RFID) technology. These trends, recognized by experts like JADAK, are instrumental in shaping the future of healthcare security and access control.

Trend 1: Streamlining and Securing Workflows with IAM + SSO in Healthcare

Key Takeaways for Trend 1:

- Hospitals are embracing seamless security technologies to streamline their operational workflows while ensuring robust data security.
- Integration of Single Sign-On (SSO) technologies with Identity and Access Management (IAM) software, augmented by RFID technology for convenient "touch-and-go" access, addresses the challenges posed by the proliferation of devices, particularly in the context of infection control.

Trend 2: Enhancing Patient Information Accessibility with RFID Security

Key Takeaways for Trend 2:

- Hospitals are adopting RFID technology to facilitate access to patient data from any location, leading to enhanced patient care quality and service delivery.
- The impact of the Health Insurance Portability and Accountability Act (HIPAA) has been broadened through the Omnibus Bill, encompassing all individuals who come into contact with Protected Health Information (PHI).
- Hospitals are actively leveraging new technologies and educational resources to fortify their defenses against vulnerabilities in handling patient information.

One of JADAK's customers has demonstrated the significance of these trends by accelerating their product development through a direct collaboration with JADAK.

Case Study: Premier east-coast academic medical center

A distinguished top ranking teaching hospital in the New York City metropolitan area approached JADAK directly to address their pressing needs. Although JADAK typically collaborates with Original Equipment Manufacturers (OEMs) for their technology solutions, the urgency of their situation led to the decision to engage JADAK directly.

In their pursuit of enhanced security measures, the hospital had already implemented an RFID access badge system. However, this system had limitations, primarily focusing on security access and lacking universality. The hospital admits over 93,000 patients annually, and recognizing the need for a comprehensive solution, hospital leadership embarked on a journey to integrate both security access and device access systems. This integration aimed to provide a unified profile through a single badge, allowing access to a spectrum of functionalities.

This multifaceted solution set out to achieve several critical objectives:

- Facilitate swift and secure access to essential clinical applications.
- Scale and support the hospital's ongoing digital transformations.
- Streamline workflows within the institution, thereby exponentially improving the management of hospital information.

The next step in this journey was to find a solution that could not only meet but exceed these expectations. This is where JADAK's expertise and collaborative approach came into play.

JADAK Expedited RFID Solution

The solution entailed a comprehensive, full-court-press approach involving JADAK's seasoned experts. This collaborative effort saw the hospital's device OEM working closely with JADAK to expedite the

development of a solution. Drawing from JADAK's decades of expertise in RFID customization and plug-and-play solutions, the company was ideally positioned to address the hospital's need for the creation of new functionalities that would seamlessly integrate with existing third-party systems. Moreover, JADAK provided an end-to-end solution, encompassing custom development, configuration, installation, manufacturing, and lifecycle management.

One of JADAK's standout offerings in this endeavor is the Flexpoint HS-1RS, part of the Flexpoint HS-1 Handheld Barcode and RFID Scanner Series. The HS-1RS stands as the latest and most advanced in the series, and it holds the distinction of being the only healthcare-ready handheld scanner available today that seamlessly combines 1D/2D barcode scanning with high frequency (HF) and low frequency (LF) RFID reading capabilities, all within a single, ergonomic, and compact design. Equipped with cutting-edge Imprivata software, it excels in reading various types of contactless or smartcards, as well as prox cards, providing secure user authentication that aligns with FDA and the Healthcare Industry Cybersecurity Task Force recommendations for robust authentication and patient information protection. Moreover, it plays a vital role in eliminating manual data entry, thereby significantly reducing errors and the risk of hospital-acquired infections (HAIs).



Image 1: HS-1RS, Secure Access Handheld RFID and Barcode Scanner

The RFID solution crafted by JADAK for the hospital not only marks a significant milestone in enhancing security and efficiency but also underscores the imperative for Original Equipment Manufacturers (OEMs) to adapt to the changing landscape of healthcare technology.

OEMs Understand Imperative to Adapt

The integration of RFID technology in healthcare not only brings substantial benefits to hospitals but also places increased pressure on Original Equipment Manufacturers (OEMs) to adapt swiftly. While OEMs may not entirely overhaul their processes immediately, the short-term imperative is for them to expedite the adoption of the standards hospitals are requesting.

It's worth noting that the OEMs, recognizing the needs of their hospital clients who are end-users of their products, displayed an understanding of the situation. Despite their solution not having been fully validated, they made a pragmatic decision. This decision allowed the hospital to bypass the OEM's solution, leading to favorable outcomes for the hospitals.

The advantages of RFID integration extend beyond mere convenience; they encompass RFID badge access, granting access to devices, promoting touchless entry that reduces the spread of germs, enabling seamless single sign-on processes, enhancing workflow efficiency, and ultimately bolstering morale among healthcare professionals. This broader perspective underscores the growing demand within the medical device industry. Hospitals are increasingly pressuring OEMs to provide integrated secure access solutions, reflecting the industry's heightened focus on patient safety and security. Collaborating with JADAK, a recognized expert in RFID, secure access, and Automatic Identification and Data Capture (AIDC) solutions, holds the promise of accelerating the delivery of secure access solutions to hospitals, consequently elevating the standard of patient care.

Conclusion

Hospitals worldwide face increasing pressures to adopt new technologies, and RFID stands out as an exceptionally hospital-friendly solution that addresses their multifaceted needs.

The expedited RFID solution, as exemplified in the collaboration between JADAK and this hospital, showcases the importance of having RFID experts who can customize and seamlessly integrate solutions. This partnership highlights the imperative for Original Equipment Manufacturers (OEMs) to adapt swiftly to the evolving healthcare technology landscape, ensuring that hospitals can meet their security and operational needs efficiently. The advantages of RFID integration extend beyond convenience, encompassing patient safety, workflow efficiency, and enhanced security, emphasizing the growing demand within the medical device industry. As RFID technology continues to evolve and healthcare institutions increasingly prioritize patient safety and security, JADAK's expertise in RFID and secure access solutions offers a promising path toward elevating the standard of patient care in the healthcare sector.

About JADAK

JADAK, a business unit of Novanta, is a market leader in machine vision, RFID, barcode, printing, and color and light measurement products and services for original equipment manufacturers. The business designs and manufactures custom embedded detection and analysis solutions that help customers solve unique inspection, tracking, scanning and documenting challenges. JADAK is based in Syracuse, New York, with sales and technical locations across the globe. For more information, visit www.jadaktech.com

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