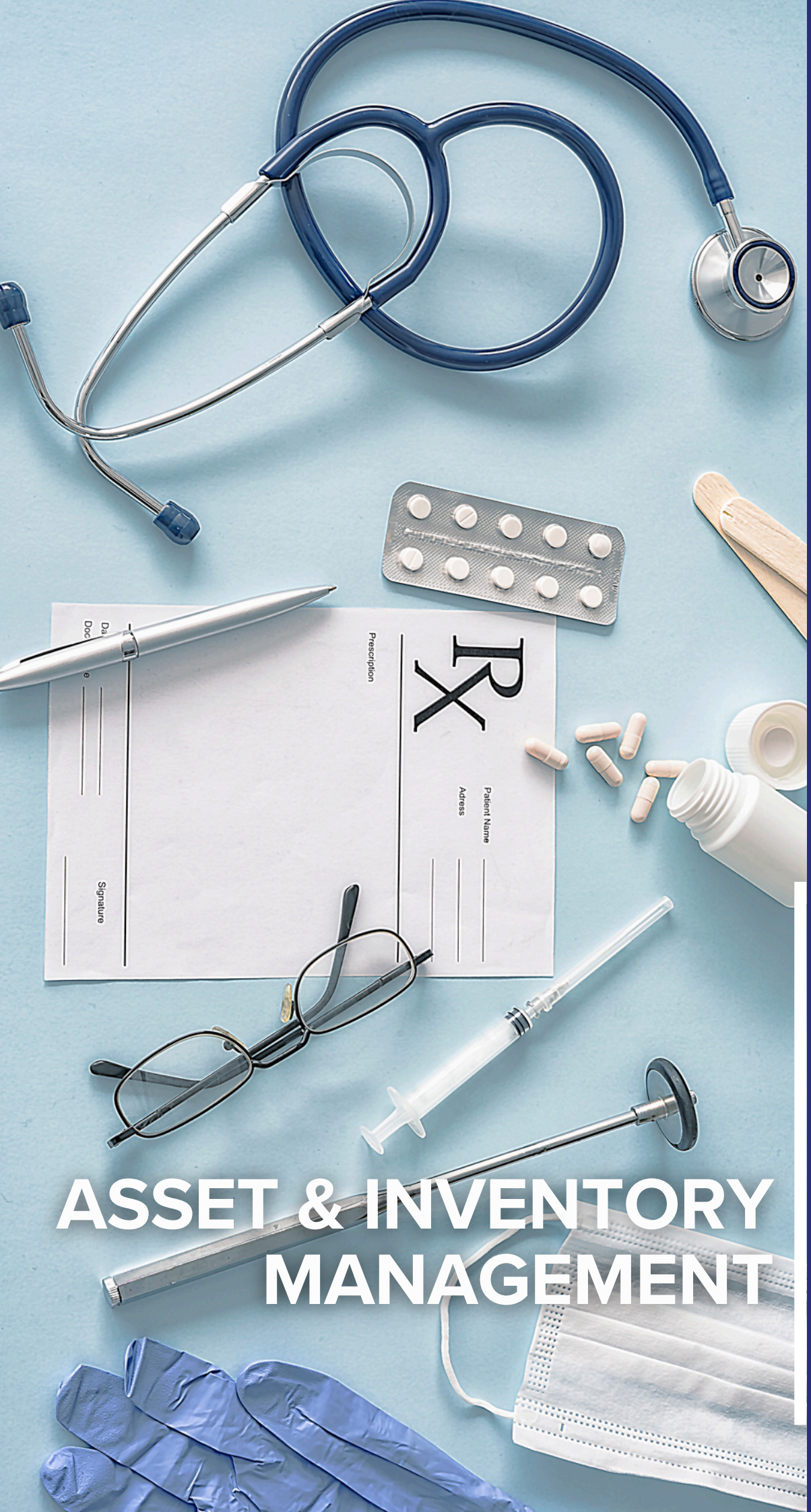
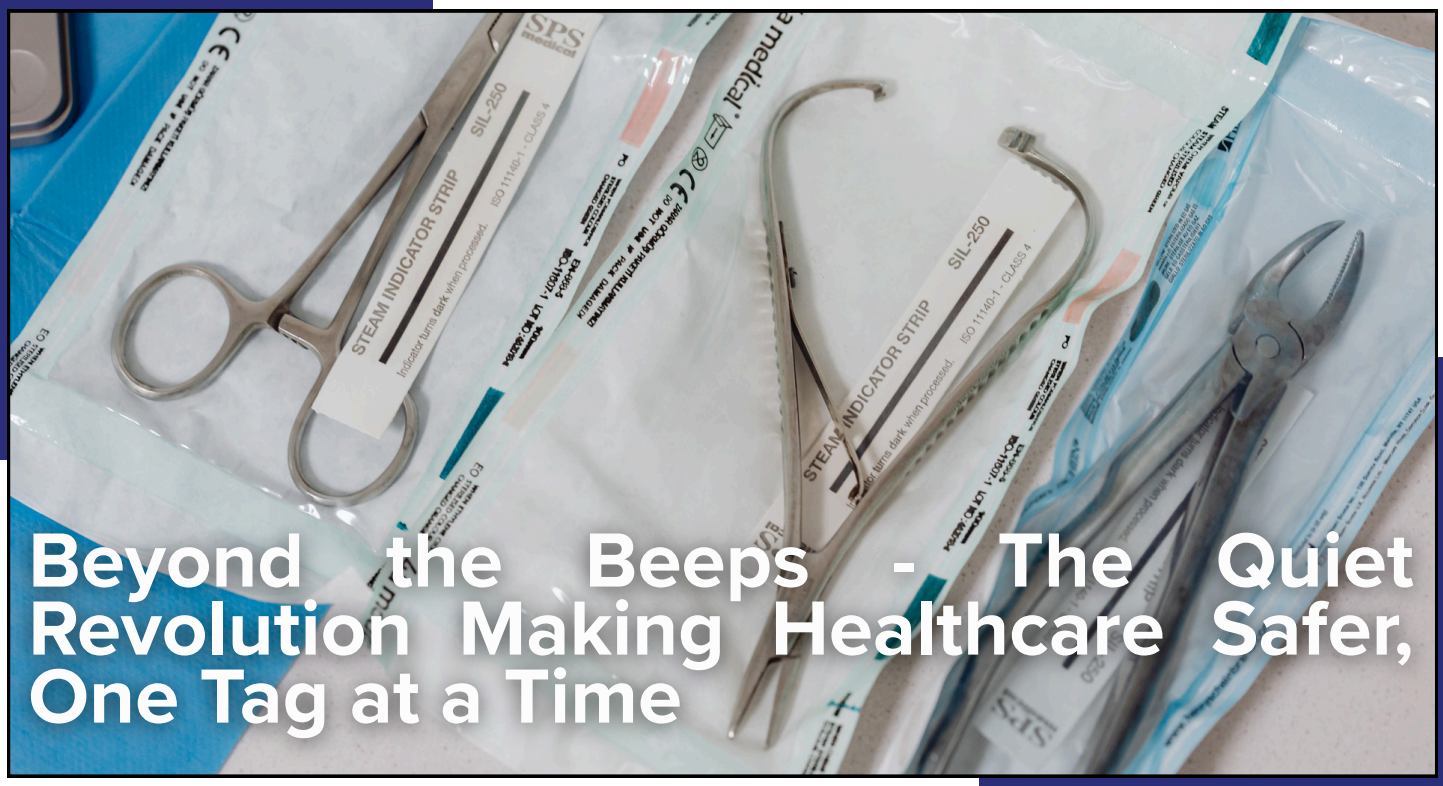


ASSET & INVENTORY MANAGEMENT

HEALTH CARE SOLUTIONS

OSIRIS TECHNICAL SYSTEMS



Beyond the Beeps - The Quiet Revolution Making Healthcare Safer, One Tag at a Time

Healthcare facilities lose approximately 10% of their mobile equipment annually - not to theft, but to inefficiency. An infusion pump sits unused in a storage closet while nurses search for one three floors away.

Surgical instrument sets arrive incomplete at the operating room. Pharmaceutical inventory expires on shelves while the same items are rush-ordered.

The financial impact runs into millions, but the operational impact is harder to quantify: wasted clinical time, delayed procedures, and the cognitive load of managing thousands of moving assets with clipboards and guesswork.

Why RFID Changes the Equation

RFID doesn't solve these problems by adding technology - it solves them by removing friction. When you can automatically know what you have, where it is, and when it moved, you eliminate the manual processes that create gaps in visibility.

The distinction matters because healthcare has tried barcoding, tried manual logging, tried periodic audits. These approaches fail not because staff don't care, but because they add work to already-overloaded workflows.

RFID works precisely because it requires less human intervention, not more.

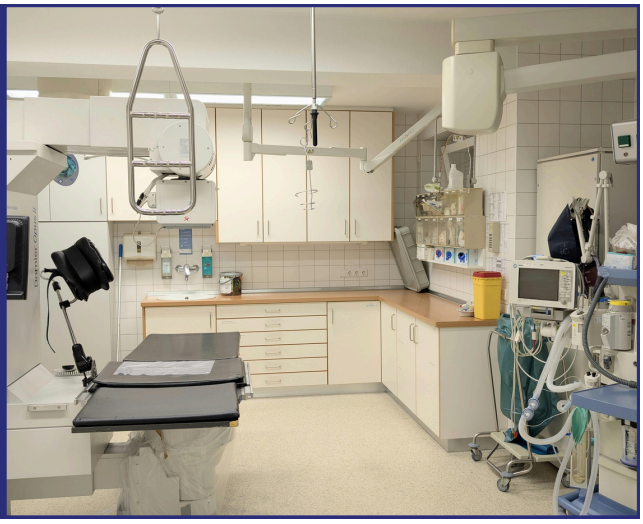
How Impinj's Gen2v3 and Gen2x Enhance Healthcare Operations

Impinj's advanced RAIN RFID technology addresses the specific challenges of healthcare environments through two key protocol advancements:

Gen2v3 (Authentication and Privacy) Healthcare assets move between departments, buildings, and sometimes sites and organizations. Gen2v3's cryptographic authentication ensures that high-value equipment - ventilators, defibrillators, surgical robotics - can be verified as genuine and properly authorized. This matters when equipment is shared across facilities or when managing consignment inventory where ownership verification determines billing.

The protocol's built-in privacy features also support compliance frameworks without requiring separate security layers. Tags can be configured to respond only to authenticated readers, which is particularly relevant for pharmaceutical inventory that must meet chain-of-custody requirements.

> “For generations, we've accepted that some percentage of loss is simply the cost of doing business, that uncertainty is just the nature of managing physical objects in a physical world. But Gen 2x RFID technology is quietly rewriting that story.”



Previously, RFID implementation in Healthcare presented uniquely challenging RFID environments: metal instrument trays, fluid-filled bags, dense storage areas, and dozens of items moving simultaneously. Gen2x handles tag collisions more efficiently, which means faster, more reliable reads when:

- Scanning surgical instrument trays containing 40+ metal tools
- Reading pharmaceutical inventory stacked deep on wire shelving
- Tracking multiple crash carts moving through an emergency department simultaneously
- Conducting inventory audits in supply rooms with thousands of items

The practical result: readers can interrogate more tags in less time with fewer errors, which reduces the infrastructure cost per read point and improves data accuracy.

Medical Equipment Tracking

Fixed readers deployed at strategic facility locations - department entrances, elevator lobbies, storage room doorways - creating an invisible network that tracks equipment movement automatically. A mobile handheld reader supplements the fixed infrastructure for ad-hoc searches and audits.

The system answers questions like: Where are all available wheelchairs? Which IV pumps are due for preventive maintenance? How long has this particular bed been in service?

Most importantly, it answers these questions in real-time without requiring staff to log, scan, or report anything. The equipment simply announces its presence as it moves through the facility.

Surgical Instrument Management

Operating rooms handle numerous instrument sets with many tools. Manual counting is slow and prone to errors, risking delays or retained items.

RFID-tagged tools pass through reader portals for instant set verification, missing item alerts, sterilization tracking, and compliance audits. Gen2x's performance in dense metal environments makes it effective where older RFID protocols failed.

Supply Chain and Inventory

Healthcare supply chains are complex: high-value items, strict expiration dates, multiple storage locations, and unpredictable demand. RFID transforms inventory from a periodic counting exercise into continuous visibility.

Fixed readers at storage entrances track item movement. Handheld readers enable rapid cycle counting. The system provides:

- Real-time inventory levels across all locations
- Automated expiration date monitoring
- First-expired-first-out (FEFO) pick guidance
- Actual consumption data for improved forecasting
- Automated reorder triggers based on usage patterns

This visibility reduces both stockouts and excess inventory - the former prevents clinical disruption, the latter reduces capital tied up in supplies.

Pharmaceutical Management

Beyond general supplies, pharmaceutical inventory demands additional controls. Gen2v3's authentication capabilities support serialization requirements and controlled substance tracking.

Each tagged medication can be traced from receipt through dispensing, supporting regulatory compliance and diversion prevention.

For high-value biologics and specialty pharmacy items, RFID provides the granular tracking needed to manage products where a single vial might cost thousands of rands.

Linen and Textile Management

A medium-sized hospital processes 15,000–20,000 kilograms of linen daily, including scrubs, bed linens, and gowns. Loss rates can reach 10–30% annually without tracking systems.

Washable RFID Tags

Apparel RFID tags endure over 200 wash cycles and are identified by fixed readers at laundry facilities. This system tracks textile movement, identifying shrinkage and usage by department for accurate cost allocation.

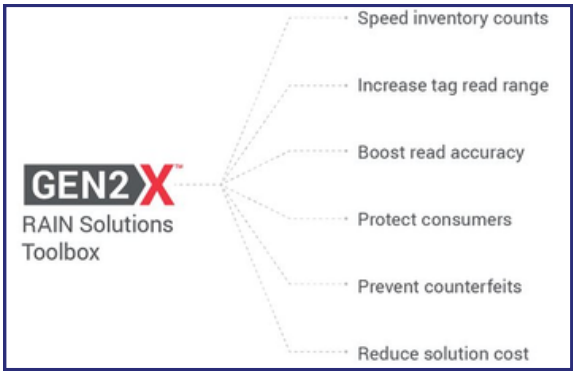
The main benefit is right-sizing inventory, not just theft prevention. With precise data, facilities can maintain leaner inventories while enhancing availability.

Measurable Outcomes

Implementing RFID in care facilities, materializes the following:

- Equipment utilization increases of 15-25% as assets become easier to locate and deploy
- Equipment spending reduction of 10-20% as accurate tracking prevents unnecessary purchases
- Clinical time savings of 30-60 minutes per shift previously spent searching for equipment
- Inventory reduction of 20-30% while simultaneously reducing stockouts
- Compliance improvement through automated documentation and audit trails

These metrics matter because they translate directly to improved operational efficiency and reduced costs - benefits that compound over time as the system captures more data and enables better decision-making.



It's not just about finding things faster, though that matters tremendously. It's about nurses who can focus on patients instead of hunting for supplies. It's about biomedical teams who know which devices need maintenance before they fail, amongst other improvements.

The Path Forward

RFID in healthcare isn't about adding sensors to everything - it's about eliminating the invisible tax that manual tracking places on every process. It's about giving clinical staff back the time they spend searching for equipment. It's about making better decisions with actual data, instead of estimates.

Impinj's Gen2v3 and Gen2x protocols make this practical in the complex, demanding environment of modern healthcare. The technology is mature, the use cases are proven, and the economics are compelling. What remains is execution: thoughtful deployment, solid integration, and organizational commitment to using the visibility these systems provide.

The question isn't whether RFID can improve healthcare operations - evidence demonstrates it can. The question is how to deploy it strategically so the benefits justify the investment, and how to ensure the resulting data drives better decisions rather than just creating more information to manage.

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