Case Study

Mayo Clinic: Revolutionizing Lab Processes with Advanced RFID

$2M Annual Savings

99.98% Specimen Labeling Accuracy

Overview:

The Mayo Clinic, renowned globally for its medical excellence, has been a "Best Hospital" by US News and World Report for 21 consecutive years. As the largest integrated medical center in the world, Mayo provides comprehensive diagnosis and treatment across all specialties to over 350,000 patients annually. Leading the industry with cutting-edge technology, Mayo Clinic adopted RFID to enhance healthcare delivery and reduce costs.

Business Goal: Accuracy and Automation

Mayo's vast array of testing labs, spanning multiple disciplines, depend on precise and rapid results to diagnose and treat patients effectively. Historically, the average error rate in lab testing approached 10%, a significant issue Mayo aimed to reduce to below 1%. They sought to eliminate manual processes, source errors, and data entry mistakes to ensure the right patient, right specimen, and right information at the right time.

A Unified Solution: Cross-Functional Team

Mayo formed a diverse team including Bruce Kline (Intellectual Property Office), Dr. Schuyler Sanderson (Anatomic Pathology Lab), and Deb Larsen (Technology Group) to address stakeholder concerns and requirements. They partnered with Quake Global (formerly ODIN) for their RFID expertise, entering a joint development agreement to create a unique, tailored solution.

Implementation: Seamless Integration and Optimization

Quake's 5Ps process (Planning, Physics, Systems, Hardware, and Production) was pivotal in automating Mayo's specimen tracking system. Quake developers worked closely with Mayo to refine the workflow, ensuring scalability and accuracy without disrupting technician operations.

How It Works:

RFID pad readers placed at key points in the specimen collection and delivery lifecycle capture data as clinical staff interact with samples. Tags on sample bottles update their location and status, ensuring accurate tracking throughout their lifecycle. This system supports batching and checkpoints, guaranteeing correct specimen handling.

Execution: Rapid Deployment

In just three months, Quake Global's agile development team, alongside RF engineers, implemented the final solution. Embedded with Quake's software, the RFID readers eliminated the need for extra middleware servers, reduced network traffic, increased read performance, and ensured data capture during network outages.

Results:

$2M Annual Savings, 99.98% Accuracy

The RFID system was installed in Mayo Clinic Rochester's GI/Colorectal Surgery suites and pathology labs, improving specimen tracking and lab accuracy significantly.

Specimen Labeling Accuracy:

Achieved 99.98% accuracy.

Increased Lab Productivity:

Enhanced productivity through paperless accessioning of specimens.

Reduction in Specimen Source Errors:

Significantly decreased errors.

Mayo met its goal of reducing the industry average error rate from 10% to less than 0.002%, helping doctors make faster and more accurate diagnoses. **The return on investment (ROI) was significant, with annual cost savings of $1M from paperless accessioning and over $1M from reduced mislabeled specimens.**