

5% Surgical Revenue Increase

by implementing Continuum's RFID solution at the point of use.

Providing Solutions to Healthcare's Most Complicated Challenges

DeRoyal's Continuum® inventory management solution provides ease of use, accuracy, and visibility to all aspects of the supply chain. This allows systems to increase revenue, make informed business decisions, and allows clinicians to focus exclusively on patient care. Continuum's inventory management and point-of-use hardware solutions incorporate RFID technology to automate pertinent inventory control activities and point-of-use clinical workflows. The cloud-based Continuum software provides a scalable solution that can integrate with existing systems to fit seamlessly into current software workflows.

AIR™

Continuum AIR™ scanner is a handheld, portable RFID scanning device that simplifies inventory management in healthcare facilities. The AIR™ scanner quickly counts and reports items in inventory locations with minimal human intervention reducing inventory time to minutes instead of hours.



OSCAR®

Continuum's OSCAR® Smart Receptacle device is a smart trash receptacle that automates supply capture at the point-of-use. The OSCAR® Smart Receptacle automatically recognizes RFID-tagged supplies as packages are disposed of and captures critical Unique Device Identifier (UDI) details. Simplified clinical documentation guarantees supply capture accuracy and ensures clinical time is focused on direct patient care. Pick It. Use It. Throw It Away.®





Regional Medical Center

This case study was performed at a Health System in south-central Ohio. The Health System includes four hospitals and six regional clinics. They serve as the only healthcare provider in south-central Ohio providing da Vinci Robotic Surgery, Mako Robotic Surgery, and advanced MRI capabilities. The Health System represents an exceptional choice for advanced patient care.

The hospital operates sixteen specialized surgical suites along with specialized inpatient units, an Emergency Department, physician practices, and specialty care areas. Five centers of excellence, including Surgical Services, Cardiac Care, Cancer Care, Orthopedic Care, and Women and Children, provide exceptional service to the community. They use seven surgical suites in the hospital for in-patient procedures, three suites in the Health Pavilion (Pavilion ASC) for outpatient procedures, and six suites in their new Orthopedic and Spine Institute.

The Scope



This regional hospital began implementing the Continuum® system in mid-2019. The project aimed to reduce clinical time spent on manual supply documentation, improve clinical documentation accuracy, improve clinical staff satisfaction, and increase revenue. **A team of key stakeholders and end-users** coordinated workflow and integration planning, installation, and go-live. **The new workflow required integration with third-party vendors** – electronic medical record (EMR) and inventory management systems – to allow information sharing. **Installation of the Continuum system** required the hospital to adopt a process to RFID-tag items used in surgeries. The RFID-tagging process mandates planning and on-boarding to ensure success of the system. The Continuum Print Utility enabled the hospital to adopt RFID-tagging easily and provided them flexibility in managing inventory used in surgery. They took an innovative approach to tagging whereby they decided to tag as much as possible to minimize manual input at the point-of-care. **The hospital quickly expanded their Continuum system footprint by implementing the Continuum AIR scanner to streamline inventory activities.** Supply chain personnel use this solution in place of manual processes to perform daily count scans in each of their inventory locations. Inventory on-hand levels are automatically captured and transferred to the materials system for requisitions, saving time compared to manual reorder entry. The Continuum AIR scanner captures product expiration dates to help proactively manage products at risk for expiration with limited human intervention ensuring patient safety. Additionally, the Continuum scanner captures, tracks, and reports lot numbers and serial numbers for seamless product identification in the event of a recall.

Challenges

Before Continuum® system implementation, the hospital identified the following challenges.

32

hours spent on year-end physical inventory

Manual inventory management processes affected year-end physical inventories as well. This, too, was tedious, burdensome, and required additional item tracking and adjustments. **Year-end inventory required four full-time employees and 32 total hours to complete.**

11

minutes of clinical time (avg) spent on supply documentation per case

Outdated and inaccurate Doctor's Preference Cards (DPC) led to complex searches that were burdensome, time-consuming, error-prone, and competed with nurse-patient time. On average, case consumption documentation expended at least 11 minutes per case **and often required post-shift time for completion.**

9

% variance of annual product purchases compared to usage

Manual inventory management processes lacked traceability and required significant adjustments to account for missing inventory. Before the start of this study, inventory purchases compared to usage showed a significant variance. **Stated another way, the hospital only accounted for 91% of the items that they had purchased and used.**

96

% of cases had items missing from the Doctor Preference Card

Surgical cases required the circulating nurse to document supply consumption manually using electronic DPCs which were pulled and adjusted line-by-line for supply usage. Missing items required a manual search of the supply database to locate the items, **reducing efficiency and ultimately increasing costs.**

150

hours of clinical time (avg) spent on supply documentation per month

While 11 minutes might not seem like much time, when you extrapolate the time to all cases, the immense amount of time spent on non-patient care activities becomes clear. During the study, the facility performed an average of 823 cases per month, requiring approximately 150 hours of nursing time to enter case supply consumption data. **Annually, this amounts to 1,800 hours spent on documentation instead of patient care.**

30

hours spent per year managing recalls

Recall management represented another time-consuming process for the hospital. Recalls required investigations that **took an average of two to three hours per recall** because personnel had to search for the item in each inventory location and the EMR to locate all purchased, recalled devices. **Recalls requiring this level of management occurred at least 12 times per year.**

2-3

hours spent on daily inventory counts and reorders

The hospital's EHR and Inventory Systems did communicate but supply chain personnel could not rely on the surgery documentation due to a five-day delay in reporting between the clinical and materials system along with data inaccuracies from manual clinical documentation. **They defaulted to pen-and-paper inventory management** to ensure accurate product replenishment to overcome process shortcomings requiring 1095 hours of effort annually to maintain inventory to avoid surgery delays.

11

% of cases with documentation errors that required post-case audit

Complex search layers and non-standard naming conventions caused items to be added to the DPC as a "miscellaneous" item. The "miscellaneous" items added to the case usage required extensive post-case audit by the hospital's two case auditors, who reconciled consumed "miscellaneous" devices and corrected documentation errors made the previous day. These auditing activities identified errors in 11% of cases, **demonstrating that the hospital was at risk for missed revenue opportunities in at least 90 cases per month.**

Supply Documentation Process

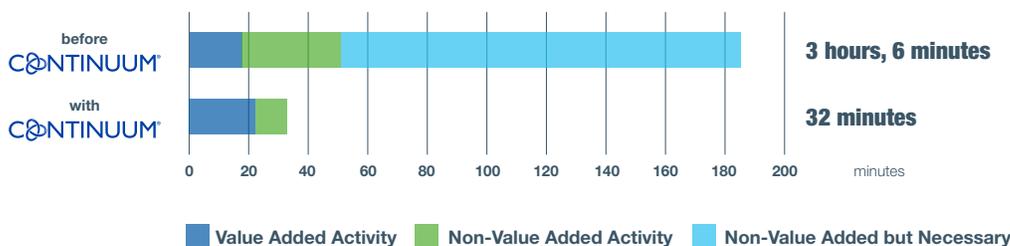


FIGURE 1

Value Added Activity – benefit to the hospital.
Non-Value Added Activity – no added benefit to the hospital, but needed in particular cases.
Non-Value Added but Necessary – no added benefit to the hospital, but needed in particular cases. (Process improvement of the Continuum system put into place to eliminate these activities.)

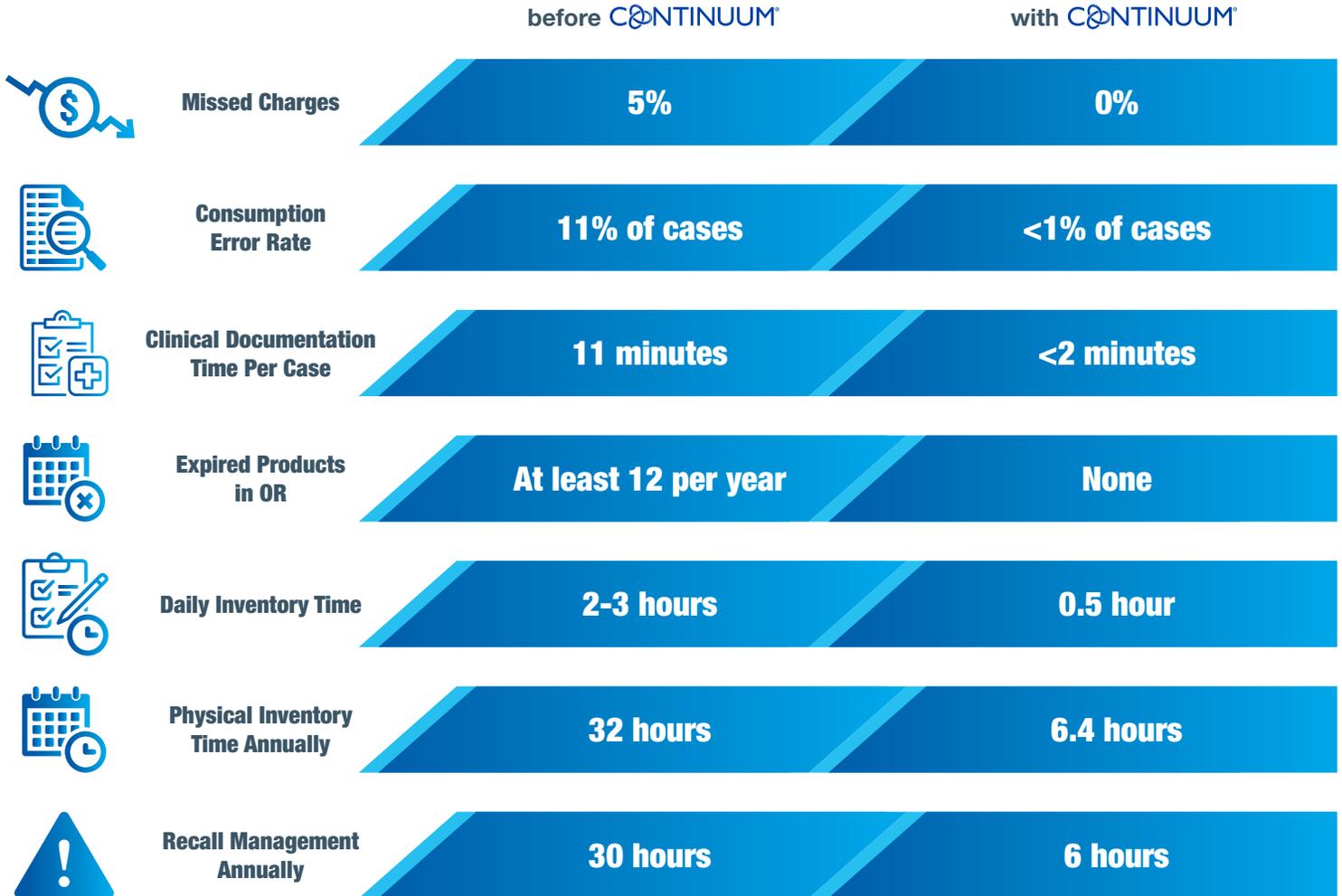


*This is one of the greatest things we have ever done...
The implementation of the OSCAR® receptacle allows the clinical staff to give more attention to the patient instead of data entry type tasks. It is one of the best quality initiatives I have seen in a significant amount of time.*

- Surgical Services Nurse Manager



Outcomes



Jonathan Cayce, Ph.D. | Clinical Research Scientist, DeRoyal Industries, Inc.
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Regional Medical Center