What Is Your Data Telling You?

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Harnessing the Power of Your Data

"The evolution of electronic data capture (EDC) from "thick client" software systems that were expensive to deploy and support to cloud-based web applications with little or no hardware and software configuration has led many Central Sterile Supply Departments (CSSDs) to commit to automating 100% of their processes. What the leaders of these departments have found is that EDC is not just a more efficient way of managing records and files... it is the gateway to optimizing their departments."
- Jennifer Zola, RN

The transition to surgical asset automation in CSSD has been trending upward over the past decade. Many early adopters of these software systems often made the switch from manual record keeping to automation to avoid the headaches associated with maintaining paper files, among other reasons. As it turned out, these lighthouse customers learned that by implementing interfaces to sterilizers and adding a few workflow scan points into the reprocessing loop, the CSSD manager was not only able to eliminate burdensome and inefficient paper filing systems, but was also able to begin "mining" their data for important statistics and patterns. These reporting capabilities enabled CSSDs to gain intelligent data about their own departments.

As software design continued to evolve, reporting features became more sophisticated and efficient as well. Today's systems now allow users to easily combine and download data points into spreadsheet software programs such as Excel. This means users can easily organize, calculate, and apply formulas to their data in order to better identify opportunities for improvement, measure the impact of changes, and ensure regulatory compliance.

The next few pages illustrate the potential Return on Investment (ROI) related to the transition to EDC for CSSDs of all sizes. They also discuss why moving to EDC has become a prerequisite for running an efficient, modern department. The industry, with all its regulatory guidelines, is now focusing on a fully data-driven process as paper is being replaced at all stages of the reprocessing cycle.

The ability to harness the power of one's own department data may be the number one reason to transition to automation.

Reporting and Analytics

What's the Difference?

Analytics, simply defined, is the discovery and communication of meaningful patterns in data, and is more complex than the capture, storage, and retrieval of data. These identified trends or patterns can then be used to help in the development of process improvement initiatives and are a significant justification for moving from a manual or paper process to electronic data capture (EDC). To illustrate the difference, the chart below provides a few CSSD examples of data capture, storage, and retrieval versus data analytics.

DATA CAPTURE, STORAGE, AND RETRIEVAL	DATA ANALYTICS
Actual History Detail: Assembly history by container	**Processing Priorities:** Current tally or percent of containers by priority level, based on the OR scheduler interface
Items Missing (History): Instruments that were missing from previous assemblies	**Utilization and Shortages:** Monthly statistics by container of percent of instruments utilized, missing, and unmarked for assembled containers
Item Detail: Instrument details by case ID	**Cross Reference Detail:** Detailed list of instruments reused since being used in a selected case
Assembly History Detail: Assembly history by container	**Average Assembly Times:** Average assembly times by container for selected period of time

It is easy to see the value that data analytics offers. If you're considering an automated instrument management system, be sure to include in your budget the justification of using data analytics to support continuous process improvement efforts. Reducing paper record storage and gaining quick data retrieval are key advantages of instrument management automation. In today's environment, it is also important to choose a system that can help you identify potential successes or opportunities for improvement by incorporating algorithms and computing software into the reporting package.

Inventory and Case Reporting

Inventory management is more than just knowing where things are. While access to asset location is critical, it is just the beginning of what electronic data capture (EDC) can provide in terms of inventory management. There are many other inventory insights that result from mining your scanned data. Here are some reporting possibilities that are just a few clicks away when CSSDs choose to automate:

MAINTENANCE REPORTS

- List of all instruments or containers due for maintenance, based on usage parameters
- Maintenance history by request date and supplier
- List of instruments currently in maintenance cycle
- Flexible endoscope maintenance history
- List of flexible endoscopes currently in maintenance cycle

INVENTORY REPORTS

- Total instrument costs per container with ability to drill down to detailed picklist of individual instrument costs
- Container picklist with extended costs and processing costs/container
- Monthly statistics by container of the percent of instruments utilized, missing, and/or unmarked for assembled containers
- List of instruments not scanned since specified date
- Loose instruments sorted by location
- Par Inventory Levels: Actual and required quantities of instruments and containers by location
- Instrument substitutions by service and/or container

LOANER MANAGEMENT REPORTS

- Talley of loaner sets by case date with the ability to drill down to case details and history

SCOPE MANAGEMENT REPORTS

- Flexible endoscope activity history sorted by date and time
- Flexible scope inventory

CASE TRACKING REPORTS

- List of cases by date
- List of cases that have reused items since they were in the selected case
- Detailed list of instruments reused since being used in selected case
- Instrument details by case ID

Workflow Reporting

The Key to Improving Efficiency

The adoption of lean principles has been shown to be a successful continuous quality initiative (CQI) methodology in today's healthcare environment. Although there are many iterations of this trend, there are a few basic tenets that are universal to help drive process efficiency and accuracy:

- Focus on the patient
- Figure out how the work gets done
- Remove inefficiencies and waste
- Track numbers and manage by evidence
- Empower the people operating the process
- Go about all this in a systemic way[1]

Data collection is a critical aspect of the lean approach to process improvement. Whether you're a proponent of the lean process, analyzing workflow reports related to various steps in the reprocessing loop is undeniably useful. The following are a few examples of valuable productivity reporting.

WORKFLOW REPORTS

- Volume by time period of:
  - Sets assembled
  - Sterilizer loads
  - Case carts assembled
  - Sets washed
  - Items sterilized
  - Location scans
  - Peel packs
- Average container processing times by process type
- Current tally or percent of containers by priority level, based on case schedule
- Elapsed time in current locations for containers, case carts, and other assets
- Assembly history by container with average assembly times
- Summary of container completions
- Assembly trends by date and hour
- Average container processing times by process type
- Container utilization
- Queue time snapshot

Regulatory and Safety Data

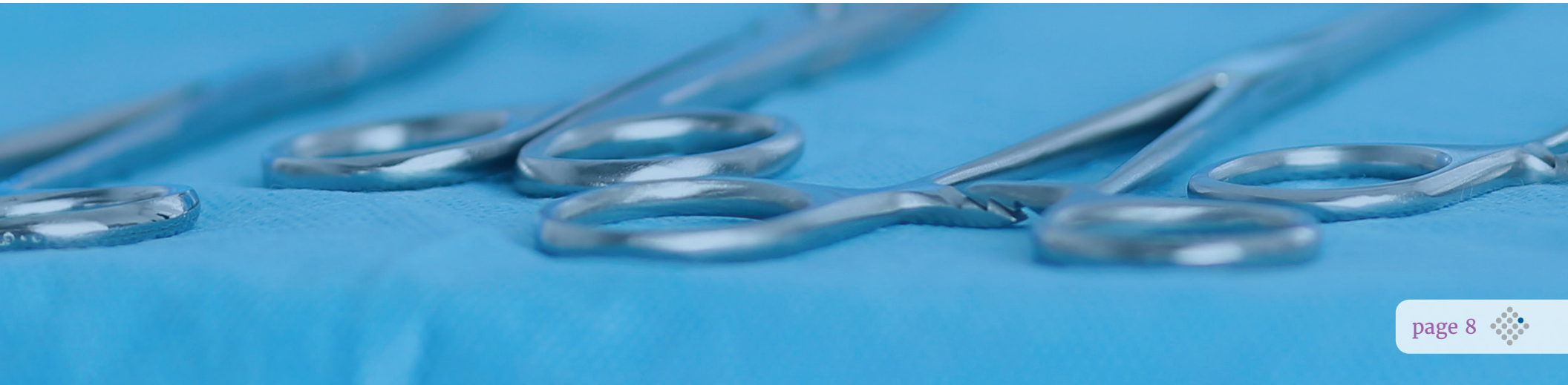
Ensuring Patient Safety

The role the CSSD plays in protecting the patient from infection in the OR is paramount. Consequently there are many regulatory requirements that must be maintained and monitored. This is another area where surgical asset management automation and EDC can make a significant impact.

Getting surgical assets to the OR in proper condition is in many cases a team effort; different people are responsible for different tasks in the reprocessing loop. Software automation and EDC provide continuous monitoring of the entire reprocessing cycle with reporting capabilities. This assists CSSDs to safeguard against missteps that individual team members in the department would not have the visibility to identify otherwise. Additionally EDC eliminates the need to store paper versions of records that are required to be maintained for regulatory compliance reasons, while providing easy access to those records when needed.

REGULATORY/SAFETY REPORTS

- IUSS loads for a specified time period including time, date, operator, and reason
- Tally of loads and contents by sterilizer and time period
- Summary of the current status of each sterilizer
- Summary of indicator results by sterilizer and date
- Out-of-sequence warnings issued by date *(warnings issued when attempting to scan items without following proper reprocessing steps)*
- List of warnings issued to technicians who lacked a competency required to access a desired function
- Quality feedback tallies by event type with the ability to drill down to event details
- List of endoscopes that need reprocessing based on hang time expiration date



Employee-Related Reporting

Keeping Up with Your Employees

With all the technology advancements in the sterile processing industry, ensuring that your employees are properly trained on every responsibility and regulatory guideline is not easy. Additionally, to effectively evaluate and benchmark technician performances requires the ability to track measurable metrics. With EDC these tasks are dramatically streamlined. Below are just a few examples of the types of reports automation can provide, empowering managers and supervisors to address and customize individual staff training needs.

EMPLOYEE-RELATED REPORTS

- Complete competency training record for each technician including pending approvals and expiring training
- Container assembly history by technician
- Hours earned over hours worked by employee
- Sets assembled by technician, by date, by hour
- Processing activity by technician and activity type

THREE FDA/CDC HEALTH ADVISORY TRAINING RECOMMENDATIONS FROM HAN 00382:

1. Healthcare facilities should provide training to all personnel who reprocess medical devices.
   - Upon hire or prior to provision of services at the facility
   - At least once a year
   - When new devices or protocols are introduced, including changes in the manufacturer's instructions for use during the device's life cycle
2. Personnel should be required to demonstrate competency with device reprocessing (i.e., trainer observes correct technique) prior to being allowed to perform reprocessing independently.
3. Healthcare facilities should maintain current documentation of trainings and competencies.[3]

Dashboards:

The State of Your Department

Dashboards have become a staple for executives and managers in the past decade. Since all businesses and services are not created equal, the ability to customize dashboards to highlight information that helps you be more effective is important. However, designing a useful dashboard can be daunting. Stephen Few, author of *Information Dashboard Design*, calls structure one of the greatest challenges of dashboard design:

> ***"Dashboard content must be organized in a way that reflects the nature of the information and that supports efficient and meaningful monitoring. Items that relate to one another should usually be positioned close to one another."***[4]

CHOOSING WHAT DATA TO INCLUDE ON YOUR DASHBOARD

First ask yourself what metrics are the best indicators of the state of your department. This is an important question. But it is also important to then ask yourself, "Would I do something with this information?" Effective dashboards focus on intelligent data that can be used to drive changes and less on "nice to know" metrics. Use your dashboard real estate for the most helpful information.

SNAPSHOT VS. PREDICTIVE INFORMATION

A snapshot is a representation of operational or business metrics at a point in time. You can make a snapshot easier to comprehend by adding in predictive value with color coding. This takes more time to set up on the front end, but it may be a more effective way to alert a user to a problematic situation. An example of a predictive summary would be a snapshot of what trays are needed for scheduled OR cases that day. Based on the average time required to reprocess the needed trays and where the trays are in the reprocessing cycle, pending trays would be displayed in red, green, or yellow, indicating whether there is enough time to get the tray to the OR on time or not. At a glance, a supervisor can easily prioritize what actions need to be taken.

DASHBOARD STRUCTURE

Two popular layouts:

- Grouping—keep related data metrics in same area
- Gradual Reveal—summary at top of page, detailed metrics of the summary below

Pick the right graph type for the type of data to make user comprehension easier.

- Bar graph: comparative stats, measured over time
- Point-to-point graph: stats measured over time
- Pie chart: stats that are represented in percentages

PAY ATTENTION TO WHERE USERS TEND TO FOCUS THEIR ATTENTION

Studies show that people tend to scan a page in a similar pattern, so put the most important information where people tend to look first. Research also indicates that users look for information on the top and left first. They tend to focus their attention down the left side with the center getting a fair bit of attention as well. However, the bottom and right may not catch the user's eye.[5]

Electronic Data Capture & CQI

It's no secret that a continuous quality improvement (CQI) program is a critical responsibility for managers of Central Sterile Supply Departments (CSSDs). The Joint Commission requires it, and AORN, AAMI and IAHCSMM support it through published standards, recommendations, and guidelines. In fact, according to ANSI/AAMI ST79: 11.2.2, a "sterilization risk analysis should be part of the health care facility's overall infection prevention and control risk analysis in accordance with accreditation agency requirements. It should be performed at least annually and should be re-evaluated whenever significant changes occur."[6]

Since every facility is different in terms of type of equipment, assets, layout, size, etc., CQI programs need to be customized to the facility. Effective reporting capabilities are a manager's tool for identifying sources of potential process failures, evaluating the effectiveness of possible remedies, and then monitoring processes over time.

A perfect example of an effective CQI software tool is CensiTrac's Quality Management module. This module, that is included in the CensiTrac surgical asset management solution, provides any stakeholder involved in the reprocessing of instruments an electronic means to capture comments or images regarding the condition of trays, instruments, or other assets. The associated reporting capabilities give management insight into problem areas, so that proactive improvements can be made, while also providing a system for on-going CQI documentation and monitoring of solutions.

Tips for Evaluating Reporting Solutions

While most surgical asset automation systems offer some type of reporting option, not all reporting functionality is created equal. A few things to investigate related to reporting capabilities are:

- How many standard reports come with the system?
- Does the system allow you to set subscription or automated reporting alerts?
- Are the report formats customizable? If so, is there a cost? Are facilities able to create custom reports on their own, or is the vendor required to make changes?
- What type of support is available for designing customer reports?
- Are the reports downloadable to applications such as Excel or Crystal Report Writer for further data manipulation?
- Does the reporting suite include customizable reporting dashboards?

Reporting and analytics is an area where EDC and software automation enables facilities to find those opportunities for improvement related to productivity, cost reduction, and regulatory compliance. The ability of today's software applications to go beyond simple data storage for fast retrieval is truly remarkable. They've evolved to allow us to learn and gain wisdom from our own processes and environment.

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About Us

Founded in 2001, Censis Technologies, Inc. quickly became the industry leader in surgical asset management by offering highly advanced, web-based software systems focused on maximizing OR efficiency while advancing efficiency, transparency, and regulatory compliance.

With more than 600 organizations utilizing solutions in the Censis portfolio, Censis is committed to partnering with healthcare facilities year after year to enhance patient safety through innovative technology.

To see how surgical asset management can work for you, visit us at www.censis.com/contact-us.

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