CareAdvantage | Johnson & Johnson MEDICAL DEVICES COMPANIES

The Johnson & Johnson Medical Devices Companies (JJMDC) CareAdvantage approach enables partnership with health system to improve operating room efficiencies in spine surgery

With healthcare costs continuing to rise, bundled payments and declining DRG reimbursements place added pressure at every level of a health system's operations. As health systems look for ways to reduce costs without sacrificing quality of care, the operating room is often a focus for improvement. Through its CareAdvantage approach, JJMDC is a key third partner in this endeavor, working collaboratively with providers to deliver cost savings without compromising outcomes.

In the case of an Arizona-based, nonprofit hospital, the collaboration with JJMDC resulted in significant—and sustainable—time and cost savings across several types of spine procedures using JJMDC products.[1] These savings were achieved through a process of increasing instrument tray efficiency, improving instrument standardization, and identifying other key procedural modifications.

<25%

An analysis of instrument utilization per tray across several specialties revealed that less than 25% of instruments in a given tray are used. This study also found that an increase in instruments per tray correlated with an increased instrument error rate[2]

To learn more please visit www.CareAdvantageJJMDC.com or email CareAdvantageJJMDC@its.jnj.com.

Reference
1. Abrams JH, Dekutoski MB, Chutkan N. Maximizing Operating Room Efficiency in Spine Surgery: A Process of Tray Consolidation, Instrument Standardization and Cost Savings. DSUS/SPN/1016/1469, November 2016.
2. Stockert EW, Langerman A. Assessing the magnitude and costs of intraoperative inefficiencies attributable to surgical trays. *J Am Coll Surg*. 2014 Oct;219(4):646-655.

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Needs Identification

As surgical spine cases typically involve a highly variable quantity of instrumentation and implants, industry representatives often bring in additional instrumentation to ensure that they meet usage demands. This is a largely unrecognized problem: Hospitals do not restrict the number of trays opened or processed; operating rooms rarely track instrument utilization; and surgeons typically have limited visibility to this cost. The result is high cost of sterilization, and significant time spent by the operative staff on the handling and setup of unnecessary instrumentation and implant trays.

This facility had a busy spine surgeon who had made OR efficiency a top priority and a constant focus for continued improvement. One key area that kept emerging as a pain point for the surgical team was the significant amount of time that the scrub tech was spending in each case managing the orthopedic instrumentation on the back table. This activity was creating significant bottlenecks in the operative processes, leading the hospital team to approach the local JJMDC team for help optimizing the JJMDC instrument trays.

The Johnson & Johnson Health Economics and Market Access team partnered with the hospital to study the impact of tray optimization on OR efficiency and costs. The JJMDC OR Data Tracker was used to capture key time points in the perioperative process as well as the number of instrument trays used in a procedure. The hospital and JJMDC team developed a rigorous protocol for measuring perioperative processes before and after improvements were implemented. Five time points were measured before and after surgery:

- OR Setup
- Anesthetic
- Patient Prep
- Surgery
- OR Clean Down

The initial analysis included 63 cases. In each, the number of trays opened was recorded to establish baseline data. Real time case data was provided to OR staff and individual surgeons via dashboard reports, providing a level of transparency which helped fuel organizational change among all stakeholders.

During the study it was found that complete trays were often being opened for just one or two instruments. Additionally, the same number of instrument trays that were used for an 8-level spine procedure were often being staged for a 2- or 3-level procedure. This inefficiency was resulting in significant time spent handling and staging excess instrumentation at the back table, which also led to unnecessary instrument sterilization costs.

After analyzing the baseline metrics, it became evident that there were several areas of inefficiency that could be improved or removed altogether significantly decreasing the quantity of JJMDC instrumentation and implants brought into a case. Once tray optimization was implemented and other improvements were made, the teams tracked another 85 cases utilizing the same time stamps.

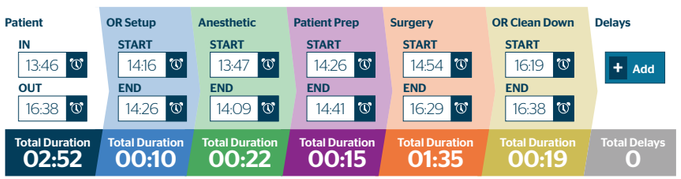
Capabilities

1. Customized Data Tracking

In order to capture and analyze key phases of the perioperative process, the surgical team leveraged the JJMDC OR Data Tracker tool. This tool allowed the task force to study case time performance versus baseline, as well as identify specific delays.

2. Targeted Analysis

In the Tray Optimization Analysis, the teams tracked the number of trays opened by procedure. This revealed that in many cases, only one or two instruments in a tray were used to complete the surgery. Armed with this information, JJMDC partnered with the lead surgeon to develop optimized sets that include the most commonly used standard instrumentation and most "typical" implant sizes, while eliminating the extraneous instruments and implants.



3. Clinical and Product Expertise

By leveraging clinical and product expertise and working closely with the surgeon and clinical staff, the JJMDC team was able to determine what instruments were actually being used, and with what frequency. As a result of this collaboration, JJMDC trays were streamlined from 16 down to 4 instruments per case on average. This reduction not only delivered significant sterilization cost savings, but allowed the scrub tech to spend less time managing the back table and more time managing the flow of each case.

Delivering Results*

During the study period, JJMDC worked with the hospital and the surgeon to consolidate JJMDC trays and standardize instrument use, while the hospital leveraged the data to make other procedural modifications such as synchronized surgery start times and nursing teams deployed specifically for spine surgery.

Reducing the total number of JJMDC trays brought in for each case resulted in a reduction of time required for room setup, an increase in procedural efficiency, and thousands of dollars in savings related to sterilization costs.

	Trays Opened	Setup Time	Anesthesia Ready Time	Patient Prep	Cut to Close	Clean Down Time	OR Time (PT in to PT out)
BASELINE: Procedure Averages	16	0:42	0:21	0:18	3:18	0:40	4:05
Post Implementations: Procedure Averages	4	0:24	0:13	0:18	3:01	0:23	3:43
EFFICIENCY IMPROVEMENT	**12**	**0:18**	**0:08**	**0:00**	**0:17**	**0:17**	**0:22**
Total Time Savings (A + B) = 0:40		A					B

These efforts resulted in significant time and cost savings.

Reductions (annual)[1]:

1,572	20 tons	$196.5K	43%
Fewer trays	Tray weight	Savings on sterilization costs alone	Reduction in OR setup and OR clean down time

*These are examples that are specific to JJMDC/Ethicon products only and do not guarantee or predict future results, which will vary depending on individual circumstances

Key Success Factors

1. Institute a methodical approach to gathering and analyzing data using defined metrics
2. Ensure data transparency among all stakeholders to help fuel organizational change
3. Regularly track and analyze instrument usage per tray
4. Encourage collaborative attention to procedural flow, OR team feedback, and instrument usage