



# Preventing Endoscope Damage with Custom Trays & Compliance: A Study

**G**OOD DATA HAS THE power to diminish assumptions and anecdotes. This study demonstrates how following good data can help identify and implement a strategy to reduce leaks in a hospital's instrument repair budget.

## ABSTRACT

This study addresses how compliance affects the return on investment (ROI) by using custom trays to mitigate damage to 5mm laparoscopes. Custom trays are designed to allow rigid endoscopes/laparoscopes to be cleaned by an automatic washer and, thereby, bypass handwashing. The top four manufacturers of rigid endoscopes/laparoscopes allow for machine washing in their instructions for use (IFU).

## HYPOTHESIS

Does compliance or noncompliance change the financial outcome when using custom trays with rigid endoscopes? Summit Medical aimed to explore this hypothesis for the company's InstruSafe trays and sought me, President of SolutionWells LLC, as the principle investigator and objective expert for this study. Summit Medical funded this study and donated the Instrusafe trays to Altru Hospital in Grand Forks, N.D., so other hospitals could benchmark this data.

## METHODS

Establishing a benchmark for Altru Hospital was the first step for this study. Three years of repair data was gathered from hospital invoices and compared to documents from the instrument repair company to ensure accuracy. Each week for twelve months, data was compiled from the Operating Room (OR) and Central Sterilization Department (CSD), according to the protocol for the study. SolutionWells reviewed the data collected each week. The study protocol was reiterated with staff as needed during their weekly morning huddles. The process of introducing custom trays into Altru Hospital benefitted from good collaboration with the staff.

## PROTOCOL

The OR and CSD were asked to do three things:

1. Wipe off gross debris from the 5mm laparoscope at the point of use, which is a guideline set forth by the Association of periOperative Registered Nurses (AORN). (See references)
2. Return 5mm laparoscope to the custom tray after the end of the surgical procedure. If the scope was not in pristine optical condition during surgery, it was not put back into the tray, but sent out for repair. *Note: "Pristine optical condition" is defined as "the rigid telescope was not out of focus, foggy or dark during the*

*procedure."*

3. Keep a record of the number of laparoscopes that did not comply with #1 and #2 when they were received in the CSD.

## STUDY DATA & RESULTS

Altru Hospital is a community hospital with 12 ORs at the main campus and four more ORs at its off-site surgery center. Altru has a total of 16 5mm rigid laparoscopes, eight of which are 0-degree and another eight of which are 30-degree. Prior to this study, the hospital was using plastic containers (Photo A) that most hospitals typically use to protect their 5mm rigid laparoscope fleet for minimally-invasive surgery.



Photo A



Photo B



For the study, we introduced a custom tray (Photo B) that was validated to allow laparoscopes to be mechanically washed, as opposed to hand washed. These trays were designed to allow water to touch every part of the scope while in the automatic washer. Any 5mm rigid laparoscope that did not follow the first two protocol requirements created additional handling, thus exposing these instruments to an increased likelihood of damage. As can be seen in Photo B, the silicone bumpers in the lid were designed to mate perfectly with the silicone holders in the tray; this allowed for 360-degree security.

Before the study began, SolutionWells gathered repair invoices and surgical volume for 2014, 2015 and 2016 from Altru Hospital. In 2014, 12 5mm rigid laparoscopes were broken; in 2015, 15 5mm were broken; in 2016, 21 endoscopes were broken; and during a 12-month period in 2017, 14 scopes

were broken. (See chart A for surgeries using 5mm laparoscopes and chart B for damage by year.)

Even though procedures slightly declined from 2014 to 2016, laparoscope repairs drastically increased for that same time period. After the custom trays were introduced in December 2016, a significant decrease (34%) in damage to 5mm laparoscopes was realized.

### COMPLIANCE

SolutionWells tracked the OR's compliance with wiping down laparoscopes and returning them to the custom trays. Each week, SolutionWells followed how the sterilization staff recorded the two protocol items (wiping off gross debris and returning the rigid laparoscope to the custom tray). These protocol specifics are important when using custom trays for rigid laparoscope because they reduce the number of times a laparoscope is handled during the use cycle. If those items are completed according to protocol, it allows the rigid endoscopes to bypass the need for hand washing in favor of mechanical washing. The machine-washing option for rigid scopes can be found in the manufacturer's IFU. Both items in this protocol have a direct impact on instrument damage. When a laparoscope is not returned to its custom tray at the end of surgery, it presents numerous opportunities for damage (dropping, bending, and minor impacts that cause chipping). Wiping off gross debris is a much-needed step because it makes cleaning of the laparoscope easier prior to sterilization and discourages pitting and staining.

After 12 months, the data average for removing gross debris was 85% and the laparoscope being returned to the custom tray properly was 95%. Due to noncompliance for both tracked items, there were 259 rigid scopes that were handled more than necessary, thereby,

exposing those instruments to potential damage. Fourteen laparoscopes were sent out for repair during the study timeframe.

At the conclusion of the 12-month study, the CSD scored 95% compliance for tracking data. During this 12-month timeframe, there was not a single complaint from the OR for a rigid scope being dirty when opened in the sterile field. Also, there were no complaints from the OR about any rigid scope being found in poor working condition.

### DISCUSSION

Based on study outcomes, one could reasonably expect a reduction in scope repair expenses when staff complied with the three steps outlined herein (wiping off gross debris, returning instruments to custom trays and documenting compliance/results of each). In our study, the custom trays delivered the lowest repair numbers when compared to the previous two years.

The data shows that Altru Hospital was 5% less than perfect on protocol compliance and still realized a 34% reduction in scope damage. During the 2017 study, three scopes were not returned to their trays and were broken in transit between the OR and CSD. If these three laparoscopes had been protected with the custom trays as outlined in the protocol, Altru Hospital would have experienced a 48% reduction. In the case of this study, that figure suggests that every 1% of noncompliance yields a loss of nearly 3% in damage reduction.

### CONCLUSION

This study demonstrates that compliance can impact a facility's bottom line, as well as quality services delivered to healthcare customers and patients. Although Altru Hospital saw 14% less savings than they could have if they had fully complied with the requirements set forth in the study, it is important to recognize that the facility

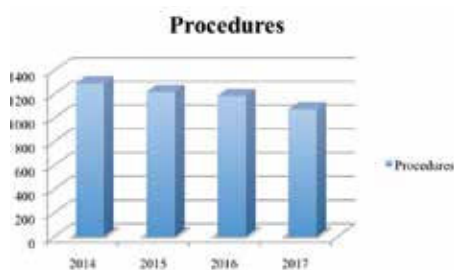


Chart A

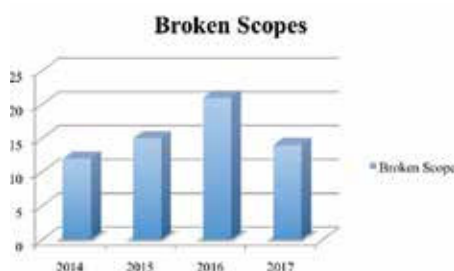


Chart B



still saw 34% savings by implementing custom trays, even with less than perfect compliance. By reminding staff of the requirements during weekly huddle meetings, immediate improvements in compliance were witnessed the following week.

Eliminating unnecessary handling by routinely securing rigid scopes in custom trays at the end of a procedure will help facilities reduce their scope repair costs and, most importantly, help keep their instruments in good working order to promote quality outcomes and patient safety.

### AUTHOR ACKNOWLEDGEMENTS

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### RESOURCES

Association of periOperative Registered Nurses. 2015. Guidelines and Tools for the Sterile Processing Team (e-book).

The opinions and information presented in this article are those of the author(s) and should not be construed as an endorsement by the International Association of Healthcare Central Service Materiel Management.

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