The Bright Future Of MIS

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 *Two industry experts discuss the past, present, and future of minimally-invasive surgery and how these will affect the healthcare industry overall.*

SP: **How has the increased prevalence of minimally-invasive surgical procedures over the past few decades affected the development of products for the operating room?**

Ryan Mancini, Product Manager, Endoscopy, Aesculap, Inc.: The diameter of laparoscopic instruments has experienced a significant evolution over the years moving from 10mm to 5mm and now more recently moving to mini-sized diameters. Devices capable of performing multiple tasks in the same procedure have enhanced physician efficiency and reduced the overall time of some procedures. Advanced bipolar energy devices are a great example of this evolution as they have moved from traditional bipolar forceps to being capable of dissecting, sealing, and cutting tissue, and, in some, cases replacing the need for ultrasonic and stapling devices in the same procedure.

SP: **In your opinion, will surgical procedures become even less invasive in the future? Why or why not?**

Mancini: *Increase in Quantity of MIS procedures*: Certain procedures, such as laparoscopic cholecysectomy, have approached near saturation rates of being performed minimally invasively. That said, many others, such as laparoscopic colectomy, still see a fair percentage being performed with traditional open surgery.The evolution of surgical techniques will facilitate increased adoption of additional minimally-invasive procedures being performed each year.

Decrease in Overall Invasiveness: Needlescopic or mini-laparoscopic instruments

are not new concepts. However, as technology has improved, so too has efficacy of these devices. Traditionally using smaller diameter instruments meant sacrificing jaw strength and shaft rigidity. However, some devices on the market can replicate the strength and rigidity of 5mm instruments in a smaller shaft.

SP: **What do/should surgeons and other OR personnel demand from new products to help them achieve such goals as improved patient outcomes, long-term procedural success rates, reduced patient recovery times, and faster/more precise surgical procedures?**

Mancini: New devices should have the following characteristics: Reusable components with highly effective cleaning properties to reduce the risk of surgical-site infections, which remain a significant cost for the U.S. healthcare system and also negatively impact patient outcomes and patient recovery times. Solutions that reduce procedure costs without sacrificing surgical performance, which allows the facility to improve overall profitability and/or reinvest the savings into emerging technologies and procedures. Adaptable technologies that can produce the results of multiple devices into one, which typically translates into a per-procedure cost reduction, but also makes the physician more efficient and reduces the time to complete the procedure.

SP: **In what ways will minimally-invasive surgery change over the course of the next five years? What about 10 years? What about 20 years?**

Mancini: Especially given the changes in the healthcare industry as a result of the Affordable Care Act, we will continue to see an emphasis on cost reduction from reusable and reposable devices replacing single-use devices. The challenge will be to develop devices for minimally-invasive surgery that control costs and also improve patient outcomes. Additionally, given that patient satisfaction scores will directly impact hospital reimbursement rates, we will see increased adoption of devices and techniques that increase procedural efficiency and allow the physicians to increase the amount of time they spend with their patients.

SP: **How have advancements in imaging technology helped push hospitals to perform more minimally-invasive surgical procedures and improve the outcomes of those procedures?**

Brian Schlueter, Sr. Marketing Manager, FSN Medical Technologies: Time is money in the hospital environment. Minimally-invasive surgery offers reduced operating times and shorter patient recovery times. Shorter procedures that are less invasive help improve the hospital’s efficiency and profitability. Minimally-invasive surgery requires that the performing doctor feels comfortable looking at the surgical site via a display monitor. Today’s live video signals generated and displayed during a procedure are high definition, which allows doctors to have a more precise image of the operation. Medical grade display monitors can be color calibrated to the doctor’s preference, which can change according to the type of procedure. Additionally, patients prefer minimally-invasive surgery if they have the option. Benefits include shorter recovery time, less post-operative pain, decreased incidence of wound infections and other complications, as well as shorter hospital

stays. Faster patient healing means a faster return to doing the things of normal, everyday life.

***SP:* How will imaging technology continue to evolve with time to help surgeons and staff perform minimally-invasive procedures and achieve desired results and outcomes in the OR**?

Schlueter: Moving forward, imaging technology in the OR will be developed to improve the acquisition of images, the processing of images, and the display of images. Some of the latest endoscopic cameras show not only a front lens view, but also side views. Today's integrated operating room does not need a closet full of massive video processing hardware. Small footprint solutions are available. As with the trend in consumer electronics, older bulky CRT displays have become obsolete. Flat panel LCDs will continue to be improved with more features and better picture quality.

***SP:* Why is imaging technology a key consideration for hospitals looking to perform more (and more effective) minimally-invasive procedures?**

Schlueter: Imaging technology in the OR can be seen as the tools used to perform minimally-invasive procedures. If these tools are reliable and compatible, then minimally-invasive surgeries will be an effective part of a hospital's workflow. Conversely, if these imaging technology tools prove difficult to use, then they will be avoided.

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