



## 34 Technology review

### VIDEO MONITORING

▼ Continued from page 33

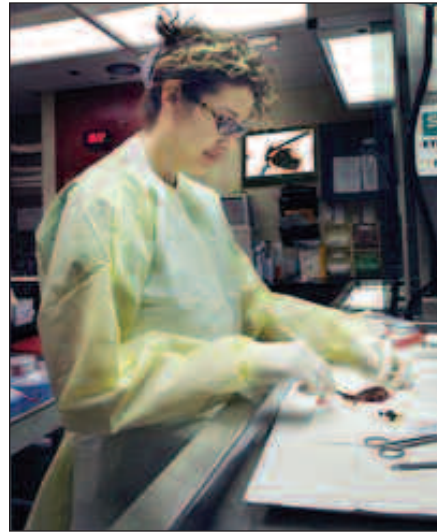
images immediately over the Internet. A DVD (digital video disk) storage unit will also be available to record video of any part of an operation for later review. Laparoscopy rooms are already equipped with DVD recording units.

The system is enhanced by almost immediate access to a connected site. The laparoscopic televideo view is identical to the operating surgeon's view. In my role as chairman of the Department of Surgery, I have conducted numerous intraoperative, live televideo consultations at the request of operating surgeons.

Sometimes a second opinion is requested for a difficult case. In certain cases, I have corroborated the operating surgeon's judgment, and in others, my judgments have altered the conduct of the case. The benefit of another opinion via videoconferencing has increased patient safety and decreased the complication rate, as we have reported (*Am Surg* 2006;72:1070-1081). During one portion of our study, a beta system with a lower level of resolution was employed over a two-year period. Surgeons became familiar with televideo consultations and there was a cooperative surgical culture.

The system has been used to credential new surgeons, particularly when they have had difficulty getting another surgeon to proctor their initial cases. Hospitals are required to have some oversight of new surgeons to ensure that they can function as "competent and independent surgeons." At MMC, I have used the system twice to proctor new surgeons. In my role as program director for the Department of Surgery, the system also allows me to unobtrusively watch surgeons teach residents in the operating room.

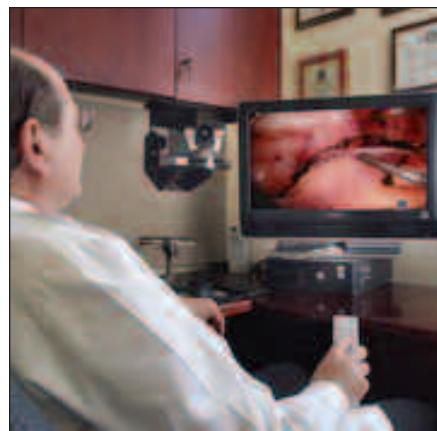
The equipment can be used to watch experienced surgeons perform new or unusual procedures and to re-credential surgeons who may not have recently performed certain procedures. Additionally, groups of residents, or other relatively large groups, can gather to watch interesting live procedures on a single, large HD screen at a remote site.



**Pathologist examining a specimen with HD screen in background.**



**Three pathologists view HD image of a slide.**



**Dr. Goldfarb views a live procedure on an HD televideo monitor in his office.**

**“We anticipate that this new technology ... will be embraced by the medical community at large.”**

—MICHAEL A. GOLDFARB, MD

Having access to an unimpeded view of an operating room from a comfortable chair is preferable to cramming into an operating room and jockeying for a view. The risk for the field being contaminated by an observer is reduced. Observers can mute their conversation to avoid disturbing the operating team. Questions can be written down or asked at appropriate times, so that observers do not interrupt the flow of an operation or the surgeon's concentration.

It is arguably easier to assess the dynamics of movement within an operating room— anesthesia maneuvers, patient and equipment readiness or delays, SPD (survey of program dynamics) issues and ancillary assistance—when one is at a remote site than when one is actually present in the room. Many processes in an operating room become easier to examine through televideo equipment than by direct visualization.

When new equipment is used, it is important for the product's engineers to have a view of the room, so that they can assess certain ergonomic factors as well as obtain surgeons' real-time opinions of the equipment.

More and more specialties document surgical findings with digital cameras. At MMC, it is common to document hand, head and neck, and plastic surgeries. Many surgeons already take pictures of laparoscopic and arthroscopic procedures. Our HD cameras expand the possibilities to include video in addition to still pictures, which may be stored at another site within the hospital. This is done only at the request of the operating surgeon.

The pathology connection of the system allows the operating surgeon to have a pathologist "in the room." There is an unmet need for more accurate real-time communication between surgeon and pathologist about the visual appearance of a specimen. For example, the surgeon can seek the pathologist's opinion regarding ideal intraoperative biop-

sy sites. The pathologist also has a vivid in vivo view that is clinically useful because it allows a more accurate interpretation of the findings.

The surgeon can also see a microscopic HD view of a frozen section that may be critical to a case and of great educational value. If necessary, a specimen that has been removed and sent to pathology can be better clarified and oriented if the surgeon and pathologist see the specimen simultaneously. Certain areas of the specimen become easier to describe, so that ambiguities can be avoided that may prompt a surgeon to visit the pathology lab to clarify a specimen's subtleties, such as orientation or lumps palpated or fistulae.

These connections have involved multiple surgeons and pathologists, who agree that specimen management and information exchange can be expedited through televideo connections. In addition, many hospitals do not have pathologists on staff. A similar televideo system could address this unmet need—a pathologist at a remote location would examine slides there and make frozen section analysis available to hospitals without staff pathologists.

Our beta experience at these three interactive sites has been enthusiastically integrated into the surgical culture of the hospital. We anticipate that this new technology for surgical video and interdepartmental communication will be embraced by the medical community at large.

*Dr. Goldfarb is chairman and program director of the Department of Surgery, Monmouth Medical Center, Long Branch, N.J.*

**Disclosure:**

*Dr. Goldfarb reports that he has no financial relationship with SONY Corporation.*

### VENTRAL MESH

▼ Continued from page 30

respectively evaluated outcomes of 129 patients who underwent laparoscopic or open ventral or inguinal hernia repair with the C-QUR mesh between May 2006 and December 2006. With a follow-up of 92 patients (71.3%) after eight-weeks, 24 (26.1%) developed seromas, two (2.2%) developed

hematomas and eight (8.7%) developed wound infections. Overall, six (6.5%) required treatment for postoperative pain, although none of the patients had a recurrent hernia.

According to Dr. Matthews, these preliminary results show that the mesh-related morbidity is low and consistent with other absorbable barrier-coated meshes. However, Dr. Matthews said, only longer-term data will provide information on the

true benefit of any of these meshes.

"We really won't know the benefit of any of these absorbable barrier-coated meshes until we start reoperating on patients [for an unrelated problem]," he said. "For example, with what ease can you do reoperations or are the adhesions really minimized at the time of re-exploration?"

To help answer these questions, Dr. Matthews and Dr. Earle are conducting

a clinical trial in which they are tracking patients over time to find out how well the mesh works. Dr. Earle, who placed the first human implant in the preclinical study and has been using the C-QUR mesh since it became available, expects good long-term results based on the short-term data. Until then, it remains his "prosthetic of choice for doing most ventral hernia repairs," he said. ■