Case Study

When Image is All:
Advanced New Sony Flat Panel Display Delivers in University of California, San Francisco’s Laparoscopic Suite

To Dr. Lawrence Way, professor of surgery at University of California, San Francisco (UCSF) Medical Center, image is everything. A specialist in minimally invasive laparoscopic procedures, he relies solely on the images displayed on high-quality monitors to guide him through his advanced interventions.

“Unlike conventional surgery, with laparoscopic procedures we are forced to rely only on our sight without the comprehensive feedback you receive when your hands are in the open surgical field”, Way said. “Think of how you can distinguish between a dime and a quarter using your fingers, sight unseen, in your pocket. The same holds true for skilled physicians discerning important details in the surgical suite.”

The sense of touch, he explains, is a vital operating room tool.

High Image Quality Imperative

Limited to navigating through the human body and making crucial medical decisions based on information from pixels and color gradations alone, laparoscopic surgeons (and their patients) benefit enormously from high-quality image display.
“From first-hand experience, I believe unequivocally that the quality of the image on the screen has a major impact on clinical confidence and outcome in these complex operations,” Way said, who routinely performs a full range of advanced procedures.

In fact, a growing body of psychological research bears this out, showing that the sharper and clearer the image on the screen, the more quickly and instinctively the surgeon can interpret it and focus solely on surgical results.

**Sony LMD2140MD Fits the Bill**

Given that, it’s not surprising that Sony’s new high-resolution LMD2140MD LCD has a prominent place in the sophisticated array of technologies that occupy UCSF’s busy laparoscopic operating room, where surgical precision, skill and time count.

“Sony is one of the premiere display manufacturers in the world, and their advanced new flat panel is an excellent monitor,” Way said. “It delivers images in fine detail with vivid contrast and subtle color gradations. It’s really state of the art.”

The result of years of experience in cutting-edge, optical display technologies, Sony brings a range of engineering breakthroughs to the new monitor. The 21-inch (viewable area, measured diagonally), high-bright screen delivers a high contrast ratio of 400:1 and 16,770,000 color gradations. “Monitor brightness is key to displaying the full image detail necessary for delicate laparoscopic operations,” Way explains.

With an ultra-fast response time and patented new X-Algorithm technology, the monitor is optimized specifically for laparoscopic applications and delivers smooth, natural-looking moving images in real time. Innovative X-Algorithm technology eliminates the jagged edges and image degradation created as a traditional display merges information from progressive pictures to create a moving image.

Additionally, the monitor boasts a new anti-glare coating that reduces reflections from bright ambient light to maintain high contrast and image clarity, even in dark picture areas. The impact is significant.

**Slim Profile for Easy Positioning**
According to Way, high-quality LCD monitors, such as Sony’s advanced medical-grade flat panel, yield another major benefit. Ultra-slim and lightweight, they easily can be positioned optimally for a particular physician, patient and procedure. Way points out that the Sony LMD2140MD display weighs just 23 pounds, and can be situated at eye level, right in the physician’s field-of-view while working on a patient.

“This eliminates the need to turn and strain to see what you are doing, which is disruptive when a procedure requires the utmost concentration, precise movement and skill”, he said.

In today’s advanced laparoscopic suites, lightweight, high-performance monitors often sit on gimbals anchored to the ceiling, streamlining tiny adjustments for every physician—impossible with yesterday’s large, cumbersome CRT displays.

With their compact footprint, a greater number of flat panels than CRTs can occupy crowded operating room space, allowing surgeons to navigate through the human body more precisely using images from multiple angles. Other doctors, such as anesthesiologists, also can have their own displays and benefit from close-up views of patients, as do medical students and consulting physicians at the prestigious teaching hospital.

**A Technological Revolution**

However, one look at the UCSF’s operating room reveals that LCD flat panels are only a small part of the technological revolution going on in the modern laparoscopic suite. Today, the operating rooms of the most advanced teaching hospitals are showcases of innovative equipment, helping skilled physicians perfect new techniques and save lives.

But, according to Way, “Operating rooms crowded with complex technologies at times can encumber the physician’s performance.” While technology is absolutely essential, he believes that the more intuitively a doctor can operate, the more the procedure is like open surgery and the better the results.

Accordingly, technology must work hard while maintaining a low profile. Equipment must be simple to operate, support easy and precise adjustment as well as perform reliably and seamlessly to allow the doctor to concentrate on the task at hand—
saving a human life. Way believes that the Sony LMD2140MD display has been expertly designed to meet these goals. Its advanced memory function stores picture setting preferences of up to 20 users and makes them available at the touch of a button. With two expansion ports, the device can display feed from up to four different video sources, allowing the user to switch among operating views, also, at the touch of a button.

**Embracing the Future**

As technology races forward, Way believes that a broader range of surgeries will be performed with cameras, monitors and minute incisions. Advancing technology also will boost the speed and effectiveness of these interventions. Engineered with this in mind, the future-protected Sony LMD2140MD monitor can be easily upgraded to support new equipment and techniques. For example, it will accept and display a high-definition signal with the simple addition of a specialized graphics card.

“It’s a superb monitor that will give any hospital years of advanced performance”, Way said.