

## 'Wall of knowledge' informs OR team

**A**dvancements in technology will never replace the importance of good processes and attention to personal patient care. But when it can decrease the likelihood of errors and improve efficiency, technology is a welcomed tool for any surgical team.

Such is the case with new technology introduced in operating rooms at the New York-Presbyterian Hospital/Columbia in New York City. The technology—dubbed the “wall of knowledge”—is a combination of a flat-panel display, video display, and PACS (picture archiving communications system) which provides a wealth of information for a surgical team during a procedure. (See August 2006 *OR Manager*.)

The technology, known as the Visually Integrated OR (VIOR), was provided by LiveData Inc, of Cambridge, Massachusetts, and installed in several ORs last summer. It is a welcomed addition to the OR for surgeons such as William Macaulay, MD, professor of clinical orthopaedic surgery, advisory dean for the College of Physicians & Surgeons, and director of the Center for Hip & Knee Replacement at the hospital.

Dr Macaulay operates in a room with the VIOR one day each week. He has identified several safety improvements provided to the surgical team through use of the new technology and anticipates additional benefits when more features of the VIOR come online in the future.

### Assess patient's vital signs

Throughout a procedure, a surgeon may want to view a patient's vital signs including blood pressure, heart rate, and electrocardiogram tracing. In ORs without the VIOR, or Dr Macaulay would have to step away from the surgical field and look around the anesthesia drapes to view this information.

The wall of knowledge displays this data, which allows Dr Macaulay to look up at a screen and assess the patient's



The wall of knowledge video display at New York-Presbyterian Hospital.

condition without leaving the surgical field.

Dr Macaulay has found particular value in observing the patient's blood pressure when monitoring the effects of traveling fat emboli through a patient's body. If the fat emboli cause a patient's blood pressure to drop significantly, Dr Macaulay can respond quickly.

“It might change the way you might choose to do the rest of the case,” he says. “You might try to speed it up and get the case done quicker, or you might try to avoid certain techniques or implants that could worsen that problem.”

### Improves staff handoffs

Handoffs between OR nurses during procedures require a great deal of information exchange. But with patient information provided on the wall of knowledge, this handoff can go much smoother.

OR staff who come into a case “can look at the wall of knowledge and learn

what case we're doing, which patient it is, which side (of the patient) it is ... which instruments we've used, and potentially which instruments are inside the patient that need to be retrieved,” Dr Macaulay says.

### Reduces clutter, improves teaching

A camera placed in a light handle feeds video of procedures to the video screen component of the wall. Use of the video screen can replace video monitors brought into the OR.

“It helps keep the OR a little less cluttered,” Dr Macaulay says, which means fewer distractions during procedures.

This video also enhances the hospital's teaching efforts. The medical students of Columbia University's College of Physicians & Surgeons frequent the ORs. Without the video monitors in the room, there is more space for students to watch procedures, and live video of procedures is more clearly visible for students outside of the OR.

The wall of knowledge can also feed video through the Internet.

"We (shoot) live video surgery footage and pump that to different states or different countries as part of educational training courses," Dr Macaulay says.

### **Reporting timely data**

The wall of knowledge displays data that OR managers may need for regulatory purposes. For example, the wall can display the time when antibiotics are administered to the patient prior to the surgical incision.

"They can get their data real-time with the wall," Dr Macaulay says. "It enhances the timeliness of reporting."

### **Future capabilities will enhance communication**

The VIOR at NewYork-Presbyterian will see some new capabilities coming online within the next few years, which should improve communications between the OR and departments throughout the hospital.

Within the next year, Dr Macaulay expects the OR team to have the ability to press a button and communicate via



## **Video display is an added safety feature.**

real-time video conferencing with the front desk in the recovery room. He will use this feature to provide the patient's status to the recovery room staff.

"We'll be able to see who it is and know that the message was given, received, and understood and at the same time show them where we are in the case, and show them that it's time for them to have a bed ready in the PACU," he says.

Dr Macaulay is also looking forward to real-time video conferencing with other departments, such as surgical pathology and central sterile processing. Currently, he finds it difficult to communicate with surgical pathology because

he wears an isolation suit during procedures and cannot put a phone against his ear to discuss the pathologist's analysis of a specimen.

"With the wall of knowledge, we'll have the surgical pathologist sitting there in front of the slide," he says. "They will be able to show us the pathology on the screen—that will enhance our ability to communicate with them and know how certain they are."

Communication with the central sterile department is a different challenge. In some cases, a needed instrument does not arrive for a case, or the surgeon requires a different instrument while surgery is in progress, Dr Macaulay says.

The use of real-time video conferencing would enable the OR team to relay requests quickly. It would also allow the team to know who in the department is receiving the requests. This is useful if the team needs to modify a request or if there are questions concerning the status of an instrument delivery. ♦

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### **OR Manager**

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