

University of California San Francisco (UCSF) Medical Center ▶ Tracking Assets to Improve OR Efficiency

"Savings on redundant equipment frees up budget to purchase some of the latest technology advances that offer non or minimally invasive approaches to surgical procedures. This can have significant impact on patient care, physician satisfaction and the bottom line. – James Bennan, Administrative Director for Perioperative Services

Introduction

University of California San Francisco (UCSF) Medical Center is one of the top 10 hospitals in the country and recognized as a world leader in health care. With over 500 inpatient beds and 1.2 million square feet, UCSF Medical Center is a large, academic facility conducting research in almost every field of medicine. With 15 floors in UCSF's Moffit/Long building, finding equipment can be a challenge.

In mid 2007, Mr. James Bennan, Administrative Director for Perioperative Services, and Dr. John Kulli, Medical Director, felt the Operating Room could especially benefit from a real-time location system (RTLS). One of the primary drivers was the hospital's need to meet regulatory requirements necessitating halls be kept clear of equipment. Although UCSF has an equipment storage facility, it is located off-site, about 2 miles away from the main hospital. Because of this, staff was reluctant to send equipment to the storage unit without an equipment tracking system in place. RTLS was an obvious choice to eliminate the "giant black hole" effect that occurred when equipment was moved to the storage units. Additional drivers for RTLS included operational efficiency (eliminating low value time spent looking for equipment) and financial savings. A task team was formed to collect information about available technology, services and cost.

UCSF Medical Center's task team reviewed RTLS options from six in-depth proposals presented by vendors representing numerous RFID technologies. After a rigorous process, the Awarepoint Real-time Awareness Solution® was chosen.



"Awarepoint was a strong leader and was accepted as the task team's first choice" – Alisa Armstrong, Project Manager

Project History

Awarepoint's active RFID technologies and real-time location system includes its real-time awareness platform, firmware, RFID tags, sensors and bridges. Initial installation at UCSF consisted of network coverage of the entire Operating Room (OR) and 4 additional floors. Specific high value OR assets were tagged including the hospital's mobile PCs (Computers on Wheels or COWs), transport monitors and GlideScopes®. Network installation began in late December 2007 and took only 4 days to complete. Within 48 hours of the Awarepoint™ installation, over 700 assets were tagged.

Dr. John Kulli, a vocal advocate for the system, describes the installation process as "wildly successful".

Time savings searching for equipment among OR staff is significant, equating to nearly 1,600 hours

"It's rare that you find a technology solution in healthcare that actually performs as promised. With Awarepoint, UCSF found a break-through technology that really works - I continue to be impressed every day". – Dr. John Kulli, Medical Director

The Solution

In just 3 months of system use, UCSF Medical Center is reaping the rewards of its real-time location system in a number of areas. This study outlines some of the early findings, and illustrates an already impressive return on investment.

Equipment Technicians - Time Savings

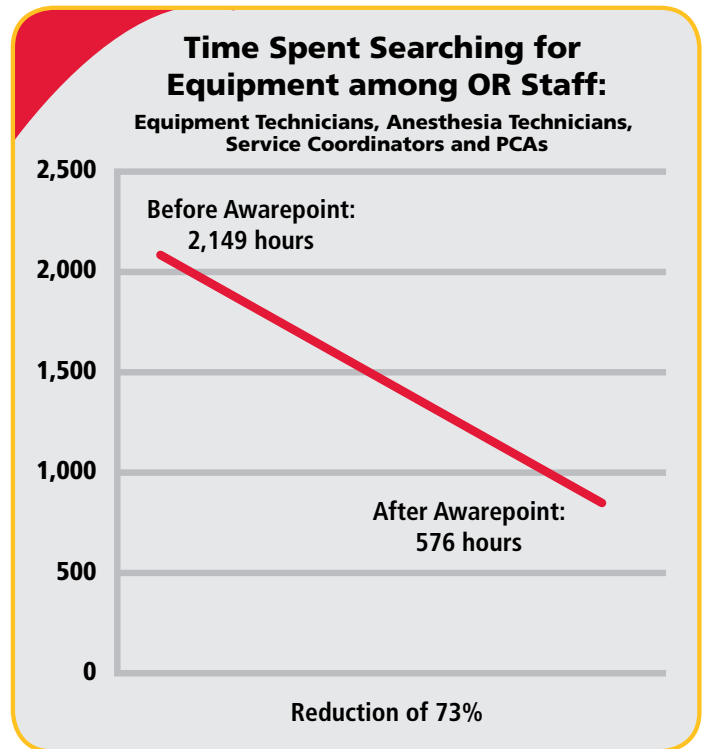
A main responsibility of operating room technicians is preparation of the OR suites. Starting cases on time is an important goal for the OR from both an efficiency and patient safety perspective. Not all equipment, however, remains exclusively in the OR. Mobile devices such as GlideScopes®, transport monitors and computers on wheels (COWs) are especially difficult to track as they travel with patients and are borrowed by other departments.

Finding a piece of equipment when it isn't where it should be used to take an average of 1.5 hours per week per equipment technician. With the Awarepoint system,

Cy Cosper, Patient Care Analyst for the OR, notes that "finding a COW in the past used to take an average of 30-45 minutes and is now a 3 second process."

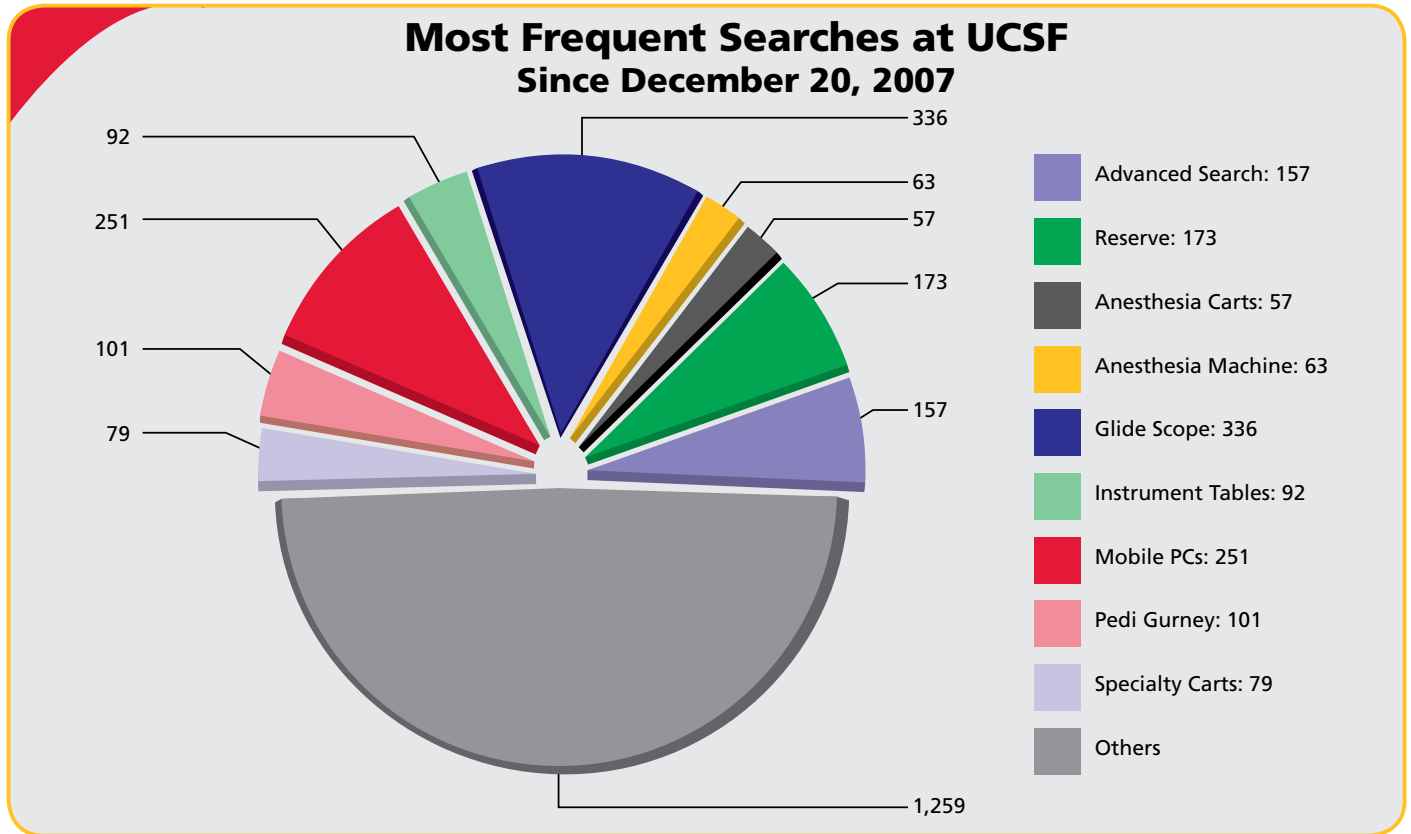
As illustrated below, time savings searching for equipment among OR staff is significant, equating to nearly 1,600 hours annually between OR equipment technicians, OR service coordinators and OR anesthesia technicians.

Staff productivity has improved not only searching for equipment, but in being proactive about its whereabouts. Before Awarepoint, when nurses from other units would



Annual Hours Spent Searching for Equipment

	Time Savings	Number of Employees	Before Awarepoint	After Awarepoint
OR Equipment Technicians	429 hours	7	515 hours	86 hours
OR Service Coordinators & PCAs	572 hours	20	817 hours	245 hours
OR Anesthesia Technicians	572 hours	20	817 hours	245 hours
Total	1,573 hours	47	2,149 hours	576 hours



borrow the COWs, OR nurses would have to keep a log of where the COW was headed. In addition, OR technicians used to go room to room approximately five times daily for spot inventory. Both the COW log and the spot checking have been eliminated since Awarepoint's installation. An added benefit - because RNs now know that COWs are tagged, attempts to take them from the OR without permission have also decreased significantly.

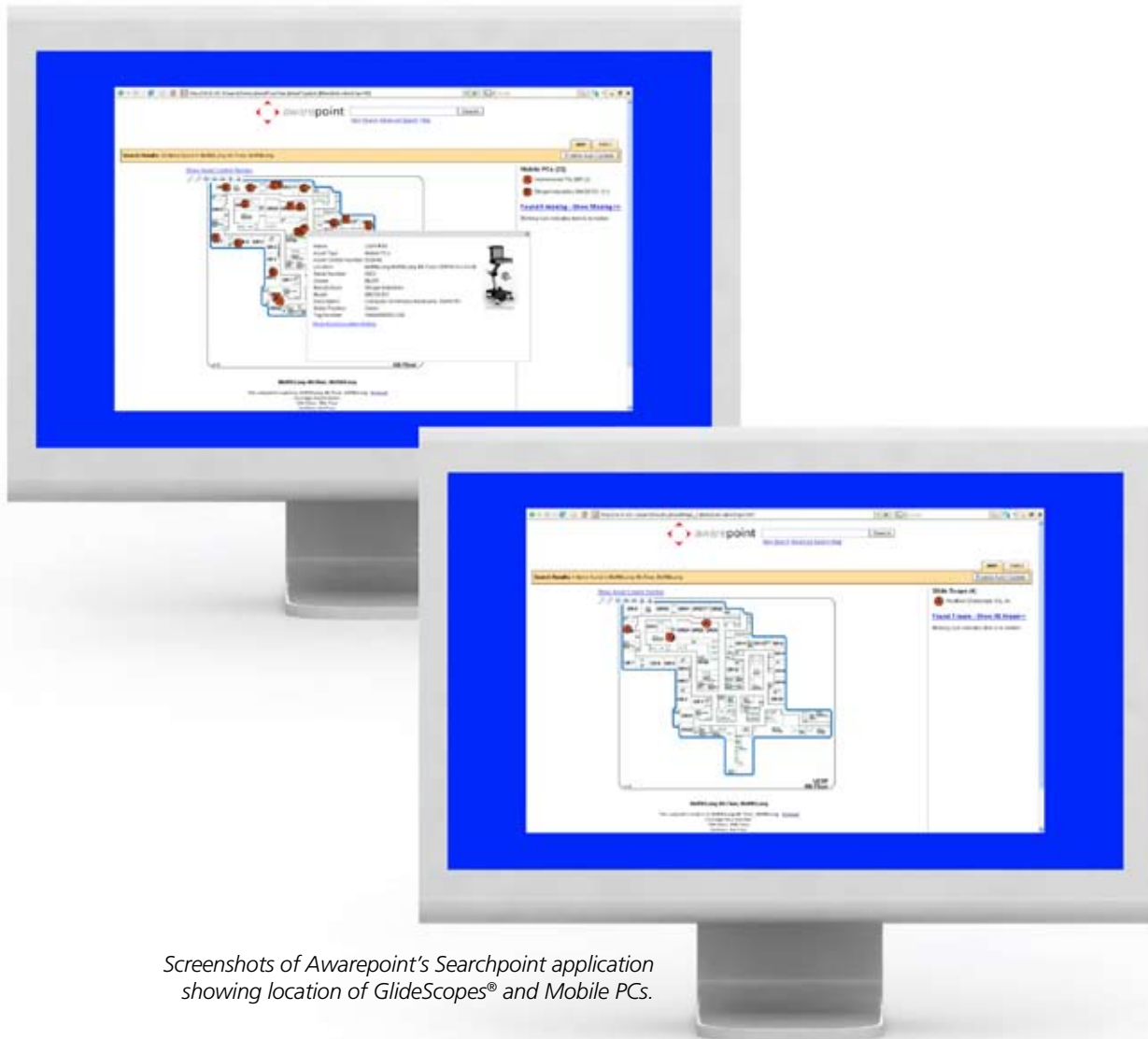
Department Satisfaction

Frustration with locating equipment in the operating room runs deep - escalating both surgeon and nurse

dissatisfaction and ultimately resting with OR technicians. Today, Awarepoint has given UCSF Medical Center's OR technicians the tools to improve department satisfaction. Before Awarepoint, when a missing piece of equipment was needed for an OR case, OR technicians were unable to gauge the time it would take to locate the equipment, knowing they had to "walk the floors" to find it. It might be down the hall or on the 10th floor and could take up to 1.5 hours to locate. With the Awarepoint system, OR technicians can see exactly where a piece of equipment is and simply have to estimate travel time to the equipment's specific location.

Both the COW log and room to room spot checking have been eliminated since Awarepoint's installation

"Prior to the Awarepoint installation, we would have to do manual searches for a piece of critical equipment, often requiring very time consuming room to room searches. Awarepoint not only saves us valuable time locating equipment, but it is very comforting to know we can locate any critical piece of equipment from any computer in the OR within seconds. This really helps the support staff provide exceptional service to our nurses and surgeons and ultimately our patients." – Jim Barnes, Manager of OR Support Staff



Screenshots of Awarepoint's Searchpoint application showing location of GlideScopes® and Mobile PCs.

Capital Redundancy

Some pieces of OR equipment on preference cards are “show stoppers” (without the equipment the case cannot start). Finding what you need when you need it is imperative, so administrators typically purchase excess inventory to ensure a sufficient supply. These redundant inventory costs can be significant.

With the Awarepoint system, oversight of equipment

is as easy as a mouse click. Before Awarepoint was installed, James Bennan expected to purchase 6 additional transport monitors before the end of the year. With Awarepoint, his staff now has the tools to closely track the OR's transport monitors and observe their usage. Incremental costs for the planned purchase of 6 transport monitors will be avoided. This equates to an estimated \$248,000, which can now be saved or spent on new technology.

Capital Redundancy Savings equal \$248,000 for only 2 Inventory Items

GlideScopes® are another example of equipment with significant replacement costs. GlideScopes are used to intubate patients and are used not only in the OR, but

With Current System, Capital Redundancy Savings equal \$140,000 for Only 2 Inventory Items

Avoided Replacement Costs	Cost per Unit	Units	Savings
Purchase of 6 GE transport monitors	\$28,000/unit	6	\$168,000
Purchase of 4 GlideScopes®	\$20,000/unit	4	\$80,000
Total	–	10	\$248,000

also in the ICU and on medical/surgical floors. As with the transport monitor example, with the ability to locate and monitor usage of this equipment, UCSF expects to avoid the purchase of an additional 4 GlideScopes at an estimated savings of \$80,000.

Discussion and Next Steps

In just 3 months, significant benefits have been found within the OR department; saving staff time, improving satisfaction and reducing capital expenditures. With the success of Awarepoint with the OR, the system has been expanded housewide. Eleven additional floors plus off-site storage units are covered and 1,000's of additional asset tags are planned.

Further, administrators have bigger plans for implementation. With off-site storage units covered, OR staff simply views one screen to find the location of both on-site and off-site equipment. Knowing a piece of equipment is, or is not, in off-site storage before you even head there, is expected to have obvious, dramatic staff time savings benefits.

OR management also looks forward to utilizing Awarepoint's sterilizable tags for implant units, instruments and 17 different types of scopes.

The OR is also looking to use Awarepoint's temperature sensitive tags to help monitor solution and blanket warmers. The temperature sensitive tags coupled with alerts have the potential to make a huge impact in management of solutions.

The additional benefit of tracking items in offsite storage areas, use of sterilizable and temperature sensitive tags, and increased usage by the Materials Management department will undoubtedly uncover additional benefits

that will continue to improve the already positive return on investment for UCSF Medical Center.

About Awarepoint®

Awarepoint's Real Time Awareness Solutions® are used to map, monitor and measure the status and location of high-value assets, and to provide critical data clinicians and healthcare administrators need to improve workflows and processes associated with these assets. Using minimal hardware and no hard wiring, Awarepoint's patented solution offers a completely non-disruptive, rapid impact implementation - even in occupied patient rooms. Awarepoint delivers solutions as managed services, a delivery model that has enabled the company to establish itself in the healthcare market by offering a highly attractive value proposition that focuses on low acquisition costs and rapid deployment. Awarepoint's Active RFID technologies and real time location systems (RTLSS) include its real time awareness platform, firmware, RFID tags, sensors, and bridges. Awarepoint's technologies collect raw sensor data and transform that data into high-value positioning information that can be used to add location awareness to a variety of healthcare, manufacturing, security and other applications. The company is headquartered in San Diego, California and serves hospitals across the United States through a national sales and operations workforce. Track us down at www.awarepoint.com

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