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Retrofitting Your ORs With Booms

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Retrofitting Your ORs With Booms

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Mariano Catbagan, RN, MHA, CNOR | Monterey, Calif.

Once our surgeons began working with ceiling-mounted booms in our hospital's new critical care wing and no longer had to watch staff play musical chairs while wading through a sea of cords, cables and clutter, they began clamoring for booms in our outpatient surgery center. Fine, we said.

But we soon learned that the cost of retrofitting our ASC's 2 ORs for ceiling booms would be a much bigger expense (and mess) than we'd anticipated. The existing ceiling supports in our ORs were enough to accommodate lights, but not large booms with heavy pieces of equipment mounted on them. We'd have to take down both rooms and put up new ceiling and wall supports for the booms. Each OR

would have to be out of commission for about 4 months. Factoring in utility retrofitting, typical construction delays and the time it would take to get regulatory approval for the project from the state, we were looking at almost a year's worth of lost OR time, plus all the construction costs. Obviously, not a good scenario.

Where others saw a problem, we saw opportunity. Instead of looking at the situation from the ceiling down, all we had to do was view it from the floor up. A floor-mounted boom, like the one I'd seen on the show floor at an industry meeting, would work.

The retrofit challenge

Floor-mounted booms are similar to traditional ceil-





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▲ SPEEDY DELIVERY These floor-mounted booms at the Community Hospital of the Monterey Peninsula were installed in just 1 weekend.

ing boom units, except the arms extend from a floor-mounted pedestal instead of the ceiling. The capital cost for the floor-mounted system was almost identical to the cost of a ceiling service boom system. The main difference was that the floor-mounted units required no construction costs, OR down-time with loss of revenue or pre-approval from regulatory groups. Instead of a yearlong project, installing the floor-mounted booms in 2 ORs could be done over 1 weekend.

After first seeing the floor-mounted system at the meeting, I did some additional homework: phone

Booms Tame Device-intensive Minimally Invasive Surgery

Before we had booms, we stored much of our equipment on mobile carts that could be moved in and out of ORs and positioned strategically during cases: cautery units, video processors, HD displays, light sources, insufflation units, fluid pumps and control units for various purposes. This constant movement of heavy, expensive medical devices posed hazards both to our staff, who were at risk of tripping over cords or straining their backs and shoulders while moving carts, and to



▲ IN ITS PLACE By storing your equipment on booms, you can greatly reduce both the clutter on your floors and the time it takes to prepare your ORs for the next case.

the equipment itself. The high volume of traffic also posed infection prevention hurdles for staff, who had to make sure cables, cords, devices and carts remained clean.

Beyond the safety and infection risks, the constant wheeling of equipment carts in and out of procedure rooms also cost us valuable time during cases and room turnarounds. Equipment upgrades are supposed to improve clinical outcomes and case efficiency, but when new technologies fill your floors with more cables and require lots of transport and setup time, their time-saving benefits may be lost.

Booms offer big improvements. Boom-mounted monitors, for example, are more ergonomically friendly for surgeons because you can position them more precisely in line of sight than those mounted on floor carts, which can't always be as close to the sterile field as needed. Because their long arms can extend outward and hold several monitors at once, booms allow the simultaneous display of the surgical field, PACS images, real-time fluoroscopy, physiological data or other intranet documentation.

— **Mariano Catbagan, RN, MHA, CNOR**



▲ CURE FOR CLUTTER Ceiling booms like these new units at the Paoli (Pa.) Hospital Pavilion keep equipment, cords and cables off the floors.

interviews with the manufacturer and surgical facilities that used the floor-mounted booms, viewings of video demonstrations supplied by 1 of the facilities (an actual site visit is always best if possible, but we had no facility nearby to observe), and a second in-person viewing of demo equipment at another trade show. Using specifications supplied by the manufacturer, we mocked up an OR with floor pedestals and projected arms, and we moved equipment and staff around to obtain a feel for how the booms would work in practice.

As for the bottom line: Outfitting 2 ORs with the floor-mounted booms would cost about \$250,000, including installation. The ceiling service units would have cost us an additional \$500,000 to \$750,000 in construction costs, plus the lost revenue of having to shut down our ORs.

Once we were convinced that the floor-mounted booms would be a suitable and cost-effective alternative to ceiling-service booms, we scheduled 1 weekend for the upgrade of 2 ORs. Our planning and engineering group worked with the vendors in coordinating the preparation work, which consisted of pre-running electrical and communications cable through the ceiling and pedestals and preparing the booms to our specifications. The actual installation was completed over a weekend, and the equipment was ready for staff and surgeon in-service on

Monday. The first cases performed with boom-mounted equipment were done that same day in 1 of the newly upgraded rooms.

After the installation

Getting the booms into our ORs and mounting the equipment was the easy part. Getting our surgeons, anesthesia providers and staff comfortable with the new OR setup was a bit of a challenge. Initially, their primary complaint was that we had to establish new patterns of setting up the rooms for cases in order to take advantage of the boom system, because while the boom arms could move around the surgical field, the pedestal on which they were mounted remained fixed.

Others worried that the stationary pedestal took up a large amount of space in the room, requiring surgeons and staff to relearn their movements in the OR. For example, rather than moving carts around the procedure site, they had to learn to place the OR bed to accommodate the procedure, move the booms and monitors after the patient was anesthetized and positioned to start, and relocate the anesthesia machine and cart to a different angle. And the integrated imaging and IT equipment took some getting used to because the controls were now located on 1 central computer.

All of these concerns disappeared rather quickly, however, once staff learned the advantages of the boom system: the improved ergonomics, reduced traffic of equipment, no more cable clutter on the floors, the ease of placing monitors in an optimal viewing position and the flexibility of viewing images on multiple screens. The booms let us integrate all our high-tech equipment into 1 streamlined unit. We placed 4 monitors in each OR — 2 for each arm of the boom. The displays can be used for surgical visualization, PACS viewing and the display of physiological monitoring data. The system adds flexibility to the surgeons' visualization and also improves the flow of our cases. Rather than wheeling equipment in and out of the surgeon's view, staff can simply position the arms and con-

trol what images are displayed from a central computer station.

Finding the right fit

Equipment booms can help solve many of the logistical problems associated with the high-tech OR, but as with any major capital equipment purchase, you've got to do your due diligence before making a decision. At our hospital, ceiling-service units were ideal for the brand new critical care facility, while floor-mounted booms were the better fit for our existing outpatient ORs. When determining which option is better for you, take the time to do site visits so you can see how the booms work in practice, then involve your entire surgical team in the planning process so you can anticipate how they'll use the booms and how you'll need to set up your ORs differently after they're installed.

Take into account the cases you perform and

the configuration of your rooms when determining where you're going to place the pedestal. For example, if your ORs are mirrored, you have to mirror the placement of the pedestals. We had staff examine the flow of patients and equipment, where back tables were situated, how rooms were oriented in relation to sub-sterile rooms, and a host of other issues. We then took this information to the manufacturer, who worked with us to determine how the units would be placed and how the equipment would be arranged on and around the booms. Getting used to the booms once they were installed still required a change in the staff's muscle memory, but after a couple weeks or so, just about everyone seemed to be quite happy with the new setup. **OSM**

Mr. Catbagan (mariano.catbagan@chomp.org) is director of the Outpatient Surgery Center at the Community Hospital of the Monterey Peninsula in California.

Ceiling Booms: Choose First, Build After

For a brand-new surgical suite, ceiling-mounted booms might well be the logical choice, because you can design adequate structural support into the ceilings and walls of the facility from the beginning — no retrofitting required. But if you choose to go this route, be careful not to put the cart before the horse, says Robert C. Fried, MD, chief of surgery at Paoli Hospital in Pennsylvania. When the hospital set out to build its \$145 million new Pavilion, the planners discovered that they had to select the equipment booms and lights first, before designing the building. Why? "The structural beams of the whole building had to be placed according to which vendors we chose," explains Dr. Fried. Each boom system comes with its own set of specifications. If you build your OR first, then decide to shop around for equipment booms, you may have to start all over again to accommodate the system you choose.

Although they required a little extra planning, Dr. Fried says there really wasn't any question that the hospital would outfit its 12 new, high-tech ORs with ceiling-mounted booms. Taking cords and cables off the floors and being able to move devices and monitors easily within the OR is a much better system than the old equipment carts. Still, Dr. Fried says it's important to shop around and have your nurses — who are really the ones who'll be doing the heavy lifting — test the booms out before you make your choice.

— Irene Tsikitas



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