

Going Mobile: The Return Of Mobile Imaging Will Transform The Work Of Surgeons

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OR Technology

In the late 1990s, a few innovative companies partnered to bring technology into the OR that, for the most part, hadn't changed in years. The concept involved relocating cameras from mobile carts onto ceiling mounted equipment shelves (booms). Images were then routed from a control station to monitors floating around the operative space. There were no carts to move, no cords or cables on the floor, and monitors could be placed in the correct ergonomic position.

These advances resulted in a decrease of staff fatigue and maximization of room efficiency. The concept of the integrated operating room (OR) was born.

Fixed integration drove standardization of camera suppliers, tying the OR to their core technology while adding significant benefits. This initiative's primary objective was the ergonomic placement of monitors at the highest resolution.

Then and still today, most integrated rooms take years to develop and install, while camera and monitor technologies march on. Hospitals should avoid getting caught in a video

technology formatting transition — analog to digital — that has left many OR directors with the new room and old video technology syndrome.

In some hospitals, the cost of replacing analog routing technology eventually leads to the migration of HD camera carts back into the OR. When planning for the next project, hospitals should understand their video supplier upgrade options and make that a part of their buying matrix.

Mobile carts with extended arms are now entering the market and are easy to upgrade and position where needed, moved out of the way when not, and can present a viable option if conditions merit.



Another challenge today's OR director is facing in planning a project involves designing room preferences for a surgical discipline. What might work for orthopedics might not suit a general surgeon, creating havoc with scheduling block time.

It's imperative that the architect and the clinical planning team review in great detail monitor and boom storage/use sites, patient and staff egress pathways, sterile/non sterile work zones, table potential orientation, and anesthesia options. Getting consensus on these issues is time

consuming, but vital to the project and creating ownership with the final product.

Currently the minimally invasive surgery (MIS) camera market is in the early stage of transforming from high definition (HD) 1K to ultra-high definition (UHD) 4K, which produces stunning medical images. OR Hybrid suites have introduced large field 4K monitors to manage multi-modality sources, many of which aren't native 4K in resolution, but benefit from the monitor's resolution and processing. Hospitals should consider whether they want to apply this technology to every ceiling equipment boom or make it available on a cart that can be moved to where it's needed.

Stand-alone 4K monitors can offer significant technological benefits that are not provided on HD monitors with or without a UHD source. With higher levels of color processing, contrast, superior black levels, panel characteristics, and pixel count, viewers are provided with a richer viewing experience. Recently, some innovative companies have introduced mobile large field 4K monitors into hybrid rooms and the general OR.

In a recent interview, Kashif Ahmed, MD, and David B. Thomas, MD, leading gastroenterologists at IU Health, told of how the ilex55, a mobile large field 4K monitor, has changed their daily procedural experiences in the OR.



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They noticed that the quality and size of the imaging on the device, along with its mobility, enhanced their OR in the areas of precision, comfort, and safety.

"The ilex55 has very high quality resolution, and I like the size because I don't have to lean over to see like I had to before," stated Thomas. "Especially when you are doing multiple procedures in a day, it's much more comfortable."

“And sometimes you might miss something small on the smaller 26-inch screen,” Ahmed added. “With the ilex55’s larger field of view and 4K imaging, I know I’m not missing anything. I also don’t have to mag up (fluoro) as much as I did before because I can see so well.”

For the most part, imaging sources in the OR have been mobile in order to move them to where they’re needed. As more imaging modalities enter the OR, large field 4K monitors provide a solution to consolidate these images into a central location and free up space around the operative site.

“Access to our fixed room is often limited and caused issues with scheduling in the past,” said Thomas.

“We had to give 24-hour notice to line up the room for surgery or send patients to other hospitals for ERCP’s because we couldn’t schedule the room in time,” said Dr. Ahmed. “The biggest benefit of having of the ilex55 is that unpredictability in room scheduling has gone away, as it can adapt to any room.”

Medical imaging technology has come a long way since the analog systems with small 19-inch CRTs. Now large field 4K monitors can enhance the surgical viewing experience with stunning color replication and smoother image quality on a much larger screen. This along with the consolidation of multi-modality viewing in a mobile or fixed platform offers a higher level of precision, safety, and ergonomics.

Patients enjoy the benefits of MIS and doctors with UHD monitors, with or without 4K sources, will appreciate the viewing experience. With increasing amounts of hospitals transitioning over to 4K technology in fixed and mobile options, more surgeons will be seeing the difference of 4K in the near future.

Mark Hansen has 30 years of experience in the medical device industry and has an extensive background in OR planning and video integration.

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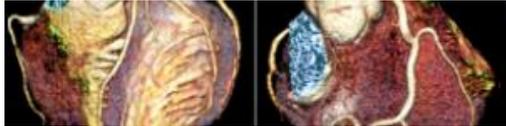
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