Planning A Hybrid OR

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Hybrid operating rooms are in demand because they allow surgical, interventional and electrophysiology specialists to perform minimally invasive, complex minimally invasive and open procedures, in the same operative environment. Multi-disciplinary interest is driven by the merging of advanced radiographic, robotic, and navigation tools with traditional surgical elements, all in a sterile environment.

The synergy of technologies (and specifically the use of endovascular and percutaneous techniques) is driving innovations in surgical approaches for the most medically challenging patient populations. These multifunctional rooms are making it possible to more confidently manage complex patients with co-morbidities and those at risk for complications – and ultimately to reduce hospital stays and rehabilitation times. In addition, the advanced nature of the hybrid operating room provides an environment that fosters innovation and helps surgeons and specialists achieve new standards of care.

The bottom line is, whether it is intended for surgical procedures supported by imaging or for interventional procedures with a back-up surgical “safety net,” thoughtful

The Hybrid OR Planning Process

planning and prepping are critical when planning a hybrid operating room.

It is not uncommon for hospitals building their first hybrid OR to ask, “Do we need a hybrid OR and can we convince our administration to fund one? Who should be involved in the planning and how can we be sure the room will meet everyone’s needs? What are the equipment and integration requirements to ensure multifunctional use?” To answer these questions, the project champions need to take several important steps.

A critical first step is identifying the key strategic imperatives for building a hybrid OR. These could include aligning physician needs (including recruitment and retention), or meeting Healthcare Reform and Accountable Care objectives and quality metrics. This first step is essential for securing administrative buy-in.

An equally important step is gaining good understanding of procedural numbers and projections. A thorough analysis of the catchment area by service line (cardiovascular, interventional, electrophysiology, etc.), including past and forecasted utilization, creates the foundation for identifying the most appropriate case use for the hybrid room. The most thoughtful designs and most clinically functional rooms are achieved by mapping the design to the three to five most frequent types of procedures expected to be performed.

The third step is to take the usage case to the stakeholder team for review. This group will help formulate procedure and equipment lists. Experience has shown that it is best to avoid trying to build and equip a hybrid OR to meet every possible usage scenario. Doing so can lead to a room that is over-budget, crowded, and associated with nagging impediments.
It can be helpful to create a sketch of the room as it will look for those top three to five procedures. The rendering should identify where the specialists and surgeons would be positioned within the room, and the physical location of supporting equipment.

In addition, creating procedure and equipment spreadsheets can be an extremely helpful step for staying organized. The procedure spreadsheet should include ICD9s (reimbursement data), required personnel, required equipment and operational protocol references. The equipment spreadsheet should identify if existing or new equipment will be used, and whether the equipment will be dedicated to the room or portable. The power requirements and necessary video and data outputs should also be noted. Power requirements are essential for equipment management system (boom) planning, while video and data outputs are required for integration planning.

Since hybrid ORs typically include the use of a large imaging system such as a c-arm, CT scanner or MRI scanner, planning requirements for these systems must also be considered. For c-arms, designers must plan for factors such as mono or bi-plane systems, rotational angiography, hygienic considerations and unencumbered anesthesia access. CT or MRI systems may involve factors related to suite design (two or three rooms) and whether the imaging system can be used for non-surgical procedures.

Finally, working with qualified room planners and architects capable of generating

accurate 2D and 3D renderings of the room is a critical step to build consensus with your stakeholder team. 3D modeling allows each stakeholder to evaluate approach, access, ergonomics and safety, and to properly plan the logistics of installing all the technology.

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