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SafMed Surgi-View

A SPECIALIST NEWSLETTER ON SURGICAL AND OPERATING ROOM TOPICS FOR HEALTHCARE PROFESSIONALS

Building a Hybrid Operating Theatre

Building a theatre that integrates fixed imaging in a sterile operating room is no easy task. The increase in demand to perform angiography (an x-ray study of the blood vessels) with advanced diagnostic and interventional procedures has increased the need for hybrid operating theatres. Many surgeons are now shifting to less invasive endovascular surgery because it is associated with significantly lower patient mortality rates, quicker recovery period and better long-term success. With diabetes, obesity and elevated lipids on the rise, there is an increasing need to perform endovascular surgery. There was a 67% increase (in the USA) in the number of lower extremities arterial angioplasty performed between 2005 and 2011.

Hybrid theatres are used for cardiac, vascular, neuro and spinal procedures. The following surgical procedures (amongst others) are performed in a hybrid theatre:

- Percutaneous valve replacement
- Endovascular aortic valve replacement
- Congenital cardiac repair
- Placement of cardiac rhythm devices
- Cerebral aneurysm coiling

A hybrid theatre can be found in the Operating Rooms, in the Cardiac Catheterisation Lab or in the Cardiac Operating Theatres. Hybrid theatres are complex as they can involve different surgical disciplines, a variety of surgical procedures and the required technology. Technologies found in hybrid theatres include audio-visual recording systems, communication systems, PAC's and haemodynamic monitoring. The technology needs to be accessible, well managed and integrated.

In a hybrid theatre environment both physicians and surgeons can work together on the patient to perform procedures that require multiple modalities. The hybrid theatre allows the physician to decide on the best approach for the procedure, be it an open or minimally invasive approach. Of course, surgeons can comfortably convert to open procedures without having to move the patient, reducing any potential risks.

Building a hybrid theatre suite

When building a hybrid theatre various vendor's need to work together, as the pieces and the technologies must work in harmony. An example of this is an installation of Phillips imaging using STERIS surgical lights, tables and pendants. Important aspects to consider in the design phase are: the finished ceiling height, the amount of space between finished and structural ceiling, magnetic field precautions, lead line shielding and structural supports to accommodate the weight of the various systems.

Radiation dose

It is critical in hybrid theatres to minimise:

- The amount of radiation exposure the physician receives during the procedure
- The likelihood of scatter radiation exposure to the staff
- The amount of radiation the patient receives during the procedure
- The amount of contrast agent the patient receives during the procedure

Room size

It is recommended that one should provide between 1 000 and 1 200 square feet for this kind of theatre. The room needs to accommodate the imaging equipment, a radiology control room, display monitors and computer systems. The equipment must not clash or bump into each other, and the room must accommodate the flow of the staff and of course the patient without compromising patient safety. Imaging systems can be ceiling mounted or floor mounted. Both have pros and cons.

Ceiling mounted

Ceiling mounted systems allow for more floor space but compete for space with the monitors, lights and pendants.

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CMAX XRAY

STERIS

THE HYBRID TRANSFER TABLE THAT MEETS YOUR NEEDS

The CMAX XRAY table by STERIS provides a complete solution for today's operating theatre requirements. This versatile hybrid table covers a very wide range of surgical applications, with or without imaging including: gynecology, urology, orthopedics, neurosurgery, cardiac and vascular surgery, minimally invasive surgery and more.

The biggest 360° radiolucent surface

Maximum weight of patient: 230 kg without extensions

Floating tabletop adjusted by Bluetooth joystick control

Table adjustment using the STERIS 1 Control hand control

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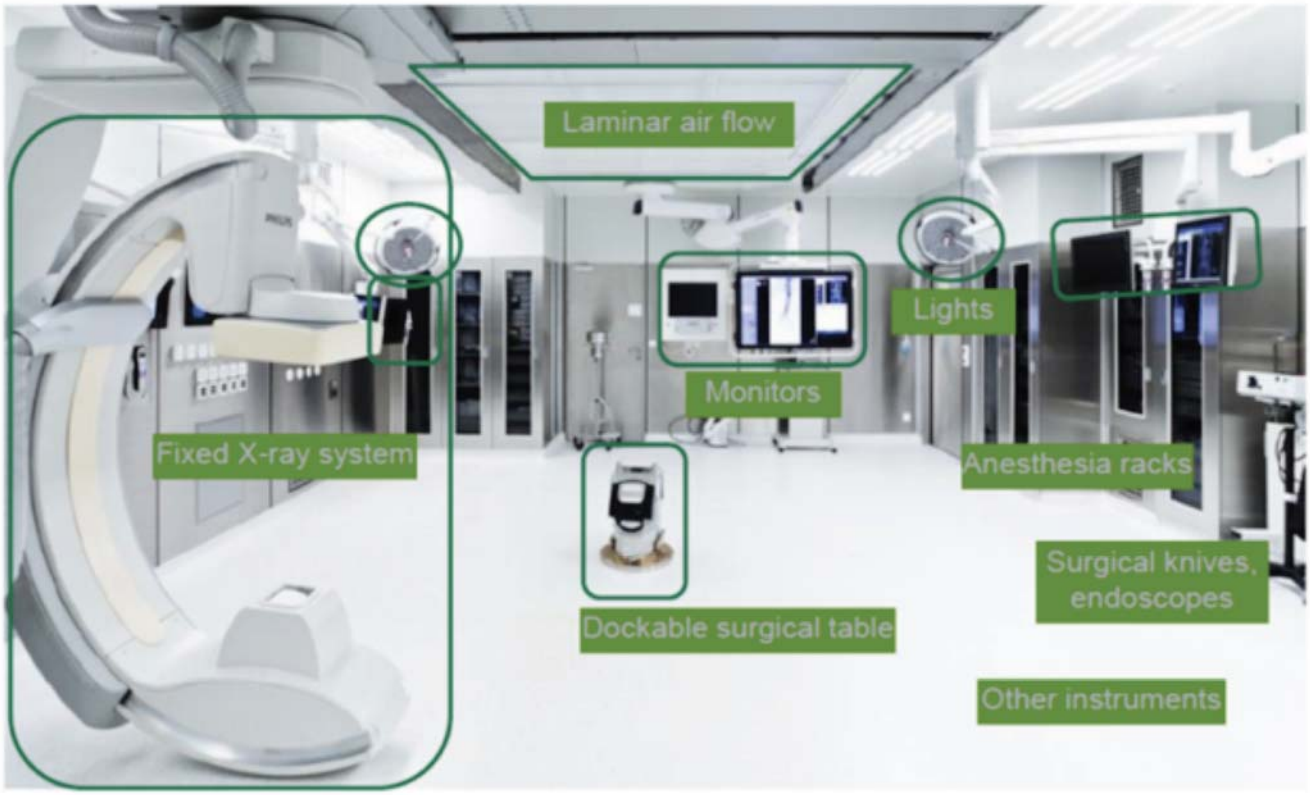
Johannesburg Office:
Tel: 011 201 4300
Fax: 011 507 5550

Durban Office:
Tel: 082 464 3832
Fax: 031 561 5138

Cape Town Office:
Tel: 021 763 3280
Fax: 021 762 2760

E-mail: info@safmed.co.za
Website: www.safmed.co.za
www.facebook.com/Safmed.SA/
Twitter: @SafMedSA

Floor mounted
Floor mounted systems need more square footage, but allow more space for the monitors lights and pendants. They can also sometimes hinder the anaesthetists work flow as they are generally mounted at the head of the bed.



PHILIPS

References:
Schaadt, J. Landau, B. 2013. *Hybrid OR 101: A Primer for the OR Nurse.* AORN, 97, 82-96

PHILLIPS PowerPoint presentation. *2016. Making the difference with Philips Live Image Guidance: The Hybrid Suite Interventional X-ray.*

http://medical-dictionary.thefreedictionary.com/Angiography

XLED®
Surgical Lighting Systems

STERIS

HIGH DEFINITION CAMERA MODULE

STERIS's **HD Camera Module is a High-Definition block camera**. This HD camera can be mounted as an optional component in STERIS's XLED®* and Harmony LED lighting systems. This integrated video camera maintains the optical and mechanical performance of the lighting system while providing an unobstructed view of the surgical site. Its high-quality video images enable you to document surgical procedures for a variety of applications, including teaching and archival purposes.

The camera is controllable from the light head, the wall touch panel or Harmony iQ® integration systems. Many built-in features are accessible, including zoom, focus, brightness…

*The HD Camera is compatible with XLED2 and XLED3 surgical lighting

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Fax: 021 762 2760

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