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A smart approach to a multidisciplinary hybrid operating room concept

Sahlgrenska University Hospital, Gothenburg, Sweden

Overview of a multidisciplinary approach in hybrid operating rooms

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Sahlgrenska University Hospital, Gothenburg, Sweden

Sahlgrenska University Hospital (SU) provides emergency and basic care for the Gothenburg region and its 900,000 inhabitants, and highly specialized care for West Sweden with 1.7 million inhabitants.

With over 17,000 employees SU is also the country's center for specific fields like pediatrics (pediatric heart surgery, incubator care for premature babies, as well as treatment in pediatric endocrinology).

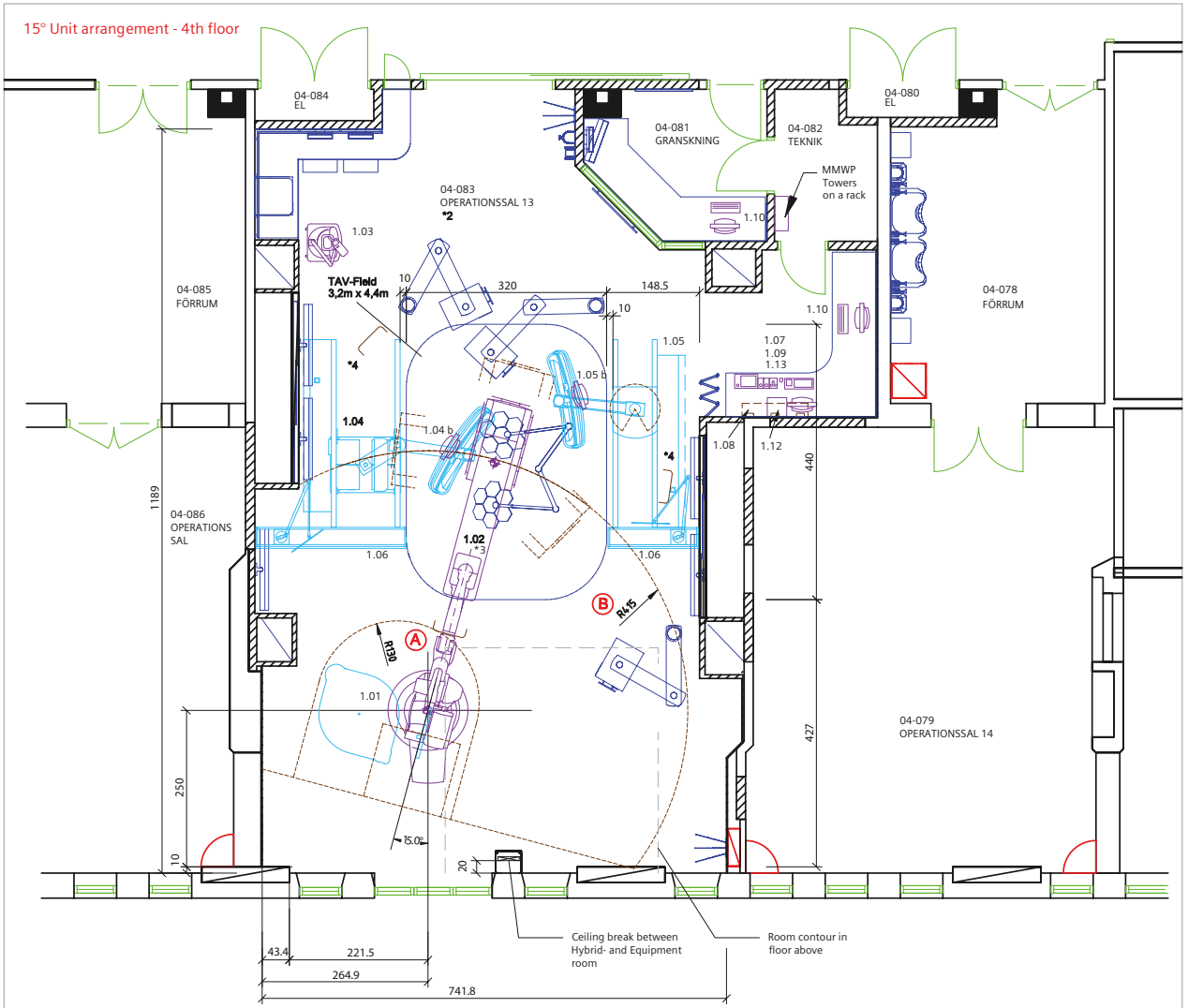
SU is also well known for its successful transplant activity and treatment of cardiovascular diseases. The hospital is at the forefront of care, a pioneer of new concepts and a setter of standards for interdisciplinary workflows.

The Hybrid Operating Room

Installing a hybrid operating room at SU was first thought of many years ago. After a long discussion of the ideas, the final room setup was meant to be a test room for endovascular and other hybrid procedures. The development of this hybrid operating room was driven by vascular surgery and interventional radiology, and these two departments were also in charge of clinical planning. All the relevant parties were involved from the beginning. Nurses and doctors from the different disciplines, including anesthesiology, were introduced to this new environment at a very early stage of the project. Their involvement during the planning phase lead to an optimal setup. Cardiology and spine surgery became involved at a later stage. With the success of the concept, further disciplines showed interest in utilizing the hybrid OR.

The hybrid operating room should be designed to fit all needs and leave enough room so the different disciplines are able to work in the same environment.

15° Unit arrangement - 4th floor



Close interdisciplinary collaboration

Close interaction of various disciplines helped to establish optimal workflows. Surgeons, interventionalists and anesthesiologists as well as specialized staff formed interdisciplinary teams and met regularly. Open-mindedness and receptivity on all sides paved the way for a successful work environment.

Constructive discussions helped to build a good foundation for optimized and innovative patient care.

Effective teamwork is the key to a successful hybrid OR.

“This set-up has given us the opportunity to work more closely with other disciplines”.

Karin Zachrisson, MD, interventional radiologist

“We help each other a lot so we save time”.

Monika Wass, OR nurse

Optimized patient positioning

One of the challenges in a hybrid operating room environment is patient positioning. The workflow and patient positioning needs to be adapted for different interventions and surgical procedures.

Image-guided surgery and patient positioning have to be in tune for an optimized workflow. A hybrid operating room requires high hygienic standards. Access to the patient as well as sufficient space for the interventionalist or surgeon are vital.

The Artis zeego is unmatched in terms of hygiene, flexibility and usage, making it the ideal system. The Artis zeego fulfills the highest hygienic standards (class 1a), even in imaging positions in a running laminar airflow field.

Smooth operation

Standard workflows for different procedures need to be developed and established.

A core team for the hybrid operating room consisting of all involved parties was formed. Open discussions among the team members were the foundation for smooth operation. Different aspects like hygiene, workflow development or the arrangement of OR staff around the new imaging equipment are under constant evaluation.

Consequently, close interaction promotes successful utilization of the hybrid operating room. New interdisciplinary workflows can be developed for minimally invasive treatment and optimal patient care.

Ease of use for the surgeon

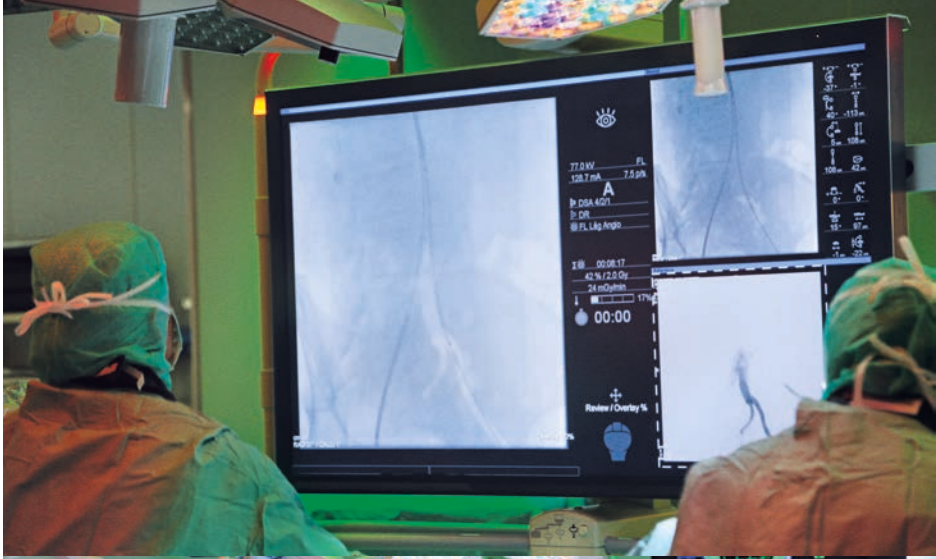
"The surgeon can guide the system all by himself and it is very fast.

All the surgeons who have tried it really had a positive experience".

Per Wessberg, MD, spine surgeon

A multidisciplinary approach – vascular surgery and interventional radiology

The interventional radiology and the vascular surgery departments pursued a common approach to endovascular procedures. To achieve the best patient care, both departments chose to join forces to treat these patients. The expertise of interventional radiologists in catheterization, image knowledge and surgical know-how accelerated the workflow and improved confidence. The ability to change from endovascular to open procedures supports optimal patient care.



“We use the zeego system and are very happy with the ease of changing between open and endovascular surgery”.

Hakan Roos, MD, vascular surgeon

A multidisciplinary approach – spine surgery

The Artis zeego takes spine surgery to a new level. Its large flat detector (30x40cm) and Large Volume *syngo* DynaCT outperform mobile C-arms in terms of coverage. Integration of the Artis zeego and the operating table allows the surgeon to store and recall multiple projections within very short time.

Coverage and high image quality allow safe and precise spine surgery especially in complex scoliosis cases or obese patients. Easy and fast system handling result in new workflows that promote better patient care.

3D images of implanted screws at the end of the procedure increase the confidence in and safety of spinal procedures.

“This kind of equipment is very useful for all kinds of advanced spine surgery”.

Per Wessberg, MD, spine surgeon

A multidisciplinary approach – interventional cardiology

A hybrid operating room setup expands cardiovascular treatment options. The availability and access to anesthesiology in an OR environment makes treatment of very sick patients safer than in a cath lab. If an ECMO (extracorporeal membrane oxygenation) or CPB (cardio-pulmonary bypass) is needed, the equipment is close at hand and the patient does not need to be transferred. A joint treatment approach with cardiac surgeons in this environment saves time and opens up new treatment options.

“I think there is a need in the future to expand this concept”.

Truls Ramunddal, MD,
interventional cardiologist

Multidisciplinary use leads to future investment safety

The use of the room by multiple disciplines supports high utilization. The complexity of the procedures increases and new workflows are developed. A joint approach optimizes patient treatment. This enhances the reputation of the institution, not only for patient referrals but also for recruiting doctors and nurses. Thanks to the success of the joint approach, additional disciplines are drawn to the hybrid OR and its possibilities.

This concept will be expanded as further specialized hybrid operating rooms are currently being planned at Sahlgrenska University Hospital.

Learn more about the financial aspects and investment safety on Go HYBRID!

"You have all tools in your hand at the same time. We have a very good collaboration at Sahlgrenska – it has never been a question of not working together".

Hakan Roos, vascular surgeon

Configuration of the hybrid operating room

Sahlgrenska University Hospital, Gothenburg

- Artis zeego (VC 21), Detector 30x40cm
- Artis OR tabletop
- XWP
- *syngo* DynaCT
- *syngo* iGuide Toolbox
- *syngo* iFlow
- *syngo* iPilot
- Automap
- *syngo* Dyna4D HighSpeed
- 2 large displays with DCS extended
- Wireless footswitch
- Radiation protection

The Benefits

- **Involvement of all relevant parties during** planning phase leads to optimal setup
- Hybrid OR offers the possibility to develop **new workflow and treatment options**
- **Close collaboration** of various disciplines improves workflow and saves time
- Team approach of the different disciplines leads to **better patient care**
- **Investment safety** due to high utilization of the hybrid OR
- **Growing patient numbers** and referrals lead to further expansion of the concept with specialized hybrid operating rooms

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