



## Interview

# Pioneering hybrid operating rooms at Fuwai Hospital: Over a decade of innovation and success

Interviews with Professor Han Chunlei  
and Professor Shu Chang, MD, Fuwai Hospital,  
Chinese Academy of Medical Sciences,  
Beijing, China



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In this insightful interview, Professor Han Chunlei, and Professor Shu Chang, MD, from Fuwai Hospital, part of the Chinese Academy of Medical Sciences in Beijing, share their journey from establishing China's first hybrid operating room to working in today's state-of-the-art Hybrid OR equipped with ARTIS pheno.

Prof. Han Chunlei, MD was one of the main initiators back in 2007 and he recalls the challenges they faced when setting up their first room with an Artis zee floor system.



## About Fuwai Hospital

Fuwai Hospital, part of the Chinese Academy of Medical Sciences in Beijing, China, is a renowned center of excellence for vascular and cardiac surgeries, as well as cardiac interventions. The hospital performs an impressive number of surgeries each year. The primary clinical disciplines include vascular surgery, cardiac surgery, and cardiac interventions. The hospital is equipped with advanced Hybrid OR systems such as the robotic imaging system ARTIS pheno, SOMATOM Confidence CT Sliding Gantry, and Artis zee. Two key players are Professor Han Chunlei, Vice President of the hospital; and Professor Shu Chang, MD, Director of the Department of Vascular Surgery. Their expertise and leadership contribute significantly to the hospital's reputation as a leading medical institution in China.



*“... the construction of the first hybrid operating room has proven to be of great importance for maintaining the leading position of our hospital in the cardiovascular field in China.”*

**Professor Han Chunlei**

Fuwai Hospital, Chinese Academy of Medical Sciences (CAMS), Beijing, China

**What was your original intention and overall plan for this first hybrid operating room?**

**Han:** Fuwai Hospital in Beijing has very limited space. Every inch is precious. Three offices were vacated in the already cramped cardiovascular surgery department, to transform this space into the first hybrid operating room in China.

The available space for the hybrid operating room including control area and technical room was only 67 square meters. Together with experts from Siemens Healthineers, our engineers, technicians and clinical experts created a number of room layouts to define a fitting solution.

By placing the angiography machine at an angle in the hybrid operating room, we managed to meet the configuration requirements for the catheter lab as well as for surgery. Thanks to this innovative layout, we were able to work out a feasible construction plan. After the plan was approved by the relevant authorities, we started to build the first hybrid operating room. Through our hard work, the room was completed by 2007. It was the first of its kind in China, and even in Asia. Surgeries were carried out jointly by cardiologists, radiologists, and surgeons in this hybrid operating room, with good results.

**Which departments were the initial users and how was the overall performance of the hybrid operating room?**

**Han:** By 2007, hybrid procedures were mainly used for cardiovascular bypass surgery and to treat pediatric congenital heart diseases. So the question was, how could we use this hybrid operating room to maximize its benefits? Professor Hu Shengshou organized numerous meetings, which were attended by a team of interventional experts from the Department of Cardiology and by a team of surgeons from the Departments of Adult Surgery, Pediatric Surgery and Vascular Surgery. The teams collaborated very closely. They tried various surgical procedures in the hybrid operating room. In the first three years after its completion, more than 2,000 operations were performed.

The first hybrid operating room was very successful. It resolved many problems for our patients, and has proven to be of great importance for maintaining our hospital's leading position in the cardiovascular field in China. In addition, it played a significant role in bringing the level of China's cardiovascular hybrid surgery up to international standards.

Recently, another hybrid operating room has been installed at Fuwai Hospital. The room includes the robotic imaging system ARTIS pheno and the SOMATOM Confidence CT system on rails. This enables combined angiography and CT imaging without having to reposition the patient.

Professor Shu Chang, MD, is Director of the Department of Vascular Surgery and has worked in many hybrid suites.



The Hybrid OR at Fuwai Hospital, Beijing, China





*“... Hybrid ORs are becoming increasingly important. Our hybrid operating rooms at Fuwai Hospital are busy every day. Hybrid and endovascular surgeries are constantly being performed.”*

**Professor Shu Chang, MD**  
Fuwai Hospital, Chinese Academy of Medical Sciences, Beijing, China

**In your opinion, what are the advantages of a hybrid operating room equipped with angiography systems from Siemens Healthineers?**

**Shu:** The biggest advantage of this operating room is that the layout is well planned. The machine can be moved to wherever you want.

With this convenient layout, doctors enjoy exceptional flexibility. Using this hybrid suite, we can choose to do either open surgery or endovascular surgery, or a combination of both, without any obstacles. Moreover, this machine has superior motion capabilities.

As for the imaging, you can adjust all aspects of the digital image to optimize image quality for the various procedural tasks. This is particularly important when carrying out any type of endovascular or hybrid operation.

**How many surgical procedures are performed in your hybrid operating rooms?**

**Shu:** Looking at the statistics, we can clearly see that the volume has increased substantially. Despite the drop in 2020 due to the impact of the COVID-19 pandemic, we performed more than 570 endovascular procedures last year.

In addition to these endovascular surgeries, we also performed numerous hybrid operations. Our yearly volume of hybrid operations ranges from 50 to over 100. Therefore, the yearly total of procedures, including hybrid and endovascular, using the hybrid operating rooms for aortic repair has already exceeded 600.

**What percentage of the aortic surgeries are done in your hybrid operating rooms?**

**Shu:** If we look at the figures for last year, we performed more than 1,500 aortic operations in total. Thereof, 600 procedures were performed in hybrid operating rooms which means more than two-fifth of all aortic operations are performed in hybrid operating rooms.

What's more, endovascular technology is progressing by leaps and bounds. Many operations, especially with regard to the aortic arch and visceral artery, are gradually shifting from open surgery to minimally invasive endovascular procedures. Hybrid and endovascular surgeries are constantly being performed. Hybrid operating rooms are becoming increasingly important and ours here at Fuwai Hospital are busy every day.

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The opinions expressed in this article are solely those of the featured physicians and may not reflect the views of Siemens Healthineers.

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