



Joint press release of  
Centre Cardio-Thoracique de Monaco and Siemens Healthineers

## 2 hybrid angiography rooms to open for the treatment of heart and vascular disease: technological performance for major therapeutic progress

On 29<sup>th</sup> March the Cardio-Thoracic Centre of Monaco will be inaugurating the first robotised hybrid operating rooms in South East France offering optimal minimally invasive therapeutic care to heart surgery, interventional cardiology and vascular surgery patients. Technological development and a catalyst for innovation, a reflection of the Cardio-Thoracic Centre of Monaco, which for the last 30 years has built itself a strong reputation for its medical, interventional and surgical expertise. To mark the official opening of the hybrid operating rooms, equipped with the latest interventional systems from Siemens Healthineers, the CCM and Siemens Healthineers renewed their strategic partnership, initiated in 2010.

**A hybrid room** is an operating room that combines the features of an interventional room and the structural constraints of a traditional cardiac and vascular surgery operating theatre. **Coupling a surgical operating room with an elaborate imaging system, endovascular procedures integrating 2D and 3D imagery can thus be carried out. The expertise of the practitioners and cutting-edge technology are inextricably linked in guaranteeing the high level of performance of procedures carried out in this type of room.**

The utility of a hybrid room emerged from the development of new techniques performed without a direct surgical approach, using a percutaneous or endovascular route. Procedures are performed in a multi-disciplinary environment involving heart surgeons, vascular surgeons and cardiologists. These techniques, a common practice for many years at the Cardio-Thoracic Centre of Monaco, require operating theatres that simultaneously meet the specific needs of the various specialities. The surgical environment allows the practitioner to resort to conventional surgery whenever necessary.

### Key benefits for the patient

A hybrid operating room makes it possible to carry out increasingly complex, less invasive, faster and more precise procedures. Such precision is of particular importance when it comes to major cardiovascular surgery such as the treatment of an aneurysm or aortic dissection. The hybrid room's state-of-the-art equipment makes it possible to treat these diseases percutaneously, passing inside the vessels, introducing customised prostheses adapted to each patient's anatomy.

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One of the other advantages is, that it is possible to convert a percutaneous procedure into open surgery in the event of an unforeseen complication, with the same surgical team and without having to move the patient. The time saved due to the absence of a transfer can prove crucial.

## A sophisticated imaging system

These rooms are equipped with the latest technology from Siemens Healthineers. Fitted with completely robotised mobile c-arms, they are also equipped with technological features enabling ultrasound image fusion with x-ray images.

All the above progress, achieved thanks to the ongoing innovation efforts conducted jointly by Siemens Healthineers and the Cardio-Thoracic Centre, has resulted in the practitioners being able to intervene in complete safety, in an optimum environment, for increasingly complex procedures.

## A wide range of complex procedures

### Interventional cardiology

The set-up allows for all type of interventional cardiology and cardiovascular care , like coronary angioplasties, valvuloplasties (e.g. TAVI, MitraClip ), shunt closures, cardiac pacing, etc. both for adult and paediatric patients alike.

### Heart surgery

These rooms meet cardiac surgery standards (with extracorporeal circulation). Thanks to high-performance imaging, and the pooling of medical and paramedical skills, hybrid cardiac surgery can be developed, combining conventional surgical techniques and an endovascular approach.

### Vascular surgery

This is where this technological development has stretched the possibilities of the most intricate cases of endovascular reconstruction with complex aortic reconstruction. Robotics and image fusion have made it possible to position an aortic stent graft while at the same time reconstruct the major collaterals including the cerebral and visceral arteries.

The technical platform of the 2 hybrid operating rooms covers a 180 m<sup>2</sup> area.

### The principle of a “single tray platform”

**All cardiovascular and thoracic disease specialists (clinical and medical imaging physicians, sthetists/resuscitators, surgeons) work together within a single platform: nurses, catheterisation room, intensive care, operating theatres: 1 single department and not 4.**

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## CCM and Siemens Healthineers renewed their successful, strategic partnership, which began some 30 years ago.

Siemens Healthineers and the Cardiothoracic Center of Monaco (CCM) have extended their partnership agreement, and have renewed the status of CCM as a “Siemens European Reference Center Cardiovascular Medicine”. The Reference Center serves as an international training and information platform for customers of Siemens Healthineers, where they can experience optimized clinical workflows and the latest multimodal imaging. This strategic partnership also includes collaboration in imaging and interventional therapy in cardiovascular medicine, including treatment in hybrid ORs.

Among other things, the new agreement between the CCM and Siemens Healthineers provides for the development of innovative solutions for the treatment of patients with cardiovascular diseases. For example, clinical pathways shall be optimized to make treatment and diagnostics more efficient. Another aim is to improve the results of diagnosis and treatment for the patients using new solutions based on digitalization and networking.

Prof Vincent DOR: “Being a Siemens Reference Center is a major step in our goal to advance the complete medical and surgical treatment of all thoracic and cardiovascular disorders”.

“With the CCM, we have a very special partnership. For more than three decades, we have been working together with innovative applications to contribute to the well-being of patients. Now we want to leverage the potential of digitization to enable even more accurate diagnoses and personalized treatments, and of course to make patient care even better overall”, said Bernd Montag, CEO of Siemens Healthineers AG.

“From the beginning, the CCM has been committed to value-based healthcare, and has shown that clinical pathways can be both effective and efficient. The key to digitizing of healthcare is integrated networking of all stakeholders. I think the CCM, with its multidisciplinary approach, is very well placed to use digitization for the benefit of its patients,” said Michel Therin, Head of Advanced Therapies, Siemens Healthineers.

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## About the Cardio-Thoracic Centre of Monaco (C.C.M)

Opened in April 1987 and facing Port Hercule, the CCM is a private hospital dedicated to cardiovascular and thoracic disease in adults and children. What makes the CCM unique, unequalled to this day, is that it offers all its specialists a single platform incorporating all the technical facilities necessary (reception, hospitalisation, paramedical staff, examination, imaging, resuscitation and operating rooms). This “all in one” unit makes it possible to treat patients collectively, offering them the best care possible without the need for a transfer or repeated tests, and also avoids the involvement and cost of five different departments. CCM’s mission is to provide medical and surgical expertise to all; expertise which is constantly consolidated by technological innovation

### The CCM today in figures

- 13,000 m<sup>2</sup> distributed over 12 levels
- 51 beds
- 15 intensive care beds
- 3,123 hospitalisations
- 4,197 outpatients
- 5,749 diagnostic or control procedures
- 1,820 therapeutic procedures, 606 of which involve extracorporeal surgery
- 263 employees
- a permanent medical and surgical team made up of:
  - 3 surgeons and 3 assistants,
  - 4 interventional cardiologists,
  - 3 cardiologists,
  - 4 anaesthetists.

In order to offer the very best care in the field of cardiovascular and thoracic disease, the Cardio-thoracic Centre of Monaco is open to international expertise. These consultants are approached by the Centre’s permanent staff on a regular or ad hoc basis in order to meet the specific needs of some patients, especially in paediatric cardiology: surgical procedures are performed by international specialists (Prof. Rasky and Prof. Pretre) and follow-up is carried out by the Centre’s permanent staff.

Since it opened, the CCM is actively involved in research and training and has welcomed 88 physicians from over 25 different countries spread across 5 continents.

In parallel, since 1992, treatment offered to children from extremely disadvantaged countries has risen steadily and thanks to the support of various charities and benefactors, 46 procedures were carried out in 2018.

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## About Siemens Healthineers

Siemens Healthineers enables healthcare providers worldwide to increase value by empowering them on their journey toward expanding precision medicine, transforming care delivery, improving the patient experience, and digitalizing healthcare. A leader in medical technology, Siemens Healthineers is constantly innovating its portfolio of products and services in its core areas of diagnostic and therapeutic imaging, and in laboratory diagnostics and molecular medicine. Siemens Healthineers is also actively developing its digital health services and enterprise services. In fiscal 2018, which ended on September 30, 2018, Siemens Healthineers generated revenue of €13.4 billion and adjusted profit of €2.3 billion and has about 50,000 employees worldwide. Further information is available at [www.siemens-healthineers.com](http://www.siemens-healthineers.com).

***The CCM is Siemens' first European Reference Centre for cardiovascular medicine. The purpose of this cooperation is to share knowledge (training for physicians by the CCM) and to spearhead the development of new solutions (clinical advice, validation of new diagnostic concepts).***

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