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## Volume 23 - Issue 2, 2023 - Spotlight

### Latest Advances in MRI

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#### State-Of-The-Art uMR Omega™ Installed in IRCSS Sacro Cuore Don Calabria Hospital



The IRCSS Sacro Cuore Don Calabria Hospital exterior photo

Thanks to a partnership with FORA S.p.A., [United Imaging Healthcare's](#) first [OMEGA uMR](#) is now present in Europe. The uMR Omega™, the first ever 75cm, Ultra-wide-bore 3.0T MRI, has been recently installed in the world-renowned IRCSS Sacro Cuore Don Calabria hospital. Since the hospital's establishment in 1922, this impressive 549-bed institution has been the Veneto Region Medical Reference Centre for Tropical Diseases, Radiotherapy, Nuclear Medicine, Ob-Gyn, Orthopaedics, and Ophthalmology, routinely providing medical, surgical, intensive care, paediatric, and rehabilitation services to the north Italian population. Being at the forefront of scientific advancements, the hospital was recognised as a leading research institution in the field of Infectious and Tropical Diseases.

Aiming to improve patients' comfort during the MRI exam, as well as offer the highest image quality and scan speed, United Imaging came up with a unique design reflecting the latest advances in MRI technology. Thanks to the combination of ACS (Artificial Intelligence Compressed Sensing) and DeepRecon technologies, the time of the MR examination can be reduced even by 70%. The 75 cm ultra-wide bore offers patients 25% of additional space with a unique starlight environment, not only increasing the overall comfort but also minimising the potential risk of a panic attack in claustrophobic patients. Taking into consideration every detail, United Imaging introduced next-generation ultra-flexible soft RF Coils to offer patients a blanket-like feeling.

In order to make cutting-edge MRI imaging widely available, the IRCSS Sacro Cuore Don Calabria hospital decided to rely on the uMR Omega™ for its ultra-wide construction. As a result, the hospital could offer the MRI for a larger number of patients without excluding any specific populations, therefore setting an equal standard of diagnosis for all.

From the highest-quality imaging facilitating the diagnostic process, through the option of intraoperative use, to radiotherapy planning of unprecedented precision, the uMR Omega™ offers limitless possibilities to doctors. The vast space attributable to the wide construction opens up new ways of patient positioning, considerably expanding diagnostic potential for joint examinations, large patients, and pregnant women. The diagnostic process has been significantly improved through the development of higher-density coils, which allow for the hyper-resolution MR

imaging of the musculoskeletal system or Ultra-short echo time (UTE) MR imaging in Pulmonary Metastases from Liver Cancer.

Recognising the value of artificial intelligence, United Imaging introduced the ACS (AI-assisted Compressed Sensing) to best balance speed and image quality, combining CS (Compressed Sense), HF (Half Fourier), and PI (Parallel Imaging). Moreover, the reconstruction procedure is supported by a state-of-the-art deep-learning neural network.

Besides an approximately 97% reduction in acoustic noise, the Qscan, coupled with AI technologies such as ACS and DeepRecon, offers whole-body quiet scanning with no sacrifice of the scanning time and brings it into a clinical setting for the first time. As a result, radiologists are provided with higher acceleration levels for MRI imaging and better depiction of small anatomical structures, allowing them to conduct rapid breast MRI, rapid whole spine scans, high-resolution MSK, or, in the case of brain MRIs, greatly facilitating the diagnosis of acute cerebral infarction.

Fully integrated within MRI bore and unobstructed by clothing, the Dual-Source Millimeter Wave Radar is the industry's first dual-source phased-array millimeter wave radar solution for contactless sensing of patients' respiratory motions that renders the need for a respiratory belt obsolete. This pioneering technology empowers the free-breathing renal non-contrast enhanced MRI or free-breathing liver MRI.

The uMR Omega™ has been designed to address the evolving patient and doctor needs, which can be fully satisfied due to many quantum leaps in MRI technology over the last couple of years. Already improving the standard of care in the IRCSS Sacro Cuore Don Calabria hospital, the uMR Omega™ has the mission of making advanced imaging modalities widely available.



uMR Omega with the IRCSS Sacro Cuore Don Calabria medical team

**Disclosure of conflict of interest: Point-of-View articles are the sole opinion of the author(s) and they are part of the HealthManagement.org Corporate Engagement or Educational Community Programme.**

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