

# Correlation of Echocardiography and the Anatomy of Congenital Heart Defects Through Virtual Reality

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Under the auspices of the Department of Medical Sciences of the Croatian Academy of Sciences and Arts, the Department of Cardiac Surgery of the University Hospital Centre Zagreb, the Croatian Association for Cardiac Surgery, and Great Ormond Street Hospital for Children (GOSH) / University College London (UCL, London, UK), organized a virtual reality Masterclass titled ***“Correlation of Echocardiography and the Anatomy of Congenital Heart Defects Through Virtual Reality.”***

This meeting took place on October 3, 2025, at the Sheraton Hotel in Zagreb. It provided the participants with a completely new dimension in understanding congenital heart defects.

This innovative one-day course combined an echocardiography simulator (ECHO) with 3D heart reconstructions from CT and MRI imaging in virtual reality (VR), offering a unique insight into the anatomy of congenital heart defects.

The course was led by top experts from GOSH/UCL — Dr. Beatrice Bonello (pediatric cardiologist), Prof. Andrew Cook (anatomist), Dr. Claudio Capelli (biomedical engineer), and Dr. Endrit Pajaziti (biomedical engineer). The course was attended by 30 specialists of various disciplines involved in diagnosing and treating congenital heart defects from childhood to adulthood: pediatric and adult cardiologists, cardiac surgeons, anesthesiologists, and intensive care specialists.

Participants had the opportunity to explore cardiac anatomy — from normal structure to complex malformations such as transposition of the great arteries, double outlet right ventricle, and congenitally corrected transposition of the great arteries — through an interactive combination of the ECHO simulator and VR technology, providing an entirely new way of understanding cardiac morphology.

