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Nota di contenuto	ANATOMY, PHYSIOLOGY, CONGENITAL DEFECTS, and DISEASE. - The anatomy and function of the atrioventricular valves -- The anatomy and function of the semilunar valves -- Congenital heart defects that include cardiac valve abnormalities -- Acquired valve disease and processes -- Complex repair of CHD requiring conduits OR valve replacement outside of the ROSS procedure -- VALVE REPAIR AND REPLACEMENT -- Heart valve disease -- History of heart valve repair -- The Ross Procedure -- The Use of Echocardiographic imaging of Valves -- Advanced 3D imaging (CT and MRI) and transcatheter valve repair/ implantation -- Transcatheter mitral repair and replacement -- Percutaneous pulmonary valve implantation: the first transcatheter valve -- Transcatheter aortic valve implantation -- Post TAVR PCI -- Complex Procedures in TAV, SAV, HARPOON, BASILICA w/ case studies -- Tissue engineered heart valves -- New trends for valve replacement like the Ozaki procedure -- Post-operative management of valves: On-X valve in post anticoagulation management -- TESTING, REGULATORY and TRAINING ISSUES -- In vitro testing of heart valve substitutes -- Numerical methods for design and evaluation of prosthetic heart valves -- Animal models for cardiac valve research -- The use of isolated

heart models and anatomic specimens as means to enhance the design and testing of cardiac valve therapies -- Successful development and regulatory approval of replacement cardiac valves -- Clinical trial requirements for cardiac valves -- Virtual Prototyping and 3D Printing For Simulation -- Computational Modeling, Validation, Verification and Uncertainty: Device simulation in Valvular Anatomies -- Procedural Training and Education: Mixed Realities.

Sommario/riassunto

This state-of-the-art handbook is dedicated to cardiac valve anatomy, models for testing and research methods, clinical trials; and clinical needs and applications. In this new edition, chapters are updated with the latest research in addition to new chapters on complex repair of CHD requiring conduits, new trends for valve replacement like the Ozaki procedure, as well as complex procedures in TAV, SAV, HARPOON, and BASILICA, with case studies for each type of procedure. This volume serves as a helpful reference for patients, educators, students, device designers and developers, clinical study specialists, clinicians, and other associated healthcare providers.