RAMBAM
Health Care Campus

EYAL OFER HEART HOSPITAL

VISION: *To be a leader in medicine and to make an impact in Israel and the world on treatment, innovation, research, technology, and team development, all while maintaining the centrality of the individual - whether patient or staff member, in every activity*

Heart disease is the leading cause of death worldwide and the second most common cause of death in the USA and Israel. Despite the significant decrease in cardiovascular mortality due to advancements in drug therapy, medical devices, and surgery, the number of patients suffering from coronary disease, heart failure, valvular disease, and cardiac arrhythmias continues to grow. Therefore, new strategies are required to better understand and treat heart disease, with the goal of substantially improving the patients' quality of life and dramatically reducing the financial burden of heart disease on society. The development of new and improved therapies for heart disease is a formidable challenge that will require substantial resources and collaborations between scientists, engineers, and physicians.

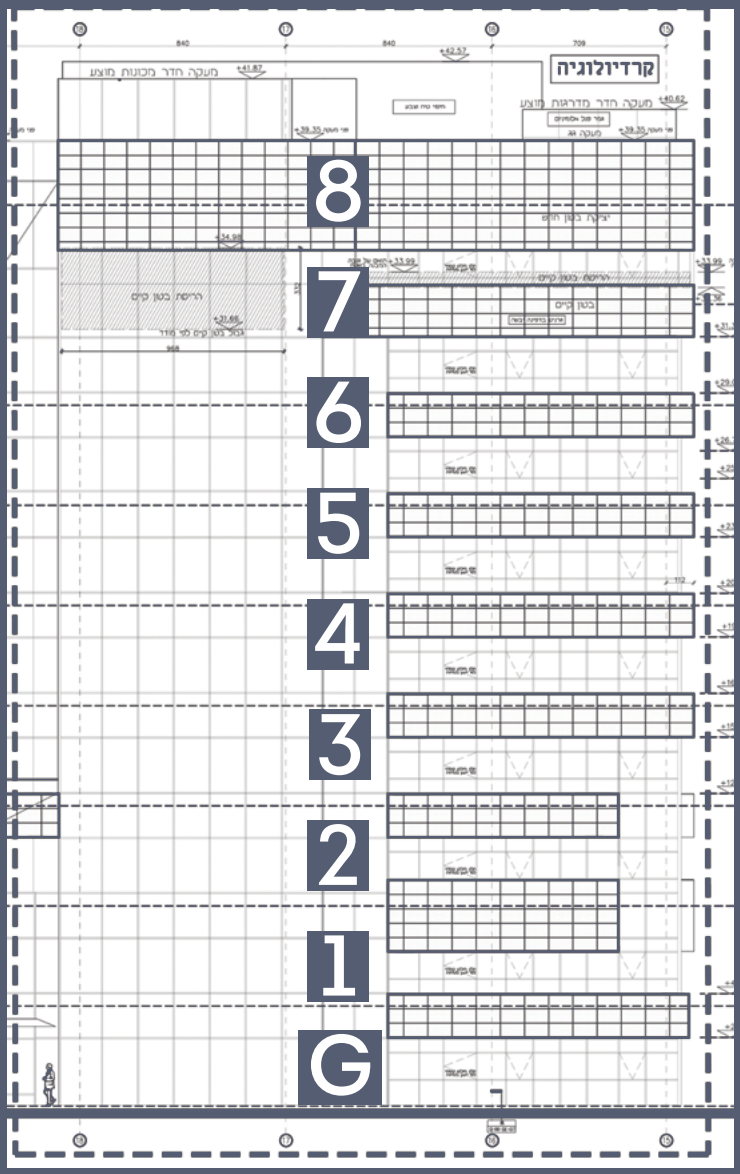
THE EYAL OFER HEART HOSPITAL

The Eyal Ofer Heart Hospital at the Rambam Health Care Campus will include world-class capabilities to care for patients with life-threatening cardiac disorders, including state-of-the-art cardiac catheterization and electrophysiology laboratories, advanced noninvasive imaging equipment, and sophisticated biometric monitoring.

Construction of the beautiful 9,000-sq. meter (96,875-square-foot), Eyal Ofer Heart Hospital is nearly complete. Four floors (0,1,2 and 6), which will include a gracious lobby, outpatient clinics, an intensive care unit, electrophysiology and the cardiac inpatient department, are scheduled to open to the public in the first quarter of 2022.

The building stands adjacent to Rambam's Joseph Fishman Oncology Center (opened in 2016) and Helmsley Health Discovery Tower, Rambam's new clinical research facility, which is in advanced construction stages. Surrounded by greenery to enhance the beauty of the Rambam campus, the nine-story Eyal Ofer Heart Hospital will reflect the most advanced healthcare design principles, serving as a model for specialized heart care facilities throughout the world.

THE EYAL OFER HEART HOSPITAL



The Center for Research and Innovation in Cardiovascular Medicine (eighth floor)

The Heart Failure Clinic (seventh floor)

The Cardiology Inpatient Department (sixth floor)

The Cardiac Surgery Inpatient Department (fifth floor)

The Echocardiography Department and Cardiac Rehabilitation Center (fourth floor)

Cardiac Surgery Operating Rooms (third floor)

Center for Interventional Cardiology (second floor)

Intensive Cardiac Care Unit (first floor)

Lobby, Electrophysiology, Outpatient Clinics (ground floor)

TREATING PATIENTS

ground floor

OUTPATIENT CLINICS, THE LEVINE FAMILY ELECTROPHYSIOLOGY UNIT, AND AN MRI UNIT

The 1,100-square-meter/11,840-square-foot **Ground Floor** in Eyal Ofer Heart Hospital is a high-traffic patient and visitor location. It includes the Rivka Devidas Lobby and Reception Lounge, outpatient clinics, the Levine Family Electrophysiology Unit, and an MRI unit. The outpatient clinics perform a diverse spectrum of pre- and post-interventional diagnostics, primary and secondary prevention, and behavioral and pharmacological interventions, guaranteeing proper patient follow-up.

Rambam's Cardiac Electrophysiology and Arrhythmia Service has a worldwide reputation for excellence in the evaluation and treatment of patients with a variety of cardiac arrhythmias (abnormal heart rhythms). Over the past three decades, tremendous advances have been made in understanding the mechanisms and treatment of the different cardiac arrhythmias. The EP Service at Rambam has a history of innovation and is a leader in advancing the assessment of the heart's electrical functions. Today, Rambam routinely uses this technique, which has become state-of-the-art in the field, as well as other methods, to successfully treat a variety of cardiac arrhythmias, including various supraventricular tachycardia, atrial flutter, atrial fibrillation, and ventricular fibrillation.

first floor

THE FRANIA GOLDHAR DEPARTMENT OF CARDIAC INTENSIVE CARE

Rambam's **Department Of Cardiac Intensive Care** provides round-the-clock care to critically ill adult patients diagnosed with life-threatening cardiac conditions, particularly acute myocardial infarction/cardiac ischemia; heart failure; cardiomyopathies; cardiac arrhythmia, and for patients requiring therapeutic hypothermia after cardiac arrest.

Each of the twelve patient beds in the new department are equipped with the full array of sophisticated diagnostic and monitoring equipment and a glass wall facing outward. The unit was purposefully designed with two nurse workstations surrounded by the inpatient care rooms so that all 12 patients can be observed continuously.

The department provides an interdisciplinary environment that includes experienced cardiologists, cardiac intensivists, specially trained nurses, imaging staff, and lab staff.

The team is intimately involved in each patient's care, monitoring progress and developing an individual plan of care so that every patient can achieve the highest level of recovery.

The integrated cardiac care model includes patients, their caregivers, and healthcare professionals. Our goal is to engage and educate patients and families from admission to discharge.

second floor

THE D. DAN AND BETTY KAHN CENTER FOR INTERVENTIONAL CARDIOLOGY

The **Center for Interventional Cardiology** provides world-class coronary diagnostic and treatment interventions. The four catheterization laboratories are equipped with advanced technology, including digital subtraction imaging, intravascular ultrasound, intracardiac echocardiography, and coronary flow wire, all of which enhance accuracy and accessibility of data for physicians caring for our patients. Each laboratory features radiation-lowering equipment for patient and staff safety.

In addition to the interventional procedures described above, the catheterization laboratories are also used for diverse electrophysiological interventions (pacemaker and cardiac-defibrillator implantations, implantable loop recorder transplantation, and various catheter ablation procedures) as well as for procedures targeting congenital heart disorders in both children and adults.

third and fifth floors

CARDIAC SURGERY DEPARTMENT:

As a world-renowned leader in cardiac surgery, the Department of Cardiac Surgery aims to provide the most comprehensive cardiac services in Northern Israel. The department has a highly experienced professional team that uses leading-edge technologies to provide patients with a broad spectrum of surgical heart procedures, performing 650 procedures each year on adults and children.

The department provides solutions for congenital heart disease, arrhythmias such as atrial fibrillation cardiac aneurysms, and cardiac remodeling for patients in congestive heart failure. Advances in personalized pharmacologic and rehabilitation approaches are now being supplemented by breakthroughs in advanced technologies as destination therapy instead of heart transplantation.

Multiple areas of surgical expertise include:

- Coronary artery bypass surgery (including beating heart surgery)
- Complex valve surgery
- Complex aortic surgery (The department performs the highest number of surgeries for coronary artery dissection conditions in Israel.)
- Left Ventricular Assist Device (LVAD) surgery (in collaboration with the Heart Failure Clinic)
- Mitral and aortic valve repair and replacement (TAVI, Mitral Clip)

Members of the cardiac surgery team pursue teaching and other academic activities, and there is a strong research unit that focuses on the development and introduction of pioneering new technologies and working with patient data to advance pre- and postoperative care. Researchers also use in vitro animal studies and clinical first-in-human studies to develop the best tools to treat heart patients. In collaboration with the Technion – Israel Institute of Technology, the department cooperates with Israeli startups in the field of cardiac surgery and cardiology medical devices.

The department will contain two operating rooms and an intensive care unit, which will all be located on the fortified third floor of the Heart Hospital. These areas will include state-of-the-art equipment–including a hybrid operating room–for surgical and percutaneous interventions. The floor will also have an intermediate care area.

The fifth floor inpatient rooms will be for patients before and after surgery, providing specialized care in twelve single and double rooms, with a total of 18 beds.

fourth floor

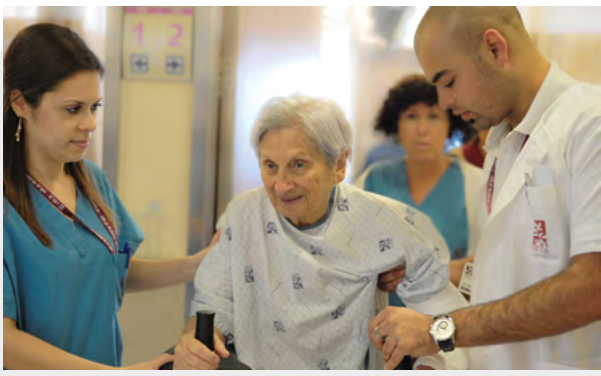
ECHOCARDIOGRAPHY DEPARTMENT:

Echocardiography (cardiac ultrasound) is the single most useful imaging test in the diagnosis of heart failure. It is central to the management of and follow-up practices for all cardiac diseases, and is one of the most commonly performed cardiac investigations. Employing echocardiography, doctors can learn about the size, shape, and movement of the heart muscle, how the heart valves are working, how blood is flowing through the heart, and how the arteries are functioning.

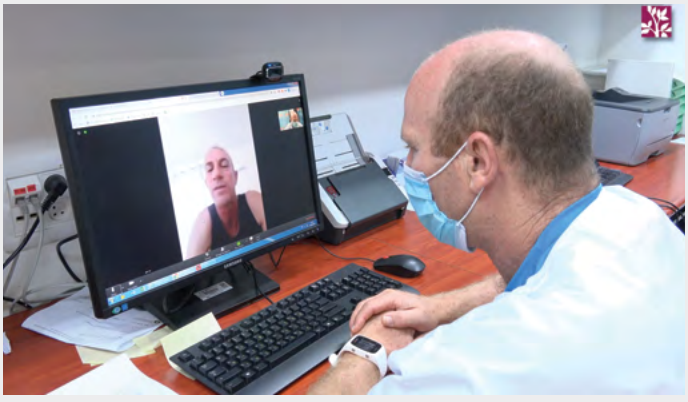
The following echocardiography testing is performed at Rambam:

- **Transthoracic echocardiography** (uses a transducer to send sound waves into the chest)
- **Stress echocardiography** (combines echocardiography with a stress test)
- **Transesophageal echocardiography** (takes very detailed images of the heart by guiding a transducer down the throat and into the esophagus)

CARDIAC REHABILITATION CENTER:



Cardiac rehabilitation is a cornerstone in the prevention and treatment of CVDs. Following diagnosis of a heart attack or heart failure or after an angioplasty procedure or heart surgery, patients are routinely referred to an appropriate cardiac rehabilitation program.



Specially trained physicians, exercise physiologists, nurses, dieticians, and counselors provide guidance for healthy living and monitor progress in the outpatient exercise program, which is tailored to the right level of activity for each individual. The ultimate aim is to help patients reach their maximum level of function and independence so that they can engage, once again, in normal daily activities.

sixth floor

THE PATRICIA AND ALBERT FRANK FAMILY CARDIOLOGY INPATIENT DEPARTMENT

For people with heart conditions requiring inpatient services, the state-of-the-art Cardiology Inpatient Department provides the highest level of round-the-clock care, from admission to discharge, in a twenty-four-bed, dedicated, Inpatient Department comprised of single-occupancy and double-occupancy rooms.

Patients are under constant observation by means of a centralized monitoring system. To ensure broad scope treatment, the staff works in partnership with referring doctors, cardiothoracic surgeons, invasive and noninvasive cardiologists, electrophysiologists, and other professional staff.

seventh floor

HEART FAILURE CLINIC:

Heart failure management requires specialized heart failure centers that include highly trained personnel at all levels of patient care, wide use of interactive remote monitoring technologies, advanced therapy capabilities, and educational opportunities to train the next generation of healthcare providers. Some of the programs planned for the Heart Failure Clinic include:

- **Artificial heart and ventricular assist device programs** allowing for the implementation of recent advancements in mechanical circulatory support for end-stage heart failure patients.
- Clinical programs and outpatient clinics designed to address the medical needs of patients with **unique heart failure subtypes**.
- A 24/7, online, community-based, seamlessly integrated continuum of hospital care with the establishment of a high-quality, **remote monitoring and rehabilitation center** for safe management of heart failure patients.
- Establishment of a **heart failure academy** to promote community-based heart failure care, where family physicians, community cardiologists, and heart failure nurses will be trained in optimal therapy for heart failure patients.

eight floor

CENTER FOR RESEARCH AND INNOVATION IN CARDIOVASCULAR MEDICINE:

Rambam investigators have a unique track record of discoveries that have transformed cardiology.

Some of Rambam's firsts (Rambam's InStent was acquired by Medtronics.):

- Revolutionizing the stent technology used worldwide.
- Development and clinical implementation of advanced electrophysiological mapping and catheter ablation techniques that have become the state-of-the-art methods worldwide for treatment of complex cardiac arrhythmias.
- Introducing robotics to the field of interventional cardiology and stenting (Rambam's Corindus was acquired by Siemens Healthineers.)
- Pioneers in the exciting field of stem cell research, which has promoted the development of a new biomedicine discipline – cardiovascular regenerative medicine.

Rambam will be building on these efforts in order to tackle new challenges, pursuing highly innovative research and development projects that could ultimately lead to breakthrough discoveries and advancements that address significant unmet clinical needs in cardiology. To this end, Rambam has identified three core clinical areas for research–heart failure, cardiac arrhythmias, and valve disorders–that are expected to become key disciplines in cardiology due to their increased incidence, the aging population, and the lack of optimal therapeutic options.

Focusing on these specific areas of unmet clinical needs, Rambam's researchers will conduct basic, translational, and clinical research, aiming to decipher the mechanisms underlying these disorders and to develop innovative therapeutic solutions.

Rambam will establish the following research units, with the aim of collaborating to solve the clinical challenges:

CLINICAL RESEARCH UNIT

This unit will focus on all aspects of clinical research, including research that is investigator-initiated or sponsored multicenter clinical trials. The unit will also promote the application of machine learning, artificial intelligence (AI), and digital health solutions to optimize healthcare delivery.

MEDICAL TECHNOLOGIES UNIT (MEDICAL DEVICES)

This unit will focus on developing, testing, and improving medical devices for a variety of cardiovascular disorders. It will include an innovation laboratory where engineers, scientists, and physicians can design, build, and test prototypes of their inventions. It will also develop the infrastructure required for performing first-in-human clinical trials and for participation in sponsored, multicenter clinical trials.

PRECISION MEDICINE UNIT

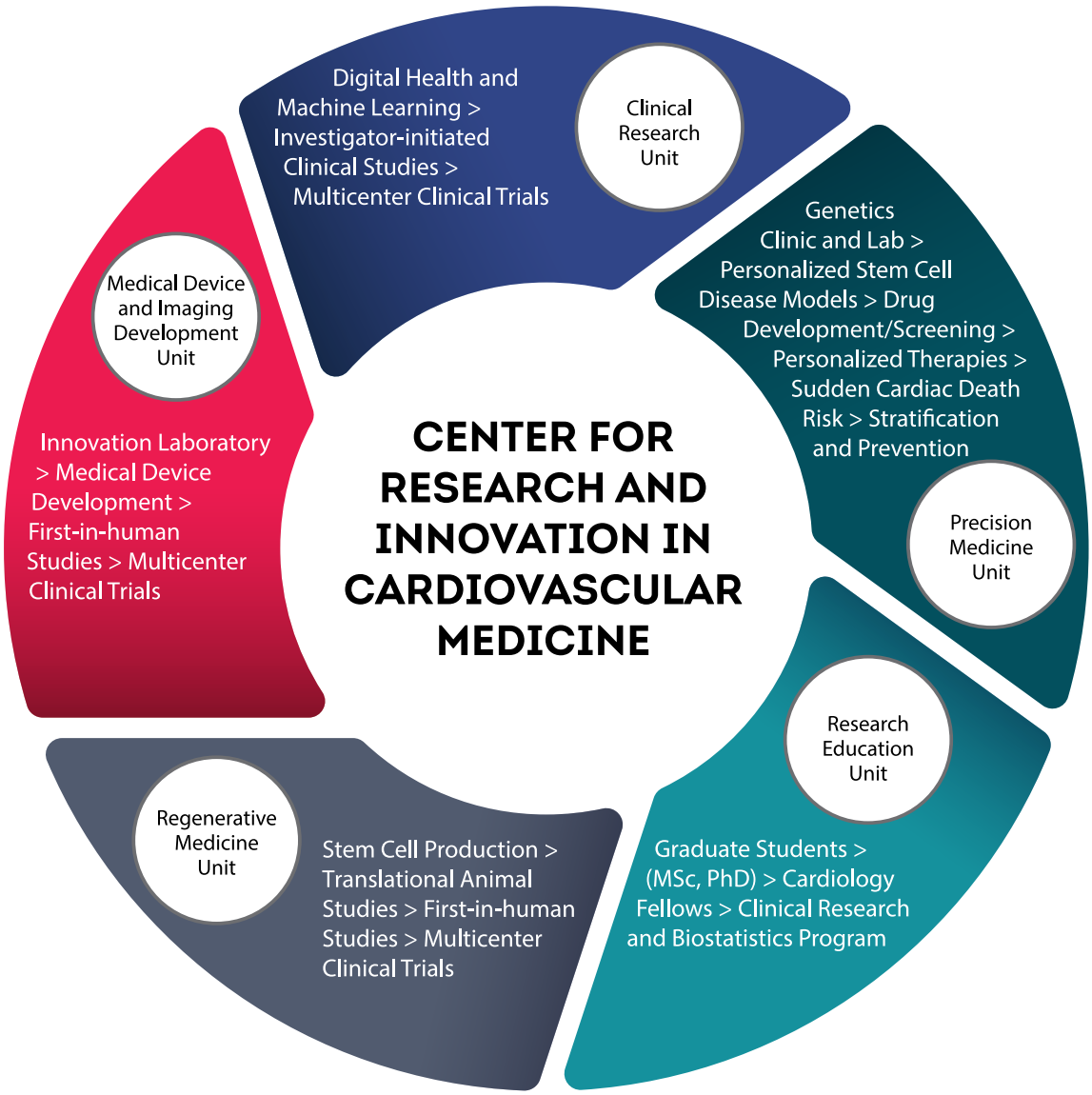
This unit will focus on new discoveries in the field of cardiovascular genetics (Rambam already has a unique, inherited cardiac disorders clinic) and personalized medicine that combine clinical analysis and cutting-edge genetics laboratory technologies, population genetics, innovative patient-specific stem cell-based models of heart disease, development of drug discovery platforms, sudden cardiac death prevention, cardiovascular pharmacogenetics, and personalized therapies.

REGENERATIVE MEDICINE UNIT

Rambam professionals, in collaboration with Technion – Israel Institute of Technology leaders in the fields of cardiovascular stem cells and tissue engineering technologies, will be engaged in developing and testing stem cell-based therapies for various cardiovascular disorders. The unit will include facilities necessary to generate the required stem cell-derived products and a basic research laboratory equipped with all the necessary equipment. The unit will also be responsible for performing preclinical studies in relevant animal models, for designing and performing first-in-human clinical trials, and for participating in larger, multicenter trials.

EDUCATION UNIT

This unit will be responsible for the recruitment, education, and training of all personnel involved in research. Courses and training programs will be provided in a variety of areas, ranging from clinical research and biostatistics, genetics, and state-of-the-art cell and molecular biology methodologies.



VISIONARY LEADERSHIP

PROFESSOR
LIOR GEPSTEIN

Director, Cardiology Service

Prof. Lior Gepstein is Director of the Cardiology Service. He received his MD and PhD from the Technion's Ruth and Bruce Rappaport Faculty of Medicine. Currently, he holds the position of Professor of Physiology and Medicine (Cardiology) at the Technion's Faculty of Medicine and heads the "Sohnis Family Research Laboratory for Cardiac Electrophysiology and Regenerative Medicine". Prof. Gepstein's research activities focus on studying cardiac arrhythmias and heart failure, stem cell biology, inherited cardiac disorders, and establishment of novel gene and cell-based strategies for the treatment of various cardiac disorders and, specifically, heart failure. Prof. Gepstein's research group was the first in the world to derive beating, bona fide, human heart cells in the laboratory from stem cells. Prof. Gepstein has received several prestigious awards, including the American College of Cardiology's Douglas P. Zipes Distinguished Award, the European Society of Cardiology's Outstanding Research Achievement Award, and the Yad Hanadiv Foundation's Michael Bruno Award. He is an elected member of the Israel Young Academy of Science.

PROFESSOR
GIL BOLOTIN

Director, Department of Cardiac Surgery

Prof. Gil Bolotin has been the Director of the Cardiac Surgery Department at Rambam Health Care Campus since 2007. He is also a Clinical Associate Professor at the Ruth & Bruce Rappaport Faculty of Medicine, Technion-Institute of Technology, Haifa, Israel. After receiving his MD in 1993 from the Hebrew University-Hadassah Medical School in Jerusalem, Israel and his PhD in 2001 from Academic Hospital Maastricht, The Netherlands, Prof. Bolotin performed his residency in the Department of Cardiothoracic Surgery at Carmel Medical Center, Haifa, Israel. He has completed fellowships at East Carolina University's Brody School of Medicine, the University of Chicago, and Academic Hospital Maastricht. In addition, Prof. Bolotin was the Chairman of the Israel Society of Cardiothoracic Surgery (2014-2017) and is a member of international professional cardiothoracic societies. His interests include medical devices from engineering design through in vitro, in vivo and clinical studies, and all aspects of cardiothoracic surgery, with a special interest in minimally invasive valve surgery, transcatheter valve implantation, atrial fibrillation, robotic cardiac surgery and other innovations in cardiac surgery.

PROFESSOR
RAFI BEYAR

President, International Friends Associations, Rambam Health Care Campus
Former Director of Rambam Health Care Campus

Prof. Rafi Beyar is an interventional cardiologist, a Professor Emeritus of Medicine and Biomedical Engineering at the Technion-IIT, and former Dean of the Technion's Faculty of Medicine. Prof. Beyar received an MD from Tel Aviv University, DSc in Biomedical Engineering from the Technion, and MPH from the Bloomberg School of Public Health, Johns Hopkins University. Prof. Beyar's research interests are cardiovascular simulations, coronary stents, and cardiovascular robotics. He served as the Director of Interventional Cardiology at Rambam (1996–2006). Prof. Beyar founded the hospital's technology transfer company, Rambam MedTech Ltd., and the MindUp Incubator on Digital Health. Prof. Beyar co-founded InStent, which was acquired by Medtronic and NaviCath (later Corindus), a Technion Incubator Company, the first-in-the-world robotic coronary intervention, which was acquired by Siemens Healthineers (2019). He currently serves as director of BioRap of the Rappaport Institute and Rambam MedTech, and as a director or advisor in several start-up companies.

PROFESSOR
MICHAEL HALBERTHAL

General Director,
Rambam Health Care Campus
Chairman, Teaching Center for Trauma, Emergency and MCS
Chairman of the Board, Rambam MedTech

Prof. Michael Halberthal earned his MD in 1986 from the Technion-Israel Institute of Technology. His postgraduate training was at Rambam in Pediatrics and Pediatric Critical Care, and he completed a further subspecialty fellowship in Pediatric Cardiac Clinical Care at London's Brompton & Harefield Institute. After returning to Israel, Prof. Halberthal successfully established the Pediatric Cardiac Critical Care Service at Rambam. In 1996, Prof. Halberthal did a combined advanced clinical and research fellowship at the University of Toronto and the Hospital for Sick Children in Canada.

Prof. Halberthal has an MHA in Health and Hospital Administration from Tel Aviv University's Recanati School of Business Administration (2012). Since 2001, Prof. Halberthal has held various leadership positions at Rambam, including as Director of Pediatric Cardiac Critical Care, Director of Hospital-wide Emergency Triage, and senior staff physician in the Pediatric Intensive Care Unit. In 2009, he joined the Executive Leadership as Director of Medical Operations. In 2013, Prof. Halberthal was appointed Deputy Director of Rambam, and became the General Director in 2019.

We cherish our donors and understand that each donation, large or small, comes from a person's heart; therefore we have created an elaborate donor recognition policy, by which gifts are acknowledged in a variety of ways - plaques, certificates, ceremonies, items in the Rambam On Call magazine, etc.

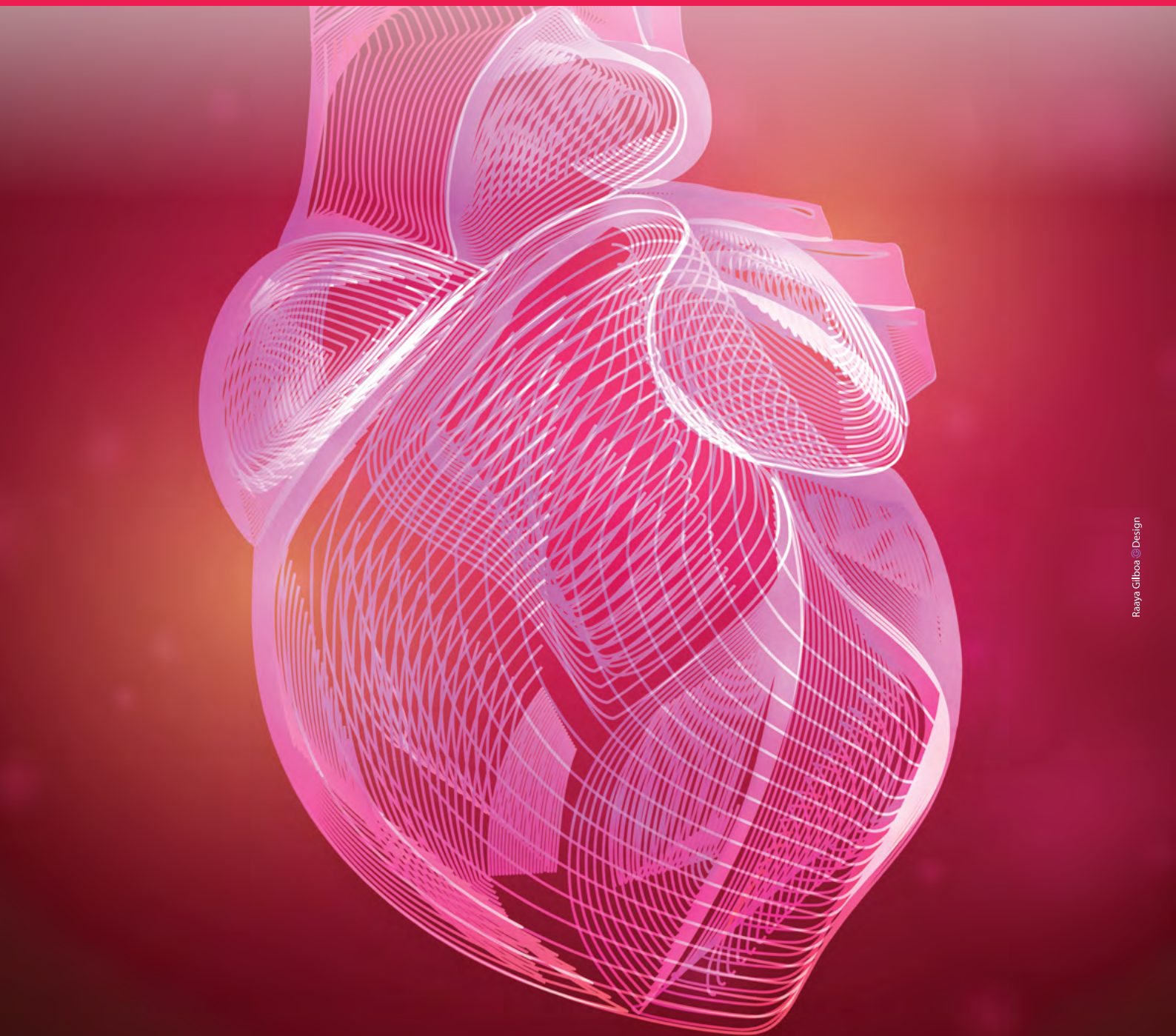
ABOUT RAMBAM HEALTH CARE CAMPUS

Rambam Health Care Campus a 1,000-bed academic hospital in Haifa, Israel, provides comprehensive medical services in all medical specialties and is committed to the entire spectrum of patient care, ranging from pioneering treatments and therapies to the support of clinical research. Rambam is world-renowned for its vast experience in treating trauma patients during peacetime and war.

As the tertiary referral center for 12 district hospitals and the only Level-1 trauma center in northern Israel, Rambam's patient population is diverse, serving the 2.5 million residents of the north and beyond. Additional beneficiaries include patients from all over the world who seek Rambam's specialized consultation, programs, and services.

Rambam stands at the forefront of medical innovation, partnering with leading academic and medical institutions worldwide and technology companies to create groundbreaking, state-of-the-art solutions for real-world medical challenges.

RAMBAM
Health Care Campus



Raaya Gilboa 3D Design