About the Art
The artwork in this report stems from a collaboration between Seattle-based artist Kanako Abe and Joanna Chikwe, MD, chair of the Department of Cardiac Surgery at Cedars-Sinai, who illustrates her own textbooks. Abe creates hand-cut, intricate paper pieces, using the Japanese art of Ise katagami—a traditional technique employed to create patterns on kimono fabric. Abe used Ise katagami cutting tools, similar to a surgical scalpel, to create these images on paper, which all include symbols of cardiovascular care.
“Our program is one of the most successful and innovative in the U.S because of our unique expertise in state-of-the-art care across the entire spectrum of cardiovascular disease.”

Joanna Chikwe, MD
Irina and George Schaeffer Distinguished Chair in Cardiac Surgery in honor of Alfredo Trento, MD, Chair of the Department of Cardiac Surgery and Professor of Cardiac Surgery

“With the incredible breadth of expertise at the Smidt Heart Institute, we are not only developing new technologies to treat disease, we are also advancing the science of population health so we can predict who is at risk and do more to prevent disease in our most vulnerable populations.”

Christine M. Albert, MD, MPH
Lee and Harold Kapelovitz Distinguished Chair in Cardiology, Chair of the Department of Cardiology and Professor of Cardiology
Dear Colleague,

It is with considerable pride that I share our annual report for 2021. I am particularly proud that the Smidt Heart Institute continues to take exceptional care of the most complex patients and regularly evaluate patients who have been deemed too risky for intervention elsewhere. We don’t always succeed in turning the tide of disease, but we never stop trying.

This report is oriented around real case studies of complex patients that exemplify our programs’ tremendous scope. Our recipe for exceptional care includes teamwork, dedication—and a pinch of innovation. Our scholarly excellence makes for better care and provides treatment options that may not yet be widely available elsewhere.

Reporting as we are on fiscal year 2020, our pride is tempered by humility. A snippet of just 30,000 ribonucleotides—far smaller than many single genes in the human genome—upended life as we know it and challenged us as never before. We balanced caring for the sickest patients with formulating best practices and learning as much as we could about this unseen enemy. We spearheaded new treatment approaches, recognized risk factors and biomarkers, and turned the challenge into a prolific intellectual pursuit.

But COVID-19 is far from vanquished. The fight goes on, not only because the pandemic continues to surge but also because of long-term complications that we are just beginning to understand. Will young, asymptomatic survivors go on to develop insidious heart disease? Imaging studies here and elsewhere certainly give reason for concern. In keeping with our “bring it on” attitude, we recently established a clinic to evaluate and manage the long-term cardiac complications of COVID-19.

In 2021, as always, we are here for you and your patients. Feel free to reach out if we can help—and meanwhile, please enjoy reading about the challenging cases that make us so unique.

All the best,

Eduardo Marbán, MD, PhD
Mark Siegel Family Foundation Distinguished Chair and Executive Director of the Smidt Heart Institute
Advanced Heart Failure

Heart transplant and new-generation ventricular assist devices (VADs) can provide life-changing relief from intractable heart failure for an expanding population of patients of all ages. Cedars-Sinai is an international center for high-risk transplant candidates with donor-specific antibodies who require advanced, individualized strategies encompassing anti-cytokine biologics, plasmapheresis and mechanical circulatory support.

CASE STUDY

Twenty years ago, an 18-year-old woman suffered a cardiac arrest outside a hospital. A cardiologist performed CPR and the patient later underwent a successful transplant. This year, with a failing heart in the middle of a pandemic, the woman had a second successful heart transplant. The cardiologist who performed her lifesaving CPR two decades ago continues to look after her.

“Complex cases are our specialty. We know there is no one size fits all in transplant; treatment for every patient is customized to achieve the best possible outcome.”

Jon Kobashigawa, MD
DSL/Thomas D. Gordon Chair in Heart Transplantation Medicine, Director of Heart Transplant Program and Professor of Cardiology

“No transplant is merely a surgery. We realize each procedure is a gift of life for the recipient and a selfless act made by a willing donor.”

Fardad Esmailian, MD
Surgical Director of Heart Transplant and Mechanical Circulatory Support Program and Professor of Cardiac Surgery

Heart transplants were performed in 2020. Cedars-Sinai is home to the world’s leading heart transplant program, performing more transplants annually than any other hospital in the world.

Featured Research:
Coronary Artery Disease

Cedars-Sinai offers advanced prevention, diagnosis and treatment for the entire spectrum of coronary artery disease.

CASE STUDY

A 65-year-old man with severe multi-organ dysfunction presented with unstable angina in the setting of an acute gastrointestinal bleed. He had received a saphenous vein bypass of his left anterior descending artery 10 years ago as well as multiple stents to his native coronary arteries and bypass graft. His chronic total occlusion of the proximal left anterior descending artery and occluded vein graft was successfully revascularized with a robotically assisted redo left internal mammary artery bypass to the left anterior descending coronary artery performed minimally invasively.

HIGHLIGHTS

• Mortality after acute myocardial infarction varies widely in U.S. hospitals. Cedars-Sinai combines deep expertise in coronary intervention with an individualized approach to patient care that has delivered health outcomes that consistently outperform the rest of the nation.
• Cedars-Sinai offers robotic hybrid revascularization for patients needing minimally invasive coronary artery bypass.

“Our research highlights the unacceptable disparities and practice variation in prevention and treatment of coronary disease across the U.S. Our team is changing this in the community, at the bedside, and in our cath labs, operating rooms and research laboratories—raising the bar for best practice nationwide.”

Christine Albert, MD, MPH
Lee and Harold Kapelowitz Distinguished Chair in Cardiology, Chair of the Department of Cardiology and Professor of Cardiology

>30%

More than 30% of Cedars-Sinai patients receive multi-arterial revascularization—twice the national average.

Featured Research:
**Congenital Heart Disease**

Cedars-Sinai seamlessly cares for the life span of congenital heart patients from conception through advanced years.

**CASE STUDY**

A 53-year-old father of four—with a history of tetralogy of Fallot and who required several open-heart surgeries over his lifetime—experienced severe biventricular systolic dysfunction, recurrent ventricular tachycardia, increasing hospitalizations for acute decompensated heart failure and marked limitations in functional capacity. He underwent a comprehensive multidisciplinary evaluation by experts in heart transplantation, cardiac surgery and adult congenital heart disease. Our team individualized the care of this complex patient to ensure appropriateness and optimization for heart transplantation. Through this collaborative process, he was effectively desensitized, a suitable donor was identified and the patient ultimately had a successful heart-transplant outcome.

**HIGHLIGHT**

- Guerin Family Congenital Heart Program physicians were instrumental in the design of the Edwards Alterra Adaptive Prestent for congenital pulmonary stenosis, performed the world’s first human implant and led the multinational trial. This work could extend transcatheter pulmonary valve replacement to thousands of children and adults as a minimally invasive alternative to open-heart surgery.

“Our experience really matters because these patients do become more difficult to treat over time. They often need multiple procedures throughout their lives, and each procedure increases the complexity of the next. When it comes to treating congenital lesions, less is more. Less blood loss, less pump time ... faster recovery, improved survival. This is the abiding philosophy of our team.”

Evan Zahn, MD
Director of the Guerin Family Congenital Heart Program and Professor of Pediatric Cardiology

“We are partnering with Children’s Hospital Los Angeles to build a world-class program at Cedars-Sinai that encompasses the span of congenital heart disease, from conception through adulthood, with expertise in every diagnostic and therapeutic option for these complex patients.”

Richard Kim, MD
Director of Congenital Heart Surgery and Associate Professor of Cardiac Surgery

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Featured Research:


Valvular Heart Disease

Cedars-Sinai is a national leader for diagnosis and therapy of valvular heart disease.

CASE STUDY

A 60-year-old woman with severe symptomatic mitral valve stenosis, end-stage pulmonary disease and advanced multiorgan dysfunction was deemed by the heart team to face prohibitive risk with cardiac surgery or conventional transcatheter therapy. She was therefore enrolled in the SAPIEN M3 Early Feasibility Study and achieved an excellent functional outcome after successful transcatheter mitral valve replacement. A year later, this patient presented with right-sided heart failure due to severe tricuspid regurgitation. Again, we were able to offer her novel therapy by enrolling her in the EVOQUE Early Feasibility Study, which allowed her to undergo successful transcatheter tricuspid valve replacement.

HIGHLIGHTS

• Cedars-Sinai has a near 100% repair rate for degenerative mitral regurgitation, including over 1,000 successful robotic mitral repairs, with outcomes ranked among the top-performing programs nationally.
• Early surgical mitral repair—before symptom onset, left-ventricular dysfunction or dilatation, or atrial fibrillation—provides a long-term survival benefit compared to a strategy of watchful waiting for patients with primary mitral regurgitation.

“Our default philosophy is that no patient is too sick or too complex to merit comprehensive evaluation. We have successfully addressed the needs of more than 80% of patients rejected for surgery or intervention elsewhere, adding years to life and life to years.”

Raj Makkar, MD
Stephen R. Corday, MD, Chair in Interventional Cardiology, Vice President of Cardiovascular Innovation and Intervention, Executive Director of Cardiac Interventional Services and Professor of Cardiology

“We have the unique ability to offer every patient the best of surgical and transcatheter valve reconstruction, absolutely cutting-edge technology, clinical trials, and state-of-the-art imaging, surveillance and genetic counseling.”

Joanna Chikwe, MD
Irina and George Schaeffer Distinguished Chair in Cardiac Surgery in honor of Alfredo Trento, MD, Chair of the Department of Cardiac Surgery and Professor of Cardiac Surgery

Featured Research:
Electrophysiology

Electrophysiologists are at the forefront of discovery and delivery of innovative technologies to both predict and treat life-threatening arrhythmias.

CASE STUDY

A 66-year-old man with dilated cardiomyopathy (left ventricular ejection fraction of 10%) presented with recurrent implantable cardioverter defibrillator shocks for ventricular tachycardia and significant congestive heart failure. Although he was evaluated for a heart transplant, a newly diagnosed neuroendocrine tumor prohibited this approach. Instead, he underwent an implantation of the HeartMate3 left ventricular assist system with concurrent epicardial mapping and ablation of ventricular tachycardia. This was a collaborative effort between electrophysiologists and cardiac surgeons in our hybrid operating room. The patient was discharged with marked improvement in heart-failure symptoms and without recurrence of ventricular tachycardia.

HIGHLIGHTS

- Electrophysiologists use minimally invasive gene transfer to pave the way for the development of a biologic pacemaker.
- Cedars-Sinai launched the Center for Cardiac Arrest Prevention that will discover and implement novel clinical tools for prediction and prevention of sudden cardiac arrest.

“Collaboration across disciplines is at the center of everything we do, allowing us to expertly deliver cutting-edge innovative therapies to the most complex patients and to be on the forefront of electrophysiology research identifying and testing the diagnostics and therapeutics of tomorrow.”

Sumeet Chugh, MD
Pauline and Harold Price Chair in Cardiac Electrophysiology Research, Section Chief of Clinical Electrophysiology, Director of the Center for Cardiac Arrest Prevention and Professor of Cardiology

“Rhythm abnormalities can be debilitating and life altering. Our philosophy of curing these disorders allows patients to have an enhanced quality of life and increased longevity. Our team uses minimally invasive cutting-edge techniques to alleviate the burden of arrhythmias.”

Michael Shehata, MD
Director of Invasive Electrophysiology Laboratory and Associate Professor of Cardiology

Featured Research:
Health Equity

Cedars-Sinai has a longstanding commitment to improving heart health for underserved communities, addressing gender and race disparities in healthcare at home and around the world.

CASE STUDY

A 62-year-old African American woman with a history of ST-elevation myocardial infarction, normal-appearing coronary arteries on angiography and ischemic cardiomyopathy (ejection fraction of 40%), complained of persistent epigastric chest pain that was previously attributed to gastroesophageal reflux. She was prescribed calcium-channel blockers and nitrates for presumed coronary vasospasm and experienced a significant reduction of chest pain. A year later, she experienced a sudden cardiac arrest and successful resuscitation. Invasive angiography showed severe diffuse coronary vasospasm. Cardiac MRI demonstrated inferolateral subendocardial scarring. She received an implantable cardioverter-defibrillator for secondary prevention and subsequently underwent PASCAL transcatheter mitral valve repair for ischemic mitral regurgitation and heart failure.

HIGHLIGHT

• We are working to better understand the risks faced by African Americans—who experience sudden cardiac arrest at twice the rate of Caucasians—and to identify ethnicity-specific targets to protect this group and others, including the rapidly growing Latino population.

“[We are 50 years behind in our knowledge about optimal screening, diagnosis and treatment regimens for heart disease in women compared to what we know about heart disease in men; and every day, women pay the price. We are dedicated to closing this unacceptable knowledge gap.”

C. Noel Bairey Merz, MD
Irwin and Sheila Allen Chair in Women’s Heart Research, Director of the Barbra Streisand Women’s Heart Center and Professor of Cardiology

“Our efforts to tackle hypertension, a disease that kills African American men disproportionately, went from barbershops to the New England Journal of Medicine and Capitol Hill—where we want to change healthcare and health policy for good.”

Eduardo Marbán, MD, PhD
Mark Siegel Family Foundation Distinguished Chair and Executive Director of the Smidt Heart Institute

Featured Research:
Aortic Disease

Cedars-Sinai offers advanced prevention, diagnosis and treatment for the entire spectrum of aortic disease.

CASE STUDY

A 32-year-old woman who was 32 weeks pregnant presented with an acute, type-A aortic dissection. Her baby was delivered by cesarean section in the operating room immediately followed by a hemi-arch replacement under hypothermic circulatory arrest. Mother and baby are doing well.

HIGHLIGHTS

• Aortic dissection can be prevented by early replacement of ascending aortic aneurysms, with a lower threshold for intervention in patients with bicuspid or Marfan aortopathy, or a family history of aneurysms and sudden death.
• Specialist genetic counseling and aortic surveillance with regular imaging are important components of the long-term care of patients across the spectrum of inherited aortopathy.
• Valve-sparing root replacement and pulmonary autograft (Ross procedure) enable patients to keep their own heart valves, avoiding prosthetic valve replacement, the need for second valve procedures and lifelong anticoagulation.
• Endovascular approaches (TEVAR) are a minimally invasive alternative to surgical repair for an increasing number of patients with thoracic aortic aneurysms.

“There has been a true paradigm shift in how we diagnose and treat aortovascular disease. These complex patients are best served by expert teams able to offer advanced diagnostics and genetic counseling, and a wholehearted commitment to integrated endovascular and open surgical repair.”

Robert J. Siegel, MD
S. Rexford Kennamer, MD
Chair in Cardiac Ultrasound, Medical Director of the Clinic for Hypertrophic Cardiomyopathy and Aortopathies and Professor of Cardiology

“Saving patients’ own heart valves can restore normal, healthy life expectancy—it’s one of the single most important things we can do for our patients.”

Alfredo Trento, MD
Estelle, Abe and Marjorie Sanders Chair in Cardiac Surgery, Director Emeritus of Cardiothoracic Surgery and Professor of Cardiac Surgery

“Cedars-Sinai is one of a handful of U.S. centers nationally with this state-of-the-art expertise in surgical and endovascular intervention.”

Ali Azizzadeh, MD
Director of the Division of Vascular Surgery, Vice Chair of Programmatic Development in the Department of Surgery and Professor of Surgery

Featured Research:
Metrics
# Cardiac Interventions

## Invasive Cardiac Procedures FY18–20

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary Angiography</td>
<td>19,365</td>
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<tr>
<td>Percutaneous Intervention (PCI)</td>
<td>5,878</td>
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<tr>
<td>Transcatheter Valve Replacements</td>
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</tr>
<tr>
<td>Aortic (TAVR)</td>
<td>1,833</td>
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<tr>
<td>Mitral (TMVR)</td>
<td>81</td>
</tr>
<tr>
<td>Tricuspid (TTVR)</td>
<td>11</td>
</tr>
<tr>
<td>Pulmonary (TPVR)</td>
<td>43</td>
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<tr>
<td>Re-Do TAVR (Valve in Valve)</td>
<td>113</td>
</tr>
<tr>
<td>Mitra-Clip</td>
<td>654</td>
</tr>
<tr>
<td>Tricuspid Clip</td>
<td>132</td>
</tr>
<tr>
<td>Valvuloplasty</td>
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</tr>
<tr>
<td>Aortic</td>
<td>19</td>
</tr>
<tr>
<td>Mitral</td>
<td>16</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>4</td>
</tr>
<tr>
<td>Carotid Angiography/Carotid Stent</td>
<td>51</td>
</tr>
<tr>
<td>Endomyocardial Biopsy</td>
<td>3,164</td>
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<tr>
<td>Intracoronary Stem Cell Injection/Therapy</td>
<td>39</td>
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<tr>
<td>Intravascular Ultrasound</td>
<td>1,922</td>
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<tr>
<td>Coronary Reactivity Testing</td>
<td>74</td>
</tr>
<tr>
<td>Percutaneous Alcohol Septal Ablation for Hypertrophic Cardiomyopathy</td>
<td>60</td>
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<tr>
<td>Percutaneous Closure of Paravalvular Leak</td>
<td>54</td>
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<tr>
<td>Percutaneous Closure of Septal Defects</td>
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<tr>
<td>Atrial Septal Defect (ASD)</td>
<td>68</td>
</tr>
<tr>
<td>Patent Foramen Ovale (PFO)</td>
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<tr>
<td>Ventricular Septal Defect (VSD)</td>
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<tr>
<td>Percutaneous Closure of Patent Ductus Arteriosus</td>
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<tr>
<td>Percutaneous Left Ventricular Assist Devices</td>
<td>214</td>
</tr>
<tr>
<td>Percutaneous Closure of Left Atrial Appendage Occlusion</td>
<td>318</td>
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<tr>
<td>Electrophysiology Studies</td>
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<tr>
<td>Catheter Ablation Procedures</td>
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<tr>
<td>Cardiac Electronic Implantable Device (CIED) Implantations</td>
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</tr>
<tr>
<td>Leadless Pacemaker Implantations</td>
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Cardiac Surgery

<table>
<thead>
<tr>
<th>Operations</th>
<th>FY18–20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Transplants (single and multi-organ)</td>
<td>354</td>
</tr>
<tr>
<td>Lung Transplants (single and double)</td>
<td>60</td>
</tr>
<tr>
<td>Ventricular Assist Devices and Total Artificial Hearts</td>
<td>221</td>
</tr>
<tr>
<td>Extracorporeal Membrane Oxygenation</td>
<td>245</td>
</tr>
<tr>
<td>Thoracic Aortic Open and Endovascular Surgery</td>
<td>897</td>
</tr>
<tr>
<td>Robotic Cardiac Surgery</td>
<td>432</td>
</tr>
<tr>
<td>Mitral Valve Repair</td>
<td>323</td>
</tr>
<tr>
<td>Coronary Revascularization (stand-alone and hybrid)</td>
<td>93</td>
</tr>
<tr>
<td>Mitral Valve Reconstruction (repair and replacements)</td>
<td>637</td>
</tr>
<tr>
<td>Aortic Valve Reconstruction (repair, valve sparing and replacements)</td>
<td>666</td>
</tr>
<tr>
<td>TAVR</td>
<td>1833</td>
</tr>
<tr>
<td>Coronary Revascularization</td>
<td>735</td>
</tr>
<tr>
<td>Surgical Endocardial Ablation (concomitant and stand-alone)</td>
<td>468</td>
</tr>
<tr>
<td>Other (congenital, septal myectomy, pericardiectomy)</td>
<td>259</td>
</tr>
</tbody>
</table>

1,000

Robotic Mitral Repairs, Near 100% Degenerative Mitral Repair Rate

Top STS Quality and Outcomes Ratings for Individual Surgeons and Program
## Research Funding

<table>
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<tr>
<th></th>
<th>FY20</th>
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<tr>
<td>Federal and State</td>
<td>$18,108,314</td>
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<tr>
<td>Other Peer-Reviewed</td>
<td>$14,329,395</td>
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<tr>
<td>Industry</td>
<td>$5,467,785</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$37,905,494</strong></td>
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</tbody>
</table>

- **Industry**: 14% of FY20 funding
- **Peer-Reviewed**: 86% of FY20 funding

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22 Smidt Heart Institute | cedars-sinai.org/heart
Peer-Reviewed Articles

425

Clinical Trials

<table>
<thead>
<tr>
<th>Clinical Trials</th>
<th>FY20</th>
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<tbody>
<tr>
<td>Soon to Enroll</td>
<td>40</td>
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<tr>
<td>Enrolling</td>
<td>205</td>
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<tr>
<td>Follow-Up Phase</td>
<td>103</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>348</strong></td>
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Intellectual Property

<table>
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<tr>
<th>Intellectual Property</th>
<th>FY20</th>
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<tbody>
<tr>
<td>U.S. Patent Applications Filed</td>
<td>239</td>
</tr>
<tr>
<td>U.S. Patent Applications Issued</td>
<td>51</td>
</tr>
<tr>
<td>International Patent Applications Filed</td>
<td>178</td>
</tr>
<tr>
<td>International Patents Issued</td>
<td>54</td>
</tr>
<tr>
<td>Copyright Registrations</td>
<td>12</td>
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</tbody>
</table>
Outpatient Visits

<table>
<thead>
<tr>
<th>Year</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits</td>
<td>32,927</td>
<td>30,221</td>
<td>30,910</td>
<td>32,927</td>
<td>35,865</td>
</tr>
</tbody>
</table>

Outcomes

**HEART FAILURE**
30-Day Risk Adjusted Mortality: July 2015 – June 2018

- Cedars Sinai: 6.0%
- National: 11.3%

**HEART ATTACK**
30-Day Adjusted Mortality: July 2015 – June 2018

- Cedars Sinai: 9.5%
- National: 12.7%
No. 1

In the Western U.S. for Cardiology and Heart Surgery by U.S. News & World Report

Heart Transplant Program in the World

In Expertise for Percutaneous Valve Procedures in the Nation
Contact Us

If you have a patient you would like to refer to one of our programs, please contact us at 310-423-3300 or visit cedars-sinai.org/heart. Our physicians will work with you to understand the unique needs of your patient and develop the best treatment plan, and will be available for additional consultations and procedures as needed.

### Aortic Disease

**310-423-3851**

The Aortic program is an interdisciplinary team that detects and treats the full range of diseases that affect the artery and provides access to groundbreaking surgical techniques and leading-edge clinical trials.

### Barbra Streisand Women’s Heart Center

**310-423-6680**

The Barbra Streisand Women’s Heart Center plays a leading role in identifying female-pattern heart disease, developing diagnostic tools and advancing specialized care for women.

### California Heart Center

**310-248-8300**

The center, affiliated with the Cedars-Sinai Smidt Heart Institute, offers the full spectrum of cardiology care, including cardiac evaluation, heart failure management, interventional cardiology, nuclear cardiology, echocardiography and hypertension management.

### Cardio-Oncology

**310-423-2726**

Cardiologists diagnose and treat heart disease in patients who are undergoing cancer treatment or who are cancer survivors.

### Cardiogenetics

**310-423-2726**

The Cardiogenetics program provides a multidisciplinary approach for the treatment of patients and families afflicted with familial cardiac conditions. Patients are evaluated by a cardiologist who specializes in these conditions, together with a cardiac genetic counselor, to help clarify the patient’s diagnosis, create a personalized management of care plan based on genetic test results and provide a risk assessment for other family members afflicted with these conditions.

### Cardiovascular Surgery

**310-423-3851**

Our cardiac surgeons are national leaders in robotic, minimally invasive and complex cardiac surgery.

### Congenital Heart Program

**310-423-1153**

The Congenital Heart program offers state-of-the-art treatment for congenital heart patients from birth through their entire adult life.

### Electrophysiology

**310-248-6679**

The Clinical Electrophysiology program provides state-of-the-art technology in patients with abnormal heart rhythms (cardiac arrhythmias and atrial fibrillation).

### General & Preventive Cardiology

**310-423-2726**

The General and Preventive Cardiology program provides patients access to medical professionals nationally recognized for their skills in the detection, prevention and treatment of heart disease.

### Heart Failure and Cardiomyopathy

**310-423-2077**

As the anchor of the Advanced Heart Disease program at the Smidt Heart Institute, the specialized Heart Failure program provides a comprehensive assessment and treatment plan for people with congestive heart failure and all types of heart muscle disease (cardiomyopathy).

### Heart Transplant

**310-423-5460**

For each of the past several years, Cedars-Sinai has led the nation in the number of adult heart transplants completed. The program offers advanced options in cardiac support devices, surgical techniques and anti-rejection technologies.

### Hypertension

**310-423-2726**

The Hypertension program takes a multispecialty approach to the evaluation and management of patients with complex hypertension. The program has been identified by the American Society of Hypertension as a certified Hypertension Center of Excellence.

### Interventional Cardiology

**310-423-3977**

The Interventional Cardiology program uses innovative nonsurgical techniques for treating coronary and valvular heart disease.

### Lipid Disorders

**310-423-2726**

Cardiologists provide a full range of diagnostics and treatments for patients with cholesterol and triglyceride disorders.

### Mechanical Circulatory Support

**310-423-7338**

The program provides complete care for patients with heart failure. Mechanical devices that help the heart pump blood can save the lives of patients awaiting a transplant. For others, they are a permanent treatment.

### Preventive & Rehabilitative Cardiac Center

**310-423-9660**

The preventive and cardiac rehabilitation center gives cardiology patients tools to improve their health and fitness. Services include monitored exercise programs, nutrition advice and stress management.

### Regenerative Medicine

**310-423-1231**

The Regenerative Medicine program is composed of a multidisciplinary team of physicians and allied health professionals who provide the largest worldwide experience in cardiac stem cell therapy, including more than 10 different cell types and methods of delivery.

### Valvular Heart Disease

**Interventional: 310-423-3977**

**Surgical: 310-423-3851**

The valve team, comprising highly specialized interventional cardiologists and cardiac surgeons, is at the forefront of providing novel, minimally invasive procedures to repair and replace heart valves. We offer a full spectrum of innovative procedures, ranging from completely percutaneous approaches to minimally invasive and traditional open-heart surgery. Treatment plans are individually tailored to the patient’s condition to ensure the best possible outcome.

### Vascular Surgery

**310-423-5400**

The Vascular Surgery program provides expert diagnosis and management of all arterial and venous disorders and offers a full spectrum of advanced open, endovascular and hybrid procedures.
About the Art

The entire root system of this tree takes the classic form of the coronary circulation, which supplies the heart with nutrients and supports life.

A transcatheter aortic valve implant appears four times in this illustration, once as the vase containing three flowers, each of which contains the classic configuration of the transcatheter valve leaflets at its center.

The mountain ranges forming the vista in this image depict the typical pressure waveform created by a rescue device used to support a failing heart, known as an intra-aortic balloon pump.

The safety parachute in this illustration is based on the appearance of the WATCHMAN implant, which is designed to reduce the risk of stroke by preventing blood clots from forming inside the heart.

Plaque build-up inside an artery can reduce blood flow to the heart, causing coronary heart disease or heart attacks. The trunk of the palm tree represents a stent—a tiny tube that can play a big role in helping to keep arteries open.

This artwork shows an eruption about to block a major passageway, representing unstable atherosclerotic plaques that can suddenly rupture, triggering blood clots which block coronary blood flow and cause heart attacks.

The tree depicted in this illustration represents an aortic dissection, in which the healthy circulation to much of the body can be suddenly lost. This life-threatening condition was successfully treated in a woman who was 32 weeks pregnant.

The mountain ranges forming the vista in this image depict the typical pressure waveform created by a rescue device used to support a failing heart, known as an intra-aortic balloon pump.

This image represents the continuum of congenital care from birth through adulthood. In the background are electrocardiogram tracings commonly seen in patients with congenital heart disease.

The trunk of the palm tree represents a stent—a tiny tube that can play a big role in helping to keep arteries open.

The tree depicted in this illustration represents an aortic dissection, in which the healthy circulation to much of the body can be suddenly lost. This life-threatening condition was successfully treated in a woman who was 32 weeks pregnant.