Thank you for your interest in the Hartford HealthCare Heart & Vascular Institute. In this Cardiac Surgery Clinical Outcomes & Innovation Report, we are proud to share information about our best-in-nation excellence; our innovations and clinical breakthroughs; our research and life-saving care.

This report provides data that supports the many national accolades our Institute has earned, including a perfect three-star rating across all five cardiothoracic categories from the Society for Thoracic Surgery, and Hartford Hospital’s rating as #1 in the nation for mitral valve surgery, again based on STS composite data.

The Hartford HealthCare Heart & Vascular Institute is a national leader in cardiovascular disease prevention, treatment, surgery and research. The Institute cares for more patients and performs more advanced cardiac procedures than any other cardiac program in Connecticut. Our clinicians use the most innovative technology available to provide the very best, personalized care for patients.

With 55 locations, seven acute care hospitals and nearly 400 providers across Connecticut and Western Rhode Island, the Heart & Vascular Institute is offers direct access to the region’s top tertiary center for the most advanced care when needed.

Our vision is to be “most trusted for personalized coordinated care.” In this report, you will see how the Hartford HealthCare Heart & Vascular Institute’s team is bringing this vision to life through demonstrated patient outcomes, and a fierce commitment to making healthcare more accessible, affordable, equitable and excellent for everyone we are privileged to serve.

Jeffrey A. Flaks
President & Chief Executive Officer
Hartford HealthCare
I am delighted to share with you the Hartford HealthCare Heart & Vascular Institute’s 2023 Clinical Outcomes Report. In the following pages, you will see why our team’s commitment to providing the highest quality care has made us one of the most elite cardiac surgery programs in the country.

Serving Hartford Hospital, St. Vincent’s Medical Center and patients throughout our seven-hospital health system and beyond, our program has earned the distinction of being one of only a small handful of programs nationally, and the only one in Connecticut, to earn a perfect 3-star rating from the Society of Thoracic Surgeons (STS) for the best clinical outcomes in the areas of:

- Aortic valve replacement
- Coronary artery bypass grafting
- Mitral valve replacement and repair
- Combined mitral valve replacement/repair and coronary artery bypass grafting
- Combined aortic valve replacement/repair and coronary artery bypass grafting

This recognition from the STS reaffirms our dedication to delivering exceptional outcomes and upholding the highest levels of patient safety and satisfaction.

Along with the high ratings from STS, Hartford Hospital has also been named one of America’s 50 Best Hospitals for Cardiac Surgery by Healthgrades and earned the Mitral Valve Repair Reference Center Award from the Mitral Valve Foundation and the American Heart Association for the fourth year in a row. In 2021, the hospital was named The Joint Commission’s first Comprehensive Cardiac Center Certification in New England. And, our heart transplant program continues to exceed national one-year survival rates and has one of the highest organ acceptance rates, making Hartford Hospital one of the most progressive centers in the country.

Our success in achieving this prestigious recognition is a testament to the collaborative efforts of our multidisciplinary team, including surgeons, cardiologists, cardiac anesthesiologists, advanced practitioners, perfusionists, and nurses who work tirelessly to ensure the best possible outcomes for our patients. Through a combination of advanced technology, evidence-based practices, and compassionate care, we have achieved outcomes that rival the best programs in the nation.

We are deeply grateful for the trust you place in us and remain committed to partnering with you to provide the highest quality care for our patients.
### Improved Clinical Outcomes

Rated as one of the most elite programs for quality and safety in the nation, The Hartford HealthCare Heart & Vascular Institute’s cardiac surgery team offers the most comprehensive and coordinated care for surgical patients in the region and beyond. Backed by expert cardiologists, cardiac anesthesiologists, advanced practitioners, perfusionists, and nurses, our surgeons perform more than 2,300 procedures each year at our two centers at Hartford Hospital and St. Vincent’s Medical Center in Bridgeport.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Hartford Hospital</th>
<th>St. Vincent’s Medical Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Procedural Volume</td>
<td>2,052</td>
<td>254</td>
</tr>
<tr>
<td>Total Coronary Artery Bypass Grafting</td>
<td>616</td>
<td>164</td>
</tr>
<tr>
<td>Total Valve Volume</td>
<td>1,053</td>
<td>38</td>
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<tr>
<td>Surgical Aortic Valve Replacement</td>
<td>349</td>
<td>27</td>
</tr>
<tr>
<td>Transcatheter Aortic Valve Replacement</td>
<td>379</td>
<td>113</td>
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<tr>
<td>Mitral Valve Replacement</td>
<td>157</td>
<td>6</td>
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<tr>
<td>Mitral Valve Repair</td>
<td>124</td>
<td>5</td>
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<tr>
<td>Tricuspid Valve Replacement</td>
<td>9</td>
<td>-</td>
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<tr>
<td>Tricuspid Valve Repair</td>
<td>23</td>
<td>-</td>
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<tr>
<td>Atrial Septal Defect/PFO Closure</td>
<td>34</td>
<td>15</td>
</tr>
<tr>
<td>MAZE Procedure</td>
<td>129</td>
<td>13</td>
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<tr>
<td>Left Atrial Appendage Closure</td>
<td>158</td>
<td>-</td>
</tr>
<tr>
<td>Heart Transplants</td>
<td>26</td>
<td>-</td>
</tr>
<tr>
<td>ECMO</td>
<td>72</td>
<td>2</td>
</tr>
<tr>
<td>Long-Term Ventricular Assist Devices</td>
<td>11</td>
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</table>
An Elite National Program

The Hartford HealthCare Heart & Vascular Institute is a national leader in cardiac surgery and is consistently rated among the best programs in the country for the quality of care we deliver.

In the fall of 2023, Hartford Hospital achieved a perfect score from the Society for Thoracic Surgeons’ most recent Adult Cardiac Surgery Database — the gold standard and the world’s premier clinical outcomes registry for adult cardiac surgery. Hartford Hospital is one of the few hospitals in the U.S. to achieve a perfect score.

Twice a year, the STS ranks more than a thousand cardiac surgery centers in the United States and assigns a one to three-star rating for patient outcomes in cardiac surgery. The STS star rating system is one of the most sophisticated and highly regarded measures of quality in health care.

Five areas, three stars each
Hartford Hospital earned a distinguished three-star rating from STS for its patient care and outcomes in all five of the following areas:

- Aortic valve replacement (AVR)
- Coronary artery bypass graft
- Mitral valve replace/repair (MVRR)
- Combined MVRR and CABG
- Combined AVR and CABG

<table>
<thead>
<tr>
<th>Procedure</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary Artery Bypass</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Aortic Valve Replacement</td>
<td>★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Aortic Valve Replacement with Coronary Artery Bypass</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Mitral Value Replacement</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Mitral Value Replacement with Coronary Artery Bypass</td>
<td>★★★</td>
<td>★★★</td>
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# Inside the Numbers

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Composite Score</th>
<th>Absence of Operative Mortality</th>
<th>Absence of Major Morbidity</th>
<th>Use of Internal Mammary Artery</th>
<th>Receipt of Required Perioperative Medications</th>
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<tr>
<td>Coronary Artery Bypass Grafting</td>
<td>98.0%</td>
<td>98.5%</td>
<td>92.2%</td>
<td>99.7%</td>
<td>97.2%</td>
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<tr>
<td>Aortic Valve Replacement</td>
<td>96.7%</td>
<td>98.2%</td>
<td>92.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aortic Valve Replacement &amp; Coronary Artery Bypass Grafting</td>
<td>94.1%</td>
<td>96.3%</td>
<td>87.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitral Valve Repair/Replacement</td>
<td>96.8%</td>
<td>98.4%</td>
<td>91.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitral Valve Repair/Replacement &amp; Coronary Artery Bypass Grafting</td>
<td>92.4%</td>
<td>95.5%</td>
<td>81.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Quality Ratings
(July 2020-June 2023)

**Key:**
- **Rating**
- **Range**
- **Benchmark**
- Better Than Expected
- As Expected

![Rating Scale]
One of Only 23 Centers Nationally

For the fourth consecutive year the hospital received the Mitral Valve Reference Center Award from the Mitral Valve Foundation and the American Heart Association which was created to identify and recognize the nation’s best hospitals and surgeons for mitral valve repair surgery based on objective performance measures.

Hartford Hospital is one of only 23 centers nationally to achieve this honor.

Recognized for Excellence in TAVR

In 2023, Hartford Hospital was also recognized by STS and the American College of Cardiology for excellence in TAVR, earning three stars — the highest quality for patient care and outcomes.

Three stars — The highest quality for patient care and outcomes
Rated One of
Healthgrades
Best Centers for
Cardiac Surgery

Hartford Hospital has been named one of America's 50 Best Hospitals for Cardiac Surgery according to new research released by Healthgrades, the leading resource that connects consumers, physicians and health systems.

Every year, Healthgrades evaluates hospital performance at nearly 4,500 hospitals nationwide for 32 of the most common inpatient procedures and conditions using Medicare data, and outcomes in appendectomy and bariatric surgery using all-payer data provided by 16 states.

Best in Hartford
Metro Area

Hartford Hospital is rated as the No. 1 hospital in the Hartford Metro Area and among the best hospitals in Connecticut for 2023-24 by U.S. News & World Report. US News & World Report also ranks the hospital as “high performing” in both heart bypass surgery and aortic valve surgery.

First Comprehensive Cardiac Center in
New England

The Hartford HealthCare Heart & Vascular Institute at Hartford Hospital has earned The Joint Commission’s Comprehensive Cardiac Center (CCC) Certification, becoming the first cardiac program in New England and one of 16 nationally to be awarded this prestigious designation in 2021.

Offered in collaboration with the American Heart Association, Comprehensive Cardiac Center Certification is the premier cardiovascular certification awarded to hospitals that demonstrate high-quality care using evidence-based, guidelines-driven treatment and foster collaboration throughout the system of care.
Sabet Hashim, MD, is best known for his expertise in mitral valve repair. Before becoming chairman of cardiac surgery and co-physician-in-chief of the Hartford HealthCare Heart & Vascular Institute in 2016, Dr. Hashim was director of cardiac valve surgery for a decade at Yale New Haven Hospital. While there, he performed New England’s first mitral valve repair in 1984. That same year, Dr. Hashim performed the first heart transplant in Connecticut.

Dr. Hashim developed one of the first mitral valve repair programs in the United States. He has pioneered techniques in minimally-invasive aortic and mitral valve surgery. Dr. Hashim has consistently maintained the largest mitral valve practice in Connecticut and has performed more than 2,000 mitral valve repairs and 10,000 open-heart procedures. He has served as a primary investigator on several trials, including SurTAVI, COAPT, Apollo and Commence.

Dr. Hashim has received numerous professional honors and awards, has presented his work at national and international forums and has published extensively in peer-reviewed journals.

**Sabet Hashim, MD**
Chairman of Cardiac Surgery
Co-Physician-in-Chief
Hartford HealthCare Heart & Vascular Institute

**EDUCATION**
Internship
St. Luke’s Hospital, NY

Medical School
St. Joseph’s Jesuit University School of Medicine, Beirut

Residency
St. Luke’s Hospital, NY
Yale New Haven Hospital, CT

Undergraduate
Lycée Francais of Beirut

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**AREAS OF EXPERTISE**
Aortic valve replacement, coronary artery bypass surgery, heart valve surgery, inherited cardiovascular diseases, mini invasive aortic and mitral surgery, mitra clip for mitral regurgitation, mitral valve repair, repair of ischemic mitral regurgitation, surgery for hypertrophic obstruction cardiomyopathy (HOCM), transcatheter mitral valve repair (TMVR).
Robert C. Hagberg, MD, currently serves as the chief of cardiac surgery at Hartford Hospital. Dr. Hagberg received his undergraduate and medical degrees at Stanford University. Following medical school, he completed a residency at Massachusetts General Hospital and subsequently returned to Stanford to complete a cardiothoracic fellowship.

Following his fellowship, he entered private practice in Norfolk, Va., where he acted as investigator for a number of device trials in cardiac and vascular surgery, including several valve and stent graft trials, which eventually led to FDA approval. He then went on to join the surgical staff at Beth Israel Deaconess Medical Center/Harvard Medical School in Boston, where he was an assistant professor of surgery. There, he taught the clinical practice of cardiac surgery to Harvard medical students and general surgical residents, as well as cardiothoracic surgical residents and fellows.

Dr. Hagberg is a nationally renowned surgeon, researcher and educator who has elevated Hartford Hospital’s cardiac surgery program, contributed to cardiac surgery research, expanded cardiac surgical procedures and helped train the next generation of advanced heart surgeons.

**AREAS OF EXPERTISE**

Mohiuddin Cheema, MD, received his medical degree from Aga Khan University Medical College in Sindh, Pakistan, in 1998. He completed his internship and residency in general surgery at the University of Connecticut in 2005, followed by a vascular surgery fellowship at Albany Medical Center between 2005 and 2007.

He joined Hartford Hospital as a vascular surgeon in 2007 and served as the director of endovascular services, director of the Noninvasive Vascular Lab, and site director for the vascular surgery fellowship. Between 2013 and 2015, he completed a cardiothoracic surgery fellowship at Cedars Sinai Medical Center before returning to Hartford.

**Areas of Expertise**
- Acute pulmonary emboli,
- Central and peripheral venous interventions and reconstructions,
- Coronary artery bypass surgery,
- Endovascular treatment of abdominal aortic disease,
- Endovascular treatment of thoracic aortic disease,
- Extra corporeal membrane oxygenation,
- Heart transplantation,
- Inherited cardiovascular diseases,
- Maze and mini maze for atrial fibrillation,
- Open abdominal aortic surgery,
- Open thoracic aortic surgery,
- Peripheral vascular surgery,
- Transcatheter aortic valve replacement (TAVR), transcatheter mitral valve repair (TMVR).
Ayyaz Ali, MD, is an internationally known cardiothoracic and transplant surgeon. He was originally a consultant cardiac and transplant surgeon at Papworth Hospital in Cambridge, UK, where he performed the largest number of cardiopulmonary transplant operations of any individual surgeon in the United Kingdom.

During the course of his career, Dr. Ali has performed more than 600 transplant operations, including heart transplant, single and double lung transplantation, and combined heart-lung transplantation. He is also skilled in the establishment of mechanical circulatory support for patients with severe heart failure having performed more than 91 implantations of temporary and durable ventricular assist devices.

Dr. Ali has had an extensive career in research. He undertook basic science research at Stanford University and the University of Manitoba, forming the foundation of the clinical establishment of heart transplantation using Donation after Circulatory Death (DCD) donors. It is expected that 30-40% of all heart transplant procedures in the future will utilize a DCD donor heart.

Dr. Ali is the recipient of multiple research grants and research awards. He has extensively published in peer-reviewed journals with more than 65 manuscripts.
Jonathan Hammond, MD, graduated magna cum laude with a bachelor of arts degree in 1980 from Williams College, and then went on to receive his MD degree from Harvard Medical School in 1984.

Following a residency in general surgery at Hartford Hospital/University of Connecticut between 1984 and 1989 and a Cardiothoracic Surgery residency at the Medical College of Wisconsin between 1989 and 1991, he joined the staff at Hartford Hospital.

In the past, he has served as surgical director for the mechanical circulatory support program, the surgical director of the cardiac transplant program, and director of the Division of Cardiovascular Surgery.

**Areas of Expertise**
- Acute pulmonary embolism
- Coronary artery bypass surgery
- Extra corporeal membrane oxygenation
- Heart transplantation
- Heart valve surgery
- Maze and mini maze for atrial fibrillation
- Mechanical circulatory support
- Open thoracic aortic surgery
- Pacemakers

**Education**
- Fellowship: Medical College of Wisconsin
- Internship: Hartford Hospital/University of Connecticut Integrated Surgical Residency Program
- Medical School: Harvard
- Residency: Hartford Hospital/University of Connecticut Integrated Surgical Residency Program
- Undergraduate School: Williams College

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  - 85 Seymour Street, Suite 919
  - Hartford, CT 06106
  - ph 860.696.5520
  - fx 860.522.3951
David Yaffee, MD, graduated summa cum laude in 2004 with bachelor of arts and master of arts degrees in chemistry. He received his MD degree from New York University School of Medicine in 2008, where he also completed his general surgery residency in 2015 and cardiothoracic surgery residency in 2017.

Throughout his training, Dr. Yaffee has had a dedicated interest in clinical research, serving as a post-doctoral research fellow in the Department of Cardiac Surgery at New York University School of Medicine between 2011 and 2013. He is extensively published in peer-reviewed journals.

Areas of Expertise
Daniel S. Fusco, MD, received a bachelor of science degree in engineering from the University of Connecticut in 1986 and a master of science degree in electrical engineering from Worcester Polytechnic Institute in 1993. Between 1986 and 1990, he also worked for the General Electric Company in various departments as an Edison engineer including, the Aircraft Instruments and Underwater Warfare divisions.

He went on to receive his medical degree from the University of Connecticut School of Medicine in 1995, followed by completion of a General Surgery internship and residency at Baystate Medical Center between 1995 and 2000, a Thoracic Surgery residency at Virginia Commonwealth University between 2000 and 2002, and a Fellowship in Heart Transplantation and Aortic Surgery at Yale University between 2002 and 2005. He has since served as a board-certified cardiothoracic surgeon at the University of Connecticut John Dempsey Hospital, Hartford Hospital and St. Vincent’s Medical Center.

**AREAS OF EXPERTISE**

Coronary artery bypass surgery, extra corporeal membrane oxygenation, heart transplantation, heart valve surgery, maze and mini maze for atrial fibrillation, mechanical circulatory support, open thoracic aortic surgery, pacemakers, surgery for hypertrophic obstruction cardiomyopathy (HOCM).

**EDUCATION**

**Fellowship**
Medical College of Virginia
Yale New Haven Hospital

**Graduate School**
Worcester Polytechnic Institute

**Internship**
Baystate Medical Center, MA

**Medical School**
New York University School of Medicine

**Undergraduate School**
University of Connecticut

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Sheelagh M. Pousatis, MD, graduated magna cum laude from Muhlenberg College with a bachelor of science degree in biology in 2011, where she completed the Muhlenberg Scholars Honor Program. She went on to receive her MD degree from Georgetown University School of Medicine in 2015, and then completed a six-year integrated thoracic surgery residency at the University of Maryland Medical Center between 2015 and 2021.

Joining Hartford HealthCare in 2021, Dr. Pousatis has had extensive training in adult cardiac surgery with a special focus on mitral valve repair, as well as transcatheter techniques including transcatheter aortic valve replacement, MitraClip mitral valve repair and TEVAR.

**A R E A S O F E X P E R T I S E**
Rafael P. Squitieri, MD, received his bachelor of arts undergraduate degree from Columbia College in 1989 and his MD degree from Mount Sinai School of Medicine in 1993. He performed his general surgery residency at Morristown Memorial Hospital between 1993 and 1998, where he served as chief resident, and his cardiothoracic surgery residency at Mount Sinai Medical Center between 1998 and 2001. He joined St. Vincent's Medical Center in 2001, where he has worked as a board-certified cardiothoracic surgeon. He currently serves as the chief of cardiothoracic surgery and chairman of the Department of Cardiovascular Services.

Dr. Squitieri has been the principal leader in the development of cardiothoracic surgery at St. Vincent's Medical Center and has worked closely with hospital's interventional cardiologists to develop a vigorous structural heart program. He has received numerous honors and awards for his service, published multiple articles in peer-reviewed journals, and is the holder of multiple medical patents.

Areas of Expertise
Coronary artery bypass surgery, transcatheter aortic valve replacement (TAVR).

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Growing Our Heart & Vascular Research

2022–2023 Published Works

Cardiac Surgery

The Hartford HealthCare Heart & Vascular Institute (HVI) Research Program supports and facilitates the growth of heart and vascular research, promote interdisciplinary collaboration between investigators and help inform our patients about access to new and novel treatment options. This serves as a resource for investigators, patients and potential sponsors interested in learning and potentially becoming involved in current HVI research endeavors. It is our privilege to support our clinicians and research colleagues as they contribute to advances in cardiovascular and vascular medicine and improved care for our patients.


