Welcome
Elliot Joseph, President and Chief Executive Officer

Leadership
Sabet W. Hashim, MD
Paul D. Thompson, MD
Mariane Carna, RN, MSN

Heart and Vascular Institute

Outcome Reports
Surgical Procedure Volumes
Percutaneous Coronary Intervention (PCI)
Coronary Artery Bypass Grafting (CABG)
Transcatheter Aortic Valve Replacement (TAVR)
Mitral Valve Repair and Replacement
Heart Transplants and Ventricular Assist Devices (VADs)
Extra-Corporeal Membrane Oxygenation (ECMO)
Vascular Surgery
Echocardiography (ECHO)
Nuclear Cardiology
STEMI Treatment Program
Outcome Reports (continued)

21 Catheter Ablations
22 Atrial Fibrillation (A-Fib)
23 Preventative Cardiology
24 Athlete's Heart Program

25 Highlights

27 About Hartford HealthCare

28 Our Institute Model

29 Metrics for Patients
Elliot Joseph  |  President and Chief Executive Officer

“Most trusted for personalized coordinated care.”  – The Hartford HealthCare vision

At Hartford HealthCare, our vision is our compass – guiding us as we work to transform healthcare and provide our patients and families with superb, seamless care. In earning the trust of our communities, we promise to never stop improving and innovating as we shape a new, high-value model of customer-centered care.

Excellence without evidence is empty. Still, hospitals and health systems have had a hard time reporting quality and outcomes in useful ways. As clinical data moves increasingly to digital platforms and we see more demand for the information from payers and the public, Hartford HealthCare is leading the way to demonstrate our commitment to clinical excellence and full transparency.

Reflected in this report is the work of our multidisciplinary teams of physician leaders, other clinicians, support staff and partners, who are collaborating to set and meet high-quality standards. In our quest for excellence, we have adopted best practices from industries far outside of healthcare. These include High Reliability Training and Lean practices and principles that are part of our H3W (How Hartford HealthCare Works) operating model.

Our success is evident in our improving safety metrics, especially in the area of hand hygiene, where we are among the best in the nation.

We at Hartford HealthCare are benchmarking ourselves against the best healthcare organizations in America to reassure those we serve that they will receive world-class care no matter what hospital, outpatient location or home service they utilize at Hartford HealthCare.

Sincerely,

Elliot Joseph  
President and Chief Executive Officer
Sabet W. Hashim, MD | Chairman of Cardiac Surgery, Co-Physician-In-Chief, Hartford HealthCare Heart and Vascular Institute

Dr. Sabet W. Hashim is a Board Certified Cardiothoracic Surgeon who specializes in minimally invasive aortic and mitral valve surgery, mitral valve repair, surgical ablation of atrial fibrillation (Maze procedure), bilateral mammary bypass grafting, tricuspid valve surgery and reoperative cardiac surgery.

Dr. Hashim earned his medical degree from St. Joseph’s University School of Medicine, Beirut, in 1975 where he ranked 1st on the admission exam. He received his general surgical training from Columbia University at St. Luke’s Hospital Medical Center in New York City. Following his cardiothoracic residency at Yale New Haven Hospital, he joined the Yale University Faculty where he is was the Director of Valve Surgery. He is an active member of the Society of Thoracic Surgeons, American Medical Association, Yale Surgical Society and American College of Surgeons.

In 1984, Dr. Hashim performed the first heart transplant in the state of Connecticut. Dr. Hashim’s clinical research focuses on minimally invasive valve operations and surgical treatment of ischemic mitral regurgitation (IMR). His novel technique for treatment of IMR, published in the Journal of Thoracic and Cardiovascular Surgery, uses Gore-Tex neochordae to rebalance the valve geometry and achieves a more durable result.

Dr. Hashim performed the first mitral valve repair in New England. Since then, Dr. Hashim has consistently held the largest mitral valve practice in Connecticut and has performed over 1,000 mitral valve repairs. He is internationally recognized as an innovator and expert in valve surgery and has developed novel techniques in minimally invasive mitral repair operations. Dr. Hashim pioneered the discrete sub-mammary incision for young women and has perfected the right anterior thoracotomy approach, which eliminates the need for sternotomy and shortens recovery time.

In March 2015, Hartford HealthCare appointed Dr. Hashim as Chairman of Cardiac Surgery and Co-Physician-in-Chief of the Hartford HealthCare Heart and Vascular Institute. Dr. Hashim works collaboratively with internationally recognized Hartford Hospital cardiologist Dr. Paul Thompson, who also has been named the Institute’s Co-Physician-in-Chief. Dr. Thomas Divinagracia, Director of Endovascular Services at Hartford Hospital, leads system-wide vascular surgery strategy.
Paul D. Thompson, MD | Chief of Cardiology, Co-Physician-In-Chief, Hartford HealthCare Heart and Vascular Institute

Paul D. Thompson, M.D., is Director of Cardiology and the Athletes’ Heart Program at Hartford Hospital, the flagship tertiary care center of Hartford HealthCare, a regional, integrated healthcare network with more than 15,000 employees.

Dr. Thompson also is a professor of medicine at the University of Connecticut and previously was professor of medicine at the University of Pittsburgh and on the faculty of Brown University. He has authored more than 200 scientific articles on topics including the effects of exercise training on preventing and treating heart disease, the risk of sudden death during exercise, the effects of statins on muscle function, and genetic factors affecting the exercise response.

He is an associate editor of the Textbook of Cardiovascular Medicine and editor of the book Exercise and Sports Cardiology. Dr. Thompson is a past president of the American College of Sports Medicine. His research and clinical interests in exercise originate from his personal interest in distance running. He qualified for the 1972 U.S. Olympic Marathon Trials in Eugene, Oregon and finished 16th in the Boston Marathon in 1976. He continues to run recreationally and has completed several Boston Marathons.

Dr. Thompson has served as a television medical commentator for two Boston and five New York marathons and commented on the 1992 and 1993 NYC events while running the race. He was NBC’s Sports Medicine Analyst at the 1988 Olympic Games in Seoul, Korea and served in a similar capacity for ABC’s coverage of the 1991 Pan American Games in Cuba. He has been a guest on Good Morning America several times.

Dr. Thompson graduated cum laude in biology from Tufts College and from Tufts Medical School. He served as a medical intern and resident, as well as a cardiology catheterization fellow, at Tufts New England Medical Center and completed his training in cardiology at Stanford Medical Center.

In March 2015, Hartford HealthCare appointed Thompson as the Heart and Vascular Institute’s Co-Physician-in-Chief, working with Dr. Sabet W. Hashim, Chairman of Cardiac Surgery and also Co-Physician-in-Chief of the Institute.
Mariane Carna, RN, MSN  |  System Vice President, Cardiovascular Services

Mariane Carna, RN, joined Hartford HealthCare in September 2015 as System Vice President for Cardiovascular Services. Mariane has over 20 years of executive leadership experience in the development and growth of cardiovascular care under the service line model, and in her current role is accountable for supporting and managing the strategic and operational vision of the Heart and Vascular Institute. Prior to coming to Hartford HealthCare, Mariane served as a senior administrative leader at the Yale-New Haven and New York Presbyterian Hospitals, where she successfully established leading heart and vascular service lines in partnership with the respective academic medical schools of Yale and Cornell, fostering the growth of the clinical and academic mission.

It is Hartford HealthCare's vision to consistently provide excellent, well-coordinated care for all of the patients and families we serve. To fulfill that vision, Hartford HealthCare is committed to coordinated, system-wide service lines and institutes that will provide the same level of quality care across all of Connecticut. Mariane's extensive track record in healthcare administration, strategy, physician relations and clinical integration serves as the foundation and driving force for the future of cardiovascular care delivery for our patients. Along with Dr. Hashim and Dr. Thompson, Mariane is focused on building a collaborative physician governance and leadership structure across the Heart and Vascular Institute. Our ultimate goal is to promote integrated care delivery and the highest quality patient experience supported by our physician and clinical leaders across the Hartford HealthCare network. As a dynamic leader who cares deeply for our patients, Mariane is committed to transforming the cardiovascular care landscape in Connecticut.
Hartford HealthCare is a national leader in heart disease treatment, surgery and research

Here, the region’s most talented and experienced clinicians work with patients to find and fight heart disease. We lead the state in treating coronary artery disease, the nation’s #1 killer.

The Heart and Vascular Institute brings together the assets and expertise of Hartford HealthCare and its extensive network of affiliated private-practice heart and vascular physicians.

About our data management center

The Hartford HealthCare Cardiovascular Data Management Center (CDMC) provides comprehensive and continuous quality improvement for all patients undergoing catheter-based and open surgical procedures. The CDMC maintains clinical databases on patients undergoing cardiac catheterization and percutaneous intervention, open-heart surgery, acute coronary syndromes, structural heart procedures, and pacemaker and defibrillator implantation. The clinical outcomes of all Hartford HealthCare patients are compared to national databases to measure and improve performance.

Learn more about the Hartford HealthCare Heart and Vascular Institute at hartfordhealthcare.org/services/cardiology-heart-care
## Hartford HealthCare Heart and Vascular Institute Surgical Procedures

### Cardiac Surgery

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total open heart procedures</td>
<td>978</td>
</tr>
<tr>
<td><strong>Coronary artery bypass grafting</strong> (isolated and combined)</td>
<td>598</td>
</tr>
<tr>
<td>Valve surgeries</td>
<td>441</td>
</tr>
<tr>
<td>Thoracic aortic repairs</td>
<td>95</td>
</tr>
<tr>
<td><strong>MAZE procedures</strong> (to treat atrial fibrillation)</td>
<td>74</td>
</tr>
<tr>
<td><strong>Atrial Septal Defect (ASD)/Patent Foramen Ovale (PFO) closures</strong></td>
<td>30</td>
</tr>
<tr>
<td>Robot-assisted surgery</td>
<td>35</td>
</tr>
</tbody>
</table>

### Congestive Heart Failure / Transplant

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart transplants</td>
<td>12</td>
</tr>
<tr>
<td>Ventricular assist devices</td>
<td>44</td>
</tr>
<tr>
<td><strong>ECMO</strong> (Extracorporeal Membrane Oxygenation)</td>
<td>7</td>
</tr>
</tbody>
</table>
### Hartford HealthCare Heart and Vascular Institute Surgical Procedures

#### Interventional Cardiology

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic cardiac catheterization</td>
<td>2,328</td>
</tr>
<tr>
<td>Percutaneous coronary interventions</td>
<td>1,205</td>
</tr>
<tr>
<td>Chronic total occlusions</td>
<td>71</td>
</tr>
<tr>
<td>Percutaneous ventricular assist devices</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Structural Heart

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic peripheral catheterization</td>
<td>52</td>
</tr>
<tr>
<td>Percutaneous peripheral intervention</td>
<td>230</td>
</tr>
</tbody>
</table>

#### Peripheral Vascular Intervention

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic peripheral catheterization</td>
<td>52</td>
</tr>
<tr>
<td>Percutaneous peripheral intervention</td>
<td>230</td>
</tr>
</tbody>
</table>
## Hartford HealthCare Heart and Vascular Institute Surgical Procedures

### Electrophysiology

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implantable defibrillators</td>
<td>304</td>
</tr>
<tr>
<td>Catheter ablations</td>
<td>295</td>
</tr>
<tr>
<td>Permanent pacemakers</td>
<td>210</td>
</tr>
</tbody>
</table>

### Diagnostic and Cardiac Imaging

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress tests</td>
<td>2,416</td>
</tr>
<tr>
<td>Nuclear medicine procedures</td>
<td>1,896</td>
</tr>
<tr>
<td>Echocardiograms</td>
<td>11,296</td>
</tr>
</tbody>
</table>

### Preventive Cardiology

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDL apheresis procedures</td>
<td>251</td>
</tr>
</tbody>
</table>

### Cardiac Rehabilitation

<table>
<thead>
<tr>
<th>Category</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total patient encounters</td>
<td>14,261</td>
</tr>
</tbody>
</table>
A PCI, also known as an angioplasty, is a non-surgical procedure that uses a thin, flexible tube (catheter) to open narrow or blocked arteries in the heart.

With over 30,000 procedures performed over the last two decades, the Heart and Vascular Institute’s interventional cardiologists are leading experts in the most advanced technology and quality-driven approaches.

**ISCHEMIC HEART DISEASE:**
**Percutaneous Coronary Intervention (PCI)**

Ranked in **Top 15%** of U.S. Hospitals with lowest PCI Mortality.

![Quality Measures: PCI Mortality](chart)

<table>
<thead>
<tr>
<th>Year</th>
<th>Hartford Hospital</th>
<th>U.S. National Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>0.57%</td>
<td>0.94%</td>
</tr>
</tbody>
</table>

**PCI Procedures**

<table>
<thead>
<tr>
<th>Year</th>
<th>Procedural Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>1,167</td>
</tr>
<tr>
<td>2014</td>
<td>1,130</td>
</tr>
<tr>
<td>2015</td>
<td>1,260</td>
</tr>
</tbody>
</table>

**Pioneering Innovative Therapies in CT**

- Use of drug-eluting stents
- Use of directional coronary atherectomy
- Use of radiofrequency angioplasty
- Use of catheter-based drug delivery

With a commitment to patient safety and high quality care, all of the Heart and Vascular Institute’s outcomes are reported and compared to other programs in a national data registry called the ACC-NCDR.
CABGs are one of the most common open heart surgeries in the U.S.

During this procedure, a healthy artery or vein from the body is connected, or grafted, to the blocked coronary artery. This grafted vessel bypasses the blocked portion of the coronary artery, creating a new path for oxygen-rich blood to flow to the heart.

**ISCHEMIC HEART DISEASE:**
Coronary Artery Bypass Grafting (CABG)

**1st**  
**CABG Procedure Performed in CT**

**1st**  
**Minimally Invasive Bypass and Valve Replacement in CT**

<table>
<thead>
<tr>
<th>Year</th>
<th>CABG Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>598</td>
</tr>
<tr>
<td>2014</td>
<td>531</td>
</tr>
<tr>
<td>2013</td>
<td>516</td>
</tr>
</tbody>
</table>

**STS CABG Quality Ratings**

Given their depth of experience with the CABG procedure, the Heart and Vascular Institute's cardiac surgeons perform well above national quality average.

Earned **Highest Star-Ranking** from the Society of Thoracic Surgeons (STS) for quality of CABG procedure outcomes.
A TAVR is a relatively new valve surgery that provides a treatment option for patients for whom regular heart surgery might otherwise be too risky.

In contrast to traditional valve surgeries, a TAVR is minimally invasive because the replacement aortic valve is placed within the old valve via a catheter versus an open heart procedure.

**VALVULAR HEART DISEASE: Transcatheter Aortic Valve Replacement (TAVR)**

The Heart and Vascular Institute’s physicians are at the forefront of advances in the TAVR procedure. They are pioneering research in new technology and clinical trials, expanding access to new options in quality care for cardiac patients with varying degrees of risk, including:

- Balloon aortic valuloplasty in U.S.
- Transcatheter aortic valve replacement with the Edward’s Sapien valve in Connecticut.

<table>
<thead>
<tr>
<th>Medtronic CORE Valve Pivotal Trial</th>
<th>Expanded Use and SurTAVI Trials</th>
<th>Edwards Low Risk Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>65</td>
<td>72</td>
</tr>
<tr>
<td>117</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The mitral valve, or bicuspid valve, is the dual flap valve that controls blood flow in between the left atrium and left ventricle of the heart.

The Heart and Vascular Institute offers a range of services in mitral valve repair and replacement to best address each patient’s individual need and ensure the highest quality of care and best potential outcome.

Physicians at the Heart and Vascular Institute have always been at the forefront of the latest in mitral valve care. They performed the second balloon mitral valvuloplasty in the U.S. and the first percutaneous mitral valve repair with MitraClip in the state of Connecticut.

**VALVULAR HEART DISEASE:**
Mitral Valve Repair and Replacement

<table>
<thead>
<tr>
<th>Year</th>
<th>Mitral Valve Surgeries</th>
<th>MitraClip Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>MV Replacement: 49</td>
<td>MV Repair: 54</td>
</tr>
<tr>
<td>2014</td>
<td>MV Replacement: 69</td>
<td>MV Repair: 67</td>
</tr>
<tr>
<td>2013</td>
<td>MV Replacement: 59</td>
<td>MV Repair: 80</td>
</tr>
</tbody>
</table>

The Heart and Vascular Institute’s Co-Physician in Chief, Dr. Sabet Hashim is an innovator in mitral valve repair. 1st mitral valve repair in New England.

Over 1,000 mitral valve repairs performed.

1 of 40 centers in U.S. investigating safety and efficacy of MitraClip mitral valve repair as part of the COAP trial.
DRAFT

The Heart and Vascular Institute's physicians performed the first successful heart transplant in CT in 1984. Since then, the heart transplant program has continued growing with tremendous collaboration across the Heart and Vascular Institute's clinical departments.

ADVANCED HEART FAILURE: Heart Transplants and Ventricular Assist Devices (VADs)

VADs are implantable mechanical heart pumps often used for patients as a “bridge to transplant,” to help sustain quality of life until a donor heart is available. VADs are also used as alternate treatment for patients who are not candidates for transplant surgery.

1 year survival rate of 91%, well above U.S. average of 79%.

Among the lowest infection rates in country at 2.2%.

Transplant Procedures

<table>
<thead>
<tr>
<th>Year</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>12</td>
</tr>
<tr>
<td>2014</td>
<td>11</td>
</tr>
<tr>
<td>2013</td>
<td>11</td>
</tr>
</tbody>
</table>

CT's 1st successful heart transplant patient, Andy Buczek, celebrates over 30 years post-transplant.
Outcomes Report

Advanced Heart Failure: Extra-Corporeal Membrane Oxygenation (ECMO)

The Heart and Vascular Institute is one of the only healthcare systems in the area to offer ECMO, an amazing lifesaving procedure that directly oxygenates the blood via an external machine so damaged hearts and lungs can rest and recover.

By acting as a temporary artificial heart or lung, ECMO provides critical time for a patient’s body to recover from respiratory or cardiac failure.

The Heart and Vascular Institute’s portable ECMO program has strong outcome metrics for patients who are among the sickest and most difficult to treat.

- **100%** transported safely
- **84.6%** survival rate at 48 hrs
- **73%** survival rate after 30 days

ECMO Program Procedures

<table>
<thead>
<tr>
<th>Year</th>
<th>Total ECMO Cases</th>
<th>ECMO On-the-Go</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>2014</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>2015</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td>2016 (April)</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>66</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>
The Heart and Vascular Institute’s Vascular Surgery division offers patients state-of-the-art care for a variety of vascular diseases.

Our Vascular Lab is certified by Intersocietal Commission for Accreditation for Vascular Laboratories, ensuring our clinicians are always promoting the best practices in patient safety and delivering the highest standards of care to the community we serve.

Access to the most advanced technology in Hartford HealthCare’s hybrid OR means that our vascular surgery team is able to perform more minimally invasive surgeries for the even the most complex vascular issues. This ultimately means less trauma and quicker recovery for our patients.

HVI’s vascular surgeons recognize the value to patient healing and care that comes from fostering strong partnerships with other key clinical partners across a variety of disciplines. This network allows HHC to provide leading care in CT in areas like:

- **Limb Salvage Program**
- **Stroke Prevention/ Carotid Disease Management**
- **Aortic Center**

**Participate in Vascular Study Initiative (VQI)**

As leaders in vascular surgery, our surgeons strive to improve the quality of care for our patients by actively participating in the Vascular Study Group of New England, the regional group of the VQI: the only national database dedicated to vascular surgery.
Driving Improved Integration for Superior Patient Experience

To improve the patient experience through safety and convenience, the Heart and Vascular Institute has added a new ImageConnect system, an imaging platform where our vascular surgeons can access a patient’s entire imaging history. It is integrated with each patient’s electronic medical record, allowing our clinicians to more easily follow and serve the patient across the Hartford HealthCare system.

VASCULAR SURGERY:
Patient Outcomes That Outperform the National Average

Delivering the highest-quality patient outcomes is of the utmost importance. Our surgeons outperform national benchmarks across several measures in a variety of services.

### EVAR Lower Rate is Better

<table>
<thead>
<tr>
<th>Metric</th>
<th>National Average</th>
<th>HHC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peri-operative Mortality Rate (%)</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>LOS Average (days)</td>
<td>3.8</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Groundbreaking Clinical Trials:

- Study of the RelayPro Thoracic Stent-Graft in Subjects with Thoracic Aortic Aneurysms and Penetrating Atherosclerotic Ulcers
- Evaluation of the GORE® TAG® Thoracic Branch Endoprosthesis Device in the Treatment of Lesions of the Aortic Arch and Descending Thoracic Aorta
- SVS PSO TEVAR Dissection Project evaluates the safety and effectiveness of TEVAR devices used to treat acute or chronic descending aortic dissection (in collaboration with FDA, Gore and Medtronic)
- LIFE Study: Least Invasive Fast-Track EVAR sponsored by Treasury, Inc.
- Post-Market Study to Assess Outcomes of Patients Treated with AFX System Compared to Other EVAR Devices (LEOPARD)
- Zenith Spiral-Z AAA Iliac Leg Graft Post-Market Registry
The Echocardiography Laboratory, providing both inpatient and outpatient services, is staffed by physicians and sonographers with a high level of clinical expertise.

The Heart and Vascular Institute offers specialized types of ECHOs including:

- Transesophageal echocardiography
- Intraoperative echocardiography
- Exercise and pharmacologic stress echocardiography
- Contrast echocardiography
- Three-dimensional echocardiography
- Doppler tissue imaging
- Strain rate imaging

### Expanding Expertise and Capabilities

The Heart and Vascular Institute’s clinicians continue to build on their experience and knowledge to offer a wider array of ECHO services for their patients, including more complex interventional procedures and consulting support for valvular surgery cases.

### Actively Contributing to ECHO Medicine Advancement

Through a variety of articles published in the field’s most important journals and publications, the Institute’s clinicians are leading the evolution of ECHO care both in CT and the U.S.
Nuclear medicine imaging, using low-dose radioactive components and sophisticated computer technology, can often identify a heart disorder in its early stage.

The Heart and Vascular Institute’s nuclear cardiology lab is **nationally accredited** and **only 1 of 3 labs in CT** to perform Positron Emission Tomography (PET) imaging, the most advanced nuclear cardiac imaging procedure available.

The Heart and Vascular Institute is dedicated to training the next generation of clinicians, recently graduating two non-invasive cardiology fellows. The important work of its fellows is being recognized in the region, with one cardiology fellow recently winning the Levine Research Award at UConn for research performed in the nuclear cardiology lab.

** ADVANCED IMAGING: Nuclear Cardiology **

<table>
<thead>
<tr>
<th>Year</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>2,069</td>
</tr>
<tr>
<td>2014</td>
<td>1,956</td>
</tr>
<tr>
<td>2015</td>
<td>1,896</td>
</tr>
</tbody>
</table>

** Ongoing Contributor to Latest Field Research **

Since the Fall of 2015, the Heart and Vascular Institute’s clinicians have contributed to **12 Nuclear Cardiology Publications** including original research, editorials and review articles.

** Recognized Excellence by the American Society of Nuclear Cardiology (ASNC) **

- **11** research presentations in two years
- **2** Young Investigator finalists
- **3** Research Travel Grant winners
- **1** Nuclear Tech in U.S. to receive masters designation (MASNC)
A STEMI is a type of heart attack (myocardial infarction) in which there is full thickness of cardiac muscle damage resulting from an acute interruption of blood supply to a part of the heart.

Due to the level of damage, a STEMI is the most serious type of heart attack, requiring immediate identification and treatment.

In partnership with LIFESTAR and an extensive EMS network, the Heart and Vascular Institute has developed one of the largest STEMI treatment programs in New England.

The Heart and Vascular Institute’s tertiary care center, Hartford Hospital, has been nationally recognized as a dual-accredited Chest Pain Center for PCI and Resuscitation. The high level of standardized and quality care to achieve this designation enhances outcomes for patients suffering from heart attacks.

1st Hospital in New England with dual accreditation

4th Hospital in the US with dual accreditation

The Heart and Vascular Institute received the Bronze Designation from the American Heart Association Mission Lifeline program.

It recognizes high performance on key program indicators and quality metrics to improve care of STEMI patients.
The Heart and Vascular Institute’s electrophysiologists are clinical leaders in the treatment and care of heart rhythm disorders across a range of options, from surgical to drug therapy.

One technique, catheter ablations, is a minimally invasive procedure that uses radiofrequency energy (heat) or cryo-therapy (cold) to destroy small areas of heart muscle that give rise to the electrical signals that cause rapid or irregular heart rhythms.

Global Innovation in Ablation Techniques

The Heart and Vascular Institute’s electrophysiologists are not only performing complex ablation procedures but are also working to discover new treatments to advance the quality of care for our patients.

1st in the world to perform intentional right atrial exit with carbon dioxide insufflation for epicardial access for ablation of ventricular tachycardia.

The Heart and Vascular Institute’s clinicians understand that participating in groundbreaking research is crucial to improving care and patient outcomes.

We are participating in the CABANA catheter ablation trial, the largest global study of its kind across 10 counties.

Catheter ablation is used to treat certain heart rhythm problems when medication is no longer effective, and it is the only cardiac procedure that can be called curative.
A-Fib is the most common abnormal heart rhythm, with approximately 3 million Americans currently affected and millions more expected to develop the condition over the coming years.

During A-Fib, the two upper chambers of the heart, the atria, beat irregularly and too quickly. If left untreated, A-Fib can lead to an increased risk for having a stroke.

The Heart and Vascular Institute offers patients a dedicated A-Fib center at Hartford Hospital that brings together multi-disciplinary advanced procedural options.

A-Fib is linked to several forms of cardiac disease, but can also occur in healthy individuals. Family history of A-Fib can lead to an increased risk of A-Fib. There are also genetic disorders associated with A-Fib.
The Heart and Vascular Institute’s Preventative Cardiology team offers a series of comprehensive programs focusing on the prevention, management and treatment of heart disease through patient care and education.

Its programs and services are tailored to help people with known or suspected heart disease, or those recovering from a heart attack or cardiac surgery.

PREVENTATIVE CARDIOLOGY

Cardiac Rehabilitation
The Heart and Vascular Institute’s Cardiac Rehabilitation Program has been accredited for over 10 years by the American Association of Cardiovascular Pulmonary Rehabilitation (AACVPR). It maintains the highest quality of care in the treatment of patients with cardiac and pulmonary diseases.

1 of 6 hospitals in CT to earn the AACVPR accreditation.

LDL Apheresis Program
As 1 of only 40 LDL Apheresis centers in the U.S., the Heart and Vascular Institute’s program is one of the largest in the country and the only center in CT. It treats patients with lipid disorders not responsive to traditional medical therapy and serves patients in CT, MA and VT.
The Heart and Vascular Institute’s Athlete’s Heart Program is one of a kind in CT and provides medical evaluation and recommendations for competitive and recreational athletes with documented or potential cardiac problems.

The Athlete’s Heart Program balances an athlete’s medical management needs and risks with the benefits of continued athletic competition.

The October 2016 edition of Runner's World highlighted the Institute’s Athletic Heart Program. In this feature, Amby Burfoot, 1968 winner of the Boston Marathon, credited Dr. Thompson and his team for helping to preserve not only his cardiac health but his lifelong passion for running.

**World Renowned Clinical Leadership**

Dr. Paul Thompson, the Heart and Vascular Institute’s Co-Physician-In Chief and a 1972 US Olympic Marathon Trials Qualifier, is an internationally recognized expert in the field of sports cardiology.

Dr. Thompson and colleague Dr. Antonio Fernandez recently completed a groundbreaking, 40-chapter book on sports cardiology, which released in January 2017.

**With over 250 publications** authored in the field of sports cardiology, the Heart and Vascular Institute’s team is at the forefront of medical advancement - in clinical cardiac care and the continued promotion of the importance of exercise in overall health.
HARTFORD HEALTHCARE HEART AND VASCULAR INSTITUTE
2015 OUTCOMES REPORT

HIGHLIGHTS

- Leading CT in Treatment of Coronary Artery Disease—#1 Killer in the U.S.
- 30,000 PCIs Performed in Last 20 Years
- Highest Star Rating for Bypass Surgery
- Longest-Running Fellowship Program in CT
  Since being established in 1995, the HVI’s Vascular Surgery Fellowship has graduated over 20 vascular surgeons, who are now successful clinical leaders.
- Only ECMO ‘On-the-Go’ in New England
- Leading Innovation in Ablation Procedures
HIGHLIGHTS

Lower than National Average Mortality in Cardiac Surgery

- National Average Mortality %
- Hartford Hospital Mortality %

Experts in Endovascular Aneurysm Repair (EVAR)

Interventional Cardiology Fellowship Program

Participating in Breakthrough National Research

1st Successful Heart Transplant in CT
About Hartford HealthCare

Hartford HealthCare is Connecticut’s most comprehensive healthcare network. Our fully integrated health system includes a tertiary-care teaching hospital, an acute-care community teaching hospital, an acute-care hospital and trauma center, two community hospitals, the state's most extensive behavioral health services network, a large primary care physician practice group, a regional home care system, an array of senior care services, and a large physical therapy rehabilitation network. The Hartford HealthCare Cancer Institute provides coordinated care across five cancer centers and is the charter member of the Memorial Sloan Kettering Cancer Alliance.

Today, Hartford HealthCare is creating a better future for healthcare in Connecticut and beyond. We are a community of caregivers engaged in developing a coordinated, consistent high standard of care. We use research and education as partners in care delivery. We create and engage in meaningful alliances to enhance access to services. We invest in technology and training to develop new pathways to improve the timeliness, efficiency and accuracy of our services.

Our vision
To be nationally respected for excellence in patient care and most trusted for personalized coordinated care.

Our values

Caring – We do the kind thing. Every Hartford HealthCare staff member touches the lives of the patients and families in our care. We treat those we serve and each other with kindness and compassion and strive to better understand and respond to the needs of a diverse community.

Safety – We do the safe thing. Patients and families have placed their lives and health in our hands. At Hartford HealthCare, our first priority – and the rule of medicine – is to protect them from harm. We believe that maintaining the highest safety standards is critical to delivering high-quality care and that a safe workplace protects us all.

Excellence – We do the best thing. In Hartford HealthCare, only the best will do. We work as a team to bring excellence, advanced technology and best practices to bear in providing the highest-quality care for our patients and families. We devote ourselves to continuous improvement, excellence, professionalism and innovation in our work.

Integrity – We do the right thing. Our actions tell the world what Hartford HealthCare is and what we stand for. We act ethically and responsibly in everything we do and hold ourselves accountable for our behavior. We bring respect, openness and honesty to our encounters with patients, families and coworkers and support the well-being of the communities we serve.

Visit us at www.hartfordhealthcare.org
This report represents an important milestone in Hartford HealthCare’s quality-and-safety journey. We strongly believe that our future progress will be linked to the evolution of our Institute Model, which will allow us to integrate a strong customer experience with advancements in clinical quality. We have launched six such Institutes: Behavioral Health, Bone and Joint, Cancer, Heart and Vascular, Neuroscience, and Tallwood Urology and Kidney. Each is in a different state of development; Hartford HealthCare’s Cancer Institute was the first to roll out.

Our Institutes are not service lines by another name. They have been designed around our patients and with patients’ needs in mind. Our Institutes are becoming the infrastructure of care at Hartford HealthCare. Each Institute uses the system’s standard operating model and has a common governance structure. Each is co-led by a physician to ensure that patients and families receive the same high level of clinical excellence across our system. Our Institutes have been created to both establish and meet industry-leading quality standards and to continuously raise the bar.

Our vision is to be most trusted by our patients and other customers. That trust is built on clinical excellence. Through our Institutes, we are creating a foundation for ever-improving clinical quality available to all the people we serve across Hartford HealthCare.

This report is a sign of our ongoing commitment to quality, transparency and accountability. Thank you for your interest in Hartford HealthCare.

Sincerely,

Jeffrey A. Flaks
Executive Vice President
Chief Operating Officer
Today, consumers are being asked to make healthcare decisions that touch their well-being and their wallets. They want – and deserve – to know the results of care, including complication rates and how experienced we are in treating certain conditions. Every provider claims “high quality” and “comprehensive care.” It’s easy to lay claim to excellence, but the proof is in the data.

While such information is becoming more widely available, especially online, it is often complex and highly variable and difficult for the average consumer to navigate.

Hartford HealthCare is committed to transparency when it comes to reporting our performance, and we understand that the information we provide must be clear, comprehensible and useful. We strive to be among the leaders helping to shape performance-reporting parameters. We want to raise the bar in this new era of consumerism.

We are providing this information in an understandable format and sharing our quality measures in a meaningful way so doctors, patients and their loved ones can make informed, fact-based decisions. In the end, our quality metrics are for our patients.

This report showcases much of the work done by our physicians, other clinicians and support staff across Hartford HealthCare. We have embarked on an incredible journey together to offer highly coordinated, consistently safe care. This outcomes information is another important step. We hope you find it informative and useful.

Sincerely,

Rocco Orlando, MD
Senior Vice President
Chief Medical Officer
Hartford HealthCare
Heart and Vascular Institute
1.855.HHC.HERE
80 Seymour Street
Hartford, CT 06102

Learn more about our services and providers at hartfordhealthcare.org/services/cardiology-heart-care