FLORENCE WORMALD
HEART & VASCULAR INSTITUTE

2026 PERFORMANCE REPORT

FY 2025 DATA



St. Elizabeth HEALTHCARE

MESSAGE FROM HVI LEADERSHIP

For more than 160 years, St. Elizabeth Healthcare has been privileged to serve the Northern Kentucky and Southeastern Indiana communities, guided by a tradition of clinical excellence, compassion and innovation.

The opening of the Florence Wormald Heart & Vascular Institute in 2021 marked a defining milestone in that legacy - bringing together cardiology, cardiac surgery, electrophysiology, heart failure and advanced specialty programs within a single, integrated cardiovascular center.

This Performance Report reflects the collective progress of our teams over the past year. Across the Institute, we expanded specialty programs, adopted cutting-edge technologies and strengthened care pathways. These efforts have earned recognition at the highest national levels and reinforce our role as a regional destination for complex cardiovascular care.

Central to this progress is a multidisciplinary model that prioritizes collaboration and clinical judgment. By coordinating expertise across medical, interventional, surgical and critical care disciplines, we ensure that patients receive the right care at the right time - whether they require preventive evaluation, catheter-based intervention, complex surgery or longitudinal disease management. This integrated approach improves efficiency, reduces delays and supports continuity across the full course of care.

Our commitment to quality is reflected not only in external recognition, but in outcomes that consistently meet or exceed national benchmarks. Just as importantly, it is reflected in the daily work of our physicians, nurses, advanced practice providers and support teams, whose focus on precision, safety and patient experience underpins everything we do.

Thank you for your continued collaboration and trust as we work together to raise the standard of heart and vascular care for the communities we serve.

Sincerely,
HVI Leadership

BEST REGIONAL HOSPITALS
U.S.News & WORLD REPORT
BLUEGRASS
RECOGNIZED IN 19 TYPES OF CARE
2025–2026
EDGEWOOD

The Joint Commission® CERTIFICATION
American Heart Association®
Meets Standards for
Comprehensive Cardiac Center

AMERICAN HEART ASSOCIATION
COMMITMENT TO QUALITY
★ 2025 ★

KENTUCKY'S #1 HOSPITAL
(U.S. News & World Report)

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MILESTONES & METRICS

BY THE NUMBERS

A snapshot of progress, scale and momentum

615
Cardiac Surgeries Performed

6,343
Cardiac Catheterizations

42+
LVADs implanted *(since 2020)*

59,000+
Advanced cardiac & vascular diagnostic studies

5,456
Heart failure patients enrolled in device monitoring

20+
Active cardiovascular clinical trials

3,576
Electrophysiology procedures

800+
Watchman™ Procedures *(since 2017)*

900+
TAVR Cases *(since 2014)*

470
Totally Endoscopic Cardiac Surgeries

INNOVATION & IMPACT

Totally Endoscopic Cardiac Surgery (TECS)

Region's only program offering closed-chest cardiac surgery with enhanced 3D 4K endoscopic visualization.

First-in-Region Rhythm & Device Therapies

Early adoption of next-generation cardiac devices, including the Aurora EV-ICD™ and Aveir™ DR leadless pacemaker.

Advanced Microvascular Diagnostics

First in the region to deploy Coroventis CoroFlow® technology for microvascular and coronary flow assessment.

First in the Region (Tri-State) & First in the Country: Blood Volume Analysis (BVA)

Implemented for heart failure management and integrated into the Electronic Medical Record to support hemodynamic-guided care.

WHAT SETS US APART

Expedited Cardiology Access for Acute Needs

Rapid access to cardiology evaluation for patients with urgent, non-emergent cardiovascular concerns, supported by streamlined referral pathways and coordinated specialty triage.

Minimally Invasive Surgical Options

Comprehensive range of minimally invasive cardiac surgery capabilities applied across a broad spectrum of heart conditions.

High-Risk Cardiovascular Intervention Capability

Clinical experience and infrastructure to support patients requiring complex, high-acuity cardiovascular care.

Institute-Wide Case Review

Complex cases benefit from coordinated input across medical, interventional and surgical cardiovascular specialties to align on the most appropriate treatment strategy.



CARDIAC SURGERY

Dr. George Christensen, Dr. Mickey Ising

FULL SPECTRUM OF MINIMALLY INVASIVE CAPABILITIES

Small Incision | Totally Endoscopic | Robot Assisted

The St. Elizabeth Cardiac Surgery team treats complex coronary disease and disorders of the aortic, mitral and tricuspid valves, including cases requiring nuanced decision-making, prior surgical history or mechanical support. Care is guided by a multidisciplinary approach that integrates primary care, cardiology and surgical expertise to tailor treatment based on patient-specific anatomy and clinical factors. Program performance is validated through national quality benchmarks, including Society of Thoracic Surgeons (STS) metrics and Centers for Medicare and Medicaid Services (CMS) mortality measures.

A defining strength of the program is minimally invasive excellence at the highest level - spanning totally endoscopic, small-incision and robotic approaches - allowing more patients to avoid sternotomy when clinically appropriate. Second opinions are available for any case, providing confidence, clarity and access to options not always offered elsewhere, bringing experienced surgical perspective to decisions that carry long-term implications.

Program Performance & Outcomes

- Top 5% nationally: Lowest 30-day coronary artery bypass grafting (CABG) mortality (CMS).
- Multi-arterial bypass grafting performed at rates nearly three times the national average.
- 30-day CABG readmission rate: 8.9%, outperforming national benchmark averages of 9.5–10%.

Patient Selection / Referral Considerations

- Complex coronary artery disease.
- Valvular heart disease requiring surgical repair or replacement.
- Aortic pathology requiring operative intervention.
- Re-operative cardiac surgery.
- Candidates for minimally invasive or totally endoscopic surgical approaches.
- Surgical management of atrial fibrillation.

Clinical Scope / Procedures Offered

Coronary & Aortic Surgery

- CABG, including minimally invasive and robot-assisted MIDCAB.
- Ascending aortic replacement / aortic aneurysm repair.
- Aortic root and valve-sparing operations.
- Arch repair, including transverse arch pathology when indicated.
- Minimally invasive ascending aorta replacement with aortic valve replacement.

Valve Surgery

- Mitral valve repair / replacement.
- Aortic valve replacement.
- Tricuspid valve repair / replacement.
- Ross procedure.

Arrhythmia Surgery

- Surgical ablation for AFib (MAZE).
- Left atrial appendage ligation / excision.

Heart Failure & Mechanical Support

- LVAD implantation and management.
- ECMO cannulation and management.

Structural Heart, Cardiac Tumors & Specialized Procedures

- Atrial septal defect (ASD) and patent foramen ovale (PFO) closure.
- Ventricular septal defect (VSD) closure.
- Myxoma and other intracardiac tumor resection.
- Septal myectomy for hypertrophic cardiomyopathy.
- Pericardial procedures (window, cyst resection).
- Epicardial lead placement.
- Sternal plating and wire removal.

Post-Operative & Surgical Critical Care

- Dedicated **Cardiovascular Surgical Intensive Care Unit (CVSICU)** delivering high-acuity, specialized postoperative care for complex cardiac surgery, supported by continuous hemodynamic monitoring.
- Advanced mechanical circulatory support, including **ECMO**, for emergent cardiovascular stabilization.
- Multidisciplinary cardiac critical care model integrating surgery, anesthesia, perfusion, heart failure and ICU teams to guide recovery and escalation.

National Leadership & Surgical Education

In 2025, St. Elizabeth hosted the annual Endoscopic Cardiac Surgeons (ECS) Club meeting, convening **380 cardiac surgeons, physicians and medical professionals from 42 countries** to focus on the emerging field of totally endoscopic cardiac surgery.

AREAS OF EXPERTISE

- Coronary revascularization in high-risk coronary anatomy.
- Minimally invasive valve repair for degenerative and multi-valve disease.
- Development of robotic-assisted coronary bypass, surgical AFib ablation and left atrial appendage clip procedures.
- Aortic root and arch repair, including transverse arch pathology when appropriate.
- Integrated surgical AFib treatment .
- Second opinions for diagnostic clarity and surgical decision-making.
- AI-supported screening to enhance early identification and triage of mitral valve disease.
- Surgical AFib using both the EPi-Sense ST™ and EnCompass™ RF systems.

Awards / Accreditations

STS 3/3 Stars (January 2023–December 2025)

- CABG Surgery.
- Mitral Valve Replacement/Repair.
- Multiprocedural Overall.

U.S. News & World Report

- High Performing in Heart Bypass Surgery.
- High Performing in Aortic Valve Surgery.



HEART BYPASS SURGERY



AORTIC VALVE SURGERY



ARRHYTHMIA CENTER

Dr. Thomas Carrigan

FIRST-IN-REGION INNOVATION

Aurora EV-ICD™ | Aveir™ DR leadless pacemaker

The St. Elizabeth Arrhythmia Center provides comprehensive evaluation and long-term management of complex cardiac rhythm disorders, serving patients whose conditions require specialized diagnostic insight, procedural expertise and coordinated follow-up over time. The program manages a broad spectrum of atrial and ventricular arrhythmias, pacing disorders and device-related conditions, with care tailored to disease severity, symptom burden and individual risk profiles.

Care is delivered through an integrated electrophysiology program that aligns EP, heart failure, structural heart and cardiac surgery expertise. This approach supports accurate diagnosis, thoughtful selection of therapy and continuity across procedural and longitudinal care settings - enabling the Arrhythmia Center to manage high-complexity rhythm disease with consistency, safety and durability.

Program Performance & Outcomes

- Demonstrated stroke risk reduction protocols aligned to evidence-based anticoagulation and rhythm control pathways reflected in award criteria.
- Remote monitoring and longitudinal rhythm management across more than 5,400 device patients annually.
- Ongoing expansion of advanced ablation/device therapies and monitoring frameworks to support durable rhythm control.
- Participation in clinical trials focused on AFib management and stroke risk reduction.

Patient Selection / Referral Considerations

- Symptomatic/persistent AFib, AFL, SVT, or VT requiring advanced mapping/ablation.
- Complex device management, optimization or lead extraction/revision.
- Leadless pacing or extravascular defibrillation indications.
- Patients benefiting from long-term rhythm surveillance and EP-led evaluation.

Clinical Scope / Procedures Offered

- 3D electroanatomic mapping for localization and ablation of arrhythmogenic substrates.
- Radiofrequency, cryoablation and **pulsed field ablation (PFA)** for AFib, AFL and VT.
- Device-based therapies: ICDs, CRTs and leadless pacemakers.
- Complex lead extraction and device revision in a hybrid OR setting.
- Remote rhythm monitoring/longitudinal surveillance (e.g., event/Holter, implantable loop recorders).
- Left atrial appendage occlusion (LAAO/ Watchman™).

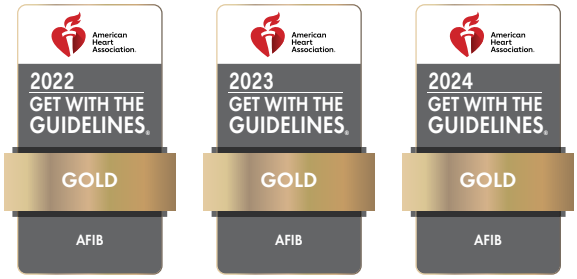
Awards / Accreditations

American Heart Association

- Get with the Guidelines®: AFib Gold Award (2022-2025).

U.S. News & World Report

- High Performing in Heart Arrhythmia.
- High Performing in Pacemaker Implantation.







AREAS OF EXPERTISE

- Atrial fibrillation and atrial flutter.
- Supraventricular tachycardia.
- Ventricular tachycardia.
- Bradyarrhythmia requiring pacing, including leadless pacing.
- Stroke risk reduction in atrial fibrillation, including left atrial appendage occlusion (LAAO).
- Device-related complications and lead management/extraction.

WATCHMAN™ / LEFT ATRIAL APPENDAGE OCCLUSION (LAAO) PROGRAM

800+ WATCHMAN™ PROCEDURES

since program inception in 2017

Left atrial appendage occlusion (LAAO) provides an implant-based option for stroke risk reduction in patients with non-valvular atrial fibrillation who are not suitable for long-term oral anticoagulation. The device is placed percutaneously to occlude the left atrial appendage, the source of most stroke-causing thrombus in non-valvular AFib.

Candidate considerations are guided by CHA_2DS_2-VASc and bleeding risk assessment, imaging evaluation and multidisciplinary structural heart team review.

Program capabilities include **concomitant LAAO and ablation procedures** for appropriately selected patients.

Patient Selection / Referral Considerations

- Non valvular AFib with elevated stroke risk.
- Contraindication or intolerance to long term anticoagulants.
- History of bleeding events or significant fall risk.



ADVANCED HEART FAILURE MANAGEMENT CENTER

FIRST IN THE COUNTRY Blood Volume Analysis with automated EMR integration.

FIRST IN THE TRI-STATE to implement Blood Volume Analysis for heart failure management.

The Heart Failure Program at St. Elizabeth provides ongoing management for patients across the range of heart failure severity - from earlier disease requiring optimization and monitoring to later-stage presentations requiring specialized diagnostics and escalation to inotropes, mechanical support or transplant consideration when indicated.

Our program cares for diverse etiologies, including HFrEF, HFpEF, infiltrative and inherited cardiomyopathies and cardiopulmonary disease with complex hemodynamic implications. Care emphasizes accurate diagnosis, optimization of guideline-directed therapy and timely escalation when symptoms progress despite treatment.

Program Performance & Outcomes

- Develop individualized care plans for more than **3,700** heart failure patients each year.
- Implemented **Pulmonary Hypertension Program** to focus on classification and hemodynamic characterization of pulmonary vascular disease.
- Developed a **Hypertrophic Cardiomyopathy Program** to support early diagnosis and family-based genetic screening.

Innovative Approaches

- Multidisciplinary care model integrating palliative care, dietetics, ambulatory pharmacy and social work into heart failure management.
- Blood Volume Analysis (BVA) for direct measurement of plasma and red blood cell volume to inform heart failure management.
- Hemodynamic-guided management using CardioMEMS™ monitoring in select patients.
- Ambulatory IV diuretic therapy to reduce emergency department visits and hospitalizations.
- LVAD care pathways incorporating palliative care, dietetics support, pharmacy review and post-discharge continuity.
- Quarterly LVAD support group to support patient education, peer connection and long-term device management.
- Formal LVAD quality-of-life monitoring framework with follow-up reporting.

Patient Selection / Referral Considerations

- Heart failure symptoms progressing despite optimized guideline-directed medical therapy or needing to decrease medication doses.
- Recurrent decompensation or more than one heart failure hospitalization in a year.
- NYHA class II–IV heart failure or evidence of progressive functional decline.
- Persistently elevated BNP levels or ICD shocks in symptomatic patients.
- Infiltrative or hypertrophic cardiomyopathies, including amyloidosis or sarcoidosis.
- Suspected or confirmed pulmonary hypertension requiring hemodynamic evaluation.
- Consideration for inotropes, mechanical circulatory support, LVAD or transplant evaluation.

Clinical Scope / Procedures Offered

- Clinical trials participation across advanced heart failure therapies.
- CardioMEMS™ remote monitoring for home hemodynamic assessment.
- Right heart catheterization for hemodynamic diagnosis and therapy planning.
- Cardiopulmonary stress testing (CPX) for objective functional assessment.
- Endomyocardial biopsy.
- Escalation & Advanced Therapies
  - Temporary mechanical circulatory support (Impella, intra-aortic balloon pump, VA ECMO).
  - Durable mechanical circulatory support (LVAD evaluation and long-term management).
- Inherited cardiomyopathy support through genetic evaluation and counseling when indicated.

AREAS OF EXPERTISE

- HFrEF / HFpEF management, including complex medication optimization and symptom monitoring.
- Infiltrative and inherited cardiomyopathies (e.g., amyloidosis, sarcoidosis, hypertrophic cardiomyopathy).
- Inotropes and durable mechanical circulatory support (LVAD) evaluation.
- Management of progressive or refractory HF.
- Transplant consideration pathways when appropriate.

Awards / Accreditations

- DNV Credentialing as a Ventricular Assist Device (VAD) Facility.
- AHA Get with the Guidelines®: Heart Failure Silver Plus Award.
- U.S. News & World Report: High Performing in Heart Failure.









STRUCTURAL HEART & VALVE CENTER

The Structural Heart & Valve Center at St. Elizabeth provides comprehensive evaluation and treatment for complex valvular and structural heart disease, serving patients whose conditions require enhanced diagnostic insight, multidisciplinary review and individualized procedural planning. The program manages a broad spectrum of disease severity - from early valve pathology requiring close surveillance to complex structural conditions requiring surgical, transcatheter, or hybrid intervention.

Care is directed through a collaborative heart team model that brings together interventional cardiologists, cardiac surgeons, advanced imaging specialists, anesthesiologists and dedicated nurse navigators. This structure ensures treatment decisions are guided by anatomy, risk and durability rather than a single procedural pathway.

MITRAL VALVE PROGRAM

ZERO M-TEER MORTALITY *(past two years)*
0% ACUTE KIDNEY INJURY (AKI)

St. Elizabeth is a regional leader in the treatment of degenerative and functional mitral valve disease, with globally recognized expertise in totally endoscopic minimally invasive mitral valve repair and replacement. This program emphasizes precision, durability and rapid recovery through advanced imaging, meticulous evaluation and coordinated structural heart collaboration.

For select patients with symptomatic mitral regurgitation who are not optimal candidates for open surgical repair, **transcatheter edge-to-edge repair (TEER)**, including **MitraClip™**, is offered following comprehensive heart-team and imaging evaluation.

Patient Selection / Referral Considerations

- Degenerative or functional MR appropriate for repair or replacement
- Candidates for minimally invasive or totally endoscopic surgical approaches
- Patients who may benefit from early referral to prevent ventricular dysfunction
- High-risk patients who may be suitable for transcatheter repair

AORTIC VALVE PROGRAM

900+ TAVR

cases completed since program launch in 2014

Patients with suspected aortic stenosis undergo detailed clinical and imaging evaluation. Early disease can be subtle - symptoms are often attributed to normal aging, making clinical vigilance essential.

Common presentations include dyspnea, exertional intolerance, syncope/presyncope, chest pressure, palpitations, ankle edema and progressive fatigue.

ACC/AHA Criteria for Severe Aortic Stenosis

- Mean gradient ≥40 mmHg
- Peak velocity ≥4.0 m/s
- Aortic valve area (AVA) <1.0 cm^2

For patients not suited to open surgery - or when a less invasive approach is preferred - we offer **Transcatheter Aortic Valve Replacement (TAVR)** with alternate access (subclavian/carotid) as indicated. The biologic valve is deployed via catheter, enabling shorter hospital stays, early mobilization and rapid return to activity.

Patients may qualify based on meeting **two of three ACC/AHA criteria** for sever aortic stenosis, with TAVR offered across low, intermediate and high surgical risk profiles through multidisciplinary heart team evaluation.

Patient Selection / Referral Considerations

- Symptomatic severe aortic stenosis.
- Meets ACC/AHA severe AS criteria (≥40 mmHg gradient, ≥4.0 m/s Vmax, AVA <1.0).
- Frailty or comorbidities influencing suitability for open surgery.



CLINICAL CARDIOLOGY

Destiny F., M.A., Dr. Erica Pivato

EXPEDITED CARDIOLOGY APPOINTMENTS

Rapid outpatient access with specialty-aligned triage for acute cardiovascular concerns

Clinical Cardiology serves as the primary point of cardiovascular evaluation for patients with new, evolving or chronic heart conditions. This team focuses on medical diagnosis, risk stratification and guideline-directed management to determine which patients can be effectively managed longitudinally and which require timely escalation to specialty intervention.

By overseeing diagnostic workups, optimizing medical therapy and monitoring disease progression, Clinical Cardiology plays a central role in directing patients to the appropriate next step across the Heart & Vascular Institute - including Interventional Cardiology, Electrophysiology, Structural Heart, Advanced Heart Failure or Cardiac Surgery - based on clinical need rather than procedural default.

Clinical Scope / Procedures Offered

- Cardiovascular risk assessment and longitudinal disease management (preventative to chronic).
- Optimization of guideline-directed medical therapy for chronic cardiac conditions.
- Evaluation of cardiac symptoms not requiring emergent care.
- Coordination of noninvasive diagnostics to clarify diagnosis and guide care planning.
- Ongoing surveillance for disease progression or treatment response.
- Direct to cardiology access with virtual health and PCP care coordination.
- Coordination of noninvasive diagnostics and specialty programs (including cardiometabolic, sports cardiology and cardio-oncology) to support individualized care planning.

Patient Selection / Referral Considerations

Symptoms

- Chest pain not requiring ED evaluation.
- Dyspnea on exertion.
- Palpitations or irregular rhythms.
- Dizziness, syncope or presyncope.

Anomalous Test Findings

- Abnormal EKG, stress test or echocardiogram.
- Progressive or incidental structural findings requiring further evaluation.

Risk Factors Requiring Specialist Management

- Hypertension, dyslipidemia, cardiometabolic risk.
- Strong family history of early cardiovascular disease.



INTERVENTIONAL CARDIOLOGY

CHIP/CTO & ADVANCED PCI

Contemporary revascularization strategies for complex coronary disease

Interventional Cardiology delivers catheter-based therapies for the diagnosis and treatment of coronary artery disease, focusing on patients who require revascularization beyond medical management alone. The program provides minimally invasive procedural solutions for acute coronary syndromes and complex coronary disease, reducing the need for open surgical intervention when appropriate.

Interventional cardiologists manage a wide range of anatomic and clinical complexity, using advanced techniques to restore perfusion, stabilize high-acuity presentations and support durable outcomes in patients with progressive or treatment-refractory coronary disease.

Patient Selection / Referral Considerations

- Persistent angina or exertional chest pain despite optimized medical therapy.
- Abnormal stress testing or imaging indicating ischemia or obstructive coronary disease.
- Known or suspected coronary artery disease requiring angiographic evaluation.
- Complex coronary anatomy, severe calcification, or chronic total occlusions.
- Patients not suitable for surgical revascularization who may benefit from PCI.

Clinical Scope / Procedures Offered

Coronary Revascularization

- Emergency revascularization during acute myocardial infarction.
- Balloon angioplasty to restore flow in narrowed coronary vessels.
- Coronary stenting to maintain long-term vessel patency.

Advanced Coronary Intervention

- Atherectomy for heavily calcified or fibrotic plaque.
- Chronic total occlusion (CTO) intervention.
- Complex multivessel and high-complexity PCI.

Adjunctive & Supportive Procedures

- Thrombectomy for targeted removal of intraluminal thrombus.
- Pericardiocentesis for cardiac tamponade or significant effusions.

Awards / Accreditations

- AHA Get with the Guidelines®: Coronary Artery Disease/STEMI recognition
- U.S. News & World Report: High Performing in Heart Attack





AREAS OF EXPERTISE

- **High Risk PCI Program:** percutaneous coronary intervention specialized care for patients with complex coronary disease, elevated surgical risk or advanced comorbidities.
- **CHIP/CTO Program:** treatment of Chronic Total Occlusions and Complex High Risk Interventional Procedures, enabling revascularization in severe and previously untreatable lesions.
- Acute coronary syndrome management, including emergent catheter-based intervention.
- Evaluation and treatment of angiographically complex anatomy, including calcified, bifurcation and multivessel disease.



SPECIALIZED PROGRAMS

Our Specialized Programs provide support for patients whose cardiovascular needs are shaped by unique risk factors, treatment exposures or life stages. By offering focused evaluation and management, these programs extend the care provided through Clinical Cardiology and help ensure patients are matched to the most appropriate expertise.

CARDIO-ONCOLOGY PROGRAM

Certain cancer therapies can affect the heart by triggering new cardiovascular problems or aggravating pre-existing conditions. The Cardio-Oncology Program provides focused evaluation, monitoring and management of cardiovascular complications related to chemotherapy, radiation therapy and targeted cancer treatments.

Areas of Expertise

- Baseline cardiac assessment before therapies associated with cardiotoxicity.
- Monitoring and management of therapy-related complications, including heart failure, arrhythmias, myocarditis and CAD.
- Evaluation of cardiac symptoms that develop during or after cancer treatment.
- Interpretation of abnormal imaging or EKG findings identified during oncology surveillance.

SPORTS CARDIOLOGY PROGRAM

PERFORMANCE CARDIOLOGY PARTNER for FC Cincinnati II

Athletes and physically active individuals may experience cardiac findings that are difficult to distinguish from normal physiologic adaptation. Our specialists provide cardiovascular evaluation for exertional symptoms, screening abnormalities and return-to-play decision-making in competitive athletes and active adults.

Areas of Expertise

- Evaluation of borderline or exercise-related EKG abnormalities; evaluation of exertional chest pain, palpitations, dizziness or syncope.
- Interpretation of abnormal athletic screening or pre-participation findings and performance-limiting symptoms.
- Return-to-play assessment following myocarditis, pericarditis or other cardiac illness.

WOMEN'S HEART HEALTH PROGRAM

FIRST IN THE REGION
Coroventis CoroFlow® system

This program specializes in the evaluation and management of cardiovascular disease as it uniquely presents across a woman's lifespan, recognizing that symptoms, risk factors and disease patterns often differ from those seen in men. Care is tailored to address biologic, hormonal and physiologic influences on cardiovascular health, including pregnancy-related conditions, menopausal transitions and under-recognized conditions such as coronary microvascular dysfunction (CMD).

Areas of Expertise

- Evaluation of persistent or unexplained cardiac symptoms despite normal routine testing.
- Assessment of chest pain with non-obstructive coronaries and suspected microvascular dysfunction (INOCA/CMD).
- Cardiovascular risk assessment following pregnancy-related complications.
- Management of elevated or complex metabolic risk profiles.

DYSAUTONOMIA / POTS CLINIC

Dysautonomia refers to disorders of the autonomic nervous system that affect regulation of heart rate, blood pressure and blood flow. Postural orthostatic tachycardia syndrome (POTS), a common form of dysautonomia, involves dysregulation of heart rate and blood flow when transitioning to an upright position, often resulting in symptoms such as dizziness, palpitations, fatigue and syncope. The clinic provides focused evaluation and diagnostic testing to identify underlying contributors and guide individualized management strategies.

Areas of Expertise

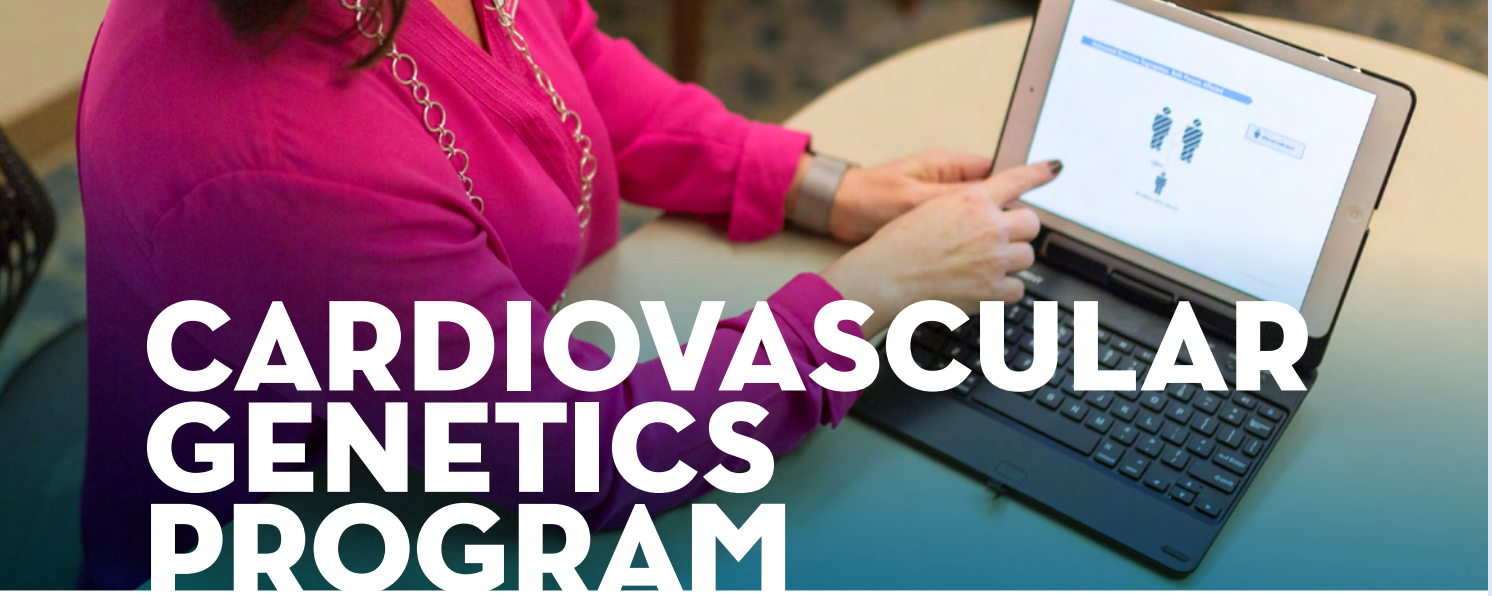
- Evaluation of orthostatic symptoms, including dizziness, fatigue, palpitations and syncope.
- Tilt table testing for diagnostic confirmation and characterization of autonomic response.
- Patient education and management strategies to support symptom control and functional improvement.

CARDIOMETABOLIC PROGRAM

Metabolic disorders such as hypertension, dyslipidemia, insulin resistance and obesity often interact in ways that significantly heighten cardiovascular risk. Our team assesses these overlapping factors to identify how metabolic disease contributes to endothelial dysfunction, microvascular stress and long-term atherosclerotic progression. Through targeted diagnostics and evidence-based medical therapy, the program addresses metabolic drivers of cardiovascular disease and helps slow or prevent disease progression.

Areas of Expertise

- Metabolic syndrome or clustering of multiple uncontrolled risk factors.
- Persistent lipid, glucose or blood pressure abnormalities.
- Strong family history of premature cardiovascular disease.
- Overlap between metabolic abnormalities and emerging cardiac symptoms.
- Unexplained cardiometabolic changes despite standard therapy.



CARDIOVASCULAR GENETICS PROGRAM

334 PATIENTS EVALUATED

The Cardiovascular Genetics Program, delivered through the Department of Precision Medicine & Genomic Health, provides comprehensive genetic counseling and testing for patients with inherited risk for conditions such as cardiomyopathies, arrhythmia (or channelopathies), aortopathies, familial hypercholesterolemia and those with a family history of sudden cardiac arrest or sudden cardiac death (SCA/SCD).

While not all cardiovascular disease has a single genetic cause, identifying a genetic etiology enables earlier surveillance, risk-stratified management and family-based prevention strategies.

Superior Quality

- Family-based cascade screening enabling early identification of at-risk relatives.
- Integration of genetic findings into guideline-directed cardiac surveillance and therapy.
- Proactive identification of individuals before symptom onset, supporting preventive care.
- 50+ pathogenic mutations identified.
- 20+ family members screened for inherited cardiovascular risk.

Patient Selection / Referral Considerations

- Hypertrophic or dilated cardiomyopathy identified on echocardiography or cardiac MRI.
- Abnormal ECG findings, including prolonged or shortened QT intervals.
- Personal or family history of sudden cardiac arrest or sudden cardiac death.
- Persistent hypercholesterolemia, particularly when statin-resistant or familial.
- Known or suspected inherited cardiovascular conditions requiring risk stratification.

Clinical Scope / Services Offered

- Board-certified genetic counselors with cardiovascular expertise.
- Comprehensive genetic counseling, including detailed family history assessment.
- **Genetic testing for**
  - Inherited cardiomyopathies.
  - Arrhythmia syndromes / channelopathies.
  - Aortic aneurysms and dissections.
  - Familial hypercholesterolemia.
- Education and decision support regarding benefits, limitations and implications of testing.
- Psychosocial support for patients and families navigating genetic results.



CARDIAC IMAGING & DIAGNOSTIC SERVICES

59,000+ CARDIAC AND VASCULAR DIAGNOSTIC STUDIES

performed in 2025

Cardiac Imaging & Diagnostic Services provide a comprehensive, integrated testing platform supporting accurate diagnosis, treatment planning and longitudinal disease management across the full spectrum of cardiovascular disease. Advanced imaging capabilities underpin cardiology, interventional cardiology, cardiac surgery, heart failure and electrophysiology programs by enabling early detection, precise risk stratification and informed procedural decision making.

Delivered through eight regional sites across Northern Kentucky and Southeastern Indiana, imaging services emphasize diagnostic precision, timely access and consistent quality standards. This integrated approach enables earlier identification of valvular disease, cardiomyopathy, ischemic heart disease and vascular pathology - often before progression to complications such as stroke, embolism or advanced heart failure.

Clinical Scope / Services Offered

Cardiac Imaging Modalities

- Transthoracic echocardiography (TTE).
- Transesophageal echocardiography (TEE).
- Stress echocardiography.
- Nuclear cardiology stress testing.
- Cardiac MRI.
- Cardiac CT angiography for coronary and peripheral vascular assessment.

Vascular Imaging & Physiologic Testing

- Comprehensive Vascular Ultrasound (including Carotid, Arterial, Venous and Abdominal imaging).
- Ankle-brachial index (ABI) testing.

Accreditations

- ACR Diagnostic Imaging Center of Excellence.
- Intersocietal Accreditation Commission (IAC).
  - Vascular Ultrasound – Silver Milestone Award (25 years of consecutive accreditation).
  - Echocardiography – Bronze Milestone Award (20 years of consecutive accreditation).

ACR American College of Radiology
DIAGNOSTIC IMAGING CENTER of EXCELLENCE™

IAC Intersocietal Accreditation Commission — Accredited Facility — Celebrating 25 Years of Quality Patient Care — Vascular Testing

IAC Intersocietal Accreditation Commission — Accredited Facility — Celebrating 20 Years of Quality Patient Care — Echocardiography



CARDIAC REHABILITATION PROGRAM

REGION'S FIRST

Sports cardiology exercise program

Our Cardiac Rehab Program provides medically supervised, evidence-based services for patients recovering from qualifying cardiac events and procedures. Care is aligned with CMS coverage criteria and national clinical guidelines, supporting functional recovery, secondary prevention and long-term risk reduction across a range of cardiovascular conditions.

CMS-Covered Diagnoses & Eligibility

Cardiac rehabilitation is offered for patients who meet CMS-covered indications, including:

- Myocardial infarction (MI) within the past 12 months.
- Coronary artery bypass grafting (CABG).
- Valve repair or replacement.
- Percutaneous coronary intervention (PCI) *(PTCA, coronary stenting).*
- Stable angina with documented ≥70% coronary artery stenosis.
- Stable, chronic heart failure with left ventricular ejection fraction ≤35% *and* NYHA Class II–IV symptoms despite optimal medical therapy for at least 6 weeks and no planned major cardiac event.

Program Structure

- **Phase I (Inpatient):** Early mobilization and education during hospitalization.
- **Phase II (Outpatient, monitored):** Structured exercise and education with continuous clinical supervision.
- **Phase III (Maintenance):** Self-pay, long-term exercise and lifestyle support (limited capacity).

Superior Quality

- Care aligned with **AACVPR**, **ACC** and **ACSM** best-practice guidelines.
- **Cardiac trained, ACLS-certified** multidisciplinary staff.
- Participation rates exceeding Kentucky averages (~36-49% vs. ~13%).

Awards / Accreditations

- Certified by American Association of Cardiovascular and Pulmonary Rehabilitation.

CERTIFIED AACVPR PROGRAM



CLINICAL RESEARCH INSTITUTE

20+ ACTIVE CARDIOVASCULAR CLINICAL TRIALS

The St. Elizabeth Clinical Research Institute (CRI) advances cardiovascular medicine through Phase I–IV clinical trials spanning a broad range of disease indications, including heart & vascular disease and endocrinology. Research activity includes industry-sponsored, National Cancer Institute (NCI) and investigator-initiated studies, ensuring patients have access to emerging therapies across the full continuum of care.

CRI collaborates with leading research organizations, industry partners and regulatory agencies to bring innovative treatments into clinical practice. A dedicated research team - comprising physician investigators, research nurses, study coordinators and administrative staff - supports each trial with a consistent focus on patient safety, ethical rigor and patient-centered care.

Program Focus & Participation

- Research participation across Electrophysiology, Heart Failure, Clinical Cardiology, Interventional Cardiology, Cardiothoracic Surgery and Peripheral Vascular Disease.
- Device-based, pharmacologic and preventive care trials aligned with real-world clinical practice.
- Demonstrated translation of investigational therapies into clinical care pathways.

Superior Quality

- Conducts Phase I–IV clinical trials, including industry-sponsored, NCI and investigator-initiated studies.
- Includes device-based, pharmacologic and preventive care research.
- Collaborates with national research organizations, industry partners and regulatory agencies.
- Maintains consistent adherence to safety, ethical and patient-centered research standards.

Patient Selection / Referral Considerations

- Meet study-specific inclusion criteria for cardiovascular clinical trials.
- Have conditions under active investigation, including arrhythmia, heart failure, structural heart disease, coronary disease or peripheral vascular disease.
- May benefit from investigational devices, therapies or preventive strategies not yet widely available.

For a complete list of active clinical trials, scan the QR code or visit stelizabeth.com/medical-services/clinical-trials/.

PHYSICIAN RESOURCES

HOW TO REFER A PATIENT

Epic Users

Referrals may be submitted through Epic to the appropriate HVI program. Physicians may also use Epic secure messaging to connect directly with providers for clinical questions or referral coordination.

When submitting a referral, including the patient's primary concern, relevant testing and desired urgency helps ensure accurate routing and timely follow-up.

Non-Epic Referrals

Physicians may initiate referrals by calling the appropriate program office. Office staff will assist with intake, coordination and facilitate direct physician-to-physician communication when appropriate.

DIRECT PROGRAM PHONE ACCESS

Advanced Heart Failure Center . . . . (859) 301-0124

Arrhythmia Center . . . . . (859) 331-3353

Cardiac Surgery . . . . . (859) 301-9010

Cardiology . . . . . (859) 287-3045

Cardiovascular Genetics Program . . (859) 301-9475

Clinical Research . . . . . (859) 903-2372

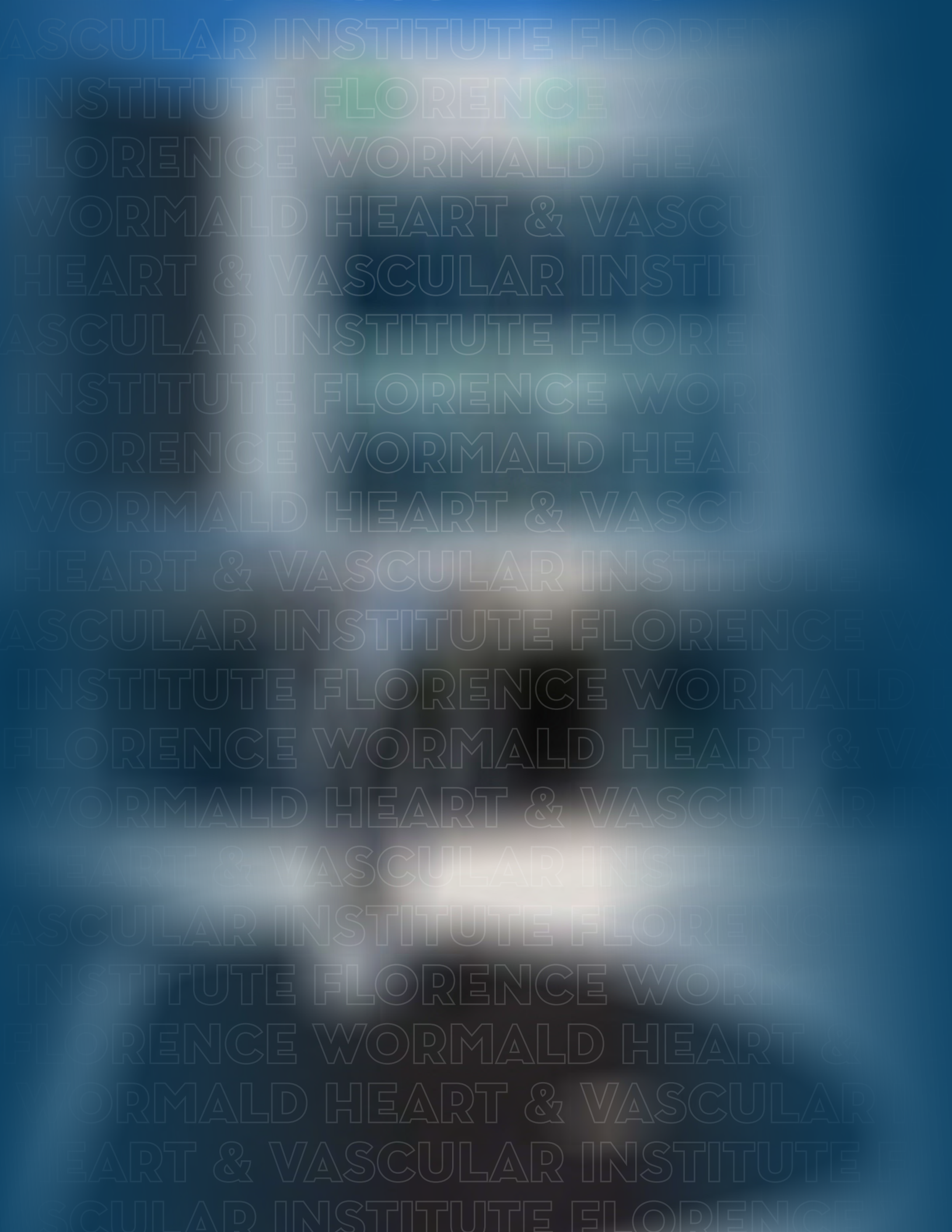
Structural Heart & Valve Center . . . . (859) 301-8287

Cardiac Rehab

- Dearborn . . . . . (812) 496-7254
- Edgewood . . . . . (859) 301-3600
- Ft. Thomas . . . . . (859) 572-3382

REFERRAL TOOLS & PATHWAYS

Downloadable program specific referral pathways and decision-support resources are available on our website. Scan the QR code, or visit stelizabeth.com/medical-services/heart-vascular/physician-resources/


WORMALD HEART & VASCULAR INSTITUTE FLORENCE