

M CORRP

MICHIGAN CLINICAL OUTCOMES
RESEARCH AND REPORTING PROGRAM



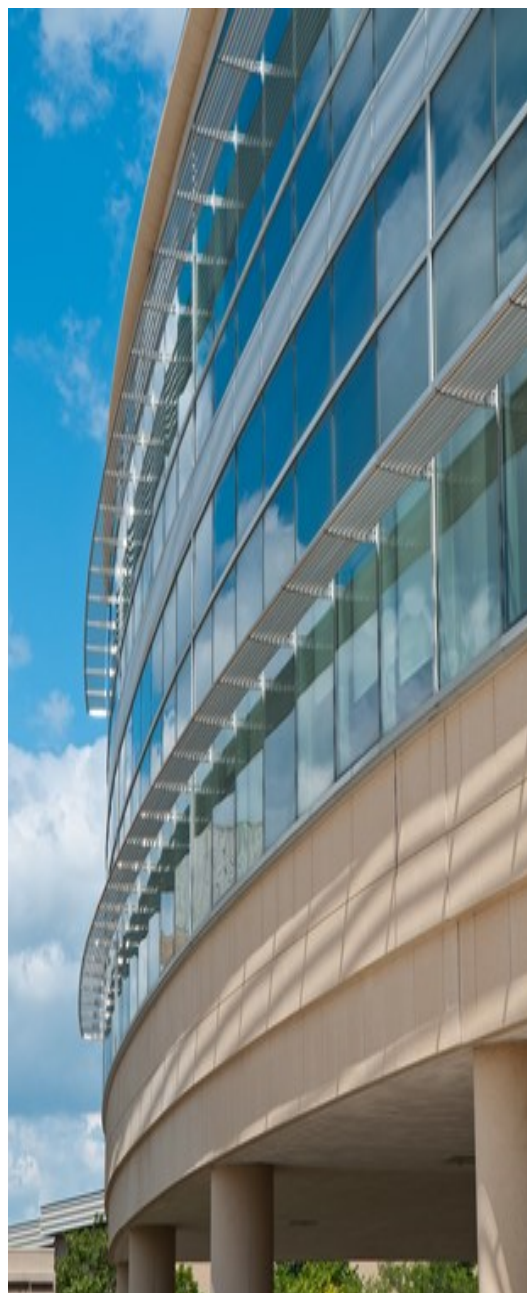
2021 Annual Report

“Improving Care Through Quality Research”



OUR VISION

The goal of MCORRP is to improve the quality of cardiovascular care at the University of Michigan Health System, in the state of Michigan, and throughout the United States and the world. This will be accomplished by studying cardiovascular conditions and procedures among large populations, developing modern mathematical tools to assess risk and outcomes, and promoting evidence-based care models which incorporate best science into care itself by targeting physicians, nurses, and patients. MCORRP will extend its reach by presenting and publishing scientific results at regional, national and international meetings and in peer-reviewed publications, as well as, by partnering with regional and national organizations for win-win solutions to overcoming barriers to providing quality cardiovascular care. Finally, MCORRP is committed to creating a vibrant, rigorous, diverse, and collegial research environment which promotes the investigative development of students, house officers, fellows, and junior faculty.



Executive Summary.....	5
Letters from our Founding Director.....	7
Letters from our Directors.....	8
Project Team Leaders.....	10
Project Timelines.....	11
Meet our MCORRP & Collaborating Team..	12
Meet our MCORRP Student Interns.....	13
Michigan Medicine Faculty.....	14
MCORRP Visiting Faculty.....	15
Research Initiatives.....	17
Publications.....	47
Grants & Funding.....	51
Lectures.....	53
Meet our MCORRP Team.....	57
Meet Our Student Interns.....	73
MCORRP Named Intern Program.....	90
MCORRP Donors.....	91



*A digital version of the MCORRP Annual Report is available online
at www.med.umich.edu/mcorrp*



MCORRP @ a glance....2021

Mission statement

27 Years

- ✓ Registries across all 50 states and 22 countries
- ✓ Over 1,860 Papers/Presentations made at national and international conferences.
- ✓ Over 451 student have participated our summer internship program.

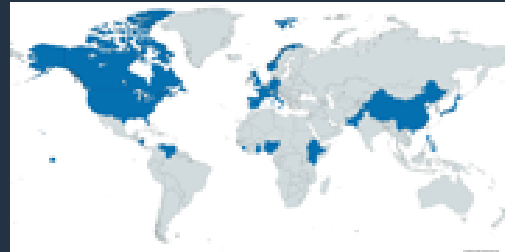
In 2019, we surpassed our goals

Over 2,500 Volunteer Hours

Filled 128 Gaylord's
(which equates to 3 full 40 foot overseas containers)

Estimated
\$1.8 million of medical equipment shipped to countries overseas

GLOBAL IMPACT



Where can you find us?



REGISTRY GOALS

- ✓ Over 3,600 Patient forms Completed Inclusive of all Registries for the summer of 2021
- ✓ Over 55 abstracts submitted to national conferences inclusive of all registries.

Email: MCORRPadmin@med.umich.edu



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Phone (734) 998-5909

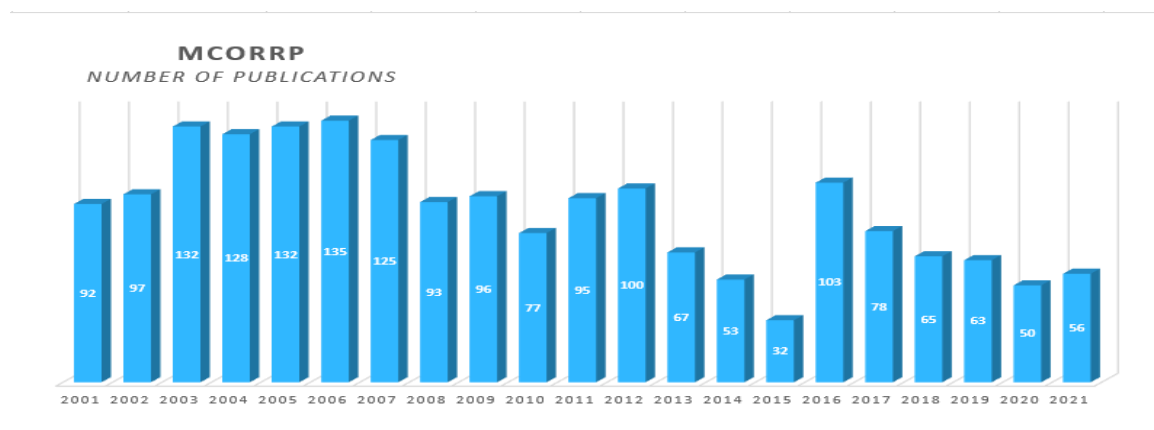


Executive Summary

MCORRP continues to grow every year by expanding our registries and increasing our student internship program. The faculty, staff, fellows, residents and student interns of our 10+ registries collect data on thousands of patients and hundreds of thousands of patient follow-up. Our global presence has expanded. We coordinate our registries with national and international sites across all 50 states and in 22 countries. Our work will be highlighted at numerous national and international meetings this year, along with many local internal research symposiums.



Although this summer's internship was remote due to COVID-19, we were still able to continue to submit abstracts/manuscripts to various journals and virtual conferences.



MCORRP continues to publish manuscripts, opening the door to more intensive and in-depth studies and improvements in care. In the coming years, we will continue to expand participation in our multisite registries, many into new countries. We will also be increasing our output of peer reviewed publications, presentations at scientific meetings, as well as launching additional quality improvement initiatives. We also look forward to continuing our exciting participation in training tomorrow's health services researchers, health care providers and health care leaders.



MCORRP is a vibrant, forwarding thinking impactful health services research laboratory. Through teamwork, global collaboration, and commitment to excellence in science, we are changing the world.



FOSTERING COLLABORATION

“ MCORRP, the Michigan Anticoagulation Quality Improvement Initiative (MAQI²) and the Michigan Medicine Anticoagulation Management Service (AMS) collaborate on several projects to improve the quality of care for patient on anticoagulation. They have identified methods to measure and develop performance markers to enhance patient safety, improve quality of care and increase patient knowledge while taking anticoagulants.”

Our Founding Director



Dear Colleagues, Supporters and Friends:

I am delighted to provide a letter of introduction for this, the 27th annual report from the **Michigan Clinical Outcomes Research and Reporting Program**.

When I was recruited to come to the University of Michigan in 1994, one of my recruitment mandates was to establish a rigorous and impactful outcomes research laboratory that would serve patients at the University of Michigan, those cared for across the state and region and hopefully well beyond, to other states and nations. This mandate came with significant support from the hospital, the Medical School, the Department of Medicine, the Division of Cardiovascular Medicine and more recently the Frankel Cardiovascular Center to accomplish this purpose. Looking back, it is extremely exciting to reflect that the recruitment mandate has been fulfilled, and indeed surpassed, through the efforts of so many committed individuals.

Over the years, our team has taken on a host of clinical research challenges, which are leading to better care for a variety of conditions. No doubt our efforts to establish statewide registries in coronary angioplasty and peripheral intervention are having a lasting effect on care for citizens throughout the state of Michigan. Importantly, our work to establish a multicenter international effort to study acute aortic syndromes has had a profound effect on the field. Indeed the reports from our core laboratory now provide the basis for our current understanding of this rare and deadly disease and its various complications and most effective management. In recent years, we have been able to take on other rare diseases, such as fibromuscular dysplasia (with the Fibromuscular Dysplasia Society of America), Cardiac Sarcoidosis and others.

In thinking about global health care, in our program entitled Project My Heart Your Heart, we are trying to make pacemaker recycling a reality in the world, hoping to extend pacemaker care to patients in low income countries who otherwise would die from lack of a pacemaker. It is also appropriate that the University of Michigan would take a leadership role in community health. Through Project Healthy Schools, our team is now trying to fight the ravages of childhood obesity in 100 middle schools and 2 high schools throughout Michigan and in other states as well. Our work to study and improve quality of care has led to significant changes in the way that we manage acute coronary care and heart failure both in our center, and in the state. This is especially true for the management of anticoagulation through our joint project with Blue Cross Blue Shield of Michigan. This project is improving health of patients in Michigan, the U.S. and across the world.

The impact of our research is great. Equally important is the impact **MCORRP** has had on education. We have given the opportunity to participate in clinical research to numerous medical students, residents, fellows and junior faculty. **MCORRP** provides a research home for developing outcome scientists interested in a variety of conditions and procedures. We also highly value our summer internship program, which in our most recent iteration served 30 students from 11 different universities to spend a summer with us learning about health care, immerse in a clinical research project, partner with World Medical Relief in Detroit to deliver used medical supplies to needy nations, and experience a variety of shadowing experiences to help them discern whether a health care profession is the right choice for them. Through the years, we have touched more than 200 students who have gone on to medical school, nursing programs, public health degrees and other health related fields.

We are very fortunate to be at a place like the University of Michigan, which has allowed us to develop and grow **MCORRP** and its various initiatives. Equally, we are extremely fortunate to have an incredible group of staff, faculty, residents, students and fellows who honor and care for one another as individuals, seek our mutual goals of collaboration and innovation and are firmly committed to excellence, in everything that they do. As you read our 2021 report, I hope that you capture the depth, quality and amazing range of the work that **MCORRP** is currently doing and will do as it proceeds into the future. Importantly, our work would not be possible without critical support from granting agencies, foundations, the University and Frankel Cardiovascular Center and individual donors who extend our impact through their generous support.

Hui A. Eagle

Our Directors

Welcome! I am so glad you have taken an interest in our team. We at the **Michigan Clinical Outcomes Research and Reporting Program (MCORRP)** feel very fortunate to be a part of the effort to study and improve healthcare. I am very proud of the group of dedicated team members you will meet in these pages. The **MCORRP** family has grown dramatically, from a single faculty member, our founding director Kim Eagle, to the current 16 staff, 15 U of M faculty, 20 nationwide visiting faculty and 20 international affiliated faculty, as you will see in this, our 27th Annual Report! Our team is proof that you can have fun and do great work.

The COVID pandemic has presented unique challenges to all of us. Working almost exclusively from individual homes for the past two years seemed completely antithetical to the team work environment we were so accustomed to. I am grateful and proud that the MCORRP team has risen to the challenge and showed tremendous creativity and adaptability to continue our work as a team. Under the leadership of my Co-director, Eva Kline-Rogers, and our entire team, we have found ways to continue the collaborative teamwork approach to our projects. We were even able to partially re-institute our beloved summer student internship last year, with a hybrid model of remote work, and limited on-site engagement. I am proud to say we had 30 students contribute to our ongoing projects, and each got to pursue a project of their own which were all presented at our summer internship celebration last August.

The **MCORRP** summer student internship program brings tremendous enrichment and excitement to our year, and we were so pleased to resume last summer. We have seen this internship grow from a single student, to a well-organized, 8-10 week program. The summer student internship, organized and run by returning students, provides them with a research, clinical, and health care quality improvement opportunity that is second to none. (Please refer to the summer internship section for more details).

Our current portfolio of projects runs a very wide spectrum, from collaborative studies of uncommon diseases (The US Registry for Fibromuscular Dysplasia, and the International Registry of Acute Aortic Dissection), to an extensive public school health and lifestyle intervention (Project Healthy Schools), and international efforts to repurpose used pacemakers and defibrillators (My Heart Your Heart). Our biggest program is one of a unique group of statewide collaborative quality improvement initiatives sponsored by Blue Cross Blue Shield of Michigan. Michigan Anticoagulation Quality Improvement Initiative (MAQI2), is a consortium of anticoagulation management services which explores and implements quality improvement efforts across the state of Michigan and shares them around the country and around the world.

One particular focus here at **MCORRP** has been studying rare diseases. By collaborating around the country and around the world, we seek to gain sufficient experience and knowledge to better understand patterns of disease and potential causes. Our team has focused on three rare diseases: cardiac sarcoidosis, fibromuscular dysplasia, and aortic dissection. We have succeeded in assembling enough expertise and patient experience to make novel observations, which have and continue to lead to new investigations and approaches to diagnosis and treatment, as you will learn in the following pages. We are motivated by this thought: if I or a loved one had a serious but rare condition, wouldn't we want to know that someone, somewhere, is looking for solutions?



Jim Selil

Our Directors

What began as Dr. Eagle's vision over 25 years ago has resulted in an outcomes research laboratory that continues to thrive and challenge faculty, staff, and students to improve health care worldwide.

We are fortunate to have a team of committed, dedicated, hard-working staff and extraordinary passion and commitment of investigators from around the world. Dr. Eagle's leadership has been essential; his exemplary commitment to excellence, inclusiveness and mentorship continues to promote collaboration among a variety of disciplines and professionals.

The common goal of improving patient outcomes is always part of our collective consciousness. Our team is diverse, with collaborators from Nursing, Pharmacy, Medicine, Public Health, and others contributing to knowledge needed to improve care in a complex healthcare system. Not only do we measure clinical outcomes in cardiovascular patients and student populations, we also examine the delivery of care, ethics of health care, efficiency of care, and assess qualitative outcomes.

The COVID-19 pandemic has continued to challenge our delivery of healthcare in a variety of ways. Our team was able to adapt to the continuing challenges by providing virtual training and mentorship to our students and continued frequent communication with our collaborators around the world.

*We were able to provide a student internship program during the summer of 2021 through a hybrid approach of in-person and virtual teaching/learning. The internship program was able to continue to teach team work, creative problem solving, promote leadership that contributes to the development of thoughtful, compassionate adults. Many of the students from 2021 and prior years continue to contribute to **MCORRP** today.*

*Each day I am grateful for the opportunity to be involved with this vibrant group of dedicated professionals. In my 40 year career at Michigan, I have never worked with a better group of faculty – who are not only intellectual and thought leaders in their respective fields, but are also genuinely compassionate and nice people! I am also grateful to the many donors and granting agencies who continue to invest in our work. I remain committed to providing a vibrant, challenging and caring environment for our staff but also to preparing our students for the challenges which lie ahead. We will face these challenges with thoughtfulness and compassion, armed with the collective support of members of the **MCORRP** Family.*

Erin Sline-Boone



MCORRP Project Team Leaders

	PROJECT	Director(s)	Project Manager(s)
	MCORRP Summer Internship	<i>Eva Kline Rogers</i>	<i>Rachel Krallman Tina Alexandris-Souphis, RN Elise Woznicki</i>
	BRIDGE	<i>Melvyn Rubenfire, MD</i>	<i>Rachel Krallman</i>
	FMD: FibroMuscular Dysplasia	<i>James Froehlich MD</i>	<i>Eva Kline-Rogers RN, NP Rachell Krallman</i>
	OVERCOME HF:	<i>Todd Koelling MD</i>	<i>Rachel Krallman</i>
	IRAD: International Registry of Aortic Dissection	<i>Kim Eagle MD</i>	<i>Elise Woznicki</i>
	PERT Consortium	<i>Geoffrey Barnes MD</i>	<i>Eva Kline-Rogers RN, NP</i>
	PHS: Project Healthy Schools	<i>Kim Eagle MD</i>	<i>Rachel Krallman</i>
	PE Registry	<i>Geoffrey Barnes, MD Colin Greineder MD</i>	<i>Deb DeCamillo, RN Tina Alexandris-Souphis RN</i>
	MHYH: My Heart Your Heart	<i>Thomas Crawford MD</i>	<i>Eric Puroll</i>
	MAQI: Michigan Anticoagulation Quality Improvement Initiative	<i>James Froehlich, MD Geoffrey Barnes, MD</i>	<i>Brian Haymart RN Deb DeCamillo RN Janet Kandrevas Tina Alexandris-Souphis RN</i>
	PH: Pulmonary Hypertension	<i>Vallerie McLaughlin MD</i>	<i>Eva Kline Rogers RN, NP</i>
	Cardiac Rehabilitation	<i>Melvyn Rubenfire MD John Bisognano MD</i>	<i>Eva Kline Rogers, RN, NP</i>
	CSC: Cardiac Sarcoidosis Consortium	<i>Thomas Crawford MD</i>	<i>Eric Puroll</i>
	COVID-19 Registry	<i>Nadia Sutton MD</i>	<i>Eva Kline Rogers RN, NP</i>
	Cardiac Critical Care Registry	<i>Michael Thomas MD Andrea Thompson, MD</i>	<i>Eva Kline Rogers RN, NP Elise Woznicki</i>
	World Medical Relief	<i>Thomas Crawford MD</i>	<i>Eric Puroll</i>

MCORRP Project Timeline

2021 and beyond



MCORRP Team & Collaborating Teams

FOUNDING DIRECTOR

Kim Eagle MD

DIRECTORS

Geoffrey Barnes MD, MSc

Thomas Crawford MD

James Froehlich MD, MPH

Eva Kline-Rogers RN, NP, MS

Mel Rubenfire, MD

SUPERVISOR MCORRP

Brian Haymart RN, BS, MS

PROJECT MANAGERS

Tina Alexandris-Souphis RN, BSN, BS

Debbie Decamillo RN, BSN

Janet Kandreas MD

Rachel Krallman BS

Eric Puroll BS

Elise Woznick BS

IRB SPECIALISTS

Patricia Bruenger BA, CCRN

STATISTICIANS

Xiaokui Gu MA, MD

Xiaowen Kong MS

Daniel Montgomery BS

Chih-Wen Pai PhD, MSPH

PROGRAMMERS

Scott Ash BA, MS

Brian Shensky BS

RESEARCH ASSISTANT

Alice Horgrow



MICHIGAN MEDICINE Residents, Fellows, & Staff

Neil Ardeshta MD *Internal Medicine*

Taylor Dawson MD *Internal Medicine*

Frank Seagull *Research Specialist Lead*

Danielle Helminski, BS MPH *Project Manager*

MICHIGAN MEDICINE Cardiac Rehabilitation:

Melvyn Rubenfire MD *Project Director*

John Bisognano MD *Project Director*

Joe Bryant BS *Project Manager*

Samantha Fink *Met Fit Team Leader*

Josh Garfein *Statistician*

Chih-Wen Pai PhD, MSPH *Statistician*

Cindy Harper *Administrative Assistant*

MICHIGAN MEDICINE Pulmonary Hypertension:

Vallerie McLaughlin MD *Project Director*

Victor Moles MD *Assistant Professor*

Susanne McDevitt RN, NP *Project Manager*

Chih-Wen Pai PhD, MSPH *Statistician*

MHealthy Promotion Division, PHS

Melissa Boguslawski PhD, MPH *Program Manager*

Miriam Dineen *Administrative Specialist*

Grace James MHS *Wellness Specialist*

Benjamin Ransier MEd *Curriculum / Training Coordinator*

Jacob Robidou BS *Wellness Coordinator*

Nathan Saulter BS *Web Designer/Administrator*

Bradley Newman MS *Wellness & Grants Coordinator*

MCORRP Student Internship Team

Student Managers:

Suzanne Irani, BS

University of Michigan

Nicole Souphis BS

DePaul University, School of Nursing

Returning Students:

Allison Brook

University of Michigan

Emily Liu

University of Michigan

Akshay Reddy

University of Michigan

Hallie Remer

University of Michigan

Jessica Weinberg

University of Michigan

New Students:

Matthew Benson

Grinnell College

Trey Feldeisen

Washington University St Louis

Ashley Francis

Oregon State University

Husain Hakim

John Hopkins University

Kacie Alexander

University of Michigan

Jaeer Macfield

Michigan State University

Emma Morganroth

University of Michigan

Rayyan Munir

University of Michigan

Ambrielle Stoltz-Bango BS

University of Michigan

Jayyid Wafiy

University of Michigan

Graduate Students:

Joshua Garfein BS

University of Michigan, School of Public Health

Medical Students:

Rana –Armaghan Ahmad BS

Michigan State College of Human Medicine

George Cholack BS

Oakland University

William Beaumont School of Medicine

Cody Horton BS

University of Reno School of Medicine

Delaney Feldeisen BA

University of Michigan School of Medicine

Thane Feldeisen BS

University of Michigan School of Medicine

Elizabeth Joyce BS

University of Michigan School of Medicine

Joseph Kim BS

Indianan University School of Medicine

Julian Neshewat BS

University of Michigan School of Medicine

Carsten Opris BS

Royal College of Surgeons in Ireland

Cameron Pawlik BS

University of Michigan School of Medicine

Melinda Song BS

University of Michigan School of Medicine

Kevin Wunderly BS

Central Michigan School Of Medicine

Michigan Medicine Faculty

Faculty	Specialty	Areas of Practice
Barnes, Geoffrey MD, MSc Assistant Professor	Cardiovascular Disease, Internal Medicine	Vascular disorders (including venous thromboembolism, peripheral artery disease and Raynaud's disorders), anticoagulation and general cardiac care.
Bisognano, John MD, PhD	Advanced Heart Failure and Transplant Cardiology, Cardiovascular Disease, Internal Medicine	General Cardiology, Severe and resistant hypertension, hyperlipidemia, preventative cardiology, chronic heart failure, ischemic coronary and vascular disease
Crawford, Thomas MD Associate Professor	Cardiac Electrophysiology, Cardiovascular Disease, Internal Medicine	Electrophysiology, Atrial Fibrillation, Ventricular Tachycardia, Wolf-Parkinson-White Syndrome (WPW), Cardiac Sarcoidosis, Sudden Cardiac Death
Eagle, Kim MD, MACC Professor	Cardiovascular Disease, Internal Medicine	Cardiovascular outcomes research; Thoracic Aortic Disease; Childhood Obesity; Pacemaker re-use in underserve countries
Froehlich, James MD, MPH FACC, FSV Professor	Cardiovascular Disease, Internal Medicine	Peripheral vascular disease, venous thromboembolic disease, preventive cardiology cerebrovascular disease, aneurysmal disease, fibromuscular dysplasia, and general cardiology
Greineder, Colin MD Assistant Professor	Emergency Medicine	
Koelling, Todd MD Professor	Advanced Heart Failure & Transplant Cardiology, Cardiovascular Disease, Internal Medicine	Congestive heart failure, cardiomyopathy, cardiac amyloidosis, cardiac sarcoid, hypertrophic cardiomyopathy, mitral valve regurgitation, heart transplantation and ventricular assist device therapy
Kurlander, Jacob MD Clinical Lecturer	Gastroenterology, Internal Medicine	General gastroenterology and the treatment of esophageal diseases, including esophageal motility disorders, reflux disease, Barrett's esophagus, and eosinophilic esophagitis
LaBounty, Troy MD Associate Professor	Cardiovascular Disease, Internal Medicine	Echocardiography, general cardiology and cardiac computed
Leja, Monika MD Clinical Assistant Professor	Cardiovascular Disease, Internal Medicine	Cardiology oncology, general cardiology, cardiotoxicity from chemotherapy, heart tumors, amyloid, cardiovascular imaging including echocardiography, nuclear stress testing, coronary computed tomography angiography and diagnostic angiography.
McLaughlin, Vallerie MD Professor	Cardiovascular Disease, Internal Medicine	Pulmonary Hypertension
Moles, Victor MD Clinical Assistant Professor	Cardiovascular Disease, Internal Medicine	Cardiovascular Diseases, Pulmonary Hypertension (PH), Pulmonary Arterial Hypertension (PAH), Chronic Thromboembolic Pulmonary Hypertension (CTEPH)
Patel, Himanshu MD Professor	Department of Surgery, Thoracic Surgery	Surgery for thoracic aortic disease and aortic valve disease, Trans catheter, Endovascular and minimally invasive cardiac surgery. Surgery for heart failure, including cardiac valvular disease and high-risk coronary bypass grafting. Off pump coronary artery surgery.
Rubenfire, Melvyn MD Professor	Cardiovascular Disease, Internal Medicine	Atherosclerosis detection, general cardiology, preventive cardiology, lipid clinic, lipid management, metabolic syndrome, pulmonary hypertension:
Shaefer, Jordan MD Assistant Professor	Internal Medicine, Hematology	Thrombotic disorders (including deep vein thrombosis, pulmonary embolism, thrombophilia, and cancer associated thrombosis), anticoagulating, bleeding disorders and nonmalignant hematology.
Sutton, Nadia MD Assistant Professor	Interventional Cardiology, Cardiovascular Disease, Internal Medicine	Coronary artery disease, peripheral arterial disease, acute coronary care, interventional cardiology, hemodynamic and coronary interventional procedures.
Thomas, Michael MD Clinical Assistant Professor	Interventional Cardiology, Cardiovascular Disease, Internal Medicine	Interventional Cardiology, Complex Coronary Interventions

MCORRP Visiting Faculty

Visiting Faculty	University/Hospital Affiliation	Area of Practice
Ballotta, Andrea MD	IRCCS Policlinic San Donato, Italy	Aortic Dissection
Bossone, Eduardo MD, PhD	Amalfi Coast Hospital University Hospital Salerno, Italy	Aortic Dissection
Braverman, Alan MD	Washington University St Louis, Missouri	Aortic Dissection
Bumpus, Sherry PhD, FNP-BC	Michigan State University East Lansing, Michigan	Transitional Care
Dansey, Kristen	Beth Israel Deaconess Medical Center Boston, Massachusetts	Aortic Dissection
De Beaufort, Hector MD	IRCCS Policlinic San Donato, Italy	Aortic Dissection
DeVisser, Rosa BS, MS, PhD	Vrije Universiteit Amsterdam, Netherlands	Public Health
Foley, Mathew MD	Vanderbilt University Nashville, Tennessee	Cardiac Surgery
Gorla, Riccardo MD, PhD	IRCCS Policlinic San Donato, Italy	Aortic Dissection
Gornik, Heather MD	Cleveland Clinic Foundation Cleveland, Ohio	Fibromuscular Dysplasia
Kamman, Arnoud MD	Policlinic San Donato IRCCS, Italy University of Utrecht, Amsterdam, Netherlands	Aortic Dissection
Lindsay, Mark MD, PhD	Massachusetts General Hospital Boston, Massachusetts	Genetic Aortic Disease
Myrmel, Truls MD, PhD	Tromsø University Hospital Norway	Aortic Dissection
Olin, Jeffrey MD	Mount Sinai Heart Center New York, NY	Fibromuscular Dysplasia
Olomu, Ade MD, MS	Michigan State University East Lansing, Michigan	Acute Coronary Syndrome
Pupovac, Stevan MD	Northwell Health New York City, New York	Aortic Dissection
Reutersberg, Benedikt MD	Technical University of Munich Munich, Germany	Aortic Dissection
Spinelli, Domenico MD	IRCCS Policlinic San Donato, Italy	Aortic Dissection
Trimarchi, Santi MD, PhD	Policlinic San Donato IRCCS, Italy University of Milan, Italy	Aortic Dissection
Zubair, Muhammad MD	Houston Methodist Hospital Houston, Texas	Aortic Dissection

MCORRP Social Media Platforms

Where can you find us?



@ProjectMHYH
@PHealthySchools
@PHealthySchools
@FMDartery
@FMDartery
@MAQL_2
@MAQLtoolkit
@umhealthsystem
@umhealthsystem
@IRADissection
@Medicalrelief



Project My Heart Your Heart
Pacemaker Realization Program
As we enter the 21st century, the healthcare disparities between the industrialized world and those in underserved nations have become all too apparent. Cardiovascular disease has an increasing impact on morbidity and mortality in many developing countries, many of which already face a lack of resources to implement the construction system. Novel pacemakers to underserved nations are needed. The purpose of the project is to create a central organization that obtains pacemakers post-mortem for evaluation and subsequent distribution while creating a distribution network for safe reuse. Our goal is to create a reproducible model that other academic centers in the United States and Europe can emulate in order to create their own collaborative network for refurbished device distribution to those unable to afford bradycardia arrhythmia therapy. Thus far, Project My Heart Your Heart has received more than 10,000 used devices, has completed pilot projects in several countries, and presented at its work.

g scientific results at regional, national and international meetings and regional and national organizations for use in solutions to a variety of health care problems. MCORRP is committed to creating a vibrant, rigorous, and innovative development of students, house officers, fellows,



projecthealthyschools



3 likes
projecthealthyschools Boyne City Pub Annual Salsa Making Contest organized



<http://www.med.umich.edu/mcorrp>



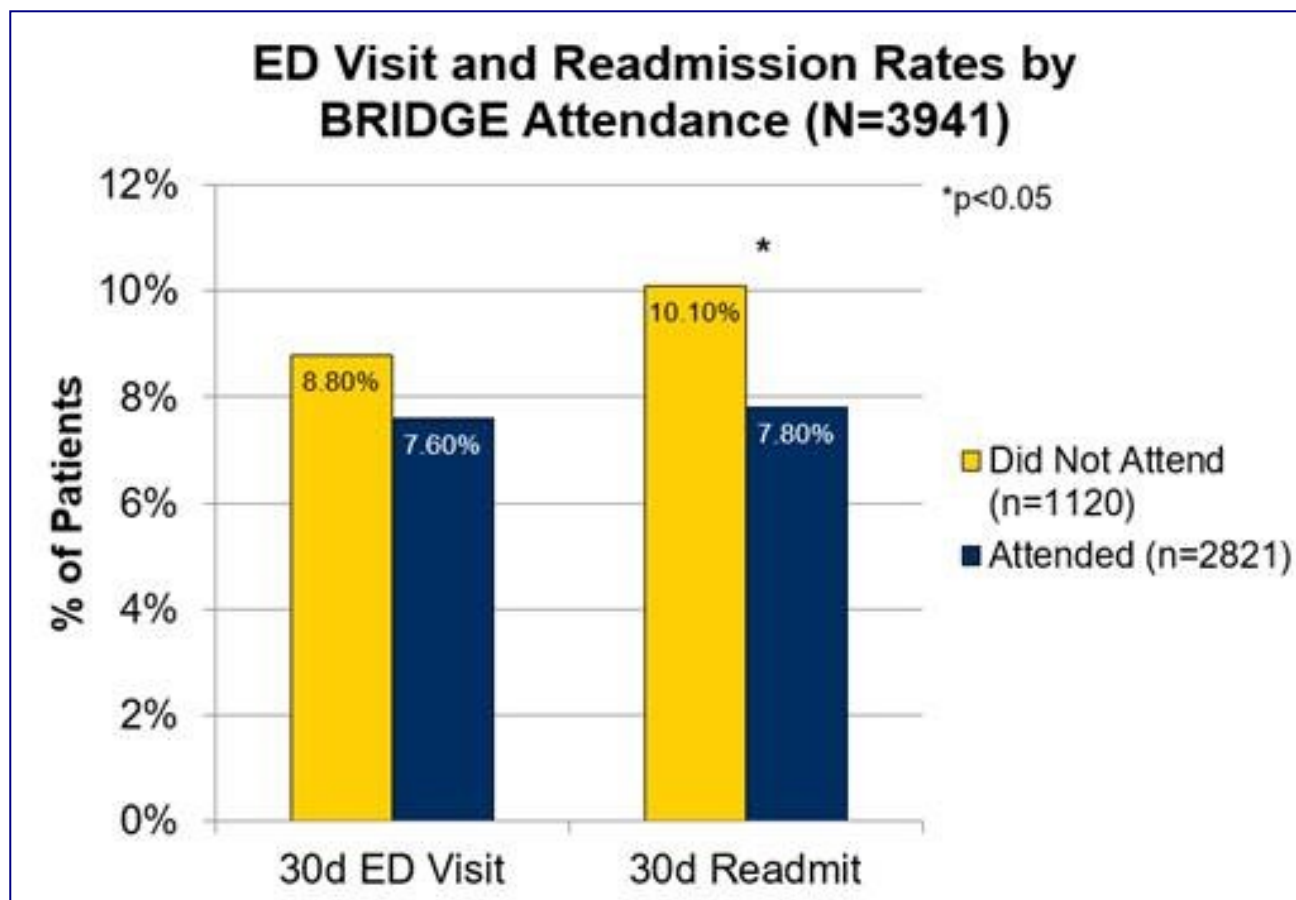


MCORRP

PROJECT INITIATIVES



Patients referred to BRIDGE between 2008-2017





BRIDGE

Bridging the Discharge Gap Effectively

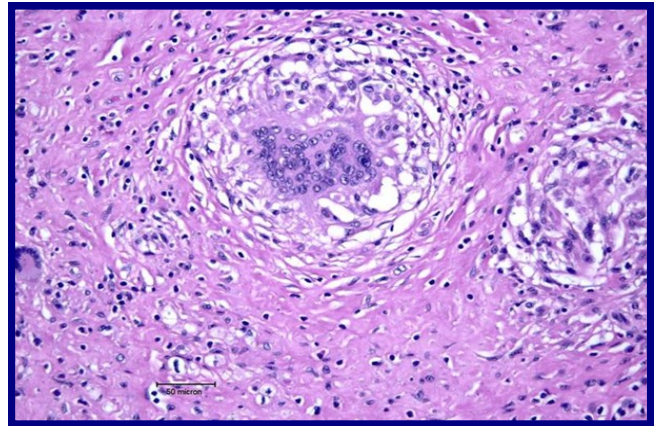
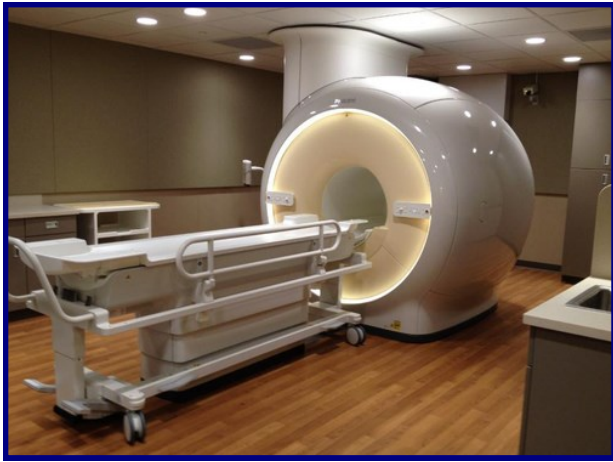
Hospital readmissions cost Medicare alone more than \$24 billion in 2011 (Hines et al., 2014). Legislation embedded in the Patient Protection and Affordable Care Act aimed at reducing readmissions levies penalties against hospitals with higher than average readmission rates. These penalties were expected to increase to \$566 million in 2019 (Allen, 2019). Bridging the Discharge Gap Effectively (BRIDGE) is a nurse practitioner-led, transitional care cardiology clinic designed to reduce unnecessary hospitalizations.



BRIDGE strives to facilitate patients' transition from hospital to home by serving as an extension of the in-patient care team. The clinic aims to schedule patients within fourteen days of hospital discharge. At these 60 minute visits, nurse practitioners assess each patient's status and response to treatment, educate patients on cardiovascular disease and lifestyle modifications, and make evidence-based medication and therapy adjustments when necessary (Bumpus et al., 2017).

Through our research at **MCORRP**, we have found that most patients presenting to the clinic were referred due to acute coronary syndrome (ACS), congestive heart failure (CHF), or atrial fibrillation (AF). In a recent study of over 2400 cardiac patients, acute coronary syndrome patients who attended BRIDGE were significantly less likely to be readmitted within 30 days than those who did not attend (6.4% vs. 13.1%, $p=0.006$) (Bumpus et al., 2017). Further, over the course of one year, BRIDGE demonstrated a significant cost savings for ACS patients as a result of avoided rehospitalizations within 30 days of index discharge. On average, the utilization of this intervention translated into a \$4,944 per-patient savings. Stated another way, BRIDGE saved \$306,537 in annual healthcare costs at our health system for ACS patients alone. Not only were patients less likely to be readmitted if they attended, they were also less costly to manage (Bumpus et al., 2016).

The BRIDGE database is continually being updated to provide a more robust sample for measuring the outcomes of this program. Six BRIDGE-related abstracts were accepted for presentation at national conferences in 2020. These abstracts, developed by students, explored the following: 1) substance use among patients referred to BRIDGE 2) characteristics of heart failure patients by time to readmission 3) characteristics of acute coronary syndrome patients by time to readmission, 4) inpatient sleep interruptions among congestive heart failure patients, 5) outcomes of patients with depression with and without antidepressant prescription, and 6) the effectiveness of the BRIDGE transitional care clinic. Additionally, two manuscripts, which examined 1) readmission patterns of atrial fibrillation patients, and 2) the relationship between patient satisfaction and outcomes, were published in peer-reviewed journals.

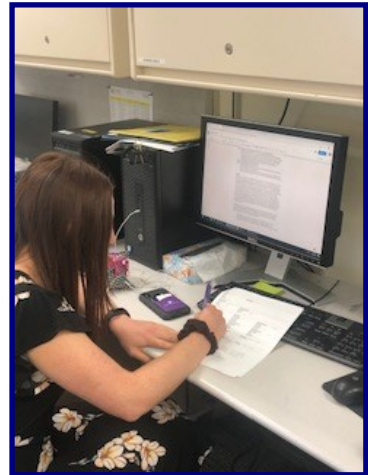


CSC

Cardiac Sarcoidosis Consortium

Sarcoidosis is an inflammatory disease in which clumps of abnormal tissues, called granulomas, form in organs of the body. The lungs are most frequently affected, but granulomas can form in many other organs/tissues including the heart, liver, and kidneys. Cardiac Sarcoidosis can lead to arrhythmias, heart failure, sudden death and other heart problems. The natural history, effective treatments and outcomes of Cardiac Sarcoidosis are not well understood.

By increasing the amount of research into this condition, we hope to better identify risk factors for adverse events and factors contributing to improved treatments and outcomes. The Cardiac Sarcoidosis project is a multi-center initiative, that focuses on collecting retrospective and prospective health and imaging data, on patients with Cardiac Sarcoidosis, including demographics, comorbidities, diagnostic testing, treatments, and long-term outcomes.



MCORRP has been working with Dr. Frank Bogun and Dr. Thomas Crawford, the project's Co-Principle Investigators, over the last few years to develop an online clinical registry to collect and store project data. Abstraction, entry and reporting began three years ago in 22 sites in the U.S. and 4 International sites and have enrolled 370 subjects. The consortium holds an annual meeting every year during the Heart Rhythm Society Scientific Sessions to collaborate on improvements to the database and care of patients with the disease. Several scientific abstracts regarding outcomes in patients with CSC have been presented at national meetings.



Cardiac Rehabilitation Sample Program			
Mode	Frequency	Intensity	Time
Walking (indoors or outdoors)	<ul style="list-style-type: none"> • Week 1 to week 4: 3 to 5 times a day • Week 4 to week 8: 2 or 3 times a day 	<ul style="list-style-type: none"> • Slow to moderate pace • Avoid becoming short of breath. • Avoid hilly terrain. 	<ul style="list-style-type: none"> • Week 1: 5 to 10 minutes • Week 2: 10 to 15 minutes • Week 3: 15 to 20 minutes • Week 4: 20 minutes • Week 5: 25 minutes • Week 6: 30 minutes • Week 7: 35 minutes • Week 8: 40 minutes
Cycling (stationary)	<ul style="list-style-type: none"> • Week 1 to week 4: 3 to 5 times a day • Week 4 to week 8: 2 or 3 times a day 	<ul style="list-style-type: none"> • Little to moderate resistance • Comfortable speed • Avoid becoming short of breath. 	<ul style="list-style-type: none"> • Week 1: 5 to 10 minutes • Week 2: 10 to 15 minutes • Week 3: 15 to 20 minutes • Week 4: 20 minutes • Week 5: 25 minutes • Week 6: 30 minutes • Week 7: 35 minutes • Week 8: 40 minutes



CR

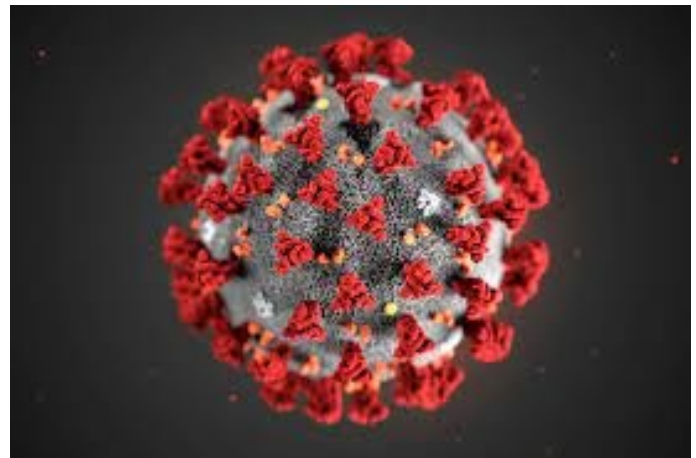
Cardiac Rehabilitation

Cardiac Rehabilitation (CR) is a program that combines lifestyle changes, education and supervised physical activity to help patients recover after cardiac events. Cardiac rehab has been demonstrated to reduce the likelihood for re-hospitalization, complications of cardiac disease, and sudden death. Additional benefits of CR include improved quality of life and confidence with daily tasks. Patients report improvements in physical symptoms, blood pressure and lipid management, decrease in psychological distress, and marked improvement in quality of life.



Patients undergo a thorough evaluation by the clinical team before beginning the program. The evaluation includes an assessment of clinical history by our nursing team, lab work, and a stress test (if appropriate). Upon enrollment, a team of certified clinical exercise physiologists prescribes an exercise program individualized for each patient and works with each patient for up to 36 sessions. Patients also have weekly interaction with our registered dietitians and social work can be consulted as necessary. The staff reviews the medication and works with the primary care physician and cardiologist to assure the patient is compliant with evidence based therapy. The clinical team has successfully transitioned to a virtual instructional environment to insure continuation of the program during the COVID pandemic.

MCORRP students continue to support the on-going data collection and analysis in cardiac rehab, including analyzing data to determine outcomes and areas needing improvement.

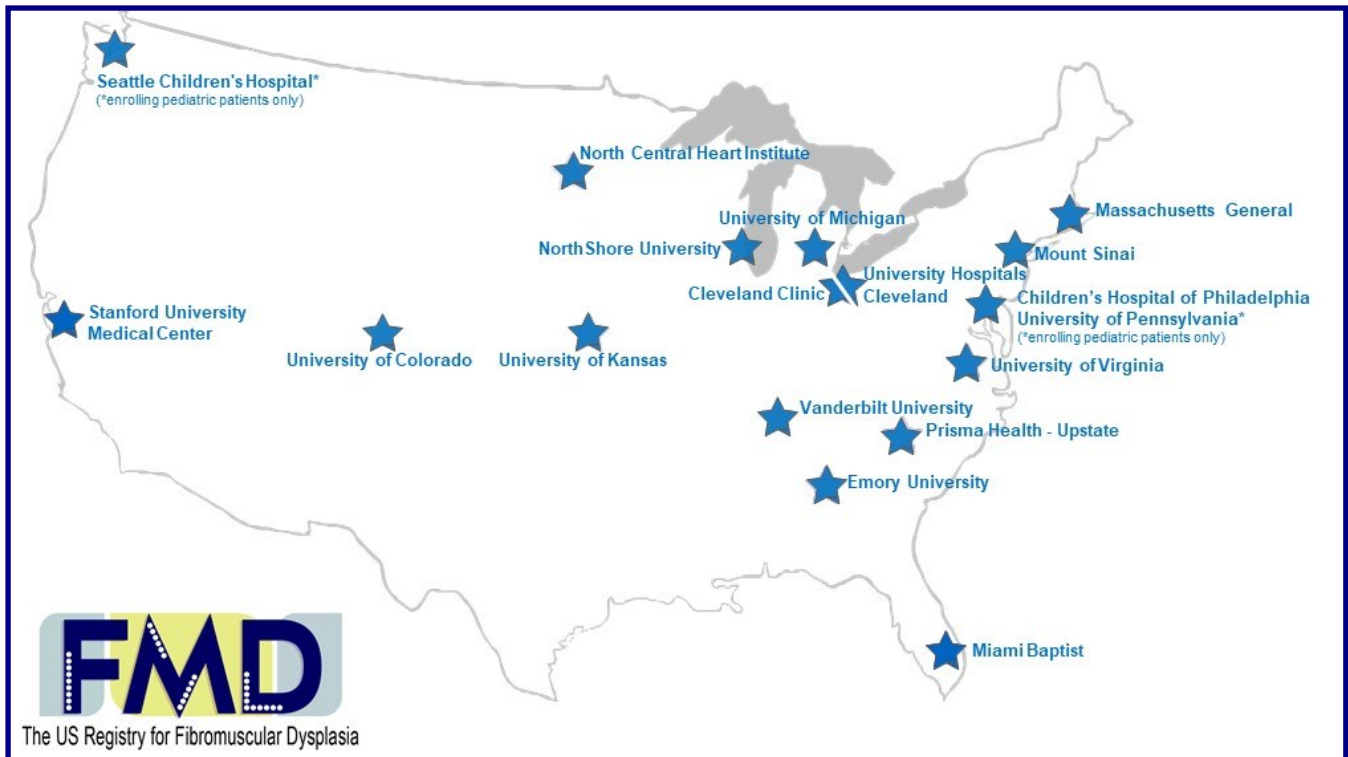
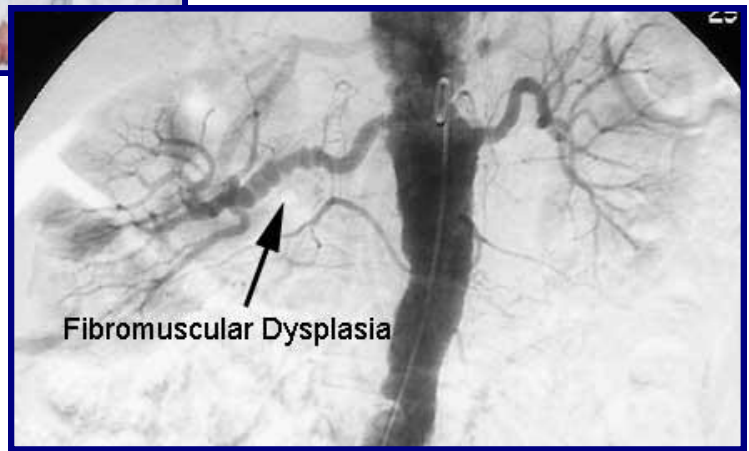


American Heart Association COVID-19 Registry

We are excited to introduce the newest registry to **MCORRP** geared towards better understanding COVID-19. To facilitate better understanding of this pandemic, the American Heart Association (AHA) has developed a new registry for hospitals and health systems caring for COVID-19 patients. The University of Michigan, through MCORRP, is one of the contributing sites to this national registry.

The AHA registry was designed to assess the clinical treatment patterns, variations and cardiovascular outcomes in hospitalized COVID-19 patients across the nation. The registry will focus on real-time data from acute care hospitals to better help clinicians and researchers understand and provide feedback to healthcare organizations on how to best treat COVID-19 patients. The AHA's COVID-19 Registry powered by Get With The Guidelines builds on 20 years of successful hospital quality improvement efforts.

MCORRP continues to contribute to the national registry but also collects data on patients one year after discharge. Since many people diagnosed with COVID-19 experience symptoms long after they were first diagnosed, a follow-up questionnaire is sent to patients via e-mail. For those patients without a current e-mail address, a f/u telephone call will be conducted. Two abstracts were submitted to national meetings this past year, one reporting in-hospital outcomes based on BMI and the second reporting outcomes on the effects of proning.



FMD

Fibro muscular Dysplasia Registry



Fibromuscular dysplasia (FMD) is a non-atherosclerotic, non-inflammatory vascular disease that most commonly affects the renal and internal carotid arteries but has been described in almost every arterial bed in the body. It may be entirely asymptomatic and discovered incidentally through imaging, or it may present with a variety of symptoms. In addition, little is known about the prevalence and natural history of FMD.

In 2007, the Fibromuscular Dysplasia Society of America (FMDSA) committed to funding the U.S. Registry for FMD. The goals of this registry are to identify patient characteristics associated with FMD, potential genetic markers of the disease, commonly used imaging and treatment modalities, outcomes in patients with FMD, and to provide recommendations for best practices in caring for patients with FMD.

MCORRP is the coordinating center for the FMD Registry. The registry began initially with 7 sites, with data entry from the first patient in 2009. There are now 17 active sites and more than 3,300 patients in the registry, including over 9,600 follow-ups in the database. The initial findings of the registry were reported in *Circulation* in 2012. Since then 14 manuscripts, including a patient page, and 20 abstracts have been published or presented at national meetings. In addition, several studies focusing on quality of life in patients with FMD have been conducted and published by researchers at **MCORRP**.

Current work is focusing on long-term outcomes in patients with FMD, outcomes of vascular interventions, effects of hormones, differences in treatment/outcomes based on ethnicity, and the role of genetics. The FMD Steering Committee Members meet regularly to determine registry and publication priorities. In addition, findings from the registry are presented annually at the FMDSA meeting in Cleveland, Ohio.





- Advocate Health
- Baylor College of Medicine
- Baylor Scott & White Heart & Vascular Hospital, Dallas
- Baylor Scott & White Plano
- Beth Israel Deaconess
- Brigham & Women's Hospital
- Dartmouth-Hitchcock
- Duke University
- East Carolina University
- Emory University
- Hartford Healthcare
- Hadassah University Hospital
- Hopital Bichat
- Houston Methodist
- Hospital General Universitari Vall d'Hebron
- Hospital Universitario "12 de Octubre"
- IRCCS Policlinico San Donato
- Massachusetts General
- Mayo Clinic
- Medanta the Medicity
- Medical University of Graz
- Memorial Care
- Minneapolis Heart Institute
- Monaldi Hospital
- Nanjing Medical University
- Northwell Health
- Policlinico Di Monza
- Radboud University
- Robert-Bosch Krankenhaus
- St. Thomas Health
- The Technische Universität München
- Tromsø University Hospital
- University Hospital S. Orsola
- University of Alabama
- University of Calgary
- University of Chicago
- University of Colorado
- University of Florida
- University of Maryland
- University of Medicine Ancona
- University of Michigan
- University of Minnesota
- University of Pennsylvania
- University of Pittsburgh
- University of Rostock
- University of Salerno
- University of Texas Health
- University of Tokyo
- University of Vienna
- University of Virginia
- University of Washington
- University of Wisconsin
- Vanderbilt University
- Washington University



IRAD

International Registry of Acute Aortic Dissection

Founded in 1996, the International Registry of Acute Aortic Dissection has continued to shape the medical community's understanding of aortic disease. A quarter century of research is an opportune time to reflect on the future of this endeavor, and much of the past year has been dedicated to revising the way in which IRAD approaches its mission. Somewhat paradoxically, these changes will promote the same goal that began with a grassroots organization and handful of passionate centers 25 years previous: to study the epidemiology, management, and outcomes of an uncommon but devastating emergency.

Sustainable growth has been a goal for the registry since it began. In 2012, it was determined that any subsequent growth would need to be self-sustaining, leading to the development of a payment-based model. This model has undergone significant changes in the previous year, leading to a 37.5% increase in the number of signed registry agreements. Supported by a robust training program for new participants, the addition of new sites has been shown to be a feasible and reliable way to increase IRAD enrollment and broaden the registry's reach.

Parsimony is a key element to IRAD's success. As a voluntary registry, the demands on sites cannot outweigh the time available for abstraction and validation. However, myriad advances in the field, especially related to endovascular therapies, surgical repair, imaging, and genetics, have necessitated updates over time. Launched in 2010, the IRAD Interventional Cohort has been an example of how the registry can grow and adapt to change while maintaining data integrity. Recent publications have focused on IRAD-IVC data, and IRAD has been prominently featured at many of the larger surgical conferences.

There remains remarkable interest in analyzing the IRAD database, even after achieving 105 peer-reviewed publications. The coordinating center received 20 unique proposals for consideration this year alone, and 16 projects are actively undergoing analysis or waiting on journal review. Efforts to improve the organization and oversight of these many projects led to the development of the IRAD Publications Committee, launched in January 2021. This committee is comprised of highly active and democratically-elected members of the consortium. The committee meets quarterly to review potential projects, discuss target conferences and journals for ongoing projects, and support authors throughout the submission process. With this new initiative, IRAD aims to improve the percentage of projects that are ultimately published as well as increase engagement and ownership among invested centers.

IRAD has succeeded in the goal to better understand aortic dissection because of the dedication of its participants. This commitment is still readily apparent after 2.5 decades of research—from the dozens of topics analyzed yearly to the continued efforts to improve IRAD's organization and outreach. Steadfast support from IRAD's investigators, coordinators, funders, and patients has expanded our knowledge of aortic disease and created an infrastructure that will promote the discovery of novel insights well into the future.





University of Michigan Health System Anticoagulation Toolkit Newsletter

U-M is a part of the Michigan Anticoagulation Quality Improvement Initiative (MAQI²), a consortium of anticoagulation clinics and experts from across the state committed to improving the quality of anticoagulation care. One of the MAQI² efforts is to provide comprehensive information about anticoagulant therapy via an Anticoagulation Toolkit.

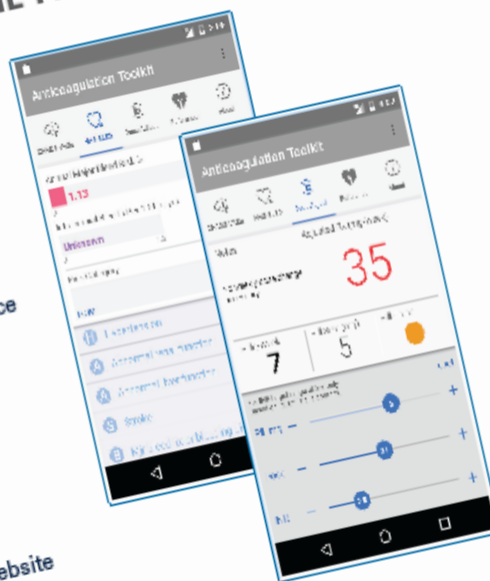
WHAT'S NEW WITH THE TOOLKIT?

FREE app, now available for Apple and Android devices: After receiving numerous requests, we are now able to offer our mobile app to users of Apple and Android devices. Search for "MAQI" on your device.

NEW version available: Version 1.6 of the toolkit is now available for download. We updated information based on the AC Forum VTE Guidance papers that were released earlier this year and added other useful tools and information.

FREE CME: Two hours of free CME (AMA PRA Cat. 1) are now available from the University of Michigan for reviewing the toolkit and completing a post-test.

FREE Patient Education Toolkit: Visit our website for patient education material, which can be printed and downloaded for your convenience. Now available in Spanish and coming soon in Arabic and Chinese.



The Michigan Anticoagulation Quality Improvement Initiative (MAQI²) is a Blue Cross Blue Shield of Michigan/Blue Shield of Michigan/Blue Care Network-sponsored quality improvement consortium of anticoagulation clinics from across the state of Michigan. This consortium developed and maintains this toolkit to give providers an updated, evidence-based resource for anticoagulation management.

MAQI² Anticoagulation Toolkit

BCBSM/BCN Value Partnership



Anticoagulation
Center of
Excellence

2018-2020

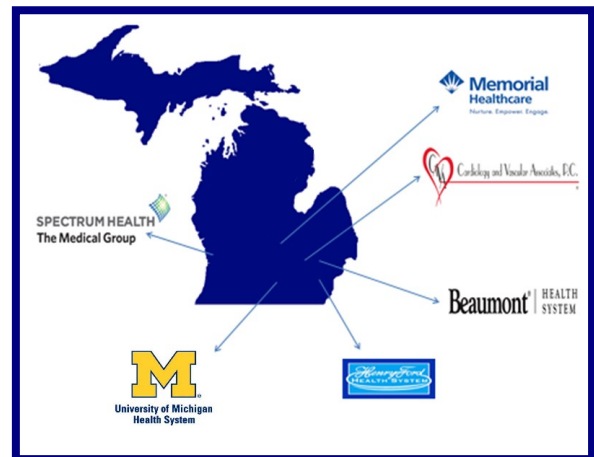
www.anticoagulationtoolkit.org



MAQI²

Michigan Anticoagulation Quality Improvement Initiative

Michigan Anticoagulation Quality Improvement Initiative (MAQI²) is a multi-center, collaborative quality initiative sponsored by Blue Cross Blue Shield of Michigan. Data is collected on patients taking oral anticoagulants from 6 participating Michigan health systems and entered into a data registry managed by the MAQI² Coordinating Center located within **MCORRP**. Data collected include patient demographics, medications, co-morbidities, time in therapeutic range (TTR), and frequency of adverse events. Information on each site's protocols, processes, and structure is also collected in an effort to link outcomes with variations in clinic operations. Over 18,000 patients have been entered into the registry along with over 500,000 follow-ups.

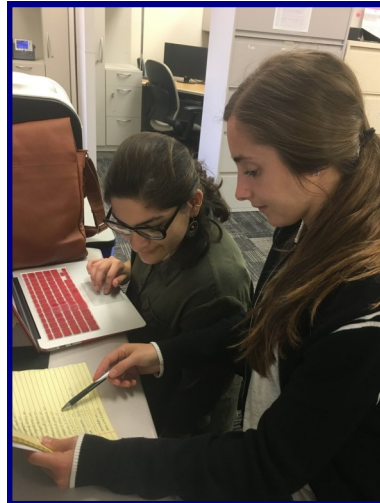


Opportunities for improvement have been identified, best practices have been shared, and quality improvement interventions have been completed or are underway. Current initiatives include reducing unnecessary lab testing, inappropriate aspirin use, and off-label dosing. Improving patient knowledge of anticoagulation is an ongoing initiative. The aim of all quality improvement initiatives is to increase anticoagulation effectiveness and safety.



In addition, the MAQI² collaborative has developed the MAQI² Anticoagulation Toolkit, which includes a downloadable collection of guidelines, protocols, and a mobile app to help providers manage anticoagulation patients more safely and effectively. The toolkit also includes patient education resources in multiple languages for patients to learn more about how to take anticoagulants safely. Information for the toolkit and mobile app can be found at: www.anticoagulationtoolkit.org. Thousands of providers and patients across the country are using the toolkit to improve anticoagulation safety and effectiveness.







MCORRP *Student Internship Program*

The **MCORRP** Student Internship was especially challenging for the summer of 2021 in the context of the on-going global COVID-19 pandemic. The prior internship in 2020 had been cancelled. As a result, participation in the 2021 internship was first offered to the accepted students from 2020, most of whom accepted participation. Choosing team leaders was also challenging, since the previous year's program had been cancelled. We engaged with the students who had remained remotely working part-time throughout the academic year and reached out to past students to gauge interest in returning to a remote work environment in the roles of student team leaders and managers.

Shifting our internship to a remote environment also took some creative solutions. Unfortunately, we were unable to provide "shadowing" experiences for the students. That said, we still provided a comprehensive learning environment that included lectures, team meetings, and orientation to registries via Zoom, along with individual virtual instruction. As the summer progressed, and based on CDC and Michigan Medicine Guidelines, we were able to hold in-person team meetings (with masking, social distancing, and proof of vaccination). These team meetings helped to solidify the importance of teamwork, sharing of best practices, and problem solving.

A total of 30 students participated in the 2021 **MCORRP** Student Internship program. This consisted of 14 undergraduates, 10 medical students, and 6 post-graduates. These students came from a variety of schools across the country, including University of Michigan, Washington University in St Louis, Michigan State College of Human Medicine, Oregon State University, Grinnell College, Oakland University—William Beaumont School of Medicine, University of Michigan School of Public Health and School of Medicine, University of Nevada—Reno School of Medicine, Indiana University Medical School, Michigan State University, and Central Michigan Medical School. Altogether, these students participated in 9 different registries, assisting with data collection and designing innovative ways to abstract and validate data, including follow-up phone calls. With help from staff, students created and implemented individual research projects; many of these projects have been submitted as abstracts to national meetings.

MCORRP staff remain grateful for the opportunity to provide the annual summer internship program. Students provide our staff with innovative ideas and creative problem solving, along with helping with the day-to-day work of the registries. We look forward to next year's program with the hope it will be in-person.



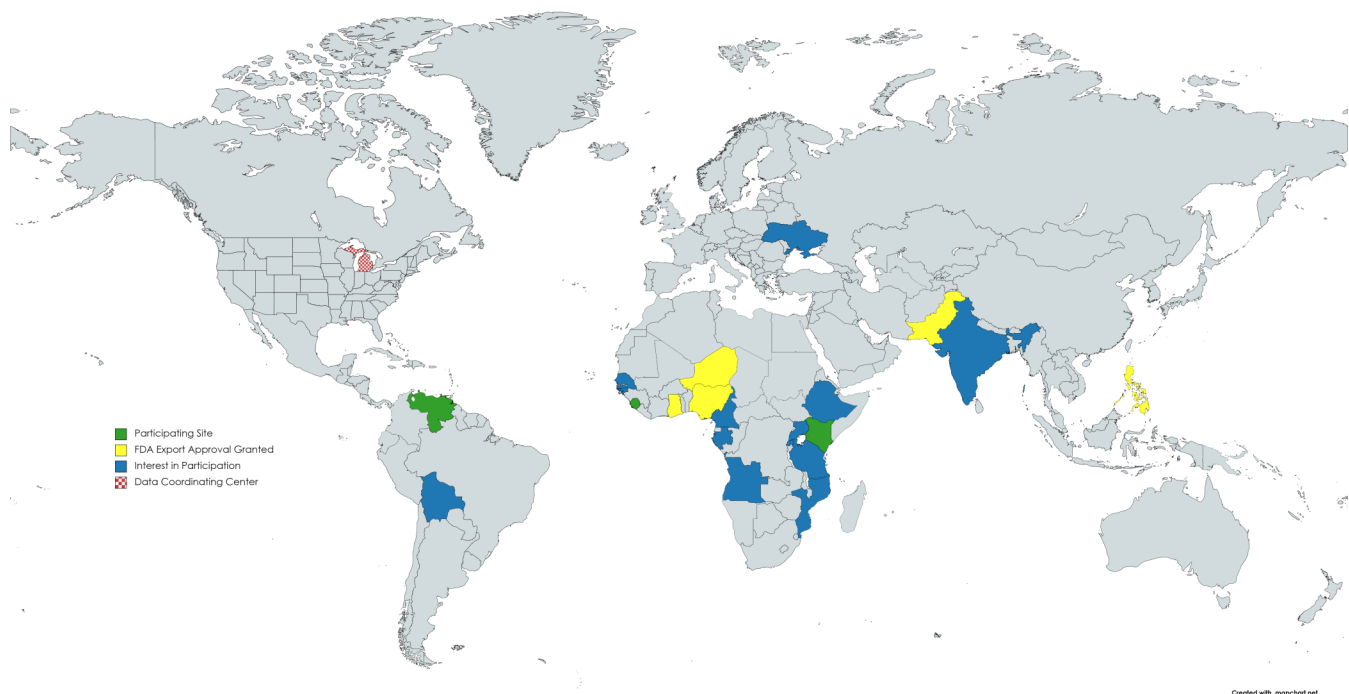
Eligible Devices Being Stored at World Medical Relief (WMR)

- 2021 7,300
- 2020 6,470
- 2019: 5,800
- 2018: 2,000
- 2017: 3,100



Total Devices Interrogated at World Medical Relief (WMR)

- 2021 28,000
- 2020 25,000
- 2019: 23,000
- 2018: 10,,000
- 2017: 9,185





MHYH

My Heart Your Heart

As we enter the 21st century, the healthcare disparities between the industrialized world and those in underserved nations have become all too apparent. Cardiovascular disease has an increasing impact on morbidity and mortality in many developing countries, many of which already face a disproportionate burden of infections leading to abnormalities of the conduction system. Novel methods of delivering costly electrophysiological healthcare to impoverished nations are needed.

My Heart Your Heart is a collaboration between citizens, physicians, and funeral directors in the state of Michigan, the University of Michigan Cardiovascular Center, World Medical Relief, and teaching hospitals in the Philippines, Vietnam, Ghana, and Nicaragua.

The purpose of the project is to create a central organization that obtains pacemakers post-mortem for evaluation and subsequent sterilization while creating a distribution network for safe reuse. Our goal is to create a reproducible model that other academic centers in the United States and Europe can emulate in order to create their own collaborative network for refurbished device distribution to those unable to afford bradycardia arrhythmia therapy. Thus far, Project My Heart Your Heart has received and interrogated more than 30,000 used devices, has completed pilot projects in several countries, and presented and published numerous abstracts and papers related to this work. The project currently has 7,500 eligible devices for the reconditioning process.



Project My Heart Your Heart received FDA and IRB approval to begin a randomized, multi-center study. The

objective is to prove that postmortem pacemaker reutilization can be shown to be a safe means of delivering care to patients in low and middle income countries without resources. Countries participating in this study include Sierra Leone, Venezuela, Kenya, Nigeria, and Ghana. Countries that have shown interest in further collaboration include Dominica, Mozambique, Pakistan, Philippines, Uganda, Rwanda, Cape Verde, St. Thomas and Prince, Angola, East Timor, and Guinea-Bissau.





OVERCOME—HF Registry

Approximately 6.2 million adults in the United States had a diagnosis of heart failure between 2013-2016,¹ and the number of heart failure patients is expected to increase to >8 million adults by 2030.² Heart failure is associated with significant mortality—1 in 8 deaths has heart failure mentioned on the death certificate¹—and hospitalizations and readmissions are common.^{1,3-5} The cost of heart failure readmissions is estimated to be over \$2.4 billion in the United States.⁶ Additionally, the Hospital Readmissions Reduction Program was enacted to reduce reimbursement for readmission services, in order to encourage improved care coordination at index discharge.⁷ While many readmissions following a heart failure hospitalization may be unavoidable,⁸ there are many opportunities for health care providers and institutions to improve care, quality, and coordination that can potentially reduce unplanned readmissions.

The purpose of the OVERCOME-HF registry is to collect and analyze data on all patients discharged from Michigan Medicine following a heart failure hospitalization in order to evaluate our current programs and determine which variables affect outcomes (e.g. ED visits, readmissions, death). The study seeks to improve quality of care and inform best practices for these patients. Data collected include: limited demographic data, disease-specific data, past medical history, medications, inpatient clinical course data, and follow-up data up to 5 years post-index discharge. Due to the extensive nature of the data form, the registry has partnered with the Data Office for Clinical and Translational Research (DOCTR) to obtain data directly from the electronic medical record.

Over 12,000 heart failure hospitalizations have been added to the database. Additional variables to be added to the registry include: additional medications (e.g. SGLT2 inhibitors, vericiguat, in-hospital medications), in-hospital measures (e.g. inputs and outputs), additional laboratories and vitals, and nursing workload acuity data. Initial projects planned include assessing medication optimization and the safety, efficacy of SGLT2 inhibitors in this population, and outcomes based on new heart failure classifications.





Project Healthy Schools Locations

Upper Peninsula

Atlantic Mine (1)
Bessemer (1)
Calumet (1)
Crystal Falls (1)
Eben Junction (1)
Engadine (1)
Gladstone (1)
Harris (1)
Ishpeming (2)
Kingsford (1)
L'Anse (1)
Manistique (1)
Marquette (1)
Menominee (1)
Negaunee (1)
Newberry (1)
Pickford (1)
Rudyard (1)
Sault Ste. Marie (1)
Wakefield (1)

West Central

Allendale (1)
Big Rapids (1)
DeWitt (1)
Grand Rapids (1)
Ludington (1)
Portland (1)

North

Alpena (1)
Boyne City (1)
Elk Rapids (1)
Hillman (1)
Kalkaska (1)
Suttons Bay (1)
West Branch (1)

Southwest

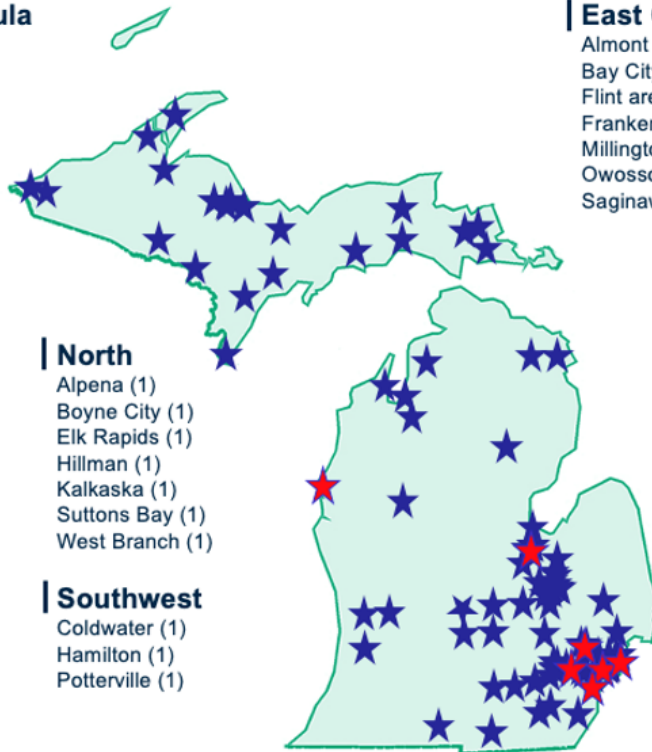
Coldwater (1)
Hamilton (1)
Pottsville (1)

East Central

Almont (1)
Bay City (1)
Flint area (7) (1)
Frankenmuth (1)
Millington (1)
Owosso (1)
Saginaw (2) (1)

Southeast

Ann Arbor (9)
Brooklyn (1)
Carleton (1)
Dearborn (1)
Deerfield (1)
Detroit (10) (1)
Dexter (1)
East Lansing (1)
Farmington Hills (4)
Ferndale (1)
Grass Lake (1)
Gross Pointe Park (1)
Harper Woods (1)
Hazel Park (1)
Livonia (1)
Milan (1)
Pinckney (1)
Pittsford (1)
Plymouth (1)
Romulus (2)
Southgate (1)
Troy (1)
Washington (1)
Waterford (2)
Wayne (1)
Westland (1)
Ypsilanti (3)



★ = New school in fall 2020



PHS

Project Healthy Schools

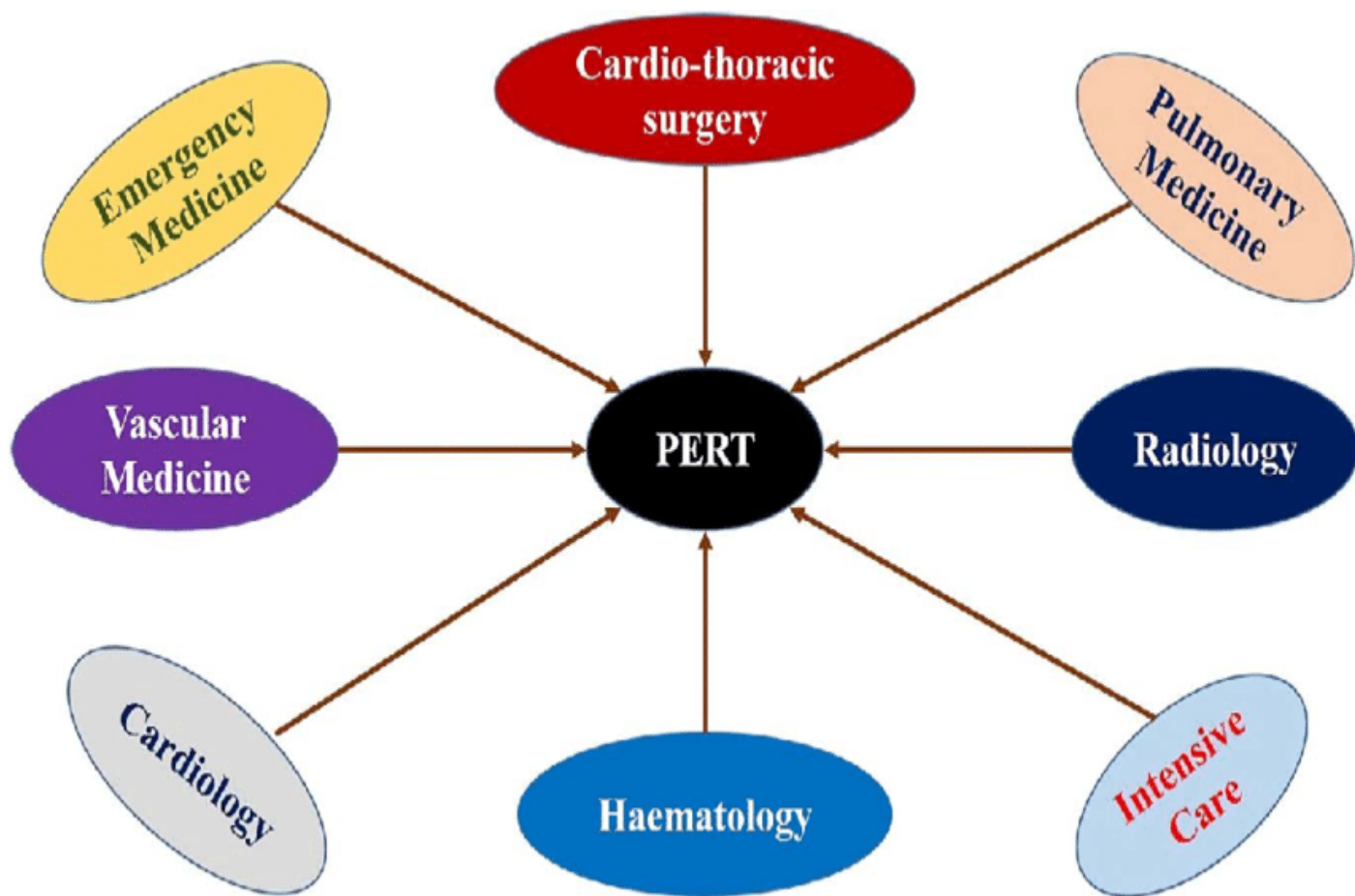
Obesity is a national epidemic. In the past 40 years, obesity rates have nearly quadrupled among youth in the United States. Currently, 19.3% of U.S. youth, aged 2-19 years, are obese (Fryar et al., 2020). Childhood obesity can lead to severe long-term health risks, including diabetes and heart disease (Bray et al., 2004). Project Healthy Schools (PHS) is a community-university collaborative that aims to curb poor lifestyle habits developed in childhood. The program encourages healthy habits through education and environmental change (Rogers et al., 2017).



PHS has five main goals: (1) eat more fruits and vegetables, (2) choose less sugary foods and beverages, (3) eat less fast and fatty foods, (4) be active every day, and (5) spend less time in front of a screen. These goals are promoted through ten standardized, interactive lessons. PHS also works with school policy-makers to change vending machine and cafeteria food options, set up after-school activity programs, host field days, and coordinate many other environmental changes. Recent additions to the PHS curriculum include lessons on infectious disease (motivated, in part, by the COVID-19 pandemic), vaping, and kidney health.

In 2004, PHS was piloted at Clague Middle School in Ann Arbor. The program spread to five additional Ann Arbor middle schools by 2006. Through the help of many donors, PHS has been implemented in over 140 Michigan schools, including schools in rural and low-income communities, and is expanding to other states and internationally.

To date, behavioral survey data from over 26,200 students and physiological data from over 3,100 students has been collected. With this continuously growing dataset, PHS has published 19 manuscripts and over 65 abstracts. This research has primarily focused on the program's effectiveness, and the resulting publications have demonstrated immediate and lasting improvements in participants' health. These improvements include decreased total cholesterol, LDL cholesterol, triglycerides, and blood pressure, as well as increased physical activity and decreased sedentary behaviors.





PERT Registry

Pulmonary Embolism Response Team



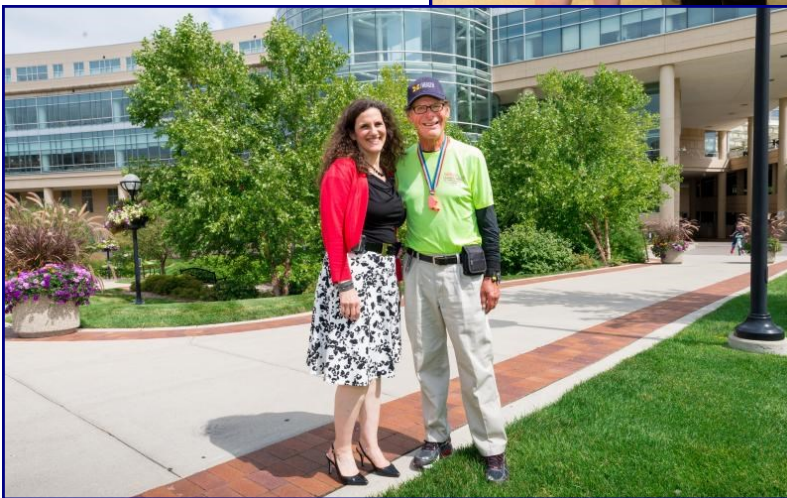
Acute pulmonary embolism (PE) is a fairly common condition that affects 1-2/1000 individuals in the US per year. Patients with massive PE (defined by hemodynamic compromise) have high mortality and these patients benefit from aggressive treatments such as thrombolysis, surgical thrombectomy and catheter-based interventions. However, which modality is superior is not known.

The PERT (Pulmonary Embolism Response Team) Registry is a national registry that collect data on patients admitted to the hospital with PE for whom a pulmonary embolism response team (PERT) meeting occurs to help guide management. Initially begun at Massachusetts General Hospital, Michigan Medicine was invited in 2018 to collaborate in this multi-center registry. Data collected in that registry include vital signs, comorbidities, treatment decisions, and outcomes during the hospital stay and in follow-up. This information is important for advancing the science of acute PE management and for helping the Michigan Medicine PERT team understand how their management decisions are similar and/or different to national treatment patterns.

The PERT Registry Leaders hope to advance the understanding of practices used and outcomes of specific PE treatment by using epidemiologic, therapeutic, quality assessment and outcomes research.



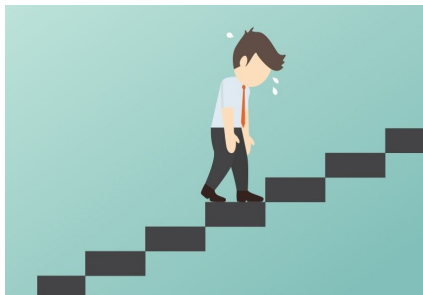
"Pacing Parson visits Ann Arbor on trek for pulmonary hypertension awareness"





PH *Pulmonary Hypertension*

Pulmonary hypertension is a relatively rare heart and lung condition that is classified by an increased mean pulmonary arterial pressure, indicating that the arteries leading to the lungs have become narrowed or have increased in vascular resistance. This constriction leads to a reduced blood flow in the lungs, which increases the blood pressure in the pulmonary artery, veins, and/or capillaries. Most patients who present to the clinic have severe dyspnea, or difficulty breathing, because of the lack of blood flow to their lungs, which makes oxygen diffusion more difficult, and decreases the amount of oxygen that is transported to the rest of the body. Fatigue, chest pain, edema, and dizziness are also common symptoms of this condition.



There are five different groups of pulmonary hypertension, and patients are classified to a certain World Health Organization (WHO) group based on the etiology of their disease. WHO group 1 patients have pulmonary arterial hypertension, which is often subcategorized into heritable, idiopathic, drug/toxin induced, associated with connective tissue disease, etc. WHO group 2 patients have elevated heart pressures because of systolic/diastolic dysfunction (in the heart muscle) or heart valve disease. WHO group 3 is characterized by lung diseases such as interstitial lung disease, COPD, or obstructive sleep apnea, to name a few. Chronic thromboembolic pulmonary hypertension (CTEPH)

dominates WHO group 4. WHO group 5 consists of pulmonary hypertension secondary to multifactorial mechanisms, such as systemic, metabolic, or hematological disorders. Baseline diagnostic testing enables physicians to classify the patients into the respective WHO groups.

Depending on the type and severity of pulmonary hypertension, patients may or may not be eligible for various treatments to manage their disease. Vasodilators are the most common type of therapy for WHO group 1 patients and managing the effects of underlying health conditions is standard for WHO groups 2 and 3. Those with group 4 CTEPH have the only form of pulmonary hypertension that is curable, and if eligible can undergo a pulmonary thromboendarterectomy surgery. Certain classifications of PH patients can undergo a lung transplantation to reduce symptoms. We are collecting data on patients admitted to Michigan Medicine for the purpose of defining best treatment modalities for these patients.



In 2019, we
surpassed
our goals



Over **2,500**
Volunteer
Hours



Filled **128**
Gaylord's
(which equates to 3 full
40 foot overseas
containers)



Estimated
\$1.8 million of
medical equipment
shipped to countries
overseas

*Due to the COVID- 19 pandemic, ,
we were unable to have volunteers at WMR, but we expect to be at full capacity in 2022!*



WMR

World Medical Relief

World Medical Relief was established in 1953 to address the needs of Korean War orphans. Over the years, the non-profit organization has expanded its mission to impact the well-being of the medically impoverished on a local, national and international basis and provided medical aid to thousands of underserved people in the Detroit metropolitan area and in over 130 developing nations worldwide. WMR achieves this through the collection of financial donations and goods, including medical, dental and laboratory items, as well as through the purchase and distribution of such commodities. Goods are distributed in a non-discriminatory manner without regard to race, color, gender, religion, nationality or political beliefs.

After developing a partnership between World Medical Relief and Project My Heart Your Heart, Dr. Kim Eagle joined the World Medical Relief Board of Directors in 2010. **MCORRP** then began to integrate World Medical Relief into its summer internship program. Beginning in the summer of 2010, each student is scheduled to visit WMR headquarters in Detroit for four days to help with the sorting and shipment of medical supplies. Staff members also attend for a single day during the summer. This opportunity not only raises awareness of the substantial need for medical supplies in third world countries, but also supplements the educational curriculum by familiarizing students with a vast assortment of medical supplies and equipment.

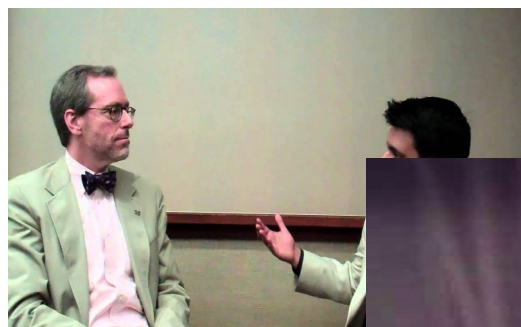


World Medical Relief is also an integral partner of Project My Heart Your Heart. On June 9, 2018, WMR opened the Sheldon and Marion Davis Pacemaker Recycling World Headquarters and became the only pacemaker reconditioning facility in the country. To date, more than 30,000 devices have been donated to the project.



Due to the COVID-19 pandemic, this opportunity was limited to volunteering in the My Heart Your Heart pacemaker reconditioning lab. A handful of students took advantage of this opportunity and were able to interrogate 750 donated devices; recovering 223 devices for further reconditioning. Another 1,300 devices were catalogued and organized. WMR looks forward to the resumption of volunteers in 2022.

Their passion, mission and dedication is truly inspirational !

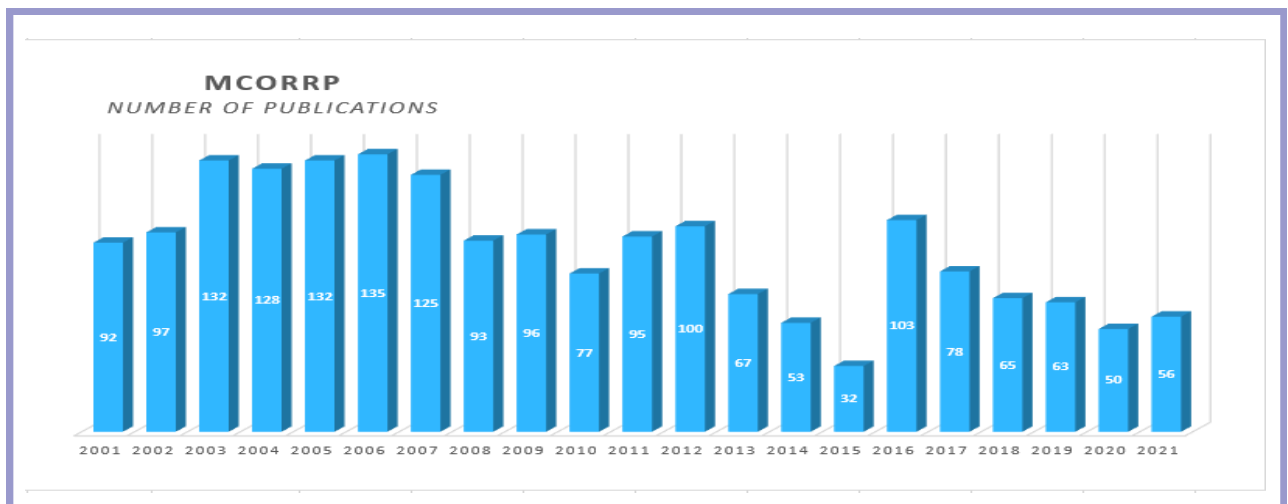


GUIDELINES
PETER BLOCK, MD PAUL WHELTON, MD KIM
New High Blood Pressure Guidelines





PUBLICATIONS



PUBLICATIONS

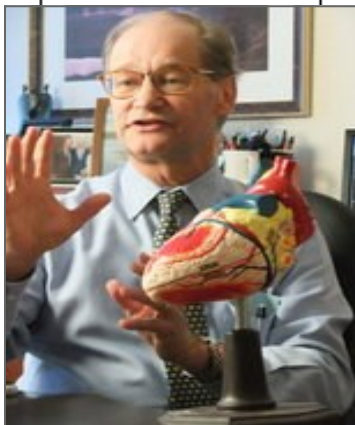
PRINCIPAL INVESTIGATORS	PUBLICATIONS
Barnes, Geoffrey MD, MSc	<ul style="list-style-type: none"> Feng Y, Pai C-W, Seiler K, Barnes GD "Adverse Outcomes Associated with Inappropriate Direct Oral Anticoagulant Starter Pack Prescription Among Patients with Atrial Fibrillation: A Retrospective Claims-based Study" <i>J Thromb Thrombolysis</i> 2021 ePub Jan 3 DOI: 10.1007/s11239-020-02358-3 Neshewat J, Wasserman A, Alexandris-Souphis C, Haymart B, Feldeisen D, Kong X, Harvey RS, Pymmonen M, Froehlich JB, Kline-Rogers E, Barnes GD "Reduction in Epistaxis and Emergency Department Visits in Patients Taking Warfarin After Implementation of an Education Program" <i>Thromb Res</i> 2021 ePub Jan 16 DOI: 10.1016/j.thromres.2021.01.007 Schaefer JK, Li M, Wu Z, Basu T, Barnes GD, Carrier M, Griggs JJ, Sood SL "Clinical and Sociodemographic Factors Associated with Anticoagulant Use for Cancer Associated Venous Thromboembolism" <i>Thromb Res</i> 2021 (in press) Dawwas GK, Dietrich E, Cuker A, Barnes GD, Leonard C, Lewis JD "Effectiveness and safety of direct oral anticoagulants versus warfarin in patients with valvular atrial fibrillation: A population-based cohort study" <i>Ann Int Med</i> 2021 ePub March 30 DOI: 10.7326/M20-6194 Schaefer JK, Erickson J, Li Y, Kong X, Alexandris-Souphis T, Ali M, Decamillo D, Haymart B, Kaatz S, Kline-Rogers E, Kozlowski JH, Krol G, Shankar S, Sood S, Froehlich J, Barnes GD, "Adverse Events Associated with the Addition of Aspirin to DOAC Therapy Without a Clear Indication" <i>JAMA Int Med</i> 2021 ePub Apr 19 DOI: 10.1001/jamainternmed.2021.1197 Vaughn VM, Yost M, Abshire C, Flanders SA, Page D, Grant P, Kaatz S, Kim T, Barnes GD, "Trends in Venous Thromboembolism Anticoagulation in Patients Hospitalized With COVID-19" <i>JAMA Netw Open</i> 2021;4:e2111788 Sheikh MA, Kong X, Haymart B, Kaatz S, Krol G, Kozlowski J, Dahu M, Ali M, Almany S, Alexandris-Souphis T, Kline-Rogers E, Froehlich J, Barnes GD, "Comparison of temporary interruption with continuation of direct oral anticoagulants for low bleeding risk procedures" <i>Thromb Res</i> (in press) Han H, Chung G, Sippola E, Chen W, Morgan S, Renner E, Ruff A, Sales A, Kurlander J, Barnes GD, "Implementation and Sustainment of a Best Practice Alert and Pharmacist Referral Process to Improve Pre-Procedure Antithrombotic Management" <i>Res Pract Thromb Haemost</i> 2021 (in press) Hanigan S, Kong X, Haymart B, Kline-Rogers E, Kaatz S, Krol G, Shah V, Ali MA, Slamany S, Kozlowski J, Froehlich J, Barnes GD, "Standard Versus Higher Intensity 30 November 2021 Anticoagulation for Patients with Mechanical Aortic Valve Replacement and Additional Risk Factors for Thromboembolism" <i>Am J Cardiol</i> 2021 (in press) Cholack G, Garfein J, Krallman K, Montgomery D, Kline-Rogers E, Rubenfire M, Bumpus S, Cascino T, Barnes GD, "Trends in Calcium Channel Blocker Use in Patients with Heart Failure with Reduced Ejection Fraction and Comorbid Atrial Fibrillation" <i>Am J Med</i> (in press) Sussman M, Di Fusco M, Tao C, Guo J, Gillespie J, Ferri M, Adair N, Cato M, Shirkhorshidian I, Barnes GD, "The IMPACT of Untreated Non-Valvular Atrial Fibrillation on Short-Term Clinical and Economic Outcomes in the US Medicare Population: the IMPROVE-AF model" <i>J Med Econ</i> (in press) Dawwas GK, Barnes GD, Dietrich E, Cuker A, Leonard CE, Genuardi MV, Lewis JD, "Cardiovascular and major bleeding outcomes with antiplatelet and direct oral anticoagulants in patients with acute coronary syndrome and atrial fibrillation: A population-based analysis" <i>Am Heart J</i> (in press) Cholack G, Garfein J, Erickson J, Krallman R, Montgomery D, Kline-Rogers E, Eagle K, Rubenfire M, Bumpus S, Barnes GD, "Early (0-7 day) and late (8-30 day) readmission predictors in acute coronary syndrome, atrial fibrillation, and congestive heart failure patients" <i>Hosp Pract</i> (1995) (in press) Decamillo D, Haymart B, Barnes GD, "Adverse Events in Patients Taking Apixaban or Rivaroxaban Who Have Undergone Bariatric Surgery: A Retrospective Case Series" <i>J Thromb Thrombolysis</i> (in press) Edupuganti S, Li M, Wu Z, Basu T, Barnes GD, Carrier M, Sood S, Griggs J, Schaefer J, "Factors associated with inferior vena cava filter placement and retrieval for patients with cancer-associated thrombosis" <i>Am J Med</i> 2021 (in pre) Barnes GD "Preventing Venous Thromboembolism in Non-major Orthopedic Surgery: Generalizing Recommendations for Heterogeneous Populations" <i>Trends in Cardiovascular Medicine</i> (in press) Obi AT, Barnes GD, Napolitano LM, Henke PK, Wakefield TW "Venous Thrombosis Epidemiology, Pathophysiology, and Anticoagulation Therapies and Trials in Severe Acute Respiratory Syndrome Coronavirus 2 Infection" <i>J Vasc Surg: Ven Lymph Dis</i> 2021;1:23-35 DOI:10.1016/j.jvsv.2020.08.030 Othman M, Cormier M, Barnes GD, Comer SP, Connors JM, Denonne F, Khorana A, Henrique Las Casas P, Morla S, Maia J, Ainle FN, Taylor KA, van der Wal DE, Weyand AC, Lavin M, ISTH Registration, Marketing teams "Harnessing Twitter to empower scientific engagement and communication: The ISTH 2020 virtual congress experience" <i>Res Pract Thromb Haemost</i> 2021 Mar 8; 5 (2) 253-260. doi.org/10.1002/rth2.12478 Han H, Barnes GD "PERTinent New Insights into Venous Thromboembolism Risk and Management in Hospitalized Patients with Coronavirus Disease (COVID-19)" <i>Vase Med</i> 2021 (in press) Galaviz KI, Barnes GD "Implementation Science Opportunities in Cardiovascular Medicine" <i>Circ Cardiovasc Qual Outcomes</i> 2021 (in press) Obi A, Barnes GD, "Continuing to Advance the Venous Agenda: Long-Term Insights From the CAVA Trial" <i>J Am Heart Assoc</i> 2021 May 25 doi.org/10.1161/JAHA.121.021639 Connell NT, Weyand AC, Barnes GD, "Use of Social Media in the Practice of Medicine" <i>Am J Med</i> 2021 (in press) Hanigan S, Barnes GD, "DOAC Dug Levels: Does "Knowing" Lead to Safer Care?" <i>Thromb Res</i> 2021 (in press)

PUBLICATIONS

PRINCIPAL INVESTIGATORS	PUBLICATIONS
Crawford, Thomas MD	<ul style="list-style-type: none"> Rosenfeld LE, Chung MK, Harding CV, Spagnolo P, Grunewald J, Appelbaum J, Sauer WH, Culver DA, Joglar JA, Lin BA, Jellis CL, Dickfeld TM, Kwon DH, Miller EJ, Cremer PC, Bogun F, Kron J, Bock A, Mehta D, Leis P, Siontis KC, Kaufman ES, Crawford T, Zimetbaum P, Zishiri ET, Singh JP, Ellenbogen KA, Chrispin J, Quadri S, Vincent LL, Patton KK, Kalbfleisch S, Callahan TD, Murgatroyd F, Judson MA, Birnie D, Okada DR, Maulion C, Bhat P, Bellumkonda L, Blankstein R, Cheng RK, Farr MA, Estep JD: Arrhythmias in Cardiac Sarcoidosis Bench to Bedside: A Case-Based Review. <i>Circ Arrhythm Electrophysiology</i> 14(2): e009203, 2021. PM33591816 Ananwattanasuk T, Jamé S, Bogun FM, Chugh A, Crawford TC, Cunnane R, Ghanbari H, Latchamsetty R, Lathkar-Pradhan S, Oral H, Pelosi F, Saeed M, Jongnarangsin K: Lead damage after cardiac implantable device replacement procedure: Comparison between electrical plasma tool and electrocautery. <i>J Cardiovasc Electrophysiology</i> 32(4): 1124-1128, 2021. PM33625785 Kron J, Crawford T, Mihalick V, Bogun F, Jordan JH, Koelling T, Syed H, Syed A, Iden T, Polly K, Federmann E, Bray K, Lathkar-Pradhan S, Jasti S, Rosenfeld L, Birnie D, Smallfield M, Kang L, Fowler AB, Ladd A, Ellenbogen K, Van Tassel B, Gregory Hundley W, Abbate A: Interleukin-1 blockade in cardiac sarcoidosis: study design of the multimodality assessment of granulomas in cardiac sarcoidosis: Anakinra Randomized Trial (MAGiC-ART). <i>J Transl Med</i> 19(1): 460, 2021. PM34749739/PMC8575149 Deshmukh A, Larson J, Ghanam M, Saeed M, Cunnane R, Ghanbari H, Latchamsetty R, Crawford T, Jongnarangsin K, Pelosi F, Chugh A, Oral H, Morady F, Bogun F, Liang JJ: Efficacy and tolerability of quinidine as salvage therapy for monomorphic ventricular tachycardia in patients with structural heart disease. <i>J Cardiovasc Electrophysiology</i>. 2021. PM34586686 Shantha G, Chugh A, Crawford T, Latchamsetty R, Ghanbari H, Ghanam M, Liang J, Batul A, Chung E, Saeed M, Cunnane R, Jongnarangsin K, Bogun F, Pelosi F Jr, Morady F, Oral H: Comparative Efficacy of Dofetilide Versus Amiodarone in Patients With Atrial Fibrillation. <i>JACC Clin Electrophysiology</i> 7(5): 642-648, 2021. PM33812835 Ghanam M, Chugh A, Bradley DJ, Crawford T, Latchamsetty R, Ghanbari H, Cunnane R, Saeed M, Jongnarangsin K, Pelosi F Jr, Morady F, Oral H: Clinical characteristics and long-term outcomes of catheter ablation in young adults with atrial fibrillation. <i>J Interv Card Electrophysiology</i> doi: 10.1007/s10840-021-00984-2: Epub ahead of print, 2021. PM33821386 Deshmukh A, Ghanam M, Liang J, Saeed M, Cunnane R, Ghanbari H, Latchamsetty R, Crawford T, Batul SA, Chung E, Bogun F, Jongnarangsin K, Pelosi F, Chugh A, Morady F, Oral E, Oral H: Effect of metformin on outcomes of catheter
Froehlich, James MD	<ul style="list-style-type: none"> Neshewat J, Wasserman A, Alexandris-Souphis C, Haymart B, Feldeisen D, Kong X, Harvey RS, Pynnönen M, Froehlich JB, Kline-Roger E, Barnes GD. Reduction in epistaxis and emergency department visits in patients taking warfarin after implementation of an education program. <i>Throm Res</i> 2021 199:119-122. PMID:33486320.
Greineder, Colin MD	<ul style="list-style-type: none"> Connor O'Hare, Kelsey A. Grace, William J. Schaeffer, James A. Crawford, Keith E. Kocher, Geoffrey D. Barnes, and Colin F. Greineder ACEP 2021 (American College of Emergency Physicians) Impact of Concerning CT Imaging Findings on the Management and Outcomes of Acute Emergency Department Pulmonary Embolism with Low-Risk Stratification Scores Colin F. Greineder, Syed Hyder, Connor O'Hare, Kelsey A. Grace, William J. Schaeffer, James A. Crawford, Keith E. Kocher, and Geoffrey D. Barnes. PERT meeting Title: Impact of "Concerning" CT Imaging Findings on the Management and Outcomes of Acute Emergency Department Pulmonary Embolism with Low-Risk Stratification Score
Rubenfire, Melvyn MD	<ul style="list-style-type: none"> Cholack G, Garfein J, Krallman R, Montgomery D, Kline-Rogers E, Rubenfire M, Bumpus S, Cascino T, Barnes GD. Trends in Calcium channel blocker use in patients with heart failure with reduced ejection fraction and comorbid atrial fibrillation. <i>Am J Med</i> 2021;134:1413-1418.e1. Available at: https://doi.org/10.1016/j.amjmed.2021.06.013 Cholack G, Garfein J, Erickson J, Krallman R, Montgomery D, Kline-Rogers E, Eagle K, Rubenfire M, Bumpus S, Barnes GD. Early (0-7 Day) and Late (8-30 Day) Readmission Predictors in Acute Coronary Syndrome, Atrial Fibrillation, and Congestive Heart Failure Patients. <i>Hospital Practice</i>. 2021;49(5):364-370. https://doi.org/10.1080/21548331.2021.1976558. Garfein J, Cholack G, Krallman R, Feldeisen D, Montgomery D, Kline-Rogers E, Eagle K, Rubenfire M, Bumpus S. Cardiac Transitional Care Effectiveness: Does Overall Comorbidity Burden Matter? <i>The American Journal of Medicine</i>. 2021;134(12):1506-1513. https://doi.org/10.1016/j.amjmed.2021.06.018.

PUBLICATIONS

PRINCIPAL INVESTIGATORS	PUBLICATIONS
Eagle, Kim MD	<ul style="list-style-type: none"> Bossone E, Eagle K. Epidemiology and management of aortic disease: Aortic aneurysms and acute aortic syndromes. <i>Nat Rev Cardiol</i> 2021;18:331-348. Weinberg RL, Brook RD, Rubenfire M, Eagle KA. Cardiovascular impact of nutritional supplementation with Omega-3 fatty acids: JACC Focus Seminar. <i>J Am Coll Cardiol</i> 2021;77:593-608. Sultan I, Bianco V, Patel HJ, Arnaoutakis GJ, DiEusanio M, Chen EP, Leshnower B, Sundt TM, Secltem U, Montgomery DG, Trimarchi S, Eagle KA, Gleason TG. Surgery for type A aortic dissection in patients with cerebral malperfusion: Results from the International Registry of Acute Aortic Dissection. <i>J Thorac Cardiovasc Surg</i> 2021;151:1713-1720. Angleitner P, Brinster DR, Gleason TG, Harris KM, Evangelista A, Bekeredjian R, Montgomery DG, Sandhu HK, Arnaoutakis GJ, Di Eusanio M, Trimarchi S, Nienaber CA, Isselbacher EM, Eagle KA, Ehrlich MP. Type A acute aortic dissection presenting with cerebrovascular accident at advanced age. <i>Seminars Thorac Cardiovasc Surg</i> 2021, doi: https://doi.org/10.1052/j.semtevs.2021.06.008. Braverman A, Mittauer E, Harris KM, Evangelista A, Pyritz RE, Brinster D, Conklin L, Suzuki T, Fanola C, Ouzounian M, Chen E, Myrmet T, Bekeredjian R, Hutchison S, Coselli J, Gilon D, O'Gara P, Davis M, Isselbacher E, Eagle KA. Clinical features and outcomes of pregnancy-related acute aortic dissection. <i>JAMA Cardiol</i> 2021;6:58-66. Conlon A, Ashur C, Washer L, Eagle KA, Hofmann Bowman MA. Impact of the influenza vaccine on COVID-19 infection rates and severity. <i>Am J Infect Dis Control</i> 2021;49:694-700. Hofmann Bowman MA, Eagle KA. Commentary: Multidisciplinary teamwork and precision medicine for thoracic aortic disease save lives. <i>J Thorac Cardiovasc Surgery</i> 2021;https://doi.org/10.1016/j.tevs.2021.06.032. Picard F, Bhatt DL, Ducrocq G, Ohman EM, Goto S, Eagle KA, Wilson PWF, Smith SC, Elbez Y, Steg PG. Generalizability of the REDUCE-IT trial and cardiovascular outcomes associated with hypertriglyceridemia among patients eligible for icosapent ethyl therapy: An analysis of the Reduction of Atherothrombosis for Continued Health (REACH) registry. <i>International Journal of Cardiology</i> 2021, https://doi.org/10.1016/j.ijcard.2021.08.031. Cholack G, Garfein J, Erickson J, Krallman R, Montgomery D, Kline-Rogers E, Eagle K, Rubenfire M, Bumpus S, Barnes GD. Early (0-7 day) and late (8-30 day) readmission predictors in acute coronary syndrome, atrial fibrillation, and congestive heart failure patients. <i>Hosp Pract</i> 2021;49:364-370. Picard F, Bhatt DL, Ducrocq G, Ohman EM, Goto S, Eagle KA, Wilson PWF, Smith SC, Jr., Elbez Y, Steg PG. Generalizability of the REDUCE-IT trial and cardiovascular outcomes associated with hypertriglyceridemia: An analysis of the Reduction of Atherothrombosis for Continued (REACH) registry. <i>Int J Cardiol</i> 2021;340:96-104. Villacosta I, San Roman A, di Bartolomeo R, Eagle K, Estera AL, Ferrera C, Kaji S, Nienaber CA, Rimbau V, Schafers HJ, Serrano FJ, Song JK, Maroto L. Acute Aortic Syndrome revisited. <i>JACC State-of-the-Art Review. J Am Coll Cardiol</i> 2021;78:2106-2125. Siontis KC, Santangeli P, Muser D, Marchlinski FE, Zeppenfeld K, Hoogendoorn JC, Narasimhan C, Sauer WH, Zipse MM, Kapa S, Vedantham V, Rosenthal DG, Robinson MR, Patton KK, Murgatroyd F, Chicos AB, Soejima K, Roukoz H, Sacher F, Bhan A, Appelbaum J, Dickfeld T, Mankad P, Ellenbogen KA, Kron J, Kim HM, Froehlich J, Eagle KA, Bogun FM, Crawford TC. Outcomes associated with catheter ablation of ventricular tachycardia in patients with cardiac sarcoidosis. <i>JAMA Cardiol</i> doi:10.1001/jamacardio.2021.4738. Hughey A, Muthappan P, Badin A, Baman T, Baig-Ansari N, Jawed F, Khan A, Jiang Q, Hughey K, Toruno R, Machado C, Refaat M, Zakka P, Hotait M, Eagle K, Crawford T. Patients' and family members' views on pacemaker reuse: an International Survey. <i>J Cardiovasc Electrophysiology</i> https://doi.org/10.22541/au.161447489.96469593/v1. Reuterberg B, Trimarchi S, Gilon D, Kaiser C, Harris K, Shalhoub S, Reece TB, Nienaber C, Ehrlich M, Isselbacher E, De Oliveira N, Montgomery D, Eagle K, Tolva V, Chen EP, Eckstein H-H, on behalf of the IRAD Investigators. Pleural effusion: a potential surrogate marker for higher-risk patients with acute type B aortic dissections. <i>Eur J Cardiothorac Surg</i> 2021;doi:10.1093/ejctsnip/ezab540.





GRANTS & FUNDING



GRANTS & FUNDING

PRINCIPAL INVESTIGATORS	GRANT	FUNDING SOURCE	FUNDING AMOUNT	FUNDING PERIOD
PI: Geoffrey D Barnes, MD, MSc	Examining Respiratory and Cardiovascular Morbidity Associated with Single, Dual, and Polytabacco Use among US Youth and Adults (U54 CA229974)	National Cancer Institute	\$100,000	09/2020-08/2021
PI: Geoffrey D Barnes, MD, MSc	Development of Computer Aided Decision Support and EHR Alerts for DOAC Prescribing (R03HL154205)	NHLBI	\$156,000	07/2020-06/2022
PI: Geoffrey D Barnes, MD, MSc	Improving Safe Use of Direct Oral Anticoagulants: A Population Health Approach (R18 HS026)	AHRQ	\$320,416	04/2020-03/2023
PI: Michael Dorsch, PharmD (Barnes – Col)	A User-Center Designed Anticoagulation Shared Decision-Making Tool for Stroke Prevention in Atrial Fibrillation (R21 HS026322)	AHRQ	\$145,704	08/2019-07/2021
PI: Geoffrey D Barnes, MD, MSc	Improving Safe Use of Anticoagulants: A Population Health Approach	NIH Loan Repayment Program (NHLBI)	\$31,290	07/2019-06/2021
PI: Geoffrey D Barnes, MD, MSc	Developing an Implementation Strategy to Improve Peri-procedural Anticoagulation Management for Patients with Atrial Fibrillation (K01 HL135392)	NIH/NHLBI	\$156,000	01/2017-12/2021
PI: James B Froehlich, MD, MPH Co-PI: Geoffrey D Barnes, MD, MSc	Michigan Anticoagulation Quality Improvement Initiative (MAQI2)	Blue Cross Blue Shield of Michigan	\$2,000,000	renewed annually
PI: Thomas Crawford MD	Feasibility and Safety of Interleukin-1 Blockade to Treat Cardiac Sarcoidosis 19-PAF05713	SubK-NIH-DHHS-US through a consortium with Virginia Commonwealth Univ	\$149,499	01/2020-12/2021
PI: Thomas Crawford MD	Flex Ability Sensor Enabled Substrate Targeted Ablation for the Reduction of VT (LESS-VT) Study 19-PAF03735	St. Jude Medical	\$89,287	03/2022
PI: Thomas Crawford MD	Feasibility and Safety of IL-1 blockade in Patients with Electrical Storm 21-PAF01842	SubK-NIH-DHHS-US through a consortium with Virginia Commonwealth Univ	\$702,279	04/2021-03/2025
PI: Kim Eagle, MD	Advances in Coronary Disease	Mardigian Foundation	\$1,000,000	01/2003-12/2017
PI: Kim Eagle, MD	International Registry of Aortic Dissection	Varbedian Fund	\$100,000	12/2002-12/2017
PI: Kim Eagle, MD	Innovations in Serving Special Populations	Hewlett Foundation	\$1,000,000	01/2006-12/2017
PI: Kim Eagle, MD	The International Registry of Aortic Dissection	GORE, Inc	\$1,000,000	08/2009-08/2017
PI: James B Froehlich, MD, MPH	Fibromuscular Disease Registry (FMD)	FMD	\$65,000	renewed annually
PI: Melvyn Rubenfire MD	Michigan Medicine Tele-Medicine. Care Program (MM-TCaP) with Multiple Chronic Conditions & COVID-19 Proactive Personalized Fast Risk Reduction with at Home Connected Carr	Federal Communications Commission	\$900,000	5/30/20-5/30-23
PI: Melvyn Rubenfire MD	Phase 3 Multi-Center, Double Blind, Randomized, Placebo-Controlled, Parallel Group Evaluation of the Efficacy, <u>Safety</u> and Tolerability of Bococizumab (PF-04950615), in Reducing the Occurrence of Major Cardiovascular Events in High Risk Subjects	Pfizer (B1481022)	\$326,405	5/27/15-4/30/20
PI: Melvyn Rubenfire MD	Phase 3 Multi-Center, Double Blind, Randomized, Placebo-Controlled, Parallel Group Evaluation of the Efficacy, <u>Safety</u> and Tolerability of Bococizumab (PF-04950615), in Reducing the Occurrence of Major Cardiovascular Events in High Risk Subject	Pfizer (B1481038)	\$217,603	5/27/15-4/30/20



LECTURES



Michigan Medicine Faculty Lectures

PRINCIPAL INVESTIGATORS	LECTURER
Barnes, Geoffrey MD, MSc	<ul style="list-style-type: none"> ➤ 05/2021 Invited Speaker, "Oral Anticoagulants" ALIVE Program: Atrial Fibrillation Value Education, ACC Egypt Webinar ➤ 05/2021 Invited Speaker, "Atrial Fibrillation Guidelines: ACC and ESC" Atrial Fibrillation Value Education, ACC Egypt Webinar ➤ 01/2021 Lecture, "Perioperative Anticoagulation Management", Anesthesia Resident Conference, University of Michigan, Ann Arbor, MI ➤ 03/2021 Lecture, "Process Mapping and Identifying Intervention Targets: Lessons Learned from Implementation Science", National Clinician Scholars Program ➤ 03/2021 Invited Speaker, "Applying Evidence to Practice: VTE Prevention and Thrombophilia Testing for Surgical and Non-Surgical Patients" UPMC-Hamot Heart and Vascular Institute Grand Rounds, Virtual Presentation ➤ 03/2021 Invited Visiting Professor, "Antithrombotic Medication Management: Building Systems to Improve Care Delivery" Houston Methodist DeBakey Cardiovascular Medicine Grand Rounds, Virtual Presentation ➤ 10/2021 Invited Speaker, "Implementation Science in Action: A Case Study of Antithrombotic Management Before GI Endoscopy" CTSN Implementation Science Symposium, Virtual Presentation ➤ 11/2021 Invited Speaker, "Getting the Right Mentors & Collaborators to Succeed" American Heart Association Scientific Sessions, Virtual Presentation ➤ 12/2021 Keynote Speaker, "Anticoagulation and VTE Management: What Every Vascular Specialist Must Know", 11th Annual Vascular Disease Update, University Hospitals Harrington Heart & Vascular Institute, Cleveland, O ➤ 07/2021 Invited Speaker, "Cancer-associated Venous Thromboembolism" 7th Vascular Summit at St. Luke's Medical Center, Quezon City, Philippines, Virtual Presentation ➤ 07/2021 Invited Speaker, "Acute Pulmonary Embolism: State of the Art Management" 7th Vascular Summit at St. Luke's Medical Center, Quezon City, Philippines, Virtual Presentation ➤ 10/2021 Invited Speaker, "Pulmonary Embolism Response Team: Accelerated Judgement and Management to Save the RV" 18th Annual Convention of the Philippines Society of Vascular Medicine, Virtual Presentation
Kim Eagle, MD	<ul style="list-style-type: none"> ➤ Women's Heart Health", PEO Organization, Ann Arbor, MI, Virtual, 2021 (Attendees: 35) ➤ ACC-21: Key Clinical Trials", Pearls of ACC, India, Virtual, 2021 (Attendees: 5,000) ➤ Acute Aortic Syndromes: State of the Art", 33rd Annual Conference Michigan Chapter of the American College of Cardiology, Virtual, 2021 (Attendees: 80) ➤ Cardiac Risk of Noncardiac Surgery: 10 Lessons from History", 33rd Annual Conference Michigan Chapter of the American College of Cardiology, Virtual, 2021 (Attendees: 80)
Froehlich, James MD	<ul style="list-style-type: none"> ➤ The US FMD Registry: New and Future Findings", Cardiovascular Medicine Grand Rounds, University of Michigan Medical Center, Ann Arbor, MI, January 30, 2020. ➤ "Peripheral Vascular Disease – CVD, PAD, AORTA", 2nd Year Resident Teaching Lecture, University of Michigan Medical Center, Ann Arbor, MI, September 22, 2020. ➤ "Continuing Medical Education and Maintenance of Certification – an Overview 2020", Talk to Internal Medicine House Officers II and MedPeds House Officers IV, University of Michigan Medical Center, Ann Arbor, MI, October 8, 2020

Michigan Medicine Faculty Lectures

<i>Lecture</i>	<i>Presenter</i>
Welcome to MCORRP	Eva Kline-Rogers
Workplace Etiquette Lecture	Eric Puroll
HIPAA/ Email Etiquette Lecture	Rachel Krallman/Elise Woznicki
MAQI Intro	Brian Haymart
MHYH Process Lecture	Eric Puroll
IRAD Intro	Elise Woznicki
COVID Intro	Janet Kandrevas
FMD Intro	Pam Mace
PHS Intro	Jean DuRussel-Weston
IHPI: Advanced Literature Search	Judy Smith
PH Intro	Dr. Victor Moles
Overview of Health Professions	Dr. Geoff Barnes
How to Conduct a Physical Exam	Dr. Sherry Bumpus
Comparative Healthcare	Dr. Jim Froehlich
IHPI: Health Policy Research Questions	Dr. Renu Tipirneni
Summer Research Project Overview	Suzanne Irani/Nicole Souphis
CV Medication Adherence	Dr. Steve Erickson
MHYH Lecture	Eric Puroll
IHPI: Preparing a Scientific Poster	Dr. Geoff Barnes
Interventional Cardiology	Eva Kline-Rogers
PHS Intro	Jean Du-Russel Weston
Outpatient Clinical Care Lecture	Eva Kline-Rogers
IHPI: Writing a Scientific Manuscript	Dr. Chad Ellimoottil
Demystifying Malpractice	Richard Boothman
Inpatient Clinical Care Lecture	Dr. Jim Froehlich
Ethics in Palliative Care	Janice Firn
IHPI: Designing Effective Slides	Emily Smith
Medical School Q&A	Elizabeth Joyce
IHPI: Personal Branding/Communications	Kara Gavin
Abstract/Poster Lecture	Rachel Krallman/Elise Woznicki
Acute Aortic Syndromes	Dr. Kim Eagle



A Reflection on 55 Years of Cardiovascular Research...

Paraphrasing Eugene Braunwald, modified by Kim Eagle (January 8, 2009)

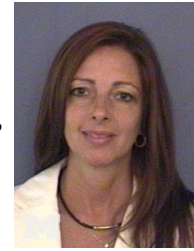
- ***Regard research as an end in itself— not a means to an end.***
- ***Impactful research today requires a team.***
- ***Building a research team requires sustained energy, investment and vision***
- ***Feel deeply the thrill of the chase and the joy of discovery : answering an important question.***



MEET OUR MCORRP TEAM



Constantina Alexandris-Souphis, RN, BSN, BS



*Constantina Alexandris-Souphis is a graduate of the University of Michigan, where she received a Bachelor of Science in Nursing, as well as, a Bachelor of Science in **Business**. She is currently working at **MCORRP**, as a clinical research project manager for the MAQI² registry as well as other **MCORRP** projects. She has also done previous work in cardiology research at the University of Michigan Hospital, within the department of Interventional Cardiology, where she was the coordinator for several pharmacological and device trials.*

Her research continues to focus on patient education initiatives and methods to increase patient adherence and knowledge of their current medications with the goal of appropriate use of medications. . Her outside interests include traveling and spending time with her family.

Scott Ash, BA, MS



*Scott Ash is an application developer for **MCORRP** developing registries and mobile applications. After earning a dual major B.A. at Valparaiso University he began a professional career in his home state of Michigan as a Graphics Animator creating commercials for television, news animations for a CBS affiliate, and working briefly in film. He furthered his experience at a marketing firm in Chicago working as a Graphic Designer in print and multimedia. Returning to Michigan he has enjoyed programming for over a decade.*

*In 2017 Scott earned his M.S. in Computer Science at Concordia University with the support of **MCORRP**. While most often found tinkering with doodads Scott also enjoys baking, creating music and generally being active outdoors. Scott completed his first marathon in 2014 and converted his sailboat to an electric drive in 2016. In 2019 he was lucky enough to be in a film and in 2020 poured his own 2000sqft concrete driveway. Scott dreams of sailing the world while playing guitar, illustrating, writing, making movies and of course programming.*

Geoffrey Barnes, MD, MSc

*Dr. Geoffrey Barnes is a cardiology and vascular medicine specialist at the University of Michigan. He is an active health services researcher with **MCORRP**. He graduated from Washington University in St. Louis in 2003 and the University of Michigan Medical School in 2007. He then completed a residency and chief residency in internal medicine before completing cardiology and vascular medicine fellowships at the University of Michigan. He completed a Master's in Health and Healthcare Research at the University of Michigan in 2015.*



*Dr. Barnes has been active in **MCORRP** since 2006, exploring outcomes related to anticoagulation. He serves as co-director of the Michigan Anticoagulation Quality Improvement Initiative (MAQI²). He serves as on the board of the Anticoagulation Forum as well as in leadership roles with the American Heart Association's Peripheral Vascular Disease council and the American College of Cardiology. He is a regular contributor to ACC.org. He remains committed to exploring quality of care and outcomes related to anticoagulation along with efforts to implement evidence-based care and the use of patient-physician shared decision making.*

Patsy Bruenger, BA, CCRC

Patsy Bruenger graduated from the University of Michigan with a degree in Cultural Anthropology. However, it was her interest in the medical field that prompted her to work first as a technician in ophthalmology and then later as a research assistant in cardiology. She has remained in cardiology for the last 26 years holding various support roles initially with clinical drug trials and then with data registries.



Currently, Patsy prepares most of the IRB (Ethics Board) and Legal/Compliance Committee submissions for MCORRP projects and helps on-board new sites for the FMD and IRAD registries. She assists with the multiple agreements needed for the My Heart Your Heart pacemaker project and has been involved with the COVID registry. Outside of work, Patsy enjoys being active, cooking and spending time with her family.

Thomas Crawford, MD

Dr. Thomas Crawford is an Associate Professor of Medicine at the University of Michigan. After graduating from the University of Tennessee School of Medicine in 2000, he completed his residency in Internal Medicine at Duke University Medical Center in 2003. Dr. Crawford received his cardiology and electrophysiology training at Washington University, St. Louis, and the University of Michigan. He joined the University of Michigan faculty in 2008.



As a clinical cardiac electro physiologist, Dr. Crawford has expertise in the management of complex cardiac arrhythmias. He has written extensively on the mechanisms of ventricular tachycardia in cardiomyopathy, and correlations between cardiac magnetic resonance imaging and electrophysiological mapping studies of the ventricular tachycardia substrate. He has a particular interest in caring for patients with cardiac sarcoidosis, which often manifests as sudden cardiac death due to ventricular tachycardia or heart block. Together with his colleague Dr. Frank Bogun, he manages the Cardiac Sarcoidosis Registry.

Dr. Crawford has published more than 90 peer-reviewed manuscripts in the field of atrial fibrillation and ventricular tachycardia ablation, cardiac sarcoidosis, and sudden cardiac death. He has also authored numerous review articles and book chapters. Dr. Crawford is on the editorial board of Cardio source and a peer reviewer for Circulation, Circulation Arrhythmia and Electrophysiology, Heart Rhythm, Journal of Cardiovascular Electrophysiology, and Pacing and Clinical Electrophysiology. He is a co-investigator on an NIH grant assessing interleukin blockage in the treatment of cardiac sarcoidosis

Debbie DeCamillo, BSN, RN

*Debbie is a Clinical Research Project Manager who joined **MCORRP** in March 2015 bringing with her nearly 30 years of experience in nursing and clinical research. Debbie manages the Direct Oral Anticoagulation (DOAC) registry and has had several DOAC related research articles published.*



*Debbie received her BSN from Mercy College of Detroit in 1986 and worked as a pediatric oncology nurse at the Children's Hospital of Michigan for 13 years, where she first became involved in clinical research. Before joining **MCORRP**, Debbie was employed at Wayne State University where over the past 16 years her roles included Education Coordinator for Human Subjects Research, member of the Institutional Review Board for Human Subjects Research, Research Project Manager in the Division of Infectious Diseases and Lead Clinical Research Coordinator for Pediatric Oncology both at the Detroit Medical Center. Debbie enjoys exploring Michigan and spending time with family and friends.*

Kim A. Eagle, MD,MACC



Dr. Kim Eagle is the Albion Walter Hewlett Professor of Internal Medicine, Professor of Health Management and Policy University of Michigan School of Public Health and Director of the Frankel Cardiovascular Center at the University of Michigan Health System. A graduate of Bozeman Senior High School (Bozeman, MT) he then attended Oregon State University graduating in 1976 followed by Tufts University Medical School graduating in 1979. He completed a residency and chief residency in Internal Medicine at Yale-New Haven Hospital from 1979 to 1983 followed by research and clinical fellowships in cardiology and health services research at Harvard Medical School and The Massachusetts General Hospital (MGH) from 1983 through 1986. From 1986 to 1994, Dr. Eagle served MGH where he was promoted to Associate Director of Clinical Cardiology and Associate Professor of Medicine at Harvard before moving to the University of Michigan.

*At “U of M”, beginning in 1994, Dr. Eagle developed an outcomes research program focusing on quality, cost-effectiveness, practice guidelines, acute coronary syndromes, treatment of aortic diseases, the fight against childhood obesity (Founder - “Project Healthy Schools”), and reuse of pacemakers in third world nations (Founder – “Project My Heart Your Heart”). His outcomes research team has led quality improvement initiatives across the state of Michigan in acute MI, heart failure, and coronary intervention. Dr. Eagle has contributed extramural presentations to more than 110,000 learners in 33 US states and 12 countries. He has published 743 peer-reviewed articles, 76 chapters, and edited 8 books including his latest, *The Heart of a Champion*, co-written with legendary Michigan football coach, Bo Schembechler.*

*Dr. Eagle has served the American College of Cardiology on numerous committees and task forces. He is the editor of the ACC’s website, ACC.org. He served its Board of Trustees from 2001-2005. He received ACC’s “Master designation in 2009, and it’s national Distinguished Teacher Award in 2012. In 2018, he received the 2018 Distinguished Scientist Award (Clinical Domain) from the American College of Cardiology. He served on the National Heart, Lung and Blood Institute’s External Advisory Committee from 2002 -2006, and was Study Chair of its Genetic Causes of Thoracic Aortic Conditions (GenTAC) from 2006-2016. He is study chair pf the GenTac Alliance (now powered by the Marfan Foundation) since 2017. He has served the local and national American Heart Association and he received the national AHA’s Laennec Society’s Clinician Educator Award in 2013. He is past President of the Association of University Cardiologists and a former Board Member of World Medical Relief. In 2014, the University of Michigan and many of Dr. Eagle’s grateful patients created the Kim A. Eagle Professorship in Cardiovascular Medicine and an endowed research fund bearing his name. This research fund helps support **MCORRP**. The Professorship held by Dr Vallerie McLaughlin. In 2020, he received an honorary “M” jacket from the UM Athletics Letterwinners Club for his medical service to Michigan coaches and student athletes.*

James Froehlich, MD, MPH, FACC, FSVM



James Froehlich, MD, MPH, FACC, MSVM, is Professor of Internal Medicine, Director of Vascular Medicine, Co-Director of **MCORRP**, and Director of Anticoagulation at the University of Michigan Medical School. He received his undergraduate degree in political philosophy from Dartmouth College in 1982, and his medical degree from Dartmouth Medical School (now the Geisel School of Medicine at Dartmouth College), in 1986. He completed a residency and chief residency in internal medicine at the New England Deaconess Hospital, Harvard Medical School, under Dr. Robert Moellering.

Dr. Froehlich was a fellow in cardiology at the University of Michigan from 1993-1996, and a trainee there under the NIH Vascular Medicine Training Program Grant in 1994, under Dr. James Stanley. After completing a Masters Degree in Public Health at the Harvard School of Public Health (while serving as Director of Vascular Medicine at the Beth Israel Deaconess Medical Center, Harvard Medical School), he joined the faculty of the University of Massachusetts Medical Center, as Director of Vascular Medicine with a joint appointment in vascular surgery and cardiology, before returning to Michigan and his current position in 2005.

Dr. Froehlich has served on the editorial boards of the Journal of Vascular Surgery, the Cardiosource Review Journal, the Journal of Thrombosis and Thrombolysis, and currently serves on the editorial board of Vascular Medicine. He has also served as an ad hoc reviewer for JAMA, NEJM, Vascular Medicine and Circulation. He is Past-President of the Society for Vascular Medicine and has been a member of the AHA/ACC Preoperative Guidelines Committee and of the AHA Scientific Sessions Program Committee. He has published over 150 peer-reviewed scientific papers and 11 book chapters. He has lectured in 26 states and 13 different countries. He is an ardent supporter of the Boston Red Sox, the University Musical Society, and serves on the board of directors of the Ann Arbor Symphony Orchestra

Xiaokui Gu, MA



Xiaokui Gu graduated from Shanghai Medical University. She worked as a resident doctor in the Cardiology Department at Shanghai Chest Hospital for 5 years. After coming to the United States, she completed an MA in Applied Statistics and is getting an MS in Computer Science, both from Eastern Michigan University.

She currently works as a statistician and programmer for **MCORRP**, designing and maintaining the databases for the MAQI² and FMD registries. Xiaokui is responsible for statistical analyses for various registries. She has enthusiastically participated in the sport of Curling.

Brian Haymart, RN, BS, MS

Brian joined the **MCORRP** team as a research coordinator for MAQI² in 2009. He now serves as the MAQI² project manager and the **MCORRP** assistant supervisor. He grew up in Missouri, received his BSN from the University of Missouri, and continues to be **MCORRP**'s biggest supporter of Missouri athletics. Prior to working at **MCORRP**, Brian worked as a research nurse coordinator in Baltimore while earning his Master's Degree from Johns Hopkins University.



Most recently, Brian was quality improvement manager for a healthcare organization in Madison, Wisconsin. In his spare time, he enjoys spending time with his wonderful wife and two energetic sons. He especially enjoys taking the family hiking, fishing, and biking around Ann Arbor.

Alice Horgrow

Alice Horgrow joined **MCORRP** in 2004 as a Clinical Subjects Coordinator. Prior to joining the **MCORRP** team, she worked in the Department of Internal Medicine, Human Resources Department, for over 18 years. Currently she is responsible for all Travel and P-Card transactions, acts as a liaison with the Internal Medicine HR Department and the university's personnel and payroll office.



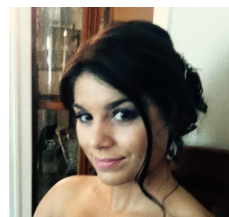
She interacts with Internal Medicine and payroll to resolve all payroll issues or concerns. In addition, she prepares requisitions for materials, supplies and services and assists with travel arrangements, scheduling meetings, conferences, facilities and services. Alice also completes MAQI² follow-ups and is an integral part of the **MCORRP** Team. She is very active at her church and enjoys spending time with her family and friends.

Janet Kandrevas, BS, MD

Janet is the newest addition to the MCCRPP team and joined as a Clinical Research Coordinator in April 2019. Janet first became involved in research as an undergraduate at the University of Michigan. After graduating medical school, Janet was employed at Henry Ford Health System where she focused on secondary prevention of stroke management through NIH-funded clinical research trials. She then transitioned into the role of quality initiative efforts for prevention and education of disease.

Janet facilitates MAQI2 data entry into UM. She serves as the lead for all UM database abstraction as well as oversees MAQI2 adverse event reporting and auditing. She also builds new translational research studies into a REDCap database and implements its rollout to UM and other national sites. Lastly, Janet serves as a mentor for student interns throughout the year and deems this her most rewarding role.

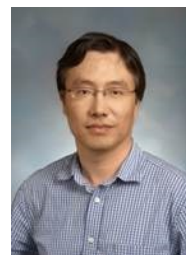
In addition to her work schedule, Janet is currently enrolled as a graduate student pursuing a Master of Science in Clinical Research Design and Statistical Analysis through the UM School of Public Health. She is excited to bring her newfound knowledge into her current and future MCCRPP projects. Janet enjoys spending time with her family and dog, Blue, as well as watching UM sports



Xiaowen King, MS

*Xiaowen Kong received his MS in Statistics from Michigan State University. Currently he works as a statistician for **MCCRPP**, and he is responsible for statistical analyses for MAQI².*

*Before joining **MCCRPP**, he served as a data manager and programmer at Michigan State University for 5 years. Xiaowen has over 7 years industrial experience in China and he graduated from Qingdao Agricultural University. He and his wife live with two lovely children, he enjoys biking and **fishing** with the family. He enjoys metal and wood works as a hobby.*



Eva Kline-Rogers, RN, NP, AACC

Eva Kline-Rogers, MS, NP, AACC, currently is co-director for MCORRP (Michigan Cardiovascular Outcomes Research and Reporting Program) at the University of Michigan. She also functions as a project manager for the US Fibromuscular Dysplasia Registry, COVID Registry, and coordinates the MCORRP Student Internship Program.



Eva received her undergraduate and graduate degrees from the University of Michigan's School of Nursing as well as certification as an Acute Care Nurse Practitioner. She has functioned as a critical care RN, clinical research coordinator, clinical nurse specialist, and both inpatient and, most recently, outpatient nurse practitioner during her tenure at the University of Michigan. She has published articles on thrombolytic therapy and quality improvement and lectures on topics ranging from outcomes research to quality improvement in anticoagulation. She is also an ad hoc editorial reviewer for the American Heart Journal and is an active member of the American College of Cardiology, having participated as a working group member for several initiatives. She is a past board member for the Anti-coagulation Forum (ACF) and previously served as a Steering Committee Member for QUANTUM-AF, and continues to actively mentor undergraduate and graduate students as part of the MCORRP Student Internship Program.

Todd Koelling, MD

Todd Koelling received his medical degree from the Johns Hopkins School of Medicine in 1990 after receiving his bachelors' degree in Chemical Engineering from Yale College. He then completed a residency in Internal Medicine at Johns Hopkins Hospital and in 1997 completed a fellowship in Cardiology at the Massachusetts General Hospital. He joined the staff at the University of Michigan as an Assistant Professor in the Division of Cardiology in 1997.



He is now a Professor and Medical Director at the University's Heart Failure Program. He specializes in the care of patients with heart failure and cardiomyopathies, and also cares for heart transplant recipients. His research interests include quality of care and disease management of heart failure patients. He is currently conducting studies to understand the most effective ways to optimize the medical use for patients with chronic heart failure.

Rachel Krallman, BS

Rachel graduated from the University of Michigan in 2011 with a Bachelor of Science degree in Brain Behavior and Cognitive Science. She is a project manager for the Project Healthy Schools (PHS) database, the US Registry for Fibromuscular Dysplasia, the Bridging the Discharge Gap Effectively (BRIDGE) registry, and the OVERCOME Heart Failure registry.



*Rachel began working at **MCORRP** in 2012 as a summer intern. Since then, she has contributed to several publications and has presented research findings at national conferences for BRIDGE, FMD, and PHS. With the help of the entire MCORRP team, Rachel coordinates the **MCORRP** summer internship program. Outside of the office, she enjoys baking, watching reruns of Forensic Files, and high-quality puns.*

Jacob Kurlander, MD

Dr. Jacob Kurlander is gastroenterologist and physician-investigator. He attended Columbia University for college and completed medical school, internal medicine residency, and gastroenterology fellowship at the University of Michigan, where he is a faculty member. He has advanced training in clinical and health services research, as well as implementation science. He has collaborated with the Michigan Medicine anticoagulation service to develop novel strategies to reduce patients' risk of gastrointestinal bleeding, which is the most common site of serious bleeding in patients who use blood thinners. He also has the pleasure of caring for our nation's Veteran's at the Ann Arbor Veterans Affairs Medical Center. His work current work is funded by an NIH career development award.



Troy LaBounty, MD

Dr. Troy LaBounty is an Assistant Professor of Medicine and Radiology at the University of Michigan Medical Center. He graduated from the University of Michigan in 1994 and from the State University of New York at Stony Brook School of Medicine in 2002. He completed his internal medicine residency and cardiovascular fellowship at the University of Michigan from 2002 through 2008. Between 2008 and 2012, he served as an assistant professor of medicine first at the Weill Cornell School of Medicine and then at the Cedars-Sinai Medical Center, before being recruited back to the University of Michigan in 2012.



Dr. LaBounty's clinical and research interests include cardiovascular imaging by echocardiography and computed tomography. He has a particular interest in the relationship between imaging and outcomes in patients with aortic and aortic valve disease, including patients undergoing trans catheter aortic valve implantation and patients with aortic dilatation. He has published over 75 peer-reviewed manuscripts, and has given over 35 invited lectures for local and international conferences.

Vallerie McLaughlin, MD

Vallerie V. McLaughlin, MD, is the Kim A. Eagle, MD, Endowed Professor of Cardiovascular Medicine, Director of the Pulmonary Hypertension Program, and Associate Chief of Cardiovascular Medicine at the University of Michigan, Ann Arbor. She is a Fellow of the American College of Cardiology, the American College of Chest Physicians and the American Heart Association, and is a member of the American Thoracic Society.



She has served as Chair of the American Heart Association "Women in Cardiology" Committee and as a member of the American College of Cardiology Scientific Sessions Program Committee. Professor McLaughlin is a Past-Chair of the Scientific Leadership Council of the PH Association, Past-Editor-in-Chief of Advances in Pulmonary Hypertension, and Past-Chair of the PH Association Board of Trustees. She was Chair of the American College of Cardiology/American Heart Association Clinical Expert Consensus Document on PH. She was inaugurated as a charter member into the Clinical Excellence Society at the University of Michigan. Her research interests focus on Pulmonary Hypertension (PH).

Dan Montgomery, BS

Dan Montgomery graduated from the University of Michigan with a B.S. in Zoology after initially studying art and design at Michigan State University. He worked for the University of Michigan in Cardiovascular Pharmacology for 5 years as a research assistant testing experimental anti-arrhythmic medications in animal models for treatment and prevention of sudden coronary death.



*Before joining **MCORRP** in 2005, he spent 17 years in the Cardiology Division as a research associate analyzing and modeling ventricular function utilizing cardiac catheterization data from patients with defective heart valves. Dan also coached women's volleyball teams at the high school, club, and college levels for 12 years. His hobbies include sailboat racing and performing music.*

Chih-Wen Pai, PhD, MSPH

Chih-Wen Pai received her PhD in Health Services Organization and Research from Virginia Commonwealth University and MSPH in Health Policy and Administration from the University of North Carolina at Chapel Hill. She works as a statistician for MCORRP and is primarily responsible for statistical analyses for IRAD registry and Cardiac Rehabilitation project.



Before joining MCORRP in 2020, she worked for 18 years both in research and operation capacities at different units within the University of Michigan, and has experiences in research and publication as well as querying and analyzing data from various sources. She is currently working on improving her tennis game.

Himanshu J. Patel M.D.



Dr. Himanshu Patel is the Joe D. Morris Collegiate Professor of Cardiac Surgery. In August 2016, he became Head of the Section of Adult Cardiac Surgery. He received his undergraduate degree at The Johns Hopkins University in 1988 and completed medical school at The Johns Hopkins University in 1993. His general surgery training was completed at University of Rochester School of Medicine, Strong Memorial Hospital in Rochester New York in 2000 and his Thoracic Surgery residency was completed at the University of Michigan Hospital in Ann Arbor, Michigan in 2002. He then completed a fellowship in Thoracic Transplantation/Adult Cardiac Surgery and joined the faculty as an Assistant Professor of Surgery in 2003 at the University of Michigan. From 2004 to 2010 he was Chief of the Cardiothoracic Surgery Service at the Ann Arbor Veterans Health System. He also completed an Endovascular Surgery Fellowship at the Cleveland Clinic in 2005.

His clinical interests include the field of adult cardiac surgery with emphasis on aortic valve disease including both open and percutaneous approaches, thoracic aortic disease including aortic aneurysms, and thoracic aortic endovascular surgery. His research interests revolve around outcomes of open and endovascular thoracic aortic procedures, conventional and catheter-based aortic valve surgery, and development of catheter based endovascular devices. In addition, he collaborates extensively with bioengineers at the Frankel Cardiovascular Center to evaluate the impact of catheter based therapy on cardiac function and aortic and cerebrovascular blood flow hemodynamics. He is a member of all major cardiac and vascular surgical societies.

Eric Puroll, BS



Eric grew up in Livonia, MI and graduated summa cum laude from Hartwick College (Oneonta, NY) in 2011. He majored in biology and was a faculty scholar in chemistry. He currently serves as the Project Manager for both Project My Heart Your Heart and the Interaction Cardiac Sarcoidosis Consortium. He began working for MCORRP ten years ago as a summer intern abstracting data for the MAQI2 registry.

Since that time, he is very excited to have become more involved in the research and loves working with such a dedicated team of investigators. When not in the office, Eric enjoys coaching varsity boys' soccer at Livonia Churchill High School and varsity girls' soccer at Marian High School. He also enjoys playing volleyball, hiking, camping, completing jigsaw puzzles, and wood-working.

Melvyn Rubenfire, MD

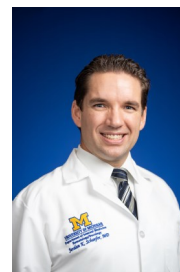
In 1991, Dr. Rubenfire joined the University of Michigan as a Professor of Internal Medicine, and served as the Director of Preventive Cardiology in the Division of Cardiovascular Medicine until July 2021. His clinical and research interests include risk assessment for atherosclerosis, lipids, metabolic syndrome, and cardiac rehabilitation. He served as Director of the Pulmonary Hypertension Program at the University of Michigan for eight years. He was recently honored by the University that created the Melvyn Rubenfire MD Professor of Preventive Cardiology. The first awardee is Dr. Venkatesh Murthy who is a Clinical Associate Professor of Radiology and Cardiovascular Medicine.,



Melvyn Rubenfire received his Doctor of Medicine degree from Wayne State University, Detroit, Michigan. He completed his residency in Internal Medicine at Wayne State University Sinai Hospital of Detroit, which was followed by a fellowship in cardiovascular diseases at Henry Ford Hospital in Detroit. From 1970 to 1991, Dr. Rubenfire served as Chief of the Section of Cardiovascular Disease, and from 1986 to 1991 Chairman of the Department of Internal Medicine at Sinai Hospital, Detroit, Michigan. Prior to joining the University faculty he was a Professor of Internal Medicine at Wayne State University.

Jordan Schaefer MD FACP

Dr. Jordan Schaefer is a hematologist at the University of Michigan. He earned a BS in Sociology Health and Aging; Social Inequality; Race, Class and Gender with a minor in Chemistry from the University of Michigan in 2008 and his MD from Michigan State University in 2012. He then completed an Internal Medicine residency at the Mayo Clinic in Rochester, MN prior to entering the Hematology/Oncology fellowship program at the University of Michigan.



Following completion of his fellowship in 2018, Dr. Schaefer joined the hematology/oncology faculty at the University of Michigan where his clinical and research interests focus on health disparities in anticoagulation care, cancer associated thrombosis, and the optimal use of antiplatelet/anticoagulant therapies. He has been active in MCORRP since the start of his fellowship in 2015 where he participates in studies related to anticoagulation outcomes and quality improvement efforts through the Michigan Anticoagulation Quality Improvement Initiative (MAQI²). Through his research, he strives to broadly improve the delivery and knowledge of optimal anticoagulation care.

M. Adil Sheikh MD

Dr. M. Adil Sheikh is an Assistant Professor of Medicine at the University of Michigan. After completing medical school at Dow University of Health Sciences in Karachi, Pakistan he came to the United States for internal medicine residency at Wayne State University. Dr. Sheikh then joined the Hospital Medicine faculty at University of Michigan.



Although a practicing hospitalist Dr. Sheikh's interest in cardiovascular medicine lead him to MCORRP. Dr. Sheikh has been active in MCORRP since 2019 being involved with various registries including, MHYH, cardiac sarcoidosis, MAQI and FMD. He remains committed to outcomes research in cardiovascular medicine

Brian Shensky, BS

*Brian is an Executive Technical Consultant and Software Developer from Detroit, Michigan who joined **MCORRP** in 1997 after pursuit of his B.S. in Information Systems*

at the University of Michigan-Dearborn. His 30-year career includes roles as Application Developer, Database Administrator, Systems Administrator, Technical

Project Manager, Trainer and Project Management Consultant for innumerable companies that span Healthcare, Manufacturing and Marketing disciplines.



*Specific technical core competencies include Oracle database, Linux, and the REDCap and Drupal content management system upon which **MCORRP** registries are built. As an early adopter advocate of Open Source technologies, he has given numerous presentations at regional and national Oracle, Linux and Drupal conferences. He resides with his wife and son in Dexter, Michigan, and enjoys piano playing and composition, audio and video engineering, Amateur Radio, SCUBA diving, camping, biking and extensive travel.*

Elise Woznicki, BS

*Elise began working with **MCORRP** in 2008. She currently serves as the project manager for the International Registry of Acute Aortic Dissection, and has the privilege of working with a dedicated team of investigators, coordinators, and statisticians.*

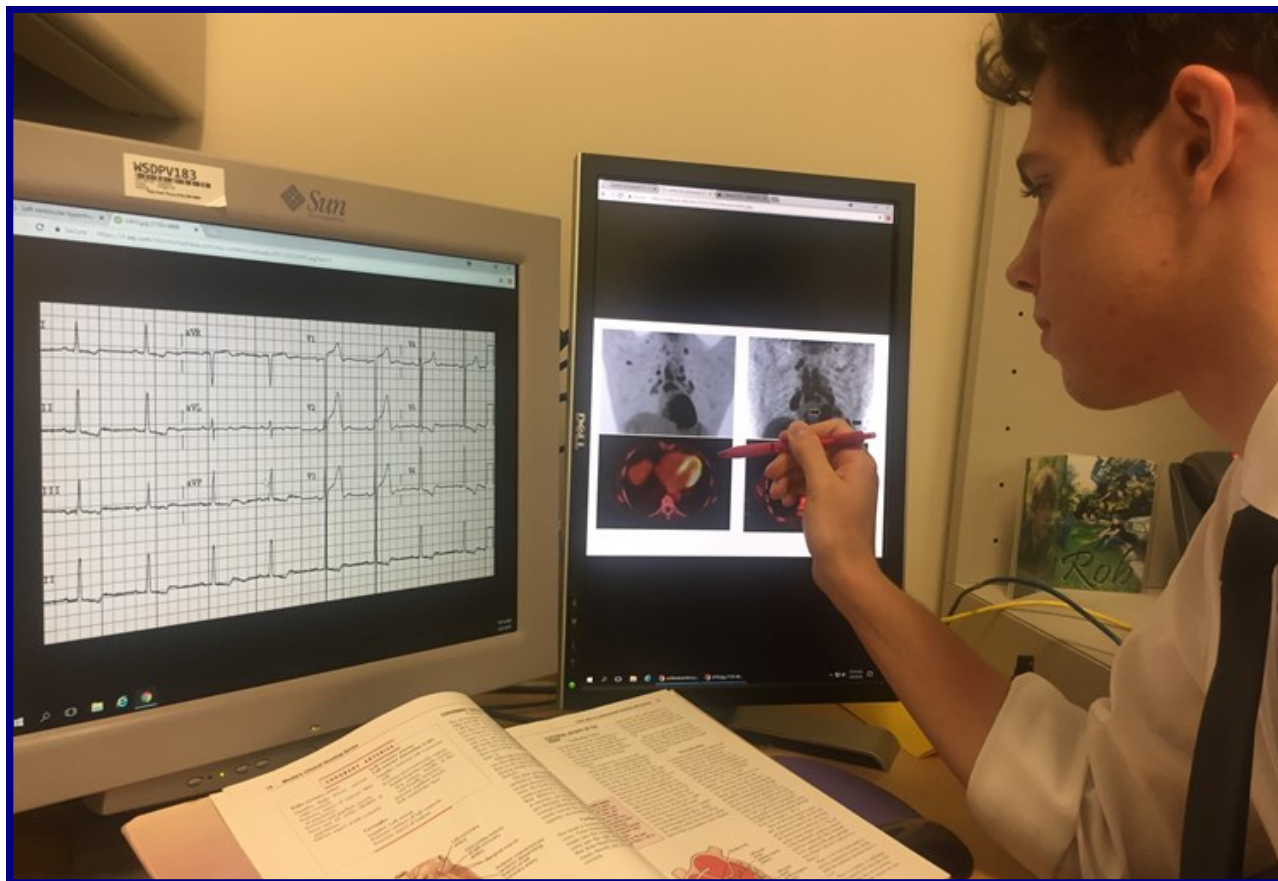


Elise is grateful to be involved with this registry and looks forward to future projects dedicated to further advancing our knowledge of aortic disease



“Never doubt that a small group of thoughtful, committed people can change the world. Indeed, it is the only thing that ever has.”

- Margaret Meade



MEET OUR STUDENT INTERNS



Rana-Armaghan Ahmad BS
Michigan State College of Human Medicine
East Lansing, MI

Armi is an incoming medical student at Michigan State College of Human Medicine. He has primarily grown up in Oakland County and graduated from the University of Michigan in May 2020, double majoring in philosophy and biomolecular science. Outside of MCORRP he enjoys staying active, following UFC, and reading. He also helps conduct clinical research at the University of Michigan's cardiac surgery department.

This summer, he is a student leader helping with the AHA COVID-19 registry and the Cardiac Sarcoidosis Consortium. He wants to continue doing clinical research throughout medical school. For long term goals, he aims to become a surgeon.

COVID 19 Team Leader
MHYH & WMR Tea Leader
Cardiac Sarcoidosis Team Leader

Kacie Alexander
University of Michigan
Ann Arbor, MI

Kacie is a rising senior studying Movement Science with a minor in medical anthropology at the University of Michigan. She grew up in a military family, so she has lived all over the country. This summer, Kacie is enjoying spending time with her family in Houston, TX. Outside of work, Kacie enjoys going to the gym, relaxing at the beach or by her pool, teaching Sunday school at her church, and trying new restaurants around the greater Houston area. Throughout her undergraduate career, Kacie has served as the recruitment chair for her sorority, been a research assistant for MCORRP's Bridge Registry, and worked as a TA for the LSA English department. While on campus, she holds a daily babysitting job, is an active member of Sigma Kappa, and volunteers regularly at a variety of organizations.

For MCORRP this summer, Kacie is serving as a research intern on the COVID-19 team. She is very grateful for the opportunity to work alongside such a talented group of students and staff, and hold a role in groundbreaking research on a disease that is so relevant in our current society.

Matthew Benson
Grinnell College
Grinnell, IA

Matthew is a rising senior at Grinnell College majoring in biological chemistry. After completing his bachelor's degree and doing health science research during his gap year, he hopes to go on to medical school. He enjoys playing sports or video games with friends. He also spends his time cycling, listening to music, playing guitar or piano, and studying for the MCAT. During the school year, Matthew works as a writing mentor and volunteers at a local middle school tutoring students. This fall, he will be working on an independent research project studying cardiac regeneration in zebrafish.

This summer, Matthew is working for MCCORRP as an intern with the COVID-19 registry to study the effects of COVID-19 during and after hospitalization. He was unable to work for MCCORRP last year due to the pandemic, and is very glad that he's had the chance to be a part of the program this year.

Allison Brook
University of Michigan
Ann Arbor, MI

Allison is a freshman at the University of Michigan from Bloomfield Hills, MI. She hopes to major in Molecular, Cellular, and Developmental Biology. At U of M, Allison is also a member of Zeta Tau Alpha fraternity and the Student Biology Association.

In addition to the 2021 MCCORRP Summer Internship Program, this summer Allison hopes to continue to take classes in Ann Arbor.

For MCCORRP this summer, Allison is excited to serve as one of the COVID team leaders. She is very grateful for all the opportunities that MCCORRP has given her including the opportunity to return this summer.

George Cholack BS
Oakland University –William Beaumont School of Medicine
Troy, MI

George Cholack is a former MCORRP intern and currently a third-year medical student at Oakland University William Beaumont School of Medicine. Over the past year, he completed an M.Sc. Degree with MCORRP and was a TL1-funded scholar in the Michigan Institute of Clinical and Health Research's MSCR program. He aspires to pursue an academic career as a hematologist/oncologist and health services researcher. In his spare time, George enjoys reading, playing tennis, and listening to music.

George has worked with the BRIDGE and MAQI2 teams over the past year. BRIDGE projects included examining cardiac transitional care effectiveness, predictors of readmission timing, and trends in calcium channel blocker prescription for patients with a contraindication. For MAQI2, he analyzed trends in patients at low or intermediate risk of thromboembolic stroke who received anticoagulation.

BRIDGE Team Leader
MAQI Team

Delaney Feldeisen BA
University of Michigan School of Medicine
Ann Arbor, MI

Delaney is from Ann Arbor, MI and graduated from Washington University in St. Louis. She earned her BA in Mathematics, with minors in Biology and Chinese. She just completed her second year of medical school.

In the past, Delaney is one of the student managers as well as the team leader for the BRIDGE database. She has very much enjoyed her time working at **MCORRP** and getting to know all of the phenomenal staff, interns, and physicians. She is grateful for every opportunity that **MCORRP** has provided her these past few years.



Thane Feldeisen BS
University of Michigan School of Medicine
Ann Arbor, MI

Thane grew up in Ann Arbor, MI, where he graduated from Greenhills High School in 2012. He graduated from Grove City College in 2016, majoring in Biochemistry and minoring in Biology. He recently graduated from the University of Michigan Medical School and will be applying into Anesthesiology this fall.

In his time at MCORRP, Thane has been fortunate to have served as an intern and student manager for the Summer Internship Program. In addition he has continued to work on research projects for both MAQI² and BRIDGE throughout his time in Medical School. Thane is very grateful to all of the MCORRP faculty, staff, and interns he has worked with over the years for their continued mentorship and friendship.

Trey Feldeisen
Washington University
St Louis MO

Trey is a rising junior studying Mathematics with minors in Psychology and Biology at Washington University in St. Louis. He grew up in Ann Arbor, MI. Outside of MCORRP this summer, Trey is getting ready for his first half-marathon he will run with his dad, volunteering at a community kitchen, and studying for the MCAT.

In the future, he hopes to attend medical school. At MCORRP, Trey is working on the IRAD and FMD registries and is excited to contribute to the research done in the program. He has examined this summer.

Ashley Francis BS
Oregon State University
Corvallis, Oregon

Ashley recently graduated from Oregon State University with a B.S. in BioHealth Sciences (Pre-Med), minors in Public Health and Chemistry, and a Medical Humanities Certificate. Ashley is from Beaverton, OR and is thrilled to be spending the summer working with MCORRP. Outside of MCORRP, Ashley works as a medical scribe for The Oregon Clinic and does research in Public Health. She will continue working in the medical field, doing research, and will be applying to medical school next year.

Ashley is working within the IRAD and FMD registries this summer. She is grateful for the opportunity to collaborate with the other researchers, professionals and interns through MCORRP. She is looking forward to learning about such complex topics and being able to contribute to the registries that provide so much important information that can be used to further our understanding of these diseases.

Joshua Garfein BS
University of Michigan, School of Public Health
Ann Arbor, MI

Josh is from northern Indiana and graduated last year from Brown University with a degree in biology. He is currently an MPH student in epidemiology at the University of Michigan. He plans to combine research with clinical medicine, possibly through an MD/PhD program, with an emphasis on cardiovascular disease prevention. He is also assisting with data analysis for several other MCORRP projects.

When not in class and working on research, Josh volunteers with Project Healthy Schools and enjoys a variety of outdoor activities, including cycling, tennis, and running.

Husain Hakim
John Hopkins University
Baltimore, MD

Husain is a rising senior majoring in neuroscience and minoring in business at Johns Hopkins University. He grew up in West Bloomfield, MI and attending high school at Detroit Country Day. Outside of MCORRP, Husain likes to enjoy his summer by spending time with family, playing basketball and spike ball, and volunteering at DMC. At Johns Hopkins, Husain serves as co-President of Johns Hopkins' Milton S. Eisenhower Symposium, the school's oldest and largest lecture series, and volunteers at Paul's Place in Baltimore.

At MCORRP this summer, Husain is working as an intern on the Pulmonary Hypertension (PH) Registry alongside Rayyan Munir. He's incredibly excited to gain experience in clinical research and cardiology and can't wait to develop a project that will hopefully further the field's expertise in clinical care. He also can't wait to form new, lasting friendships with fellow MCORRP employees.

Cody Horton BA
University of Nevada , Reno School of Medicine
Reno, Nevada

Cody is a second-year medical student at the University of Nevada, Reno School of Medicine interested in cardiology. He is involved in several roles at UNR including social chair for the class of 2024, board member of the Student Outreach Clinic, as well as a co-leader of the Cardiology and the Pulmonary/Critical Care Student Interest Groups.

Outside of his academics, Cody spends time fishing with friends and family, going to Lake Tahoe, water skiing, and going to the beach. Cody is working on the International Registry of Acute Aortic Dissection. He is investigating the medical management and outcome of patients who present in shock with Type B aortic dissection.



PHS Field Day@ Tappan Middle School

Suzanne Irani
University of Michigan
Ann Arbor, MI

Suzanne is a recent graduate from the University of Michigan with a Bachelors of Science in Biopsychology, Cognition, and Neuroscience. Throughout college, she worked with Intervention Specialists at Ann Arbor Public Schools to mentor middle school students. She also served as the President of HeForShe, a collegiate chapter of the UN Women's global solidarity movement, and a representative of the FemForward Coalition for gender equality and health equity on campus. In her free time, she is often reading, baking, and watching movies with her sister.

This past summer Suzanne served as a Student Manager as well as a MAQI Team Leader. She also continued her research on the role educational attainment plays in nutritional adherence of cardiac rehabilitation patients. She is grateful to the MCORRP staff for creating such a welcoming space for students interested in clinical research and dedicating their time to student learning.

MCORRP Student Manager
MAQI Team Leader

Colleen Kramer
University of Michigan
Ann Arbor, MI

Colleen is a rising senior at the University of Michigan studying Biology, Health, and Society along with a minor in Medical Anthropology. She plans on graduating this upcoming year and pursuing a career in medicine. Prior to attending college, she grew up in Grand Rapids, Michigan where she spent her free time diving on her high school team and training service dogs. Outside of MCORRP, Colleen enjoys working with kids with autism as a Behavior Technician at Spectrum Therapy Center.

This is Colleen's first year as a student intern at MCORRP and is excited to learn about the MAQI2 registry alongside the other student interns. She is very grateful for this experience to expand her knowledge and skills in clinical research and learn more about cardiovascular health.

Joseph Kim BS
Indiana University School of Medicine
Bloomington, IN

Joe is absolutely thrilled to be back at MCORRP for his third summer. He gives a big thanks to Eva, Dr. Eagle, and Elise for reuniting him with the IRAD registry.

Joe is a second year medical student at Indiana University in Bloomington, Indiana. Outside of school he is an aspiring amateur boxer and a father to 2 golden retrievers. Joe has been working on the IRAD registry for the past several years.

IRAD Team Leader

Emily Liu
University of Michigan
Ann Arbor, MI

Emily is a rising sophomore at the University of Michigan studying Business Administration and Pre-Medicine. Outside of her studies, she is a research assistant at the Michigan Institute of Social Research examining the impact of a company's leadership makeup on the success of the company, Vice President of Finance of Michigan Business Club, and a volunteer at Adaptive Gymnastics.

Emily is working on the Pulmonary Hypertension registry looking at how the DETECT risk score in scleroderma patients has helped lead to earlier diagnoses of systemic sclerosis pulmonary hypertension and consequently leading to earlier intervention. In her free time, Emily enjoys watching medical dramas, traveling, and baking.

Pulmonary Hypertension Team Leader

Jaeer Macfield BS
Michigan State University
East Lansing, MI

Jaeer graduated from Michigan State University in 2019 with a BS in Human Biology, and is currently applying to medical school. Before moving to Grand Rapids, MI, he lived in New York and Bangladesh. Outside of MCORRP this summer, Jaeer is continuing to work as a medical assistant at BV Pediatrics and FM, playing soccer, and traveling with friends.

This next year, Jaeer plans to continue his work as an ED and inpatient phlebotomist, and mentoring high school students through MSU's Health Sciences Scholars Institute.

For MCORRP this summer, Jaeer is working with the incredible MAQI team. He is excited to build relationships with his team as well as others in the program.

Lakshmi Meyyappan
University of Michigan
Ann Arbor, MI

Lakshmi is a rising senior at the University of Michigan and is studying Public Health Sciences, with minors in Business and Music. Outside of the classroom, she is the Co-President for the Pre-Med Hub, one of the directors for the South Asian American Health Initiative, and is involved with CURIS, a public health advocacy group. In her free time, Lakshmi loves to try new dessert places, dance, make Spotify playlists, and travel.

This summer, Lakshmi will be serving as a Pulmonary Hypertension Team Leader, along with Emily Liu. She is so grateful to the MCORRP staff for this opportunity to stay involved, and to continue learning more about clinical research. She would also like to thank her fellow team leaders and interns for making this summer so enjoyable!

Pulmonary Hypertension Team Leader

Emma Morganroth
University of Michigan
Ann Arbor, Mi

Emma is a rising junior at the University of Michigan studying neuroscience. She began research in 2018 at the Orthopedic Research Laboratory of Beaumont Hospital in Royal Oak, Michigan. At Michigan she is a member of Sigma Delta Tau, Phi Chi Pre-Medical Fraternity, Wolverines for Life, and Michigan Hillel. She is also a member of the Center for Campus Involvement Advisory Board. Emma participates in on-campus research at the Zhang Lab of Molecular and Genome Evolution in the Department of Ecology and Evolutionary Biology.

At MCORRP, she is a part of the COVID-19 registry team. Emma plans on attending medical school to become a cardiologist.

Rayyan Munir
University of Michigan
Ann Arbor, MI

Rayyan is a rising senior at the University of Michigan double majoring Business Administration and Biology, Health, and Society. Outside of his studies, he is the Client Management Chair of Alliance Consulting Group, Co-Founder and CFO of HealthPoint, and the Legal and Financial manager of Project Healthy Schools- Bangladesh. During his free time, Rayyan loves spending time with his friends, traveling, and thrifting.

Rayyan is working on the Pulmonary Hypertension Registry, and focusing his research on Comparing Differences in Hemodynamics, Dyspnea, and Functional Class of PAH Patients with Different BMIs

Julian Neshewat BS
University of Michigan School of Medicine
Ann Arbor, MI

Julian Neshewat is a recent graduate from the University of Michigan with a Bachelor of Science in Biopsychology, Cognition, and Neuroscience. He just completed his first year of medical school. He enjoys volunteering with St. Jude Children's Hospital, perfecting his cooking skills, and catching up on all of the shows he hasn't had a chance to watch.

He has worked on Pulmonary Hypertension and MAQI² registries in addition to working on a couple various projects. He co-authored a paper about epistaxis education with anticoagulation patients and studied risk factors amongst the patients here at UMHS with pulmonary hypertension.

Carsten Opris
Royal College of Surgeons in Ireland
Dublin, Ireland

Carsten Opris is a medical student going into his third of six years at the Royal College of Surgeons in Ireland (RCSI). As an elective project, he was part of a team that created a website for a breast cancer researcher in Ireland. He also keeps busy by staying involved in the pediatric society as a teddy bear hospital coordinator. Teddy bear hospital is a hands on event for kids in the Dublin area that tries to make the hospital less intimidating by having the kids bring in their 'sick' teddy bears so they can see what the hospital would be like.

Carsten is working on the IRAD registry and will be looking at patients with an Acute Type A Aortic Dissection repaired by a simple ascending graft. He hopes to find characteristics of patients that have poorer outcomes with this procedure to ultimately build on another IRAD paper that found there is no acute downside to having a more extensive repair done.

Outside of school life Carsten enjoys playing volleyball, riding his trusty steed Haley, and volunteering with the Irish Red Cross.

Cameron Pawlik BS
University of Michigan School of Medicine
Ann Arbor, MI

Cameron is a graduate of the University of Michigan with a major in Neuroscience with a minor in business. He grew up in Clarkston, MI. Outside of MCORRP this summer, Cameron is enjoying spending time with his family, and playing sand volleyball.

Cameron completed his first year of medical school at the University of Michigan. He is very grateful to the **MCORRP** staff for the opportunity and for creating this amazing program for students to further their understanding of clinical research. He will miss all the peeps he has come to know and love.

Akshay Reddy
University of Michigan
Ann Arbor, MI

Akshay is an undergraduate student at the University of Michigan-Ann Arbor who is majoring in Bio-molecular Science and hopes to attend Medical School. Outside of MCORRP, Akshay enjoys spending time with his family, friends, and his fraternity Pi Kappa Alpha. He enjoys working in the Dr. Nadia Sutton lab and believes it is an incredible opportunity to gain experience in health sciences and ground breaking research. He is contributing to projects evaluating the role of ectonucleotidases on age-determined hemodynamics.

When Akshay is not assisting with research or working on the MCORRP Covid-19 registry, he also is on the executive board for the volunteering club AMPM on campus, and just finished his position as VP of Recruitment for the Michigan Interfraternity Council.

Hallie Remer
University of Michigan
Ann Arbor, MI

Hallie Remer grew up in West Bloomfield, Michigan and is a rising junior at the University of Michigan. There she is studying movement science and intraoperative neuromonitoring with the aims of becoming a neuromonitorist and eventually attending medical school. Outside the classroom, Hallie is a research assistant at the Brain Behavior Lab and avid volunteer at the Ronald McDonald House.

Hallie has worked on MAQI² and presented a project on Watchful Waiting for Slightly Out of Range INRs. In her free time, she enjoys attending sporting events and hanging out with friends.

MAQI Team Leader

Nicole Souphis BS
Michigan State University
East Lansing, MI

Nicole is a graduate of Michigan State University with a double major in Neuroscience and Psychology. In the fall she will be attending DePaul University for a Master's a Science in Nursing/Nurse Practitioner Program . During the school year, she volunteers in various clubs and charitable organizations . Nicole enjoys running, traveling, and spending time with friends and family.

During her time at MCORRP, Nicole has been fortunate to have worked on several of the registries, while also serving as team leader and student manger. She has also continued to work on research projects and her most recent publications in which she co-authored with Dr Jordan Shaffer, focused on warfarin monotherapy vs aspirin for obese patients with atrial fibrillation or venous thromboembolic diseases. She is grateful for all the opportunities **MCORRP** has offered her and wishes to thank Dr Eagle, Dr Froehlich, Dr Barnes, Dr Crawford, Eva and the **MCORRP** Team for their dedication to **MCORRP!**

MCORRP Student Manager

Ambrielle Stoltz-Bango BS
University of Michigan
Ann Arbor, MI

Ambrielle recently graduated from the University of Michigan with a B.S. in Biopsychology, Cognition, and Neuroscience (Pre-Med), and a minor in Music. Ambrielle grew up in Ann Arbor, MI and looks forward to spending the summer participating as a Student Intern in the MCORRP program. Outside of MCORRP, Ambrielle serves as an EMT at Huron Valley Ambulance (HVA) and as a Customer Service Rep. at Direct Incorporation. She hopes to attend the Health Infrastructures & Learning Systems (HILS) Master's Program this Fall, and plans to apply to medical school in the following year.

Currently, Ambrielle works within the MAQI² registry. She appreciates this opportunity to work amongst researchers of such diverse and accomplished backgrounds, and within a team of other driven, curious individuals. Ambrielle is excited to expand her knowledge of research systems, healthcare analytics, and medical conditions. She looks forward to the learning and memories to come.

Jayyid Wafiy
University of Michigan
Ann Arbor, MI

Jayyid is a rising senior at the University of Michigan studying Neuroscience and Pre-Medicine. Outside of his studies, he is a project chair for the Paani Flint Initiative, a non-profit that aims to provide clean water, sanitation, and relief efforts to Pakistan and the city of Flint. He is also involved with the Project Healthy Schools Bangladesh project, which centers its focus on developing health curriculums for schools in Bangladesh. In his free time, Jayyid enjoys playing video games and sports, and spending time with his family.

For MCORRP this summer, Jayyid is working for the Pulmonary Embolism Response Team (PERT) and the Michigan Anticoagulation Quality Improvement Initiative (MAQI) registries which focus on advancing the understanding of pulmonary embolism treatment and improving the quality of warfarin anticoagulation management, respectively.

Jessica Weinberg
University of Michigan
Ann Arbor, MI

Jessica is a junior at University of Michigan majoring in Biology, Health, and Society, and minoring in History of Art. She grew up in New York and worked there this past summer as a medical assistant. Currently, Jessica is working on the Covid Registry for MCORRP and is excited to continue her research with MCORRP. She is grateful at this amazing opportunity to learn and grow as a student interested in pursuing a career in medicine especially of importance during the pandemic.

Before MCORRP, Jessica performed research on less toxic cancer cell treatments. Jessica currently volunteers at U of M hospital art program and a non-profit organization that donates PPE to countries suffering from the pandemic.

Kevin Wunderly BS
University of Michigan
Ann Arbor, MI

Kevin is a second year medical student at Central Michigan Medical School. He graduated last year from the University of Michigan with a degree in Biophysics. Outside of school, he enjoys playing basketball, reading, and hiking with his brothers.

Kevin is working on the Cardiac Sarcoidosis Consortium for his 5th year with the program. This year, he is investigating the presentation of heart block of patients with cardiac sarcoidosis.

Cardiac Sarcoidosis Team Leader
MHYH & WMR Team Leader

MCORRP NAMED INTERNS

The MCORRP Team

gratefully acknowledges the following individuals

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2021 MCORRP Named Interned Awards Program

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Dr Tom Varbedian	Trey Feldeisen

STUDENT INTERNS REFLECTIONS:

“MCORRP has been a great experience for me because it’s given me an introduction to clinical research and a behind-the-scenes look at cardiovascular healthcare!”

“This internship is a very compelling and challenging experience that helps develop your professional skills. It also provides a great opportunity to forge some lasting friendships; truly a great summer internship.”

MCORRP DONORS

PROJECT	DONOR
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