The Cardiovascular Center (CVC), founded in 1992 at the Medical College of Wisconsin (MCW), is at the forefront of scientific discovery and innovative clinical care. Over 33,000 ft² of space is dedicated to the center’s laboratories, offices, conference rooms, and equipment cores. The CVC is staffed by full- and part-time personnel who maintain core equipment, coordinate academic research, funding, and community outreach initiatives, and provide support to the more than 145 CVC members from 21 departments and institutes on the Milwaukee Regional Medical Campus.

The CVC’s mission is to improve cardiovascular health in Southeast Wisconsin and beyond through cutting-edge research, cost-efficient and high-quality health care delivery, rigorous training of the next generation of cardiovascular scientists, and engaging the community to eliminate disparities in health outcomes.

The CVC’s vision is to become the premier integrated basic and translational academic cardiovascular organization in the United States. At the CVC, an emphasis is placed on collaborative, multidisciplinary research at basic, clinical, and community/population levels centered around our faculty’s expertise in thematic areas of research called Signature Programs and Affinity Groups.

The CVC is directed by Ivor Benjamin, MD, Professor of Medicine at Froedtert Hospital and MCW, who has over 25 years of experience and expertise leading cardiovascular clinical and research programs. David Gutterman, MD, the Senior Associate Director of the CVC and Northwestern Mutual Professor in Cardiology, also brings more than 25 years of experience including 8 years as Senior Associate Dean for Research with broad responsibility over basic, clinical, and population/outcomes research development and infrastructure. Moreover, as a “Green Center”, the CVC is also guided by an external scientific advisory board, institutional scientific advisory board, institutional leadership, and feedback from its members and the CVC Board.

Along with its exceptional leadership, the CVC benefits from excellent institutional support including a $4 million grant from the Advancing a Healthier Wisconsin Endowment, extramural support from NIH which includes a recently-awarded National Heart, Lung, and Blood Institute T32 training grant, and from philanthropic gifts by the A. O. Smith Foundation, the Michael H. Keelan, Jr., MD, Cardiovascular Research Fund through the Greater Milwaukee Foundation, Smith Family, and the Cullen Family Healthy Heart Research Program, among others.

This year, members of the CVC have been awarded more than $77 million in total research funding, leading the state with over $30 million in federal research funding, published more than 460 peer-reviewed research publications, and mentored more than 50 medical or graduate students and postdoctoral or clinical research fellows.
# Table of Contents

- Overview and Administration 3
- Membership 11
- Services 16
- CVC’s 4 Pronged Mission 24
  - Research 24
  - Patient Care 35
  - Training & Education 41
  - Community Engagement 50
- Philanthropy 55

## Appendices
- 2018 External Scientific Advisory Board (ESAB) Report
- 2018 Update on 2014 Cardiovascular Research White Paper
OUR MISSION

To improve cardiovascular health in southeast Wisconsin and beyond with:

Cutting-Edge Research to Improve Treatment

From Discovery Science to Patient Care of the Highest Quality

Rigorous Training of the Next Generation of Cardiovascular Scientists

Community Engagement to Eliminate Disparities in Health Outcomes

A CLEAR VISION

To Become a Comprehensive Cardiovascular Center of Excellence

To be the premier cardiovascular center from DISCOVERY SCIENCE to PATIENT CARE and to eliminate disparities in HEALTH OUTCOMES.

Year in Review

26 YEARS AS A CENTER

147 MEMBERS who are researchers and doctors

#1 in WI for federal dollars for cardiovascular research

$77M in funding (total costs)

Over 400 RESEARCH PROJECTS

Over 465 PUBLICATIONS in peer-reviewed scientific journals

153 FUNDED new research proposals

MENTORED OVER 50 TRAINEES

Over 50 CLINICAL TRIALS

Over 21 DEPARTMENTS/INSTITUTES
Ivor J. Benjamin, MD, FAHA, FACC
Director
Professor of Medicine, Physiology, Pharmacology & Toxicology, Surgery, Cell Biology, Neurobiology & Anatomy
Administrative Assistant, Mary Lenhart, 414-955-6716, mlenhart@mcw.edu

David Gutterman, MD
Senior Associate Director
Admin. Asst, Mary Lenhart, x6716, mlenhart@mcw.edu

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Glenn Slocum, Microscopy Core Manager
Rodney Sparapani, PhD, Biostatistician
Alexis Visotcky, MS, Biostatistical Analyst
Ashley Fait, Development Events Coordinator
Dr. Ivor Benjamin, Director of the Cardiovascular Center, Named 2018-2019 American Heart Association President

“I am humbled and honored to be nominated for such major leadership roles in the American Heart Association, the largest professional organization commitment to the prevention, detection and treatment of heart disease and stroke both nationally and internationally,” Benjamin said.

“Congratulations to Dr. Ivor J. Benjamin on his election as president of the American Heart Association,” said Joseph E. Kerschner, dean of the school of medicine, provost and executive vice president of MCW. “Under his leadership in the past four years as director of MCW’s Cardiovascular Center, we have created Signature Programs that serve as an incubator for driving the continuum of how research can be leveraged for quality patient care that improves the community’s cardiovascular health.”

“Dr. Ivor Benjamin is recognized internationally as a thought leader in cardiovascular medicine and research, and we are extremely pleased that he will share his talents and expertise on the national stage as president of the American Heart Association,” said John R. Raymond, Sr., MD, MCW President and CEO.
The CVC is a MCW “Green Center”, meaning it:

1. It is a high priority focus area and meets critical needs of MCW
2. Provides a focal point for a specific research agenda
3. Promotes multi-investigator, multi-disciplinary research and funding opportunities
4. Advances cross-departmental research
5. Sustains research infrastructure and technology for focus area

The CVC has multiple levels of review and seeks input from:
External Scientific Advisory Board

ESAB CHAIR
Donna K. Arnett, PhD, MSPH
University of Kentucky
Dean of the College of Public Health
2012-2013 President of the American Heart Association
Former Chair, Professor, and Associate Dean for Academic & Strategic

David G. Harrison, MD
Vanderbilt University
Director of the Division of Clinical Pharmacology
Director of the Center for Vascular Biology
Betty and Jack Bailey Professor of Medicine and Pharmacology

Elizabeth M. McNally, MD, PhD
Northwestern University
Director of the Center for Genetic Medicine
Elizabeth J. Ward Professor of Genetic Medicine
Professor of Medicine in Cardiology, Biochemistry and Molecular Genetics

Elizabeth Murphy, PhD
National Heart, Lung and Blood Institute
Senior Investigator
Head of Cardiac Physiology Section
Laboratory of Cardiac Physiology

David J. Pinsky, MD
University of Michigan Medical School
Director and Science Lead of Frankel Cardiovascular Center
Division Chief of Cardiovascular Medicine
Professor of Internal Medicine in Cardiology

Daniel J. Rader, MD
University of Pennsylvania, Perelman School of Medicine
Chair of the Department of Genetics
Division Chief of Translational Medicine and Human Genetics
Associate Director, Institute for Translational Medicine and Therapeutics
Seymour Gray Professor of Molecular Medicine
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<tr>
<th>Name</th>
<th>Position and Additional Information</th>
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<tr>
<td>Tom P. Aufderheide, MD</td>
<td>Associate Chair of Research Affairs, Director of the Resuscitation Research Center, CTSI of Southeastern Wisconsin, Professor of Emergency Medicine</td>
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<td>Zeljko J. Bosnjak, PhD</td>
<td>Professor of Medicine</td>
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<td>William B. Campbell, PhD</td>
<td>Chair of Pharmacology &amp; Toxicology, Florence Williams Professor of Pharmacology &amp; Toxicology</td>
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<td>Michael P. Cinquegrani, MD</td>
<td>Vice Chair &amp; Service Line Integration, Professor of Medicine and Radiology</td>
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<td>John A. Corbett, PhD</td>
<td>Chairman of Biochemistry, Professor of Biochemistry</td>
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<td>Allen W. Cowley, Jr, PhD</td>
<td>James J. Smith &amp; Catherine Welsch Smith Professor in Physiology, Harry &amp; Gertrude Hack Term Professor in Physiology, Professor of Physiology</td>
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<tr>
<td>Andrew S. Greene, PhD</td>
<td>Interim Vice Chair of Clinical &amp; Research Affairs, Biotechnology &amp; Bioengineering, The Dr. Robert D. &amp; Dr. Patricia E. Kern Professor of Biotechnology &amp; Bioengineering</td>
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<td>David R. Harder, PhD</td>
<td>Associate Dean for Mentoring, Adjunct Professor of Physiology, Medicine &amp; Pediatrics, Kohler Co. Endowed Chair in Cardiovascular Research, Director of Mentoring, CTSI of Southeastern WI</td>
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<tr>
<td>Elizabeth R. Jacobs, MD, MBA</td>
<td>Associate Dean of Research, Professor of Medicine and Physiology</td>
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<tr>
<td>Jeanne M. James, MD</td>
<td>Section Chief of Pediatric Cardiology, Medical Director, Pediatric Cardiology, Children's Hospital of Wisconsin, The Leigh Gabrielle Herma Endowed Chair for Cardiology, Children's Hosp of WI Fdn</td>
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<tr>
<td>Cheong Jun Lee, MD</td>
<td>Assistant Professor of Surgery, Vascular Surgery</td>
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<tr>
<td>John R. Meurer, MD, MBA</td>
<td>Professor of Pediatrics and Community Health, Director of the MCW Institute for Health &amp; Equity</td>
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<tr>
<td>Peter J. Newman, PhD</td>
<td>Vice President for Research, BloodCenter of Wisconsin, Associate Director, Blood Research Institute, Professor of Pharmacology &amp; Toxicology and Cell Biology, Neurobiology &amp; Anatomy</td>
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<tr>
<td>Jorge Saucedo, MD, MBA</td>
<td>Chief of Cardiovascular Medicine, Director of the Froedtert &amp; MCW Heart and Vascular Service Line, Professor of Medicine and MCW Eminent Scholar</td>
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<tr>
<td>Curt D. Sigmund, PhD</td>
<td>Chairman and Professor of Physiology</td>
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<tr>
<td>Reza Shaker, MD</td>
<td>Joseph E. Geenen Professor &amp; Chief, Director of the Digestive Disease Center, Senior Associate Dean for Clinical and Translational Research</td>
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<td>Roy L. Silverstein, MD</td>
<td>Chairman of Medicine, Associate Director of Clinical Research, Cancer Center, Linda &amp; John Mellowes Professor of Medicine</td>
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<tr>
<td>Gilbert C. White, II, MD</td>
<td>Executive Vice President for Research, Director of the Blood Research Institute, Professor of Medicine, Biochemistry and Pharmacology &amp; Toxicology, Professor of Pediatrics, Microbiology and Molecular Genetics, Vice Chair, Research, Medical College of Wisconsin</td>
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<tr>
<td>Calvin B. Williams, MD, PhD</td>
<td>Section Chief, Pediatric Rheumatology, Chief Scientific Officer, Children's Research Institute, D.B. and Marjorie Reinhart Chair in Rheumatology, Children's Hospital of WI</td>
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<tr>
<td>Ming You, MD, PhD</td>
<td>Senior Associate Dean for Cancer Research, Joseph F. Heil Jr. Professor of Molecular Oncogenesis, Professor of Pharmacology &amp; Toxicology</td>
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Cardiovascular Center Board

Leading business, professional, and civic leaders in WI who are committed to advancing cardiovascular research at MCW through increasing community awareness and raising private funds.

Quarterly Meetings

Bruce E. Jacobs
Founding Chair
Community Leader/Volunteer

MEMBERS

- Sally R. Bentley
  Community Volunteer/Leader
- Marybeth Budisch
  Senior Donor Services Officer
  Greater Milwaukee Foundation
- Carl (Chip) Burghardt
  Owner
  Burghardt Sporting Goods
- Cellene Byrne
  COO, Retired
  Briohn Building Corporation
- Kristine H. Cleary, Esq.
  Vice President & Legal Counsel
  Cleary Management Corporation
- Dominic Colonna
  President, Retired
  CDP, Inc.
- Gael Garbarino Cullen
  Producer/Writer
  Plum Moving Media
- Mark Curran
  Vice President of Global Operations
  Materion, Inc.
- Byron T. Foster
  President & Director
  North Star Enterprises of Wisconsin
- Laura J. Freedy
  Central Region Compliance Officer
  UnitedHealthcare
- Frederic G. Friedman
  Attorney At Law
  Reinhart, Boerner, VanDeuren, S.C.
- Phillip Georges, Esq.
  Attorney At Law
  Gruber Law Offices, LLC
- Ellen Glaisner
  Community Volunteer/Leader
- Eckhart Grohmann
  Chairman & President, Retired
  Aluminum Casting & Engineering
- Barry Grossman
  Administrative Patent Judge
  Patent Trial & Appeal Board
- Gordon H. Gunnaugsson
  Community Volunteer/Leader
- Stanley F. Hack
  Attorney At Law
  Hack & Brodkey, S.C.
- Mikel Holt
  Publisher
  Milwaukee Community Journal
- Michael H. Keelan, Jr., MD
  Cardiologist, Retired
- Sarah Wright Kimball
  Principal
  Kimball Communications
- John Kirchgeorg
  CEO
  Life Corporation
- Dr. Vincent Kuttemperoor
  CEO & President
  V.K. Development Corporation
- William H. Levit, Jr.
  Arbitrator & Mediator
  Levit ADR LLC
- William J. Mielke
  CEO, Chairman of the Board
  Ruekert & Mielke, Inc.
- Daniel M. Muchin
  President
  Muchin Investments, LLC

EMERITUS MEMBERS

- John K. Schultz
  Vice President—Sales
  KMC Stampings
- Johan C. R. Segerdahl
  Owner
  Iron Block Holdings, LLC
- Nancy J. Sennett
  Attorney At Law
  Foley & Lardner
- Sonia Shields Stowe
  Community Volunteer/Leader
- Dale A. Thoma
  Managing Partner
- James D. Bell
  Managing Director
  Robert W. Baird & Co.
- Priscilla Boelter
  Community Volunteer/Leader
- William D. Browne†
  Director
  Marquette Medical System Fndn
- William D. Browne†
  Director
  Marquette Medical System Fndn
- John J. Burke, Jr.
  Chairman & CEO
  Burke Properties
- Daniel F. McKeithan, Jr.†
  President & CEO
  Tamarack Petroleum Company, Inc.
- Nicholas C. Wilson†
  Vice Chairman
  Jacobus Wealth Management, Inc.
- Gary V. Zimmerman, FAIA
  Founder
  Zimmerman Architectural Studios
  † Deceased

CVC Staff: Natalie Strade, Tatjana Chenoweth, MBA, Ashley Fait
Membership
**Membership Guidelines & Benefits**

**Primary Research or Clinical Membership**

**Eligibility:** Criteria for primary membership in the CVC are as follows (at the discretion of the Director):
- A full-time MCW academic appointment AND one or both of the following:
  - Research faculty whose primary laboratory space resides within the CVC;
  - Clinical or Research Faculty who actively participate in one or more the Affinity Groups and/or Signature Programs.

**Expectations:** Primary members of the CVC are expected to make meaningful contributions to the research activities of the CVC in one or more of the following ways:
- Demonstrate a commitment to the mission and vision of the CVC to advance an integrated program of basic, clinical, and translational research related to cardiovascular disease;
- Share areas of expertise as mentors to junior faculty (for senior members);
- Participate in ad hoc review committees of funding proposals of fellow CVC members upon request;
- Join and actively participate in an Affinity Group/Signature Program;
- Attend the center’s meetings, seminars, review committees, task forces, retreats, and related programs as appropriate;
- Acknowledge the CVC on all publications (i.e., peer-reviewed manuscripts/book chapters), in oral/poster presentations, grant submissions, and media announcements;
- Pursue extramural funding as a Principal Investigator on a NIH or other national/regional peer-reviewed, cardiovascular-related research grant or Foundation award (as defined by CVC Director) OR
  - Serve as a Principal Investigator of cardiovascular clinical trial OR
  - Serve as protocol chairperson for a national peer-reviewed (e.g., CTEP) clinical trial OR
  - Serve as a senior leader of a national peer-reviewed funded cooperative group.
- Sustain cardiovascular-related publications (during previous three years) in peer-reviewed professional journals
  - Research only or maintain PI status of a minimum of 1 IRB approved active research protocol (Clinical only);
- Upon request, submit a yearly report (<3 pages) to CVC administration of publications, grant submissions and awards, collaborative efforts with other CVC members, and mentoring, service-related, and community engagement activities.

**Benefits:**
- Eligibility for CVC funding opportunities;
- Priority access and negotiated rates to use current and future CVC core resources (equipment; technical);
- Free biostatistical/bioinformatics support;
- Higher priority for access to CVC research office/lab space;
- Access to philanthropic funds directed to CVC-specific programs (as appropriate);
- Most direct access to expert colleagues and team science collaborators via membership in one of MCW’s highly translational research programs and Affinity groups; and
- Eligibility for leadership positions within the CVC.

**Affiliate Membership**

Affiliate membership is designated for faculty who make meaningful contributions to the research, education, patient care, and community outreach activities of cardiovascular medicine, but do not meet the above criteria for primary membership. Affiliate membership may also be appropriate for faculty whose primary membership is with another institutional Center, but who wish to be involved with the CVC community.

**Eligibility:** Members must have a full-time academic appointment at MCW or any CTSI regional member institution (Blood Center of Wisconsin, Children’s Hospital of Wisconsin, Froedtert Hospital, Marquette University, Milwaukee School of Engineering, University of Wisconsin-Milwaukee, Zablocki VA Medical Center).

**Expectations:**
- Submission as PI or co-PI on a cardiovascular-related grant or
  - active participation in clinical trial development and/or patient accrual or
  - contributions to multidisciplinary clinical program or community engagement development, including clinical outcomes and research (screening, prevention and therapeutics).
- Regular presentation of data at internal or external scientific meetings;
- Publications as contributing author on peer-reviewed articles/book chapters;
- Collaborative efforts via grants, publications, or active membership in Affinity Groups/Signature Programs;
- Service on various CVC committees when called upon;
- Recognition of CVC support on publications, abstracts, and grants, when appropriate;
- Upon request, submit a yearly report (<3 pages) to CVC administration of publications, grant submissions and awards, collaborative efforts with other CVC members, and mentoring, service-related, and community engagement activities.

**Benefits:**
- Access to current and future CVC core resources, including free biostatistical support and access to CVC shared equipment;
- Potential for enhanced interaction and collaboration via membership in one of CVC’s Affinity Groups or Signature Programs.
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<td>Wang, Liang MD, PhD</td>
</tr>
<tr>
<td>Weihrauch, Dorothee DVM, PhD</td>
<td>Whelan, Harry T. MD</td>
</tr>
<tr>
<td>White, Gilbert C. MD</td>
<td>Whittle, Jeffrey MD</td>
</tr>
<tr>
<td>Wlodarsky, Michael E. MD *</td>
<td>Willoughby, Rodney MD</td>
</tr>
<tr>
<td>Yeochoa, Michael MBChB, PhD *</td>
<td>You, Ming MD, PhD</td>
</tr>
<tr>
<td>Yu, Hongwei MD</td>
<td>Zhang, David X. MD, PhD *</td>
</tr>
<tr>
<td>Zhu, Jieqiang PhD</td>
<td>Zimmerman, Michael A. MD, FACS</td>
</tr>
</tbody>
</table>

* laboratory or parts of laboratory physically located in the CVC
Recent CVC Tenure-Track Faculty Recruits

Ravi Singh, PhD
Assistant Professor of Pathology
Start Date: October 2018
Former Instructor of Pathology & Immunology
Baylor College of Medicine

Benjamin Gantner, PhD
Assistant Professor of Medicine
Start Date: September 2018
Former Research Assistant Professor of Microbiology & Immunology
University of Illinois at Chicago

Michaela Patterson, PhD
Assistant Professor of Cell Biology, Neurobiology & Anatomy
Start Date: September 2018
Former Postdoctoral Fellow
University of Southern California

Marcelo Bonini, PhD
Associate Professor of Medicine
Start Date: January 2018
Former Associate Professor of Pathology
University of Illinois at Chicago
Faculty Membership Composition (n=147)

Estimated Number of Staff and Trainees

Laboratory Personnel: 131
Graduate Students: 75
Postdoctoral and Clinical Fellows: 107
Services
The Cardiovascular Center houses:

**3 Conference Rooms:** >1,400 ft², equipped with state-of-the-art audio-visual equipment including hardware and software for web conferencing.

**Microscope Core:** Room M4880 has a Nikon TE-2000U, Nikon E-55i, and Nikon E600/spot RT. Room H4360 houses a Nikon A1-R confocal microscope. The Nikon A1-R confocal system, fitted to an inverted ECLIPSE Ti-E microscope with a motorized stage, has 2 independent scanning systems allowing for both high speed resonant and high resolution non-resonant scanning. It is fitted with 4 lasers (405, 488, 514 and 561nm) and 4 detectors. The scope can be operated in both synchronous and sequential scanning modes. Objective lenses include 20x, 40x, 60x oil and 100x oil. The scope is capable of doing Z-stacks, and time studies. Both time-lapse and 3D volumetric views can be created and exported as AVI files. The Perfect Focus System allows for the maintenance of a selected focal plane over a long experiment. Both FRAP and FRET experiments can be performed as well as ratiometric studies. A separate stage insert supporting Warner live well hardware is available. Mounted on an air table, the scope has proven a stable imaging platform. The system is controlled by NIS-Elements Advanced Research software, which includes an analysis package.

**Cardiovascular Tissue Bank:** integrated within MCW’s Tissue Bank, it provides rapid access to fresh human adult and pediatric cardiac and peripheral vascular specimens, access to fresh whole explanted hearts not suitable for transplantation, and over 1000 fixed/frozen human vascular tissue specimens stored for further processing.

**Surgical Suite and Animal Preparation Room:** a separate, fully-equipped with several stainless steel workstations, laminar flow hoods, and anesthesia machines.

**Small Animal Echocardiography Core:** directed by CVC faculty member, Jennifer Strande, MD, PhD; scanning and analysis for mice, rats, rabbits, pigs, and primates; services include screening, post-event, post-surgical, and custom echocardiograms for cardiac structure and function, vascular/aorta imaging, and imaging of other organs by trained staff, consultation, and analysis on a fee-for-service basis.

**Other Equipment Cores:** includes centrifuges, freezer farm, PCR detection systems, spectrophotometer, gelless western blotting system and more (see Equipment List).

**Environmentally-Controlled Rooms:** cold room, warm room, dark room, and dish-washing room.
The Cardiovascular Center provides:

- **Administrative Support for Stocking of Sigma Supply Center**
- **Administrative Support for Conference Rooms**
- **Administrative Support for Education, Research, and Other Events**
- **Administrative Support for Signature Program Meetings**

**Electronic Newsletters & Other Communications:**

- **Monthly Funding Newsletter:** an email to all CVC members with information about funding opportunities from the CVC, MCW, PIVOT alerts, NIH, American Heart Association, American Physiological Society, Department of Defense, Advancing a Healthier Wisconsin, CTSI of Southeast Wisconsin, etc.
- **Quarterly Pulse Newsletter** with Member Announcements (see appendix)
- **Monthly Trainee Newsletter:** an electronic newsletter to CVC postdoctoral fellows containing announcements, a list of upcoming cardiovascular-related seminars, training opportunities, post-doctoral, faculty, and industry job listings, scholarship information, etc.
- **Weekly & Monthly Email with List of Local Cardiovascular-Related Seminars**
- **Facebook Page:** Education for the community and information for CVC members, staff, and trainees are posted regularly (usually daily) on the CVC’s new Facebook page found here: www.facebook.com/Cardiovascular.Center.MCW/
- **Town Halls:** Feedback from CVC members and dissemination of information to CVC members occurred during a CVC Town Hall meeting held in January.

**Biostatistical & Bioinformatics Support**

The CVC employs two biostatisticians (0.25 FTE) who are available for consultations. In FY2018, assisted more than 30 CVC faculty, trainees, and staff with their knowledge and expertise in biostatistics over a total of 215 hours. These consulting services include assistance with design and analysis of clinical trials, observational studies, and surveys, as well as assistance with public databases, sample size and power calculations and data analysis and interpretation.

Alexis Visotcky, MS

Rodney Sparapani, PhD

“Connecting Scientists to Big Data”
A CVC Bioinformatics Workshop
Presented by Andrew Vallejos, MS

In this course, you will learn fundamental techniques in managing and integrating large genomic and proteomic data sets using tools readily available at MCW!

**2018 DATES:**
Jan 24th & 31st, Feb 7th & 14th, 12:00 – 1:30 pm
CVC Conference Room, 4th Floor, HRC, H4950
The Nikon A1 is a confocal microscope that is part of the CVC's Microscopy Core.
## Cardiovascular Center Resources: Core Equipment

<table>
<thead>
<tr>
<th>Description</th>
<th>Location</th>
<th>Chaperone/Trainer</th>
</tr>
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<tbody>
<tr>
<td>Axion Microelectrode Array System</td>
<td>M4880</td>
<td>TBD</td>
</tr>
<tr>
<td>Beckman Coulter DU640 Spectrophotometer</td>
<td>M4480</td>
<td>Amelia Bitant, <a href="mailto:abitant@mcw.edu">abitant@mcw.edu</a></td>
</tr>
<tr>
<td>Bio-Rad Cell Counter TC-10</td>
<td>M4880</td>
<td>Kay Nicholson, <a href="mailto:knichols@mcw.edu">knichols@mcw.edu</a></td>
</tr>
<tr>
<td>Bio-Rad CFX96 Touch Real-Time PCR Detection System, 2 Units</td>
<td>M4480</td>
<td>Melanie Gartz, <a href="mailto:mgartz@mcw.edu">mgartz@mcw.edu</a></td>
</tr>
<tr>
<td>Bio-Rad CFX384/C1000 PCR Detection System</td>
<td>M4480</td>
<td>Melanie Gartz, <a href="mailto:mgartz@mcw.edu">mgartz@mcw.edu</a></td>
</tr>
<tr>
<td>Bio-Rad ChemiDOC MP Imaging System</td>
<td>M4480</td>
<td>TBD</td>
</tr>
<tr>
<td>BMG Labtech CLARIOstar Microplate Reader</td>
<td>M4480</td>
<td>TBD</td>
</tr>
<tr>
<td>BMG Labtech Fluorstar Omega Microplate Reader, Fluorescence, Absorbance, Luminescence at 255, 544, 485, 584 excitation; 460, 540, 520, 620 emissions</td>
<td>M4480</td>
<td>Marla Chesnik, <a href="mailto:mchesnik@mcw.edu">mchesnik@mcw.edu</a></td>
</tr>
<tr>
<td>Chemical Hood, Built-in</td>
<td>M4480</td>
<td>N/A</td>
</tr>
<tr>
<td>Color Copier, Scanner, Fax Machine</td>
<td>M Hall</td>
<td>Greg McQuestion, <a href="mailto:gregm@mcw.edu">gregm@mcw.edu</a></td>
</tr>
<tr>
<td>Protein Simple WES Western Blotting System</td>
<td>M4579</td>
<td>Alison Gifford, <a href="mailto:agifford@mcw.edu">agifford@mcw.edu</a></td>
</tr>
<tr>
<td>Tech One Biomedical Services Microm Cryostat</td>
<td>M4880</td>
<td>TBD</td>
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### Audio-Visual Equipment

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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>AVI Systems</td>
<td>H4940/50; M4799</td>
<td>Andrew Barr, <a href="mailto:andrewbarr@mcw.edu">andrewbarr@mcw.edu</a></td>
</tr>
</tbody>
</table>

### Freezers/Refrigerators

<table>
<thead>
<tr>
<th>Description</th>
<th>Location</th>
<th>Chaperone/Trainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>VWR -80 Chest Freezer for Defrosting/ Maintenance</td>
<td>M4970 Hall</td>
<td>Andrew Barr, <a href="mailto:andrewbarr@mcw.edu">andrewbarr@mcw.edu</a></td>
</tr>
<tr>
<td>VWR Upright Freezer for Emergencies/Freezer Failures</td>
<td>H4585</td>
<td>Andrew Barr, <a href="mailto:andrewbarr@mcw.edu">andrewbarr@mcw.edu</a></td>
</tr>
<tr>
<td>-4 Refrigerator</td>
<td>M4480</td>
<td>N/A</td>
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### Microscopes & Accessories

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<th>Description</th>
<th>Location</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Nikon Eclipse 55i</td>
<td>M4880</td>
<td>Glenn Slocum, <a href="mailto:gilocum@mcw.edu">gilocum@mcw.edu</a></td>
</tr>
<tr>
<td>Nikon E600/spot RT</td>
<td>M4056/4060</td>
<td>Glenn Slocum, <a href="mailto:gilocum@mcw.edu">gilocum@mcw.edu</a></td>
</tr>
<tr>
<td>Nikon A1R+</td>
<td>H4360</td>
<td>Glenn Slocum, <a href="mailto:gilocum@mcw.edu">gilocum@mcw.edu</a></td>
</tr>
<tr>
<td>Nikon A1R+ Environmental Chamber/Cell Stage</td>
<td>M4530</td>
<td>Qiang Dai at <a href="mailto:qdai@mcw.edu">qdai@mcw.edu</a></td>
</tr>
<tr>
<td>Nikon TE-2000</td>
<td>M4880</td>
<td>Glenn Slocum, <a href="mailto:gilocum@mcw.edu">gilocum@mcw.edu</a></td>
</tr>
<tr>
<td>Computer with Software for Analyzing Nikon Images</td>
<td>M4880</td>
<td>Glenn Slocum, <a href="mailto:gilocum@mcw.edu">gilocum@mcw.edu</a></td>
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</tbody>
</table>

### Centrifuges & Rotors

<table>
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<tr>
<th>Description</th>
<th>Location</th>
<th>Chaperone/Trainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beckman Coulter Ultracentrifuge XPN-100, 2 Units</td>
<td>M4015 Hall</td>
<td><a href="mailto:andrewbarr@mcw.edu">andrewbarr@mcw.edu</a> for user code; Hao Xu; <a href="mailto:xuhao@mcw.edu">xuhao@mcw.edu</a></td>
</tr>
<tr>
<td>Sorvall Superspeed RC-6+, 2 Units</td>
<td>M4980 Hall</td>
<td>Nori Nishijima, <a href="mailto:ynishijima@mcw.edu">ynishijima@mcw.edu</a></td>
</tr>
</tbody>
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**Medical College of Wisconsin’s Cardiovascular Center**
CVC Resources: Equipment & Space Committee

Members

David Gutterman, MD
Chair
Sr Associate Director, Cardiovascular Center
Professor, Department of Medicine, Cardiovascular Medicine

John Auchampach, PhD
Professor, Department of Pharmacology & Toxicology

Paul Goldspink, PhD
Associate Professor, Department of Physiology

Mary Sorci-Thomas, PhD
Professor, Department of Medicine, Endocrinology

Andrew Barr
Research Program Coordinator

Allison DeVan, PhD
Academic Program & Research Consultant
The Cardiovascular Center is pleased to offer small grants to support CVC members who wish to procure cardiovascular tissue from the MCW Tissue Bank for cardiovascular research projects. These grants are made possible by a generous philanthropic donation of members of the CVC Board. Awards are up to $2,000 per investigator.

**Eligibility:** Only a full-time or full professional effort MCW faculty member may apply; the PI must be a member of the CVC at the time of application.
CVC’s Mission #1: Research
SIGNATURE PROGRAMS

The Signature Program in Atherosclerosis, Thrombosis & Vascular Biology is designed to foster collaborations from which new scientific teams emerge to pursue fundamental and translational scientific investigation and to provide a resource for researchers who are interested in addressing the major causes of mortality and morbidity in Western countries through the study of lipid metabolism, inflammation, platelet biology, vascular biology and their clinical implications for cardiovascular health and disease. The Program promotes team science linking junior and senior faculty and trainees in a rich, nurturing, transdisciplinary research environment.

Leaders: Zeljko Bosnjak, PhD & Michaela Patterson, PhD

The Cardiac Biology & Heart Failure Signature Program is a platform built to support independent investigators working towards enabling their fundamental discoveries in the area of cardiac disease, to be translated into better science, clinical research, and clinical utility.

Leaders: Paul Goldspink, PhD & Jennifer Strande, MD, PhD

The Hypertension Signature Program’s goal is to integrate hypertension research at MCW and foster better communication among scientists working in the field.

Leaders: Mingyu Liang, MB, PhD & Srividya Kidambi, MD

The Precision Cardiovascular Medicine Signature Program builds on the Human Genome Project and the nationwide Precision Medicine Initiative to promote enhanced understanding, and opportunities to investigate and translate advances, in both diagnostics and therapeutics, for improved outcomes of individual patients.

Leaders: Zeljko Bosnjak, PhD & Michaela Patterson, PhD

AFFINITY GROUPS

The Cardio-Oncology Affinity Group studies the impact of cancer therapies on cardiovascular health and the long-term effects on cancer survivors.

Leaders: Meetha Medhora, PhD & Noura Dabbouseh, MD

The Prevention Affinity Group promotes collaboration amongst investigators who focus their research efforts to improve cardiovascular health and reduce deaths from cardiovascular disease through behavioral lifestyle interventions in the clinic and surrounding community.

Leader: Jacquelyn Kulinski, MD

The Redox Biology & Medicine Affinity Group’s focus is to integrate and promote research related to free radicals.

Leader: Marcelo Bonini, PhD
Cardiovascular Center
knowledge changing life

6 Essential Elements for Signature Program Classification

1. Create shared interests in either patient-specific and/or disease-specific thematic areas

2. Generate new knowledge (publications, citations, video and media)

3. Integrate research across the continuum (T0-T5) from discovery science to patient care

4. Obtain extramural support from recognized sources (NIH, NSF, VA, etc.)

5. Generate intellectual property (disclosures, patents and commercialized products)

6. Adopt our findings into clinical practice

4 Signature Programs

To serve as a means to bring our most talented junior and established investigators together in support of team science, new multi-investigator initiatives, and collaboration on investigator-initiated trials; potentially with joint development of new intellectual property.

Atherosclerosis, Thrombosis & Vascular Biology
Cardiac Biology & Heart Failure
Precision Cardiovascular Medicine
Hypertension
CVC Pre-PPG Awards: “Morning of Team Science” Symposium

CVC Conference Room H4140/4150
Medical College of Wisconsin
Milwaukee, Wisconsin
Tuesday, September 25, 2018
8:00 AM to 12:15 PM

The CVC is supporting teamwork and investing in team science by awarding pre-Program Project Grants (PPG) to its Signature Programs with the goal of each Signature Program acquiring a PPG or similar multi-PI extramural award in the next few years.

The funds for these $200K two-year awards are from the CVC’s Advancing a Healthier Wisconsin Endowment Grant awarded to the CVC by the Research and Education Program Fund, a component of the AHW endowment, entitled, “The Cardiovascular Roadmap; Bridging our Foundations to ‘Signature Programs’” and/or institutional funds given to the CVC for the Signature Program Pre-PPG Awards, and by philanthropic support given to MCW’s Cancer Center and pledged to the CVC for the Signature Program Pre-PPG Award: Cardio-Oncology Focus.

Presentations By:

Metabolic Control of Inflammation in Atherosclerosis by Macrophage Scavenger Receptors
Program Director: Daisy Sahoo, PhD
Project Leaders: Roy Silverstein, MD, Albert Girotti, PhD, Mary Sorci-Thomas, PhD, Michael Thomas, PhD

Genetic and Epigenetic Mechanisms of Hypertension
Program Director: Aron Geurts, PhD
Project Leaders: Allen Cowley, Jr., PhD, Andrew Greene, PhD, Mingyu Liang, MB, PhD

Signaling Mechanisms Underlying Cardiac Regeneration
Program Director: John Auchampach, PhD
Project Leaders: John Lough, PhD, Caitlin O’Meara, PhD, Brian Link, PhD

Mitochondrial Function Disparities Contributing to Cardiovascular Toxicity from Radiation Therapy
Program Directors: Meetha Medhora, PhD & Andreas Beyer, PhD
Project Leaders: Christopher Chitambar, MD, Carmen Bergom, MD, PhD, Jennifer Strande MD, PhD, Elizabeth Jacobs, MD, John Baker, PhD, Jason Rubenstein, MD, Rodney Sparapani, PhD, Jessica Olson, PhD

Funded in part by the Advancing a Healthier Wisconsin Endowment grant awarded to the CVC by the Research and Education Program Fund, a component of the AHW endowment at MCW and CVC Central and Programmatic Funds
Discovering the Cardiovascular Center’s impactful science across the continuum from basic science research to patient care to population health

HARLEY-DAVIDSON MUSEUM ▪ Milwaukee, WI ▪ Friday, October 19th, 2018

- Welcome by Director Ivor Benjamin, MD, FACC, FAHA
- Address by President & CEO John Raymond, Sr., MD
- Keynote Speaker: Joseph Hill, MD, PhD, Editor-in-Chief of Circulation
- Trainee Presentations
- Poster Session
- Faculty Impactful Science Presentations: Drs. Sorci-Thomas, Mattson, Kreigel, Patterson, Zhang, Mitchell
- Wine & Cheese Social Hour

Congratulations to the Best Poster Winners!

Medical Students
1st – Sai-Suma Samudrala
2nd – James Reneau

Graduate Students
1st – Sarah Proudfoot
2nd – Michael Flinn

Postdoctoral Fellows
1st – Xiaoping Pan, PhD
2nd – Rachel Jones Lipinski, PhD

Clinical Fellows
1st – Michael Thomas Cain, MD
2nd – Mark Kaeppler, MD

Research Support Staff
1st – Mary Schulz
2nd – Min-Su Kim

Special Thanks to Faculty Chair, Mingyu Liang, MB, PhD and Trainee Chair, Christine Klemens, PhD
<table>
<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/01/2017</td>
<td>Jefferson Frisbee, PhD</td>
<td>Western University</td>
</tr>
<tr>
<td>11/08/2017</td>
<td>Steven Jones, PhD</td>
<td>University of Louisville</td>
</tr>
<tr>
<td>11/17/2017</td>
<td>Muredach Reilly, MBBCH</td>
<td>Columbia University</td>
</tr>
<tr>
<td>02/14/2018</td>
<td>Ryan Temel, PhD</td>
<td>University of Kentucky</td>
</tr>
<tr>
<td>03/24/2018</td>
<td>Rodney Sparapani, PhD &amp;</td>
<td>Medical College of Wisconsin</td>
</tr>
<tr>
<td></td>
<td>Alexis Visotcky, MS</td>
<td></td>
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<tr>
<td>04/18/2018</td>
<td>Kathy Griendling, PhD</td>
<td>Emory University</td>
</tr>
<tr>
<td>06/06/2018</td>
<td>Ravi Singh, PhD</td>
<td>Baylor College</td>
</tr>
<tr>
<td>07/18/2018</td>
<td>Kathryn Flynn, PhD</td>
<td>Medical College of Wisconsin</td>
</tr>
<tr>
<td>08/24/2018</td>
<td>Elizabeth Tarling, PhD</td>
<td>University of California, LA</td>
</tr>
<tr>
<td>09/11/2018</td>
<td>Jay Horton, MD</td>
<td>UT Southwestern</td>
</tr>
<tr>
<td>09/12/2018</td>
<td>Salil Ginde, MD</td>
<td>Medical College of Wisconsin</td>
</tr>
<tr>
<td>09/26/2018</td>
<td>L. Gabriel Navar, PhD</td>
<td>Tulane University</td>
</tr>
<tr>
<td>10/03/2018</td>
<td>Patrick Pagano, PhD</td>
<td>University of Pittsburgh</td>
</tr>
<tr>
<td>10/24/2018</td>
<td>Kenneth Bernstein, MD</td>
<td>Cedars-Sinai</td>
</tr>
<tr>
<td>11/07/2018</td>
<td>Jeffrey Whittle, MD</td>
<td>Medical College of Wisconsin</td>
</tr>
<tr>
<td>11/09/2018</td>
<td>Gregory Graf, PhD</td>
<td>University of Kentucky</td>
</tr>
<tr>
<td>11/13/2018</td>
<td>Shobha Ghosh, PhD</td>
<td>Virginia Commonwealth University</td>
</tr>
<tr>
<td>11/14/2018</td>
<td>Glen Borchert, PhD</td>
<td>University of South Alabama</td>
</tr>
<tr>
<td>11/21/2018</td>
<td>Michael Earing, MD</td>
<td>Medical College of Wisconsin</td>
</tr>
<tr>
<td>12/05/2018</td>
<td>Katherine Yutzey, PhD</td>
<td>Cincinnati Children’s Hospital</td>
</tr>
</tbody>
</table>

Special thanks to our 2017-2019 Seminar Series Faculty Chair, Caitlin O’Meara, PhD
CVC Staff: Andrew Barr, Research Program Coordinator
HISTORY of AHW FUNDING

The Advancing a Healthier Wisconsin Endowment is a statewide funder dedicated to improving health in Wisconsin communities. The Medical College of Wisconsin established the AHW Endowment to receive part of the charitable funds resulting from the conversion of Blue Cross/Blue Shield United of Wisconsin from a nonprofit organization to a for-profit corporation in 1999. The University of Wisconsin School of Medicine and Public Health’s Wisconsin Partnership Program was the other recipient and also supports statewide health improvement efforts. The MCW Consortium on Public and Community Health, comprising of nine board of directors, provides oversight for the AHW Endowment’s work in community-academic partnership and public and community health. Since 2004, the AHW Endowment has provided more than 300 awards totaling more than $160 million to advance the health of Wisconsin through community health improvement, research and education.

THE CARDIOVASCULAR ROADMAP:
BRIDGING OUR FOUNDATIONS TO “SIGNATURE PROGRAMS”

Initial Proposal: A Major Source of Funding for the CVC

Pl: Ivor J. Benjamin, MD; Type: Center Development Award; Period: 7/1/14-6/30/20; Amount: $4 Million

Purpose: to improve cardiovascular health in Southeast Wisconsin and beyond through innovative, cutting-edge research and cost-efficient healthcare delivery by building the foundation for innovation, collaboration, and translation of research.

Aim 1: Develop a robust and sustainable infrastructure that supports and promotes multidisciplinary research efforts in cardiovascular medicine.

1a. A novel conceptual framework, called Signature Programs, will be implemented as a novel mechanism for translational research team formation and achievement. This application focuses on the top three highest priority Signature Programs (Cardio-Oncology, Vascular Biology/Disease, and Heart Rhythm Disturbances/Atrial Fibrillation), for which additional programs can be modeled in the future.

1b. Co-recruitment of physician investigators in complementary clinical disciplines of the three top priority program areas, which are designed to bridge research with clinical cohorts of patients.

1c. Recruitment of support staff who will be essential to the success of the Signature Programs.

1d. Create a pilot funding program to support new, multidisciplinary research projects among CVC members.

Aim 2: Increase the cohort of faculty, clinical fellows, & postdoctoral fellows working on translational cardiovascular research.

2a. Develop training opportunities clinical faculty in translational research (Breakfast & Learn; Lunch & Learn; senior faculty mentoring).

2b. Expand postdoctoral training experiences in translational research (monthly seminar/forum series).

2c. Educate and train clinical fellows in translational research (Breakfast & Learn; distance learning resources).

Aim 3: Improve community education and involvement in the areas of cardiovascular medicine and research.

3a. Expand our educational outreach program with participation in at least one CTSI “Science Cafés” per Signature Program each year.

3b. Create patient advisory teams (PATs) for each Signature Program modeled after the CTSI Community Engagement Key Function (CEnF) Citizen’s Advisory Committee.

MEDICAL COLLEGE OF WISCONSIN’S CARDIOVASCULAR CENTER
Year 2 Progress Report Summary

During this reporting period, the Cardiovascular Center (CVC) has continued to develop an infrastructure to promote multidisciplinary research in cardiovascular medicine by building and supporting its thematic areas of research and increasing the knowledge and collaborative interactions of its investigators. This was achieved through seminars, the annual CVC Research Retreat, group meetings, evaluation by both an external and internal scientific advisory boards, and the provision of resources including, but not limited to, core equipment, pilot/seed grants, and administrative support. New staff were hired (a replacement Academic Program and Research Officer, November 2015) and recruitment of a faculty member, whose expertise complemented the research of CVC members, was actively pursued. Progress towards increasing the number of trainees and faculty working in translational cardiovascular research was made by formulating a formalized training program to enhance the training of future cardiovascular scientists (clinical and postdoctoral fellows) as outlined in a training grant application submitted to the National Institutes of Health National Heart, Lung, and Blood Institute in January. Furthermore, the creation of the A. O. Smith Fellowship Scholars Program, a program funded by philanthropic dollars, hosting of numerous multidisciplinary and translational seminars, and increasing the outreach to trainees through the CVC trainee e-newsletter helped expand the opportunities for and exposure of postdoctoral fellows, clinical faculty, and clinical fellows to translational cardiovascular research. Fruitful efforts towards improving community education were made by hosting community presentations, a donation drive, and education of CVC staff by the MCW Community Engagement Core (meetings, workshops).

Year 3 Progress Report Summary

In FY2017, the Medical College of Wisconsin Cardiovascular Center (CVC) achieved several major accomplishments made possible by the Advancing a Healthier Wisconsin Parent Award. First, sustainable team science in cardiovascular research was supported by creating a major funding opportunity available only to the CVC’s Signature Programs, groups of CVC members with similar areas of research expertise or interests. Applications for several large $200,000 research grants were solicited and reviewed in the Spring. The goal of these awards is to promote teamwork and the subsequent submission of team-based grants to the federal government or other organizations. Second, the CVC applied for and was awarded a prestigious and highly-competitive $1.6 million five-year T32 grant from the federal government to train postdoctoral fellows in cardiovascular research. This is one of only six postdoctoral T32 training programs on the entire Milwaukee Medical Regional Campus. Finally, with the hire of two new staff members, new initiatives promoting trainee education and community engagement were created. These accomplishments, along with the existing support/services provided by the CVC, are building the foundation of knowledge about cardiovascular health and disease that are targeted to improve prevention and clinical care in Southeast Wisconsin and beyond.

* Year 4 Progress Report Summary *

During this reporting period, the Cardiovascular Center at the Medical College of Wisconsin continued to strive to improve cardiovascular health in Southeast Wisconsin and beyond by furthering the development of an infrastructure to promote multidisciplinary research, by educating and providing opportunities for translational research to its members, staff, and trainees, and by improving education and involvement in cardiovascular health and disease within the community. In addition to building on the foundation of initiatives established during the past three years of this award, the Cardiovascular Center created multiple new initiatives. These included a “Team Science Research Symposium”, a day dedicated to promoting team science with presentations by the recipients of the team science grants, and recruitment of two new faculty, Marcelo Bonini, PhD and Michaela Patterson, PhD. These scientists will support the Cardiovascular Center’s Signature Program in Precision Cardiovascular Medicine and Affinity Group in Redox Biology and Medicine. With regards to education and training, a new monthly “Trainee Digest” began distribution to provide materials to postdoctoral and clinical fellows on various professional skills, and three new seminar/workshop series commenced. “Work in Progress” seminars are a highly-interactive forums on a focused topic, “Collaboration Seminars” focus on fostering clinical/research partnerships with clinicians in the Herma Heart Institute, and a four-part bioinformatics workshop taught techniques for managing and integrating large research datasets. Last but not least, the Cardiovascular Center partnered with AHW in their community outreach program, “Conversations with Scientists” and held three outreach and health screening events in October in underserved areas of Milwaukee.
CVC’s Advancing a Healthier Wisconsin Grant

These funds have allowed the Cardiovascular Center to:

- Purchase a-v equipment for the main Cardiovascular Center conference rooms
- Provide salary support for some of the CVC’s staff
- Fund sub-awards to individual investigators (2015, 2016, 2018)
- Fund sub-awards to Signature Programs (Pre-PPGs, 2017, 2018)
- Fund sub-awards to CVC Investigators Partnering with the Community (Community Engaged Seed Grants, 2018)
- Promote research, education and networking by funding the CVC Annual Research Retreat
- Enrich trainee education by sponsoring workshops and seminars
- Provide salary support for biostatistical staff
- And more!

**Funded Subawards**

**2015 Funded Projects ($25-$50K, 1 Year)**

Aron Geurts, PhD, “Role of BAG3 variants in dilated cardiomyopathy”

Brian Hoffmann, PhD, “Microvesicles in cardiovascular inflammation: Developing collaborations, core resources, and unified methodology”

Scott Levick, PhD, “Understanding reduced cardiac size related to postural orthostatic tachycardia”

Aoy Tomita-Mitchell, PhD, “The role of MYH6 in hypoplastic left heart syndrome”

Rodney Sparapani, PhD, “Left ventricular hypertrophy surveillance with ECGs, predictive modeling and personalized medicine”

**2016 Funded Project (1 Year)**

Peter Frommelt, MD, “Diastolic ventricular function: A pediatric heart network (NHLBI) ancillary study to establish normal values in children”

**2017, 2018 Funded Projects: 2 Pre-PPG Awards ($200K, 2 Years)**

Aron Geurts, PhD (Key Personnel: Allen Cowley, Jr., PhD, Andrew Greene, PhD, Mingyu Liang, MB, PhD; Signature Program in Hypertension), “Genetic and epigenetic mechanisms of hypertension”

Daisy Sahoo, PhD (Key Personnel: Roy Silverstein, MD, Mary Sorci-Thomas, PhD, Albert Girotti, PhD, Michael J. Thomas, PhD; Signature Program in Atherosclerosis, Thrombosis, and Vascular Biology), “Metabolic control of inflammation in atherosclerosis by macrophage scavenger receptors”

**2018 Funded Projects: Community Engaged Research Projects, Individual Investigator Project**

Matthew Durand, PhD with Community Partner, Una Van Duvall (HeartLove Place of Milwaukee), “The Harambee-Hoja partnership: A park-based intervention to increase physical activity in under-resourced communities”

Julie Freed, MD, PhD, “ Novel use of cobalamins for treatment of bacteria-induced vasoplegia”

Kirsten Beyer, PhD with Community Partner, with Melody McCurtis (Metcalfe Park Community Bridges), “A heart healthy neighborhood: reducing stress together.”

MEDICAL COLLEGE OF WISCONSIN’S CARDIOVASCULAR CENTER
CVC NIH & AHA Funding in FY2018

INSTITUTE NIH GRANTS AWARDED TO CVC MEMBERS
NCATS 1 x KL2, 1 x UL1
NCI 1 x F30, 7 x R01
NHLBI 2 x F30, 1 x F31, 1 x F32, 1 x P01, 33 x R01, 1 x R25, 2 x R35, 1 x R38, 3 x T32, 1 x T35, 1 x UG1
NIA 1 x R21
NIAID 2 x R01, 1 x U01
NIDDK 1 x F31, 1 x KO1, 1 x K23, 1 x P01, 3 x R01, 1 x T32
NIGMS 1 x P01, 2 x R01, 2 x R35
NINDS 1 x F31, 1 x R21, 2 x U24
OD 1 x R21

NHLBI Funding for CVC Members

- #1 in Wisconsin
- Funds Totaling over $22M
- Top 20% Amongst Medical Schools Nationwide
- 11% Increase in Funding Since 2017

<table>
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<th>Per NIH RePORT FY17 All Institutes</th>
<th>FY18 All Institutes</th>
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<th>FY17 NHLBI</th>
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Summary of 2018 AHA Grants Awarded to CVC Members

Approximately $6.6M

- n=1 Establishing Investigator Award (Staruschenko)
- n=1 Grant-in-Aid Award (Miao)
- n=2 Postdoctoral Fellowship Awards (Chowdhury [Mentor: Ramchandran], Dasinger [Mattson])
- n=6 Predoctoral Fellowship Awards (Chabowski [Guterman], Fehrenbach [Mattson], Korishettar [D. Zhang], Nasci [Kriegel], Spires [Staruschenko]), Stafford [Corbett]
- n=5 Scientist Development Grants (Y. Chen, Evans, O'Meara, Palygin, B. Smith)
- n=1 Career Development Award (Patterson)
- n=1 Transformational Project Award (A. Mammoto)
- n=1 Strategically Focused Research Network (Kidambi, Mattson, Liang, Kotchen)

Approximately 10% increase in funding from last year!
Other Funding Sources for CVC Members in 2017

American Diabetes Association
National Ataxia Foundation
The Mary Kay Foundation
A.O. Smith Foundation
Health Resources in Action
Families of SMA
American Physiological Society
Greater Milwaukee Foundation
Forest County Potawatomi Community Fund
MTAVIVOR
Mend a Heart Foundation
American Heart Association
Rheumatology Research Foundation

MEDICAL COLLEGE OF WISCONSIN’S CARDIOVASCULAR CENTER
CVC’s Mission #2: Patient Care
The eight-story Center for Advanced Care (CFAC) on the Froedtert & the Medical College of Wisconsin Froedtert Hospital Campus opened its doors to patients in October of 2015. The 480,000-square-foot center houses three important patient care areas - The Heart and Vascular Center, The Transplant Center and Preoperative Outpatient Management.

The Heart and Vascular Center offers a complete range of heart and vascular services, provided by one of the best teams in Wisconsin. Cardiologists, cardiac surgeons, interventional cardiologists, and many more will offer patients the most advanced surgical and non-surgical treatments available in the region in the area’s only academic-based Heart and Vascular Center.

The new Transplant Center will consolidate our highly experienced transplant program in one place to offer the most comprehensive transplant program in the region. Nationally recognized for excellence in transplant care, Froedtert & the Medical College of Wisconsin promotes a multidisciplinary approach to the continual improvement of the clinical, scientific, and educational aspects of transplantation, thereby improving the lives of patients with organ failure.

Our Preoperative Outpatient Management program will also be housed in the Center for Advanced Care. This means that the CFAC will be the first stop for all patients arriving for surgery at Froedtert Hospital. Here, patients will be admitted and receive all of their pre-op services, just one floor from the location of their actual surgery.

Cardiovascular Center Members Working with Froedtert’s Heart and Vascular Service Line

Not pictured: Ivor Benjamin, MD and Michael Widlansky, MD
Jorge Saucedo, MD, MBA Appointed Chief of Cardiovascular Medicine at the Medical College of Wisconsin and Director of the Froedtert & Medical College of Wisconsin Heart and Vascular Service Line

Cardiovascular Center Internal Scientific Advisory Board Member

Milwaukee, Aug. 20, 2018 – Jorge Saucedo, MD, MBA, joined the Medical College of Wisconsin (MCW) as Chief of Cardiovascular Medicine in the Department of Medicine, as well as professor of medicine and MCW Eminent Scholar, on July 16, 2018. He also serves as Director of the Froedtert & MCW Heart and Vascular Service Line. Dr. Saucedo is board-certified in internal medicine, cardiovascular disease and interventional cardiology, and he provides care for the full scope of cardiac conditions. Dr. Saucedo most recently was head of the Division of Cardiology and co-director of the Cardiovascular Institute at NorthShore University HealthSystem in northern Illinois. He also held the Allstate Foundation Judson B. Branch Chair of Cardiology and was professor of medicine at the University of Chicago Pritzker School of Medicine.

Dr. Saucedo is an accomplished academic cardiologist. A graduate of the Universidad Nacional Autonoma de Mexico in Mexico City, he completed training in internal medicine at the National Institute of Nutrition and fellowships in cardiology and interventional cardiology at National Institute of Cardiology in Mexico, the University of Michigan in Ann Arbor and Washington Hospital Center in Washington D.C.

He then joined the faculty at the University of Arkansas for Medical Sciences, where he served as director of the cardiac catheterization laboratories at the university and the John L. McClellan Veterans Affairs Medical Center. While in Arkansas, he also received an MBA from the University of Arkansas at Little Rock College of Business. From 2002 to 2013, Dr. Saucedo held numerous positions at the University of Oklahoma Health Sciences Center, including professor of medicine, vice-chief of clinical affairs in the Division of Cardiology and director of the Cardiac Catheterization Laboratories.

In June 2013, he became head of the Division of Cardiology and co-director of the Cardiovascular Institute at NorthShore University HealthSystem in northern Illinois. There he led impressive growth and expansion of cardiology, developing 13 new programs, including advanced heart failure, transcatheter mitral valve replacement, vascular medicine and a cardiology fellowship training program.
The Division of Cardiovascular Medicine, located in the Department of Medicine at the Medical College of Wisconsin, has 37 faculty members who are involved in patient care, teaching, education and collaborative and innovative research projects with our flagship nationally recognized Cardiovascular Center, MCW Cancer Center, and the Clinical and Translational Science Institute. The Division also is an integral part of the Heart and Vascular Service Line, which supports multidisciplinary cardiovascular care, education research across all related disciplines in Cardiothoracic Surgery, Vascular Medicine and Surgery, and Critical Care Anesthesiology at the College. All these activities, ultimately, result in a vibrant environment for collaborative clinical care, research, education and community engagement.

Cardiovascular Center Members Part of the Division:

Ivor Benjamin, MD
Michael Cinquegrani, MD
David Gutterman, MD
Nicole Lohr, MD, PhD
Asim Mohammed, MD
David Marks, MD, MBA

Jacquelyn Kulinski, MD
Nicole Lohr, MD, PhD
Jennifer Strande, MD, PhD
Mike Widlansky, MD, MPH

Jorge Saucedo, MD, MBA
Chief
CVC ISAB Member
Pediatric Clinical Care with the Herma Heart Center

The Herma Heart Center at Children’s Hospital of Wisconsin is the largest pediatric cardiac center in the state and ranked by U.S. News & World Report as a top pediatric cardiology and heart surgery program in the nation. Jeanne James, MD is the medical director and is a member of the CVC’s Internal Scientific Advisory Board.

In the Spring, Summer, and Fall of 2018, a new “Collaboration Seminar Series” was created to strengthen our partnership and encourage the exchange of ideas between HHI and the CVC.

Cardiovascular Center Members Caring for Patients & Performing Research in CHW’s Herma Heart Center:

- Jeanne James, MD
  Chair for Cardiology & Medical Director of Pediatric Cardiology
- Michael Mitchell, MD
  Director of Regional Surgical Services, Research Faculty
- Peter C. Frommelt, MD
  Cardiology
- Salil Ginde, MD, MPH
  Adult Congenital Heart Disease
- Joseph R. Cava, MD, PhD
  Cardiology
- Aoy Tomita-Mitchell, PhD
  Research Faculty
- John Baker, PhD
  Research Faculty
- Peter Bartz, MD
  Adult Congenital Heart Disease
- Michael Mitchell, MD
  Director of Regional Surgical Services, Research Faculty
- David Gutterman, MD @ HHI
  May 22nd, 7-8am
- Julie Freed, MD, PhD @ HHI
  Aug 7th, 7-8am
- Saif Ginde, MD, MPH @ CVC H4950
  Sep 12th, 12-1pm
- Jennifer Strande, MD, PhD @ HHI
  Oct 30th, 7-8am
- Michael Earing, MD @ CVC H4950
  Nov 21st, 12-1pm

HHI seminars held in the 1st floor of CHW’s west tower

Funded in part by the Advancing a Healthier Wisconsin Endowment grant awarded to the Cardiovascular Center by the Research and Education Program Endowment, a component of the AAH endowment at MCW.
**Effect of Probiotic Supplementation on Endothelial Function**
To determine whether daily supplementation with the probiotic Lactobacillus plantarum 299v improves the function of blood vessels in patients with coronary artery disease.
**Primary Investigator:** Michael Widlansky, MD, MPH
**Sub Category:** Advanced Heart Failure

**SynCardia 50cc Temporary Total Artificial Heart (TAH-t) as a Bridge to Transplant (BTT)**
The purpose of this study is to evaluate whether the 50cc TAH-t can support patients who are imminent risk of death from biventricular heart failure, are eligible for heart transplantation, and for whom the 70cc TAH-t is not appropriate due to size of the chest cavity.
**Investigators:** David Joyce, MD, Lyle Joyce, MD, PhD; Lucian Durham, MD, PhD; **Paul Pearson, MD, PhD**; Chris Rokkas, MD
**Sub Category:** Advanced Heart Failure

**SynCardia 70cc TAH-t for Destination Therapy (DT) (RA-540)**
The purpose of this research study is to evaluate whether the TAH-t can support patients with life-threatening irreversible biventricular heart failure who are not eligible for transplantation.
**Investigators:** David Joyce, MD, Lyle Joyce, MD, PhD; Lucian Durham, MD, PhD; **Paul Pearson, MD, PhD**; Chris Rokkas, MD
**Sub Category:** Advanced Heart Failure

**Efficacy and Safety of LCZ696 Compared to Valsartan on Cognitive Function in Patients With Chronic Heart Failure and Preserved Ejection Fraction (PERSPECTIVE)**
The purpose of the study is to test if the study drug taken twice a day, compared to another drug (called the comparator) taken twice a day, is safe and beneficial to patients with heart failure and preserved ejection fraction, and if it has an effect on various mental abilities such as thinking and memory.
**Investigators:** Asim Mohammed, MD, Nunzio Gaglianello, MD, David Ishizawar, MD, Mitchell Saltzberg, MD, **Nicole Lohr, MD, PhD**; David Marks, MD, MBA
**Sub Category:** Advanced Heart Failure

**Myocardial Ischemia and Transfusion (MINT)**
The purpose of this study is to assess among patients with an acute myocardial infarction and a hemoglobin concentration less than 10 g/dL, if a liberal transfusion strategy with a threshold of 10 g/dL reduces the rate of the composite outcome of all-cause mortality or recurrent nonfatal acute myocardial infarction through 30 days following randomization compared to a restrictive transfusion state.
**Investigators:** Michael Gitter, MD, Matthew Karafin, MD; **Nicole Lohr, MD, PhD**; David S. Marks, MD, MBA
**Sub Category:** General Cardiology

**IPC Claudication**
The purpose of this study is to improve walking distance in patients with intermittent claudication by using ischemic preconditioning.
**Investigators:** Kellie Brown, MD; Brian Lewis, MD, Michael Malinowski, MD; Peter Rossi, MD, **Matt Durand, PhD**; Julie Freed, MD, PhD; and David Gutterman, MD
**Sub Category:** Vascular Surgery and Vascular Interventional Radiology

**Measurement of NonInvasive Blood Pressure in Neonates Through Adults and Special Populations (MISSION)**
To demonstrate that the non-invasive blood pressure (NIBP) measurement algorithms on two commercially available devices provide accurate NIBP measurements in accordance with the guidelines provided by the most recent International Organization for Standardization.
**Investigators:** **David S. Marks, MD, MBA**; Michael Cinquegrani, MD; Panayotis Fasseas, MD
**Sub Category:** General Cardiology

**Quantitative Detection of Circulating Donor-Specific DNA in Organ Transplant Recipients (DTRT-Multi-Center Study) (DTRT)**
To develop and to evaluate an alternative method for quantitative determination of donor-specific cell free DNA in plasma of organ transplant recipients as a marker for organ injury — specifically rejection.
**Investigators:** Nunzio Gaglianello, MD, **David S. Marks, MD, MBA**
**Sub Category:** Advanced Heart Failure

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**CVC Investigators Highlighted in Bold**
CVC’s Mission #3: Training & Education
CVC Seminar Series

Seventeen presentations were held this year, including 12 out-of-state speakers, during the Cardiovascular Center Seminar Series. Presenters were chosen based on recommendations by each of the Signature Programs. Signature Program Leaders polled their members and provided speaker recommendations. This year’s speakers were: Ryan Temel, PhD, University of Kentucky (2/14/2018); Rodney Sparapani, PhD & Alexi Visotcky, MS, Medical College of Wisconsin (3/24/2018); Kathy Griendling, PhD, Emory University (04/18/2018); Ravi Singh, PhD, Baylor College of Medicine (6/06/2018); Kathryn Flynn, PhD, Medical College of Wisconsin (07/18/2018; Community Engagement Focus); Elizabeth Tarling, PhD, University of California, LA (08/24/2018); Jay Horton, MD, UT Southwestern (09/11/2018); Salil Ginde, MD, Medical College of Wisconsin (09/12/2018); L. Gabriel Navar, PhD, Tulane University (09/26/2018); Patrick Pagano, PhD, University of Pittsburgh (10/03/2018); Kenneth Bernstein, MD, Cedars-Sinai (10/24/2018); Jeffrey Whittle, MD, Medical College of Wisconsin (11/07/2018; Community Engagement Focus); Gregory Graf, PhD, University of Kentucky (11/09/2018); Shobha Ghosh, PhD, Virginia Commonwealth University (11/13/2018); Glen Borchert, PhD, University of South Alabama (11/14/2018); Michael Earing, MD, Medical College of Wisconsin (11/21/2018); Katherine Yutzey, PhD, Cincinnati Children’s Hospital (12/05/2018)

Work in Progress

The format of these seminars is a highly-interactive forum on a focused topic in which attendees discuss the aims of an unsubmitted grant or controversial findings from the laboratory, obtain broad input regarding a new investigative direction, or receive feedback for a revised grant application by a mini-study section prior to resubmission. Overseen by the Cardiovascular Center’s Senior Associate Director, David Gutterman, MD, materials for discussion are distributed prior to the seminar to three Cardiovascular Center members who have expertise in the topic to be discussed who act as assigned discussion facilitators.


Cardiovascular Center/Herma Heart Institute Collaboration Seminars

In the Spring, Cardiovascular Center leadership met with Herma Heart Institute leadership with the goal of enhancing collaborations and interactions between the centers to advance translational research in pediatric clinical cardiovascular care. From this, the Cardiovascular Center/Herma Heart Institute Collaboration Seminar Series was born, a 5-part breakfast or lunch hour-long presentation series, half being held in the Cardiovascular Center at the noon hour and half being held at the Herma Heart Institute early in the morning in the Spring, Summer and Fall. The inaugural seminar, presented by David Gutterman, MD at the Herma Heart Institute drew more than 35 clinicians and scientists.

Trainee Seminars


CVC Staff: Andrew Barr, Research Program Coordinator; Erin Theriault, MS, Research Program Coordinator III; Militza Bonet-Vazquez, MPH, Program Manager
Supported by CVC Central, Programmatic, and AHW Funds
This is a new institutional NRSA application for postdoctoral training (2 slots/year) of MDs and PhDs at the Medical College of Wisconsin’s (MCW) Cardiovascular Center (CVC) in Milwaukee, WI. Building on excellence in cardiovascular research, this valuable training opportunity will leverage new CVC leadership, the renewal of the Clinical and Translational Science Institute of Southeast Wisconsin’s Clinical and Translational Science Award, strong institutional support, and recent philanthropic support by the A. O. Smith Fellowship Scholars Program to fund additional trainee recruitment and an adequately-resourced training environment. The Directors, Drs. Benjamin and Gutterman, are established physician-scientists and experienced administrative leaders who, along with an additional 32 basic scientists and translational investigators, will serve as mentors. Our training program is supported by our unique strengths: 1) specific areas of scientific excellence (“Signature Programs”) in the areas of atherosclerosis and thrombosis, vascular biology, precision cardiovascular medicine, and hypertension, 2) a highly-integrated collaborative research environment, and 3) access to an extensive research infrastructure. A rigorous nationwide selection process using innovative tools (e.g., Knack.it®, Meyer-Briggs®, and career path assessments) will aid in our trainee selection and optimize matching of trainees to mentors. This 3-year training commitment emphasizes critical components designed to launch/sustain research careers: 1) individualized development plans (IDPs), 2) personalized multidisciplinary mentoring teams, 3) training in core competencies, and 4) industry/biotechnology or scientific liaison career options for trainees not pursuing a traditional career in academia. The IDP will include foundational elements of progressive responsibility, coordination across multiple levels of translation, interactions with cardiovascular and non-cardiovascular scientists, peer-to-peer learning opportunities, specific course work, seminars, and conferences. Trainees will meet with primary mentors weekly to confirm IDP milestones are met, including at least one grant submitted in Year 3 and training in core competencies of ethical conduct of research, grant and manuscript writing, study design and management, reproducibility of data, and communication (mentoring, teamwork, networking, and oral presentation skills). Collectively, we anticipate that more than 50% of our trainees will transition, upon completion, into competitive faculty positions with peer-reviewed funding to support independent academic positions. Along with the Directors and an Associate Director, an Executive Committee, composed of 6 multi-departmental MCW faculty with extensive experience with career development, leadership, and directing training grants, will provide program oversight and monitor trainee progress every 6 months. An External Advisory Committee will comprehensively review the training program annually. Overall, the ultimate goal of this training program is to train the next generation of cardiovascular scientists, including underrepresented minorities, by incorporating broad-based, personalized, supportive, and rigorous training opportunities.
Faculty Mentors

Faculty mentors are listed below in their primary group affiliations though some mentors may work in more than one research area:

**Atherosclerosis, Thrombosis & Vascular Biology:** Andreas Beyer, PhD; William Campbell, PhD; Magdalena Chrzanowska-Wodnicka, PhD; John Corbett, PhD; Hubert Forster, PhD; Albert Girotti, PhD; David Gutterman, MD; David Harder, PhD; John Imig, PhD; Elizabeth Jacobs, MD, MBA; Balaraman Kalyanaraman, PhD; Girija Konduri, MD; Q. Robert Miao, PhD; Robert Montgomery, MD; Peter Newman, PhD; Kirkwood Pritchard, Jr., PhD; Ramani Ramchandran, PhD; Daisy Sahoo, PhD; Roy Silverstein, MD; Brian Smith, PhD; Mary Sorci-Thomas, PhD; Michael Widlansky, MD, MPH; David X. Zhang, MD, PhD.

**Cardiac Biology and Heart Failure:** John Auchampach, PhD; Tom Aufderheide, MD; Xiaowen Bai, MD, PhD; Paul Goldspink, PhD; Dorothee Weihrauch, DVM, PhD.

**Hypertension:** Allen Cowley, Jr., PhD; Andrew Greene, PhD; Srividya Kidambi, MD; Alison Krieger, PhD; Mingyu Liang, MB, PhD; Julian Lombard, PhD; David Mattson, PhD; Andrey Sorokin, PhD; Alexander Staruschenko, PhD.

**Precision Cardiovascular Medicine:** Ivor Benjamin, MD; Zeljko Bosnjak, PhD; Ulrich Broeckel, MD; Michael Flister, PhD; Aron Geurts, PhD; Rebekah Gundry, PhD; John Lough, PhD; Michael Mitchell, MD; Jennifer Strande, MD, PhD; Aoy Tomita-Mitchell, PhD.

Our program faculty are a group of experienced mentors having a primary affiliation with the CVC. They were selected because of their sustained success in securing extramural funding (average of $665K per mentor), impactful and prolific publication records, experience in forging collaborations, and passion for and success in mentoring trainees. Each of the mentors has research interests that align with at least 1 of the 4 Signature Programs. The selected faculty are diverse, representing both basic science and clinical realms.
Training the Next Generation of Cardiovascular Researchers

The Medical College of Wisconsin Cardiovascular Center National Institute of Health T32 Postdoctoral Training Program is drawing top talent and helping to prep the next crop of innovative heart researchers.

Christine A. Klemens, PhD, who was born in Pittsburgh but spent her high school years in Green Bay, always knew she’d have a career in medicine. “My dad was a doctor, and mom was a dentist. It never occurred to me that it wasn’t an option,” says Dr. Klemens, one of two inaugural postdoctoral trainees on the Medical College of Wisconsin (MCW) Cardiovascular Center (CVC) National Institute of Health (NIH) T32 Training Program.

The program, which debuted in 2017, was created to help launch the careers of top cardiovascular researchers across the nation, whether in academia, medicine, the private sector or elsewhere. It is supported by a five-year $1.6 million grant from the NIH National Heart, Lung, and Blood Institute as well as funding from the A. O. Smith Foundation.

“Through this program, we’re able to support our mission of training the next generation of cardiovascular scientists. The path to achieving that important goal requires personalized, supportive and rigorous training that will prepare these individuals for successful careers,” says Ivor Benjamin, MD, professor of medicine at MCW, director of the CVC and co-director of the CVC’s T32 Program.

Fellow co-director, David Gutterman, MD, Northwestern Mutual professor of cardiology and senior associate director of the CVC, describes the program as providing three years of supplemented stipend support, tuition and a training allowance for postdoctoral fellows with an MD, PhD, DO or PharmD. Trainees are mentored by teams of faculty embedded within the CVC’s Signature Programs: Precision Cardiovascular Medicine; Cardiac Biology & Heart Failure; Atherosclerosis, Thrombosis, & Vascular Biology; or Hypertension.

“These unique strengths of our training program allow MCW to draw from a pool of some of the nation’s top talents in cardiovascular research,” adds Dr. Gutterman.

INVESTIGATING HYPERTENSION

Dr. Klemens is one of the first trainees appointed to the program. She studied molecular biology at the University of Wisconsin-Madison and earned her doctorate in cell biology and molecular biology at the University of Pittsburgh. Her doctoral work focused on characterizing the role of a scaffolding protein, ankryin G, in kidney function.

As part of her T32 training within the CVC’s Hypertension Signature Program, she’s working in the laboratory of her program mentor, Alexander Staruschenko, PhD, professor of physiology, and is co-mentored by Oleg Palygin, PhD, assistant professor of physiology. Under their guidance, Dr. Klemens is seeking to better understand how mutations in a voltage sensitive chloride channel affect blood pressure control in the kidneys.

“If we can better understand the various mutations of the chloride channel, more effective treatments for high blood pressure are possible,” Dr. Klemens says.

High blood pressure, also known as hypertension, is an ailment that affects more than 100 million Americans, according to the American Heart Association, and can put individuals at increased risk to suffer kidney failure, stroke and heart attack, Dr. Klemens adds. Through her research, she hopes to shed more light on chloride channel 6, describing it as an understudied transmembrane protein.

“No one really has a strong idea of what this particular protein does. There’s very little research on it,” she says.

Dr. Staruschenko, who began studying this channel several years ago, says having someone with Dr. Klemens’ skill set in the laboratory is a great benefit.

“When people join my lab, I always try to see what they can do, what they know and how I can utilize their skill,” he says. “Dr. Klemens is a great communicator and team player who brings a great deal of expertise that will help our research answer very specific questions about the role of chloride channels in hypertension.”
FOCUS ON DIABETES

In addition to appointing a T32 trainee in its Hypertension Signature Program, the CVC recruited a postdoctoral trainee into its Atherosclerosis, Thrombosis & Vascular Biology Signature Program. Jennifer S. Stancill, PhD, joined the lab of her primary mentor, John Corbett, PhD, chair and professor of biochemistry, just a few months ago and is co-mentored by Rebekah Gundry, PhD, associate professor of biochemistry. Dr. Stancill received her Bachelor of Science at the University of North Carolina, her home state, in 2011 and went on to earn her doctorate in cell and developmental biology at Vanderbilt University last year. She will be working on a project that builds upon her doctoral research on gene expression and beta cell physiology by investigating why beta cells become dysfunctional in type 2 diabetes.

“Beta cells help regulate blood sugar levels, but in type 2 diabetes, these cells fail,” Dr. Stancill explains. “The ultimate goal of my research is to better understand mechanisms contributing to beta cell failure and to find out why this happens in some individuals with insulin resistance, but not in others. The goal for the entire community of researchers in this area is to understand why beta cells are failing and possibly reverse it.”

An estimated 30 million Americans have diabetes, more than 9 percent of the U.S. population, according to data from the Center for Disease Control (CDC) National Diabetes Statistic Report for 2017. In recent years, diabetes has ranked in the top 10 leading causes of death in the United States and people with diabetes are at a greater risk for heart disease and stroke, found the report.

According to Dr. Corbett, researchers within the diabetic community think that beta cells are extremely sensitive to oxidative stress, but studies from his laboratory suggest otherwise. Dr. Stancill, along with six other researchers in Dr. Corbett’s laboratory, will help bring new knowledge to this area with her experience in genetics and prior research on how gene expression is controlled in beta cells.

“She’s a wonderfully creative scientist who is not afraid to try anything new. The team is combining her expertise with theirs to push the boundaries of this study,” Dr. Corbett says.

As co-directors of the T32 program, Drs. Benjamin and Gutterman laud this work as it is likely to provide insights into how beta cells function, insights that could be the key to unraveling new treatments for diabetes and lowering the risk for heart and blood vessel diseases.

ADVANCING INNOVATION THROUGH EDUCATION

Aside from honing research skills with oversight by mentoring teams, other major components of the CVC’s T32 Program are the creation of an Individualized Development Plan (IDP) and structured guidance in cultivation of professional skills, including writing grants and publishing manuscripts.

The IDP, according to Dr. Benjamin, tailors training to match the career goals of each trainee while ensuring that all foundational elements of professional skills are learned. This living document provides a roadmap for training that is constantly being monitored and modified by mentors and trainees and also encourages trainees to continually assess their own skills and interests and how they can be matched with the array of resources at MCW.

“That way we can optimize their training,” says Dr. Benjamin, “and it will allow MCW an opportunity to take advantage of its excellent resources and vaulted position as an academic medical center.”

The CVC will add two new trainees annually over the next four years. The plan is for the trainees to continue to connect with the four broad priority areas within the CVC: studying personalized medicine and heredity; heart structure and function; plaque, clots and blood vessel health; and high blood pressure.

As for Dr. Stancill, who plays clarinet in a Wauwatosa community band, and Dr. Klemens, who has a trained therapy dog and enjoys hiking, their career goals are to become primary investigators in their own laboratories. They both feel strongly that participation in the CVC’s T32 Training Program is a giant step in that direction.

“The Medical College of Wisconsin Cardiovascular Center has an excellent track record of producing researchers that proceed to the next level.” Dr. Klemens says. “I strongly believe I’m being provided with the right guidance and academic support in order for that to happen.”
The Cardiovascular Center at the Medical College of Wisconsin (MCW) has appointed Moua Yang, PhD as the third postdoctoral trainee in the Cardiovascular Center’s T32 postdoctoral training program sponsored by the National Institutes of Health.

Dr. Yang received his bachelor of science in biology at the University of Wisconsin-Stevens Point in 2012. He received his doctorate in cell biology in 2018 in the laboratory of Roy Silverstein, MD, the Linda and John Mellowes Professor and Chair of Medicine at MCW. His primary mentor for the T32 program is Brian Smith, PhD, assistant professor of biochemistry at MCW and member of the Cardiovascular Center’s Atherosclerosis, Thrombosis and Vascular Biology Signature Program. With expertise from his doctoral studies in how blood clots are formed, Dr. Yang’s postdoctoral training will expand scientific knowledge regarding the role of oxidative modifications of proteins, free radicals and inflammation in blood clot formation (also known as thrombosis) within blood vessels filled with atherosclerotic fatty plaques, a common occurrence in patients with cardiovascular disease.

“The long-term goal of my work is to decrease the burden of cardiovascular disease caused by thrombosis and plaque build-up in the arteries, which together, are the leading cause of death and disability in people with cardiovascular disease,” Dr. Yang said. “I am also proud to represent the Hmong community of Wisconsin as a researcher.”

Building on excellence in cardiovascular research, the Cardiovascular Center’s T32 postdoctoral training program, “Training in Signature Transdisciplinary Cardiovascular Sciences,” is funded by a $1.6 million grant from the National Heart, Lung, and Blood Institute that provides support for two new postdoctoral training slots each year. The grant provides up to three years of training for appointed postdoctoral fellows in the Cardiovascular Center with an MD, PhD, PharmD or DO degree.

The goal of this training program is to train the next generation of cardiovascular scientists, including underrepresented minorities such as Hmong Americans, by incorporating broad-based, personalized, supportive and rigorous training opportunities.

Dr. Yang joins two other postdoctoral fellows in the Cardiovascular Center’s T32 postdoctoral training program, Jennifer Stancill, PhD and Christine Klemens, PhD.

Ivor Benjamin, MD, professor of medicine and director of the Cardiovascular Center at MCW and David Gutterman, MD, Northwestern Mutual Professor of Cardiology and senior associate director of the Cardiovascular Center at MCW, are co-directors. Complementary support for trainees is provided by a grant given to the Cardiovascular Center by the A. O. Smith Foundation for the A. O. Smith Fellowship Scholars Program, a program designed to support talented cardiovascular researchers and physicians to overcome the barriers that exist in launching and sustaining a successful research career.

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2018 CVC Research Retreat: Postdoctoral fellows, clinical fellow, medical students, and graduate students received experience in presenting their research using posters and oral presentations. $300 and $100 awards were given to the best posters. Time was set aside for networking. The CVC sponsored a lunch reserved only for CVC trainees in which they met with the retreat’s keynote speaker, Joseph Hill, MD.

CVC Trainee Seminars, Workshops, and Networking Opportunities:
- CVC Trainee Development Series, “Emotional Intelligence”, MCW Human Resources and Talent Development Office, 3/13/2018
- CVC Trainee Development Series, “Hacking the Academic Job Market”, Karen Kelsky, PhD, 5/16/2018
- CVC Trainee Development Series, “Crucial Conversations”, MCW Human Resources and Talent Development Office, 6/12/2018
- CVC Trainee Development Series, “Effective Teams and Group Decision Making”, MCW Human Resources and Talent Development Office, 7/24/2018
- CVC Trainee Development Seminar, “Effective Presentation Skills”, MCW Human Resources and Talent Development Office, 9/18/2018
- CVC Trainee Lunch & Learn, Q & A with CVC Research Retreat Keynote Speaker, Joseph Hill, MD, 10/18/2018
- CVC Trainee Research Presentations, CVC Research Retreat, 10/19/2018
- CVC Trainee Poster Session, CVC Research Retreat, 10/19/2018

Trainee E-newsletter: Each month, the CVC distributes an electronic newsletter to CVC postdoctoral fellows containing announcements, a list of upcoming cardiovascular-related seminars, training opportunities, postdoctoral, faculty, and industry job listings, scholarship information, etc.

Trainee E-Digest: Each month, the CVC distributes an electronic digest to CVC postdoctoral fellows containing information to assist with the fundamental understanding of the essential “outside-of-the-laboratory” research skill required to be a successful scientist.

CVC Members Teaching Professional Skills:
- “Putting the U in Lab Utilization”, Jason Jarzemowski, MD, PhD, 7/20/2018
- “Advancing the Art & Science of Community Engagement”, David Nelson, PhD, MS, 2/26/2018
- “Science Outreach Opportunities to Stimulate Interest in the Next Generation”, Panel Discussion with Brian Hoffmann, PhD, 4/29/2018

T32 Grant: In May 2017, the CVC was awarded a $1.6 million five year grant that provides up to three-years of training for postdoctoral fellows with an MD, PhD, PharmD, or DO degree (two new slots/year). This is one of only six postdoctoral T32 training programs on the entire Milwaukee Medical Regional Campus. And to-date, 3 postdoctoral fellows have been appointed.

Postdoctoral Appreciation Events:
- “Monday Morning Postdoc Coffee & Donuts”, 9/17/2018
- “Wine & Wisdom Science Soiree” in honor of National Postdoc Appreciation Week, 9/21/2018

CVC Staff Support: Erin Theriault, MS, Research Program Coordinator III
CVC’s Support of Summer Student Internships

500 Stars Initiative: 3 Students Supported in Summer 2018 by the CVC’s Cullen Funds: Jordan Palmer (Mentor = Bin Ren, PhD), Eden Charles (John Meurer, MD), Claire Piehowski (Jennifer Strande, MD, PhD)

The Clinical Translational Science Institute (CTSI) 500 Stars Initiative is a ten-year, multi-institutional, comprehensive educational & workforce diversity plan focused on increasing under-represented minority (URM) students in the translational workforce. Its vision is to enrich the southeast Wisconsin translational research workforce through promoting inclusion and diversity by providing training and educational opportunities to students of diverse background in high school, undergraduate, and graduate programs who are looking for a career in clinical and translational science. Past Mentors are Drs. Widlansky & Strande.

DSHREP & ROADS: 3 Students Supported in Summer 2018 by the CVC with Funds from the Cullen Family Healthy Heart Research Program: Cordero McCall (Mentor = Ivor Benjamin, MD), Ian Carroll (Matt Scaglione, PhD), Gabriela Castro (Dorothee Weihracha, DVM, PhD)

CVC members have promoted diversity in the biosciences and increased their community engagement by acting as mentors to over 60 undergraduate students participating in the Diversity Summer Health-Related Research Education Program (DSHREP) and Research Opportunity for Academic Development in Science (ROADS) since these programs began, competitive programs that provide research opportunities to individuals from disadvantaged backgrounds, underrepresented cultural and ethnic groups, and individuals with disabilities.

Medical Student Summer Research Program: 2 Students Supported in Summer 2018 by the CVC’s Cullen Funds: Ashley Wong (Mentor = Anna Palatnik, MD), and Kristina Savage (Mentor = Leonard Egede, MD, MS)

The Medical Student Summer Research Program is a full-time summer fellowship program. It is awarded to MCW medical students who wish to gain valuable research experience between their first and second years of medical school. Students are placed on a research team, and their skills are shaped through the guidance of our seasoned MCW faculty. While actively engaged in their research, students observe how new discoveries translate into the development of new drugs, devices and treatment modalities, while exploring potential research careers. Publishing and presenting their research breakthroughs are two important program goals.

Past Mentors are Drs. Hong & Gebremedhin.

Summer Program for Undergraduate Research: 1 Student Supported in Summer 2018 by the CVC with Programmatic Funds

CVC Mentor: Brian Hoffmann

The Summer Program for Undergraduate Research (SPUR) has provided hands-on research experience to over 1,000 students, many of whom have since made significant contributions through S.T.E.M.-related positions. SPUR hosts roughly 30 participants each summer from across the country who gain valuable research experience, refine critical thinking skills, build upon academic and professional networks and are introduced to various health science disciplines and academic medicine. Participation preference is typically given to current sophomores and juniors with a GPA of 3.2 or higher that are majoring in a S.T.E.M.-related program.

Past Mentors are Dr. El-Meanawy.
CVC’s Mission #4:
Community Engagement
MCW News—Congratulations to Matthew Durand, PhD, assistant professor of physical medicine and rehabilitation and a Cardiovascular Center faculty member, and his community partner, Una Van Duvall, Development Director at HeartLove Place of Milwaukee, for their funded proposal, “The Harambee-Hoja Partnership: A Park-Based Intervention to Increase Physical Activity in Under-Resourced Communities.”

The Cardiovascular Center (CVC), in collaboration with the MCW Office of the Senior Associate Dean for Community Engagement, is supporting this $50,000 award with its Advancing a Healthier Wisconsin Research and Education Program parent award, “The Cardiovascular Roadmap: Bridging our Foundations to ‘Signature Programs’.” The project will access the feasibility of a community-engaged research approach to develop and test a park-based physical activity intervention in Milwaukee’s 53212 zip code, a community with a disproportionate rate of cardiovascular disease.

The long-term objective is to create sustainable park-based physical activity interventions that engage a wide range of community members, ultimately leading to a more active lifestyle and reduced cardiovascular risk among under-resourced communities. If successful, this model may be applied to other parks in urban settings in the city of Milwaukee and elsewhere.

The Cardiovascular Center is committed to improving cardiovascular health in southeast Wisconsin and beyond and engaging the community to eliminate disparities in health outcomes. This project supports promising cardiovascular-focused research in the Milwaukee area and seeks to advance understanding about how community engagement can be done in complex research settings. In addition, the funded project demonstrates clear relevance and importance to the work Dr. Durand does on campus and more importantly, to the community involved in the project. The project encourages sustainability and an authentic community-academic partnership.
Project Funded to Improve Cardiovascular Health and Reduce Stress in Milwaukee Residents

Milwaukee, WI, August, 2018 – The Community Engagement Core, housed within the Office of the Senior Associate Dean for Community Engagement at the Medical College of Wisconsin (MCW), in collaboration with the MCW Cardiovascular Center awarded their second Community Engaged Research (CEnR) Seed Grant with a focus on cardiovascular health and disease.

The MCW CEnR Seed Grant Program seeks to fund promising, early-stage research focused on improving the health of Wisconsin communities, with an emphasis on research that has high possibility of future extramural grant funding. Kirsten Beyer, PhD, assistant professor in the Institute for Health and Equity at MCW and member of the MCW Cardiovascular Center, in partnership with Melody McCurtis, site coordinator and outreach specialist at Metcalf Park Community Bridges, are leading the project entitled, “A Heart Healthy Neighborhood: Reducing Stress Together.”

This community-academic partnership will assess the feasibility of a formal research study using Mindfulness-Based Stress Reduction (MBSR), a program that uses meditation, non-judgmental awareness, and gentle movement to facilitate stress management, in Milwaukee residents at high risk for chronic exposure to stress. The study will also determine whether MBSR can promote heart-healthy behaviors by reducing participants’ stress levels and strengthening their beliefs that they can make and sustain healthy habits such as increasing physical activity and improving eating habits. The overall goal of this study is to lower the risk of cardiovascular disease in a local community where chronic exposure to stress and higher concentrations of poverty and disadvantage increase the risk for cardiovascular disease.

Funding for this 12-month $50,000 award is through an Advancing a Healthier Wisconsin (AHW) Endowment Research and Education Program Fund grant awarded to the Community Engagement Core entitled, “Community Engagement Core Implementation Initiative.”
“Overview of PROMIS and Other Patient-Reported Outcomes Measures in Cardiology”, 07/18/2018, CVC Seminar Series with Community Engagement Focus, Presented by Kathryn Flynn, PhD

“Community-Engaged Research”, 11/7/2018, CVC Seminar Series with Community Engagement Focus, Presented by Jeffrey Whittle, MD

Upcoming: “Building Bridges from Social Isolation in Neighborhood Engagement: A Multi-Level Social Network Intervention to Improve Health of Black Men”, 01/16/2019, Presented by Amy Harley, PhD, MPH, RD, UW-Milwaukee Zilber School of Public Health
Community Engagement

Blood Pressure Screening Project in Local Underserved Latinos

- In partnership with the United Community Center of Milwaukee
- Investigators: David Gutterman, MD (PI), Militza Bonet-Vazquez, MPH, Mark Kaeppler, MD, and Neil Shah, MD, as well as two medical students and a pharmacy student
- Supported by the Northwestern Mutual Foundation via an endowed professorship
- The goal is for students to become community “ambassadors for cardiovascular health”, so that they understand the fundamentals of identifying and management of high blood pressure
- UCC students desiring exposure in a health care field are instructed how to measure blood pressure of family members, are provided with materials to do this, then measure and record the blood pressures they obtain

HYPERTENSION & LATINOS

Major Causes of Death for Hispanic or Latino Males and Females, 2009

- A indicates cardiovascular disease plus congenital cardiovascular disease (ICD-10 I00-I09, Q20-Q28), B, cancer (ICD-10 C00-C97), C, accidents (ICD-10, V01-X99, Y01-Y98); D, diabetes mellitus (E10-E14); E, chronic lower respiratory disease (ICD-10 J40-J47); F, influenza and pneumonia (ICD-10 J09-J18). Source: NCHS.

Information from American Heart Association (heart.org, 2015 Statistical Fact Sheet)

Knowledge changing life

CVC Staff: Militza Bonet-Vazquez, MPH, Program Manager

United Community Center Centro de la Comunidad Unida

David Gutterman, MD
Philanthropy
2018 Steve Cullen Healthy Heart Scholar

Julie K. Freed, MD, PhD
Assistant Professor
Anesthesiology & Adult Cardiothoracic

Education and Training:
- Bachelors of Arts: University of Minnesota
- MD, PhD, Residency, Fellowship: Medical College of Wisconsin

Project: Vitamin B12 for Treatment of Dangerously Low Blood Pressure in Critically Ill Patients

Cullen Summer Research Fellowship for Medical Students

The Medical Student Summer Research Program, directed by Cardiovascular Center faculty David Harder, PhD, Professor of Physiology, Medicine and Pediatrics, is a full-time summer fellowship program. It is awarded to MCW medical students who wish to gain valuable research experience between their first and second years of medical school.

Students are placed on a research team, and their skills are shaped through the guidance of our seasoned MCW faculty. While actively engaged in their research, students will observe how new discoveries translate into the development of new drugs, devices and treatment modalities, while exploring potential research careers. Publishing and presenting their research breakthroughs are two important program goals for the students.

This program relies on philanthropy and a grant from the National Institutes of Health grant. To train our students, who work 40-hour weeks, $4,000 is needed per student to support stipends and partial costs of presenting their research at local, regional, or national meetings. The faculty mentor’s department pays for the other portion of travel and presentation costs.

Cullen Diversity Summer Research Fellowship

Diversity Summer Health-Related Research Education Program (DSHREP) is a competitive program designed to provide research opportunities for undergraduate students from backgrounds that are historically underrepresented in biomedical science, including individuals from disadvantaged backgrounds, underrepresented cultural and ethnic groups, and individuals with disabilities. The target ethnic groups for the program are: African Americans, Mexican-Americans, Native Americans (American Indians and Alaska Natives), Hmong and mainland Puerto Ricans.
The Steve Cullen Healthy Heart Club Run/Walk began 20 years ago in memory of former Milwaukee Alderman, Steve Cullen who died of a sudden heart attack at the age of 40. His father, at age 41, and two brothers, ages 53 and 51, also died from heart disease. The Medical College of Wisconsin Cardiovascular Center is the beneficiary of the funds raised annually by the Steve Cullen Healthy Heart Club Run/Walk, which is held every February near Milwaukee.

**Steve Cullen Healthy Heart Scholars**

2015  
2016  
2017

Supporting the Training of the Next Generation of Diverse Scientists & Physicians in the CVC

- CTSI 500 Stars Summer Internship for Under-Represented Minorities
- DSHREP Summer Internship for Under-Represented Minorities
- ROADS Summer Internship for Under-Represented Minorities
- MSSRP Summer Internship for Medical Students

Supporting Cutting-Edge Core Equipment within the CVC

Salary Support of Staff Who Train CVC Investigators on Use of the Nikon A1 Confocal Microscope: Allows CVC members to be trained in advanced cell imaging free

Maintenance Costs of Nikon A1 Confocal Microscope: Keeping this valuable equipment in working order.
JANUARY 28, 2016  MCW NEWS — The Medical College of Wisconsin (MCW) Cardiovascular Center is the recipient of a grant from the **A. O. Smith Foundation** which will support the creation of the **A. O. Smith Fellowship Scholars Program**. This unique program is designed to support talented cardiovascular researchers and physicians in an innovative educational program that aims to provide mentoring, training, research support, and the necessary resources to overcome the barriers that exist to launching and sustaining a successful research career.

“This contribution provides an unprecedented opportunity to establish our program and support the next generation of talented physicians and scientists whose research could bring about the next treatment that saves a life or prevents a disability caused by cardiovascular disease,” says Ivor J. Benjamin, MD, FAHA, FACC, director of the Cardiovascular Center and professor of medicine at MCW. “The support of the A. O. Smith Foundation demonstrates the strong institutional commitments our innovative training programs have from the community and highlight the ongoing legacy of A. O. Smith as a valued partner.”

**Have a Heart Motorcycle Ride**

The **Annual Have a Heart Motorcycle Ride**, currently sponsored by the **Suburban Milwaukee HOG Chapter**, **Suburban Motors Harley-Davidson**® and **Gruber Law** is held in June each year, drawing about 120 riders. It begins and ends at Suburban Motors Harley-Davidson® in Thiensville. It features a pre-ride light breakfast, 70-mile scenic ride through the hills and countryside of Southeastern Wisconsin, followed by a post-ride lunch with live music, a raffle, and auction. More than $130,000 in proceeds have been raised during this event’s nine-year history. The 2018 Have a Heart Ride was held on June 9, 2018.

**Heart of the Matter**

**July 19, 2018**—The inaugural Heart of the Matter Food & Wine Event took place on July 19 at The Atrium in Shorewood. More than 200 guests participated in this SOLD OUT event! Guests enjoyed a rooftop reception, followed by a four-course dinner paired with award-winning wines prepared by Chef David Magnasco of The Chef’s Table.

MCW President and CEO, John Raymond, Sr., MD, spoke on advancing the health of our communities through exceptional care enhanced by innovation and discovery.

The dinner presentation featured **Dr. Lyle Joyce, MD, PhD.**, professor of cardiothoracic surgery at the Medical College of Wisconsin, who discussed the path he, as well as his son, have taken to get here to Milwaukee and highlighted his patient, Darrin Reasby, who was also in attendance. Darrin, a local baker, benefitted from a lifesaving left ventricular assist device (LVAD) and eventually received a heart transplant and is recovering well. The event raised $135,000 to support the Froedtert & Medical College of Wisconsin Cardiovascular Center.

Many thanks to Presenting Sponsor Medtronic; Research Sponsor A.O. Smith Foundation; and Rooftop Sponsors Abbott, Kohler Company, Lexus of Brookfield & Milwaukee, and Bruce and Janine Smith.
Milwaukee, August 30, 2017 - The Medical College of Wisconsin’s (MCW) Therapeutic Accelerator Program, a recently-established, innovative program within the Department of Pharmacology and Toxicology, has made awards to MCW investigators John Auchampach, PhD, professor in the Department of Pharmacology and Toxicology, Andreas Beyer, PhD, assistant professor in the Department of Medicine (cardiovascular medicine) and Abhay Singh Chauhan, PhD, assistant professor in the School of Pharmacy for their projects:

- “A3 Adenosine Receptor Positive Allosteric Modulators for Chronic Pain”, John Auchampach, PhD
- “A New Approach in Cardiac Oncology: Harnessing Telomerase”, Andreas Beyer, PhD **Program sponsored by the Cardiovascular Center's Smith Family Program for Enhanced Precision Therapeutics**
- "Dendrimer-Resveratrol Formulation for Effective Anti-Inflammatory and Antioxidant Activities via Dermal Application", Abhay Singh Chauhan, PhD

The mission of the Therapeutic Accelerator Program is to facilitate and accelerate discovery of new therapeutics to target human diseases. Directed by John Imig, PhD, professor in the Department of Pharmacology and Toxicology, this program aims to traverse the “Valley of Death,” a term used by the National Institutes of Health to describe the inability of many research discoveries to develop into commercially-available drugs or therapeutics. Leveraging the existing expertise and resources of MCW faculty and their laboratories along with partnerships with the Clinical Translational Science Institute of Southeast Wisconsin, MCW Cardiovascular Center, MCW Drug Discovery Center, School of Pharmacy, and regional academic institutions and businesses, the Therapeutic Accelerator Program bridges the gap from “bench to bedside,” moving basic research findings by MCW investigators toward drug development.

The three funded projects target the prevention and treatment of chronic pain, cardiovascular damage resulting from cancer treatment, and aging. The cardiovascular project is supported in part by funding from the MCW Cardiovascular Center’s “Smith Family Program for Enhanced Precision Therapeutics,” a program made possible by the generous support of the Smith Family.

June 20, 2018 MCW News - Carmen R. Bergom, MD, PhD, assistant professor of radiation oncology and Cardiovascular Center member, is the recipient of the 2018 Michael H. Keelan Jr., MD Scholar Award for her project, “Unique genetic models to identify mediators of radiation-induced heart disease.”

This $50,000 competitive award is made possible by the Michael Keelan, Jr. Research Foundation Grant, an endowment managed by the Greater Milwaukee Foundation and designated for cardiovascular research at the Medical College of Wisconsin Cardiovascular Center.

The fund, established by the Tendick Family, honors the life and career of Michael H. Keelan, Jr., MD, ’60, whose career as a cardiologist spanned several decades. Dr. Keelan is currently an active member on the Cardiovascular Center Boards.

Past recipients are Caitlin O’Meara, PhD (2016), Jacquelyn Kulinski, MD (2016), and Brian Smith, PhD (2017).
As a “Green Center”, the Cardiovascular Center (CVC) is evaluated annually by an External Advisory Board (ESAB) comprised of international experts representing the breadth of cardiovascular sciences. On September 24-25, 2018, the ESAB members met with MCW CVC leadership and provided critical review on CVC initiatives including the progress of four pre-PPG grants initiated in 2017, and met with new clinical leadership of population science, heart and vascular services, and cardiothoracic surgery. A summary of the visit and ESAB recommendations are included herein.

**External Advisory Board Members**
Donna K. Arnett, PhD, MSPH, Dean of the College of Public Health, University of Kentucky (Chair)
Daniel J. Rader, MD, Cardiovascular Institute Program Director, Chief of Translational Medicine & Human Genetics, Seymour Gray Professor of Molecular Medicine, Perelman School of Medicine, University of Pennsylvania
David G. Harrison, MD, Director of the Division of Clinical Pharmacology, Director of the Center for Vascular Biology, Betty and Jack Bailey Professor of Medicine and Pharmacology, Vanderbilt University
Elizabeth M. McNally, MD, PhD, Director of the Center for Genetic Medicine, Elizabeth J. Ward Professor of Genetic Medicine, Professor of Medicine in Cardiology, Biochemistry and Molecular Genetics, Northwestern University
Elizabeth Murphy PhD, Senior Investigator, Head of Cardiac Physiology Section, Laboratory of Cardiac Physiology, National Heart, Lung and Blood Institute
David J. Pinsky, MD, Director and Science Lead of Frankel Cardiovascular Center, Division Chief of Cardiovascular Medicine, Professor of Internal Medicine in Cardiology, University of Michigan Medical School

**Background**
The mission of the Cardiovascular Center (CVC) is to improve the cardiovascular health in southeast WI and beyond. Key elements of the CVC mission include research, translation to patient care, rigorous training, and community engagement to decrease disparities. The Center has been in existence for 26 years, has 147 members, over 50 trainees, and more than 153 funded proposals. The CVC ranks first in WI for federal dollars for cardiovascular research ($77 million in total funding from all sources). In the past year, CVC investigators have generated 465 peer reviewed publications.

The CVC has followed the NIH cancer center model and aspires to being outstanding in six areas: facilities; organizational capabilities; transdisciplinary collaboration; a broad cardiovascular research agenda; institutional commitment; and center leadership. With the ESAB and ISAB advisory boards, the CVC is well positioned to be on par with comprehensive cancer centers as supported by the NCI. The CVC facilities are excellent: They currently occupy 32,000 square feet across more than 20 labs. They have added biostatistical support and they have a T32 postdoctoral training grant (three trainees currently). Other areas of strength include a tissue bank; seminars; e-newsletters, and community outreach (two active programs). They have supported summer student internships with multiple programs.
Evaluation of Progress Towards the Center’s Mission

The MCW CVC has made substantial progress in the past year. Even though MCW has slipped in NIH funding, the CVC is already ahead of the curve. The CVC maintains an impressive track record of NIH funding and has internationally recognized cardiovascular scientists populating its ranks. The recruitment of Dr. Curt Sigmund portends great opportunities for future growth in NIH rank and national reputation.

In response to 2016 and 2017 ESAB recommendations, the CVC has done the following:

Recommendation 1: Combine AT with VB and reduced to four signature programs.
Response:
   a. ATVB combined was awarded a $200K pre-PPG grant. They meet weekly to execute pilot projects to move to PPG submission.

Recommendation 2: Invest in translational scientist and strategic new hires ($20 million). Recruit mid-career and/or exceptional faculty. Embed strong translational investigator in each.
Response:
   a. Five recent tenure track faculty were hired with at least two pending appointments.
   b. Dr. Curt Sigmund was recruited to lead Physiology with his laboratory being 100% located within the CVC; this may further enhance CVC hiring.

Recommendation 3: Increase communication (identify, visibility, shared decision making, evaluation).
Response:
   a. Started town halls, regular ISAB meetings, space and core equipment committee, social media/web presence.

Recommendation 4: Create a CVC community engagement advisory board.
Response:
   a. “Social Health Outcomes Partnership” creation is in progress.

Recommendation 5: Build partnerships with satellite sites, new colleges and Office of Tech Transfer.
Response:
   b. Jointly sponsored MCW Therapeutic Accelerator Program with CVC philanthropic funds, a five-year, $500,000 commitment to traverse the “valley of death”.
   c. Currently partnering with the School of Pharmacy and Center for Advancing Population Sciences for a Spring 2019 Human Population Symposium.

Recommendation 6: Support members by insuring access to high level informatics, biostatistics, and genetics.
Response:
   a. Held a bioinformatics workshop twice.
   b. Co-shared salary support for two biostatisticians for CVC members.
   c. Currently leveraging the Genomic Sciences and Precision Medicine Center with further development in this area anticipated, which will be discussed at future ESAB meetings.

Recommendation 7: Recruit a clinical cardiology chief with strong translational research experience.
Response:
   a. Done.
Recommendation 8: Enhance clinical integration.
Response:
  a. Increased membership with clinicians.
  b. Integrated with cardiology residency program.
  c. Added clinical poster categories and presentations at the 2018 CVC Research Retreat.

Recommendation 9: Hire a project manager to support the pre-PPGs.
Response:
  a. Hiring is in progress.

Recommendation 10: Develop score card to evaluate “Gold” status for Signature Program ranking.
Response:
  a. In progress.

Recommendation 11: Fund pilot projects to set up PPGs.
Response:
  a. Created $1.2M in support to form pre-PPGs and two programs are on track to support submissions of the PPGs in the next two years.

Signature Programs & Affinity Groups
There were initially three signature programs and one affinity group funded, with an emphasis on moving to “Gold” in one or more areas. Gold status would require the following elements: full translation from bench to bedside (e.g., delivering new first in human drug); phase III trials; international recognition; community engagement. Each pre-PPG program was funded in the summer of 2017 at $100K per year (renewable for a second year with demonstrated progress). Recognizing the unique cores that might be needed to move forward with program project grants, a task force was created to evaluate cores that might be needed to bolster the overall program. An RFA was issued for new cores, including services provided and budget. These submissions were peer-reviewed, and finalists presented proposals on September 24, 2018. The CVC is hosting mini-retreats for two PPGs (bringing in external experts, etc.); engaging in site visits to NCI and NHLBI. The CVC expects progress reports every six months from the pre-PPG programs with a PPG submission to follow.

Review of PrePPG Award Progress
Cardiac Biology & Heart Failure (Auchampach)
This pre-PPG is focused on strategies to promote proliferation of cardiomyocytes (CMs) for repair of damaged post-MI tissue as demonstrated in zebrafish/pigs. The fundamental question being addressed is, why do CMs reside in senescent state post MI? The first project evaluates the adenosine pathway and builds on prior experience of the team; the second project addresses the Hippo pathway and the third project the Tip60 pathway. The team has been actively generating publications and have submitted them to build a publication record as they have been working together less than two years. The team meets weekly to review papers/data.

The ESAB is impressed with the progress but concerned about the synergy between projects since there is limited co-dependency of the three projects. The ESAB suggested adding a project with an early stage career investigator because of NHLBI’s new goals, and narrowing the focus to one cell type. Currently, the projects lack synergy. They also need a human component in the research mix. The ESAB suggest use of iPSC-CM or materials from human patients to support their
observations. Scheduling a retreat with the team and outside experts in the next year is recommended.

ATVB (Sahoo)
Three projects in the ATVB pre-PPG are focused on atherosclerosis, an inflammatory process, and specifically, lipoproteins, e.g., HDL is anti-inflammatory (removes cholesterol from macrophages). The fundamental question is, how do scavenger receptors and transporters work to regulate onset of atherosclerosis? Based on the feedback from the 2017 ESAB review, they have created more integration and synergy between projects, added innovation, and are working on adding a fourth project. They have proposed a new core to develop gains of function in mice; inflammation and atherosclerosis phenotyping; and plasma and cellular preparation analysis for better quality control. The investigators have made multiple presentations at ATVB and other national meetings, and have several publications in various stages. They have submitted a multi-PI R01 for PDPE2 in adipose tissue. They have ideas about bringing in the 4th project.

The ESAB is pleased with the progress of this pre-PPG and are impressed with the synergy of the projects. They are on track with meeting deadlines, and this is considered very exciting science. The investigators are urged to bring in the 4th project and to consider the translation of these findings to clinical or pre-clinical settings. There were concerns regarding Seahorse. The ESAB suggests there needs to be a better overarching model. The ESAB suggests consideration of hiring a metabolism expert and also creating a metabolism core, and suggests a more aggressive timeline for submission of the PPG than the proposed 2020 submission goal.

Hypertension (Geurts)
The Hypertension pre-PPG revised their theme after the last ESAB review. In 2017, the ESAB noted that the planned projects lacked cohesion. Rather than submit for a PPG, the investigators have focused efforts on just two of the four projects for submission of a multi PI R01. There are two separate projects now. The first examines molecular networks regulating sex-specific angiogenesis and hypertension, and the second evaluates the plekha7 adherens junction protein which binds p120 catenin and is thought to stabilize the link between cadherins and the microtubule network. They have enhanced their track record of working together, publishing extensively amongst the four investigators with 12 publications.

The progress made in the past year is very good, and the ESAB is pleased with the multi-PI R01 plan. The ESAB recommends further refinement of the focus (perhaps miRs) and reducing the number of cell types. The multi-PI project could benefit from a retreat with a panel of expert consultants specifically focused on the multi-PI project to provide a comprehensive scientific review, ideally within the next six months.

Cardio-Oncology (Medhora/Beyer)
The Cardio-Oncology pre-PPG is evaluating mitochondrial function disparities contributing to CV toxicity from radiation therapy. Radiation induces cellular damage; little is known regarding signaling functions on mitochondria. Strengths of this program include established collaborations among project leaders, importance of the topic being investigated, and potential identification of a readily available therapy for radiation cardiovascular toxicity.

Overall, this program has not made as much progress and many projects are still in their infancy. Some results seem phenomenologic rather than mechanistic, and there is a lack of focus on
understanding mechanisms. The new proposed project 4 is interesting, but needs preliminary data. The ESAB recommends further refinement of the focus with more mechanistic approaches, and more translational research with applications to humans. The project could benefit from a retreat with a panel of expert consultants specifically focused on the cardio-oncology to provide a comprehensive scientific review, ideally within the next six months.

**Visioning a Comprehensive Cardiovascular Center of Excellence**

In the afternoon session on Day 2 of the ESAB’s annual visit, Dr. Benjamin provided his vision of growth and enhancement of the MCW CVC moving forward. Areas of scientific focus are aligned with the NHLBI priorities, and include areas not traditionally pursued by the MCW CVC but of critical importance to the community, including social determinants of health, resiliency, CV health promotion across the lifespan (including children), eliminating CVD-related disease with focus on hypertension, reducing the burden of heart failure with preserved ejection fraction (HFrEF), and prevention of dementia. The CVC has established a collaboration with AHA and also aligns with many of their priorities. AHA has channeled $43 million for basic science research awards over eight years and supports identifying highly promising teams of bimolecular investigators.

The strategic priorities to accomplish this vision are the following:

1. Promote signature programs (fuel research portfolios for winning collaborative multi-investigator awards)
2. Enhance clinical integration (translate discoveries to patient care)
3. Recruit exceptional faculty
4. Enhance programs (create identity; visibility; shared decision making and evaluation)
5. Engage the community (improve education and patient care and reduce disparities)
6. Build partnerships (collaborate with satellite sites, etc.)
7. Grow infrastructure and services (collaborate with CVC investigators and data scientists; IT services)
8. Enhance training

Since enhancing clinical integration is a key strategy, the afternoon discussion focused on integration with population science, heart and vascular services and cardiothoracic surgery.

**Center for Advancing Population Science (Dr. Egede)**

Vision: To become global leader in healthcare transformation through research. Partner within and outside institution to create tangible change in our communities. The goals of the center are to build research infrastructure, recruit and mentor multidisciplinary investigators, build healthier communities, create a pipeline of health services researchers and innovators, and disseminate and implement evidence-based strategies to transform healthcare. They have current impactful projects, including COME ALIVE MILWAUKEE: Community Empowerment and Lifestyle Intervention for Ethnic Minorities. They are conducting a multilevel intervention in 10 zip codes with high-risk, low SES individuals, using a community based-participatory research model to create the cohort. The intervention will be led by community health workers. A second project, INFORM (Impact of Preferences, Shared Decision Making, and Financial Barriers on Colorectal Cancer Screening in African Americans), is recruiting 1,050 African Americans using a model of shared decision making to create the screening intervention. Finally, they have the Rural-Urban Differences in Cancer Disparities which is a collaboration with Marshfield Clinic that will target 2,000-3,000 prior Marshfield cohort members.
The ESAB was pleased to see the progress in the area of population health science, with a particular focus on implementation research. The public health disciplines, primarily in the Institute for Health and Equity will help to build a translational pipeline. The CTSI is another strength that can link the clinical side and research side of the house. The three health systems are using EPIC, and both a data and biorepository have been funded by the medical school. Joint 2025 strategic plan of these health systems is to be a leader in clinical research. Another strength is the agreement between institutions to approve protocols and three institutions are under one IRB. The ESAB is supportive of the growth in the Center for Advancing Population Science and encourages the faculty of the two centers to identify a cardiovascular implementation research project.

Chief of the Division of Cardiology and Director of the Heart and Vascular Service Line (Dr. Saucedo)
The cardiac service line is engaged in five hospitals, and there is a strong partnership with VA. Growth in revenues ~30-35% per year. Vizient ranking at 79th percentile, and the cardiac service line is #2 in market share for EP services. They plan to grow a valve center and AFib center of excellence. They also plan to grow clinical trials to >100 in three years. The cardiac service line is undergoing strategic planning now. The division has 50 cardiologists with 17 fellows, with specialties in EP, advanced heart failure, and advanced imaging fellowships. The service line’s goal is to increase translational scientists and their bandwidth in epidemiology and implementation science.

The ESAB is impressed with the vision and the growth in the cardiac service line. There is a strong interdisciplinary training (e.g., vascular surgery with radiology). Cardiac service line faculty have 20% protected time from research, and they support highly paid faculty on K-awards. The strong cardiac service line with the EMR, biorepository, with their commitment to implementation research is poised to partner with the outstanding basic scientists in the CVC to produce ground-breaking translational research. The ESAB recommends finding avenues to increase opportunities to partner basic, clinical and population scientists. It is critical to operationally join the strengths of the basic science and the strengths in the clinical sciences.

Chief of the Division of Cardiothoracic Surgery (Pearson)
The cardiothoracic surgery program is in rebuilding mode and have doubled cardiac surgeries. They are the only center in WI that does total artificial heart (also does other HF surgeries), and they perform surgery for lung transplant / ECMO. They have many areas of specialty with world-class leaders in surgery conducting surgeries for structural heart defects (catheter based / robotics; heart valve); complex aortic surgery; dysrhythmias; pulmonary thromboendarterectomy (only program in WI); complex cardiac surgery and surgery for ischemic heart disease. Dr. Lyle Joyce is the section chief for adult surgery. MCW serves as the study site for the Syncardia Total Artificial Heart, and Dr. Joyce attends every implant. Dr. Lyle Joyce’s son, David Joyce is the surgical director of cardiac transplantation and did his first commercial implant of heartmate III LVAD – created the first totally implantable LVAD to get rid of the driveline. MCW is hopeful this will be named the MCW VAD. Dr. Michael Salinger – Director of the Structural Heart Program serves as the TAVR proctor for multiple companies. The structural heart team has the fastest growing TAVR program in the country. Dr. Goya Raiker is the director of robotic cardiac surgery and is conducting mitral valve repair and also serves as a proctor for industry. Dr. Pearson’s vision is to “improve the size of the tent for the CVC”. He hopes to create several centers (i.e., mechanical circulatory support; donation after cardiac death; structural heart; robotic surgery; translational vascular physiology initiative).

The ESAB is quite impressed with the substantial growth in the division of cardiothoracic surgery, and the faculty members involved are at the cutting edge of this rapidly evolving field. Rather than break the division into smaller centers, the ESAB believes that growing into a larger center that created the
translational pipeline of research at MCW would create an astounding synergy between one of the best CV basic science units in the country with outstanding clinical experts. The ESAB is delighted that biobanking of samples from cardiac surgical patients has begun, but it is also crucial to partner that with a registry of cardiac surgical patients to go with the biobank. This could be facilitated through the CTSI or the Center for Advancing Population Science. For example, basic research in exosomes could be evaluated in the DCM patient samples and database. For translational research to be successful, the ESAB recommends creating a communication plan, endorsed by the leadership of MCW, that cascades information across the translational divide from basic science to physicians to build a culture of research. Another possible structure is to create an executive team that can create the partnerships.

Executive Summary

1. The CVC is engaged in outstanding fundamental science. This is complemented by MCW’s strong foundation in genomics and genetics research which has played a leading role in the past two decades in defining genomic underpinnings of pathophysiological processes including hypertension and renal disease. This creates an excellent environment for pursuing studies in human genetics of cardiovascular disease. With the recent restructuring of the Genomic Sciences and Precision Medicine Center, an outstanding opportunity exists to pursue genetics and genomics of cardiovascular disease in humans. With a modicum of investment and collaborative organization, MCW could quickly emerge as one of the top institutions in this critically important translational research area. This recommendation is supported by and in part dependent upon recommendations 2 and 3 below.

2. Based on the current and projected research growth, the ESAB recommends for prioritization the creation of a human induced pluripotent stem cell (hiPSC) core in order to i) leverage many existing strengths among CVC investigators and ii) accelerate their translational efforts from basic/discovery science into the clinic. Human iPSCs cell lines (both sexes) are now considered to be best suited for cell-based disease modeling, screening and drug discovery. Both patient-specific and healthy donor-derived iPSCs are routinely generated from various somatic cells such as peripheral blood mononuclear cells (PBMCs), skin fibroblasts, and epithelial cells (urine). However, the ESAB is concerned that existing silos for performing iPSC work are neither cost-efficient nor sustainable at the level of any individual investigator for such a labor-intensive enterprise. Accordingly, major research-intensive institutions have adopted programmatic goals that are linked to such core facilities, standardization for iPSC generation and differentiation, coordination with universal IRBs, pilot studies, and recruitment of subject matter experts. Special synergies of the human iPSC core will add value to MCW’s Cancer and Genomic Science and Precision Medicine Centers, among others. Again, this resource will benefit all signature programs, a majority of pre-PPG applications, and other collaborative work across disciplines, in other centers, and across campus. Performance expectations for a hiPSC core should be linked to a preliminary three-year business plan for upgrading core facilities center, space requirements, and a plan for sources and uses of funds. Along with the Center director, there are almost one dozen individuals with expertise in this field currently among the center membership, ripe for developing a strong and strategic interface between basic science and translation medicine leading to initiation and success with future clinical trials.

3. The CVC and MCW in general would benefit greatly from a comprehensive biobank as a fundamental infrastructure for state-of-the-art translational research. Most upper quartile research-intensive institutions maintain a comprehensive biobank core facility. Presently Pathology maintains a tissue bank that collects and stores human tissue samples from select clinical areas, mostly servicing cancer
investigators. Only a small amount of cardiovascular relevant tissue is procured. With the recent upsurge in surgical volumes, more of this tissue should be captured for fundamental and translational projects. Successful implementation of this recommendation will require commitments from hospital leadership and service line managers, as well as buy in from clinical chairs with direction from the Provost. For example, tissue procurement should be part of a clinical QI effort within the OR. Clinic performance metrics should include the percentage of patients approached about providing consent for collection of tissue for research. A critical initial investment in global consenting of patients, including 1-1.5 FTE to manage tissue acquisition (fresh and processed) is needed for programmatic support across all CVC signature programs. Currently human cardiovascular tissue is required by more than a dozen CVC investigators and supports more than 15 major grant awards.

4. Success of cardiovascular center translational research initiatives requires input and investment from not only the CVC but also from clinical leaders including the Division of Cardiology, Division of CT Surgery, and the Heart and Vascular Service Line. Collaborative investment strategies should be developed to recruit faculty, launch research programs, and support translational research infrastructure. It is crucial that clinical leaders support biobank repository efforts, spearhead clinical research database development, and participate as equal partners in translational research initiatives spawned through collaborations between basic scientists and clinical investigators. MCW having been awarded an AHA Strategically Focused Network in Hypertension is an example of how this translationally collaborative paradigm can be successful. Joint funding of collaborative projects should be supplemented with institutional investment and sustained support. The CTSI may serve as a vehicle for conducting translational projects but direct support for such projects must come from the institution. Pilot funding is needed to initiate momentum in human cardiovascular genomics, iPSCs as an adjunct to precision medicine, and support of investigator-initiated translational cardiovascular research projects.

5. A wealth of clinical information is maintained in the hospitals’ electronic medical records (EMR). MCW has a robust system for anonymizing data and making it available for research. However, to be optimally useful for modern-day clinical research, a more comprehensive information acquisition system is needed. Captured information should be broadened to include imaging data, extracted free text information and other inputs currently not collected to provide a more comprehensive assessment of patient demographics, diagnostic, and therapeutic information. At the time of first contact with the medical system, all patients should be offered an opportunity to consent to having health information and any discard tissue provided for research. The CVC is also advised to pursue obtaining vital data from state and regional health registries to support population and community engagement research programs.

6. Investigators should be encouraged to submit non-modular grants. Study sections do not downgrade applications for being non-modular.

7. Based on the growing opportunities at NIH, the CVC should consider establishing an affinity group in brain health and cognitive impairment including vascular dementia. Neuroscience expertise in this area with advanced imaging capabilities (7T MRI) provide MCW with a technological advantage to pursuing this important area. Other disease- (rather than enabling technology) based affinity groups should be considered (e.g., diabetes and CVD, congenital heart disease).

8. Metabolomics and metabolic profiling are fundamental components of outstanding cardiovascular research programs and having a more formal means of implementing metabolomics and cell energetics
into existing cell biology and physiology research would enhance a wide range of current scientific efforts at MCW. It is recommended that faculty be recruited in this area to build a new program in metabolomics and to coordinate with existing complementary programs in redox biology, cancer, microbiome, inflammation, and vascular biology.

Respectfully submitted,

[Signature]

Donna Arnett, PhD, MSPH, Chair of ESAB
Dean of the College of Public Health
University of Kentucky

Date: 11/15/2018
In 2014, Drs. Ivor Benjamin and John Imig co-chaired a Cardiovascular Working Group of approximately one dozen Cardiovascular Center (CVC) investigators to provide a cardiovascular research strategy. This 15-page document included key goals, national and regional trends, SWOT analysis, requirements and opportunities for cardiovascular growth, resources, and a timeline for development.

The report concluded that the CVC’s three key goals were to:

1) Create clinical “signature programs” that respond to and are fully integrated with community healthcare needs while linking basic, clinical, and population research related to specific cardiovascular diseases.
2) Enhance, align and support renewal of the Clinical and Translational Science Institute (CTSI) in order to sustain the bandwidth of the existing infrastructure to facilitate seamless T0-T5 integration of cardiovascular basic scientists, clinical investigators, healthcare professionals, and community members.
3) Create bidirectional opportunities for engagement and education of MCW research and clinical practice with the community by forming advocacy groups to help prevent cardiovascular disease in Southeast Wisconsin and statewide.

Here, we provide an update on progress towards each of these goals.

### 1) Signature Programs

Over the last four years, the CVC has evolved and honed its Signature Program to best codify its expertise into collaborative teams of investigators. In response to External Scientific Advisory Board (ESAB) recommendations, the CVC’s Signature Programs were distilled to four: 1) Atherosclerosis, Thrombosis, and Vascular Biology, 2) Cardiac Biology and Heart Failure; 3) Hypertension; and 4) Precision Cardiovascular Medicine. These four Signature Programs are supported by smaller, cross-cutting thematic groups called Affinity Groups, which are Prevention, Redox Biology, and Cardio-Oncology.

The Signature Programs meet on a weekly (Atherosclerosis, Thrombosis, and Vascular Biology), monthly (Hypertension), and bi-monthly to quarterly (Cardiac Biology and Heart Failure and Precision Cardiovascular Medicine) basis. CVC staff support these meetings through booking the CVC conference rooms, emailing announcements and reminders to CVC members, and coordinating speaker schedules. Moreover, the CVC provides central funds for each Signature Program to bring in two external seminar speakers each year to speak in its CVC Seminar Series.

Each Signature Program is classified on several elements (Figure 1), three being classified as bronze and one as silver (Hypertension). All are striving for gold and one key element for “Silver Medal” designation is obtaining a team-based multi-PI extramural award such as a Program Project Grant (PPG). Therefore, the CVC sought to invest in each Signature Program by funding...
meritorious pre-PPG applications. The goal of these awards is to leverage PPG or equivalent extramural applications by our Signature Programs in the next two to four years.

After securing brand-new financial commitments from MCW and MCW’s Cancer Center, the CVC pooled its Advancing a Healthier Wisconsin’s (AHW) parent award pilot grant funds to support these pre-PPG awards for all of its Signature Programs. Awards of $100,000 per year, renewable for an additional year, were offered as a competitive funding opportunity. Two applications were allowed per Signature Program with funding available for four awards (seven applications received). With the funding pledged for two awards from the MCW Cancer Center’s director at the time, Ming You, MD, PhD, there was an additional RFA on the topic of cardio-oncology, for a total of $1.2M available for investment!

Carol Williams, PhD, the Kathleen M. Duffey Fogarty Eminent Scholar in Breast Cancer Research, and Peter Newman, PhD, Vice President for Research at the BloodCenter of Wisconsin served as co-chairs of the selection committee. Each application was reviewed by three unbiased experts using NIH’s guidelines and discussed and scored using NIH’s nine-point scale in a study section of 13 to 16 reviewers. The following four applications were funded:

- **Hypertension Signature Program**: Program Director (PD) Mingyu Liang, MB, PhD (Key Personnel: Allen Cowley, Jr., PhD, Andrew Greene, PhD, Aron Geurts, PhD) for his proposal entitled, “Genetic and Epigenetic Mechanisms of Hypertension”
- **Atherosclerosis, Thrombosis, and Vascular Biology Signature Program**: PD Daisy Sahoo, PhD (Key Personnel: Roy Silverstein, MD, Mary Sorci-Thomas, PhD, Albert Girotti, PhD, Michael J. Thomas, PhD) for her proposal entitled, “Metabolic Control of Inflammation in Atherosclerosis by Macrophage Scavenger Receptors”
- **Cardiac Biology and Heart Failure Signature Program**: PD John Auchampach, PhD (Key Personnel: Brian Link, PhD, John Lough, PhD, Caitlin O’Meara, PhD) for his proposal entitled, “Signaling Mechanisms Underlying Cardiac Regeneration”
• Cardio-Oncology Group (funded by Cancer Center-pledged funds): PD Meetha Medhora, PhD/Andreas Beyer, PhD (Key Personnel: Jennifer Strande, MD, PhD, John Baker, PhD, Carmen Bergom, MD, PhD, Christopher Chitambar, MD, Elizabeth Jacobs, MD, Jessica Olson, PhD, Jason Rubenstein, MD, Rodney Sparapani, PhD) for their proposal entitled, “Mitochondrial function disparities contributing to cardiovascular toxicity from radiation therapy”.

Since award, oversight of progress has included the ESAB reviewing written and oral progress reports at months 3 and 12 and the Internal Scientific Advisory Board (ISAB) reviewing progress at month 6. The ESAB notes that at least two of these programs are on track to submit a PPG to NIH in the next two years.

For CVC members not directly involved in the awards, educational and networking opportunities around team science were promoted by holding an open presentation of applications in Spring of 2017 followed by oral presentations of awarded applications in the Fall of 2017 during the Team Science Research Symposium held in the MCW Alumni Center. For the Team Science Research Symposium, more than 70 CVC members and colleagues gathered to hear the early-stage progress of the pre-PPG awardees and commentary by the CVC’s ESAB.

In addition to providing funds for team science, ongoing staff support for regular meetings, integrating new faculty recruits into appropriate leadership positions within the Signature Programs, and the CVC’s NIH-funded T32 postdoctoral training grant being built around the Signature Programs, the CVC is acting on the recommendations of the 2017 ESAB Annual Report, which recognized the need for enhanced support of the pre-PPG initiative with a project manager and mini-retreats given its prospects for an excellent return on investment. The CVC is in the process of hiring a project manager who will help ensure the success of the pre-PPG awards by coordinating communication between program directors and project leaders including regular meetings, managing the evaluation of progress, providing scientific oversight, supply chain coordination, tracking the timing and completion of research projects, adjudicating variance from milestones, and managing of other aspects necessary for creating successful PPG applications.

The project manager will also oversee mini-retreats for some pre-PPG programs during which leaders in the field will be brought to Milwaukee to provide critical scientific review of each project and programs as a whole.

2) Clinical and Translational Research

The CVC is committed to advancing research along the entire translational continuum and as such, has supported multiple initiatives described below:

• CVC Seminar Series: Nikolaos G. Fangogiannis, MD, Albert Einstein College of Medicine, NY (8/26/15); Karl T. Weber, MD, University of Tennessee Health Science Center (9/23/15); Jennifer Pollack, PhD, University of Alabama-Birmingham (10/21/15); Stephanie Watts, PhD, Michigan State University (11/18/15); Nancy Kanagy, PhD, University of New Mexico (12/16/15); Allison Hyngstrom, PT, PhD, Marquette University (1/13/16); Aruni Bhatnagar, PhD, University of Louisville (2/24/16); David Stepp, PhD, Georgia Reagents University (3/23/16); Judy Mueller-Delp, PhD, Florida State University (4/20/16); Joseph Schwartz, MD, MP, Columbia University Medical Center (6/8/16); David Lefer, PhD, LSU Health: New Orleans (9/21/16); Andrey Sorokin, PhD, Medical College of Wisconsin (9/28/16); Pedro Jose, PhD, George Washington University
• **Hiring of the Academic Program and Research Consultant, Allison DeVan, PhD, and Research Program Coordinator, Erin Theriault, MS:** Allison DeVan, PhD filled this position as a full-time employee in November of 2015. She brings a wealth of knowledge in grant writing, scientific writing, and cardiovascular research with four years of postdoctoral training in vascular aging under the mentorship of Douglas Seals, PhD (University of Colorado Boulder). Her first major project involved co-writing a T32 grant for postdoctoral fellow training.

In early 2017, Erin Theriault, who holds an MS in Clinical Exercise Physiology from the University of Wisconsin – La Crosse, was hired as Research Program Coordinator III. Ms. Theriault supports new CVC initiatives for trainee enrichment, outreach, and sub-award management. She has 14 years of experience in the clinical setting, as well as in community outreach and education.

• **T32 Grant:** The CVC submitted an application to the National Institutes of Health (NIH) National Heart, Lung, and Blood Institute (NHLBI) that is rooted in the CVC’s Signature Programs. This $1.6 million five-year grant was successfully funded in May of 2017. It is only one of six postdoctoral T32 training programs on the Milwaukee Medical Regional Campus. The grant provides up to three-years of training for postdoctoral fellows with an MD, PhD, PharmD, or DO degree (two new slots/year). Forty-one basic scientists and translational investigators serve as mentors in a program that is supported by specific research areas of scientific excellence (“Signature Programs”), a highly-integrated collaborative research environment, and access to an extensive research infrastructure. This three-year training commitment emphasizes critical components designed to launch/sustain research careers: 1) individualized development plans (IDPs), 2) personalized multidisciplinary mentoring teams, 3) training in core competencies, and 4) industry/biotechnology or scientific liaison career
options for trainees not pursuing a traditional career in academia. Overall, the ultimate goal of this training program is to train the next generation of cardiovascular scientists, including underrepresented minorities, by incorporating broad-based, personalized, supportive, and rigorous training opportunities.

At this time, the CVC has appointed three postdoctoral trainees to its grant heralding from the Vanderbilt University, University of Pittsburgh, and the Medical College of Wisconsin. Two of the trainees are women and one is an under-represented minority.

- **CVC Community Engagement Seminars:** See #3.

- **Partnership with MCW’s Therapeutics Accelerator Program:** Using support from a generous gift from the Smith Family, the CVC created “The Smith Family Program for Enhanced Precision Therapeutics” to engage and increase the CVC’s efforts to promote translational research through drug development by spanning the void in which early-stage innovations receive critical regulatory and commercialization expertise leading to new therapies. Partnering with the Department of Pharmacology and Toxicology Drug Discovery Center’s new Therapeutic Accelerator Program, “The Smith Family Program for Enhanced Precision Therapeutics” provides basic and translational investigators of the CVC with research grants of $25,000 to $50,000 for five years beginning in 2017.

- **Creation of the Cardiovascular BioRepository:** Efforts in spanning the translational continuum include the creation of a human cardiovascular tissue bank. Directed by David Gutterman, MD, Senior Associate Director the CVC, his established relationships with organ procurement specialists and research expertise in this area expedited the integration of a cardiovascular tissue bank in the MCW Pathology Tissue Bank. After multiple meetings with the MCW Tissue Bank, acquisition of funds from the CVC’s philanthropic board, and creation of a committee for scientific oversight, the Cardiovascular BioRepository began advertising its resources in 2017. CVC members also benefit from CVC philanthropic funds that have been pledged for multiple $2,000 tissue bank grants to support CVC members who wish to procure cardiovascular tissue from the MCW Tissue Bank for cardiovascular research projects.

- **CVC-Funded Biostatistical Support:** Since their hire at a 0.25 FTE level, Rodney Sparapani, PhD and Alexis Visotcky, MS have supported more than 75 CVC members by providing their expertise in biostatistics for over 700 hours. Each year, they give a presentation about their biostatistical services to CVC members. In addition to being available for consultation by appointment, Ms. Visotcky serves as a reviewer for the CVC’s research awards.

- **Faculty Recruits:** Clinical and translational research is being promoted by strategic hires that support the CVC’s Signature Programs and ongoing initiatives. Co-recruits for tenure-track faculty include: Nicole Lohr, MD, PhD (Medicine); Matt Durand, PhD (PM&R); Caitlin O’Meara, PhD (Physiology); Julie Freed, MD, PhD (Anesthesiology); Marcelo Bonini, PhD (Medicine); Michaela Patterson, PhD (CBNA); Benjamin Gantner, PhD (Medicine); Ravi Singh, PhD (Pathology); Curt Sigmund, PhD (Physiology).

Focusing on clinical integration, the CVC was also involved in the selection process of Jorge Saucedo, MD, MBA (Chief of Cardiology and Director of the Heart and Vascular Service Line),
Paul Pearson, MD, PhD (Chief of Cardiothoracic Surgery), Lyle Joyce, MD, PhD (Section Chief of Adult Cardiac Surgery), and David Joyce, MD (Surgical Director of Cardiac Transplantation), key MCW recruits who have significantly boosted clinical volumes, an area of need brought forth in the 2014 SWAT analysis. Indeed Nicole Lohr, MD, PhD, is now leading Cardiology Clinical Trials which helps facilitate the linkage between the CVC and clinical trials for both investigator-initiated as well as major national clinical trials.

- **Hiring of Lacey Roche, BS, Research Support Specialist, and Cardio-Oncology Database Creation:** Recognizing the need for staff support in the building and managing of a cardio-oncology database and biorepository, as well as the need for a person to promote dialog and interaction with clinicians and clinical projects, Lacey Roche was hired in the summer of 2018.

- **CTSI Integration:** As recommended in the 2014 white paper, the CVC partnered with the CTSI in 2016 and 2017 using their infrastructure and resources during the review process for its Cullen Scholar Award. The CVC has also supported the CTSI’s 500 Stars program during the last two summers by providing both financial support as well as mentors for the program.

- **Trainee Seminars, Workshops, E-Newsletters:** With the oversight of the Academic Program and Research Consultant, Allison DeVan, PhD, and hard work of a Research Program Coordinator III, Erin Theriault, MS, a plethora of opportunities were provided this year to post-doctoral fellows to expand their exposure to cardiovascular disease work. Each month, the CVC distributes an electronic newsletter to CVC postdoctoral fellows containing announcements, a list of upcoming cardiovascular-related seminars, training opportunities, postdoctoral, faculty, and industry job listings, scholarship information, etc. A Trainee Digest is also distributed monthly which focuses on a different professional skill topic. including more than a dozen trainee seminars, a monthly trainee e-newsletter, and trainee digest. Trainee Seminars occur once at least every two months, with speakers addressing topics germane to professional skills.

- **Annual CVC Research Retreat:** Each year, this educational and networking event has grown. Initially starting with just 30 attendees, it now has over 150! Held at the Harley-Davidson Museum in downtown Milwaukee, the event features a keynote speaker, faculty and trainee oral presentations, poster session, and poster awards for trainees and staff. Most recently, the retreat has been modified to encourage clinical and translational research by adding poster awards for medical students, medical residents and fellows, and including a clinically-focused oral presentation.

- **“Work in Progress” Seminars:** The format of these seminars is a highly-interactive forum on a focused topic in which attendees discuss the aims of an unsubmitted grant or controversial findings from the laboratory, obtain broad input regarding a new investigative direction, or receive feedback for a revised grant application by a mini-study section prior to resubmission. Overseen by the CVC’s Senior Associate Director, David Gutterman, MD, materials for discussion are distributed prior to the seminar to three CVC members who have expertise in the topic to be discussed who act as assigned discussion facilitators. More than seven seminars have taken place since they were started in mid-2017.
• **CVC Members Awarded American Heart Association Strategically-Focus Research Network on Hypertension**: In 2015, members of the CVC were awarded a $3.7M four-year grant to undertake three integrated projects: “one each in basic science, clinical science, and population science. Mingyu Liang, MB, PhD, is leading the full institutional research team. MCW’s basic science project, led by David Mattson, PhD ’90, is exploring the role of epigenomic modifications in T cells in the development of hypertension in the Dahl salt-sensitive rat. The clinical science project, led by Srividya Kidambi, MD, MS ’08, FEL ’08, is examining the relation between DNA methylation and hypertension in twins, as well as the effect of dietary salt intake. The population science project, led by Theodore Kotchen, MD, is investigating the relation between DNA methylation and hypertension in an African American population.

The epigenomic analysis in all three projects is being undertaken by a team led by Dr. Liang and Pengyuan Liu, PhD. Allen Cowley, Jr., PhD, Chair, James J. Smith & Catherine Welsch Smith Professor of Physiology, and Harry & Gertrude Hack Term Professor in Physiology, serves as training director for the grant and is responsible for building a rigorous, productive, and multidisciplinary training program that ensures the success of the Center, advances the careers of the trainees (post-doctoral fellows), and contributes to our practice of developing the next generation of leaders in hypertension research” (citation: Sara Wilkins, MCW Magazine, Fall 2015).

• **CVC/Herma Heart Institute Collaboration Seminars**: In the Spring of 2017, CVC leadership met with Herma Heart Institute leadership with the goal of enhancing collaborations and interactions between the centers to advance translational research in pediatric clinical cardiovascular care. From this, the CVC/Herma Heart Institute Collaboration Seminar Series was born, a 5-part breakfast or lunch hour-long presentation series, half being held in the CVC at the noon hour and half being held at the Herma Heart Institute early in the morning in the Spring, Summer and Fall. The inaugural seminar, presented by David Gutterman, MD at the Herma Heart Institute drew more than 35 clinicians and scientists.

• **Attracting and Promoting a Diverse Student Body**: The CVC acknowledges the impact of cardiovascular health disparities in communities located in Southeast Wisconsin and have undertaken multifaceted efforts to support, enhance and increase the opportunities for underrepresented minorities (URM) including high school students and undergraduates entering the biomedical workforce and pipeline.

First, CVC faculty have made substantial commitments to the NHLBI-supported summer programs, Diversity Summer Health-Related Research Education Program (DSHREP) and Research Opportunity for Academic Development in Science (ROADS), by mentoring over 75 students from these programs in CVC research labs over the last five years.

Second, we have advocated for and directed philanthropic support to funding opportunities in recent years. For example, during the summer of 2017, the CVC pledged $25,000 to summer research programs, including DSHREP, ROADS, and the CTSI 500 Stars program. The Cullen Family Healthy Heart Research Program, in memory of Steve Cullen, a former Milwaukee Alderman who died of a sudden heart attack at age 40, contributed to this diversity initiative.
Third, MCW along with four leading medical schools (Stanford University, Vanderbilt University, Northwestern University and Boston University) will partner with the American Heart Association (AHA) to foster undergraduate research experiences for URM students. Jeannette Vasquez-Vivar, PhD, Professor of Biophysics and Associate Director: Redox Biology Program is a member on the Oversight Committee of AHA’s Supporting Undergraduate Research Experiences (SURE) Program and member of the CVC. This program will actively target Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs). Similar to the aforementioned DSHREP, the accepted students will be paired on-site with an AHA-funded investigator for either an 8 or 10-week summer research experience or a full semester experience. Through MCW’s a Strategically Focused Research Network (SFRN) award on Hypertension, this pilot initiative will fill three or more trainee slots and additional students may be placed in other AHA-funded labs.

In addition to training these diverse students for entry into the biomedical pipeline, the CVC also recognizes the potential for these trainees to return to MCW for graduate school and postdoctoral training. Indeed, these students may one day fill slots on the CVC’s NHLBI postdoctoral T32 training grant, which has already appointed a URM to its roster in 2018.

In addition, such active engagement has the potential to yield intermediate to long-term dividends for MCW. For example, NHLBI’s Programs to Increase Diversity Among Individuals Engaged in Health-Related Research (PRIDE) Review (RFAs HL-19-001 and HL-19-002) will afford MCW future opportunities to apply for PRIDE extramural funding to support URM postdoctoral fellows to faculty transition and assistant professors who focus on heart, lung, blood and sleep disorders. These are compelling public health issues in minority communities and MCW is well-poised to impact future training of the best and brightest in these fields.

- "Connecting Scientists to Big Data" CVC Bioinformatics Workshop: a four-part workshop series presented by Andrew Vallejos, MS, MCW Department of Biomedical Engineering, in which attendees learned fundamental techniques for managing and integrating large genomic and proteomic data sets using tools readily available at MCW. Because of the popularity of this workshop series, it was held twice in 2018!

3) Community Engagement

- Cardiovascular Health & Disease Listening Session: In late 2016 and under the guidance of MCW’s Community Engagement Core, Dr. DeVan coordinated a “cardiovascular health and disease listening session” involving senior leadership at the CVC, Community Engagement Core, and select community partners to hear about the challenges and perceived issues relating to cardiovascular health and disease in the surrounding communities. Attendees were Ivor Benjamin, MD (CVC, Director), David Gutterman, MD (CVC, Sr Associate Director), Allison DeVan, PhD (CVC, Academic Program and Research Officer), Jane Brennan Nelson (CVC, Administrator), Syed Ahmed (CE Core, Sr. Associate Dean), Zeno Franco (CE Core, Faculty), David Nelson (CE Core, Faculty), Sarah O’Connor (CE Core, Program Manager), Lauren O’Brien (CE Core, Program Coordinator), Ben Van Pelt (American Heart Association), Katie Connolly (American Heart Association), Azure’De M. Williams (American Heart Association), Niki Espy (Neighborhood House), and Kristie Brooke (UWM-Silver Spring Community Nursing Center). In addition to learning what cardiovascular health issues were affecting these...
communities, this listening session helped the CVC gauge the interest of potential community-based organizations in partnering with the CVC.

- **Co-Sponsor of Esselstyn Learning Session**: The CVC co-sponsored a three-hour community event held at MCW on March 14, 2016 entitled, “Prevent and Reverse Heart Disease”, an interactive learning session focusing on the effects of diet on heart disease led by visiting experts Caldwell B. Esselstyn, Jr., MD, and Ann Esselstyn.

- **Hiring of Militza Bonet-Vazquez, MPH**: In January of 2017, the CVC increased its bandwidth in the area of community engagement. Ms. Bonet brings more than 10 years of experience working in academic/community-engaged research development, implementation and evaluation and has worked for a local community-based organization (UCC). As the CVC’s new Community Engagement Project Manager, she devoted her first few months to learning institutional regulations, developing strong partnerships on the Milwaukee Regional Medical Campus and with the external community, assessing the CVC’s capacity for community engagement, and assessing potential community partners’ ability/readiness for cardiovascular health research.

Ms. Bonet also represents the CVC as the CVC’s “Community Engagement Liaison”, served on the 2017 Community Engagement Core’s Community Engagement Week Planning Committee, and serves on the Community Engagement Core-Academic Advisory Council, MCW Global Health Advisory Board, Froedtert Health Community Improvement Advisory Board, and MCW Cancer Center Community Engagement Advisory Board.

- **CVC Community Engagement Seminars/Lunch & Learns**: These educational sessions promoting translational research in the community by CVC faculty and trainees included presentations by: Jessica Olson, PhD (4/21/17), David Nelson, PhD (6/7/17), Miliza Bonet-Vazquez, MPH (6/21/17, 6/28/17), Tom Aufderheide, MD (8/2/17), Jeffrey Whittle, MD (11/7/17), Kathryn Flynn, PhD (8/18/18) During these events, CVC members learned about cardiovascular disparities in Milwaukee, best practices when conducting community engaged research, rationale for conducting community engaged research, and how community engaged research can be integrated into current cardiovascular research.

- **CVC Involvement in MCW's Community Engagement Week**: The CVC accepted an invitation from MCW’s Community Engagement Core to be part of the 2017 Community Engagement Week Planning Committee (Ms. Bonet). CVC faculty and clinical faculty member, Nicole Lohr, MD, PhD spoke about community engaged research during the 2017 MCW Community Engagement Week in April.

- **Co-sponsoring AHW's “Conversations with Scientists”**: In Fall 2017, the CVC assisted AHW with the series “The Life Force Within: Your Heart and Blood Vessels”, a four-part event that invited the public to learn about a range of cardiac-related health issues, including hypertension, personalized medicine, and vascular disease by engaging with scientists and physicians belonging to the CVC.

- **Social Health Outcomes Partnership/Patient Advisory Teams**: After many meetings and discussions, patient advisory teams (PATS) have been put on hold until advisement can be obtained from the CVC’s Social Health Outcomes Partnership (SHOP), a group slated to be formed in FY19.
The specific purpose of the SHOP group is to facilitate the CVC’s mission to create meaningful change at the community level through the implementation of a specific community health improvement agenda developed in conjunction with CVC leadership. SHOP members are expected to provide valuable insights to guide our programs within the community. This includes factors such as cultural beliefs and values that can inform critical aspects of intervention design and improve cardiovascular disease patients’ perspective of healthcare delivery in our institution, thus engaging the public to a greater extent in support of research and clinical programs carried out by the CVC. The SHOP should strive to unite, educate and keep the community informed regarding causes, prevention, diagnosis and treatment of cardiovascular disease.

The SHOP serves in an advisory capacity to the CVC director in regard to the direction and delivery of programs as well as effectiveness of the CVC’s engagement with the community.

- **Upcoming Human Population Symposium**: Plans are currently underway for a symposium in Spring of 2019. The overall goal of this symposium is to create and assess community-related interventions designed to improve cardiovascular health at the population level and decrease health disparities in Southeast Wisconsin. Key partners in this endeavor are the School of Pharmacy and Center for Advancing Population Science.

- **CVC/Office of Community Engagement Community-Engaged Research Seed Grants: Cardiovascular Focus**: These two $50,000 grants are funded by AHW in collaboration with MCW’s Community Engagement Core. The primary goal of the awards is to build the awardee’s capacity to obtain NIH grants or similar extramural awards that involve community-engaged cardiovascular research and to enhance and exchange knowledge, skills and expertise in a collaborative manner between MCW faculty and the broader community.

  The request for applications and review for the first grant cycle took place in the summer and fall of 2017, resulting in an award to Matthew Durand, PhD, assistant professor in Physical Medicine and Rehabilitation and community partner, HeartLove Place of Milwaukee for their proposal, “The Harambee-Hoja Partnership: A Park-Based Intervention to Increase Physical Activity in Under-Resourced Communities”.

  The project is accessing the feasibility of a community-engaged research approach to develop and test a park-based physical activity intervention in Milwaukee’s 53212 zip code, a community with a disproportionate rate of cardiovascular disease. The long-term objective is to create sustainable park-based physical activity interventions that engage a wide range of community members, ultimately leading to a more active lifestyle and reduced cardiovascular risk among under-resourced communities. If successful, this model may be applied to other parks in urban settings in the city of Milwaukee and elsewhere.

  The second grant cycle occurred in the spring and summer of 2018. Kirsten Beyer, PhD, assistant professor in the Institute for Health and Equity at MCW and member of the CVC, in partnership with Melody McCurtis, site coordinator and outreach specialist at Metcalf Park Community Bridges, are leading the project entitled, “A Heart Healthy Neighborhood: Reducing Stress Together.”

  This community-academic partnership will assess the feasibility of a formal research study using Mindfulness-Based Stress Reduction (MBSR), a program that uses meditation, non-
judgmental awareness, and gentle movement to facilitate stress management, in Milwaukee residents at high risk for chronic exposure to stress. The study will also determine whether MBSR can promote heart-healthy behaviors by reducing participants’ stress levels and strengthening their beliefs that they can make and sustain healthy habits such as increasing physical activity and improving eating habits. The overall goal of this study is to lower the risk of cardiovascular disease in a local community where chronic exposure to stress and higher concentrations of poverty and disadvantage increase the risk for cardiovascular disease.

• “Strong Hearts, Strong Communities” Health Campaign: In October of 2017, the CVC gave back to the community during a three-part health campaign in several underserved Milwaukee communities. Activities were coordinated by Militza Bonet-Vazquez, MPH, a program manager in the CVC. More than 75 people were served during these outreach and health screening events that included free blood pressure, blood sugar, other health screenings, and information about cardiovascular health and disease and were made possible with the assistance of Froedtert Hospital Heart & Vascular Service Line, Froedtert Hospital Community Engagement, Froedtert Cancer Center, The Stroke & Rehab Center, Physical Medicine and Rehabilitation and a generous donation from the CVC Board.

Locations and dates of the health fairs were as follows:
- Oneida Tribal Services, Morgan Avenue in Milwaukee, October 3, 2017
- Journey House, Scott Street in Milwaukee, October 4, 2017
- Calvary Baptist Church, Chambers Street in Milwaukee, October 5, 2017

Sincerely,

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