Center for Outcomes Research
Houston Methodist Research Institute

“Leading Health Outcomes by Design”

2020 Annual Report

Director: Bita A. Kash, PhD, MBA, FACHE
Co-Director: Khurram Nasir, MD, MPH, MSc
Associate Director: Farhaan Vahidy, PhD, MBBS, MPH, FAHA

Research Administrator: Jennifer Taylor, MBA
Program Project Manager: Megan Taubert, MHA
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Reflecting on our team’s accomplishments in 2020 — the year of the COVID-19 pandemic — I am mostly humbled and grateful for our team members’ health and commitment and for Houston Methodist at so many different levels. But most significantly, like other institutional departments during this year, our operational agility, innovation and grit was put to test by the COVID-19 pandemic to unprecedented limits. We are humbled, honored, and feel a great sense of accomplishment in having provided value to the institution, which has been front and center in enhancing our understanding of various social and clinical aspects of the pandemic and has also supported COVID-19 specific research infrastructure for Houston Methodist.

The institutional support for our center has been extraordinary. HMRI leadership offered COR a substantial expansion budget beginning in 2020 to provide requisite funds to expand the center’s research activities and resources. These additional funds will be used to support additional FTEs and to develop a robust data infrastructure capacity including the purchase of large data sets to broaden research productivity in priority areas of population health, neurology, heart and vascular care, surgery, transplantation, orthopedic surgery, and cancer. Furthermore, the infrastructure built in 2020 was jointly leveraged with the DeBakey Heart & Vascular Center to develop the Center for Computational & Precision Health (C3-PH), specifically designed to support clinical research endeavors of seven divisions of the clinical cardiology enterprise. Finally, the Center for Health & Nature (CHN) has now secured solid operational funding commitments from both Texas A&M University and Houston Methodist for the next three years as well as philanthropic support for the CHN innovation fund. We continue to grow and make a greater impact on the institution and science as a center.

Looking ahead into 2021, we are preparing to take on a new approach to managing and nurturing a much larger research center and team. We anticipate the Center’s research teams to become even more multi-disciplinary and integrated, expanding the collaborative research model to additional clinical departments and delivering on the Big Data & Artificial Intelligence (BD&AI) pilot projects. Learning and new knowledge will continue to be at the forefront of our new approach to running the center in 2021. As part of this learning and growth phase, I also welcome new ideas from the COR team and friends of COR — ideas that can help us converge various disciplines and skill sets even better and faster towards applied health services research that will lead to better health outcomes by design.

Looking forward to our “new normal” as we embark on 2021!

Bita A. Kash, PhD, MBA, FACHE
Occidental Petroleum Centennial Chair in Quality and Outcomes Research
Director, Center for Outcomes Research, Houston Methodist Research Institute
Co-Director, Center for Health & Nature, Houston Methodist Research Institute
Professor of Outcomes Research, Houston Methodist Institute for Academic Medicine
Adjunct Professor of Healthcare Policy and Research, Weill Cornell Medical College, Cornell University
Co-Director, NSF Center for Health Organization Transformation (CHOT)
Professor, Department of Health Policy & Management
Joint Professor, Department of Environmental & Occupational Health
Texas A&M University School of Public Health
Vision

“Leading Health Outcomes by Design”

Mission

The mission of the Center for Outcomes Research (COR) is to conduct applied team research, develop researchers, and exert national leadership towards improved health outcomes for diverse patient populations by:

- Designing,
- Implementing, and
- Testing & validating innovations in healthcare delivery.

Purpose

Center leadership and scientists ensure that their discoveries impacting patient outcomes are implementable in actual practice. Research findings are disseminated and translated into actionable strategies for healthcare leaders to implement seamlessly.

Organizational Model

The organizational model of the center is based on the expectation that the center’s clinician-scientists from Houston Methodist, research scientists trained in health services research methods at the COR, and researchers from Texas A&M University will collaborate as “multi-disciplinary team researchers” pursuing externally-funded research agendas within the center’s mission, purpose, and research cores. Hallmarks of successful center scientists include a strong record of external funding and a high level of productivity in the publication of manuscripts and in relevant leadership activities at the national level. The center’s infrastructure is designed to assure excellence in research, remove obstacles to research and external funding, decrease research cycle time, and maximize the usefulness of research results. In 2020 we also solidified a distinction between service and research roles among COR scientist and staff. We have had substantial institutional investments into our Data Service Center and Junior Faculty Development program, which are both designed to support clinical scientists and departments across the Houston Methodist enterprise.
COR Organizational Chart

Center for Outcomes Research 2021 Organizational Chart

President & CEO, Research Institute (E. Jones)

EVP, Chief Physician Executive, & Specialty Physicians Group CEO (Phillips)

Director, Center for Outcomes Research (Kash)

Co-Director, Center for Outcomes Research (Nasir)

Associate Director, Center for Outcomes Research (Vahidy)

Administration, Center for Outcomes Research (Taylor)

Data Science Services Center
- Division Chief, Big Data/Al & Health Informatics (S. Jones)
- Division Chief, Faculty Development (Kash)
- Division Chief, Statistics & Research Design (Xu)

Collaborative Research Programs
- Cancer (Chang & Kash)
- Heart & Vascular (Tazhibi & Nasir)
- Transplant (Ghobrial & Menur)
- Surgery (Gibler & S. Jones)
- Neurology (Herner & Vahidy)
- Ortho (Harris & THS)
- System Innovation (Schwartz & Sasangohar)
- Critical Care (Musul & Kash)
- Infectious Disease (TBG & TBG)

Research Programs
- Division Chief, Health Economics & Machine Learning (Nasir)
- Division Chief, Health Equity & Disparities Research (Nasir)
- Division Chief, Population Health Science & HSR (Vahidy)
- Division Chief, Education & Engagement (THS)
- Division Chief, Center for Health & Nature (Kash & Maddock)

IT Services - System Level (Kumar)

Center for Innovation (Schwartz)

Faculty Development - System Level (Lewis)
Overview

This year, the Center for Health & Nature (CHN) had another successful year. The 2020 Health & Nature symposium was a major success, the center secured funding through various sources for research studies, and there was also an increase in media presence. Various media outlets, with focuses in conservation, business, and healthcare, have featured the center and research being done by the center. These outlets include CNN, Wisconsin Public Health, Redesigning Wellness Podcast, Honolulu Civil Beat, TMC News, Dallas News, The Catalyst, Association of Schools & Programs of Public Health, and Houston Business Journal.

2020 Major Accomplishments

• 2020 Health & Nature Symposium
  o CHN convened the 2020 Health & Nature Symposium on October 7th, which focused on the following themes: Nature in Practice – Clinical Solutions; Communities in Nature – the Daily Dose; and InCorporating Nature – Industry’s Role. Due to the COVID-19 pandemic, this year’s symposium shifted from a planned in-person event to an all virtual format. The day consisted of four keynote speakers, three research lightning talks, and an interactive vision panel. The symposium brought together a total of 231 attendees.
  o The CHN Research Innovation Fund has raised over $100,000 YTD to support research projects. Most of the projects awarded during the 2019 cycle of the CHN Research Innovation Fund presented their results at the 2020 Health & Nature Symposium and the two newly awarded CHN Research Innovation Fund projects presented their research plans at the 2020 Health & Nature Symposium. Those two new funded projects are listed below.
    ▪ “Nature-Based Climatic Responsive Community Planning and Design: Promoting Thermal Health Under Future Climate Predictions” (PI: Dongying Li, PhD, MLA)
    ▪ “Grow It Yourself: The Effect of Hydroponic Vegetable Gardening on Improving Quality of Life in Cancer Patients and Their Caregivers” (PI: Taehyun Roh, PhD)

• Funded Research
  o Bayou Greenways Health Impact Study (PIs: Jay Maddock, PhD, FAAHB; Bita Kash, PhD, MBA, FACHE; Khurram Nasir, MD, MPH, MSc)
    ▪ This project is funded by the Houston Parks Board. This is a health impact study to measure the physical and mental health benefits resulting from use of the open access greenspace and trails developed through the Bayou Greenways Initiative 2020.
  o Developing Health Behavior Change Scales for Health & Nature (PI: Jay Maddock, PhD, FAAHB)
    ▪ This project is funded by the Marek Gift. The goal of this study is to develop social cognitive measures for being in nature.
  o Effects of Travel to Natural Environments on Health and Wellbeing. (PI: Jay Maddock, PhD, FAAHB, Courtney Suess, PhD, George Mann, PhD). This project is funded by Texas A&M University. The goal of this study is to understand the effect of nature exposure on restoration and health.
## Faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Position in the Center</th>
<th>Faculty Rank</th>
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<tbody>
<tr>
<td>Bita Kash, PhD, MBA, FACHE</td>
<td>Director</td>
<td>Professor</td>
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<tr>
<td>Khurram Nasir, MD, MPH</td>
<td>Co-Director</td>
<td>Professor</td>
</tr>
<tr>
<td>Farhaan Vahidy, PhD, MBBS, MPH, FAHA</td>
<td>Associate Director</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Miguel Cainzos-Achirica, MD, MPH, PhD</td>
<td>Scientist</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Stephen Jones, MD, MS</td>
<td>Chief Informatics Officer</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Jay Maddock, PhD, FAAHB</td>
<td>Co-Director, Center for Health &amp; Nature</td>
<td>Appointment in Progress</td>
</tr>
<tr>
<td>Terri Menser, PhD, MBA</td>
<td>Scientist</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>George Naufal, PhD</td>
<td>Visiting Scientist</td>
<td>N/A</td>
</tr>
<tr>
<td>Adriana Ordonez, PhD</td>
<td>Biostatistician</td>
<td>Instructor</td>
</tr>
<tr>
<td>Farzando Sastaghar, PhD</td>
<td>Data Scientist</td>
<td>Assistant Professor</td>
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<tr>
<td>Mauricio Tano, PhD</td>
<td>Data Scientist</td>
<td>Appointment in Progress</td>
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<tr>
<td>Susan Xu, PhD</td>
<td>Biostatistician</td>
<td>Associate Professor</td>
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## Affiliated Faculty

<table>
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<tr>
<th>Name</th>
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<th>Faculty Rank</th>
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<tbody>
<tr>
<td>Ohbet Cheon, PhD</td>
<td>Affiliate Faculty</td>
<td>Adjunct Assistant Professor</td>
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<tr>
<td>Mark Hobeika, MD, FACS</td>
<td>Affiliate Faculty</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Linda Moore, PhD, RDN, CCRP</td>
<td>Affiliate Faculty</td>
<td>Associate Research Professor</td>
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<tr>
<td>Joshua Swan, PharmD, MPH, FCCM, BCPS</td>
<td>Affiliate Faculty</td>
<td>Associate Professor</td>
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<tr>
<td>Stephanie Yi, MD, MPH, FACS</td>
<td>Affiliate Faculty</td>
<td>Assistant Professor</td>
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## Staff

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Isaac Acquah, MBChB, MPH</td>
<td>Postdoctoral Fellow</td>
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<tr>
<td>Nima Ahmadi, PhD</td>
<td>Postdoctoral Fellow</td>
</tr>
<tr>
<td>Juha Baek, DrPH</td>
<td>Visiting Graduate Research Fellow/ Postdoctoral Fellow</td>
</tr>
<tr>
<td>Abdulaziz Bako, PhD</td>
<td>Postdoctoral Fellow</td>
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<tr>
<td>Arvind Bambhroliya</td>
<td>Research Data Analyst</td>
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<tr>
<td>Lauren Beal</td>
<td>Research Technician I</td>
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<tr>
<td>Rita Bosetti, PhD</td>
<td>Postdoctoral Fellow</td>
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<tr>
<td>Sara Butt, MS</td>
<td>Data Engineer</td>
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<tr>
<td>Rakesh Gullapelli, MS</td>
<td>Data Scientist</td>
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<tr>
<td>Kobina Hagan, MBChB, MPH</td>
<td>Postdoctoral Fellow</td>
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<tr>
<td>Alexander Henze</td>
<td>Graduate Research Fellow</td>
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<tr>
<td>Zulqarnain Javed, PhD</td>
<td>Postdoctoral Fellow</td>
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<tr>
<td>Name</td>
<td>Position</td>
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<tr>
<td>Amna Khan, MS</td>
<td>Graduate Research Fellow</td>
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<tr>
<td>Osman Khan</td>
<td>Research Data Analyst</td>
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<tr>
<td>Jacob Kolman, MA</td>
<td>Senior Research Assistant/ Senior Scientific Writer</td>
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<tr>
<td>Ethan Larsen, PhD</td>
<td>Postdoctoral Fellow</td>
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<tr>
<td>Jennifer Meeks, MS, CCRP</td>
<td>Program Project Manager</td>
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<tr>
<td>Juan “Charlie” Nicolas</td>
<td>Senior Applications Analyst/ Systems Architect</td>
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<tr>
<td>Marilyn Niravath</td>
<td>Research Data Analyst</td>
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<tr>
<td>Tariq Nisar, MPH</td>
<td>Biostatistician</td>
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<tr>
<td>Nwabunie Nwana, PhD</td>
<td>Data Scientist</td>
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<tr>
<td>Alan Pan, MS</td>
<td>Data Scientist</td>
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<tr>
<td>Aaron Pathak</td>
<td>Undergraduate Research Fellow</td>
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<td>Thomas Potter, PhD</td>
<td>Postdoctoral Fellow</td>
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<tr>
<td>Sharmila Pratap, MSIS, MBA</td>
<td>Senior Applications Analyst</td>
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<tr>
<td>Jacob Siahaan</td>
<td>Graduate Research Fellow</td>
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<td>Bridget Simon-Friedt, PhD</td>
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<td>Alec Smith</td>
<td>Graduate Research Fellow</td>
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<td>Ineen Sultana, MS</td>
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<td>Megan Taubert, MHA</td>
<td>Program Project Manager</td>
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<td>Jennifer Taylor, MBA</td>
<td>Research Administrator</td>
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**Total COR Faculty/Staff**

<table>
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<th>Category</th>
<th>Count</th>
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<td>Affiliated Faculty</td>
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<tr>
<td>Postdoctoral Fellows</td>
<td>10</td>
</tr>
<tr>
<td>Staff</td>
<td>21</td>
</tr>
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</table>
Faculty

**Bita Kash, PhD, MBA, FACHE**
is the Occidental Petroleum Chair in Quality and Outcomes Research, director of the Center for Outcomes Research, co-director of the Center for Health & Nature, professor in the Academic Institute, and a full member of the Research Institute at Houston Methodist. Dr. Kash is also a professor at Texas A&M University’s School of Public Health and is the co-director of a seven-university National Science Foundation (NSF) industry/university cooperative research center – the Center for Health Organization Transformation (CHOT) – anchored at Texas A&M University.

**Khurram Nasir, MD, MPH, MSc**
is the co-director and the division chief of Health Equity & Disparities Research in the Center for Outcomes Research. Dr. Nasir is also the director of Cardiovascular Prevention and Wellness at Houston Methodist DeBakey Cardiology Associates. He is also professor of Cardiology and a Katz Investigator at the Houston Methodist Academic Institute.

**Farhaan Vahidy, PhD, MBBS, MPH**
is the associate director and division chief of Population Health Science in the Center for Outcomes Research and holds the Coneway Family Centennial Endowed Directorship in Quality and Outcomes. Dr. Vahidy recently joined Houston Methodist in January of 2020. Dr. Vahidy is also an associate professor of the Academic Institute and associate member of the Research Institute at Houston Methodist.

**Jay Maddock, PhD, FAAHB**
is the co-director for the Center for Health & Nature. He is also a Professor at Texas A&M University School of Public Health. His faculty appointment at HMAI is currently in progress.
Stephen Jones, MD, MSHI
is the John F., Jr. and Carolyn Bookout Distinguished Professor in Surgical Quality and Outcomes Science in the Department of Surgery, the division chief of Big Data/Artificial Intelligence & Health Informatics in the Center for Outcomes Research, an associate research professor in the Academic Institute, and an associate research member in the Research Institute at Houston Methodist.

George Naufal, PhD
is a visiting scientist and the division chief of Health Economics and Machine Learning in the Center for Outcomes Research. He is also an assistant research scientist at the Public Policy Research Institute (PPRI) at Texas A&M University. Dr. Naufal is working on the Occidental Petroleum funded project “Assessment of Access to Specialty Care Among Underserved Patients”.

Farzan Sasangohar, PhD
is a scientist in the Center for Outcomes Research, an assistant professor in the Academic Institute, and an assistant member in the Research Institute at Houston Methodist. Dr. Sasangohar is also an assistant professor in the Department of Industrial and Systems Engineering and the director of the Applied Cognitive Ergonomics Lab at Texas A&M University. He also serves as the division chief of Health Systems Engineering in the Center for Outcomes Research.

Susan Xu, PhD
is a biostatistician in the Center for Outcomes Research, an associate research professor of Biostatistics in the Academic Institute and an associate research member in the Research Institute at Houston Methodist. She is also the division chief of Statistics and Research Design in the Center for Outcomes Research.
Miguel Cainzos-Achirica, MD, MPH, PhD
is an assistant professor of Preventive Cardiology in the Center for Outcomes Research at Houston Methodist Academic Institute. Dr. Cainzos-Achirica is also the associate director of Preventive Cardiology Research in the Division of Cardiovascular Prevention & Wellness at Houston Methodist DeBakey Cardiology Associates.

Terri Menser, PhD, MBA
is a scientist at the Center for Outcomes Research, an assistant professor in the Academic Institute, and an assistant member in the Research Institute at Houston Methodist.

Adriana Ordonez, PhD
is a biostatistician in the Center for Outcomes Research and instructor in the Research Institute and Academic Institute at Houston Methodist.

Mauricio Tano, PhD
is a data scientist in the Center for Outcomes Research. He is also a visiting assistant professor at Texas A&M University. Dr. Tano recently joined the Center for Outcomes Research in September 2020.
Postdoctoral Fellows

Isaac Acquah, MBChB, MPH
is a postdoctoral research fellow at the Center for Outcomes Research. He earned his medical degree at the University of Ghana School of Medicine and Dentistry and his Master of Public Health Degree at the Harvard T.H. Chan School of Public Health. Using large datasets such as the National Health Interview Survey, Dr. Acquah’s research work at Houston Methodist focuses on financial and non-financial barriers to healthcare access among individuals with cardiovascular disease. Under the mentorship of Dr. Khurram Nasir he is also working on the use of coronary artery calcium as a risk-stratification tool for preventive therapy among individuals without established cardiovascular disease. His other interests include payment systems and healthcare quality and safety.

Nima Ahmadi, PhD
is a postdoctoral fellow at the Center for Outcomes Research. He has a doctoral degree in Engineering Management. His primary area of focus is human factors engineering. Nima is passionate about behavioral assessments, development of training interventions, naturalistic studies, and data analysis. He developed gaze-based training interventions for novice drivers and pilots and investigated burnout and stress of intensive care unit (ICU) clinicians using biometric data and wearable technologies. Furthermore, Nima explored the potential of eye tracking technology in the assessment of ICU nurses’ mental workload. Currently, Nima is working on a study to develop an application for breast cancer survivors.

Juha Baek, DrPH, MPSA
is a postdoctoral fellow at the Center for Outcomes Research (COR). He earned his doctoral degree at Texas A&M University School of Public Health. His doctoral work focused on the effects of ambient air pollution on hospitalization and readmissions for children with asthma. His primary research interests include hospital readmission, hospital-community partnership, asthma/diabetes management and education, health disparity, and environmental health. Dr. Baek’s current research activities are related to effects of nature images on physician burnout, use of patient portal during disaster situations, and community-based specialty care among underserved patients.
Abdulaziz Bako, MBBS, MPH, PhD
is a postdoctoral fellow at the Center for Outcomes Research. His research primarily focuses on health outcomes and social factors associated with health. His prior research has focused on using data mining and text mining tools such as natural language processing and machine learning to understand the impact of social needs and social interventions on health outcomes. At Houston Methodist, Abdulaziz is working with Dr. Farhaan Vahidy to investigate the factors influencing health outcomes for patients with diagnosis of stroke.

Rita Bosetti, PhD
is a postdoctoral fellow in the Center for Outcomes Research. She is a Business Engineer and has a doctoral degree in health economics. Her interests are centered on the health economic aspects of new therapies or treatment options, improving clinical decision-making and healthcare policy. She has experience in the cost-effectiveness of new therapeutics and treatments. Dr. Bosetti’s current research projects include the cost-effectiveness and impact on patient outcomes of new interventions for diabetes and chronic kidney disease in underserved populations. Furthermore, she is working on burnout in ICU nurses and the impact of financial counseling on patient satisfaction.

Kobina Hagan, MBChB, MPH
is a postdoctoral fellow at the Center for Outcomes Research. He obtained his medical diploma from the Kwame Nkrumah University of Science and Technology, and his Master of Public Health degree at the Harvard TH Chan School of Public Health. Dr. Hagan’s research work at Houston Methodist focuses on social determinants of COVID-19 outcomes, especially among cardiovascular disease patients and socially vulnerable groups. Under the mentorship of Dr. Khurram Nasir, he is also working on patient-reported outcome measures in cardiovascular disease populations using National Health Interview Survey and Medical Expenditure Panel Survey datasets. His other interests include sleep disturbances and exercise behaviors in migraine populations.

Zulqarnain Javed, PhD, MPH, MBBS
is a clinical epidemiologist, currently serving as a Fellow in the Center for Outcomes Research. Before joining Houston Methodist, he served as a Healthy Policy Fellow at Morehouse School of Medicine, under the leadership of Dr. David Satcher (16th US Surgeon General), and Visiting Scientist at the Centers for Disease Control and Prevention. Dr. Javed is on a mission to advance the cause of health equity locally, nationally and globally through rigorous translational research, informed dissemination, and partnerships with key stakeholders. He has extensive training in the areas of research design, epidemiological methods and data management, and the application of these skills to leading public health issues of national and global relevance. His
Research focuses on social determinants of health, racial/ethnic disparities in cardiovascular disease, and issues related to access and quality of care in vulnerable populations. Dr. Javed has several years of experience in big data analytics, including the use of large administrative claims and survey databases for health outcomes and comparative effectiveness research. He received his PhD from the University of Texas Medical Branch, MPH from New York Medical College, and MBBS from King Edward Medical University, Pakistan.

**Ethan Larsen, PhD**

is a postdoctoral fellow in the Center for Outcomes Research. He is a graduate of the Grado Department of Industrial and Systems Engineering at Virginia Tech. His doctoral work focused on the impacts on patient safety related to electronic health records and periods when the computer systems are offline. His primary research interests are in healthcare informatics, process improvement, and patient safety. At Houston Methodist, Ethan is working as a postdoctoral fellow with Dr. Farzan Sasangohar on projects related to telemedicine adoption, and to clinician burnout employing eye tracking and biometric smart watches to assess stress, fatigue and burnout, in addition to continuing to pursue his interests in electronic health record safety.

**Thomas Potter, PhD**

is a postdoctoral fellow in the Center for Outcomes Research. He earned his doctoral degree at the University of Houston in Biomedical Engineering, with a focus in functional neuroimaging. His primary research interest is applying neuroimaging to better understand cognition and how it is affected by external factors. His doctoral research focused on developing EEG and fMRI processing methods to better understand the brain’s processing of external and internal stimuli. At Houston Methodist, he is working with Dr. Farhaan Vahidy to explore the imaging markers of Small Vessel Disease and intracerebral hemorrhage, their contributory factors, and their relationship to long-term cognitive outcomes.

**Bridget Simon-Friedt, PhD**

is a postdoctoral fellow in the Center for Outcomes Research. She earned her doctoral degree at Tulane University School of Medicine in Biomedical Science. Her research focused on developing improved toxicological methods for testing exposure to relevant levels of environmental chemicals and mixtures on human health. Dr. Simon-Friedt also examined public health implications of risk assessment and communication for vulnerable populations during disasters. At Houston Methodist, her research explores the differential presentation of sepsis across age groups as well as evaluation of environmental factors and the role of social determinants on health outcomes across Texas.
Overview

In 2020, the Center for Outcomes Research focused on recruitment of new talent, external funding and expansion planning to advance the mission and vision of the Houston Methodist Research Institute. During March 2020, all COR faculty and staff shifted to working from home due to the COVID-19 pandemic. The team remained very productive throughout the course of the year, participating in a total of 38 ongoing internal projects, 145 published articles, and 31 conference presentations. Our core funding from the Houston Methodist Research Institute was $3,222,782. We had a successful year with external funding, with funds secured totaling $419,164.39. More details on these statistics are shown below on our dashboards and through various tables.

In 2020 the center grew even more in terms of size, experience, and effectiveness on all fronts, including number and quality of collaborative projects, publications, grant applications, and external funding. The results from our 2018 strategic plan implementation workshop have been translated into action and are in full alignment with Houston Methodist’s vision for the future: a vision and focus on innovation. Specifically, center leadership has implemented the following changes to the structure of COR:

1) A broader operationally oriented center model that provides support for funding opportunities and innovation across multiple disciplines by leveraging the improved and expanded Big Data infrastructure;
2) A fully integrated in-house statistics, data science, and health informatics team that can meet the needs of the COR collaborative teams and serve as a publication pipeline — particularly targeting high impact throughput; and
3) Knowledge leadership in such areas as population health, neurology, cardiology, critical care, internal medicine, and transplantation in collaboration with our clinical champions.

Philanthropic Funds

The Center for Outcomes Research continues to have success securing philanthropic funds to cover salaries and support research studies. New funding for 2020 includes:

- $100,000 commitment from the Marek family to support the Center for Health & Nature
- $1,000,000 commitment from the Reynolds and Reynolds Company to support infectious disease outcomes research, including the CURATOR database as well as outcomes research from COVID-19
- $2,000,000 commitment from the Walter Fund for Innovation to support the Center for Outcomes, Quality, and Patient Safety Research, which will leverage the science that supports our world-leading quality and safety program, further develop programs to deliver advances in population health, and support patient outcomes research
- $1,000,000 commitment over five years from The Coneway Family Centennial Chair in Quality and Outcomes assigned to support Dr. Farhaan Vahidy’s research in the Center for Outcomes Research

Ongoing philanthropic accounts in the Center for Outcomes Research during 2020 include:

- The TEXAS Project – Leveraging Data to Prevent Readmissions in the TMC: $13,447 available for use in 2020
- Quality Institute Initiative: $22,500 available for the Center for Health & Nature
- Center for Health & Nature Gifts: $126,692 available for use in 2020
- Occidental Petroleum Health Outcomes – Quality of Life Improvement Program and Centennial Chair: $175,000 available for use in 2020
- Designing Systems to Reduce Physician Burnout: A Proof of Concept: $48,959 available for use in 2020
- President’s Innovation Council: funds to cover salaries for the data scientist and statistician to assist junior clinician faculty: $250,000 available for use in 2020.
Major Accomplishments

Recruitment

Even throughout the pandemic, we had another successful year in recruiting. There were 14 positions filled by the end of 2020. Dr. Vahidy, associate director for the Center for Outcomes Research and holder of the inaugural Coneway Family Centennial Endowed Directorship in Quality and Outcomes, and his three team members started at the beginning of 2020. Filled positions included multiple postdoctoral fellow positions, data scientists, data engineers, and statisticians to support the growing needs for data infrastructure and for research collaboration.

Retrospective Research Task Force and the COVID-19 Surveillance and Outcomes Registry (CURATOR)

At the start of the COVID-19 pandemic, a Retrospective Research Task Force (RRTF) was put in place to help with the overwhelming number of COVID-19 study proposals and protocols being generated and submitted at Houston Methodist. The Center for Outcomes Research led the efforts of the RRTF. Houston Methodist leadership together with leadership at the Center for Outcomes Research worked diligently to create an efficient streamlined process that allowed the organization to advance research and create new knowledge in a manner that was validated, efficient and feasible. The RRTF reviewed COVID-19 related study protocols before they were submitted to the IRB. The RRTF met weekly to review retrospective research study protocols that were COVID-19 related and to advise on next steps. Throughout the course of 2020, RRTF reviewed over 60 protocols.

The COVID-19 Surveillance and Outcomes Registry (CURATOR) was established as a comprehensive bioinformatics pipeline linked to a robust data warehouse that supports cross-institutional COVID-19 research. CURATOR is a true operationalization of the Learning Health Care system focus of Houston Methodist. It is an umbrella protocol with an IRB approved scope and governance structure. The data repository is massive collecting detailed socio-demographic, clinical, and outcome information on all COVID-19 tested and vaccinated individuals. The resource has already been utilized for several high impact publications and has provided data for grant submissions. Up-to-date, CURATOR supports over 30 IRB approved protocols across several clinical domains.

Center for Health & Nature

The Center for Health & Nature (CHN) focused on expanding the CHN Innovation Fund and research portfolio. The 2020 CHN symposium was another success. More details regarding the Center for Health & Nature are highlighted on page 6.
<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Submitted Date</th>
<th>HMRI Co-I</th>
<th>Submitted Budget</th>
<th>Awarded Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Effect of Intraoperative Liposomal Bupivacaine on Inpatient Hospital Costs after Colorectal Surgery: A Pharmacoeconomic Analysis of a Single Center, Retrospective, Cohort Study</td>
<td>12/4/2019</td>
<td>Naufal/Swan</td>
<td>$60,242.00</td>
<td>$60,242.00</td>
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<tr>
<td>2</td>
<td>Prediction of Sepsis in a High Risk Post-Acute Care Population</td>
<td>1/5/2020</td>
<td>Masud / Jones (SBIR submitted by Masud)</td>
<td>$81,921.00</td>
<td>-</td>
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<tr>
<td>3</td>
<td>Sepsis Prediction in Post-Chemotherapy Patients with Deep Learning and Wearable Monitoring</td>
<td></td>
<td>Masud / Jones (submitted by Masud)</td>
<td>$80,790.50</td>
<td>$80,790.50</td>
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<tr>
<td>4</td>
<td>Defining Organizational Practices of High Volume Donation after Circulatory Death (DCD) Liver Transplant Centers</td>
<td>2/3/2020</td>
<td>Menser</td>
<td>$100,000.00</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Virtual and Nature-based Pain Management for Cancer Patients and Caregivers</td>
<td>4/1/2020</td>
<td>Kash</td>
<td>$71,821.87</td>
<td></td>
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<tr>
<td>6</td>
<td>TAMU Presidential Research Partnership Grant - Cancer</td>
<td>5/14/2020</td>
<td>Esnaola/ Chang/ Bolin</td>
<td>$200,000.00</td>
<td>-</td>
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<tr>
<td>7</td>
<td>TAMU Presidential Research Partnership Grant - Mental Health</td>
<td>5/14/2020</td>
<td>Sasangohar/ Madan</td>
<td>$200,000.00</td>
<td>-</td>
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<tr>
<td>8</td>
<td>TAMU Presidential Research Partnership Grant - Cardiology and Nature</td>
<td>5/14/2020</td>
<td>Kash/ Kurrelmeyer/ Maddock</td>
<td>$200,000.00</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>EYE-tracking and participatory-ergonomics to mitigate intensive Care United Burnout (EYE-C-U Burnout)</td>
<td>5/19/2020</td>
<td>Sasangohar</td>
<td>$149,929.00</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Development and implementation of social determinant-based interventions and predictive model for aggressive prostate cancer among African American males (subaward with TSU)</td>
<td>6/2/2020</td>
<td>Esnaola/ Naufal/ Jones</td>
<td>$33,879.00</td>
<td>$33,879.00</td>
</tr>
<tr>
<td>11</td>
<td>AFIX-CVD: AFIX-CVD: A Customizable Quality Improvement Intervention to Increase Influenza Vaccine Uptake Among Patients with Cardiovascular Disease</td>
<td>6/2/2020</td>
<td>Nasir</td>
<td>$4,060,697</td>
<td></td>
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<tr>
<td>12</td>
<td>Houston Methodist Cancer Center Community Outreach Engagement</td>
<td>6/30/2020</td>
<td>Kash</td>
<td>$50,000.00</td>
<td>$50,000.00</td>
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<tr>
<td>14</td>
<td>NeuroSpark (Internal Walter Foundation Gift FOA)</td>
<td>9/11/2020</td>
<td>Sasangohar/ Esnaola</td>
<td>$68,853.89</td>
<td>$68,853.89</td>
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<tr>
<td>15</td>
<td>Unpacking Breast Cancer Outcome Disparities in African American Women Pilot Study</td>
<td>10/12/2020</td>
<td>Menser</td>
<td>$621,000.00</td>
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<tr>
<td>16</td>
<td>AHRQ K01: Building an Accessible &amp; Remote Resource Intervention for End-stage Renal Disease Options across Wide Networks“ (BARRIER-DOWN)</td>
<td>10/12/2020</td>
<td>Menser</td>
<td>$444,125.00</td>
<td></td>
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<tr>
<td>17</td>
<td>NIH R21: Equity-focused User-driven Innovative Platform for Stroke Care Transitions Across the Continuum</td>
<td>10/16/2020</td>
<td>Vahidy</td>
<td>$444,125.00</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>R21: “Defining the Burden and Predictors of Subclinical Coronary Atherosclerotic Plaque in Young South Asian Adults in the US – A Pilot Study”</td>
<td>10/16/2020</td>
<td>Cainzos-Achirica/ Nasir</td>
<td>$444,125.00</td>
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<tr>
<td>19</td>
<td>R03: “Coronary Artery Calcium for the Personalized Allocation of Cardiovascular Disease Risk Reduction Therapies in Special Populations: A Pooled Analysis of International Cohorts”</td>
<td>10/16/2020</td>
<td>Cainzos-Achirica/ Nasir</td>
<td>$80,750.00</td>
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<tr>
<td>20</td>
<td>SARS-CoV-2 and Precursors of Alzheimer’s Disease and Related Dementias: An Ultrahigh Field (7T) MRI Study in a Diverse Multinational Cohort</td>
<td>11/26/2020</td>
<td>Vahidy/ Masdeu/ Roman</td>
<td>$3,929,086</td>
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<tr>
<td>21</td>
<td>AST Research Network Career Development Grant: Preemptive and Living Donor Kidney Patients’ Time through the Evaluation Process and Post-transplant Outcomes</td>
<td>12/1/2020</td>
<td>Menser</td>
<td>$95,066.00</td>
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<tr>
<td>22</td>
<td>Medical Record-Enriched Database on a Sample of COVID-19 Patients in TriNetX Data</td>
<td>11/19/2020</td>
<td>Vahidy</td>
<td>$125,399.00</td>
<td>$125,399.00</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
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<td><strong>$11,197,685.26</strong></td>
<td><strong>$419,164.39</strong></td>
</tr>
</tbody>
</table>
### 2020 External Funding

#### External Awards & Applications (#)
- Total: 6
  - Non-Government: 5
  - Government: 1
  - Endowed Gift: 0
- Total: 21
  - Non-Government: 12
  - Government: 9
  - Endowed Gift: 0

#### Total External Awards & Applications ($) (Dollars)
- Total: $0.42M
- Total: $11.14M
  - Non-Government: 12.3%
  - Government: 87.7%
  - Endowed Gift: 0%

### 2020 COR Internal Projects

<table>
<thead>
<tr>
<th>By Target Service Lines</th>
<th>Actual</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Innovations</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Transplant</td>
<td></td>
<td></td>
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<tr>
<td>Heart &amp; Vascular</td>
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<td>7</td>
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<tr>
<td>Neurology</td>
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<tr>
<td>Cancer</td>
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<tr>
<td>Health &amp; Nature</td>
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<td>2</td>
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<tr>
<td>Surgery</td>
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<tr>
<td>Population Health</td>
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</table>

Click on the individual bars to see the additional detail information. Press ESC to reset.
## Collaborative Research – Internal Projects

<table>
<thead>
<tr>
<th>COR Co-PI</th>
<th>Clinical Co-PI</th>
<th>Department/COE</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sasangohar</td>
<td>Masud</td>
<td>System Innovations</td>
<td>Investigating the Technological Contributors to the ICU Team’s Fatigue and Burnout</td>
<td>There has been a rapid increase in the number of advanced tools and displays in ICU. This study will identify effects of such technologies on burnout and fatigue in ICU personnel.</td>
</tr>
<tr>
<td>Menser/Kash</td>
<td>Phillips</td>
<td>System Innovations</td>
<td>Patient Portal Usage During Natural Disasters</td>
<td>The MyChart platform provides both patients and physicians with resourceful communication that has recently become an advantage over the past few years during natural disasters and in similar circumstances. This study will inform the design of a purposeful emergency preparedness patient portal.</td>
</tr>
<tr>
<td>Menser</td>
<td>Gaber</td>
<td>Transplant</td>
<td>Understanding Quality Care and Life Quality from the Patient Perspective</td>
<td>There is a need for the improvement of medication adherence in kidney transplant patients after 1 year of surgery. This study serves as the first step in a larger effort to intervene on patients post kidney transplant.</td>
</tr>
<tr>
<td>Jones/Kash</td>
<td>Phillips</td>
<td>System Innovations</td>
<td>The Impact of Socioeconomic Determinants on Hospital Readmissions</td>
<td>Unplanned 30-day hospital readmission is associated with increased costs of care and poor patient outcomes. This study examines the validity and utility of patient socioeconomic determinants by developing social determinant measures and exploring the association between area deprivation index (ADI) and 30-day hospital readmission risk.</td>
</tr>
<tr>
<td>Sasangohar</td>
<td>Bonuel (Nursing)</td>
<td>System Innovations</td>
<td>Understanding Nursing Staff Drowsy Driving</td>
<td>This study is being conducted to develop a comprehensive program that will include educational and technological interventions to reduce drowsy driving crashes in nurses.</td>
</tr>
<tr>
<td>Menser</td>
<td>Hobeika</td>
<td>Transplant</td>
<td>Measuring the Effectiveness and Impact of a Novel Donation after Circulatory Death Continuing Professional Development Program</td>
<td>This project will determine knowledge and skills acquired through the Donation after Circulatory Death Liver Workshop at Houston Methodist.</td>
</tr>
<tr>
<td>Menser</td>
<td>Hobeika/Yi</td>
<td>Transplant</td>
<td>Examining Big-Data Conclusions Through a Single-Center Lens: High KDPI Kidneys &amp; High EPTS Recipients</td>
<td>This study analyzes the survival benefit when transplanting high kidney donor profile index (KDPI) organs into recipients with high estimated post-transplant survival benefit.</td>
</tr>
<tr>
<td>COR Co-PI</td>
<td>Clinical Co-PI</td>
<td>Department/COE</td>
<td>Title</td>
<td>Description</td>
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<tr>
<td>Sasangohar</td>
<td>Zheng</td>
<td>Surgery</td>
<td>Pre-Op Financial Toxicity Assessment</td>
<td>This study will determine the following outcomes: 1. Financial toxicity as measured by the COST survey for patients that have counseling vs. patients that do not. 2. Amount of patient responsibility collected in the two groups.</td>
</tr>
<tr>
<td>Menser</td>
<td>Hobeika</td>
<td>Transplant</td>
<td>Evaluating Organ Procurement Organization Performance in the Era of Increasing Donation after Circulatory Death Donation</td>
<td>This study analyzes 2018 deceased donor data from LifeGift OPO. Authorization rates, organs transplanted per donor (OPTD), and discarded organs for DCD donors were calculated and compared to donation after brain death (DBD) data.</td>
</tr>
<tr>
<td>Menser</td>
<td>Gaber/ Hobeika/ Ibrahim</td>
<td>Transplant</td>
<td>Transplant: A Family Journey / Understanding the Preemptive Kidney Transplant Patient</td>
<td>This study examines the need for specific interventions to identify and engage potential living kidney donors, especially in minority populations.</td>
</tr>
<tr>
<td>Jones</td>
<td>Esnaola</td>
<td>Cancer</td>
<td>Houston Methodist Cancer Center Catchment Area Analysis Plan</td>
<td>Under the leadership of Dr. Jones, the Center for Outcomes Research assisted in the catchment area analysis plan for the Houston Methodist Cancer Center NCI Certification.</td>
</tr>
<tr>
<td>Menser</td>
<td>Hobeika</td>
<td>Transplant</td>
<td>Goal Oriented Analysis of Transplantation</td>
<td>This project involves using SRTR data to evaluate the rate of preemptive and living donor kidney transplantation over time by demographics and clinical characteristics.</td>
</tr>
<tr>
<td>Kash/ Maddock</td>
<td>Nasir</td>
<td>Health &amp; Nature</td>
<td>Bayou Greenways Health Impact Study</td>
<td>This is a health impact study to measure the physical and mental health benefits resulting from use of the open access greenspace and trails developed through the Bayou Greenways Initiative 2020.</td>
</tr>
<tr>
<td>Jones/ Naufal</td>
<td>Masud/ Gotur</td>
<td>Surgery</td>
<td>Sepsis Predictive Modeling</td>
<td>The purpose of this project is to create an ensemble model to identify patients at highest risk for sepsis readmission. This is in collaboration with the DSRP group (operations, Heather Chung, PhD). The project is currently in a holding-pattern due to contracting snags with Epic for the Cogito platform required to implement any model in Epic.</td>
</tr>
<tr>
<td>Sasangohar/ Naufal</td>
<td>Dhala/ Klahn</td>
<td>System Innovations</td>
<td>vICU - Human Factors (HF) Project</td>
<td>The purpose of this project is to evaluate the virtual intensive care unit (vICU) system in various ways: burnout in ICU nurses, evaluating the use of the vICU system for survival (EPTS) scores compared to those remaining on dialysis.</td>
</tr>
<tr>
<td>COR Co-PI</td>
<td>Clinical Co-PI</td>
<td>Department/COE</td>
<td>Title</td>
<td>Description</td>
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</tr>
<tr>
<td>Jones</td>
<td>Ibrahim/Gaber/Swan/Moore</td>
<td>Transplant</td>
<td>Evaluating COVID in Transplantation Patients</td>
<td>This is a descriptive, operational and long-term project looking at the impact of COVID-19 on the transplant population outcomes (both pre-transplant, and especially post-transplant).</td>
</tr>
<tr>
<td>Sasangohar</td>
<td>Masud</td>
<td>System Innovations</td>
<td>Comparison of COVID vs. Non-COVID ICU Nurses in terms of anxiety, depression, and burnout</td>
<td>Comparing ICU providers’ cognitive and physical stress between the COVID and non-COVID units using a mixed methods study that utilizes physiological monitoring devices, machine learning, and Contextual inquiry.</td>
</tr>
<tr>
<td>Vahidy</td>
<td>Masud/Zheng</td>
<td>System Innovations</td>
<td>COVID-19 Surveillance and Outcomes Registry (CURATOR)</td>
<td>The COVID-19 Surveillance and Outcomes Registry (CURATOR) was established as a database to support cross-institutional COVID-19 research. It is an umbrella protocol under the IRB that broadly captures demographic, laboratory, medication, treatment and outcomes for all SARS-CoV-2 tested patients.</td>
</tr>
<tr>
<td>Vahidy</td>
<td>Horner/Britz/Misra</td>
<td>Neurology</td>
<td>Neurological Outcomes Repository for patients with ICH (NeuroRICH)</td>
<td>Intracerebral hemorrhage is the second most common stroke sub-type. It is estimated that up to 50% of intracerebral hemorrhage patients do not survive beyond 30-days and 80% of survivors do not regain pre-stroke levels of functional independence. With a lack of evidence-based treatment options and a paucity of understanding of the natural history of intracerebral hemorrhage, NeuroRICH supports research efforts to improve understanding of the disease, enhance treatment practices, and ultimately improve patient outcomes.</td>
</tr>
<tr>
<td>Vahidy</td>
<td>Zainab/Misra/Immanuel</td>
<td>Neurology</td>
<td>Neurological Outcomes in a Virtual ICU Environment (NOVICE)</td>
<td>The NOVICE study aims at developing novel predictive models for forecasting short and long-term neurological outcomes including stroke incidence, functional disability, cognitive impairment and quality of life among post-procedural cardiac and other neurological patients undergoing critical care monitoring. The study will utilize a Big Data / Artificial intelligence (BD and AI) approach to evaluate novel hemodynamic and other critical care monitoring parameters as possible clinical markers that</td>
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<tr>
<td>COR Co-PI</td>
<td>Clinical Co-PI</td>
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<td>influence neurological outcomes in a heterogenous group of critical care patients.</td>
</tr>
<tr>
<td>Vahidy</td>
<td>Hanley/ Ziai (Johns Hopkins)</td>
<td>Neurology</td>
<td>MISTIE CLEAR Posthoc and Bayesian Analysis</td>
<td>Phase III, international, surgical clinical trials (MISTIE III and CLEAR III) are among the largest clinical trials targeting acute treatment of intracerebral hemorrhage. The study will perform a post hoc analysis of data obtained as part of MISTIE III and CLEAR III clinical trials using Bayesian statistical methods and evaluate trajectories of specific neurological, functional, quality of life and cognitive domains post-intracerebral hemorrhage as a secondary analysis of MISTIE III and CLEAR III clinical trials.</td>
</tr>
<tr>
<td>Jones/ Naufal</td>
<td>Esnaola/ Ajewole</td>
<td>Cancer</td>
<td>Development of predictive model and social determinants-based interventions for aggressive prostate cancer among African American males</td>
<td>CMS funded collaborative project with TSU (Dr. Ajewole) that is looking to build models to predict which African American men are at high risk for developing aggressive prostate cancer. Many factors are being studied, including social determinants of health (SDOH, which is a unique application of the SODH data). This project involves a massive data extraction from Epic, MethOD, the HMH Cancer Registry and other public data sources.</td>
</tr>
<tr>
<td>Menser</td>
<td>Phillips/ Podell</td>
<td>System Innovations</td>
<td>Designing Systems to Reduce Physician Burnout: A Proof of Concept</td>
<td>The purpose of this study is to understand nature’s effect on stress in health care professionals. Using the fMRI, this study seeks to evaluate baseline burnout and its relationship with level of empathy and test to what degree exposure to nature reduces empathy-related stress.</td>
</tr>
<tr>
<td>Nasir/ Kash</td>
<td>Nasir/ Andrieni/ Zoghbi</td>
<td>Heart &amp; Vascular</td>
<td>Cardiovascular Learning Health System for Lipid Management</td>
<td>Leveraging the outpatient EMR data at Houston Methodist to systematically evaluate burden, determinants and guideline care gaps among established atherosclerotic cardiovascular disease (ASCVD) and spectrum of at-risk patients to a) inform population health management strategies to mitigate its burden and associated risks and b) provide insights on future need for implementation science initiatives testing novel addressing these care gaps.</td>
</tr>
<tr>
<td>COR Co-PI</td>
<td>Clinical Co-PI</td>
<td>Department/COE</td>
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<td>Description</td>
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<tr>
<td>Nasir/ Kash</td>
<td>Nasir/ Patel/ Zoghbi</td>
<td>Heart &amp; Vascular</td>
<td>Social Determinants of Health &amp; Racial Disparities in Cardiovascular Management</td>
<td>Using national and EMR datasets to Systematically evaluate CVD outcomes through a unique SDOH domain lens, (ii) elucidate potential pathways through which SDOH impact CV care and outcomes, and highlight the importance of incorporating SDOH in CVD prevention and treatment services, and (iii) make recommendations to inform interventions, strategies and approaches to address SDOH in each domain, towards achieving equity in CV care and outcomes.</td>
</tr>
<tr>
<td>Nasir/ Kash</td>
<td>Nasir</td>
<td>Heart &amp; Vascular</td>
<td>Financial Toxicity in Cardiovascular Management</td>
<td>Using national population level datasets to describe the scope, consequences and risk factors for financial toxicity among patients with and at risk for cardiovascular disease. Developing a FT survey to be implemented among high risk patients with CVD and HF.</td>
</tr>
<tr>
<td>Nasir</td>
<td>Nasir/ Zoghbi</td>
<td>Heart &amp; Vascular</td>
<td>Outcomes and Disparities in COVID &amp; Cardiovascular Diseases</td>
<td>Using the COR developed CURATOR dataset describing increased risk of COVID infection, adverse outcomes as well as demographics, biological and social risk factors associated with adverse outcomes among patients with established and at risk for cardiovascular disease.</td>
</tr>
<tr>
<td>Nasir/ Cainzos- Achirica</td>
<td>Nasir/ Quigley/ Abraham/ Al-Mallah</td>
<td>Gastroenterology, Heart &amp; Vascular</td>
<td>IBD Cardiometabolic Initiative</td>
<td>There is evidence of an association between IBD and atherosclerotic cardiovascular disease. This study will evaluate the burden of coronary atherosclerosis in IBD patients with active flares, and whether treatment with biological therapies for IBD reduces plaque burden and inflammation at one year of follow-up.</td>
</tr>
<tr>
<td>Nasir/ Cainzos- Achirica</td>
<td>Nasir/ Zoghbi/ Al-Mallah</td>
<td>Heart &amp; Vascular</td>
<td>Coronary Atherosclerosis Resilience Initiative</td>
<td>Patients with very high levels of LDL cholesterol have heterogeneous risk of cardiovascular disease. In this study, we will evaluate the correlates and determinants</td>
</tr>
<tr>
<td>COR Co-PI</td>
<td>Clinical Co-PI</td>
<td>Department/COE</td>
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<tr>
<td>Nasir/ Kash</td>
<td>Nasir/ Chang</td>
<td>Heart &amp; Vascular, Health &amp; Nature</td>
<td>Pollution, Atherosclerosis and Non-Cardiac CT Scans COVID</td>
<td>The goal of this study is to develop and validate an integrated radiomic cardiometabolic risk platform (which combines automated estimation of vascular calcification, visceral fat, pectoralis muscle size/fat, and left ventricular size/thickness with COVID-19 pulmonary features) using chest CTs in patients presenting with COVID-19 infection in “CURATOR” and investigate the role of radiomic cardiometabolic profile in risk stratification of COVID-19 - related adverse outcomes (ICU admission, invasive mechanical ventilation, mortality). The approaches outlined in this proposal will also help refine current manual clinical approaches taking advantage of semiautomated integrated machine learning approaches and combine them with poorly understood environmental variables to provide personalized medicine approaches to define risk.</td>
</tr>
<tr>
<td>Maddock</td>
<td>n/a</td>
<td>Health &amp; Nature</td>
<td>Developing Health Behavior Change Scales for Health &amp; Nature</td>
<td>The goal of this study is to develop social cognitive measures for being in nature.</td>
</tr>
<tr>
<td>Sasangohar</td>
<td>Montgomery</td>
<td>System Innovations</td>
<td>WELL Impact on No-Shows</td>
<td>Investigating the impact of digital patient navigation tools on no-shows and patient-provider communications using time-series analysis.</td>
</tr>
<tr>
<td>Sasangohar</td>
<td>Esnaola</td>
<td>Cancer</td>
<td>SU2C: Unpacking Breast Cancer Outcome Disparities</td>
<td>The goal of this study is to interview African American breast cancer survivors taking hormonal therapy, along with other stakeholders (physicians, PharmDs, caregivers, patient navigators, etc.) to understand and document expectations, needs, and requirements associated with a new patient navigation tool. The study team will then use this information to adapt the CareSense platform to better serve this patient demographic.</td>
</tr>
<tr>
<td>Menser/ Jones</td>
<td>Khleif</td>
<td>System Innovations</td>
<td>Systematic Review of Patient Portal Metrics</td>
<td>Use of patient portals has been associated with positive outcomes in patient engagement and satisfaction. Despite widespread adoption of and interest in patient portal use and adoption, studies on vary widely in actual metrics used to operationalize and track utilization,</td>
</tr>
<tr>
<td>COR Co-PI</td>
<td>Clinical Co-PI</td>
<td>Department/COE</td>
<td>Title</td>
<td>Description</td>
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<tr>
<td></td>
<td>Kash/ Vahidy</td>
<td>System Innovations</td>
<td>MH-HH Collaboration on Population Health (MVP project)</td>
<td>leading to unsystematic and incommensurable characterizations of use. This study assessed the measurements used across 87 patient portal utilization studies between 2014-2018.</td>
</tr>
<tr>
<td></td>
<td>Jones</td>
<td>Transplant</td>
<td>COVID-19 Vaccination Surveillance</td>
<td>This project is tracking a massive vaccination effort under the support of the Houston Methodist Transplant Center where they are attempting to reach all listed and transplanted patients for COVID-19 vaccine administration. Outcomes are being tracked longitudinally.</td>
</tr>
</tbody>
</table>
Provider Burnout and Fatigue During the COVID-19 Pandemic: Lessons Learned From a High-Volume Intensive Care Unit

There are 4 major contributors to COVID-19-related occupational fatigue and burnout:

- Occupational Hazards
- National vs. Locally Scaled Response
- Process Inefficiencies
- Financial Instability

Recommendations for healthcare leaders:
- Constant communication regarding access to medical necessities
- Structured training on large-scale disaster management response
- Feasible and practical methods to assess healthcare workers’ fatigue and burnout is needed

Recommendations for policymakers:
- Ability to rapidly transform relevant industry
- Capacity to manufacture and produce innovative designs along with technical oversight to ensure minimum safety requirements are met
- Development of a medical reserve corps at the regional, state, and national level

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Adapting an Outpatient Psychiatric Clinic to Telehealth During the COVID-19 Pandemic: A Practice Perspective

The COVID-19 pandemic has forced the adoption and mass transition to telehealth overall, which has led to the following concerns when implementing psychiatric services on a telehealth platform.

**Diversifying Modes of Communication: One Size Does Not Fit All**
It’s important to leverage multiple platforms and modalities (Cisco WebEx, Microsoft Teams, email, patient portal, etc.) during the initial transition.

**Special Logistical Concerns**
Staff has to prepare for differences in communication dynamics and behaviors. Managing schedules becomes more stressful and demanding.

**Psychological Effects of Web-Based Audiovisual Chat**
Team members and patients both experience "Zoom fatigue". There is also a need to work harder to maintain interpersonal connections.

**Services and Service Lines Under Telehealth**
Some programs thrive more during quarantine through telemedicine. Certain psychological testing can also be done via web-based portals now.

**What we have learned:** There are various strengths, challenges, and recommendations of telepsychiatry implementation that must be communicated in order to improve long-term clinical practices.

### Strengths
- Virtual groups have been well attended and engagement has increased.
- Patients are receptive and well-engaged.
- Telepsychiatry expands the boundaries of psychological intervention into the real world.

### Challenges and Recommendations
- Establishing a provider culture of telemedicine adoption
- High-risk patients
- Set the therapeutic frame with the purpose of managing risk
- Setting the physical and visual backdrop requires forethought and design
- Maintaining a work-life balance by separation of space and time
- Introduce the client to the virtual space and plan for the first session to take additional time

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Publications in Peer-reviewed Journals

**COR Lead**


**COR Collaboration**


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External Collaboration


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Publications & Presentations

Association of Smoking Cessation and Survival Among Young Adults With Myocardial Infarction in the Partners YOUNG-MI Registry. JAMA Netw Open. 3(7):e209649. https://doi.org/10.1010/jamanetworkopen.2020.9649


Publications & Presentations


https://doi.org/10.1093/ehjci/jeaa336

https://doi.org/10.17161/kjm.vol13.13861
**Publications & Presentations**

**Peer-reviewed Conference Presentations**

**COR Lead**


6. **Baek, J., Carrillo, G., & Kash, B.A.** Association between Ambient Air Pollution and Hospital Length of Stay Among Children with Asthma in South Texas. AcademyHealth Annual Research Meeting 2020, Boston, MA (virtual conference), August 6, 2020.


**COR Collaboration**


External Collaboration
