

From the University of Mississippi Medical Center Division of Public Affairs and the American Heart Association

## NEW COLLABORATION EXPANDING RESEARCH IN WORLD-RENNOWN HEART STUDIES

*Project builds upon NIH-funded Framingham and Jackson heart studies, targets "personalized medicine'*

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Photos can be found here.

JACKSON, Miss. – A new collaborative research relationship between the American Heart Association, the University of Mississippi and Boston University, representing a bold vision for cardiovascular population science, was announced today at the American Heart Association's Scientific Sessions in Dallas.

The collaboration has a vision of greatly expanding important population studies by adding more research subjects, more diverse subjects, more genetic analysis and deeper new approaches to gathering information in an effort to find more "personalized" treatment and prevention of cardiovascular disease. This project would help to build a "biobank" that researchers could easily access through a larger national network of population studies, including the landmark Framingham and Jackson heart studies.

"We will be transferring that success into 21<sup>st</sup> century genomics developments and network medicine," said Joseph Loscalzo, M.D., Ph.D., chairman of the American Heart Association's Science Oversight Group for this collaboration.

While scientists seeking answers to heart disease, stroke and other major problems would have access to this information, protecting the confidentiality of study participants is a top priority. Successful large studies have over the years developed procedures to ensure people cannot be identified through their medical data, and those practices will continue in this new project.

Framingham is the longest-running U.S. heart study and has led to many important discoveries. The Jackson Heart Study is the largest study ever focused on risk factors among African-Americans – who face disproportionate risk for heart disease and stroke. The collaborative group, convened by the American Heart Association, has the temporary working name of "Heart Studies v2.0."

"The potential here is nothing short of amazing," said Loscalzo, chairman of the Department of Medicine and Physician-in-Chief at Brigham and Women's Hospital and Editor-in-Chief of the American Heart Association journal *Circulation*. "The vast participant data base from these important studies, plus additional genetic components, puts us on the path to defining specific risk determinants for certain cardiovascular diseases for every person."

Heart disease is the leading cause of death in the world, and risk factors vary for every person based on a variety of factors.

"Everybody's collection of genes is unique. In addition, how everyone's genes interact with their environment is unique," Loscalzo said. "Personalized medicine takes all of this complexity into account, and applies unique genomic datasets to careful assessment of clinical features of disease in order to predict accurately the diseases people are likely to develop and to design effective individualized therapies for them."

As an example of the results this may one day yield, consider a person with high blood pressure. Currently, that person may take medications that have been found to be effective in studies of large groups of people. Heart Studies v2.0 would break those large study groups into smaller, more precisely targeted groups based on how their genes interact with their environment.

So the person would be treated sooner with something more personally tailored, eliminating the time lag caused by experimenting with medication – and perhaps saving that person's life.

"The simple way to say it is that not everybody with hypertension will respond to a standard therapy or therapeutic strategy based on trials of large populations of patients, where results represent an average response throughout the population," Loscalzo said.

Boston University has a proven record of success in population studies, as evidenced by the Framingham study based there. The study has collected large amounts of health data from people just west of Boston since 1948. Over the years, five "cohort groups" made up of thousands of people have been studied. The study has published several crucial findings, including identification of risk factors for heart disease and stroke, and information on the effects of these factors, including smoking, obesity, blood pressure, cholesterol, and physical activity.

"The Framingham Study is an iconic cohort study that has more than proven its value from a public health point of view," said Karen Antman, M.D., dean of Boston University School of Medicine. "This collaboration with the American Heart Association and University of Mississippi allows Boston University to continue to advance its cardiovascular research mission. We look forward to collaborating with the AHA and with our colleagues at the Jackson Study."

The University of Mississippi also has a rich history of population studies, as evidenced by the Jackson Heart Study. This study is based in the state's capital city and draws together the university's medical center campus and partner institutions Jackson State University and Tougaloo College.

The Jackson Heart Study began in 2000 and is the largest study in history to focus on the genetic factors related to cardiovascular diseases in African-Americans. It is an extremely important study because, while the Framingham study has provided decades of important data, its subjects also have lacked racial diversity.

Among key findings, researchers have identified links between social conditions and specific risk factors for diseases. Investigators also have contributed to the map of the human genome, uncovered differences in metabolic syndrome between blacks and whites, and identified how location of fat in the body affects African-Americans – a topic previously characterized mainly in white people.

"Thanks to the American Heart Association, this collaboration will allow the continued development of the science to better understand the causes of heart disease and stroke. It moves us closer to the day when this leading cause of death can be prevented in more people," said Dan Jones, M.D., University of Mississippi chancellor and former Jackson Heart Study principal investigator.

"The University of Mississippi Medical Center is proud to work with its partners at Jackson State University and Tougaloo College in the Jackson Heart Study."

The NHLBI funds and supports Framingham and Jackson, in addition to other research. Director Gary Gibbons, M.D., said the new project can significantly advance efforts to prevent cardiovascular disease through emerging technologies and the transformation of population science.

"The advent of 'big data' and genomic science will transform clinical medicine in the next decade," Gibbons said. "This innovative AHA partnership and new resource is an exciting opportunity to create

synergy for a large-scale, national network of datasets that build upon the data-sharing biorepositories provided by NHLBI cohort studies."

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The University of Mississippi Medical Center, located in Jackson, is the state's only academic medical center. UMMC encompasses five health science schools, including medicine, nursing, health related professions, dentistry and graduate studies, as well as the site where University of Mississippi pharmacy students do their clinical training. The Medical Center's health-care enterprise includes five hospitals and University Physicians, the faculty group practice. The Medical Center's threefold mission is to educate tomorrow's health-care professionals, conduct innovative research to improve human health, and to provide the highest quality care available to the state's population. A major goal of the Medical Center is the improvement of the health of Mississippians and the elimination of health disparities. For more information, contact the Division of Public Affairs at (601) 984-1100 or [umc.edu/publicaffairs](http://umc.edu/publicaffairs)

The **American Heart Association** is devoted to saving people from heart disease and stroke – America's No. 1 and No. 4 killers. We team with millions of volunteers to fund innovative research, fight for stronger public health policies, and provide lifesaving tools and information to prevent and treat these diseases. The Dallas-based association is the nation's oldest and largest voluntary organization dedicated to fighting heart disease and stroke. To learn more or to get involved, call 1-800-AHA-USA1, visit [heart.org](http://heart.org) or call any of our offices around the country. Follow us on [Facebook](#) and [Twitter](#).