

The Framingham Heart Study

Boston University Schools of Medicine and Public Health

The Campaign for
Boston University

CHOOSE TO BE GREAT

PRINCIPAL INVESTIGATOR & DIRECTOR

VASAN RAMACHANDRAN, MD

YEAR FOUNDED

1948

YEAR FHS CAME TO BUSM

1971

NUMBER OF PARTICIPANTS IN ORIGINAL STUDY

5,029

NUMBER OF PARTICIPANTS TODAY

MORE THAN 15,000

NUMBER OF LIVES SAVED

MILLIONS



A single question can resound through generations.

In 1948, a group of healthcare researchers, responding to an epidemic of heart attacks in the United States, asked: “Why do some people develop cardiovascular disease while others do not?”

It was a query that launched the Framingham Heart Study (FHS), a multi-generational investigation into the genetic and environmental causes of cardiovascular disease that laid the groundwork for modern preventive cardiology.

What began as a public-health survey has evolved into **a global network of collaborative research run by Boston University School of Medicine (BUSM) and Boston University School of Public Health (SPH)** in partnership with the National Heart, Lung, and Blood Institute.

A GLOBAL DATA SOURCE

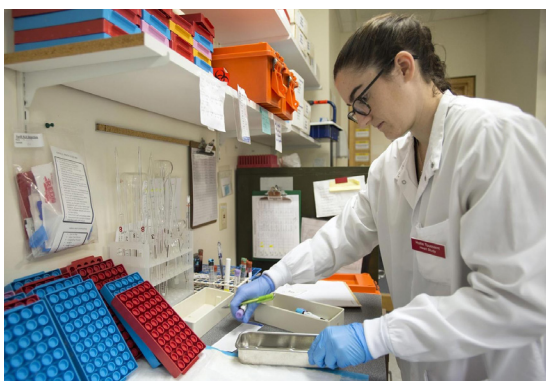
From thousands of blood samples of FHS volunteers, Boston University scientists have created an invaluable genetic and biosample biorepository, large databanks, and other resources that have enabled the pinpointing of genes responsible for the development and progression of chronic diseases including cardiovascular disease, diabetes, cancer, dementia, and Alzheimer’s disease.

BUSM and SPH made the decision to share this gold mine of data with fellow scientists around the world. To date, **nearly 4,000 academic articles have been produced from FHS data—and countless lives saved across the globe** from medical breakthroughs based on that data. These studies are published in leading medical journals, bringing to a wider audience advances in specialties including cardiology, neuroscience, genetics and heredity, lipidology, and endocrinology.



"We are at the cutting edge of research across multiple domains. Asking big questions: What is the biology of disease? How does it progress from a risk factor to its earliest stage to full onset? Our greatest resource is the people who participate, who give of their time, their bio samples, their DNA, purely for altruistic purposes."

— Principal Investigator and Director
Vasan Ramachandran, MD



"I started making healthier choices about what I was eating. Now at 75 I feel and look a lot different from my classmates. I volunteer for hospice as an end-of-life doula. I feel very fortunate. I take swing dance classes twice a week for two hours each time. I go to the gym and I have a full social life with friends of all ages."

—Wendy Livingston, 75,
of Red Hook, New York, has been part
of the Framingham Heart Study as
a third-generation participant.

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REGENERATIVE MEDICINE

From day one, FHS questioned what combination of genetics and environment increased the risk for heart attacks and strokes. Today, our researchers are asking a similarly compelling question: what are the biological principles that guide cellular identity?

Building on the ability to map genes (the genotype), Boston University researchers are going one step further and genotyping genes, essentially, scanning them for variations known to influence traits (phenotypes) such as skin color, eye color, and geographical ancestry. By relating genotypes to phenotypes, they are **leading the way to personalized medicine—the ability to tailor treatments for various disease conditions to each person's genetic makeup**, offering the best chance of preventing, surviving, or even curing chronic illness.

Generations of blood samples from FHS are also key to another medical breakthrough: cultivating stem cells in laboratories. At BU's **Center for Regenerative Medicine (CReM)**, which acts in partnership with FHS, scientists are using stem cells "grown in a dish" to study diseases and test for new treatments. And by engineering cells in a laboratory, they can bioengineer human body tissue. CReM researchers have already recreated bladders, windpipes, and urethras from stem cells and are at the threshold of regenerating the tissue of hearts and lungs—a potential solution to long waitlists for donor organs.

SERVING THE COMMUNITY

More than 15,000 individuals in the Boston area, including many of the children and grandchildren of the original FHS volunteers, have participated in this groundbreaking study. In the early 1990s, BU researchers began the **Omni Study**, recruiting people of color into the ranks of participants to see how their genetic and cultural heritage factors into their risk for chronic illness. **The FHS of today includes people of African American, Hispanic, Asian, Pacific Islander, and Native American descent, enabling our researchers to improve the health of people worldwide.** Omni Study participants now number about 900.

HOW YOU CAN HELP

The Framingham Heart Study is interwoven into the very fabric of American life. Every time we read a news article, visit a doctor, or even think about our own health, we are using language and concepts like "risk factor," first introduced by FHS. Our research relies on the continued flow of information into the FHS laboratories, the personnel to review it, and the creation of new directions for the next generation of researchers. Support for research fellowships, faculty and staff, and advanced technologies helps us remain leaders in this scientific quest. Our original question, "Why do some people develop cardiovascular disease while others do not?" has resonated through millions of lives in the prevention and treatment of chronic disease. So, we ask you: will you please to join us in sustaining and growing this iconic inquiry?