

Morteza Naghavi, M.D.



Dr. Morteza Naghavi is the founder and president of Society for Heart Attack Prevention and Eradication (SHAPE). He established the organization initially under the name of Association for Eradication of Heart Attack as an extension of his research on “vulnerable plaques,” the underlying cause of heart attacks. As a faculty of the Division of Cardiology at the University of Texas Health Science Center at Houston and Texas Heart Institute, Dr. Naghavi began his research on the detection of [vulnerable plaques](#) in the laboratories of Drs. Ward Casscells and James Willerson, who jointly mentored his career establishment. Dr. Naghavi and colleagues at the Texas Heart Institute Center for Vulnerable Plaque Research invented a number of innovative intra-coronary diagnostics technologies, including coronary [thermography](#) and [near infrared spectroscopy](#). Later, he expanded his research to the development of noninvasive imaging of atherosclerotic plaques using magnetic resonance imaging of inflammation with [super paramagnetic iron oxide nanoparticles](#). This project resulted in a number of original observations, including a new discovery suggesting [peri-adventitial adipocytes](#) (fat layer around the artery and heart) can contribute to inflammation of atherosclerotic plaques. In early 1999, while studying patients with recurring heart attacks, Drs. Naghavi and Casscells reported that [flu vaccine may reduce the risk of recurrent heart attack](#). This discovery was widely publicized after their featured presentation during the annual conference of American College of Cardiology in 2000. They later elucidated the underlying cause of this association by studying genetically engineered atherosclerotic mice infected with influenza virus. This pioneering study showed that [influenza infection increases inflammation of atherosclerotic plaques and may enhance the tendency of blood to form dangerous clots on these plaques](#). This notion is currently the leading hypothesis for the link between flu and heart attacks. The original study by Drs. Naghavi and Casscells spawned a series of research and public health projects that are [currently pursued at the Texas Heart Institute](#).

In 2000, Dr. Naghavi established the Vulnerable Plaque Research Program in the United States. It evolved into [a department](#) dedicated to the research and treatment of vulnerable plaques at the Texas Heart Institute. Dr. Naghavi subsequently established the [Vulnerable Plaque Satellite Symposia](#), which has been held twice a year since March 2001, in conjunction with the annual meetings of the American Heart Association and the American College of Cardiology. Dr. Naghavi and colleagues invented Digital Thermal Monitoring (DTM) of vascular function. This promising technique provides a noninvasive, non-imaging, low-cost, easy to use tool to monitor endothelial dysfunction for patient care. [Endothelial dysfunction](#) is considered the first marker of cardiovascular disease, present long before a heart attack or stroke occurs.

From his research, Dr. Naghavi is credited for introducing the concept of the cardiovascular "[vulnerable patient](#)." This concept, in addition to that of "[vulnerable plaque](#)," encompasses blood vulnerability (prone to clot formation) and myocardial vulnerability (prone to fatal arrhythmia)-- all of which contribute to the [overall likelihood of having a fatal heart attack](#). Dr. Naghavi led the development of two landmark consensus statements, "[From vulnerable plaque to vulnerable patient: a call for new definitions and risk assessment strategies: Part I and Part II](#)," which were published in the journal *Circulation* Journal of American Heart Association in October 2003. Following these landmark publications, in 2005, Dr. Naghavi launched the SHAPE initiative. SHAPE originally stood for the Screening for Heart Attack Prevention and Education. It later evolved to the Society for Heart Attack Prevention and Eradication. The SHAPE Task Force, an international group of leading cardiovascular researchers and prominent physicians has focused on the overhaul of existing heart attack preventive screening practice. As the Chairman of the SHAPE Task Force and President of the SHAPE Society, Dr. Naghavi has led the initiative since the inception. In 2006, the SHAPE Task Force issued [the SHAPE Guidelines as Part III of the Vulnerable Patient Consensus Statement](#). Since its publication, the SHAPE Guidelines has created [much needed worldwide discussions and debates](#) over the concept of screening for early detection and treatment of asymptomatic atherosclerosis and urged immediate revisions to the old-fashioned practice guidelines sanctioned by established organizations such as the American Heart Association and American College of Cardiology. In 2007, the SHAPE organization was invited by Texas State Representative Oliveira to help write [the Texas Heart Attack Preventive Screening Bill](#). After 3 years of persistent efforts including [Dr. Naghavi's testimonies in front of the Texas legislature](#) in 2007 and 2009, the bill was finally passed by the Texas legislature in May 2009 and signed into law by Texas Governor Rick Perry on July 19, 2009. This date marks a monumental success for Dr. Naghavi's efforts in changing the unacceptable status quo to improve cardiovascular preventive care. The SHAPE organization is currently launching the SHAPE certified clinics and will be helping other states to adopt the Texas Heart Attack Preventive Screening Law.

Dr. Naghavi's current areas of research include [digital thermal monitoring](#) of vascular function, [microbubble-enhanced intravascular ultrasound imaging](#) of coronary plaques, and early detection of asymptomatic atherosclerosis using innovative techniques for coronary calcium and [pericardial fat measurement](#) by CT scan, as well as carotid wall thickness measurement by ultrasound imaging.

Dr. Naghavi has authored numerous peer-reviewed publications in medical scientific journals and is the leading author of [Asymptomatic Atherosclerosis](#): Pathophysiology, Detection and Treatment.

In addition to academic research and non-profit projects, Dr. Naghavi is a physician inventor and entrepreneur with special interests in innovative medical technologies. He has over 30 issued and pending patents some of

which have resulted in a number of medical device companies. Dr Naghavi was a cofounder of Volcano Corporation ([NASDAQ: VOLC](#)), the leading vulnerable plaque detection company.

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