

Understanding Cardiovascular Disease

The human body is a complex, multicellular organism that is continually trying to stay balanced and healthy. To do this, each cell requires a continuous supply of vital substances. The cardiovascular system serves the body by carrying out many functions, but its primary function is to carry these vital substances throughout the body. Cardiovascular Disease (CVD) is the broad term that describes malfunctions of this circulatory function. Most often this disease takes the form of atherosclerotic plaque that restricts the flow of blood through these vital vessels. This buildup (atherosclerosis) usually occurs without symptoms and is often undetectable by stress testing until it advanced stages. Far too often, the victim first becomes aware of this blockage by suffering a heart attack or stroke.

Calcification (hardening) of the heart and vascular arteries is an absolute marker for the presence of atherosclerotic plaque. That is, where calcification is found, well established formulas allow doctors to calculate the amount of 'soft plaque' that is also present. Calcification elsewhere in the aorta, carotid arteries, and kidney arteries also provides additional definition of vascular disease outside the heart.

Heart and vascular diseases are highly preventable through effective preventive and wellness strategies proven to reduce your risk of a first heart attack or stroke. Unfortunately, mobilization of these strategies is dependent on early detection of the disease to prevent a catastrophic event such as a heart attack or stroke.

Identifying the Problem

In the US a person dies of heart disease every 30 seconds. Heart (cardiac) and vascular (arterial) disease or Cardiovascular Disease (CVD) is the Nation's leading killer of both men and women above the age of 35 regardless of racial or ethnic background. Approximately 50% of men and 56% of women die of a heart attack, heart failure, heart arrhythmia, or complications of vascular disease, most notably stroke and aortic aneurysms. While the death toll is staggering, this is only part of the picture. Equally tragic is the number of people that struggle daily with complications of CVD. One out of every 4 adults has CVD; this converts to about 57 million people in the US resulting in 6 million hospitalizations per year and disability for an additional 10 million.

About half of the 1,500,000 Americans who have heart attacks each year have no warning symptoms- their first, last and only symptom of coronary artery disease is a fatal heart attack or stroke.

Who is at Risk?

There are a number of CVD risk factors which have been identified. These include abnormal blood cholesterol, high blood pressure, smoking, obesity, physical inactivity, diabetes, and a variety of other contributing risks. Published guidelines allow a doctor or patient to estimate their risk by performing a point score calculation based upon their age and sex and factoring in their current cholesterol, history of blood pressure, and smoking history. This is called the Framingham Risk Calculation. However, the Framingham Risk Calculation does not calculate the impact of certain variables including heredity (a family history of a heart attack in a parent or sibling increases your own risk substantially) or environmental factors and other personal lifestyle choices. While the Framingham Risk Calculation is relatively accurate in separating those at very low risk from

those at very high risk, the average risk person (about 40% of the adult population) is often misclassified.

Early detection of developing CVD coupled with aggressive investigation into the potential causes and contributing factors is the best approach. A more individualized approach to identification of premature CVD and a specific and individualized diagnostic and treatment plan is required to prevent future related events.

What Can Be Done?

The measure of coronary artery calcium by Electron Beam Tomography (EBT) is the “gold standard”, according to the American Heart Association, in defining coronary plaque. Studies have shown that the amount of coronary artery calcium (the “calcium score”) finds developing or premature coronary disease before the onset of symptoms or before an abnormal stress test and predicts the risk of a heart attack better than conventional risk factors. Calcification of the aorta and other vascular segments are indicative of overall cardiovascular risk.

Using the EBT e-Speed™ scanner, PrevaHealth is now able to image the upper thorax as well as the abdominal aorta. This is called “Complete Vascular Scanning” (or simply the VascularScan). Although many of the preventive strategies for premature heart disease are identical to those for premature vascular disease, imaging a single area such as the heart may be insufficient in providing information on disease occurring in other vascular beds (and vice-versa). By combining both examinations into the EBT VascularScan, overall cardiovascular risk is better defined as the heart and entire aorta are imaged at one sitting.

An integrated VascularScan report will be prepared detailing both the heart and vascular findings and providing in-depth examples of key images as well as a detailed, individualized HealthPATH integrating pertinent clinical and laboratory information, preventive goals, and suggestions (if necessary) for further follow-up. As these examinations will also include images of the lungs and abdominal contents, a full radiological report will accompany the detailed clinical VascularScan report.

The EBT e-Speed™, exclusively available at the PrevaHealth Wellness Diagnostic Center is the latest in technology to look at the heart, coronary arteries and the vascular system (VascularScan). This information in defining pre-symptomatic CVD, combined with your clinical information, results in a personalized “HealthPATH” action plan for you and your doctor.