

# Using IMT to Assess Cardiovascular Disease in Clinical Practice

As head of the noninvasive cardiovascular screening and interventional ultrasound lab at Cedars-Sinai Medical Center in Los Angeles, Dr. Tasneem Naqvi has seen countless images of the heart and vascular system. But when a new imaging technique comes along that has a truly dramatic effect on patients, she doesn't contain her excitement. "It's a remarkable experience to be able to look at the carotid artery from the inside," she says.

What Dr. Naqvi is talking about is an intima-media thickness (IMT) scan, a procedure that combines high-resolution ultrasound with sophisticated software algorithms to measure the tiny thickenings in arterial walls that presage the onset of cardiovascular disease. This information is used adjunctively with other medical data by a physician to help assess the cardiovascular health of a patient.

Dr. Naqvi explains that other kinds of vascular ultrasound studies are common, but are typically used on "people who have usually declared themselves one way or the other already. They have had a heart attack or a stroke, they have end-organ damage, or they're diabetic, but we're interested in looking at the disease much earlier, when all that has happened is that the lining has gotten a little bit thick."

An IMT scan can reveal disease at the earliest stages, when a clinically significant difference in vessel wall thickness may be as small as one tenth of one millimeter. These precise measurements require precise technology, which is why IMT scans have been used only in highly specialized research labs until recently. High resolution ultrasound equipment and breakthrough computer technology now make it possible for physicians to perform and interpret IMT scans in a clinical setting.

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*"IMT is already the standard of care in my institution. Physicians are referring patients for IMT, and I'm using it clinically to help physicians and patients determine patients' risk and choose treatment to lower that risk. If a patient has risk factors but we aren't immediately sure whether they have disease, this is the technique we use."*

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Dr. Naqvi acknowledges that until recently, IMT technology was not appropriate for patient care. "Obviously nobody has time to spend in our busy work doing a procedure which takes a long time to acquire and even longer to measure," she says. "It has to be simple, portable, cheap, easy to learn, quick, and give precise results." Based on these requirements, Dr. Naqvi selected a SonoSite MicroMaxx™ system with SonoCalc™ IMT software for her practice. She now uses the system regularly as a quick screening tool

to look for presence of early atherosclerosis, in patients in whom physicians suspect or want to exclude atherosclerosis, and who are referred for stress echocardiograms. Stress tests evaluate presence of advanced disease, whereas IMT evaluates the beginning of that disease before stress tests will show up as abnormal.

IMT measurement offers both diagnostic and predictive value. Dr. Naqvi explains, "Once you identify disease in the carotid in the form of increased IMT, you have a higher risk of

having that same disease in other vascular territories. These people probably have the same thickening in their coronary arteries, aortas, and brain vessels."

If a patient's vascular disease is detected early with IMT, a combination of medication and lifestyle changes can prevent life-threatening vessel blockages from developing. "If I had to choose one technique, I would take an ultrasound of the neck to see the early disease, because that's what's going to kill you."

*Dr. Naqvi serves on the SonoSite SonoCalc™ IMT Advisory Board.*



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