HEART MATTERS

THE REGIONAL CARDIAC CARE PROGRAM

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SOUTHLAKE REGIONAL HEALTH CENTRE

CARDIAC CTA

NON-INVASIVELY PROMOTING HEART HEALTH

Coronary Computed Tomography Angiogram, known as Cardiac CTA or simply CCTA, has experienced phenomenal growth around the world in recent years. At Southlake, one of the Department of Cardiology's newest recruits, Dr. Molly Thangaroopan, along with Dr. Peter Zeman work alongside skilled physicians and technologists from the Radiology Department to lead the charge in this region to provide CCTA technology to patients with cardiac disease.

See CARDIAC CTA, continued on page 2

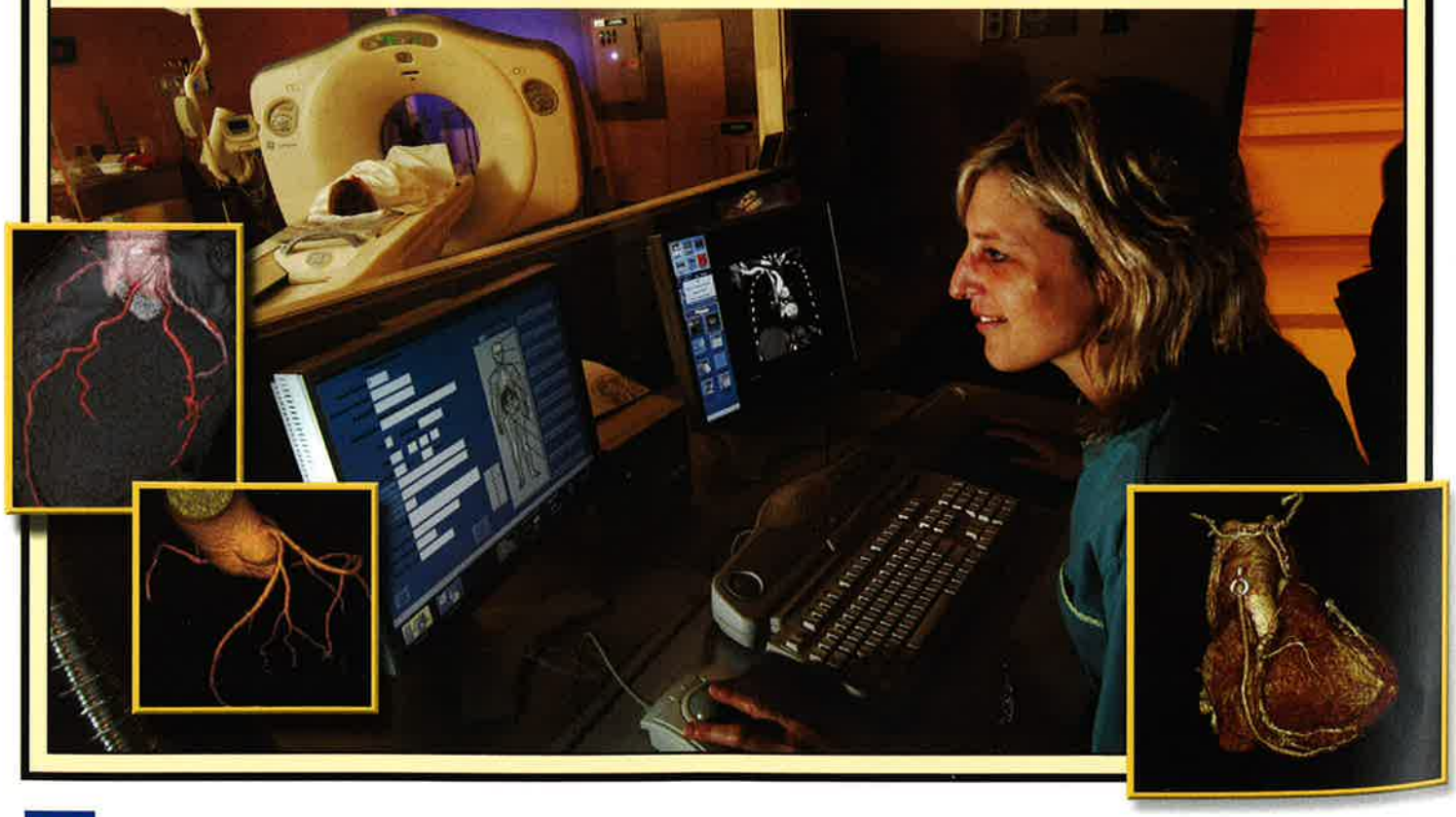
Southlake's Cardiac Care Program, including Dr. Molly Thangaroopan —leading the charge

CARDIAC CTA *Continued from page 1*

Dr. Thangaroopan, who specializes in non-invasive cardiac imaging, including echocardiography, nuclear cardiology as well as CCTA and MRI, has been with the Cardiology Department at Southlake Regional Health Centre since 2007. After receiving her MD from Dalhousie University and completing her cardiology residency at the University of Alberta, Dr. Thangaroopan then completed an echocardiography fellowship with training in stress echocardiography, transesophageal echocardiography, and adult congenital heart disease at the Toronto General Hospital. She then went on to complete her fellowship in advanced Cardiac Imaging, Cardiac CT, and Cardiac MRI at Massachusetts General Hospital, Harvard Medical School in Boston.

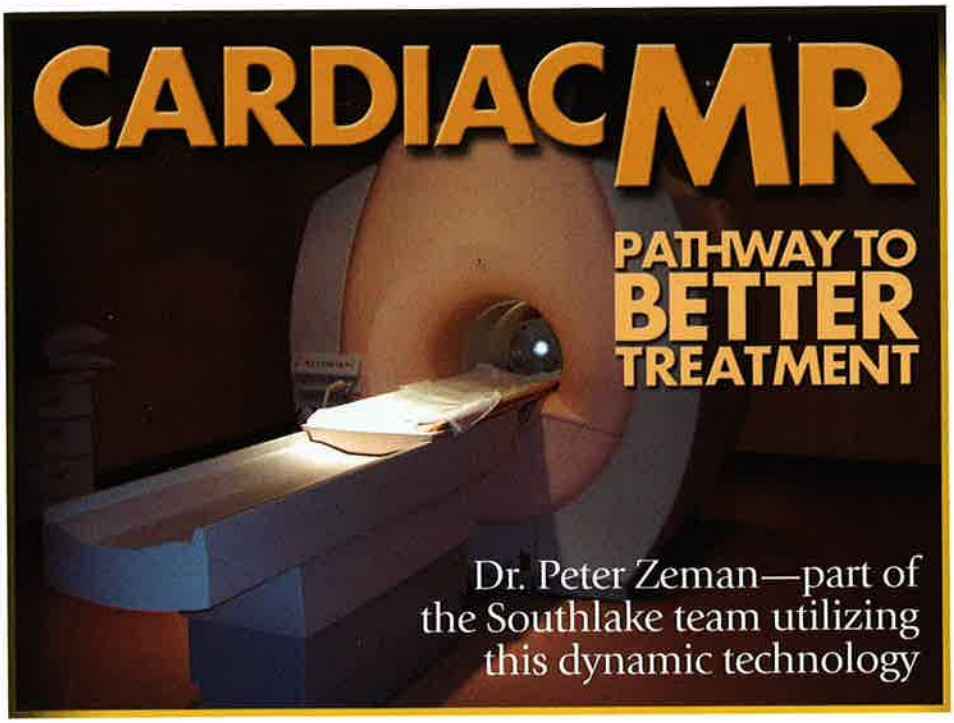
Dr. Thangaroopan, Dr. Zeman, and members of Southlake's Department of Radiology work together in a joint program initiated in 2007 as a fully collaborative venture (between the Cardiac Care Program and the Department of Radiology) to offer state-of-the-art cardiac imaging techniques, CCTA, and Cardiac MRI (CMR) at Southlake. Southlake's Department of Radiology is comprised of a highly trained team of nurses, CT technologists, and Cardiac CT radiologists, including Dr. Erik Silmberg, Dr. Lisa Thain, Dr. Peter Stroz, Dr. Phillip Buckler, Dr. Peter Law, and Dr. Fred Lan.

With technical advances in modern multidetector CT scanners, including high spatial and temporal resolution, CCTA has now emerged as a powerful diagnostic tool for non-invasively evaluating small coronary arteries which previously only conventional coronary angiography (cardiac catheterization) could accurately depict. In as little as 10 to 15 minutes, CCTA provides high resolution 3D images of the beating heart and vessels to determine if either fatty or calcium deposits (atherosclerotic plaque) have built up in the coronary arteries. CCTA can determine if symptoms of chest pain may be caused by a coronary blockage, particularly in individuals at risk, such as those with a history of cardiac events, diabetes, high blood pressure, elevated cholesterol levels, and smoking. In addition to coronary artery evaluation, CCTA can also be applied to bypass graft imaging after cardiac surgery, assessment of pulmonary veins following ablation therapy, as well as congenital and acquired abnormalities.



CARDIAC MR

PATHWAY TO BETTER TREATMENT



Dr. Peter Zeman—part of the Southlake team utilizing this dynamic technology

In the past few decades, progress made in medicine has reduced the death rate for cardiac diseases considerably. At the same time, though, the rise in the number of patients with chronic heart diseases had fuelled the need for further medical innovations, especially for new diagnostic and therapeutic techniques. Few innovations have held greater promise than Cardiac MR imaging and Southlake Regional Health Centre is one of only a few centres in the Greater Toronto Area to fully utilize this technology.

MR (magnetic resonance) imaging technology works by polarizing hydrogen atoms in cells, thus allowing differences between healthy and pathologic tissues to be imaged. It offers an entirely new insight into the heart, providing valuable diagnostic information and treatment indicators. Cardiac MR is a viable imaging alternative for the assessment of coronary disease and can very accurately quantify tissue damage after myocardial infarction. Recent studies have found it equivalent to nuclear perfusion and viability studies in assessing myocardium at risk and the need for coronary revascularization.

Cardiac MR has a long checklist of capabilities. It is the most accurate method to quantify cardiac chamber size and ejection fraction, essential in determining prognosis and treatment of heart failure, and is the only imaging technique able to differentiate certain types of cardiac masses and cardiomyopathies due to its excellence in characterizing pathologic tissues. Cardiac MR also helps in detailing difficult to diagnose conditions, such as pericardial constriction, arrhythmogenic right ventricular dysplasia, and complex congenital heart conditions.

Since the inception of the Cardiac MR program at Southlake in April 2007, the number of scans being performed has nearly doubled. Southlake utilizes a Philips 1.5T magnet along with a cardiac analysis package, in order to analyze detailed cardiac structures, cardiac function, coronary arteries, myocardial perfusion and scarring, as well as valvular function. It is a complex technology that requires highly skilled medical practitioners to drive it. At Southlake, Drs. Peter Zeman and Molly Thangaroopan from the Department of Cardiology, alongside skilled physicians and technologists from the Radiology Department with expertise in advanced cardiac imaging, make up the joint Cardiac MR team.

Dr. Zeman, MD, FRCPC, FACC, graduated from medicine and completed his residency in internal medicine at Queen's University. He completed a fellowship in cardiology at the University of Western Ontario followed by a fellowship in advanced cardiac imaging at the Washington Hospital Center, Washington, D.C. with training in Cardiac MR, Cardiac CTA, and Cardiac PET imaging. Dr. Zeman's clinical interests include imaging and risk stratification of coronary artery disease, and the identification and management of cardiomyopathies.

Indications are strong that as the population increases and ages in Southlake's York, Simcoe, Muskoka, and Dufferin regions, the need for Cardiac MR and innovations like it will grow alongside. As a regional leader in Cardiac Care, Southlake's team will continue to lead in its mission to provide innovative excellence.

The Beat Goes On

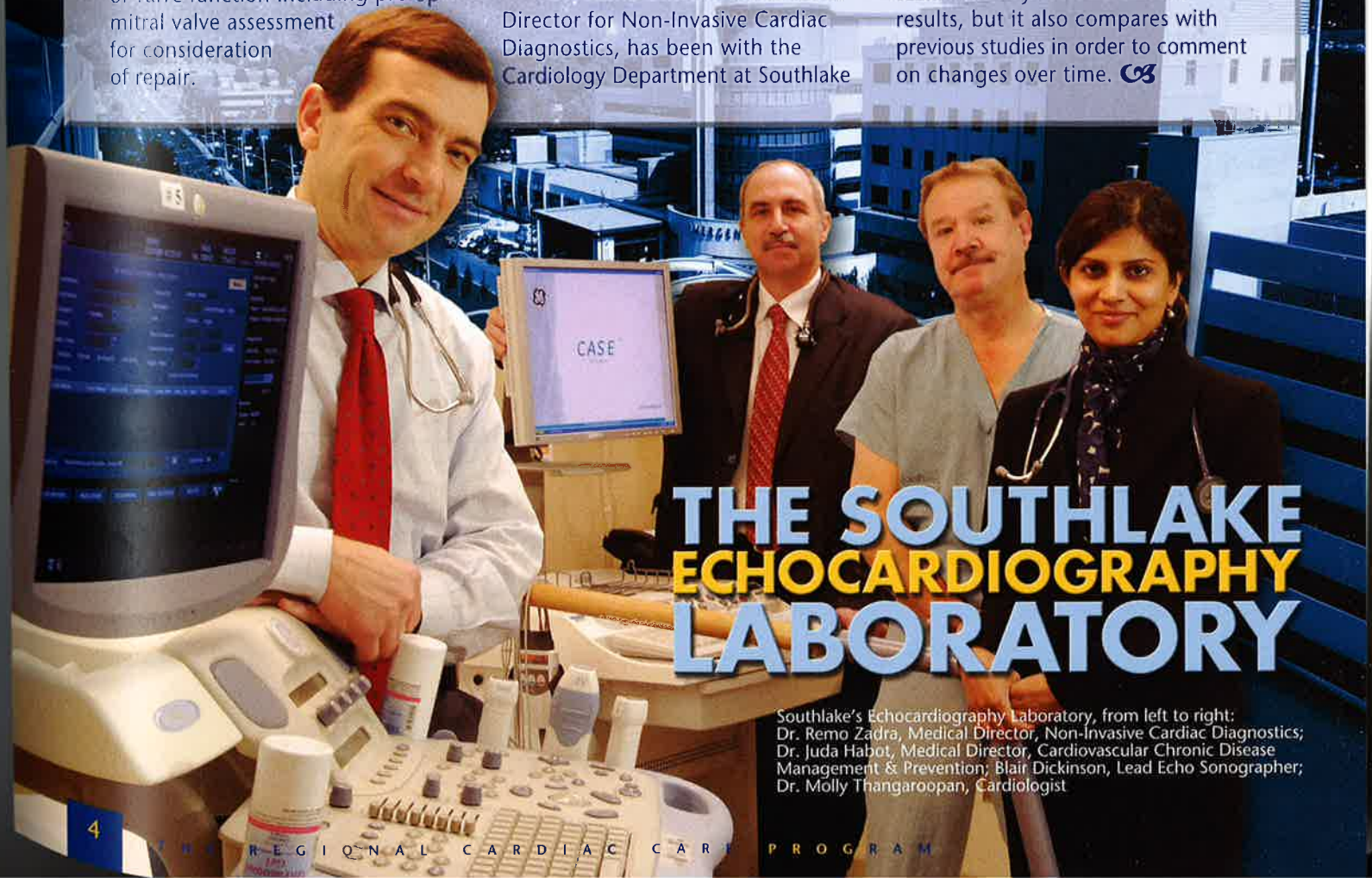
Southlake's state-of-the-art Echocardiography Laboratory performs patient testing to provide physicians with the highest quality information about the size and shape of their patient's heart, how well its chambers and valves are working, how well blood flows through, and if the heart muscle is performing properly.

Southlake's Echo Lab does a high volume of Transesophageal Echo's (TEE), which provides added information over transthoracic echos. Many TEE's are ordered to rule out clot formation before cardioversion/ablation. Additionally, cardiovascular surgeons use TEE to provide a more accurate assessment of valve function including pre-op mitral valve assessment for consideration of repair.

The Echo Lab also performs a high volume of both treadmill and dobutamine Stress Echos, supervised directly by an echocardiographer. In our laboratory, Stress Echos have a diagnostic accuracy comparable to a nuclear stress test. For patients with poor images, "contrast echo" is available to help improve the sensitivity of the test.

Looking to the future, the Echo Lab supports research initiatives. Recently the Lab has been involved in arrhythmia studies, looking at different pacing algorithms on LV function and monitoring the LV function on a number of cancer patients who are receiving new chemotherapy protocols.

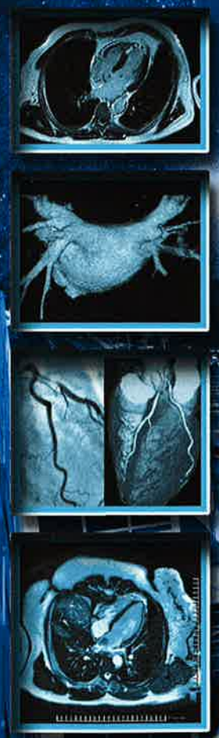
Dr. Remo Zadra is the Medical Director for Non-Invasive Cardiac Diagnostics, has been with the Cardiology Department at Southlake since 2000. After receiving his MD from the University of Ottawa, and completing his cardiology residency at Dalhousie University, Dr. Zadra completed an Echocardiography fellowship at the University of Toronto. Dr. Zadra has been instrumental in developing the echo laboratory to meet the needs of the regional program. Southlake is fortunate to have Dr. Zadra along with Dr. Juda Habot and Dr. Molly Thangaroopan, a dedicated team of cardiologists who have completed Fellowship training in echocardiography. These specialists work alongside a highly skilled team of sonographers who regularly review a variety of cardiac pathology. This team not only reviews current results, but it also compares with previous studies in order to comment on changes over time.



THE SOUTHLAKE ECHOCARDIOGRAPHY LABORATORY

Southlake's Echocardiography Laboratory, from left to right: Dr. Remo Zadra, Medical Director, Non-Invasive Cardiac Diagnostics; Dr. Juda Habot, Medical Director, Cardiovascular Chronic Disease Management & Prevention; Blair Dickinson, Lead Echo Sonographer; Dr. Molly Thangaroopan, Cardiologist

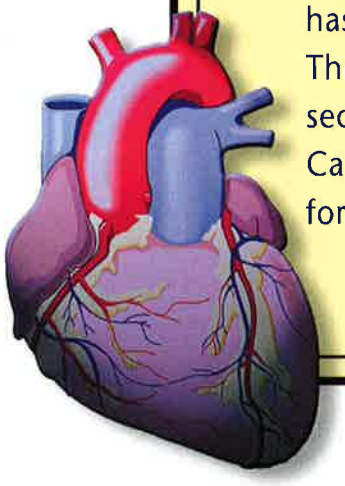
Southlake's
Department of Cardiology
...outstanding professionals
providing the latest
powerful technologies
as diagnostic tools
for patients
with cardiac disease



GETTING A CLEAR IMAGE

Nuclear viability scans and perfusion stress imaging, which measure blood flow to the heart muscle at rest and during stress, have been an integral part of risk stratifying patients with coronary artery disease for many decades. At Southlake, in order to provide the most reliable and accurate information, nuclear cardiac studies are read jointly by members of the Department of Cardiology and Nuclear Medicine.

Recently, a well-publicised worldwide shortage of nuclear tracers has added challenges in the management of cardiac patients. Throughout this time, Southlake has remained committed in securing stable sources of nuclear tracers so that the Cardiac Care Program can continue to provide the best possible care for patients in our community.



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Corporate Communications
Southlake Regional Health Centre
596 Davis Drive
Newmarket, Ontario
L3Y 2P9

Tel: 905-895-4521, ext. 2541
Email: communications@southlakeregional.org
www.southlakeregional.org

SOUTHLAKE
REGIONAL HEALTH CENTRE