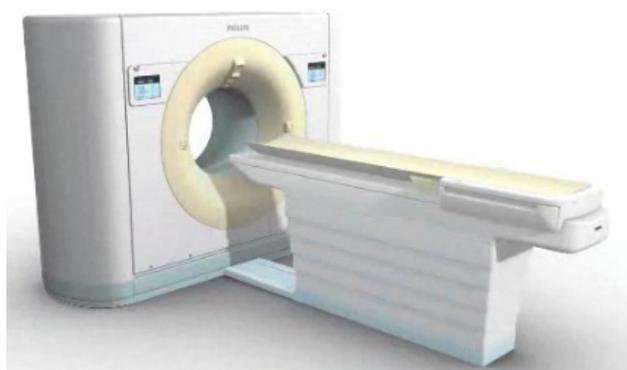




# Providing the answers you need



At Insight+Ascot Radiology, we provide access to advanced imaging technology and have just installed a Philips 256-slice CT scanner at our Ascot Hospital site.

THIS SCANNER PRODUCES images of exceptional quality, while substantially reducing the radiation dose to the patient. For example, a coronary artery CT angiogram is now a radiation dose of 2 mSv, compared to the average radiation dose for a catheter coronary angiogram of 8-10 mSv.

The x-ray tube and detector array in this scanner is not mounted on conventional bearings, but is designed so it floats on a frictionless cushion of air. This allows for a faster speed of rotation around the patient and a reduction in scanner noise. With a rotation time of 0.27s, it is currently the fastest CT scanner commercially available, making it especially suited for cardiac CT imaging. It can acquire images of the entire heart in just two heartbeats and consequently reduces the amount of time the patient has to hold their breath.

The increased speed of acquisition has allowed for a reduction in the volume of contrast media (dye) required for such studies. Some patients experience a warm sensation associated with the administration of contrast, and this sensation is reduced with the lower volumes of contrast required.

Artifacts from large metal objects, such as orthopaedic implants, can be problematic in CT imaging, often obscuring structures around a joint prosthesis. A new reconstructive technique incorporated into this scanner reduces the level of noise on images created by the prosthesis, much improving the image quality.

All cardiac CT scans are done at the Ascot Hospital site. We also have CT scanners located at our Green Lane Imaging and Millennium Institute of Sport & Health branches.



CT SCANS THROUGH THE PELVIS WITH A HIP PROSTHESIS: WITH RECONSTRUCTIVE SOFTWARE TO REMOVE IMAGE NOISE (RIGHT) COMPARED TO THE ORIGINAL IMAGE.

## Introducing Dr Christopher Occleshaw MBChB, MRCP, FRCR, FCSANZ, FRANZCR

CHRIS OCCLESHAW IS A SUB-SPECIALIST CARDIAC RADIOLOGIST, and has done fulltime cardiac imaging for over two decades. He graduated from Edinburgh University, and underwent postgraduate training in cardiology in northeast England, before training in general radiology in Sheffield and Cambridge in the UK. He has been a Consultant Cardiac Radiologist at the Green Lane Cardiovascular Unit since 1993, and has had overseas fellowships in cardiac radiology in Toronto, Vancouver and London. He pioneered MR imaging of the heart in the Southern Hemisphere with colleagues from Auckland University in the 1990s, and CT of the heart in New Zealand in 2004, at Green Lane Hospital. He has been Associate Professor of Radiology at the University of Auckland since 2011. Chris consults at Insight+Ascot Radiology's Ascot Hospital site twice a week.



Faster, better diagnosis from our expert term of professional radiology clinicians in a caring environment

## Coronary Artery Calcium Scoring

Coronary Artery Calcium Scoring (CACS or 'Heartcheck') is a new test in the fight against New Zealand's number one killer - heart disease. It is a relatively new method of imaging the coronary arteries to look for signs of Coronary Artery Disease. In less than 20 minutes we can calculate a score that indicates how likely a patient is to have symptoms of Coronary Artery Disease.

THIS TECHNIQUE INVOLVES THE USE of a High-Speed Gated CT scanner. 'Gated' refers to the ability of the CT scanner to take images in time with the heartbeat, so that there is no blurring of the image.

With a few breath holds, images can be taken of the coronary arteries. From the images the amount of calcium in the coronary arteries is measured, and a score (CAC Score) is calculated from the amount of calcium present. The calcium score is then compared to a reference range for the population of the patient's age and gender, and gives a relative risk of developing symptoms of coronary artery disease compared to that of the rest of the population.

The CACS scan doesn't replace coronary angiography. The two tests provide different types of information. CACS screening more accurately determines who is at risk of developing symptoms of coronary artery disease. Coronary angiography is for detection of narrowing of the coronary arteries in a person who already has symptoms of possible coronary artery disease.

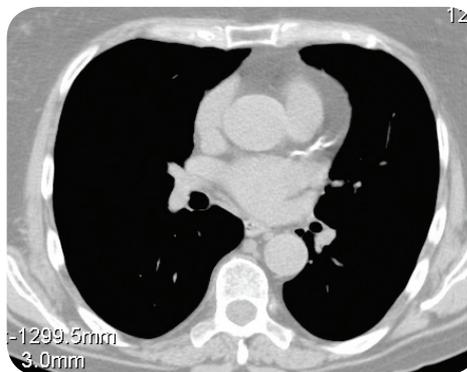
### REASONS FOR THE PROCEDURE

THIS SCAN CAN DETECT the development of plaque before symptoms occur. Plaque starts being deposited in the wall of the artery years before it narrows the artery to the point that symptoms develop. Detection of early coronary artery disease allows individuals to take modifying action before symptoms develop.

Only 60% of people with heart disease have the traditional risk factors for coronary artery disease. CAD is a disease of genetics and lifestyle. A patient cannot be completely reassured that they will not have heart disease just because their cholesterol is normal, they don't smoke, have a normal blood pressure and exercise regularly.

### WHO SHOULD HAVE THE TEST?

THE TEST IS BEST SUITED to males aged 40-70, and females aged 50-70. Cardiac risk can be assessed to some extent using tables from the National Heart Foundation (NHF). If a patient is at **high risk** on the NHF table, then the CACS result will not change this and they probably will not benefit from having it done. If a patient is at **intermediate risk** on the NHF tables, then the CACS test is very useful at determining whether aggressive preventative action should be taken or whether the patient can be reassured, and is strongly recommended. If they are at **low risk** on the NHF tables, then the CACS test result is usually the same and may not benefit to the patient.



A CACS ('HEARTCHECK') SCAN SHOWING LAD CALCIFICATION.

However, there are exceptions to these general rules. For example, even if a patient appears to be at low risk on the NHF tables, if they have a close relative who develops cardiovascular disease, then they may be at much higher risk than the NHF tables suggest, and a CACS scan can confirm this. Those who are at high risk on the NHF tables who are having trouble with side-effects of statin medication may find that a CACS scan indicates they are at lower risk than previously thought, allowing them to stop taking medication unlikely to be of any benefit, or alternatively it may confirm that statin therapy is really necessary and should be continued if at all possible.

If a patient already has cardiovascular disease such as angina, or have suffered a heart attack or stroke, then by definition they are at relatively high risk of disease, and the CACS scan is not appropriate for them.

### WHO CAN REFER FOR A CACS SCAN?

GPS CAN REFER PATIENTS for a CACS scan. However, because it is a screening test, it is not covered by health insurance.

### HOW OFTEN SHOULD IT BE DONE?

SINCE THE RISK OF DEVELOPING cardiovascular disease changes with age, even if a CACS scan result shows a patient is at low risk, it is worth repeating the scan in 5 years time.

## Patient information sheets

OUR SERIES OF INFORMATION SHEETS are a great resource for patients, particularly for first-time radiology visitors.

These are available to download at:

[www.insightradiology.co.nz/](http://www.insightradiology.co.nz/)

Medical-Professionals/

Brochure-Downloads/

or by scanning the QR code here:



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