



# Enhance diagnostic confidence

## Philips BrightView XCT nuclear medicine system – widening the perspective of nuclear cardiology

### Who/where

University Hospital, Geneva, Nuclear Cardiology, a joint unit run by the Division of Cardiology and the Nuclear Medicine Service

Privatdozent Dr. Thomas Schindler, Heads of Nuclear Cardiology and the cardiac PET/CT team, General Clinical Cardiologist

### Challenge

Confidently recommending patients for coronary revascularization or selecting appropriate treatment for patients with suspected or known coronary artery disease.

### Solution

Philips BrightView XCT nuclear medicine system

Getting a comprehensive view of the patient has been key in the success of the Philips BrightView XCT SPECT/CT system in the University Hospital, Geneva. “It helps us achieve excellent diagnostic and clinical interpretations of cardiac SPECT/CT results, and thus to confidently recommend coronary revascularizations or medical treatment for patients with suspected or known CAD,” says Dr. Thomas Schindler.

In the University Hospital, Geneva, nuclear cardiology is a joint effort, run in the Division of Cardiology with the Nuclear Medicine Service. With a solid background in Internal Medicine, Cardiology, and a Subspecialty of Nuclear Cardiology, Privatdozent Dr. Thomas Schindler, who heads the nuclear cardiology and cardiac PET/CT team, as well as General Clinical Cardiology, has a similar cross-discipline perspective. He says “this lets me combine insights from clinical symptoms, the patient’s condition, coronary morphology, when this is available, and information from the imaging to interpret alterations in the ECG during the stress test.”

Placing the unit in the Cardiology Department of Prof. Francois Mach overcomes the threshold cardiologists might otherwise have in consulting SPECT. There is no delay in imaging patients to reach treatment decisions with the referring cardiologist. Such discussions are a standard part of the daily and personal conferences in the Division of Cardiology. The direct, visual interpretation of perfusion and viability, enriches the cardiologist interpreta-

tion of coronary morphology (when this is available) and the patient’s clinical situation.

### Reducing dosage

The nuclear cardiology unit examines four to six patients a day (around half are outpatients). “The BrightView XCT is the cornerstone, the workhorse of the unit,” says Dr. Schindler. Patient numbers in the unit have not changed significantly since Dr. Schindler joined



Privatdozent Dr. Thomas Schindler, Head of Nuclear Cardiology

**PHILIPS**  
sense and simplicity



in 2006. This might not sound impressive, but it is proof of the quality the unit offers. In this time, further centers have opened in the city, and the Nuclear Medicine Service has installed PET/MRI and PET/CT systems. (Some patients with severe ischemic heart disease and left-ventricular function under 30% also undergo an FDG-PET/CT study.) Nuclear cardiology could have applied the improvements from the BrightView XCT to almost halve acquisition times and increase patient numbers. But, with a stable caseload, they concentrated on reducing the radiation dose. "The change to technetium<sup>1</sup> and Philips Astonish software has helped us reduce radiation levels to 4 to 6 mSv for the stress and the rest examinations together." Earlier, with thallium and filtered back projections, the level was between 15 and 25 mSv. The environmental radiation in the Alps is around 3 mSv. Dr. Schindler classifies 6 mSv as negligible, opening the way for repeated examinations to provide valuable information on how conditions develop, even for younger patients.

### Increasing confidence

"At the same time, the Astonish software, and the attenuation correction of the CT, has meant we have enhanced our image quality," he adds. "This makes reporting fast, accurate,

and less observer dependent." It has also made it easy for his colleagues to read, discuss, and understand the function, perfusion and viability of the patient's heart. The CoPlanar operation of the CT and SPECT also contributes to image quality. Both acquisitions are performed at the same table position, without the patient moving between CT and SPECT gantries. The CT takes a minute for a full acquisition, creating an attenuation map that includes breathing and heartbeats, and correlates well with SPECT. The CoPlanar acquisition makes fusion straightforward. It is largely automated by the software, with a final registration check by the radiographer. Dr. Schindler reports that "we are very satisfied. With this technology, the patient would need to be moving a lot during the acquisition to cause a misregistration." He adds that this robust registration contributes to the accuracy of the attenuation correction. BrightView XCT has brought a reduction in artifacts and false positives. With the previous SPECT system, they had around 10 to 15% false positives, particularly in the rear wall of the heart. "With cone beam CT for attenuation correction, we have as good as no more false positives in the rear wall," says Dr. Schindler. "It is rare now that an interventional colleague reports an unnecessary procedure because of a false positive."

### Removing barriers

The last factor influencing the ease of changing to BrightView XCT is more mundane, but just as important. It is smaller and lighter than more expensive, multipurpose SPECT/CT systems. It fits in the room used by the previous SPECT system, on the 6th floor of the hospital, without a rebuild. The low radiation dosage of the flat detector CT (for example, around 0.3 mSv for the attenuation correction scan) meant the room did not even need much extra lead shielding. Both the material and the clinical needs of the cardiologists were met by BrightView XCT.

With the diagnostic advantages so obvious, the question remains of the seemingly low acceptance of nuclear cardiology in Europe. "Nuclear medicine is underused in cardiology," says Prof. Ratib Osman, Head of the Nuclear Medicine Service, "because of the lack of cardiologists with the necessary imaging training and certification." As a nucleus member and secretary of the Working Group on Nuclear Cardiology and CT of the European Society of Cardiology (ESC), Dr. Schindler is working toward better perspectives for SPECT/CT in cardiology, and making the benefits of BrightView XCT more widely accepted.

<sup>1</sup> <sup>99</sup>Tc-SPECT/CT

Please visit [www.philips.com/healthcare](http://www.philips.com/healthcare)



© 2012 Koninklijke Philips Electronics N.V.  
All rights are reserved.

Philips Healthcare reserves the right to make changes in specifications and/or to discontinue any product at any time without notice or obligation and will not be liable for any consequences resulting from the use of this publication.

Philips Healthcare is part of Royal Philips Electronics

[www.philips.com/healthcare](http://www.philips.com/healthcare)  
[healthcare@philips.com](mailto:healthcare@philips.com)

Printed in The Netherlands  
4522 962 84691 \* MAY 2012