2009 was a tough year for everyone, with economic and market forces driving intense change. Our focus, however, remained unchanged – a commitment to you, our clinical partners, to deliver the highest quality service and clinical innovations. We emerged stronger in spite of the difficult economic landscape, and I am proud to share with you our achievements of the past year.

Several new product innovations were industry firsts, and capture our ethos of improving customer experience and driving clinical innovation. BrightView XCT, the first “no compromise” SPECT/CT system, delivers high-resolution, low-dose images. Philips Generation 3 Time-of-Flight PET/CT scanner, the world’s first with a typical timing resolution less than 500 picoseconds. And Pinnacle3 version 9 with SmartArc, the first vendor-neutral RTP application to work seamlessly with the major linac linear accelerator vendors to integrate your department and deliver the best return on your efforts. SmartArc, now available on Pinnacle 9, utilizes VMAT technology to generate plans with reduced treatment times which may provide less stress for the patient and more capacity for your clinic.

These are just a few of the many accomplishments from 2009 – all of which were inspired by you and your needs. Please look to ECR, SNM, and RSNA this year for a continuation of the same commitment to leadership we showed in 2009. We know that your success depends on enhancing your organization’s performance and increasing patient satisfaction. We’ll continue to provide you with the highest quality products, training, and support to help you focus on your most important objective – patient care.

I’m excited about working with all of you this year and will continue the momentum of 2009 to make 2010 one of our best years yet. I hope the information and tools provided in this communication continue to enhance your experience with Philips Nuclear Medicine. I thank you for your support and consider it a genuine pleasure to serve you.

Jay Mazelsky
Senior Vice President and General Manager, CT/NM
The Peterborough Regional Health Centre has become one of the first hospitals in Canada to acquire a new hybrid technology from Philips – the BrightView XCT system. The next-generation imaging system, which integrates a BrightView co-planar SPECT with flat-panel CT technology, promises to join the sensitivity of nuclear medicine with CT scanning’s ability to pinpoint the anatomic location of a problem.

“What nuclear medicine has traditionally provided us with is an extremely sensitive modality for imaging, but one with relatively low specificity for what we are doing,” said Dr. Paul Wilson, chief of diagnostic imaging as well as a general radiologist at the Peterborough facility. “What the CT SPECT really does is to introduce that anatomic element. Overlapping the CT image is a way to improve the spatial resolution of the test that we are doing, so we can increase the specificity of what we are looking at.”

In a community hospital setting like in Peterborough, the new system has proven invaluable in situations such as bone scans of elderly patients.

The Peterborough facility is also using the system to merge off-site CT images with nuclear medicine scans taken with the Philips machine. “We have the ability to be able to go back using a regular diagnostic CT – not the CT SPECT – and overlay the nuclear medicine images to get the same information,” said Dr. Wilson. “That is more of a software component of what this introduces, but that is a great thing to be able to do as a troubleshooting tool.”

Because the Peterborough centre does “not do a huge amount of more complex nuclear medicine cases, for us we are finding it mainly useful for bone scans and sometimes for therapy planning, particularly for people with chronic pain. Basically, anywhere where anatomy and localization of whatever tracer we are using in the nuclear medicine department, whatever disease we are looking for where localization and anatomic placement of the problem becomes problematic or difficult to determine, this is going to prove to be useful.”

To a degree, the Peterborough facility has felt the effects of the current radioisotope shortage, specifically the supply of technetium, which has put constraints on workflow in nuclear medicine. “It hasn’t affected the volume that we are able to do, what it does affect is what days of the week we can do certain studies and it doesn’t give us as much leeway for doing emergencies,” commented Dr. Wilson.

The nuclear medicine component of the Philips BrightView system has also been installed recently in the Headwaters Health Care Centre in Orangeville, Ont. as part of that facility’s ongoing effort to broaden its diagnostic capabilities. “Formerly the patients had to leave the hospital to get nuclear medicine studies,” said Headwaters’ CEO Cholly Boland. “That piece of information then had to be incorporated into the patient record and was an inconvenience for the patient. Now we have, for want of a better term, one-stop shopping for diagnostic imaging services.”

The Philips system also presented Headwaters with a compelling business case: it no longer bears the transportation costs to ship patients to other facilities for nuclear medicine tests and “it does generate a certain amount of revenue through OHIP to the hospital which is helping to pay for the service,” said Boland. Having a suite of scans available under one roof has also cut wait times significantly in cases where patients require a combination of tests.

Headwaters, which has been conducting an average of eight nuclear medicine scans daily since mid-September, is mainly using the system for cardiac studies with a lesser number of bone and thyroid scans, said Scott Edmonstone, the hospital’s diagnostic imaging manager. “The bone scans are primarily for determining the levels of cancer. With the cardiac scans it is an indication that they need to go for a more involved study.”

The addition of the Philips scanner only adds to Headwaters’ impressive status within the province. “We have the shortest public wait times not only for our DI modalities but our surgery and ER in Ontario, and probably the highest patient satisfaction in Ontario.”
Product update

**Generation 3 Time-of-Flight now shipping!**

In 2006, Philips began commercial shipments of the first Time-of-Flight PET/CT system, the GEMINI TF. Time-of-Flight (TOF) PET technology makes an accurate measurement of the arrival times of the coincident photon pair that is used to localize the radioactive annihilation in a patient’s body. This additional information is used in the PET reconstruction process to produce a quantifiable improvement in image quality.

In conventional PET imaging, it’s only possible to know that a coincident event has taken place on the line of response, but not the actual location of the event. TruFlight TOF technology uses the actual time difference between the detection of coincident events to more accurately identify the origin of the annihilation.

Since the initial GEMINI TF release, Philips has made multiple enhancements to its TruFlight TOF technology including applying TOF benefits to respiratory correlated imaging (4D TOF), enhancing TOF algorithms, and introducing our second TOF scanner; the GEMINI TF Big Bore. The advantages of TOF have resulted in great success for the GEMINI TF, as evidenced by the 200th shipment last year. But Philips isn’t stopping there. The key element that determines the benefit from TOF is the accuracy of the timing measurement. This is described by a measurement called the TOF timing resolution. The smaller this number, the more accurate the timing measurement. When Philips began shipments of our first generation TOF, the TOF timing resolution was 650 pico-seconds (billionths of a second!). Philips now continues its TOF leadership with shipments of its third generation of TruFlight TOF on new GEMINI TF and GEMINI TF Big Bore systems. Generation 3 further improves TOF timing resolution to 495ps, further enhancing TOF accuracy.

**Conventional PET**
No localization along the line of response

**Generation 1**
650ps TOF timing resolution

**Generation 2**
TOF accuracy improved to 575ps

**Generation 3**
TOF accuracy now improved to 495ps
Clinical updates

BrightView Auto Body Contouring
BrightView 1.2.1 (Service Update #2)

The family of BrightView cameras employs the use of BodyGuard\(^1\) technology. The two features enabled with this technology are:

**Auto Body Contouring (ABC)**
An automatic body contouring feature, which is a fully automatic collision avoidance system that prevents collision of the collimator face or long edge with people or any conductive object.

**System protection (TelePath)**
A combined collision avoidance and detection system that monitors the positions of the following system components to avoid collisions between them.
- Detectors and collimators
- The portion of the gantry that supports the detectors
- Pallet catcher
- Table (when docked) and pallet
- Floor

ABC is a standard feature on all BrightView family products. In ABC mode the system automatically contours the patient’s body at a distance selected by the user. This feature is an electronic field-based proximity detection system which guides detectors to be a specified distance from a patient during imaging, and can be used in both SPECT and total body acquisitions.

To improve the functionality of ABC for our existing customer base, Philips Healthcare is releasing the latest software update to our BrightView SPECT gamma camera – BrightView 1.2.1 (Service Update #2). This software update is free of charge for all BrightView customers.

BrightView 1.2.1 (Service Update #2) includes ABC control software enhancements that will help reduce the total study time by accounting for dead space in Relative 90 SPECT studies and, by using the ABC feature, provide a more efficient method for positioning the detectors in Cardiac 90 studies.

For further information on the BrightView family of products, ABC, or BrightView 1.2.1, please contact your Philips Healthcare SPECT Sales Specialist or your local Field Service Engineer.

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\(^{1}\) BodyGuard is a trademark of CME America, LLC
Clinical updates

Gastric Emptying T1/2 accuracy

Recently, Philips Healthcare has been made aware that T1/2 results obtained from the Gastric Emptying application on EBW-NM may not be as expected based on visual assessment of the residual curve and raw data itself.

The EBW-NM Gastric Emptying application reports the first data point after the halfway point of the residual curve as the T1/2 value. For acquisitions acquired at hourly intervals over 4 hours, this means that if the T1/2 is reached at the 2 hour 5 minute mark, the T1/2 will be reported at the 3 hour mark (or the next data point in this case).

Ultimately, this means that the more data points there are, the more accurate the value will be. In other words, a dynamic study with data every minute will result in a value that is much more accurate than study with 4-5 statics acquired at hourly intervals.

At Philips Healthcare Nuclear Medicine we understand that this is not a standard way according to current Society of Nuclear Medicine Guidelines and are looking at resolving T1/2 accuracy for a low number of data points in a future release. Meanwhile, to increase accuracy with Gastric Emptying results, use a higher number of data points if possible.

EBW-NM 1.1.1 update

EBW NM 1.1.1 software upgrade was released in March 2010. This maintenance release has been focused on correcting software deviations and enhancing functionality. Some notable fixes and enhancements you will see with the 1.1.1 release are outlined below.

Lung Quant application
The corrections to the Lung Quant application have been made to include enhancements to isocontour ROI, as well as corrections to geometric mean calculations.

Annotations
The orientation markers have been updated for ACR compliance and have been added to the factory displays. 3D displays now include orientation labels. The user may also configure minimum and max font sizes in preferences. The patient name and patient ID have been added to the attribute list in Annotation.

Enhanced interoperability with Siemens system
Automatic handling of multi-frame planar images within the NM Application Suite applications is now available.

Vantage Recon support
The corrections have been made to support Atlas as well as JETStream-based Vantage acquisitions in AutoSPECT Pro.

Enhancements in isocontour ROI
Initial isocontour ROI edges are better matched to the organ.

Custom display
Enhancements to custom display features allow the users to save tiling as part of the display.

AutoQUANT CTA Fusion
The AutoQUANT 7.0 CTA Fusion option including vessel overlays is now available for EBW NM.

Fusion Viewer
Enhancements have been made to BrightView XCT slab viewing – the users now have the ability to sum slices in three orthogonal views. This feature is especially useful for images acquired with isotropic voxels like those from the BrightView XCT. VOI statistics now also support reporting of sum of pixel counts in ROIs for SPECT data.
Clinical updates

JETStream Workspace 3.5

JETStream Workspace version 3.5 is the latest update to version 3.0 that has not only enhanced functionality to various applications but also provided modifications to programs designed to improve workflow.

JETStream Workspace encompasses all the imaging elements of a nuclear medicine laboratory into one environment. Acquisition, display, processing, review, reporting, and image archiving can exist in one environment at a single location or distributed throughout the department in multiple locations. JETStream Workspace incorporates user-centric technology to provide an integrated, personalized workflow management solution to dramatically enhance workflow without compromising clinical efficiency.

Some of the features to be included in version 3.5
- Enhancements to both the Comprehensive Renal and Gastric Emptying applications
  - Curve fit now displayed on Results page of Comprehensive Renal application
  - % retention for Tc-99m and In-111 at 30, 60, 90, 120, and 240 minutes (% emptying for Tc-99m only) and optional curve smoothing in Gastric Emptying application
- Count-based brightness/background
- Cubic interpolation to reduce the appearance of a grid pattern in low count images
- Roxio software version 7.2.1 to address issue with media not being recognized
- Update to AutoQUANT 7.0 software to reduce compatibility issues with certain PACS
- Fixes to TB Spots and Review, Renal, and Bone Quantification applications
Technical update

JETStream Workspace

product security – Conficker Worm

Since early 2009 many of us have heard about, and some of us have been affected by, the Conficker Worm (also known as Downadup) that can infect PCs running the Microsoft Windows Operating System.

Philips Healthcare Nuclear Medicine has released a security update which incorporates Microsoft update MS08-067 (Conficker Worm) for JETStream Workspace. Ask your local FSE to obtain a downloadable copy and install it on your JETStream Workspace(s) to inoculate from one of the Conficker attack vectors, a vulnerability with the Microsoft Operating System.

Please note, the update protects against only one of the attack methods that the Conficker Worm can use to compromise systems. Other ways your system can be infected include inserting an infected USB stick, which is an extremely common way for the Worm to propagate, or by non-password protected network-shared folders (or those with “weak” strength passwords). Best practices recommend that if you must put a memory stick in JETStream Workspace at all, then you should first perform a virus scan on the USB stick using a non-infected PC (for assistance with this procedure, please contact your IT group or local Service Representative).

Keep in mind that just because the update is now installed on the JETStream Workspace, it doesn’t mean the JETStream Workspace cannot be re-infected. Remember that re-infection can occur from an infected USB stick or shared folders without “strong” password protection. Sometimes a revision to your dataflow mechanisms and policies are in order. While you are taking time to evaluate improvements to your security posture, please also consider that a common pathway of malware introduction into your network is to connect a laptop computer that has been infected at home or another location. The very best external protections (firewalls, etc.) are not well equipped to protect from this kind of internal exposure.

Steps to take if your system is infected

If you become aware of an infection on your JETStream Workspace (via popup messages, errant behavior and rebooting, notification from your IT Group’s malware scanning system, etc.), the proper steps to take are:

• Disconnect the device’s network cable
• Call the Philips Healthcare Customer Care Solution Center so they can notify your FSE
  – In USA and Canada, call the Philips Healthcare Customer Care Solution Center at 800-722-9377. In other countries, call your local Philips contact for applications support
• Notify your IT Group (if they were not the ones who notified you)
• Your FSE will help you make backups of user and system preferences and critical configurations
• Your FSE will reload the device with a clean product image and restore preferences and configurations
• At this time your FSE should apply the Conficker update package
• Make sure the site network has been cleaned by the IT Group or other qualified personnel before you reattach the JSWS to the network
• Reattach the device’s network cable

The steps and advice listed above also applies to the EBW-NM Workstation, however the MS08-067 patch has already been incorporated into the 1.0 release, therefore the downloadable patch does not need to be applied.

Philips sells, and helps you maintain, highly complex medical devices and systems. Only Philips-authorized changes are allowed to be made to these system, either by Philips personnel or (for certain products) by users if under Philips explicit published authorization directions.

For more information: Philips Product Security
www.healthcare.philips.com/us/support/productsecurity/
Is there something you would like to see published in a future edition of The Point Source newsletter?

If you have a question or concern that you would like to see answered, please write us at pointsource@philips.com

Please note that this method of communication is not a means for service or regular support issues. Not all questions or concerns will be addressed in the newsletter but all will be answered.