GE Healthcare

Introducing Q.Suite

The value of PET/CT in diagnostic imaging has been established for years — but now, even brighter possibilities are coming to light. With new quantitative tools that generate more consistent PET measurements, clinicians can now assess treatment response more accurately than ever before. As a result, clinicians can forge a bold new treatment paradigm: personalized care.

It's all about finding the most effective treatment sooner, based on each patient's response. It's the future of PET/CT. And the tools within Q.Suite are designed to help make it a reality.

Together with our customers, we are focused on improving cost, quality and access in PET imaging — a smarter path to tomorrow's care.

Personalized care: Effective treatments, tangible results

During the course of cancer treatment, clinicians traditionally gauge progress by looking for physical change in the size of a tumor, typically using CT or MR. But with quantitative PET imaging, they can also consider metabolic activity. Often times, metabolic changes in a tumor can be perceived more quickly than physical ones, so quantitative PET can give physicians an earlier view of how well a treatment is working.

This is the key to personalized care. By getting answers sooner, clinicians can modify treatment strategies without waiting for physical results, potentially increasing the chance of an effective therapy. More effective therapy may help improve your patient's quality of life and overall outcome as well as reduce the cost burden of ineffective treatment.

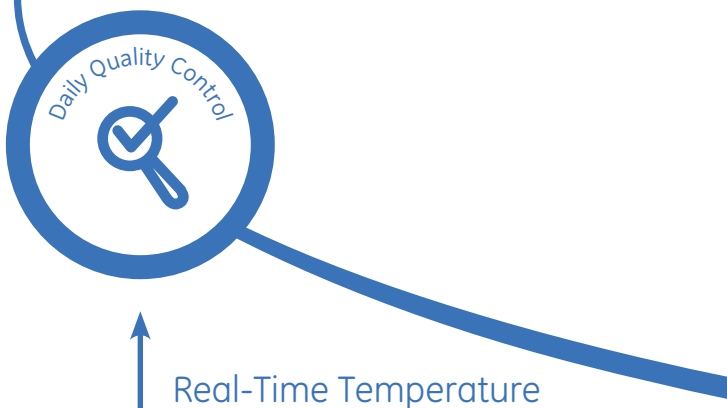
For quantitative PET to be effective, clinicians need consistent SUV measurements between a patient's baseline scan and subsequent follow-up scans on a single scanner. Variation can occur throughout the PET workflow, in areas from patient management and biology to equipment protocols and performance. Controlling these variables to increase consistency can help improve your confidence that an SUV change has true clinical meaning.

Q.Suite: Breakthrough tools for quantitative PET

With so much potential for variation, each part of the workflow must be addressed for quantitative PET to be effective. So we're designing Q.Suite to help improve consistency in every key area: daily quality control, scanner workflow, motion correction, reconstruction algorithms, and analysis and reporting applications.

Developed in collaboration with leading researchers, Q.Suite represents the next step in GE Healthcare's vision to enable effective quantitative PET imaging. Its next-generation tools span the workflow today—and they provide a foundation for further advancement tomorrow.

The use of PET in therapy assessment is already proven and effective. But by combining the capabilities of Q.Suite with updated clinical practices, we believe the consistency of PET measurements can increase dramatically. The goal: more personalized care to help raise the standard of care for all patients.



Count-Rate Independent Performance

Great performance at any count rate

To make consistent quantitative measurements, reconstruction parameters must be matched to the system's acquisition performance. If performance is variable with count rate, reconstruction parameter mismatches can lead to quantitative variation. But because our PET/CT product acquisition performance is not dependent on count rate, it can maintain consistent quantitation across all types of tracers, scan modes, and patient sizes.

Real-Time Temperature Compensation

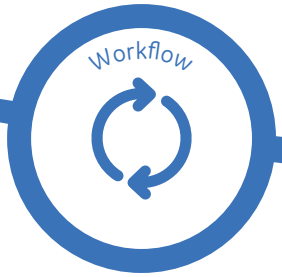
Consistent performance. Every exam. Every temperature.

The temperature of a scan room can affect the performance of a PET scanner, causing mismatches between current and calibrated system settings. Our real-time temperature compensation feature takes temperature measurements in every detector at the start of each exam, automatically adjusting the performance settings for any temperature change. This helps ensure that the system produces consistent measurements throughout the day.

Q.Core

Accelerating your quantitative imaging workflow

The processing needs of Q.Suite are more sophisticated than PET/CT has seen before. So we're updating our core computing hardware to handle the job. Q.Core is designed to manage both PET acquisition and reconstruction processing at faster speeds—in a compact footprint.



Q.Check

A quality control link between the scanner and workstation

Data capture is an important component to quantitative PET—and an incomplete set of parameters can cause frustration in the reading room. Q.Check is designed to provide an additional level of quality control, establishing a link between the console and workstation. This connection can help ensure that all the patient and exam data you require for quantitative imaging is saved in the patient file before the exam is finished. By capturing relevant parameters and physiological factors, Q.Check will bring both reliability and confidence to the reading room.

Q.Freeze

One image. All the counts. Motion eliminated.

We're designing Q.Freeze to combine the quantitative benefits of 4D phase-matched PET/CT imaging into a single static image. By collecting CT and PET data at each phase of the breathing cycle, then matching the data for attenuation correction purposes, Q.Freeze is designed to facilitate quantitative consistency. None of the acquisition data is wasted, as 100% of the counts collected are combined to create a single static image. The goal—a resulting image that has the dual benefit of frozen patient motion and reduced image noise.

Q.Static

Reducing organ motion effects, quickly and simply

Q.Static represents a starting point for adding basic motion correction techniques to your facility and the opportunity to build towards a full 4D phase-matched workflow. Without disrupting your standard static whole-body workflow, we're designing Q.Static to automatically isolate data when organs are in a low motion state, thereby correcting for motion across the entire chest or torso. The result is a single image series with reduced blurring from organ motion, and therefore more consistent quantitation compared to a static image.

Within Q.Suite, eight capabilities from GE Healthcare work together to drive quantitative consistency.

Q.AC

Attenuation consistency for demanding clinical protocols

Accurate attenuation correction is required for quantitative PET imaging. But in large anatomy imaging at low doses, the CT beam may not be strong enough to fully penetrate through the patient to the detector, potentially resulting in variations in attenuation measurements. Our next-generation Q.AC algorithm is designed to reduce potential variance, helping to ensure that the attenuation coefficients used in image reconstruction are accurate. This may improve consistency even in the most clinically demanding circumstances.

PET VCAR

Powerful patient monitoring

Visualizing and analyzing disease and treatment response requires powerful tools. PET VCAR provides automated, interactive access to valuable quantitative information, managing multiple lesions and multiple patient exams over time following the most popular treatment response assessment protocols available in PET/CT imaging, including PERCIST. It has the potential to improve the clinicians' daily reading experience and patient management.

GE Healthcare's PET vision: A smarter path

Together with our customers, we are focused on improving cost, quality and access in PET imaging — a smarter path to tomorrow's care. With Q.Suite, that smarter path means:

Responsible care.

Q.Suite is designed to help physicians assess therapy response early and effectively, allowing oncologists to modify treatment strategies without waiting for physical results. More effective therapy may improve your patient's quality of life and overall outcome as well as reduce the cost burden of ineffective treatment.

Meaningful collaboration.

Q.Suite is the product of close, ongoing partnerships between technology leaders and clinical researchers. We learned about the challenges of quantitative PET from our customers and are developing Q.Suite with their help. We will continue on this path, bringing tools to clinicians to help them drive toward a new standard of patient care.

Sustainable advancement.

We are building Q.Suite on a platform that can support ongoing development in the future. It will constitute an important step forward in capturing consistent quantitative measurements, and we will continue to invest in quantitative imaging tools in the years to come.

As we pursue a smarter path with our customers, GE Healthcare is committed to the future of PET/CT. While we never cease to break new ground, our priority is clinically relevant advancements that can help improve the lives of patients.

About GE Healthcare:

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

Our "healthymagination" vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at www.gehealthcare.com.

imagination at work

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