DISCOVERY™ IQ

IMAGE QUALITY.
INTELLIGENT QUANTITATION.

ENABLING BEST POSSIBLE PATIENT OUTCOMES FOR MORE PEOPLE IN MORE PLACES

You knew that PET/CT was capable of more. It's why you said you need to see smaller lesions with lower dose, to scan faster, to read more efficiently and to grow your patient services. You imagined a system that allowed you to select a dose, tracer and scan time customizable to the needs of each patient. You imagined seeing the effects of treatment before any physical results manifest. You imagined a system that realized your need for a personalized approach to patient care, and that is exactly what we designed Discovery IQ to do.

CARE FROM DISEASE DETECTION THROUGH TREATMENT ASSESSMENT

SCAN IN ½ THE TIME AND ½ THE DOSE[1]

The LightBurst PET detector does more than increase the clarity of the image; it increases the speed that you acquire it, helps to reduce the dose you expose your patient to and aids in strengthening your confidence to see smaller lesions. It's technology that was designed with a goal towards personalizing care. We focused on the variables that directly affect clinical outcomes to develop technologies that really make a difference, an innovative PET detector that cuts scan times and dose amounts in half.

A BRIGHTER WAY TO IMAGE

3-Ring: 15.6 cm

4-Ring: 20.8 cm

5-Ring: 26 cm
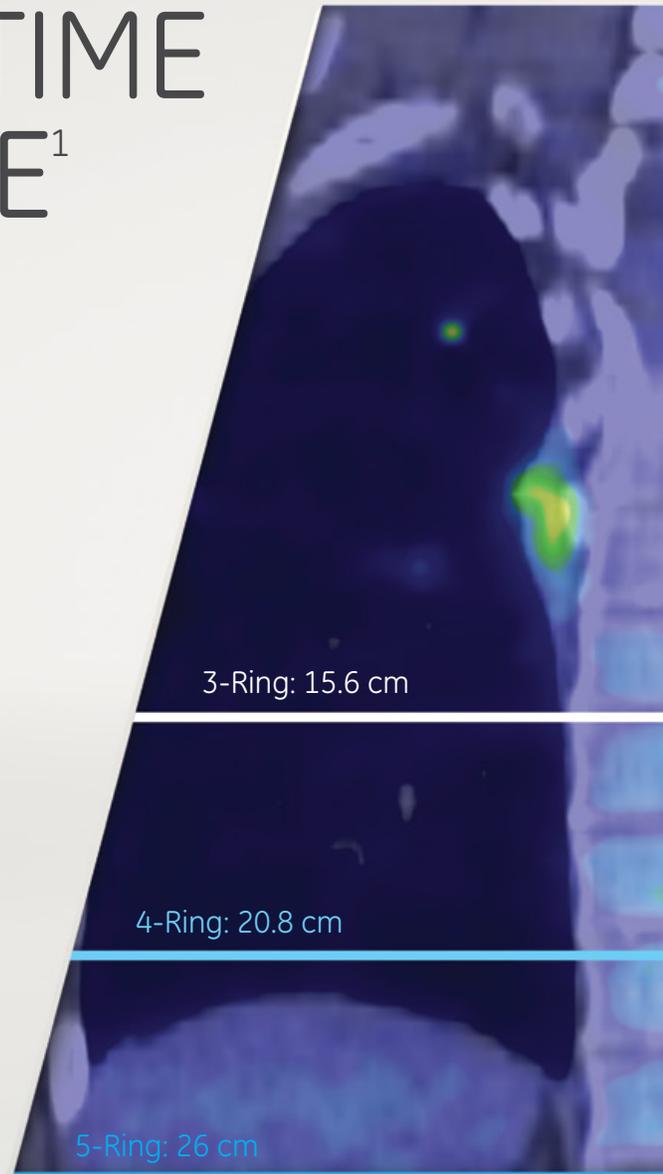
"The ability to decrease dose almost in half for our cancer patients, who often receive multiple studies, is a great thing. Also, our previous scan time was reduced by 50 percent allowing for improved patient comfort and scanner throughput."

–Dr. Jasmina Oberhaus, Advocate Condell Medical Center
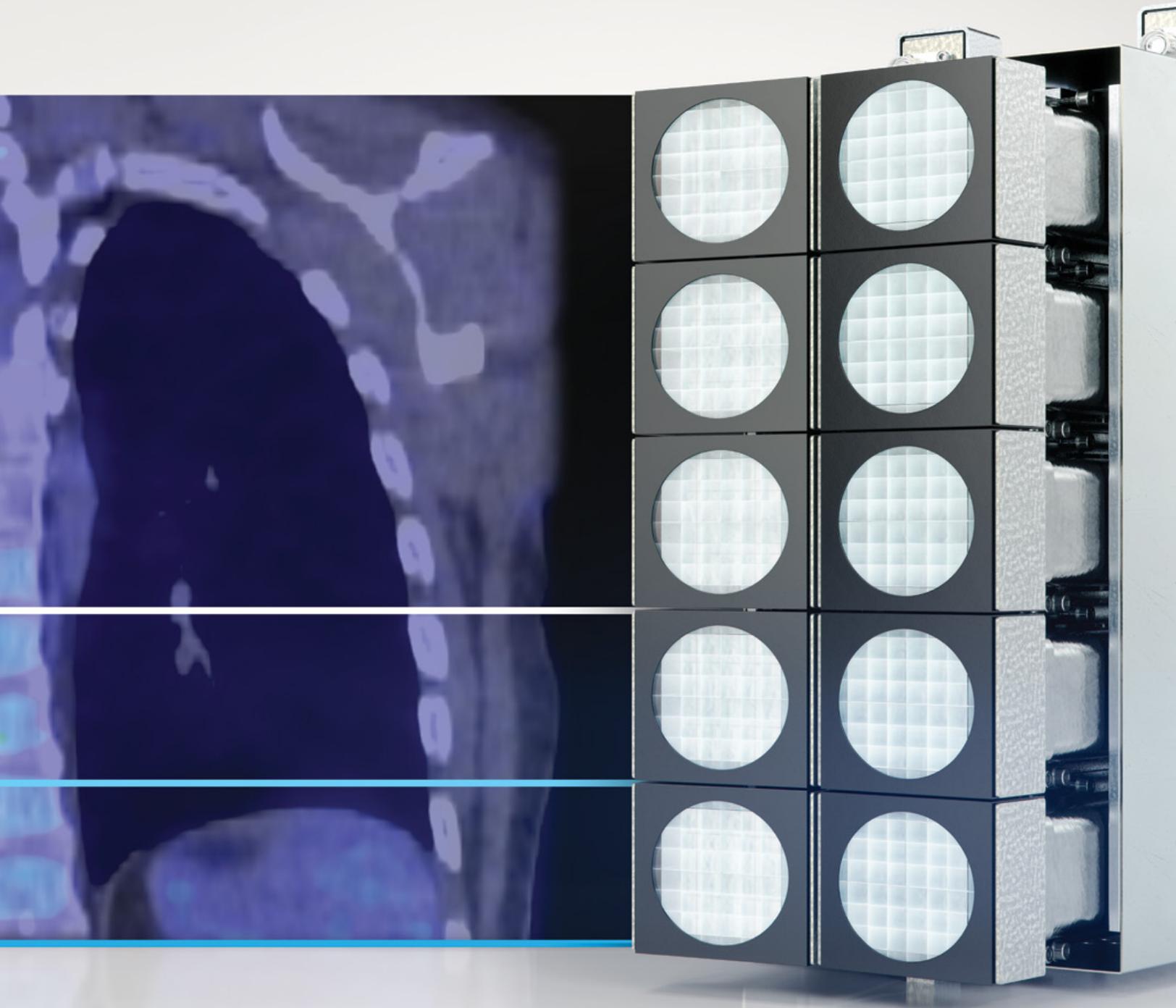
Quantitative accuracy
Dual Acquisition Channels deliver quantitative accuracy for both low-count and high-count rate radioisotopes at up to 20 percent count recovery at peak with an accuracy of up to +/- 3.5 percent at 22 cps/kBq.

Highest NECR
The highest clinical Noise-Equivalent-Count-Rate for clinical ^{18}F in the industry[2] and high NECR for both low-count and high-count rate radioisotopes such as ^{68}Ga, ^{11}C, [82]Rb and more.

Largest Field-of-View[2]
Up to 26 cm of coverage for fast acquisition times, even for full organ coverage, in the fewest possible bed positions with one-third the scan time[1] and MotionFree thorax imaging as fast as four minutes.

Highest NEMA sensitivity
The highest NEMA sensitivity in the industry[2], with up to 22 cps/kBq, for fast acquisition times, low dose scans and outstanding small lesion detectability.

RAISING THE VALUE OF PET STARTS WITH THE LETTER 'Q'

Quantitation helped establish PET/CT as a valuable clinical tool. It provided an important starting point to find and follow disease throughout the course of treatment, but it was limited by the technologies used to produce it. For the first time, consistent, accurate SUV measurements are possible with Q.SUV. The 'Q' is important. It signifies the SUV measurement was produced exclusively with our innovative PET reconstruction technology, Q.Clear, which delivers not only 2x improvement in image quality (SNR) but also up to 2x improvement in quantitative SUV (SUV_{mean}). Q.SUV is more than a starting point for clinical decisions. Because it is more accurate and consistent than conventional methods, it becomes more than a number, it becomes a tool for communication.

QUANTITATIVE SUV YOU AND YOUR PATIENTS CAN TRUST

SUVmax: 2.29 g/ml
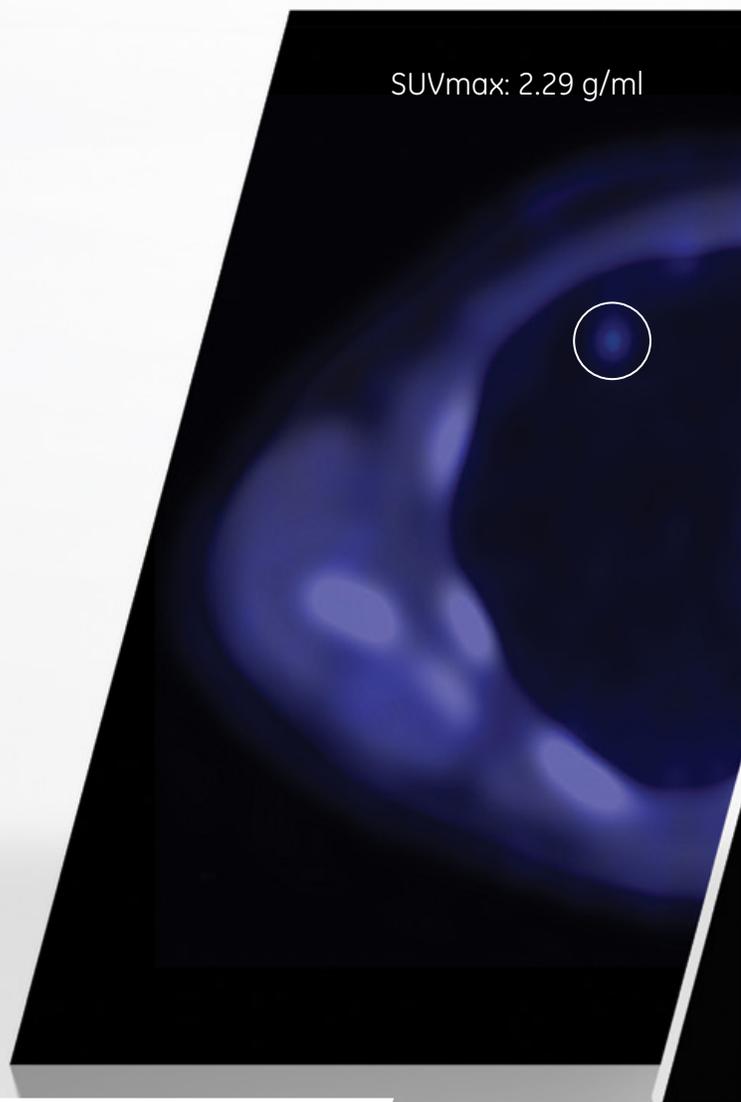
"A patient's scan post chemotherapy showed a small pulmonary nodule with an SUV of 2.29. Using Q.Clear, Q.SUV measured 6.0. Given the patient's history of colorectal cancer, this lung nodule was likely metastatic disease. This nodule was histologically proven to be metastatic disease following surgical resection. Q.Clear gives us greater diagnostic confidence in the assessment of small FDG avid pulmonary nodules."

– Prof. Fergus Gleeson, Churchill Hospital

Q.SUVmax: 6.0 g/ml
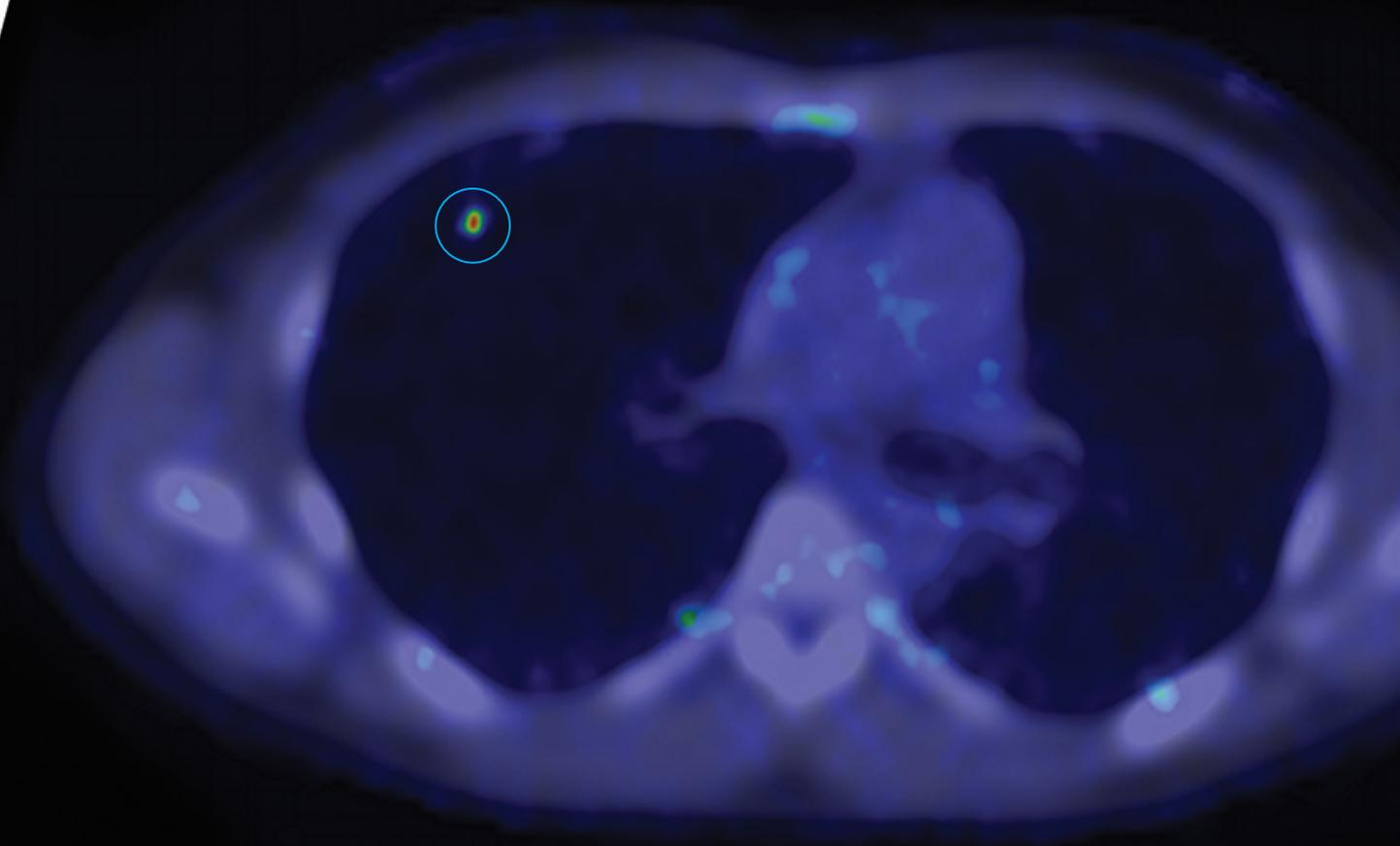
GET THE WHOLE PICTURE WITH 4x LOWER DOSE[1]

Nothing is more personal to the patient PET/CT experience than dose. At GE Healthcare we are more than just committed to lowering radiation dose during scans, it's a passion of ours. Discovery IQ was engineered to ensure the highest quality PET/CT care available at the lowest dose possible. The same technologies that improve image quality and quantitation also lower dose requirements, like the high NEMA sensitivity of the LightBurst PET Detector and Q.AC, an advanced image reconstruction technique that reduces dose up to 20x for CTAC. In addition, there is a low kV choice that allows small patients to be scanned at 80 kV and easy-to-use management tools that help clinicians track patient dose histories and balance image quality with dose.

123.94 MBq (3.35 mCi)
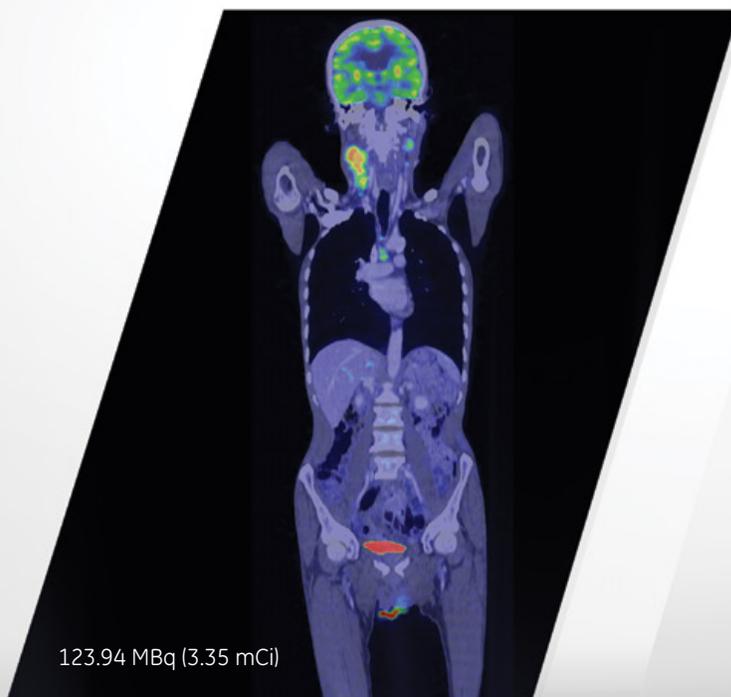
"We have seen first-hand that increasing sensitivity allows us to significantly reduce the injected dose to the patient. From my point of view this is very important for young patients. Thanks to the breakthroughs in medical oncology treatment, survival rates have increased and PET is used for the follow up of these patients. The more you can reduce the dose the better it is for the patient."

–Professor Frédéric Courbon, M.D., Ph.D. Nuclear Oncology Head of Imaging Department, Institut Universitaire du Cancer de Toulouse

A PERSONALIZED APPROACH TO DOSE REDUCTION

DO MORE WITH WHAT YOU HAVE

Developing clinically impactful technologies is only one aspect of our commitment to helping you grow and protect your clinical offering of PET/CT. We put as much energy into the efficiency, productivity and profitability of Discovery IQ's design as we did into its revolutionary technologies, allowing you to get the most out of your asset. It's an approach to PET/CT that gives customers' new stories to tell about their PET/CT experience. Stories about how much lower their patient dose is, how many more patients they are able to see per day and how they are able to offer PET for new clinical applications. Stories that are best told in their own words.

"Q.Clear is an exceptional way to make PET/CT images. The results almost speak for themselves it's dramatic, we know from studies that it's correct. If the quantitation is better it's better for everyone. It's win-win."

–Dr. Bradley, Oxford University

"With Discovery IQ we have been able to significantly reduce acquisition times, which is more comfortable for our patients, more efficient for our staff while maintaining image quality."

–Salvador Borges-Neto, M.D., Division Chief, Nuclear Medicine, Duke University

"The Discovery IQ allows our partners to deliver lower dose to the patient, and we believe that will become more of a primary factor in the US market. It also enables shorter scan time, and that's becoming more critically important for patient care."

–David Delia, Senior VP of Operations, Alliance Radiology

"We have been able to add an additional patient per hour with no rush or compromise, and the additional throughput has helped increase revenue to the department. Discovery IQ provides us with the flexibility to scan extra patients from the clinical research department or private hospitals."

–Professor Frédéric Courbon, M.D., Ph.D. Nuclear Oncology Head of Imaging Department, Institut Universitaire du Cancer de Toulouse

"We are seeing lesions more clearly and accurately, and our readings are more precise so that helps our oncologists with their treatment planning."

–Dr. Jasmina Oberhaus, Advocate Condell Medical Center

"The image quality is excellent, but the biggest advantage is the increased sensitivity of the scanner, which allows us to detect lower levels of hypermetabolic activity. This enables us to detect smaller, less active lesions, which may not have been as conspicuous on a different scanner."

–Dr. Charles Spirtos, Akron Hospital

"The Discovery IQ meets all our clinical requirements today, and the upgrade path will keep Advocate Condell at the forefront of innovation for the foreseeable future."

–Greg Pilat, Systems Director of Radiology, Advocate Health Care

A WHOLE NEW LOOK TO CLARITY

Imaging with PET/CT starts to look different when you combine faster scan times, lower dose techniques, the ability to scan patients of all sizes and still have the clarity necessary to detect extremely small lesions. It starts to look a lot more powerful. See for yourself the potential this kind of power can unlock.

2 m head-to-toe in 14 minutes
NaF bone scan

Discovery IQ 5-Ring
NaF
118 MBq (3.19 mCi)
BMI: 22.0
2 min/bed, 5 bed positions
1 min/bed, 4 bed positions
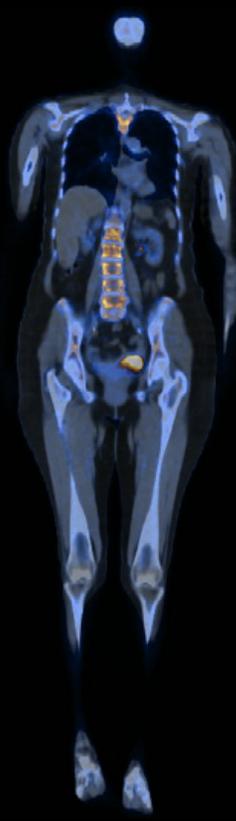
3x faster scan - five minute whole body
Cervical carcinoid and Huntington's disease scan

Discovery IQ 5-Ring
Follow-up scan, August
^{18}F-FDG
313 MBq (8.94 mCi)
BMI: 30.0
1 min/bed, 5 bed positions

Patient with Huntington's disease able to hold still during 5 minute scan.
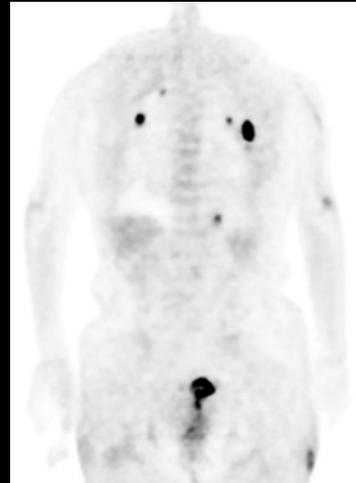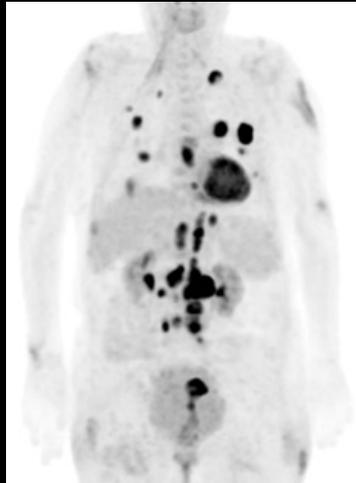
Conventional PET/CT
Baseline scan, March
^{18}F-FDG
279 MBq (7.5 mCi)
BMI: ~30.0
2 min/bed, 7 bed positions

Due to Huntington's disease, patient unable to hold still for entirety of a 14 minute scan.
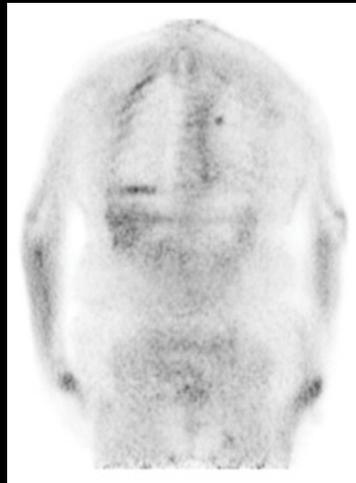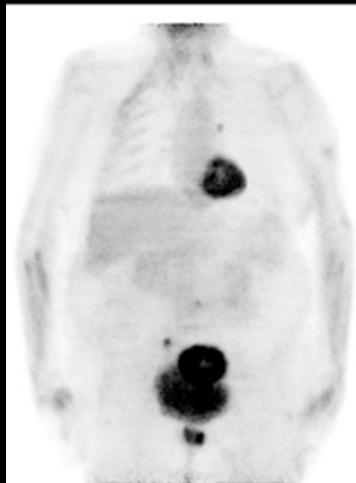
Full thorax - one bed position
Stress cardiac scan

Discovery IQ 5-Ring
^{13}N-NH$_3$ (Ammonia)
347 MBq (9.38 mCi)
BMI: 20.1
Scan: 15 mins
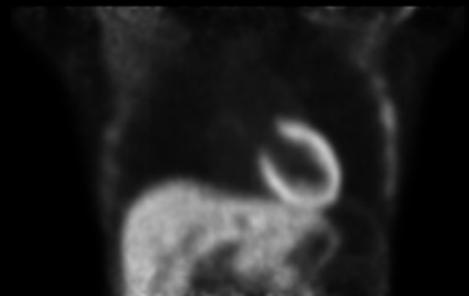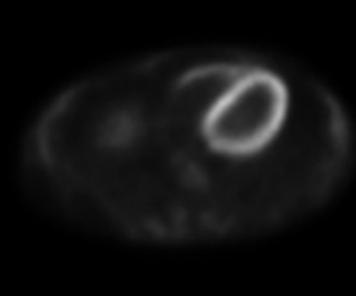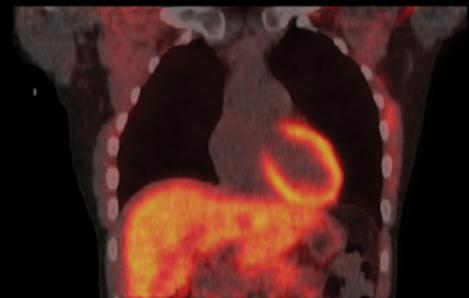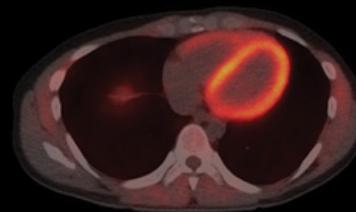
Q.Clear improves lesion definition
18F Choline head-to-toe scan

Discovery IQ 5-ring
18F Choline
285.3 MBq (7.71 mCi)
BMI: 22.0
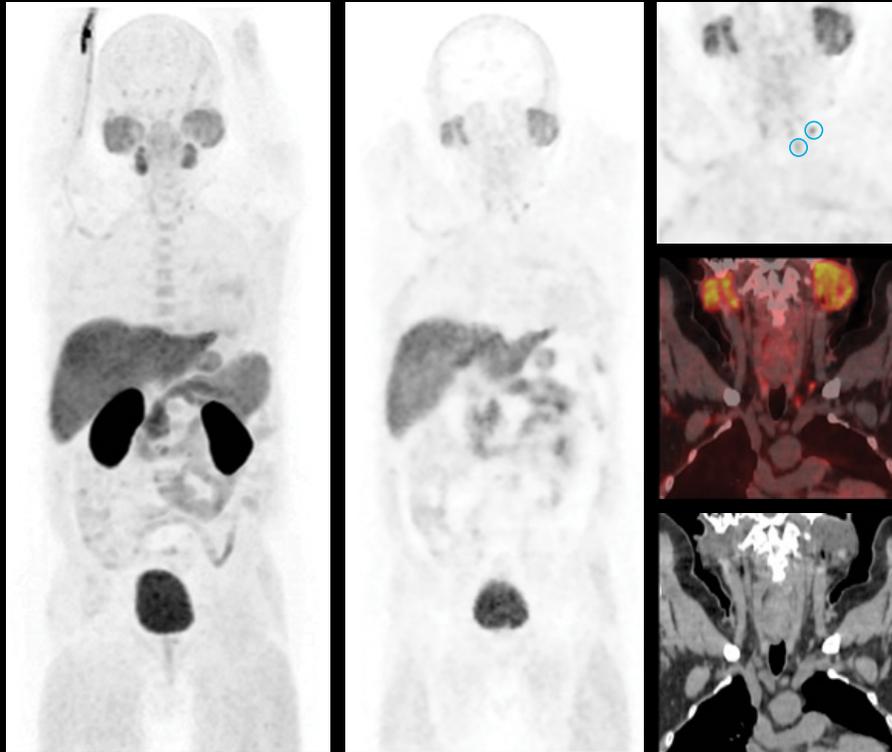
Q. Static with Q. Clear helps delineate lesion
Liver scan Q.SUV values and volumes more representative

Discovery IQ 5-ring
18F-FDG
255 MBq (6.9 mCi)
BMI: 30.9

Non-Q.Clear and Non-Q.Static
Volume: 87.41 cm³
Max: 8.73 g/ml
Mean: 4.81 gm/ml
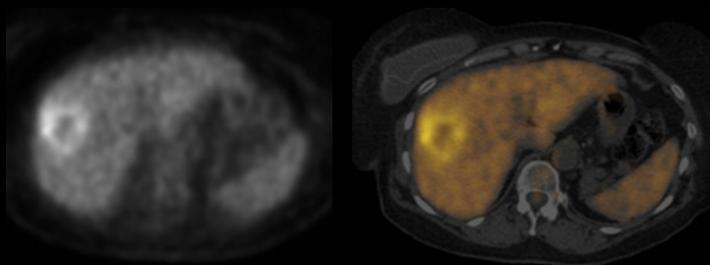

Q.Clear and Q.Static
Volume: 35.56 cm³
Max: 11.29 g/ml
Mean: 6.15 gm/ml
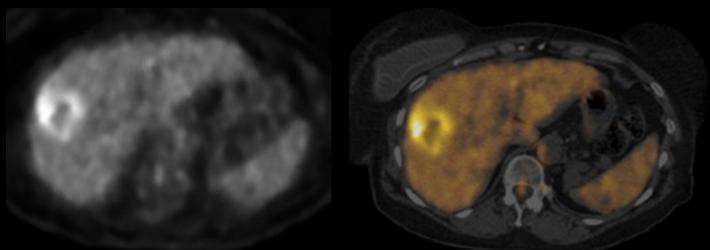
Small lesion detectability at lower dose
Head/neck oncology scan reveals lesion in lung

Discovery IQ 3-Ring
^{18}F-FDG
123.94 MBq (3.35 mCi)
BMI: 13.7
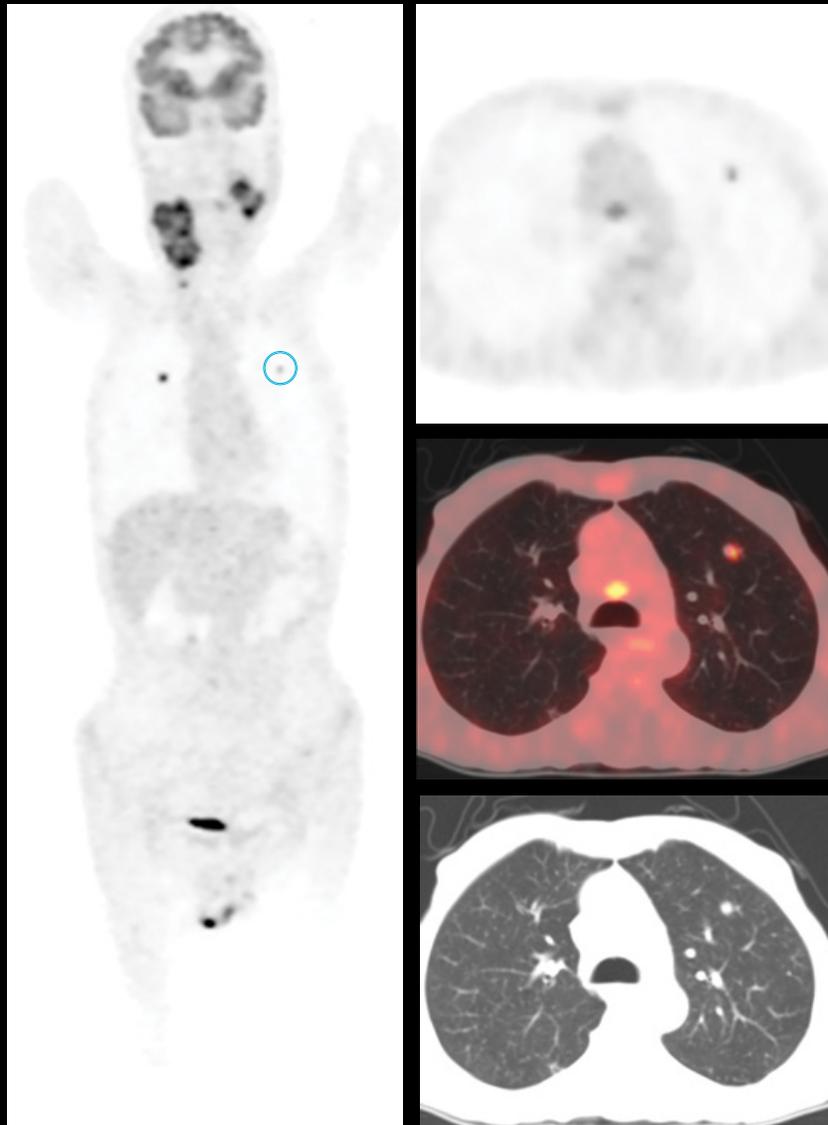
Ultra low-dose scanning
Whole-body FDG scan

Discovery IQ 5-Ring
^{18}F-FDG
97.8 MBq (2.6 mCi)
BMI: 18.0
2 min/bed, 5 bed positions
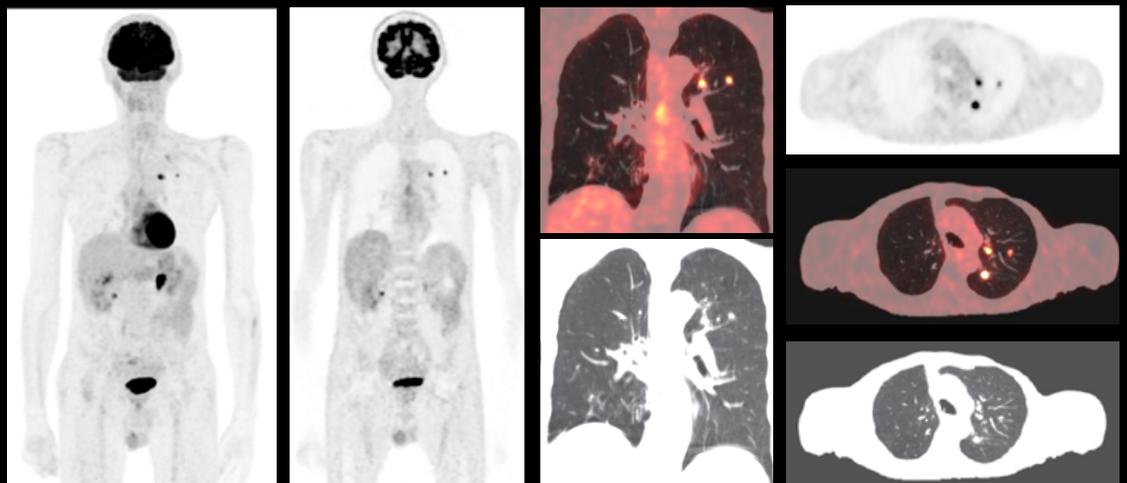
Imagination at work

Product may not be available in all countries and regions.
Contact a GE Healthcare Representative for more information.

GE Healthcare
3000 N. Grandview Blvd.
Waukesha, WI 53188
USA