Siemens follows the Right Dose approach and demonstrates innovation leadership in dose management:

- Reasonable balance between image quality and applied dose
- Valid quantification of dose values
- Value orientation for tangible outcomes

As a leader in medical imaging innovation, Siemens has a strong legacy in dose-managing and dose-reducing technologies. For many years we have been focused on reducing dose without compromising image quality and clinical outcomes. A recent addition to these efforts are solutions that help staff reasonably balance image quality and applied dose, solutions that provide a valid quantification of results and dose values and, to offer a sound value orientation within this context for tangible patient outcomes. With the Siemens Right Dose approach, we intend not only to lead in dose reduction technology in medical imaging, but also in approaches in how to best manage dose for patients, caregivers and healthcare businesses.

Siemens computed tomography and CARE Right – taking low dose to the next level

With the CARE Right approach, Siemens affirms its commitment to the Right Dose in CT. This holistic approach is based on the belief that after the recent innovations in radiation reduction, a singular focus on low dose is no longer sufficient. Consequently, efforts must now be targeted towards a comprehensive understanding of the right dose. Thus, CARE Right encompasses three key areas:

- Right Dose Technology
- Right Dose Levels
- Right Dose Management

Technology

ADMIRe (Advanced Modelled Iterative Reconstruction) – the next generation in iterative reconstruction

SAPFIRE (Sinogram Affirmed Iterative Reconstruction) – iterative reconstruction with a substantial dose reduction potential in the clinical routine

CARE Dose4D – real-time anatomical exposure control

CARE kV – first automated voltage setting resulting in substantial reduction without compromise in image quality

Paediatric case – SOMATOM Definition Flash with Stellar Detector

Diagnosis: Septum defect with impact on lung perfusion

Scan method: Thorax dual-energy scan and flash spiral scan

Image: Erasmus MC – University Medical Center Rotterdam/Rotterdam, the Netherlands

Thorax dual-energy scan

Collimation: 54 x 0.6 mm

Spatial resolution: 0.30 mm

Scan time: 2 s

Scan length: 118 mm

TI: 0.29 s

BD: 540 5s kV: 26/16 mAs

DLP: 18 mGycm

CTDIvol: 4.0 mGy

Eff. dose: 1.58 mSv

Siemens angiography and CARE+CLEAR – Improving image quality and optimising dose in angiography

The Siemens CARE+CLEAR concept dedicated to angiography systems provides surgeons and interventional radiologists with true added value at no extra cost – an excellent foundation for maintaining optimum clinical outcomes and safety in patient care.

The optimal image quality at the lowest reasonable dose with CARE+CLEAR:

- Reduces dose to a minimum
- Provides dose monitoring during the procedure
- Makes dose reporting easy and structured
- Achieves optimised image acquisition with all patients
- Applies comprehensive image processing for excellent sharpness and contrast
- Allows image quality customisation

How our company contributes to radiation protection

Siemens molecular imaging – minimum dose, Maximum speed.

Siemens Molecular Imaging offers innovative imaging solutions where the lowest dose can be used while still scanning patients faster than ever before. By reducing dose and increasing speed, costs are dramatically reduced, while increased utilisation can also be achieved. For example, Symbia™ IQ-SPECT technology enables routine cardiac SPECT scans using half dose and double speed. And with Symbia’s spiral CT, scans are up to 28 times faster than the competition, saving both time and dose. Moreover, TrueV and HD technologies on the Biograph™ mCT family enable PET scans with half dose and double speed. And IRIS achieves up to 60% CT dose reduction while maintaining excellent image quality.

Technology

IQ-SPECT – Ultra-fast cardiac imaging with a general purpose camera

TrueV – Capturing more information in each PET bed position

ultraHD-PET – Eliminating the need to choose between a fast scan or a low-dose scan

FlowMotion – Eliminating over-scanning

Abdomen case – Biograph mCT

Molecular Imaging – Cases

Abdomen Case – Biograph mCT

Minimum Dose: 5% Max Speed: 10 minutes

Dose reduction advances in mammography – Siemens X-Ray products

X-ray mammography is the gold standard of investigational procedures. Digital mammography has improved diagnostics, especially in younger women and in women with dense breasts. In most countries, screening programmes have been established in order to support early breast cancer detection. The right balance between low dose and high image quality for diagnostic confidence is of the utmost importance.

Up until now, a lower dose meant lowering image quality. The continuous low-dose discussion challenged us to rethink technology and do what seemed impossible: develop a mammography machine with considerable dose reduction without compromising on image quality. This is possible with the MAMMOMAT Inspiration PRIME-Technology.

Technology

PRIME-Technology® – Progressive Reconstruction, Intelligently Minimising Exposure

Time-tested Tungsten Tube – saves up to 50% dose and is especially good at capturing dense breast tissue

Fast direct-to-digital aSe detector – Higher Detective Quantum Efficiency (DQE) and reduced time between exposures