BY NICOLE DENJOY

Medical imaging equipment replacement in Europe – essential and long overdue

The role of medical technology is of critical importance in societies facing healthcare budget constraints, the challenges of ageing populations, the rise in chronic diseases and the shortage of qualified healthcare professionals.

Innovative medical imaging technologies, such as CT, MRI, molecular imaging positron emission tomography (MI PET), x-ray, ultrasound and IT-supported processes, have proven their ability to enhance the efficiency of medical care and clinical outcomes.

Every year, advances in engineering and processing provide incremental gains and an occasional major breakthrough like low-dose CT, revolutionising image capture and quality with a greatly reduced radiation dose to the patient. These gains deliver better accuracy, specificity and patient benefits that extend the utility of medical imaging equipment. Clearly, the age profile of electro-medical equipment within a healthcare system can be considered a significant factor in attaining these benefits.

However, such benefits reach healthcare professionals and patients only if swiftly adopted into clinical practice.

COCIR recently identified 'significant triggers' in the technological, medical and regulatory domains that necessitate a faster pace of renewal of the diagnostic imaging installed base to advance patient safety. Amongst these triggers are CT dose modulation and CT reiterative reconstruction algorithm technologies.

Dose modulation technologies automatically calculate the optimum tube current for each anatomical area and the real-time current control for the x-ray tube, ensuring that patients receive the lowest dose possible (ALARA principle – As Low As Reasonably Achievable).

Reiterative reconstruction algorithm technologies reproduce the image quality of higher dose protocol scans using raw low-dose scan data, reducing the absorbed dose and providing, for the same exposure, images of a higher quality.

COCIR believes that the clear patient benefits afforded by both these technology advances should, at the very least, drive technology upgrades of the current CT installed base and encourage healthcare providers to invest in new and replacement low-dose CT technology throughout Europe.

Regarding the potential for upgrading the current installed base, COCIR undertook a review of its vendor market intelligence, which revealed that a quarter of the European CT installed base cannot be upgraded with these important dose-saving technology advances. In essence, 25% of the CT installed base, approximately equivalent to 2,500 units in western Europe and 500 units in eastern Europe should therefore be considered inadequate from a radiation safety perspective, and should be considered for replacement.

The highest levels of non-upgradeable CT systems were found in Poland, Germany, Italy and Spain.

Perhaps the more concerning issue for Italy and Spain over recent years has been the constant deterioration in the age profile of their diagnostic imaging installed base.

COCIR National Trade Associations members Assobiomedica, an Italian federation representing healthcare industry, and the Spanish Federation of Healthcare Enterprises (FENIN) have conducted further studies in both countries.

Data has shown that out of 470 CT scanners with 'up to 16 slices', currently in use in Italy, 222 are considered technologically obsolete, with Assobiomedica recommending immediate replacement. All 222 scanners exceed the threshold of seven years of age, posing questions as to their safety, efficacy and cost of use.

In the case of Spain, the lack of investment has been more pronounced than in neighbouring countries, showing the impact of structural deterioration of this diagnostic technique.

Most of the CT equipment installed in Spain cannot be considered 'low dose' by today's standards. Data from FENIN shows that most of the autonomous communities in Spain are behind the EU average and some of them have the oldest installed base for CT in Europe.

A study conducted by FENIN highlights that 67% of CT scanners in use in Spain are older than five years: 27 percent higher than COCIR's recommended guidelines and 17 percent higher than Europe's average.

Such status has a direct impact on the population's access to state-of-the-art multi-slice CT scanners which, amongst other features, can reduce x-ray dose by up to 80%.

Recommendations:

- Based on these findings, COCIR urges healthcare stakeholders to put greater emphasis on a sustainable age profile of medical imaging equipment.
- Governments are urged to invest in healthcare, to encourage the uptake of innovative technology and solutions that can help transform the delivery of care.
- COCIR expects healthcare providers to prioritise dose reduction and -optimisation when replacing aging CT equipment in order to assure adherence to the ALARA principle.

Nicole Denjoy is the COCIR Secretary General.