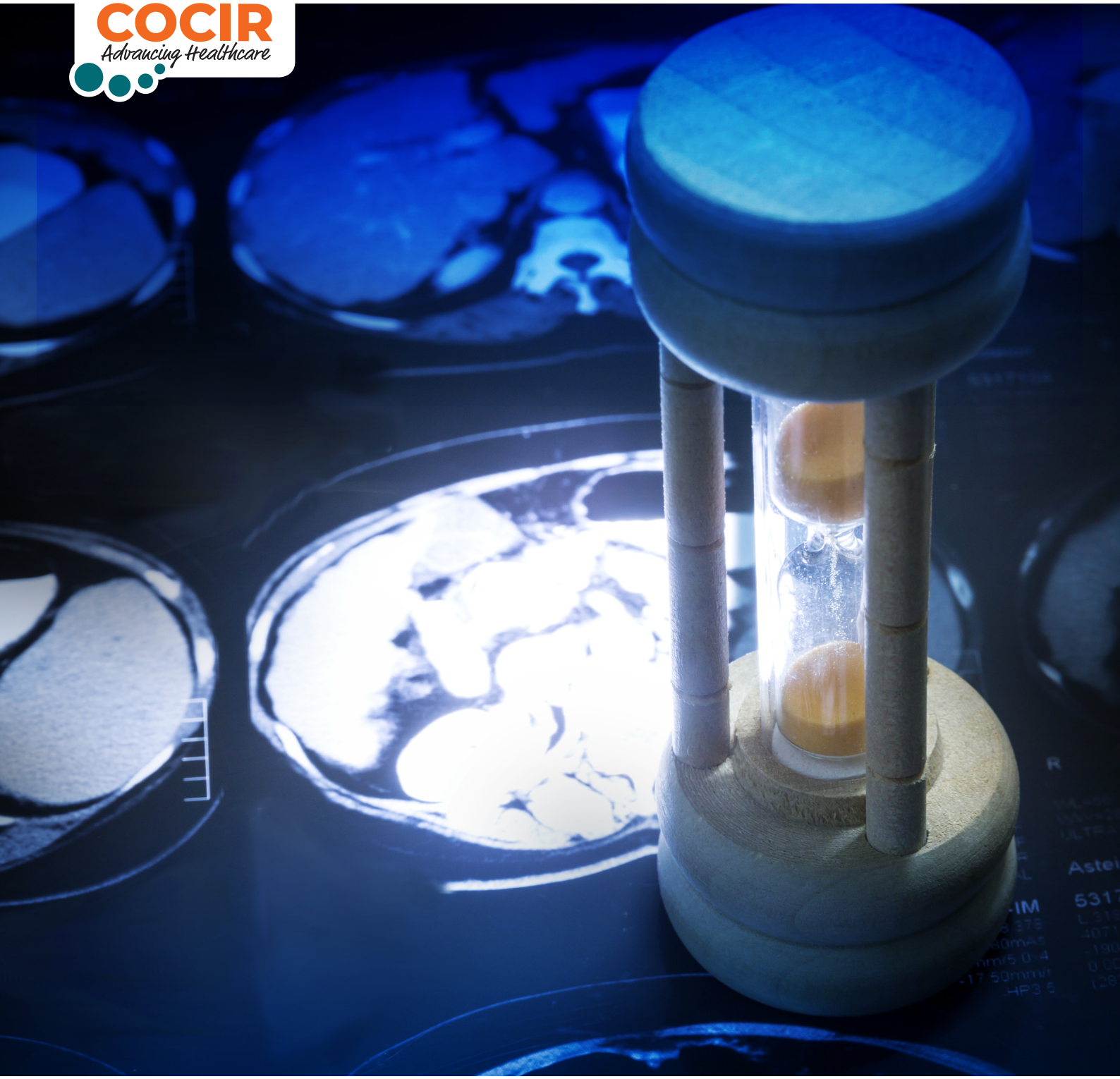
COCIR
Advancing Healthcare



MEDICAL IMAGING EQUIPMENT
AGE PROFILE & DENSITY

2021 Edition

COCIR, the European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry

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1. FOREWORD

RENEWING MEDICAL IMAGING EQUIPMENT HELPS INCREASE EQUAL AND UNIVERSAL ACCESS TO HIGH-QUALITY CARE ACROSS THE WHOLE CONTINUUM.

The latest innovations in the installed base adds substantial value to integrated care pathways, from precision diagnosis to personalised treatment and post-care, as well as to prognosis.

Since the 1990s, COCIR has been monitoring the age profile of the main medical imaging product modalities installed in Europe.

In 2014, COCIR data first showed a clear and severe deterioration in the age of the installed base, with the potential to place patients at risk.

Since then, COCIR has been urging policymakers and healthcare providers to reverse this negative trend by developing plans for the prompt replacement of obsolete equipment.

The European Society of Radiology (ESR) has joined COCIR both in warning that ageing equipment is no longer state-of-the art and in advocating for the development of replacement strategies.[1]

The COCIR data has also been highlighting the inequalities in access to diagnosis within the EU resulting from the wide disparity in imaging equipment density between European Countries.

COCIR has long recommended using cohesion policy funding to ensure comprehensive, coherent and sustained investment. It has also urged the embrace of innovative financing models, which can make renewing the equipment base affordable.

Equipment renewal and increased access to the latest technological advances represent the most effective way of delivering optimal outcomes to patients.

COCIR will continue to provide evidence - based on accurate data - to support policymakers and healthcare providers when planning for increased efficiency and sustainability within healthcare systems.

Annika EBERSTEIN
COCIR Interim Secretary General

1 European Society of Radiology (ESR): The consequences of the economic crisis in radiology https://link.springer.com/article/10.1007/s13244-015-0434-9

2. INTRODUCTION

To help promote value in healthcare, COCIR has been collating statistics and proactively supporting European Member States in monitoring changes in the age profile of their installed base of medical imaging equipment since the 1990s. The findings for 2003, 2009, 2014, 2016 and 2019 can be accessed via COCIR publications.[2]

Since 2016, the geographical scope of the COCIR analysis has been broadened, to encompass selected locations outside Europe, namely the Russian Federation, Turkey, Middle East, China, India and Brazil.

Since the issue of 'technological obsolescence' can often go undetected, COCIR has developed a set of 'Golden Rules', which recommend an appropriate mix in the age profile of installed equipment. This takes into account both the obligation to derive the maximum return from capital investment and the need to fully leverage the benefits of innovation.

THE COCIR GOLDEN RULES (2003)

1. AT LEAST 60% OF THE INSTALLED EQUIPMENT BASE SHOULD BE LESS THAN FIVE YEARS OLD

Medical technology life-cycle averages suggest that equipment up to five years old adequately reflects the current state of technology with the opportunity for economically viable upgrades.

2. NO MORE THAN 30% OF THE INSTALLED EQUIPMENT BASE SHOULD BE BETWEEN SIX TO TEN YEARS OLD

Medical technology aged between six to ten years generally remains fit for purpose. However, system replacement strategies should be developed to benefit from the efficiency gains offered by the latest technologies.

3. NO MORE THAN 10% OF THE AGE PROFILE SHOULD BE MORE THAN TEN YEARS OLD

Medical technology more than ten years old is outdated and is increasingly challenging to maintain and repair. Compared with current medical guidelines and best practices, it can be considered obsolete or inadequate for undertaking certain procedures; replacement should be considered essential and a priority.

The **European Society of Radiology (ESR)** has also recognised the clinical importance of planning for timely equipment replacement. In its 2014 position paper[3] on renewal, it stated that:

"It is known that equipment that is up to five years old reflects the current state of technology and offers opportunities for economically reasonable upgrade measures.

Equipment which is between six and ten years old is still fit for use if properly maintained, but already requires replacement strategies to be developed.

Equipment older than ten years is no longer state-of-the art and replacement is essential."

2 COCIR Medical Imaging Equipment Age Profile & Density https://www.cocir.org/activities/business-inovation/imaging-market-intelligence.html
3 European Society of Radiology (ESR): Renewal of radiological equipment http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4195838/

3. EXECUTIVE SUMMARY

The previous COCIR report, published in 2019[4], has already highlighted the significant detrimental impact of the austerity measures imposed on healthcare systems in the ten years since the 2008 global recession. There has been a significant drop in the number of countries that meet the COCIR 'Golden Rules'.

The COCIR data substantiate the statement[5] by the ESR that: ***"The crisis has led to a reduction in the turnover of imaging equipment resulting in a higher than usual level of aging of technological equipment."***

This latest report – which covers the period to the end of 2020 - shows that despite the availability of several targeted European funding programmes, the renewal of medical imaging equipment has yet to be tackled effectively. In addition, the broad disparities in equipment density seen between European countries have yet to be closed.

Planning for the renewal of ageing equipment should be a pressing target for European healthcare systems.

COCIR data warns that the percentage of equipment in Europe greater than ten years old is alarmingly high. These range from 21-22% for CT, MRI and MI PET scanners to 34% for interventional x-ray equipment. Plans should urgently be put in place to decommission these older machines and replace them with the latest technologies.

Low equipment density is directly impacting waiting times for both screening and prescribed examinations. This in turn leads to further delays in diagnosis and treatment, thus placing patients at risk.

The COCIR data on equipment density for the main imaging modalities shows most countries below the EU-27 averages, which are:

28.2 Units/million inhabitants for **CT**

25.1 Units/million inhabitants for **X-ray Interventional**

20 Units/million inhabitants for **MRI**

2,4 Units/million inhabitants for **MI PET**

In February 2021, the European Commission announced - in **its Europe's Beating Cancer Plan**[6] - that it will "***Make a proposal by 2022 to update the Council Recommendation on cancer screening to ensure it reflects the latest available scientific evidence. Extending targeted cancer screening beyond breast, colorectal and cervical cancer to include additional cancers, such as prostate, lung and gastric cancer, will be considered."***

Indeed, the European Commission's willingness and commitment to promoting the update and extension of the European cancer screening recommendation highlights the pivotal importance of innovation in health technologies in providing value throughout the continuum of care in EU Member States. To this end, the EU should support increased investment in new technologies and greater equipment density.

4 COCIR Medical Imaging Equipment Age Profile & Density - 2019 Edition https://www.cocir.org/media-centre/publications/article/cocir-medical-imaging-equipment-age-profile-density-2019-edition.html
5 European Society of Radiology (ESR): The consequences of the economic crisis in radiology https://link.springer.com/article/10.1007/s13244-015-0434-9
6 Communication from the Commission to the European Parliament and the Council. "Europe's Beating Cancer Plan". https://ec.europa.eu/health/sites/health/files/non_communicable_diseases/docs/eu_cancer-plan_en.pdf

4. AT A GLANCE: KEY INSTALLED BASE FINDINGS

1. **More than one-fifth** of the European installed base is now more than ten years old. This is the case for all four product modalities measured.
2. For interventional x-ray equipment, older machines now represent one-third of the total.
3. In the last ten years, the number of countries meeting COCIR's 'Golden Rules' has not improved significantly; in fact, the situation has **further deteriorated**.
4. The only slight improvement recorded has been for CT, which shows an increase in one to five year-old units.
5. Equipment density data shows **wide disparities** between European countries.
6. For most countries, Density Units per million inhabitants is **below the EU-27 average** for all four product modalities measured.

Table A
AGE EVOLUTION[7] OF INSTALLED BASE VS. COCIR GOLDEN RULES

		INSTALLED BASE (IB): EU 27 + UK, Switzerland, Norway						AGE VS "GOLDEN RULES"		
		2008	2011	2013	2015	2018	2020	% by age - end 2018	% by age - end 2020	GOLDEN RULES
X-RAY INTERVENTIONAL ANGIOGRAPHY	Installed Base (IB) 1-5 years - units	2650	3811	3084	2361	3766	4079	44%	32%	60%
X-RAY INTERVENTIONAL ANGIOGRAPHY	IB 6-10 years - units	1571	2163	2579	1641	2982	4264	35%	34%	30%
X-RAY INTERVENTIONAL ANGIOGRAPHY	IB >10 years - units	1237	1780	1534	769	1765	4341	21%	34%	10%
X-RAY INTERVENTIONAL ANGIOGRAPHY TOTAL		5458	7754	7197	4771	8513	12684			
COMPUTED TOMOGRAPHY	IB 1-5 years - units	6189	6569	5898	5669	5955	6967	45%	49%	60%
COMPUTED TOMOGRAPHY	IB 6-10 years - units	3155	3627	4528	4574	4523	4342	34%	30%	30%
COMPUTED TOMOGRAPHY	IB >10 years - units	933	1061	1477	1548	2748	3038	21%	21%	10%
COMPUTED TOMOGRAPHY TOTAL		10277	11257	11903	11791	13226	14347			
MAGNETIC RESONANCE IMAGING	IB 1-5 years - units	3568	4287	4002	4081	5062	5466	51%	51%	60%
MAGNETIC RESONANCE IMAGING	IB 6-10 years - units	2082	2546	2898	2947	2823	3060	28%	29%	30%
MAGNETIC RESONANCE IMAGING	IB >10 years - units	808	1178	1653	1587	2048	2177	21%	20%	10%
MAGNETIC RESONANCE IMAGING TOTAL		6458	8011	8553	8615	9933	10703			
MOLECULAR IMAGING PET	IB 1-5 years - units	430	532	448	378	565	580	47%	47%	60%
MOLECULAR IMAGING PET	IB 6-10 years - units	118	294	325	332	417	382	35%	31%	30%
MOLECULAR IMAGING PET	IB >10 years - units	40	110	91	63	219	271	18%	22%	10%
MOLECULAR IMAGING PET TOTAL		588	936	864	773	1201	1233			

7 Figures highlighted in **red** show deterioration in 2020 versus 2018

5. WHY INNOVATION MATTERS

The importance of medical imaging scans has long been recognised as a promoter of value-based care in all its applications - diagnosis, treatment-effectiveness monitoring and planning.

Innovative medical technologies can now drive integrated patient–centric care pathways capable of improving medical consistency, patient safety, productivity and connectivity.

These proven benefits make a strong case for increased investments in the latest products and solutions.

In the case of **COMPUTED TOMOGRAPHY (CT)**, COCIR has identified significant triggers for renewal in the technological, medical and regulatory areas. These include **CT dose modulation** and **CT reiterative reconstruction** and **Artificial Intelligence (AI)** algorithm technologies, which dramatically reduce the required x-ray dose. For example, reductions of >50% in paediatric imaging with no loss of diagnostic quality have been demonstrated.[8] These software applications, often available as upgrades, also improve hospital efficiency, clinical effectiveness and reduce costs.

Dose modulation technologies automatically calculate the optimum tube current for each anatomical area for examination and the real-time current control for the x-ray tube. This ensures patients receive the minimum dose necessary; the ALARA principle ('As Low As is Reasonably Achievable').

Reiterative reconstruction and AI algorithm technologies reproduce higher dose protocol scans from raw low-dose scan data. This reduces the absorbed dose and provides higher-quality images for the same exposure.

Software developments in **MRI** technology have greatly simplified cardiac imaging workflows, have allowed MR scans of the lungs, enabled faster contrast scans and reduced the length of MRI brain examination. Meanwhile, automated user interface technology has simplified exams for patients with MR-conditional medical implants, such as knee or hip replacements and pacemakers.

Recent innovations in **INTERVENTIONAL X-RAY** have been integrating new image processing technology and algorithms, new x-ray tube technology, digital detector technology, digital image enhancement and other hardware improvements.

In CT, the latest x-ray interventional technologies also focus on providing high-quality, high-resolution images without increasing the radiation dose.

Technologies advances in **MI PET** include digital PET detectors, which improve image clarity compared with traditional analogue photomultipliers.
PET image reconstruction technology provides improved image quality, reduced acquisition time and a lower injected dose.

In recent years, **AI** has become a leading topic in radiology and medical imaging. According to a survey[9] among members of the European Society of Radiology, AI is mainly expected to impact breast, oncologic, thoracic and neuroimaging. Mammography, computed tomography, and magnetic resonance are believed to be the most-impacted imaging modalities.

COCIR has published a **library of use cases** on the use of Artificial Intelligence in various clinical settings.[10] Several of these cases are specific to medical imaging and radiology; for example: AI applied to magnetic resonance is designed to intelligently reconstruct a final MR image with high SNR (Signal-to-noise ratio) and improved image sharpness[11].

8 Iterative reconstruction - a dose saving paradigm in paediatric computed tomography imaging. C. Saidlear et al, ECR 2015 / C-1888, 2015 https://epos.myesr.org/poster/esr/ecr2015/C-1888
9 Impact of artificial intelligence on radiology: a EuroAIM survey among members of the European Society of Radiology https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6823335/
10 https://www.cocir.org/activities/digital-health/artificial-intelligence-1/ai-use-cases.html
11 https://www.cocir.org/fileadmin/Publications_2020/20066_COC_AI_USE_CASES_13.pdf

6. COCIR RECOMMENDATIONS

1. **REPLACE OBSOLESCENT EQUIPMENT THAT CANNOT BE UPGRADED:**
   COCIR calls upon Member States and regional governments, along with EU policymakers, to support the replacement of technologically obsolescent equipment that can no longer be upgraded. This should use cohesion policy[12] funding to ensure comprehensive, coherent and sustained investment that will increase value in the transformation of healthcare delivery for all.

2. **ADOPT A PATIENT-CENTRIC APPROACH TO DOSE REDUCTION AND OPTIMISATION:**
   COCIR calls upon healthcare providers to adopt a more patient-centric approach to dose reduction and dose optimisation when replacing ageing equipment. This will increase patient safety and improve overall value in healthcare. The ESR[13] also recommends using "***robust equipment replacement programmes that take into consideration optimisation of radiation dose and improved efficiencies***".

3. **LEVERAGE THE DIFFERENT EU FUNDING TOOLS AND INNOVATIVE FINANCING MODELS:**
   COCIR calls upon Member States and regions to encourage hospitals and healthcare providers to leverage the different EU funding tools available. These include the European Fund for Strategic Investments, the European Structural and Strategic Funds, the EU4Healh, Digital Europe, InvestEU and the Recovery and Resilience Facility.

   These tools can help tackle inequalities in accessing healthcare. They can also enable the adoption and diffusion of long-term business and financial innovative models, such as Public Private Partnerships (PPPs) and Managed Services, both of which guarantee sustainable access to the latest healthcare technology and equipment. Moreover, the Managed Services model brings additional value by offering analytical insights and procedural valuations that can increase efficiencies and improve clinical outcomes.[14]

12 The European Regional Development (ERDF) and Cohesion Fund remain the most powerful investment tools of the European Union and constitute an important route to funding better care and health infrastructure. Read more here: https://ec.europa.eu/regional_policy/en/funding/erdf/ https://ec.europa.eu/regional_policy/en/funding/cohesion-fund/
13 European Society of Radiology (ESR): The consequences of the economic crisis in radiology https://link.springer.com/article/10.1007/s13244-015-0434-9
14 COCIR "Managed Services – Innovative Business and Financial Models. Key Performance Indicators targeting EU healthcare sustainability goals" https://www.cocir.org/media-centre/publications/article/managed-services-innovative-business-and-financial-models-key-performance-indicators-targeting-eu-healthcare-sustainability-goals.html

7. 2021 AGE PROFILE: DETAILED ANALYSIS OF RESULTS

Comparing the data at the end of 2020 to the COCIR Golden Rules criteria:

COMPUTED TOMOGRAPHY (CT)

COCIR companies participating in Age Profile reporting:
Canon Medical Systems, Fujifilm, GE, Philips, Siemens Healthineers

KEY FINDINGS

- **No improvement in Age Profile since 2018**
- **21% of CT units in Europe are more than ten years old**
- **Disparities in equipment density remain**.

EUROPE

- Most European Countries do not meet the COCIR Golden Rules.
- The only exception is **France**, which fully meets all indicators.
- Only **Sweden** comes close to fulfilling the criteria.
- Around **3200 CT Units** in Europe – **21%** of the total - are more than ten years old and therefore **should be replaced**.
- The majority of these units are found in **Italy, Germany, Spain, Poland, Greece and Portugal**.
- **Average density** *(the number of systems in use per million inhabitants)* in the EU 27 is **28.2**, which is higher than all the other geographies measured, including the UK.
- However, there are still considerable disparities within the EU, as the density ranges widely from 40.6 in **Greece** to 15.6 in **Hungary**.
- Most EU 27 countries have a lower than average density.

REST OF THE WORLD[15]

- Among the geographies analysed by COCIR, only **India** meets the Golden Rules criteria for CT, with 70% of systems aged between one and five years.
- Equipment density ranges from 19.5 in **Russia**, 16.3 in Saudi Arabia, 14.7 in Greater China, 12.1 in Brazil, 11, 6 in Turkey and 3.9 in **India**.

15 Equipment density data does not include local vendors

MAGNETIC RESONANCE IMAGING (MRI)

COCIR companies participating in Age Profile reporting;
Canon Medical Systems, GE, Philips, Siemens Healthineers

KEY FINDINGS

- **No improvement in Age Profile since 2018**
- **21% of MRI units in Europe are more than ten years old**
- **Disparities in equipment density**.

EUROPE

- Most European Countries do not meet the COCIR Golden Rules.
- The only exceptions are **Hungary, Romania, Norway** and **France**, which fully meet all indicators.
- The three **Baltic Countries** and **Cyprus** come close to fulfilling the criteria.
- Around **2200 MRI Units** in Europe – **21%** of the total - are more than ten years old.
- The majority of these units are in **Germany, Italy, Spain, Greece, Poland and the Netherlands**.
- **Average density** *(the number of systems in use per million inhabitants)* in the EU 27 is **20**, which is higher than all the other geographies measured, including the UK.
- However, there are still great disparities within the EU, as the density ranges widely from 35.7 in **Germany** to 7.5 in **Hungary**.
- Most EU 27 countries have a lower than average density.

REST OF THE WORLD

- **None** of the geographies analysed by COCIR meet the Golden Rules criteria for MRI.
- For example, the percentage of MRI systems aged “six years and older” in both Turkey and Brazil is 66 %.
- Equipment density ranges from 14.7 in **Saudi Arabia**, 12.0 in Turkey, 11.1 in Brazil, 8.6 in Russia, 6.0 in Greater China, to 1.6 in **India**.

INTERVENTIONAL X-RAY / ANGIOGRAPHY

COCIR companies participating in Age Profile reporting:
Canon Medical Systems, GE, Philips, Siemens Healthineers

KEY FINDINGS

- **No improvement in Age Profile since 2018**
- **One-third of units are more than ten years old**
- **Disparities in equipment density**.

EUROPE

- None of the European Countries meet the COCIR Golden Rules.
- The only exceptions are **Croatia, Romania, Finland**, which come close to fulfilling the indicators.
- Around **4500 X-ray Interventional Units** in Europe – **34% - one-third** of the total - are **more than 10 years old** and therefore **should be replaced**.
- The majority of these units are in **France, Germany, Poland, Italy, Spain, Czech Republic, Netherlands, Hungary**.
- Average density *(the number of systems in use per million inhabitants)* in the EU 27 is 25.1, which is higher than all the other Geographies measured, including the UK.
- However, there are still great disparities within the EU, as the density ranges widely from 44.3 in **France** to 8.4 in **Portugal**.
- Most EU 27 countries have a lower than average density.

REST OF THE WORLD:

- **None** of the geographies analysed by COCIR meet the Golden Rules criteria for interventional x-ray
- For example, the percentage of systems aged “six years and older” in Brazil is 66%.
- Equipment density ranges from 9.9 in **Saudi Arabia**, 7.7 in Turkey, 5.3 in Russia, 4.9 in Greater China, 3.7 in Brazil and 1.4 in **India**.

MOLECULAR IMAGING-PET (MI-PET)

COCIR companies participating in Age Profile reporting:
GE, Philips, Siemens Healthineers

KEY FINDINGS

- **No improvement in Age Profile since 2018**
- **22% of units more than ten years old**
- **Disparities in equipment density**.

EUROPE

- Most European Countries do not meet the COCIR Golden Rules.
- The only exceptions are **Norway, Sweden, France**, which fully meet all indicators.
- **Bulgaria, Hungary, Romania, Slovakia, Finland** and **Belgium** all come close to fulfilling the criteria.
- Around **280 MI PET Units** in Europe – **22%** of the total - are **more than ten years old**.
- The majority of these units are in **Germany, Italy, Spain, Greece, Poland** and **the Netherlands**.
- **Average density** *(the number of systems in use per million inhabitants)* in the EU 27 is **2.4**, which is higher than all the other Geographies measured, including the UK.
- However, there are still great disparities within the EU, as the density ranges widely - from 8.1 in **Denmark** to 3.0 in France and Finland to 0.7 in **Romania**.
- Most EU 27 countries have a lower than average density.

REST OF THE WORLD

- Of the geographies analysed by COCIR, only **India** meets the Golden Rules criteria for MI PET, with 63% of systems aged between one and five years.
- **Russia** come close to fulfilling the Golden Rules indicators, with 52% of MI PET systems aged between one and five years.
- Equipment density ranges from 1.9 in in **Turkey**, 0.9 in Saudi Arabia, 0.8 in Brazil, 0.7 in Russia, 0.4 in Greater China and 0.2 in **India**.

ANNEX 1: **MEDICAL IMAGING TECHNOLOGIES**

COMPUTED TOMOGRAPHY (CT)

Also commonly referred to as a CT scan, Computed Tomography is an imaging technique that combines multiple X-ray images from different angles to produce detailed, three-dimensional cross-sectional internal images. The first CT scanner for medical use dates from 1972.

The resulting images provide doctors with much greater information than standard X-rays, allowing them to examine individual 'slices' within the 3D images. Contrast agents are commonly used in combination with CT scans to perform angiographies and other specific tissue examinations.
CT scans are often used to evaluate:

- Organs in the pelvis, chest and abdomen
- Colon health (CT colonography)
- The presence of tumours
- Pulmonary embolism (CT angiography)
- Abdominal aortic aneurysms (CT angiography)
- Spinal injuries
- Cardiac health.

Technological improvements in CT, such as **dose modulation acquisition techniques** and **iterative reconstruction** and **AI algorithms**, have dramatically reduced the x-ray dose required, improving hospital efficiency and clinical effectiveness and reducing costs.

MAGNETIC RESONANCE IMAGING (MRI)

Magnetic Resonance Imaging (MRI) is a technology that uses radio waves and a magnetic field to provide detailed images of organs and tissues. The first magnetic resonance image was taken in 1973, and the first MRI scanner for medical imaging was developed in 1977.

The type of radiation in this kind of imaging technique generates images of soft tissues rather than the skeleton. This ability has proven highly effective in helping diagnose a number of conditions, by showing the difference between normal and diseased tissues. MRI is often used to evaluate:

- Blood vessels
- Breasts
- Major organs.

X-RAY

X-rays are the oldest and most widely used medical imaging technique. X-rays were discovered in 1895 and first used to visualise human tissue in 1896. They rely on ionising radiation to send beams through the body; depending on the density of the tissue, the x-rays are absorbed at different rates thus producing images of a person's internal structure.

X-ray radiation can generate three types of medical image; conventional X-ray imaging, angiography and fluoroscopy.

Conventional X-ray imaging generates an image of a localised part of the body, allowing it to be analysed for anatomical abnormalities. This kind of imaging usually evaluates:

- The skeletal system
- The oral cavity (bone and teeth)
- Any ingested objects
- The lungs
- The breasts (mammography)
- The digestive system.

Angiography uses x-rays in combination with a contrast agent (chemical compounds used to enhance specific structures in images) to visualise blood vessels, particularly the coronary arteries.

Fluoroscopy uses x-rays to visualise the internal structure in real-time, providing moving images of the interior of parts of the body, such as hearts when beating or throats when swallowing.

MOLECULAR IMAGING-PET (MI-PET)

Molecular imaging is a diagnostic tool that allows metabolic processes to be visualised by administering small amounts of radioactive pharmaceuticals to patients. These accumulate in a specific part of the body in a controlled fashion.

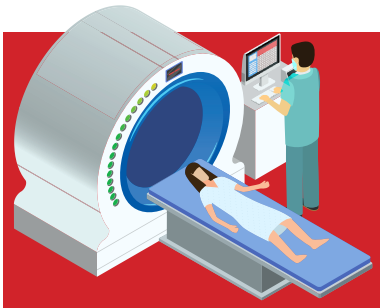
Unlike other ionising radiation techniques, which can only generate anatomical images, this technique generates functional images. Some conditions initially have a physiological effect rather than an anatomical change in the body. Molecular imaging allows for an earlier diagnosis.

Combining molecular imaging with CT or MRI images can provide clinicians with superior images. AIPES[16] has developed a comprehensive tool on nuclear medicine. Click here[17] for further information.

16 http://www.aipes-eeig.org/
17 http://www.whatisnuclearmedicine.com/Home

ANNEX 2: **DETAILED RESULTS INFOGRAPHICS AND CHARTS**

MEDICAL IMAGING EQUIPMENT AGE PROFILE
COMPUTED TOMOGRAPHY (CT)
2021 EDITION



21%

Over one fifth of the CT installed base in Europe is now **MORE THAN 10 YEARS OLD**.

3.200

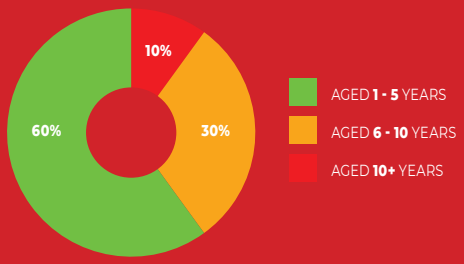
Around 3200 CT units in Europe are obsolete, challenging to maintain and repair, inadequate for conducting some procedures; **REPLACEMENT** is **ESSENTIAL**.

The majority of these CT units are in: **ITALY**, **GERMANY**, **SPAIN**, **POLAND**, **GREECE** and **PORTUGAL**

THE COCIR GOLDEN RULES

1. At least **60%** of the installed equipment base should be **less than five years old**.
2. No more than **30%** of the installed equipment base should be **between six to ten years old**.
3. No more than **10%** of the age profile should be **more than ten years old**.

APPROPRIATE MIX IN THE AGE PROFILE OF INSTALLED EQUIPMENT



2015 2018 2020

In the last **5 YEARS**, Europe has seen no improvement in the number of Countries that meet the COCIR Golden Rules

MEDICAL IMAGING EQUIPMENT AGE PROFILE
MAGNETIC RESONANCE IMAGING (MRI)
2021 EDITION

21%

Over one fifth of the MRI installed base in Europe is now **MORE THAN 10 YEARS OLD**.

2,200

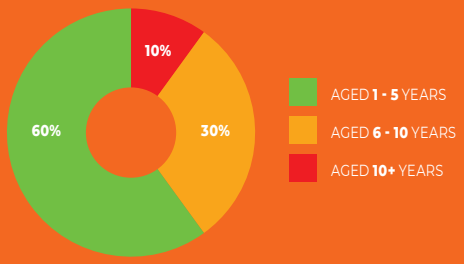
Around 2200 MRI units in Europe are obsolete, challenging to maintain and repair, inadequate for conducting some procedures; **REPLACEMENT** is **ESSENTIAL**.

The majority of these MRI units are in: **GERMANY**, **ITALY**, **SPAIN**, **GREECE** and **POLAND**.

THE COCIR GOLDEN RULES

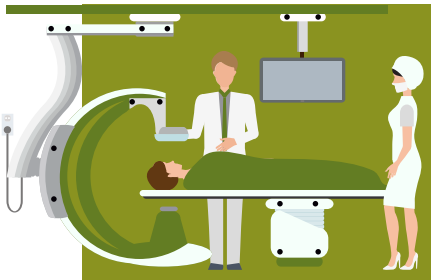
1. At least **60%** of the installed equipment base should be **less than five years old**.
2. No more than **30%** of the installed equipment base should be **between six to ten years old**.
3. No more than **10%** of the age profile should be **more than ten years old**.

APPROPRIATE MIX IN THE AGE PROFILE OF INSTALLED EQUIPMENT



In the last **5 YEARS**, Europe has seen no improvement in the number of Countries that meet the COCIR Golden Rules

MEDICAL IMAGING EQUIPMENT AGE PROFILE
X-RAY ANGIOGRAPHY / INTERVENTIONAL
2021 EDITION



34%

Over one third of the X-Ray Interventional installed base in Europe is now **MORE THAN 10 YEARS OLD**.

4.500

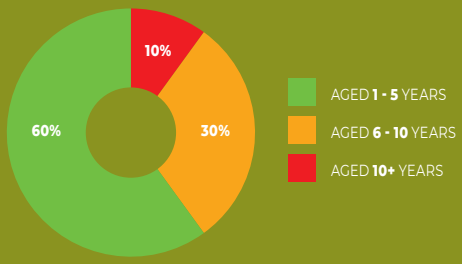
Around 4500 X-Ray Interventional units in Europe are obsolete, challenging to maintain and repair, inadequate for conducting some procedures; **REPLACEMENT** is **ESSENTIAL**.

The majority of these X-Ray Interventional units are in: **FRANCE**, **GERMANY**, **POLAND**, **ITALY** and **SPAIN**.

THE COCIR GOLDEN RULES

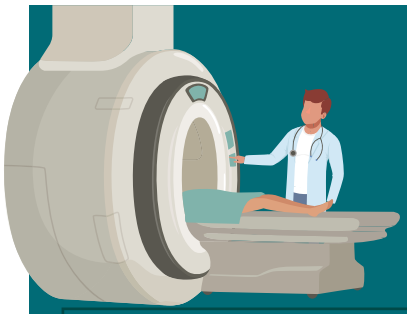
1. At least **60%** of the installed equipment base should be **less than five years old**.
2. No more than **30%** of the installed equipment base should be **between six to ten years old**.
3. No more than **10%** of the age profile should be **more than ten years old**.

APPROPRIATE MIX IN THE AGE PROFILE OF INSTALLED EQUIPMENT



In the last **5 YEARS**, Europe has seen no improvement in the number of Countries that meet the COCIR Golden Rules

MEDICAL IMAGING EQUIPMENT AGE PROFILE
MOLECULAR IMAGING POSITRON EMISSION TOMOGRAPHY (MI-PET)
2021 EDITION



22%

Over one fifth of the MI-PET installed base in Europe is now **MORE THAN 10 YEARS OLD**.

280

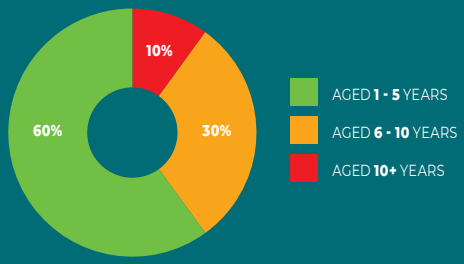
Around 280 MI-PET units in Europe are obsolete, challenging to maintain and repair, inadequate for conducting some procedures; **REPLACEMENT** is **ESSENTIAL**.

The majority of these MI-PET units are in: **ITALY, GERMANY, SPAIN, FRANCE** and **CZECH REPUBLIC**.

THE COCIR GOLDEN RULES

1. At least **60%** of the installed equipment base should be **less than five years old**.
2. No more than **30%** of the installed equipment base should be **between six to ten years old**.
3. No more than **10%** of the age profile should be **more than ten years old**.

APPROPRIATE MIX IN THE AGE PROFILE OF INSTALLED EQUIPMENT



2015 2018 2020

In the last **5 YEARS**, Europe has seen no improvement in the number of Countries that meet the COCIR Golden Rules

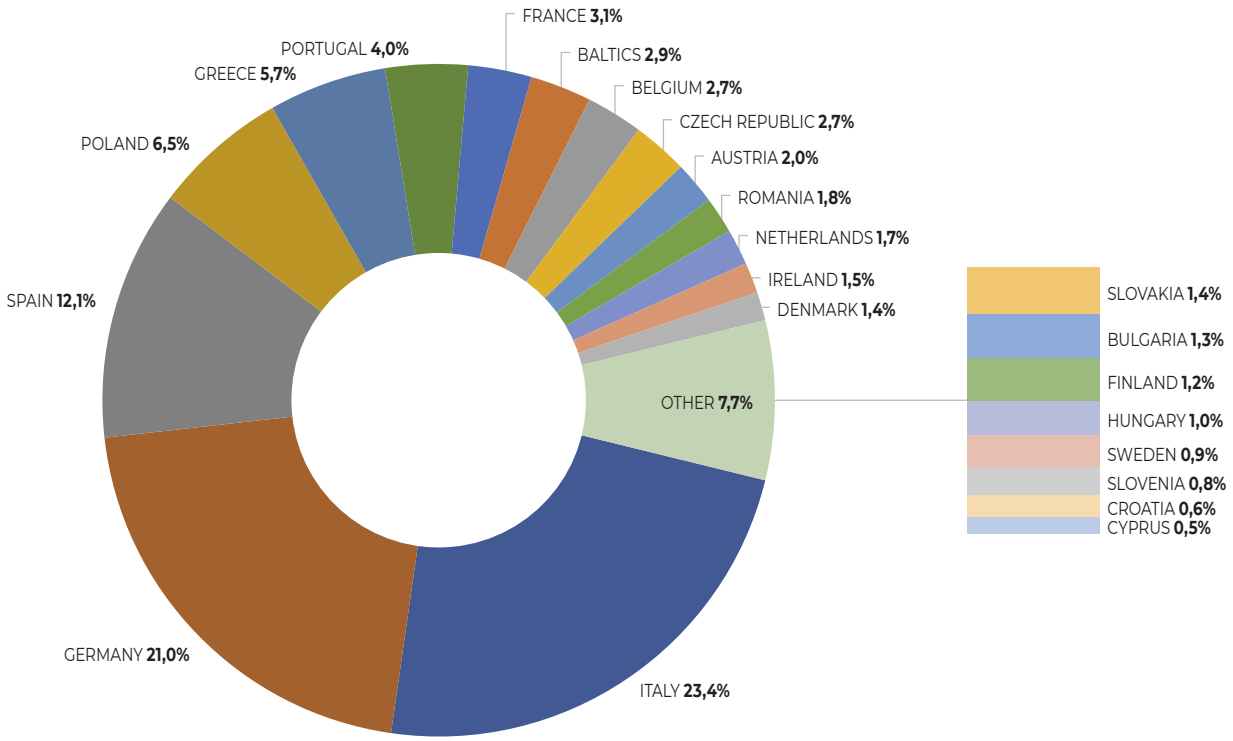
COMPLIANCE WITH GOLDEN RULES **CT**	END 2020 COCIR GOLDEN RULES ANALYSIS				END 2018 COCIR GOLDEN RULES ANALYSIS				END 2015 COCIR GOLDEN RULES ANALYSIS				END 2013 COCIR GOLDEN RULES ANALYSIS				END 2011 COCIR GOLDEN RULES ANALYSIS				END 2008 COCIR GOLDEN RULES ANALYSIS				END 2006 COCIR GOLDEN RULES ANALYSIS				END 2001 COCIR GOLDEN RULES ANALYSIS				END 1998 COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS
Albania		15%	44%	41%		7%	64%	29%		61%	29%	10%		65%	22%	12%																				
BALTICS		33%	27%	40%		26%	35%	38%		64%	23%	13%		43%	47%	9%		68%	24%	8%		70%	26%	4%												
Bosnia		37%	27%	37%		28%	49%	23%		51%	36%	13%		46%	40%	14%																				
Bulgaria		43%	35%	23%		75%	22%	3%		67%	28%	5%		76%	16%	8%		33%	52%	15%		52%	24%	24%												
Croatia		59%	20%	21%		54%	28%	18%		40%	47%	14%		34%	43%	24%																				
Czech Republic		38%	29%	32%		38%	39%	24%		35%	49%	16%		46%	38%	16%		66%	22%	12%		60%	30%	9%												
Hungary		48%	34%	18%		54%	29%	17%		58%	19%	22%		41%	42%	17%		43%	52%	5%		52%	43%	6%												
Macedonia		25%	44%	31%		26%	48%	26%		72%	20%	8%		61%	21%	18%																				
Poland		42%	36%	22%		39%	42%	19%		52%	34%	14%		61%	33%	6%		68%	27%	5%		69%	22%	9%		69%	24%	7%								
Romania		58%	31%	11%		58%	33%	10%		61%	34%	5%		66%	27%	6%		79%	17%	4%		70%	20%	11%												
Serbia		44%	17%	38%		28%	37%	36%		46%	39%	14%		36%	44%	20%																				
Slovakia		46%	29%	25%		49%	28%	24%		42%	38%	20%		48%	40%	11%		62%	28%	10%		55%	27%	18%												
Slovenia		47%	11%	42%		42%	30%	28%		22%	51%	27%		26%	51%	23%		52%	24%	24%		52%	22%	26%												
Ukraine		44%	33%	23%		29%	47%	24%		54%	36%	10%		51%	36%	14%		66%	26%	8%		54%	13%	33%												
EASTERN EUROPE		44%	31%	24%		41%	38%	21%		52%	35%	13%		54%	35%	11%		66%	26%	8%		63%	24%	13%												
Portugal		49%	23%	28%		42%	32%	26%		38%	43%	19%		45%	43%	12%		52%	38%	10%		64%	29%	7%												
Spain		45%	25%	30%		33%	32%	35%		35%	46%	19%		35%	41%	24%		50%	33%	17%		54%	32%	15%												
IBERIA		46%	25%	30%		35%	32%	33%		36%	45%	19%		38%	42%	21%		50%	34%	16%		56%	31%	13%		52%	35%	13%		45%	39%	16%		67%	30%	4%
Denmark		47%	33%	20%		48%	34%	18%		61%	35%	3%		63%	31%	6%		67%	27%	6%		63%	31%	6%												
Finland		49%	26%	25%		45%	32%	24%		36%	48%	17%		45%	44%	11%		63%	28%	9%										60%	23%	17%				
Norway		51%	31%	17%		50%	29%	21%		53%	37%	10%		42%	46%	12%		51%	43%	6%		63%	31%	7%												
Sweden		59%	32%	9%		59%	36%	4%		55%	38%	7%		61%	31%	8%		63%	34%	4%										63%	25%	12%		58%	34%	8%
SCANDINAVIA		53%	31%	16%		52%	33%	15%		54%	38%	8%		55%	37%	9%		61%	33%	6%		60%	35%	5%		58%	35%	7%								
Ireland		37%	23%	40%		36%	30%	34%		34%	51%	15%		34%	55%	11%		57%	37%	5%		72%	24%	4%												
UK		52%	33%	15%		49%	37%	14%		54%	38%	8%		44%	46%	10%		62%	36%	1%		60%	36%	4%												
UK & IRELAND		51%	32%	17%		47%	36%	16%		52%	40%	9%		43%	47%	10%		62%	37%	2%		61%	35%	4%		73%	24%	3%		62%	31%	7%		42%	42%	16%
Austria		48%	34%	18%		48%	35%	17%		43%	44%	12%		39%	45%	16%		52%	36%	12%		59%	32%	9%		62%	29%	9%								
Belgium		40%	35%	24%		38%	44%	18%		55%	37%	8%		49%	43%	8%		25%	72%	3%		70%	27%	3%		66%	27%	7%		52%	41%	7%		66%	24%	10%
France		70%	24%	5%		67%	26%	6%		70%	26%	4%		71%	26%	4%		71%	27%	3%		73%	25%	2%		81%	16%	2%		69%	29%	2%		80%	20%	0%
Germany		44%	36%	20%		45%	37%	18%		45%	42%	13%		49%	39%	12%		60%	31%	9%		58%	31%	12%		58%	32%	9%		57%	36%	7%		83%	15%	2%
Greece		39%	24%	37%		37%	30%	33%		32%	51%	17%		38%	43%	19%		62%	28%	10%		62%	30%	8%		60%	28%	12%								
Italy		44%	27%	28%		34%	34%	31%		36%	43%	21%		43%	40%	18%		49%	35%	16%		53%	35%	12%		57%	33%	10%		51%	27%	23%		46%	39%	15%
Netherlands		50%	34%	16%		47%	37%	16%		47%	35%	18%		50%	39%	11%		50%	40%	10%		62%	35%	3%		70%	25%	5%		51%	31%	18%		0%	86%	14%
Switzerland		53%	33%	14%		54%	35%	11%		57%	36%	7%		52%	39%	9%		59%	38%	4%		71%	27%	2%		75%	22%	3%								
WESTERN EUROPE		49%	30%	21%		45%	34%	21%		47%	40%	13%		49%	39%	13%		56%	35%	9%		60%	31%	9%		62%	30%	8%								
EUROPE		48%	30%	21%		44%	35%	21%		48%	39%	13%		50%	38%	13%		57%	34%	9%		60%	31%	9%												
CYPRUS		34%	29%	37%		38%	16%	47%		50%	31%	19%		29%	43%	29%		47%	47%	5%		67%														
RUSSIA (RFR)		39%	40%	21%		33%	50%	17%		60%	28%	13%		68%	22%	10%		66%	19%	14%		58%	23%	19%		49%	21%	31%								
TURKEY		42%	35%	23%		44%	34%	22%		40%	47%	13%		48%	42%	10%		60%	25%	16%		72%	13%	14%		65%	18%	17%								
BRAZIL		44%	39%	18%		39%	42%	19%		44%	33%	24%		52%	29%	19%																				
GREATER CHINA		55%	32%	13%		54%	31%	15%		56%	28%	16%		54%	32%	14%																				
INDIA		70%	22%	8%		48%	41%	11%		51%	23%	25%		51%	41%	8%																				
BRICS		56%	31%	12%		51%	34%	15%		53%	28%	19%		53%	32%	14%																				

COMPLIANCE WITH GOLDEN RULES **CT**	END **2020** COCIR GOLDEN RULES ANALYSIS				END **2018** COCIR GOLDEN RULES ANALYSIS				END **2015** COCIR GOLDEN RULES ANALYSIS				END **2013** COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED **1-5** YEARS	AGED **6-10** YEARS	AGED **10+** YEARS	RATING	AGED **1-5** YEARS	AGED **6-10** YEARS	AGED **10+** YEARS	RATING	AGED **1-5** YEARS	AGED **6-10** YEARS	AGED **10+** YEARS	RATING	AGED **1-5** YEARS	AGED **6-10** YEARS	AGED **10+** YEARS
Azerbaijan		31%	52%	17%		45%	45%	10%		62%	32%	6%		67%	28%	4%
Belarus		47%	33%	20%		39%	31%	30%		43%	47%	10%		54%	39%	7%
Kazakhstan		32%	45%	24%		53%	33%	14%		53%	26%	20%		61%	25%	14%
Russia (RFR)		39%	40%	21%		33%	50%	17%		60%	28%	13%		68%	22%	10%
Turkmenistan		70%	22%	9%		63%	31%	6%		11%	56%	33%		71%	21%	8%
Uzbekistan		57%	31%	12%		51%	34%	15%		68%	27%	5%		74%	10%	15%
CIS		**40%**	**40%**	**20%**		**35%**	**48%**	**17%**		**59%**	**28%**	**13%**		**67%**	**22%**	**10%**
Bahrain		57%	29%	14%		39%	44%	17%		42%	50%	8%		62%	23%	15%
Emirates (UAE)		39%	46%	15%		48%	35%	17%		67%	26%	7%		56%	32%	12%
Kuwait		66%	24%	9%		57%	23%	20%		54%	38%	8%		41%	46%	13%
Oman		60%	23%	17%		55%	30%	15%		63%	33%	3%		63%	26%	11%
Qatar		60%	25%	15%		58%	35%	6%		35%	39%	26%		45%	40%	15%
Yemen		42%	41%	17%		39%	45%	16%		63%	31%	6%		56%	27%	16%
GULF		**49%**	**36%**	**15%**		**49%**	**34%**	**16%**		**61%**	**31%**	**8%**		**54%**	**33%**	**13%**
Iraq		78%	13%	9%		55%	36%	9%		75%	17%	8%		70%	15%	15%
Jordan		51%	28%	21%		38%	36%	26%		49%	34%	16%		55%	34%	11%
Lebanon		28%	47%	25%		34%	36%	30%		58%	29%	13%		75%	18%	6%
Syria		31%	20%	49%		13%	44%	43%		33%	53%	13%		48%	20%	32%
LEVANT		**45%**	**32%**	**23%**		**40%**	**37%**	**23%**		**58%**	**29%**	**12%**		**66%**	**20%**	**13%**
Iran		60%	25%	16%		50%	27%	24%		53%	37%	10%		52%	29%	19%
Saudi Arabia		39%	40%	22%		45%	40%	16%		53%	34%	13%		57%	27%	16%
MIDDLE EAST		**48%**	**33%**	**19%**		**46%**	**35%**	**20%**		**56%**	**32%**	**11%**		**58%**	**27%**	**15%**
CYPRUS		34%	29%	37%		**38%**	**16%**	**47%**		**50%**	**31%**	**19%**		**29%**	**43%**	**29%**
Georgia		55%	23%	22%		61%	13%	26%		57%	30%	13%		47%	30%	23%
Israël		50%	42%	8%		47%	46%	7%		55%	21%	24%		71%	29%	0%
Pakistan		36%	36%	27%		65%	21%	15%		34%	57%	9%		42%	50%	8%
TURKEY		42%	35%	23%		**44%**	**34%**	**22%**		**40%**	**47%**	**13%**		**48%**	**42%**	**10%**
OTHERS		**43%**	**35%**	**22%**		**46%**	**33%**	**21%**		**43%**	**42%**	**15%**		**48%**	**42%**	**11%**
ME-CIS		**43%**	**37%**	**20%**		**41%**	**39%**	**19%**		**54%**	**33%**	**13%**		**61%**	**27%**	**12%**

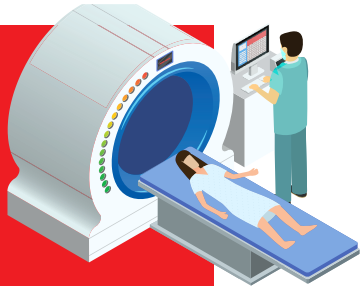
AGE PROFILE - INSTALLED BASE ANALYSIS
PARTICIPANTS: **CANON MEDICAL SYSTEMS / FUJIFILM / GE / PHILIPS / SIEMENS HEALTHINEERS**

DOES NOT AT ALL MEET GOLDEN RULES
CLOSE BUT NOT MATCHING GOLDEN RULES
EQUAL OR BETTER THAN GOLDEN RULES

UNITS AGED 10+ YEARS / **EU 27** / CT

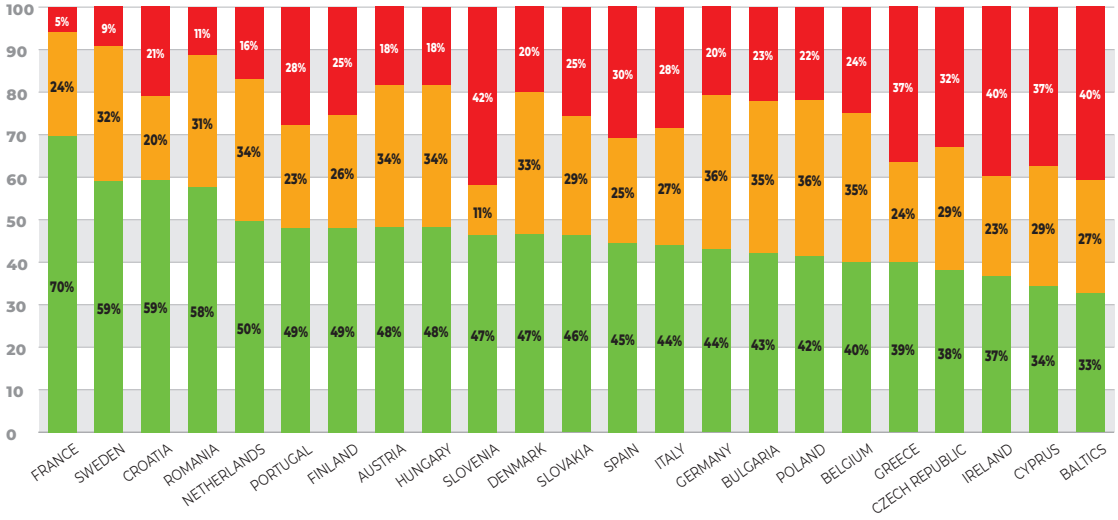


COMPLIANCE WITH GOLDEN RULES **COMPUTED TOMOGRAPHY** (CT)

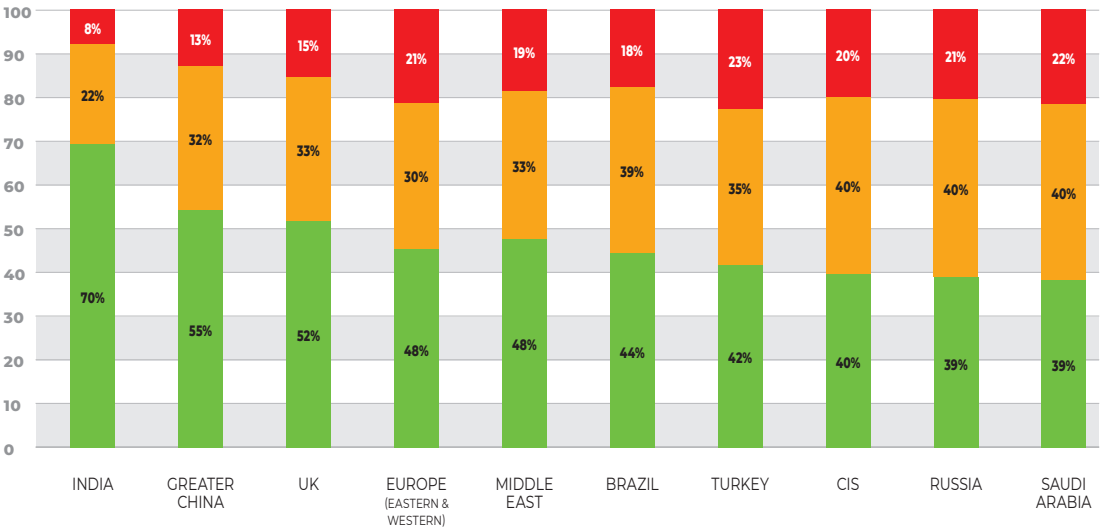


AGED **1 - 5** YEARS
AGED **6 - 10** YEARS
AGED **10+** YEARS

COMPLIANCE WITH GOLDEN RULES / **EU 27** / CT

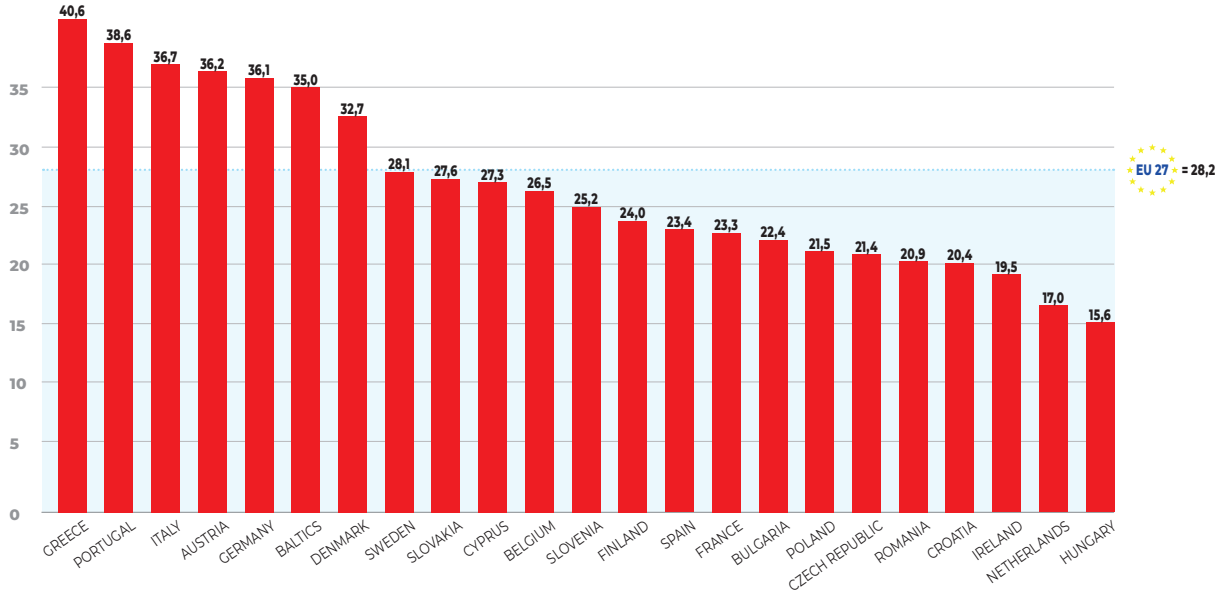


COMPLIANCE WITH GOLDEN RULES / CT

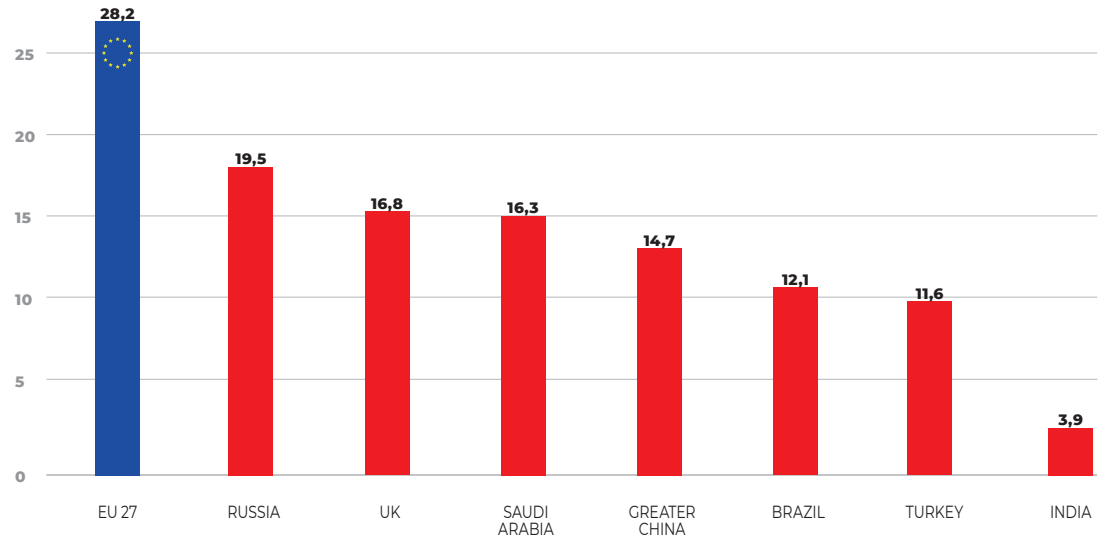


AGE PROFILE - INSTALLED BASE ANALYSIS
PARTICIPANTS : **CANON MEDICAL SYSTEMS / FUJIFILM / GE / PHILIPS / SIEMENS HEALTHINEERS**

DENSITY / **EU 27** / CT UNITS/MILLION INHABITANTS



DENSITY / CT UNITS/MILLION INHABITANTS



EQUIPMENT DENSITY TRENDS

COMPLIANCE WITH GOLDEN RULES MRI

	END 2020 COCIR GOLDEN RULES ANALYSIS				END 2018 COCIR GOLDEN RULES ANALYSIS				END 2015 COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS
Albania		47%	20%	33%		17%	67%	17%		56%	33%	11%
BALTICS		**61%**	**17%**	**22%**		**53%**	**24%**	**24%**		**38%**	**58%**	**4%**
Bosnia		44%	33%	22%		13%	63%	25%		35%	55%	10%
Bulgaria		43%	38%	19%		64%	29%	7%		71%	24%	5%
Croatia		49%	25%	26%		28%	43%	30%		30%	55%	15%
Czech Republic		58%	18%	23%		41%	42%	17%		46%	40%	14%
Hungary		64%	29%	7%		68%	19%	12%		62%	22%	16%
Macedonia		21%	57%	21%		22%	56%	22%		62%	23%	15%
Poland		45%	37%	18%		47%	43%	10%		60%	30%	10%
Romania		66%	25%	9%		62%	30%	8%		61%	33%	6%
Serbia		48%	12%	40%		35%	30%	35%		43%	43%	14%
Slovakia		53%	25%	22%		65%	21%	13%		41%	27%	32%
Slovenia		54%	15%	32%		47%	28%	25%		20%	48%	32%
Ukraine		39%	28%	32%		33%	28%	39%		48%	37%	15%
EASTERN EUROPE		**52%**	**28%**	**19%**		**48%**	**36%**	**16%**		**54%**	**34%**	**12%**
Portugal		58%	18%	24%		43%	29%	28%		37%	39%	24%
Spain		39%	22%	38%		32%	24%	44%		26%	42%	32%
IBERIA		**43%**	**21%**	**36%**		**34%**	**25%**	**42%**		**27%**	**42%**	**31%**
Denmark		50%	35%	15%		59%	22%	19%		48%	38%	14%
Finland		50%	34%	16%		53%	35%	11%		53%	36%	11%
Norway		62%	30%	8%		53%	26%	21%		49%	28%	23%
Sweden		57%	30%	12%		65%	28%	6%		62%	27%	11%
SCANDINAVIA		**55%**	**32%**	**13%**		**58%**	**28%**	**14%**		**53%**	**32%**	**15%**
Ireland		43%	21%	36%		39%	28%	33%		40%	38%	22%
UK		52%	28%	20%		50%	30%	20%		47%	40%	13%
UK & IRELAND		**52%**	**27%**	**21%**		**49%**	**30%**	**21%**		**46%**	**40%**	**14%**
Austria		56%	29%	15%		59%	29%	12%		49%	36%	14%
Belgium		59%	30%	11%		74%	16%	9%		52%	29%	19%
France		78%	20%	2%		82%	16%	1%		79%	17%	4%
Germany		41%	34%	25%		48%	29%	22%		42%	36%	22%
Greece		42%	19%	40%		35%	30%	36%		27%	55%	18%
Italy		45%	26%	29%		41%	29%	29%		35%	37%	28%
Netherlands		56%	30%	14%		50%	38%	13%		49%	35%	16%
Switzerland		54%	36%	10%		62%	32%	7%		68%	26%	6%
WESTERN EUROPE		**51%**	**29%**	**21%**		**51%**	**28%**	**22%**		**46%**	**34%**	**19%**
EUROPE		**51%**	**29%**	**21%**		**51%**	**29%**	**21%**		**47%**	**34%**	**18%**
CYPRUS		**64%**	**14%**	**23%**		**55%**	**30%**	**15%**		**23%**	**62%**	**15%**
RUSSIA (RFR)		**43%**	**43%**	**14%**		**45%**	**41%**	**14%**		**65%**	**27%**	**8%**
TURKEY		**41%**	**33%**	**26%**		**45%**	**36%**	**20%**		**46%**	**43%**	**11%**
BRAZIL		41%	38%	21%		48%	35%	17%		54%	31%	16%
GREATER CHINA		55%	34%	11%		61%	30%	10%		63%	26%	12%
INDIA		58%	31%	11%		54%	30%	16%		39%	26%	35%
BRICS		**53%**	**34%**	**13%**		**56%**	**31%**	**13%**		56%	27%	17%

	END 2013 COCIR GOLDEN RULES ANALYSIS				END 2011 COCIR GOLDEN RULES ANALYSIS				END 2008 COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS
Albania		50%	40%	10%								
BALTICS		**32%**	**64%**	**4%**		**77%**	**21%**	**2%**		**84%**	**8%**	**8%**
Bosnia		45%	35%	20%								
Bulgaria		81%	9%	11%		56%	12%	32%				
Croatia		53%	28%	19%								
Czech Republic		47%	45%	8%		76%	20%	4%		60%	33%	7%
Hungary		31%	37%	33%		39%	44%	17%		50%	50%	0%
Macedonia		54%	0%	46%								
Poland		73%	22%	4%		78%	16%	6%		60%	27%	13%
Romania		66%	27%	7%		75%	16%	9%				
Serbia		33%	56%	11%								
Slovakia		43%	48%	10%		65%	35%	0%		77%	16%	6%
Slovenia		38%	46%	15%		56%	22%	22%		75%		
Ukraine		30%	56%	14%		66%	28%	6%				
EASTERN EUROPE		**56%**	**33%**	**11%**		**72%**	**20%**	**8%**		**67%**	**25%**	**8%**
Portugal		41%	32%	27%		54%	29%	18%		53%	34%	12%
Spain		29%	41%	30%		43%	36%	20%		52%	33%	15%
IBERIA		**31%**	**40%**	**30%**		**45%**	**35%**	**20%**		**52%**	**33%**	**14%**
Denmark		49%	36%	15%		41%	43%	16%		65%	30%	6%
Finland		50%	45%	6%		62%	25%	13%		55%	23%	23%
Norway		39%	36%	25%		46%	40%	13%		53%	45%	2%
Sweden		58%	32%	11%		63%	25%	12%		60%	29%	11%
SCANDINAVIA		**50%**	**36%**	**14%**		**53%**	**33%**	**14%**		**59%**	**32%**	**10%**
Ireland		36%	49%	15%		52%	37%	11%				
UK		45%	41%	14%		52%	37%	11%				
UK & IRELAND		**45%**	**42%**	**14%**		**52%**	**37%**	**11%**		**63%**	**25%**	**12%**
Austria		36%	38%	27%						55%	35%	11%
Belgium		37%	45%	18%						64%	34%	2%
France		74%	23%	3%		73%	23%	3%		70%	26%	3%
Germany		44%	31%	25%		53%	31%	16%		47%	37%	16%
Greece		37%	39%	24%		56%	29%	15%		61%	32%	7%
Italy		40%	37%	23%		42%	38%	20%		50%	34%	16%
Netherlands		49%	33%	18%		46%	33%	21%		49%	28%	23%
Switzerland		51%	32%	17%		58%	27%	14%		61%	32%	7%
WESTERN EUROPE		**45%**	**34%**	**20%**		**52%**	**33%**	**15%**		**55%**	**33%**	**13%**
EUROPE		**47%**	**34%**	**19%**						**55%**	**32%**	**13%**
CYPRUS		**50%**	**33%**	**17%**		**62%**	**15%**	**23%**		**60%**		
RUSSIA (RFR)		**70%**	**22%**	**8%**		**71%**	**15%**	**15%**		**64%**	**25%**	**11%**
TURKEY		**58%**	**33%**	**9%**		**57%**	**27%**	**15%**		**72%**	**18%**	**10%**
BRAZIL		52%	30%	18%								
GREATER CHINA		65%	28%	8%								
INDIA		64%	27%	9%								
BRICS		61%	28%	10%								

	END 2006 COCIR GOLDEN RULES ANALYSIS				END 2001 COCIR GOLDEN RULES ANALYSIS				END 1998 COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS
Albania												
BALTICS												
Bosnia												
Bulgaria												
Croatia												
Czech Republic												
Hungary												
Macedonia												
Poland												
Romania												
Serbia												
Slovakia												
Slovenia												
Ukraine												
EASTERN EUROPE												
Portugal												
Spain												
IBERIA		**54%**	**33%**	**13%**		**56%**	**32%**	**11%**		**55%**	**44%**	**2%**
Denmark												
Finland						57%	41%	3%				
Norway												
Sweden						52%	47%	1%				
SCANDINAVIA		**63%**	**27%**	**10%**								
Ireland												
UK												
UK & IRELAND		**74%**	**21%**	**5%**		**61%**	**37%**	**2%**		**100%**	**0%**	**0%**
Austria		70%	21%	9%								
Belgium		57%	38%	4%		76%	24%	0%		0%	100%	
France		78%	18%	4%		58%	35%	7%				
Germany		59%	30%	11%		63%	34%	3%				
Greece		55%	29%	16%								
Italy		57%	30%	13%		59%	31%	11%		50%	46%	4%
Netherlands		54%	27%	19%		53%	43%	4%				
Switzerland		77%	18%	5%								
WESTERN EUROPE		**62%**	**27%**	**10%**								
EUROPE												
CYPRUS												
RUSSIA (RFR)		**52%**	**26%**	**23%**								
TURKEY		**68%**	**19%**	**13%**								
BRAZIL												
GREATER CHINA												
INDIA												
BRICS												

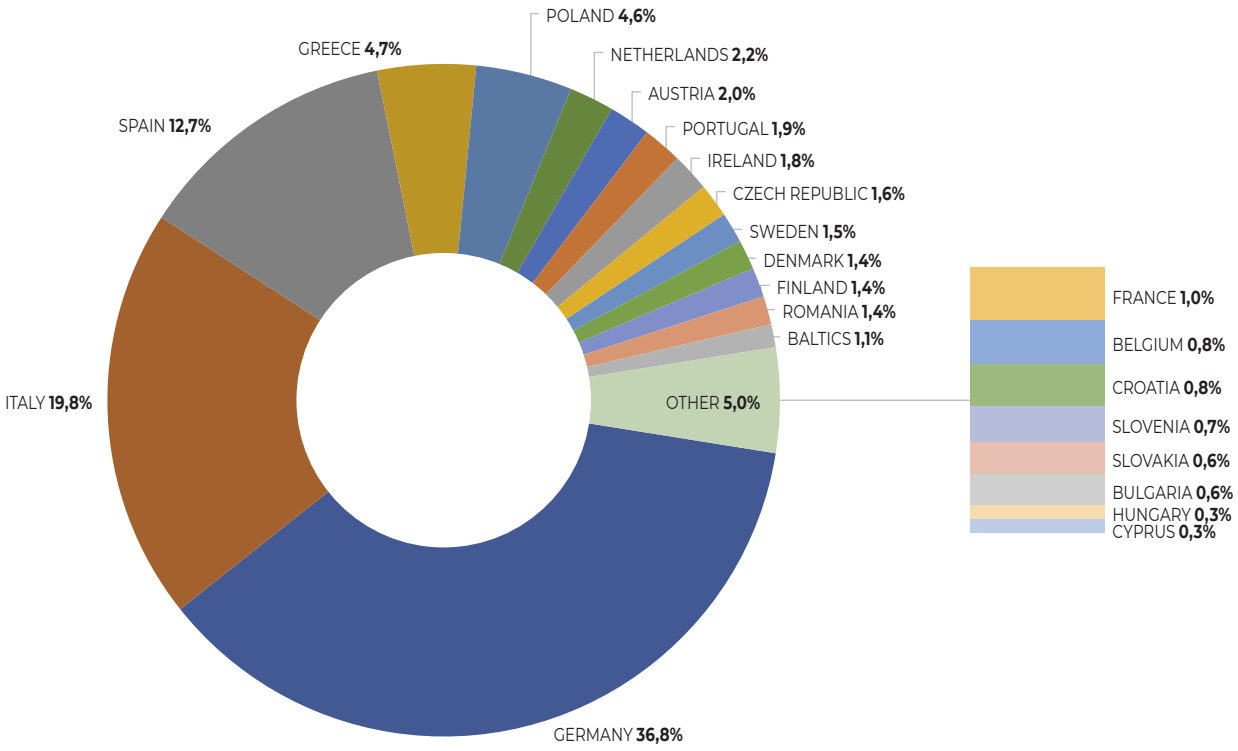
COMPLIANCE WITH GOLDEN RULES **MRI**

	END **2020** COCIR GOLDEN RULES ANALYSIS				END **2018** COCIR GOLDEN RULES ANALYSIS				END **2015** COCIR GOLDEN RULES ANALYSIS				END **2013** COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED **1-5** YEARS	AGED **6-10** YEARS	AGED **10+** YEARS	RATING	AGED **1-5** YEARS	AGED **6-10** YEARS	AGED **10+** YEARS	RATING	AGED **1-5** YEARS	AGED **6-10** YEARS	AGED **10+** YEARS	RATING	AGED **1-5** YEARS	AGED **6-10** YEARS	AGED **10+** YEARS
Azerbaijan		38%	43%	19%		49%	38%	13%		56%	44%	0%		68%	32%	0%
Belarus		49%	38%	13%		60%	33%	7%		68%	15%	17%		71%	29%	0%
Kazakhstan		45%	36%	19%		44%	43%	13%		51%	40%	9%		49%	46%	5%
RUSSIA (RFR)		**43%**	**43%**	**14%**		**45%**	**41%**	**14%**		**65%**	**27%**	**8%**		**70%**	**22%**	**8%**
Turkmenistan		67%	27%	7%		67%	25%	8%		0%	67%	33%		80%	0%	20%
Uzbekistan		62%	27%	11%		53%	37%	9%		69%	23%	8%		64%	18%	18%
CIS		**44%**	**41%**	**14%**		**46%**	**40%**	**14%**		64%	28%	8%		69%	23%	8%
Bahrain		38%	31%	31%		47%	33%	20%		63%	38%	0%		60%	20%	20%
Emirates (UAE)		50%	39%	11%		53%	32%	15%		65%	28%	7%		54%	26%	20%
Kuwait		70%	18%	11%		63%	21%	16%		63%	29%	8%		51%	39%	10%
Oman		65%	24%	10%		74%	18%	8%		74%	21%	5%		73%	27%	0%
Qatar		44%	40%	16%		46%	41%	12%		59%	27%	14%		73%	18%	9%
Yemen		31%	31%	38%		21%	36%	43%		29%	57%	14%		33%	40%	27%
GULF		**55%**	**32%**	**13%**		**55%**	**29%**	**16%**		64%	29%	8%		56%	29%	16%
Iraq		87%	9%	4%		53%	40%	7%		42%	42%	16%		71%	15%	15%
Jordan		49%	26%	26%		45%	27%	28%		58%	24%	18%		49%	31%	21%
Lebanon		43%	40%	17%		45%	30%	25%		57%	29%	13%		66%	28%	5%
Syria		18%	32%	50%		4%	57%	39%		39%	39%	22%		66%	28%	6%
LEVANT		**51%**	**29%**	**20%**		**43%**	**36%**	**21%**		52%	32%	16%		65%	24%	11%
Iran		51%	24%	25%		56%	33%	11%		43%	49%	7%		64%	31%	5%
Saudi Arabia		46%	40%	15%		57%	29%	14%		65%	22%	12%		68%	16%	17%
MIDDLE EAST		**50%**	**32%**	**18%**		**53%**	**32%**	**16%**		59%	30%	12%		63%	23%	13%
CYPRUS		**64%**	**14%**	**23%**		**55%**	**30%**	**15%**		**23%**	**62%**	**15%**		**50%**	**33%**	**17%**
Georgia		58%	18%	24%		55%	24%	21%		53%	41%	6%		53%	33%	13%
Israël		49%	20%	31%		58%	34%	8%		71%	21%	8%		67%	33%	0%
Pakistan		64%	15%	20%		58%	23%	19%		36%	51%	13%		50%	17%	33%
TURKEY		**41%**	**33%**	**26%**		**45%**	**36%**	**20%**		**46%**	**43%**	**11%**		**58%**	**33%**	**9%**
OTHERS		**45%**	**29%**	**26%**		**46%**	**35%**	**19%**		47%	42%	11%		57%	33%	10%
ME-CIS		**47%**	**34%**	**19%**		**48%**	**35%**	**16%**		56%	34%	10%		63%	26%	10%

AGE PROFILE - INSTALLED BASE ANALYSIS
PARTICIPANTS: **CANON MEDICAL SYSTEMS / GE / PHILIPS / SIEMENS HEALTHINEERS**

- **DOES NOT AT ALL MEET GOLDEN RULES**
- **CLOSE BUT NOT MATCHING GOLDEN RULES**
- **EQUAL OR BETTER THAN GOLDEN RULES**

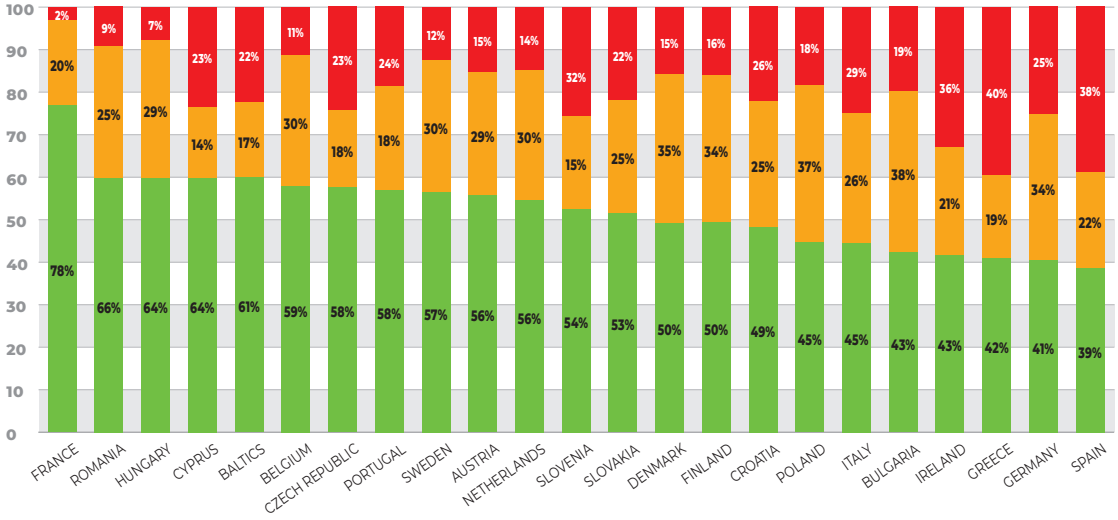
UNITS AGED 10+ YEARS / **EU 27** / MRI



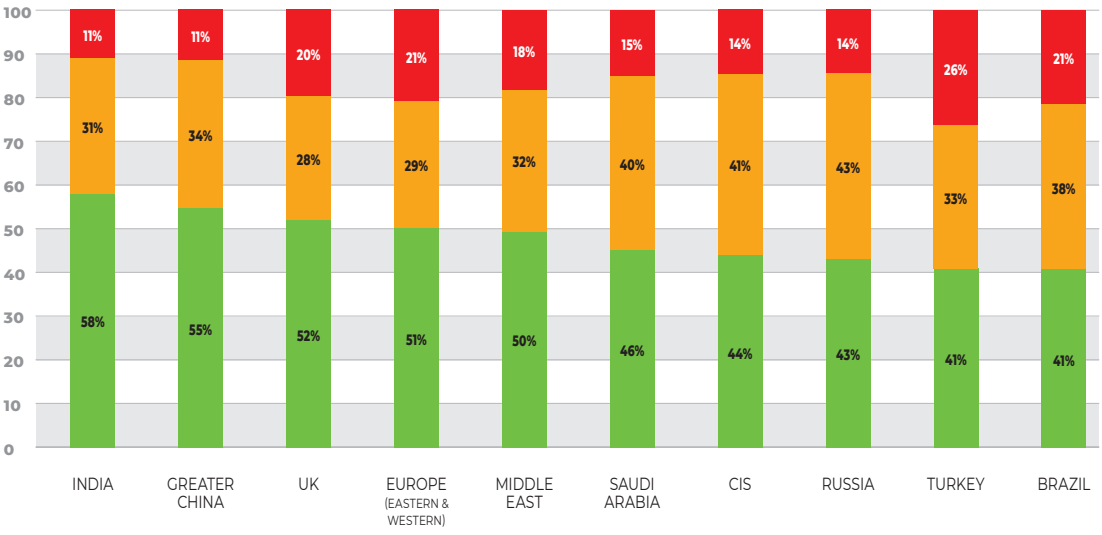
COMPLIANCE WITH GOLDEN RULES **MAGNETIC RESONANCE IMAGING** (MRI)

AGED **1 - 5** YEARS
AGED **6 - 10** YEARS
AGED **10+** YEARS

COMPLIANCE WITH GOLDEN RULES / **EU 27** / MRI

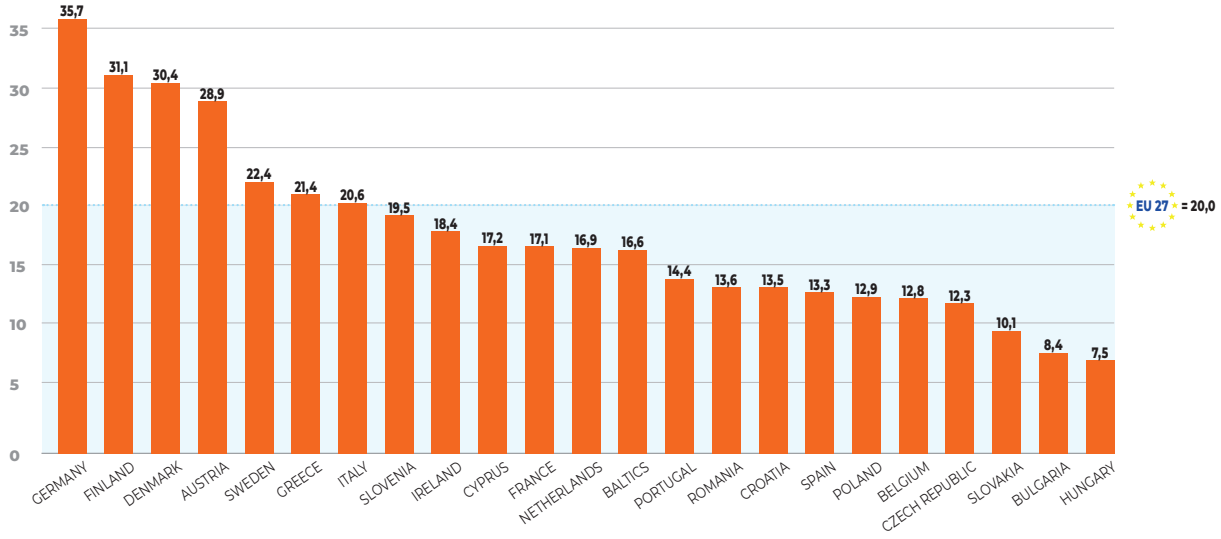


COMPLIANCE WITH GOLDEN RULES / MRI

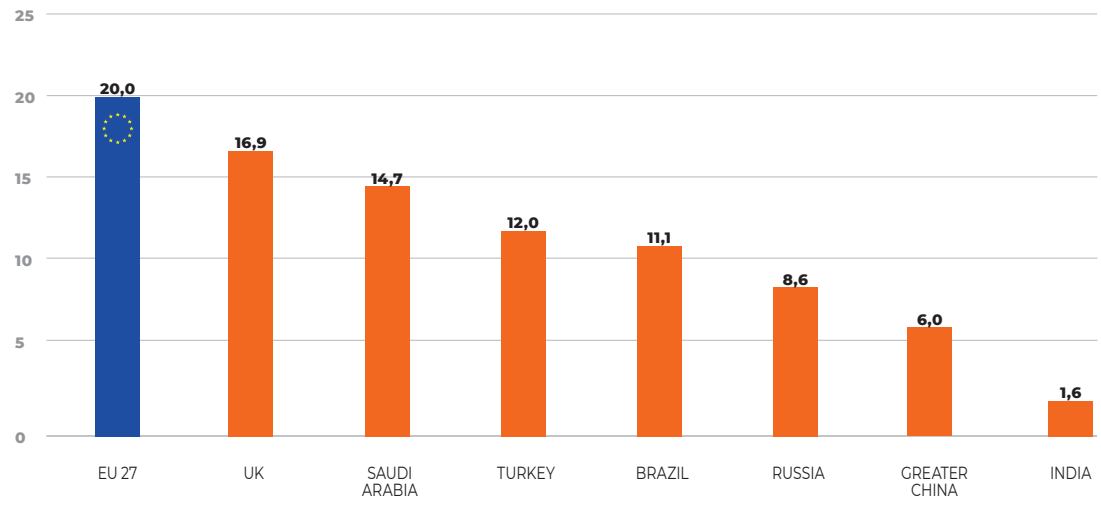


AGE PROFILE - INSTALLED BASE ANALYSIS
PARTICIPANTS : **CANON MEDICAL SYSTEMS / GE / PHILIPS / SIEMENS HEALTHINEERS**

DENSITY / **EU 27** / MRI UNITS/MILLION INHABITANTS



DENSITY / MRI UNITS/MILLION INHABITANTS



EQUIPMENT DENSITY TRENDS

COMPLIANCE WITH GOLDEN RULES

X-RAY INTERV

	END 2020 COCIR GOLDEN RULES ANALYSIS				END 2018 COCIR GOLDEN RULES ANALYSIS				END 2015 COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS
Albania		15%	13%	72%		21%	50%	29%		88%	13%	0%
BALTICS		**40%**	**29%**	**31%**		**34%**	**38%**	**28%**		**33%**	**50%**	**17%**
Bosnia		44%	15%	41%		53%	20%	27%		46%	38%	15%
Bulgaria		55%	27%	18%		77%	21%	2%		59%	32%	10%
Croatia		69%	18%	13%		64%	18%	18%		73%	19%	8%
Czech Republic		27%	33%	41%		36%	45%	19%		57%	28%	15%
Hungary		34%	31%	35%		54%	24%	22%		66%	14%	21%
Macedonia		0%	64%	36%		86%	0%	14%		82%	12%	6%
Poland		35%	23%	42%		47%	37%	16%		54%	28%	18%
Romania		21%	73%	5%		61%	29%	10%		75%	25%	0%
Serbia		45%	14%	40%		39%	33%	28%		29%	71%	0%
Slovakia		47%	14%	39%		42%	24%	33%		33%	58%	8%
Slovenia		38%	16%	46%		33%	41%	26%		22%	67%	11%
Ukraine		47%	19%	34%		24%	54%	22%		65%	28%	7%
EASTERN EUROPE		**34%**	**34%**	**32%**		**47%**	**35%**	**18%**		**58%**	**28%**	**14%**
Portugal		58%	14%	28%		42%	23%	35%		38%	28%	35%
Spain		41%	26%	33%		37%	31%	32%		34%	39%	27%
IBERIA		**43%**	**25%**	**32%**		**37%**	**30%**	**32%**		35%	37%	28%
Denmark		36%	31%	32%		32%	47%	21%		35%	48%	17%
Finland		58%	32%	10%		55%	36%	10%		52%	41%	7%
Norway		30%	29%	41%		43%	37%	19%		40%	45%	14%
Sweden		43%	33%	24%		52%	32%	15%		53%	36%	11%
SCANDINAVIA		**42%**	**32%**	**26%**		**47%**	**37%**	**16%**		**46%**	**41%**	**13%**
Ireland		34%	41%	25%		42%	32%	26%		56%	36%	8%
UK		38%	34%	29%		41%	37%	22%		52%	43%	5%
UK & IRELAND		**37%**	**35%**	**28%**		**41%**	**37%**	**23%**		**52%**	**42%**	**6%**
Austria		43%	41%	15%		60%	28%	13%		52%	38%	11%
Belgium		44%	34%	23%		55%	30%	15%		48%	28%	23%
France		18%	31%	50%		50%	35%	15%		51%	34%	15%
Germany		33%	36%	30%		46%	37%	17%		54%	33%	14%
Greece		46%	21%	33%		34%	23%	43%		45%	33%	23%
Italy		38%	31%	31%		30%	33%	37%		30%	34%	35%
Netherlands		40%	36%	25%		44%	37%	19%		48%	35%	16%
Switzerland		44%	33%	22%		49%	36%	15%		49%	38%	13%
WESTERN EUROPE		**32%**	**33%**	**35%**		**44%**	**35%**	**21%**		**47%**	**36%**	**17%**
EUROPE		**32%**	**33%**	**34%**		**44%**	**35%**	**21%**		**49%**	**34%**	**17%**
CYPRUS		**44%**	**28%**	**28%**		**38%**	**31%**	**31%**		**63%**	**13%**	**25%**
RUSSIA (RFR)		**43%**	**37%**	**20%**		**38%**	**43%**	**20%**		**60%**	**27%**	**13%**
TURKEY		**48%**	**29%**	**23%**		**44%**	**40%**	**15%**		**43%**	**43%**	**14%**
BRAZIL		34%	35%	31%		38%	36%	27%		51%	24%	25%
GREATER CHINA		59%	28%	13%		62%	28%	10%		65%	25%	10%
INDIA		54%	35%	11%		64%	29%	8%		34%	20%	46%
BRICS		**56%**	**30%**	**14%**		**59%**	**29%**	**11%**		56%	24%	20%

	END 2013 COCIR GOLDEN RULES ANALYSIS				END 2011 COCIR GOLDEN RULES ANALYSIS				END 2008 COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS
Albania		54%	31%	15%								
BALTICS		**37%**	**47%**	**16%**		**45%**	**39%**	**16%**		**60%**	**27%**	**13%**
Bosnia		27%	36%	36%								
Bulgaria		63%	31%	6%		50%	23%	27%				
Croatia		45%	25%	30%								
Czech Republic		49%	30%	22%		53%	27%	20%		37%	33%	31%
Hungary		31%	49%	20%		28%	41%	31%		51%	27%	22%
Macedonia		59%	18%	23%								
Poland		48%	39%	13%		58%	31%	12%		64%	25%	11%
Romania		63%	31%	6%		75%	19%	6%		55%	21%	24%
Serbia		29%	56%	15%								
Slovakia		24%	35%	41%		43%	27%	30%				
Slovenia		32%	29%	39%		33%	56%	11%				
Ukraine		46%	46%	9%		75%	18%	7%		71%		
EASTERN EUROPE		**45%**	**37%**	**17%**		**55%**	**30%**	**16%**		**54%**	**27%**	**19%**
Portugal		29%	37%	34%		41%	22%	37%		41%	26%	33%
Spain		33%	37%	29%		45%	26%	29%		51%	29%	19%
IBERIA		33%	37%	30%		44%	25%	30%		50%	29%	21%
Denmark		31%	60%	9%		63%	21%	16%				
Finland		48%	45%	7%		59%	30%	11%				
Norway		42%	35%	23%		46%	27%	28%		56%	21%	23%
Sweden		45%	35%	20%		47%	30%	23%		44%	36%	20%
SCANDINAVIA		**41%**	**44%**	**15%**		**52%**	**27%**	**21%**		**49%**	**31%**	**20%**
Ireland		32%	36%	31%		36%	45%	19%		59%	29%	13%
UK		41%	40%	19%		44%	34%	22%		56%	28%	16%
UK & IRELAND		**40%**	**40%**	**20%**		**43%**	**35%**	**22%**		**56%**	**28%**	**15%**
Austria		34%	42%	24%		51%	23%	26%		47%	27%	27%
Belgium		40%	30%	30%		41%	27%	32%		42%	35%	23%
France		47%	35%	18%		50%	27%	23%		43%	29%	28%
Germany		47%	30%	22%		52%	26%	21%		48%	26%	26%
Greece		23%	39%	39%		39%	30%	30%		37%	39%	25%
Italy		40%	36%	25%		44%	29%	28%		43%	35%	22%
Netherlands		44%	38%	18%		60%	18%	22%		52%	22%	26%
Switzerland		40%	40%	20%		46%	33%	21%		53%	26%	21%
WESTERN EUROPE		**42%**	**36%**	**22%**		**49%**	**28%**	**24%**		**48%**	**29%**	**23%**
EUROPE		**43%**	**36%**	**21%**								
CYPRUS		**38%**	**25%**	**38%**		**49%**	**28%**	**23%**				
RUSSIA (RFR)		**69%**	**20%**	**11%**		**38%**	**25%**	**38%**		**56%**	**29%**	**15%**
TURKEY		**44%**	**45%**	**12%**		**64%**	**18%**	**17%**		**63%**	**17%**	**21%**
BRAZIL		57%	24%	19%								
GREATER CHINA		61%	29%	10%								
INDIA		62%	31%	8%								
BRICS		61%	29%	10%								

	END 2006 COCIR GOLDEN RULES ANALYSIS				END 2001 COCIR GOLDEN RULES ANALYSIS				END 1998 COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS
Albania												
BALTICS												
Bosnia												
Bulgaria												
Croatia												
Czech Republic		45%	30%	25%								
Hungary		55%	23%	21%								
Macedonia												
Poland		61%	25%	14%								
Romania												
Serbia												
Slovakia												
Slovenia												
Ukraine												
EASTERN EUROPE												
Portugal												
Spain												
IBERIA		36%	32%	31%		43%	35%	21%		83%	17%	0%
Denmark												
Finland						48%	30%	23%				
Norway												
Sweden						36%	48%	17%				
SCANDINAVIA		**51%**	**26%**	**24%**								
Ireland												
UK												
UK & IRELAND		**56%**	**23%**	**21%**		**48%**	**36%**	**16%**				
Austria												
Belgium		39%	33%	29%		68%	15%	18%		67%	33%	
France		44%	33%	23%		37%	33%	29%				
Germany		44%	33%	23%		43%	40%	17%				
Greece												
Italy		44%	28%	29%		37%	26%	37%		65%	35%	0%
Netherlands		44%	24%	33%		43%	41%	15%				
Switzerland		51%	23%	25%								
WESTERN EUROPE												
EUROPE												
CYPRUS												
RUSSIA (RFR)		**54%**	**26%**	**21%**								
TURKEY		**60%**	**22%**	**18%**								
BRAZIL												
GREATER CHINA												
INDIA												
BRICS												

COMPLIANCE WITH GOLDEN RULES

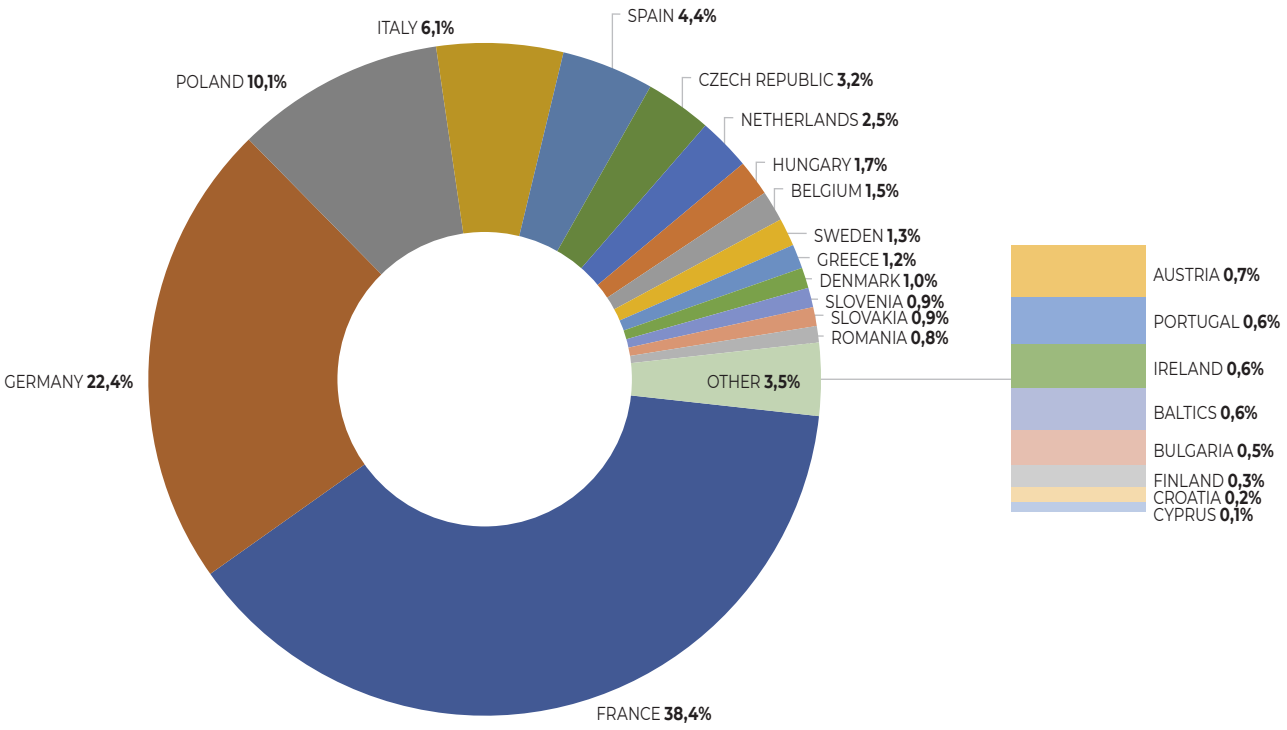
X-RAY INTERV

	END 2020 COCIR GOLDEN RULES ANALYSIS				END 2018 COCIR GOLDEN RULES ANALYSIS				END 2015 COCIR GOLDEN RULES ANALYSIS				END 2013 COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS
Azerbaijan		35%	46%	19%		59%	38%	3%		81%	19%	0%		72%	22%	6%
Belarus		41%	38%	22%		48%	35%	16%		64%	18%	18%		63%	30%	7%
Kazakhstan		31%	47%	22%		55%	37%	8%		68%	26%	5%		66%	32%	2%
RUSSIA (RFR)		**43%**	**37%**	**20%**		**38%**	**43%**	**20%**		**60%**	**27%**	**13%**		**69%**	**20%**	**11%**
Turkmenistan		86%	14%	0%		100%	0%	0%		0%	0%	0%		75%	0%	25%
Uzbekistan		72%	25%	3%		79%	17%	3%		87%	13%	0%		50%	50%	0%
CIS		**43%**	**38%**	**19%**		**42%**	**41%**	**17%**		62%	26%	12%		69%	21%	10%
Bahrain		46%	23%	31%		38%	38%	25%		89%	11%	0%		71%	29%	0%
Emirates (UAE)		51%	39%	10%		54%	35%	12%		71%	25%	4%		67%	27%	7%
Kuwait		74%	10%	16%		64%	30%	7%		46%	43%	11%		35%	50%	15%
Oman		53%	41%	6%		62%	33%	5%		87%	7%	7%		70%	20%	10%
Qatar		29%	57%	14%		35%	57%	9%		50%	50%	0%		62%	23%	15%
Yemen		27%	36%	36%		25%	42%	33%		67%	33%	0%		38%	44%	19%
GULF		**53%**	**33%**	**14%**		**52%**	**36%**	**11%**		68%	27%	5%		56%	34%	11%
Iraq		51%	21%	28%		31%	50%	19%		88%	13%	0%		58%	33%	9%
Jordan		38%	34%	28%		48%	37%	15%		58%	26%	15%		67%	17%	17%
Lebanon		41%	38%	21%		47%	36%	17%		58%	22%	19%		59%	29%	12%
Syria		24%	18%	58%		10%	36%	55%		22%	54%	24%		36%	55%	9%
LEVANT		**39%**	**32%**	**29%**		**37%**	**40%**	**23%**		57%	27%	17%		56%	33%	11%
Iran		53%	23%	24%		54%	36%	10%		81%	16%	3%		39%	39%	22%
Saudi Arabia		50%	33%	17%		45%	45%	10%		63%	22%	15%		50%	30%	21%
MIDDLE EAST		**48%**	**31%**	**21%**		**47%**	**40%**	**14%**		64%	24%	12%		51%	34%	16%
CYPRUS		**44%**	**28%**	**28%**		**38%**	**31%**	**31%**		**63%**	**13%**	**25%**		**38%**	**25%**	**38%**
Georgia		48%	33%	20%		51%	31%	18%		61%	39%	0%		68%	26%	5%
Israël		41%	27%	32%		50%	21%	29%		35%	44%	20%		40%	23%	37%
Pakistan		51%	32%	18%		58%	21%	21%		52%	35%	13%		33%	47%	21%
TURKEY		**48%**	**29%**	**23%**		**44%**	**40%**	**15%**		**43%**	**43%**	**14%**		**44%**	**45%**	**12%**
OTHERS		**47%**	**29%**	**24%**		**47%**	**34%**	**18%**		44%	42%	14%		43%	42%	15%
ME-CIS		**46%**	**32%**	**21%**		**45%**	**38%**	**16%**		56%	31%	13%		56%	31%	13%

AGE PROFILE - INSTALLED BASE ANALYSIS
PARTICIPANTS: **CANON MEDICAL SYSTEMS / GE / PHILIPS / SIEMENS HEALTHINEERS**

- **DOES NOT AT ALL MEET GOLDEN RULES**
- **CLOSE BUT NOT MATCHING GOLDEN RULES**
- **EQUAL OR BETTER THAN GOLDEN RULES**

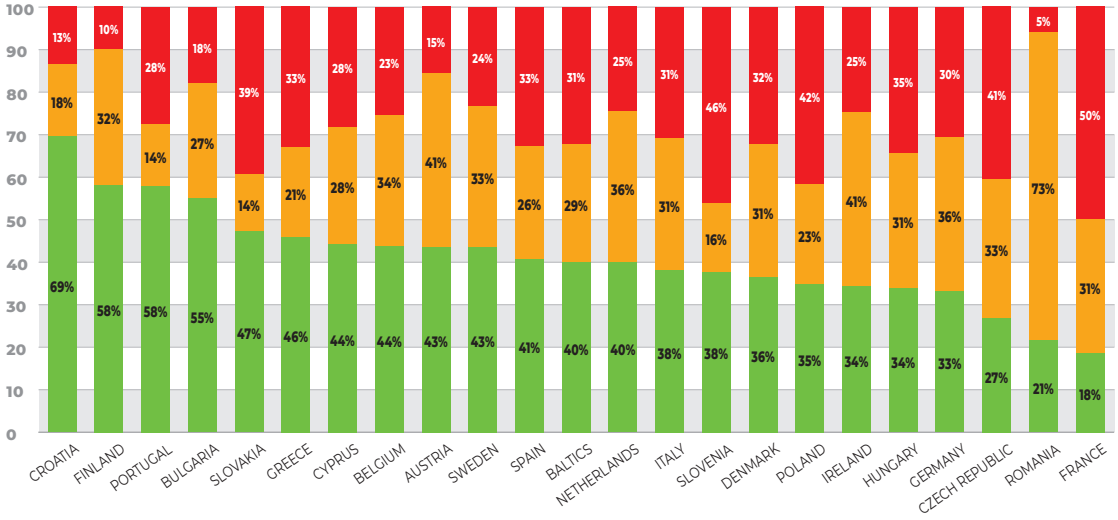
IITS AGED 10+ YEARS / **EU 27** / X-RAY INTERVENTIONAL



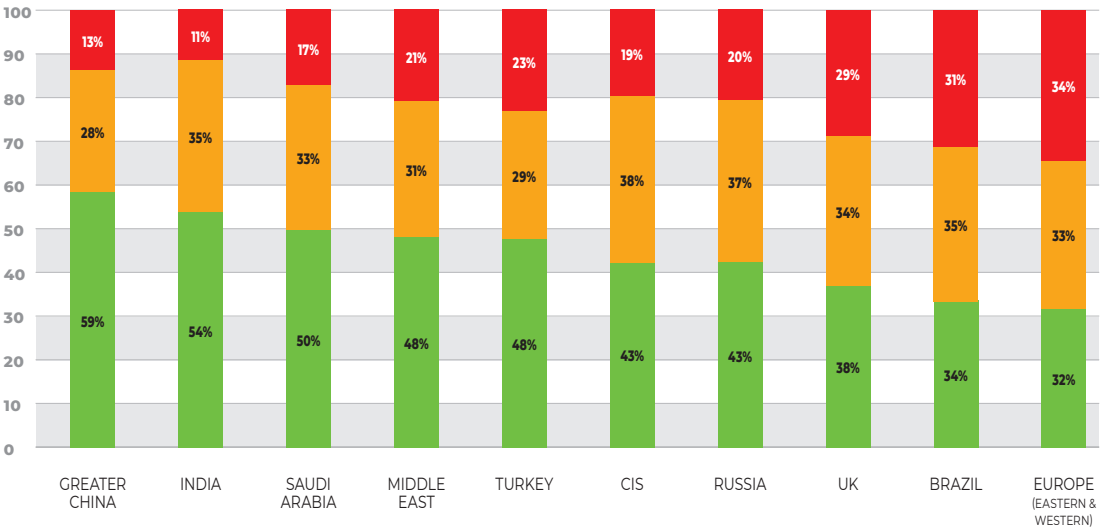
COMPLIANCE WITH GOLDEN RULES **X-RAY ANGIOGRAPHY / INTERVENTIONAL**

AGED **1 - 5** YEARS
AGED **6 - 10** YEARS
AGED **10+** YEARS

COMPLIANCE WITH GOLDEN RULES / **EU 27** / X-RAY INTERVENTIONAL

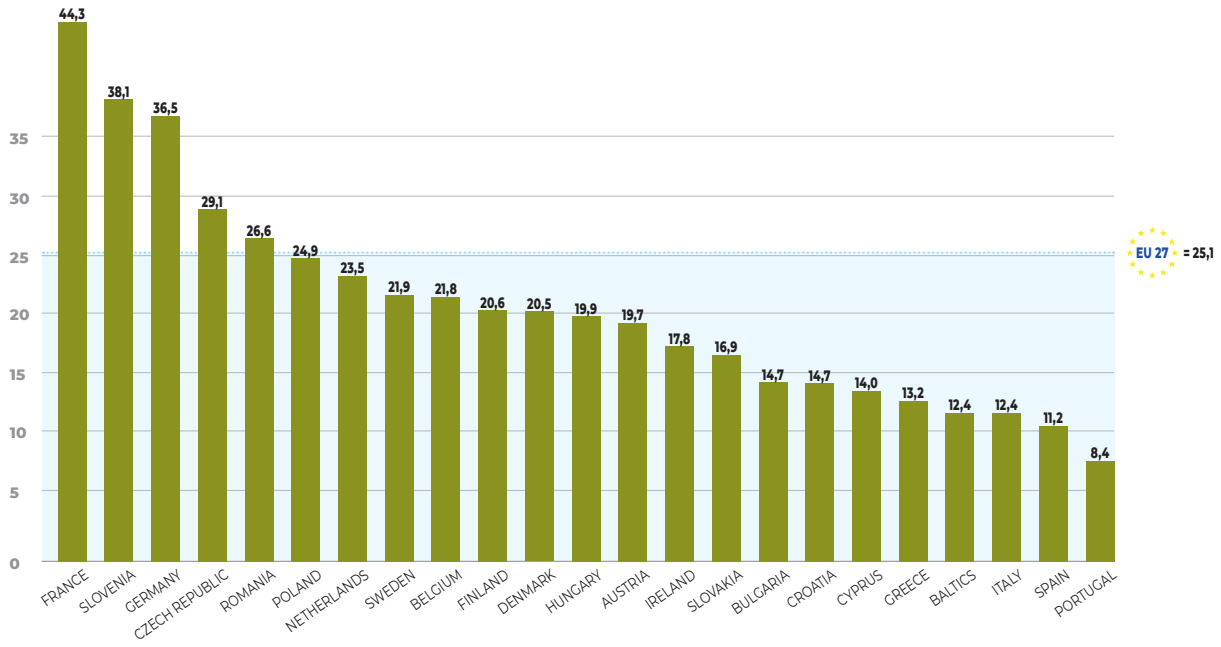


COMPLIANCE WITH GOLDEN RULES / X-RAY INTERVENTIONAL

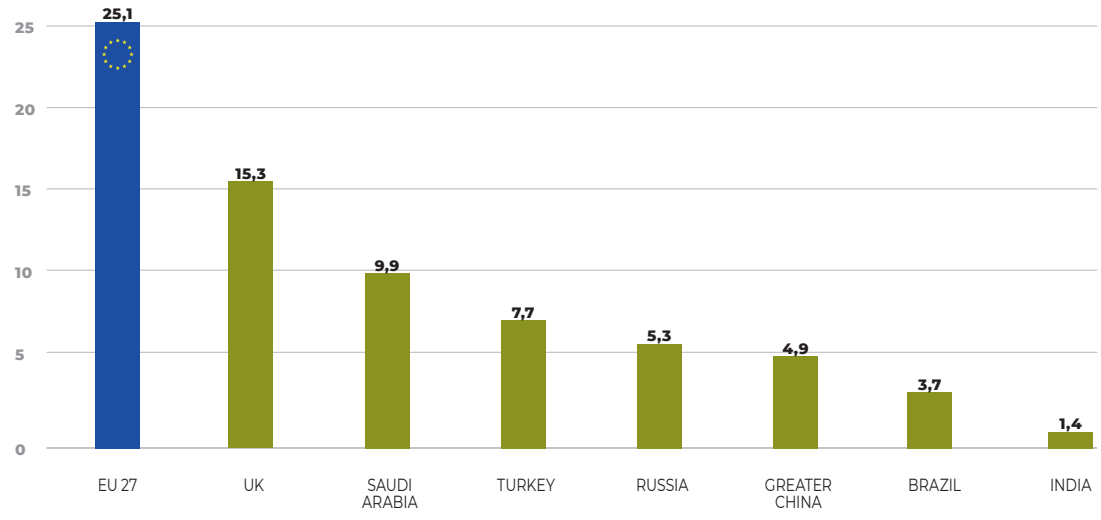


AGE PROFILE - INSTALLED BASE ANALYSIS
PARTICIPANTS : **CANON MEDICAL SYSTEMS / GE / PHILIPS / SIEMENS HEALTHINEERS**

DENSITY / **EU 27** / X-RAY INTERVENTIONAL UNITS/MILLION INHABITANTS



DENSITY / X-RAY INTERVENTIONAL UNITS/MILLION INHABITANTS



EQUIPMENT DENSITY TRENDS

COMPLIANCE WITH GOLDEN RULES

MI-PET

	END 2020 COCIR GOLDEN RULES ANALYSIS				END 2018 COCIR GOLDEN RULES ANALYSIS				END 2015 COCIR GOLDEN RULES ANALYSIS				END 2013 COCIR GOLDEN RULES ANALYSIS				END 2011 COCIR GOLDEN RULES ANALYSIS				END 2008 COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS
Albania		0%	0%	100%		0%	0%	100%		0%	0%	100%		0%	0%	100%								
BALTICS		**33%**	**50%**	**17%**		**33%**	**50%**	**17%**		**100%**	**0%**	**0%**		**100%**	**0%**	**0%**		**50%**	**50%**	**0%**				
Bosnia		0%	100%	0%		50%	50%	0%		100%	0%	0%		100%	0%	0%								
Bulgaria		62%	8%	31%		83%	17%	0%		75%	25%	0%		100%	0%	0%		33%	33%	33%				
Croatia		33%	17%	50%		0%	60%	40%		40%	60%	0%		60%	40%	0%								
Czech Republic		23%	34%	43%		76%	14%	10%		56%	22%	22%		40%	40%	20%		46%	41%	14%				
Hungary		75%	13%	13%		67%	17%	17%		50%	38%	13%		20%	80%	0%		75%	25%	0%		100%	0%	0%
Macedonia		100%	0%	0%		100%	0%	0%						0%	0%	0%								
Poland		20%	61%	19%		44%	46%	10%		58%	42%	0%		79%	21%	0%		56%	32%	12%		100%	0%	0%
Romania		36%	57%	7%		50%	38%	13%		88%	13%	0%		86%	14%	0%		60%	32%	8%				
Serbia		0%	0%	100%		0%	100%	0%						50%	50%	0%								
Slovakia		30%	60%	10%		43%	43%	14%		67%	0%	33%		57%	29%	14%		50%	33%	17%				
Slovenia		29%	14%	57%		33%	67%	0%		50%	50%	0%		67%	33%	0%		50%	33%	17%				
Ukraine		0%	29%	71%		0%	100%	0%		0%	100%	0%		33%	67%	0%		100%	0%	0%				
EASTERN EUROPE		**28%**	**43%**	**29%**		**48%**	**40%**	**12%**		**60%**	**33%**	**7%**		**64%**	**31%**	**6%**		**54%**	**34%**	**12%**		**86%**	**14%**	**0%**
Portugal		38%	31%	31%		65%	20%	15%		13%	63%	25%		45%	36%	18%		55%	36%	9%				
Spain		38%	34%	28%		31%	34%	35%		42%	46%	12%		44%	35%	21%		55%	31%	15%				
IBERIA		**38%**	**34%**	**28%**		**36%**	**32%**	**32%**		**39%**	**48%**	**13%**		**44%**	**35%**	**20%**		**55%**	**31%**	**14%**		**73%**	**24%**	**3%**
Denmark		58%	27%	15%		48%	39%	14%		49%	51%	0%		55%	39%	6%		75%	13%	13%				
Finland		71%	12%	18%		44%	33%	22%		50%	38%	13%		62%	38%	0%		78%	22%	0%				
Norway		71%	21%	7%		69%	31%	0%		38%	50%	13%		57%	43%	0%		83%	17%	0%				
Sweden		72%	20%	8%		78%	19%	4%		46%	46%	8%		29%	50%	21%		56%	13%	31%		75%		
SCANDINAVIA		**65%**	**22%**	**13%**		**58%**	**31%**	**11%**		**47%**	**48%**	**5%**		**51%**	**42%**	**7%**		**71%**	**14%**	**14%**		**82%**		
Ireland		44%	11%	44%		13%	33%	53%		13%	75%	13%		25%	75%	0%		22%	78%	0%		89%		
UK		45%	34%	21%		59%	25%	16%		47%	48%	5%		49%	45%	5%		68%	29%	3%		91%		
UK & IRELAND		**45%**	**32%**	**23%**		**53%**	**26%**	**21%**		**43%**	**51%**	**6%**		**47%**	**48%**	**5%**		**62%**	**35%**	**3%**		**91%**	**8%**	**2%**
Austria		56%	28%	16%		57%	32%	11%		58%	26%	16%		41%	41%	18%		72%	28%	0%		56%	31%	13%
Belgium		64%	14%	22%		58%	31%	10%		33%	67%	0%		40%	33%	27%		47%	25%	28%				
France		72%	20%	8%		60%	31%	8%		63%	30%	7%		66%	30%	4%		50%	32%	18%				
Germany		26%	37%	36%		34%	47%	18%		33%	55%	12%		50%	32%	18%		67%	19%	14%		59%	20%	21%
Greece		36%	50%	14%		50%	30%	20%		60%	40%	0%		50%	50%	0%		43%	38%	20%				
Italy		39%	31%	31%		34%	36%	30%		44%	46%	10%		49%	45%	6%		45%	52%	3%		76%	24%	0%
Netherlands		58%	29%	13%		59%	30%	11%		54%	40%	6%		43%	47%	10%		63%	35%	3%				
Switzerland		50%	38%	13%		59%	36%	5%		69%	31%	0%		56%	44%	0%		78%	22%	0%				
WESTERN EUROPE		**50%**	**29%**	**21%**		**47%**	**35%**	**19%**		**48%**	**44%**	**8%**		**51%**	**38%**	**11%**		**58%**	**31%**	**12%**		**73%**	**20%**	**7%**
EUROPE		**47%**	**31%**	**22%**		**47%**	**35%**	**18%**		**49%**	**43%**	**8%**		**52%**	**38%**	**11%**		**57%**	**31%**	**12%**				
CYPRUS		**100%**	**0%**	**0%**		**0%**	**0%**	**0%**		**0%**	**0%**	**0%**		**0%**	**0%**	**0%**		**0%**	**0%**	**0%**				
RUSSIA (RFR)		**52%**	**44%**	**4%**		**48%**	**50%**	**3%**		**87%**	**13%**	**0%**		**71%**	**12%**	**17%**		**82%**	**18%**	**0%**		**36%**		
TURKEY		**38%**	**39%**	**23%**		**44%**	**37%**	**20%**		**54%**	**41%**	**5%**		**48%**	**51%**	**0**		**61%**	**36%**	**2%**		**89%**	**11%**	**0%**
BRAZIL		33%	55%	12%		44%	49%	6%		74%	16%	10%		68%	28%	4%								
GREATER CHINA		53%	27%	20%		50%	33%	17%		55%	34%	11%		55%	37%	8%								
INDIA		63%	29%	8%		68%	26%	7%		47%	22%	31%		80%	20%	0%								
BRICS		**53%**	**32%**	**15%**		**54%**	**34%**	**12%**		57%	27%	16%		62%	32%	6%								

COMPLIANCE WITH GOLDEN RULES

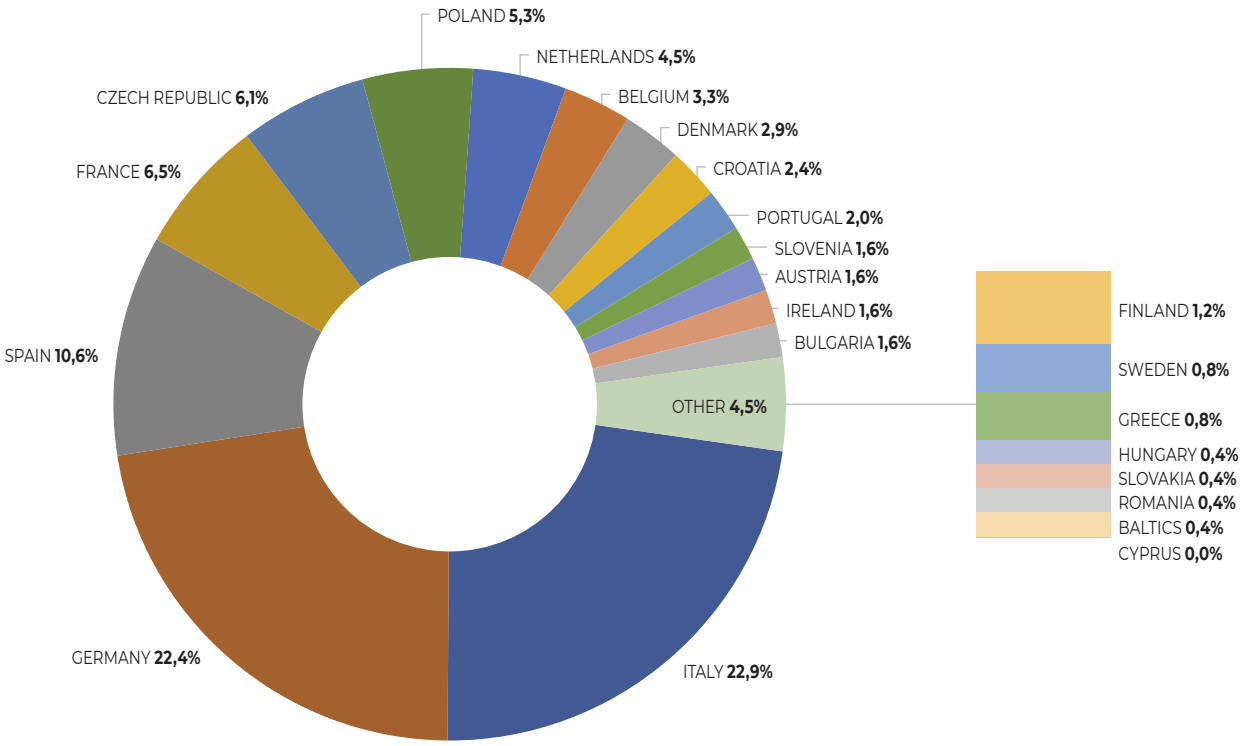
MI-PET

	END 2020 COCIR GOLDEN RULES ANALYSIS				END 2018 COCIR GOLDEN RULES ANALYSIS				END 2015 COCIR GOLDEN RULES ANALYSIS				END 2013 COCIR GOLDEN RULES ANALYSIS			
	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS	RATING	AGED 1-5 YEARS	AGED 6-10 YEARS	AGED 10+ YEARS
Azerbaijan		100%	0%	0%		100%	0%	0%		0%	0%	0%		0%	0%	0%
Belarus		25%	75%	0%		100%	0%	0%		100%	0%	0%		0%	0%	0%
Kazakhstan		80%	0%	20%		33%	67%	0%		67%	0%	33%		100%	0%	0%
RUSSIA (RFR)		**52%**	**44%**	**4%**		**48%**	**50%**	**3%**		**87%**	**13%**	**0%**		**71%**	**12%**	**17%**
Turkmenistan		0%	0%	0%		0%	0%	0%		0%	0%	0%		0%	0%	0%
Uzbekistan		100%	0%	0%		100%	0%	0%		100%	0%	0%		0%	0%	0%
CIS		**53%**	**42%**	**5%**		**51%**	**47%**	**2%**		87%	11%	2%		72%	11%	17%
Bahrain		75%	25%	0%		50%	50%	0%		100%	0%	0%		100%	0%	0%
Emirates (UAE)		60%	10%	30%		55%	36%	9%		25%	75%	0%		75%	25%	0%
Kuwait		43%	57%	0%		81%	19%	0%		100%	0%	0%		67%	33%	0%
Oman		100%	0%	0%		100%	0%	0%		100%	0%	0%		0%	0%	0%
Qatar		0%	100%	0%		50%	50%	0%		100%	0%	0%		100%	0%	0%
Yemen		0%	0%	0%		0%	0%	0%		0%	0%	0%		0%	0%	0%
GULF		**56%**	**35%**	**9%**		**73%**	**24%**	**2%**		84%	16%	0%		77%	23%	0%
Iraq		88%	13%	0%		100%	0%	0%		100%	0%	0%		0%	100%	0%
Jordan		38%	38%	25%		38%	25%	38%		86%	0%	14%		67%	33%	0%
Lebanon		63%	26%	11%		69%	25%	6%		71%	29%	0%		57%	43%	0%
Syria		0%	0%	100%		0%	0%	100%		0%	0%	0%		0%	0%	0%
LEVANT		**61%**	**25%**	**14%**		**67%**	**18%**	**15%**		80%	13%	7%		55%	45%	0%
Iran		73%	18%	9%		80%	20%	0%		100%	0%	0%		100%	0%	0%
Saudi Arabia		43%	40%	17%		50%	32%	18%		69%	31%	0%		60%	40%	0%
MIDDLE EAST		**56%**	**32%**	**13%**		**66%**	**24%**	**10%**		79%	19%	2%		67%	33%	0%
CYPRUS		**100%**	**0%**	**0%**		**0%**	**0%**	**0%**		**0%**	**0%**	**0%**		**0%**	**0%**	**0%**
Georgia		67%	33%	0%		0%	100%	0%		100%	0%	0%		100%	0%	0%
Israël		63%	21%	16%		65%	29%	6%		50%	33%	17%		100%	0%	0%
Pakistan		64%	18%	18%		50%	50%	0%		50%	42%	8%		100%	0%	0%
TURKEY		**38%**	**39%**	**23%**		**44%**	**37%**	**20%**		**54%**	**41%**	**5%**		**48%**	**51%**	**0**
OTHERS		**43%**	**36%**	**22%**		**46%**	**37%**	**17%**		53%	40%	6%		51%	48%	1%
ME-CIS		**49%**	**36%**	**15%**		**53%**	**36%**	**12%**		66%	30%	4%		60%	35%	5%

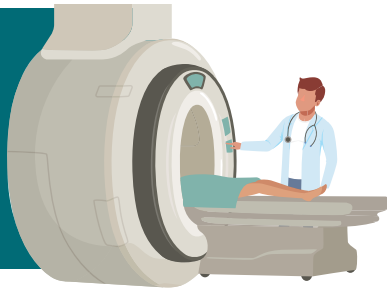
AGE PROFILE - INSTALLED BASE ANALYSIS
PARTICIPANTS: **GE** / **PHILIPS** / **SIEMENS HEALTHINEERS**

- **DOES NOT AT ALL MEET GOLDEN RULES**
- **CLOSE BUT NOT MATCHING GOLDEN RULES**
- **EQUAL OR BETTER THAN GOLDEN RULES**

UNITS AGED 10+ YEARS / **EU 27** / MI-PET

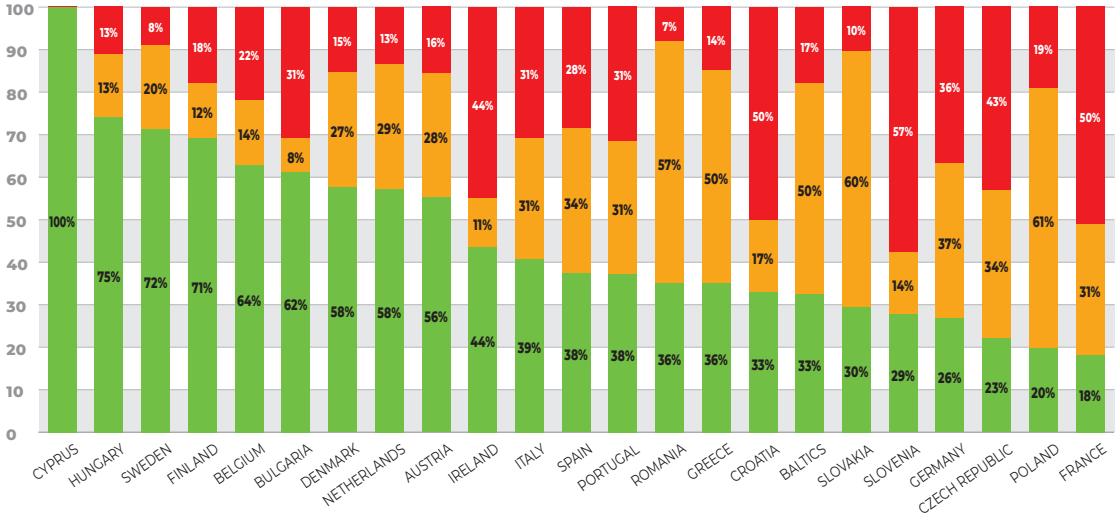


COMPLIANCE WITH GOLDEN RULES
MOLECULAR IMAGING POSITRON EMISSION TOMOGRAPHY (MI-PET)

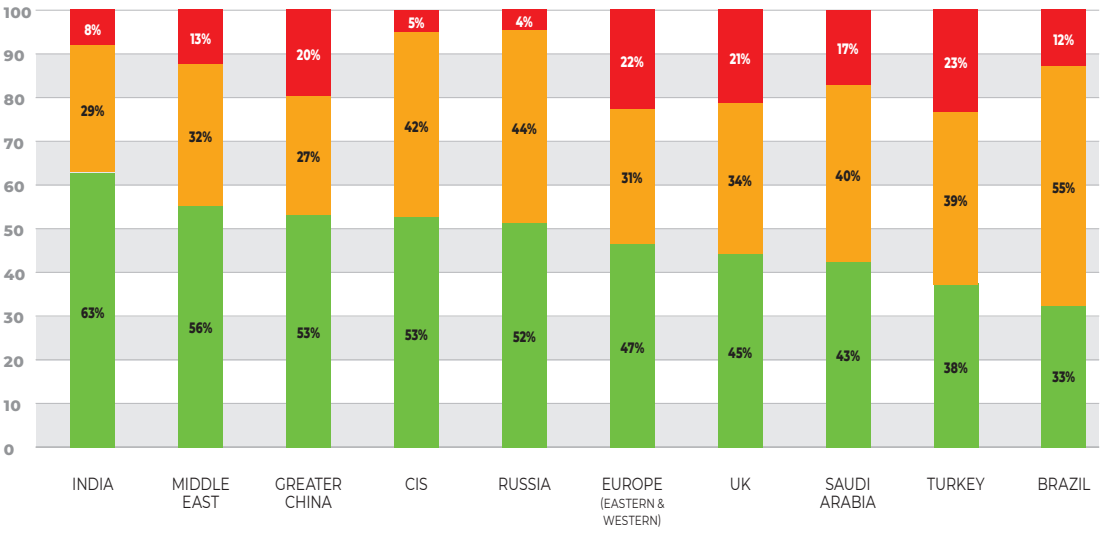


AGED **1 - 5** YEARS
AGED **6 - 10** YEARS
AGED **10+** YEARS

COMPLIANCE WITH GOLDEN RULES / **EU 27** / MI-PET

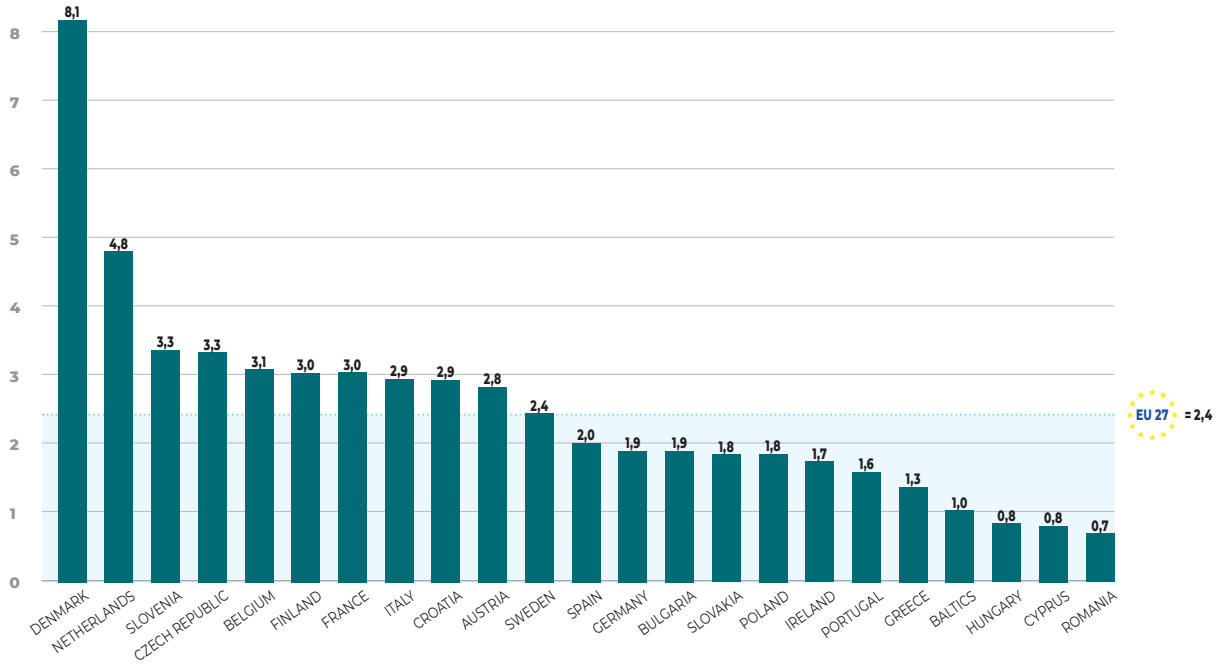


COMPLIANCE WITH GOLDEN RULES / MI-PET

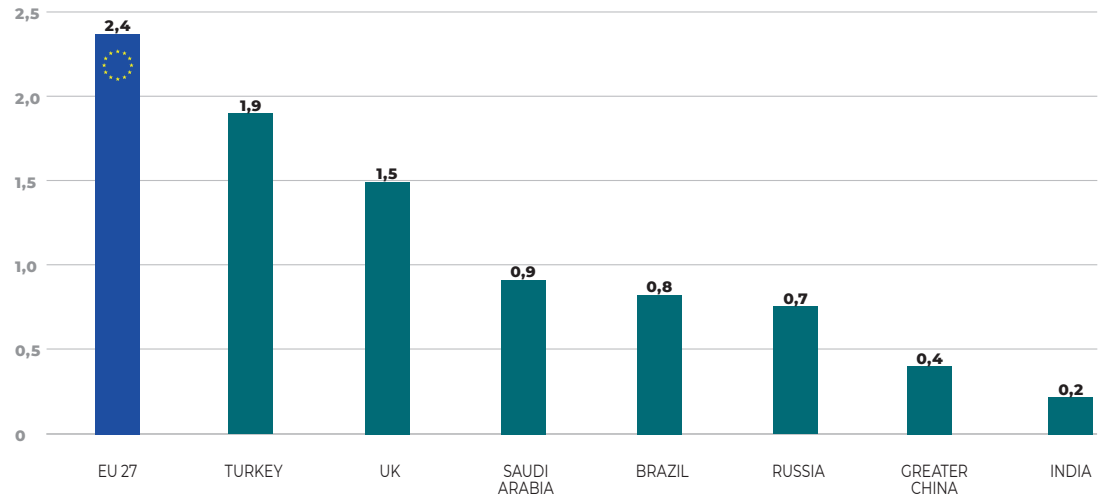


AGE PROFILE - INSTALLED BASE ANALYSIS
PARTICIPANTS : **GE** / **PHILIPS** / **SIEMENS HEALTHINEERS**

DENSITY / **EU 27** / MI-PET UNITS/MILLION INHABITANTS



DENSITY / MI-PET UNITS/MILLION INHABITANTS



EQUIPMENT DENSITY TRENDS

GENERAL INFORMATION ABOUT COCIR

COCIR is the European Trade Association representing the medical imaging, radiotherapy, health ICT and electromedical industries.

Founded in 1959, COCIR is a non-profit association headquartered in Brussels (Belgium) with a China Desk based in Beijing since 2007. COCIR is unique as it brings together the healthcare, IT and telecommunications industries.

Our focus is to open markets for COCIR members in Europe and beyond. We provide a range of services in the areas of regulatory, technical, market intelligence, environmental, standardisation, international and legal affairs.

COCIR is also a founding member of DITTA, the Global Diagnostic Imaging, Healthcare IT and Radiation Therapy Trade Association (www.globalditta.org).

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COCIR Advancing Healthcare

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