

Recent advances in medical imaging technologies are improving diagnosis and treatment of diseases, but they are also increasing health spending. This section presents data on the availability and use of two diagnostic imaging technologies: computed tomography (CT) scanners and magnetic resonance imaging (MRI) units. CT scanners and MRI units help physicians diagnose a range of conditions by producing images of internal organs and structures of the body. Unlike conventional radiography and CT scanning, MRI exams do not expose patients to ionising radiation.

The availability of CT scanners and MRI units has increased rapidly in most European countries over the past two decades. In 2012, Italy, Greece, Finland and Cyprus had the highest number of MRI units per capita among EU member states, while Greece, Italy, Latvia and Cyprus had the highest number of CT scanners per capita. Iceland and Switzerland also have a large number of both MRI and CT scanners on a per capita basis (Figures 3.4.1 and 3.4.2). The numbers of MRI units and CT scanners per population were the lowest in Hungary and Romania.

There is no general guideline or benchmark regarding the ideal number of CT scanners or MRI units per population. However, if there are too few units, this may lead to access problems in terms of geographic proximity or waiting times. If there are too many, this may result in an overuse of these costly diagnostic procedures, with little if any benefits for patients.

Data on the use of these diagnostic equipment show that the number of MRI exams per capita in 2012 (or nearest year) in EU countries was highest in Germany, France, Luxembourg, Belgium and Greece. The number of CT exams per capita was highest in the same group of countries, with the exception of Germany.

In Greece, most CT and MRI scanners are installed in privately-owned diagnostic centres and clinics and only a minority are found in public hospitals. While there are clinical guidelines issued by the Hellenic Radiology Society regarding the use of CT and MRI scanners, these are not used for patient referrals. The Ministry of Health, in order to control the diffusion of CT and MRI scanners, issued a ministerial decree in 2010, setting out certain criteria concerning the purchase of imaging equipment in the private sector. One of the main criteria was based on a minimum threshold of population density (30 000 population for CT scanners and 40 000 for MRIs). However, this criterion has been withdrawn by a new ministerial decree in October 2013, which will probably lead to an increase in the number of CT and MRI scanners in Greece.

There are large variations in the use of CT and MRI scanners not only across countries, but also within countries. For example, in Belgium, there was almost a two-fold variation in the use of MRI and CT exams between those provinces with the highest and lowest rates in 2010. In the United Kingdom (England) where the utilisation rate

of both types of diagnostic exams is generally much lower, the variation across regions was even greater, with almost a four-fold difference between those Primary Care Trusts (PCTs) that had the highest rates and lowest rates of MRI and CT exams in 2010/11 (OECD, 2014).

Clinical guidelines have been developed in some European countries to promote a rational use of these diagnostic technologies. In the United Kingdom, since the creation of the Diagnostic Advisory Committee by the National Institute for Health and Clinical Excellence (NICE), a number of guidelines have been issued on the appropriate use of MRI and CT exams for different purposes (NICE, 2012).

A 2013 Council Directive (2013/59/EURATOM), which is to be implemented by EU member states in 2018, establishes legal requirements and an appropriate regime of regulatory control designed to provide basic safety standards for protection against the dangers from exposure to ionising radiation, based on the principles of justification, optimisation and dose limitation.

Definition and comparability

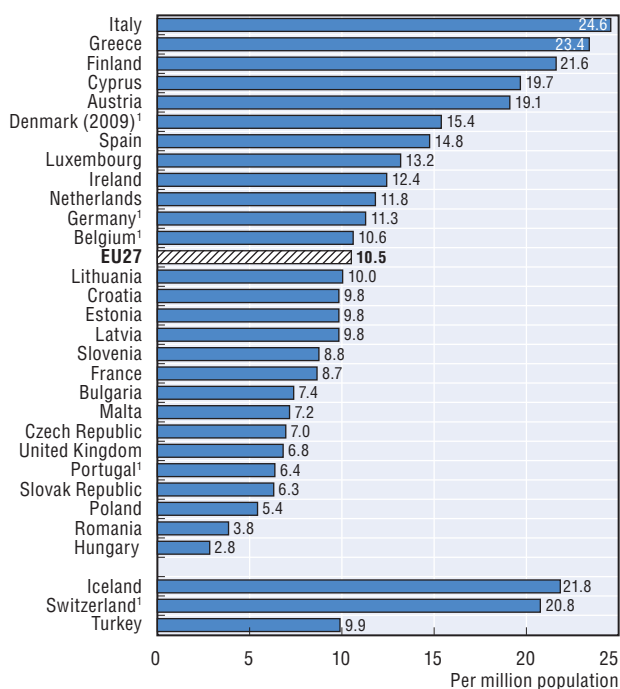
While the data in most countries cover CT scanners and MRI units installed both in hospitals and the ambulatory sector, the data coverage is more limited in some countries. CT scanners and MRI units outside hospitals are not included in some countries (e.g., Belgium, Finland, Germany and Portugal, as well as Switzerland for MRI units). For the United Kingdom, the data only include scanners in the public sector. No data is available for Sweden.

Similarly, MRI and CT exams performed outside hospitals are not included in some countries (e.g., Austria, Cyprus, Ireland, Portugal and the United Kingdom). Furthermore, MRI and CT exams for Ireland only cover public hospitals. The Netherlands only report data on publicly-financed exams.

References

- European Union (2013), "Council Directive 2013/59/EURATOM Laying Down Basic Safety Standards Against the Dangers Arising from Exposure to Ionising Radiation", *Official Journal of the European Union*, L13/1, 17-1-2014.
- NICE – National Institute for Health and Clinical Excellence (2012), *Published Diagnostics Guidance*, London and Manchester, available at guidance.nice.org.uk/DT/Published.
- OECD (2014), *Geographic Variations in Health Care Use: What Do We Know and What Can Be Done to Improve Health System Performance?*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264216594-en>.

3.4.1. MRI units, 2012 (or nearest year)

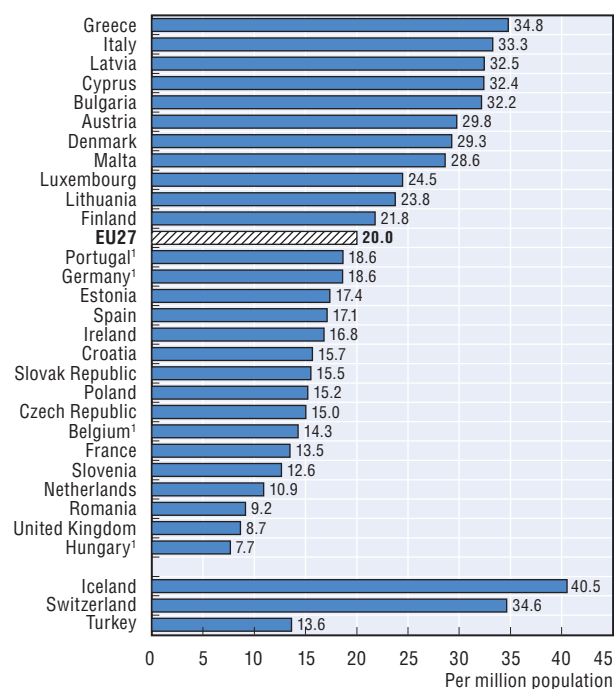


Note: The EU average does not include countries which only report equipment in hospital.

1. Equipment outside hospital is not included.

Source: OECD Health Statistics 2014, <http://dx.doi.org/10.1787/health-data-en>; Eurostat Statistics Database.

3.4.2. CT scanners, 2012 (or nearest year)

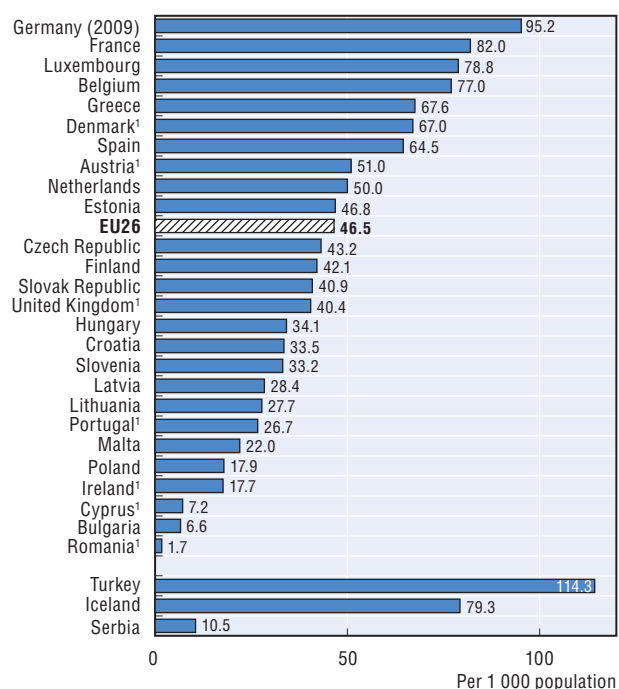


Note: The EU average does not include countries which only report equipment in hospital.

1. Equipment outside hospital is not included.

Source: OECD Health Statistics 2014, <http://dx.doi.org/10.1787/health-data-en>; Eurostat Statistics Database.

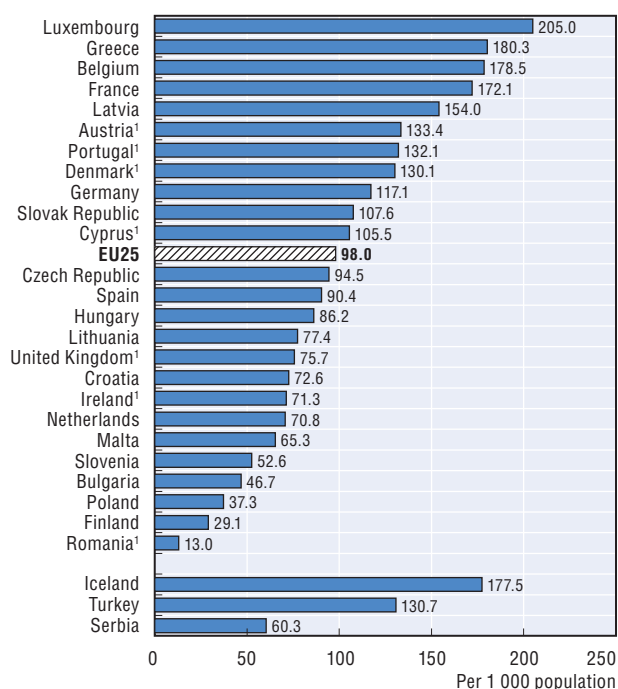
3.4.3. MRI exams, 2012 (or nearest year)



1. Exams outside hospital are not included.

Source: OECD Health Statistics 2014, <http://dx.doi.org/10.1787/health-data-en>; Eurostat Statistics Database.

3.4.4. CT exams, 2012 (or nearest year)



1. Exams outside hospital are not included.

Source: OECD Health Statistics 2014, <http://dx.doi.org/10.1787/health-data-en>; Eurostat Statistics Database.

StatLink <http://dx.doi.org/10.1787/888933155582>



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