

New medical technologies are improving diagnosis and treatment, but they are also increasing health spending. This section presents data on the availability and use of two diagnostic 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. For example, in the Netherlands, the number of MRI units per capita was multiplied by ten between 1990 and 2010, while the number of CT scanners nearly doubled. Similarly, in Italy, the number of MRI scanners per capita was increased by nearly six times between 1997 and 2010, and the number of CT scanners more than doubled.

In 2010, Greece, Italy and Cyprus had the highest number of MRI and CT scanners per capita among EU member states. Iceland and Switzerland also had significantly more MRI and CT scanners than the EU average (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 scanners are available only for a smaller group of countries. Based on this more limited country coverage, the number of CT and MRI exams per capita is the highest in Greece, consistent with the fact that Greece also has the highest number of these two types of scanners. The number of MRI exams per capita is also above average in Germany and Luxembourg, as well as in Iceland and Turkey. It is the lowest in Ireland and Slovenia, although in these two countries only CT exams and MRI exams carried out in hospitals are reported, resulting in an underestimation.

In Greece, most CT and MRI scanners are installed in privately-owned diagnostic centres and only a minority are found in public hospitals. While there are no guidelines regarding the use of CT and MRI scanners in Greece (Paris *et al.*, 2010), since late 2010, a ministerial decree has established certain criteria concerning the purchase of imaging equipment in the private sector (*Official Gazette*, No. 1918/10, December 2010). One of the main criteria is based on a minimum threshold of population density (30 000 population for CT scanners and 40 000 for MRIs). These regulations do not apply to the public sector.

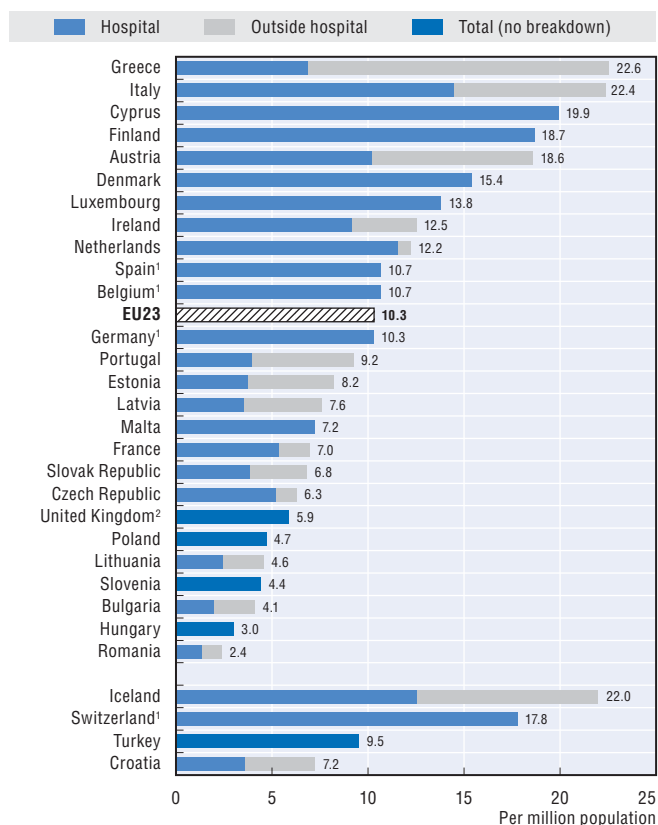
Clinical guidelines have been developed in some European countries to promote a more rational use of such diagnostic technologies (OECD, 2010b). In the United Kingdom, since the creation of the Diagnostic Advisory Committee by the National Institute for Health and Clinical Excellence (NICE), a number of guidelines have been issued on the appropriate use of MRI and CT exams for different purposes (NICE, 2012).

Definition and comparability

For MRI units and CT scanners, the numbers of equipment per million population are reported. MRI exams and CT exams relate to the number of exams per 1 000 population. In most countries, the data cover equipment installed both in hospitals and the ambulatory sector.

However, there is only partial coverage for some countries. MRI units and CT scanners outside hospitals are not included in some countries (Belgium, Germany and Spain, as well as Switzerland for MRI units). For the United Kingdom, the data only include scanners in the public sector. MRI and CT exams outside hospitals are not included in certain countries (Austria, Ireland, Slovenia, Spain and the United Kingdom). Furthermore, MRI and CT exams for Ireland only cover public hospitals. The Netherlands only report data on publicly-financed exams.

3.4.1. MRI units, 2010 (or nearest year)



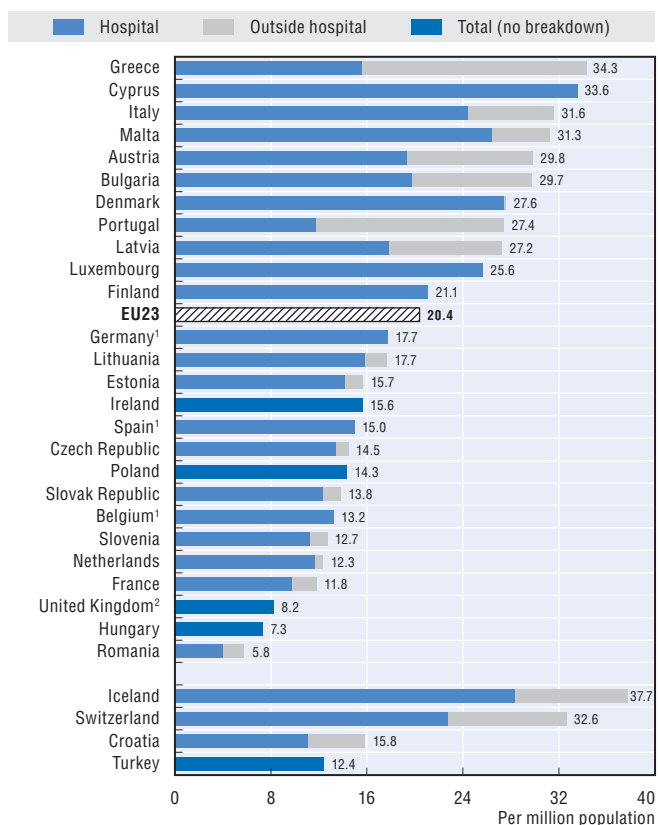
Note: The EU average does not include countries which only report equipment in hospital.

1. Equipment outside hospital is not included.
2. Any equipment in the private sector is not included.

Source: OECD Health Data 2012; Eurostat Statistics Database.

StatLink <http://dx.doi.org/10.1787/888932704304>

3.4.2. CT scanners, 2010 (or nearest year)



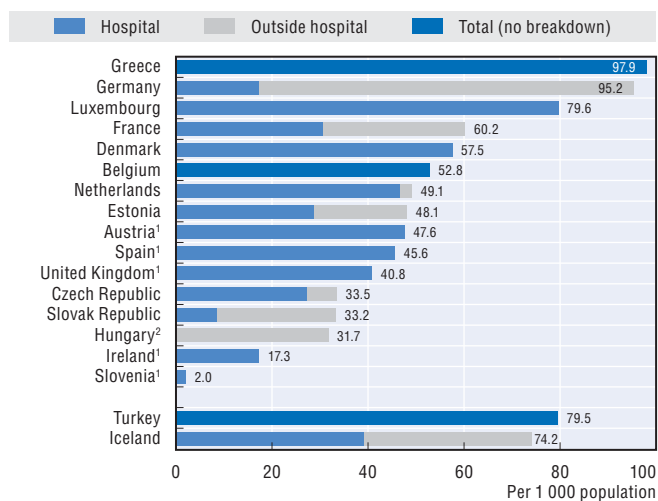
Note: The EU average does not include countries which only report equipment in hospital.

1. Equipment outside hospital is not included.
2. Any equipment in the private sector is not included.

Source: OECD Health Data 2012; Eurostat Statistics Database.

StatLink <http://dx.doi.org/10.1787/888932704323>

3.4.3. MRI exams, 2010 (or nearest year)

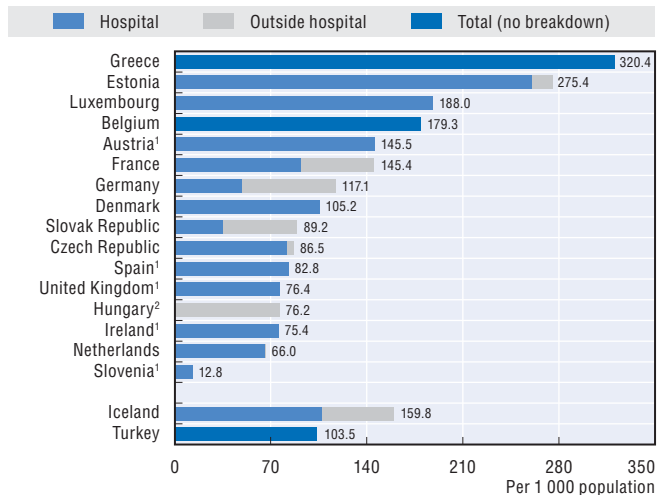


1. Exams outside hospital are not included.
2. Exams in hospital are not included.

Source: OECD Health Data 2012.

StatLink <http://dx.doi.org/10.1787/888932704342>

3.4.4. CT exams, 2010 (or nearest year)



1. Exams outside hospital are not included.
2. Exams in hospital are not included.

Source: OECD Health Data 2012.

StatLink <http://dx.doi.org/10.1787/888932704361>