

Medical technologies

Technology plays an important role in the health system, allowing physicians to better diagnose and treat patients. However, new technologies can also drive up costs, and are commonly acknowledged to be one of the main causes behind increases in health spending (Lorenzoni et al 2019[1]). 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 and MRI exams help physicians diagnose a range of conditions.

The availability of CT scanners and MRI units has increased rapidly in most OECD countries over the past two decades. Japan has by far the highest number of MRI units and CT scanners per capita, followed by the United States for MRI units and by Australia for CT scanners (Figure 9.3). Austria, Germany, Greece, Iceland, Italy, Korea and Switzerland also have significantly more MRI and CT scanners per capita than the OECD average. The number of MRI units and CT scanners per population is the lowest in Mexico, Hungary, Israel and the United Kingdom. It is also comparatively low in Colombia, Costa Rica and the Russian Federation.

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

Data on the use of these diagnostic scanners are available for most OECD countries. The number of MRI examinations per capita is highest in Germany, the United States, Japan and France, all of which have more than 100 MRI exams per 1 000 population (Figure 9.4). In France, the (absolute) number of MRI exams more than doubled between 2007 and 2017. The number of CT exams per capita is highest in the United States, followed by Japan and Iceland (Figure 9.5). There are large variations in the use of CT scanners and MRI units not only across but also within countries – for example, in Belgium, recent analysis shows a 50% variation in the use of diagnostic exams of the spine across provinces in 2017, and this variation is even larger across smaller areas (INAMI/RIVIZ, 2019[2]).

Clinical guidelines exist in several OECD countries to promote more rational use of MRI and CT exams. Through the Choosing Wisely campaign, which began in the United States in 2012 and has been emulated in a growing number

of countries since, some medical societies have identified cases when an MRI or CT exam is not necessary. For example, the Royal College of Physicians in the United Kingdom recommends, based on evidence from the National Institute for Health and Care Excellence (NICE), that patients with low back pain or suspected migraine do not routinely need an imaging test (Choosing Wisely UK, 2018[3]).

Definition and comparability

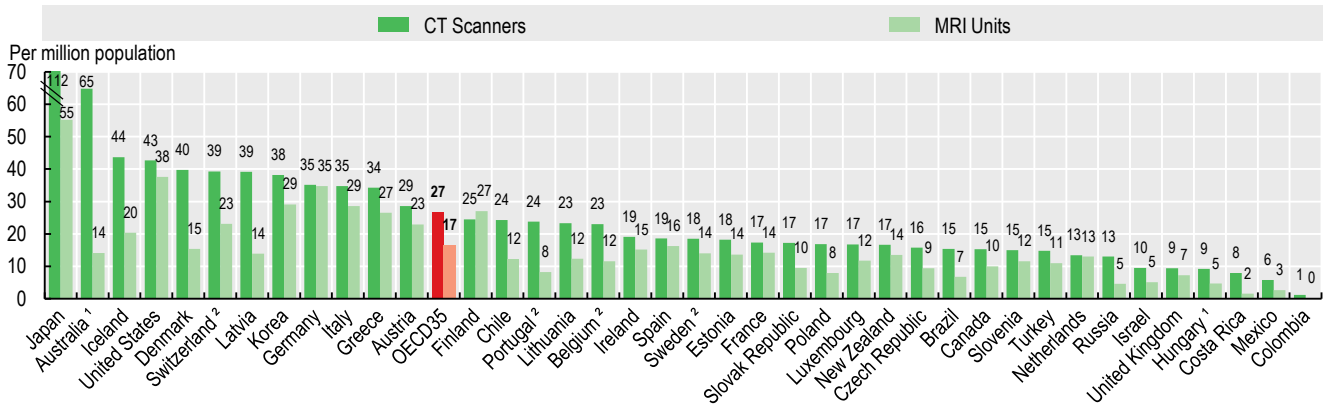
The data in most countries cover MRI units and CT scanners installed both in hospitals and the ambulatory sector, but coverage is more limited in some countries. MRI units and CT scanners outside hospitals are not included in Belgium, Portugal, Sweden and Switzerland (for MRI units). For the United Kingdom, the data only include equipment in the public sector. For Australia and Hungary, the number of MRI units and CT scanners includes only those eligible for public reimbursement.

Similarly, MRI and CT exams performed outside hospitals are not included in Austria, Portugal, Switzerland and the United Kingdom. In Australia, the data only include exams for private patients (in or out of hospitals); while in Korea and the Netherlands they only include publicly financed exams.

References

- [3] Choosing Wisely UK (2018), “Clinical Recommendations: Royal College of Physicians”, <http://www.choosingwisely.co.uk/>.
- [2] INAMI/RIVIZ (2019), “Medical Practice Variations”, <https://www.healthybelgium.be/en/medical-practice-variations>.
- [1] Lorenzoni, L. et al. (2019), “Health Spending Projections to 2030: New results based on a revised OECD methodology”, *OECD Health Working Papers*, No. 110, OECD Publishing, Paris, <https://doi.org/10.1787/5667f23d-en>.
- [4] OECD (2014), *Geographic Variations in Health Care: What Do We Know and What Can Be Done to Improve Health System Performance?*, OECD Health Policy Studies, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264216594-en>.

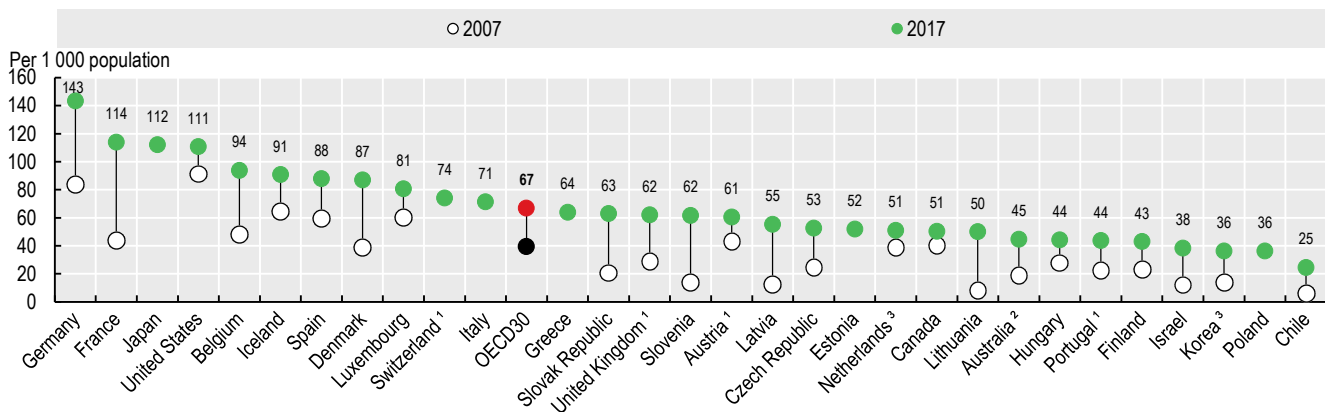
Figure 9.3. CT scanners and MRI units, 2017 (or nearest year)



1. Only equipment eligible for public reimbursement. 2. Equipment outside hospital not included. For Switzerland, this only applies for MRI units. Source: OECD Health Statistics 2019.

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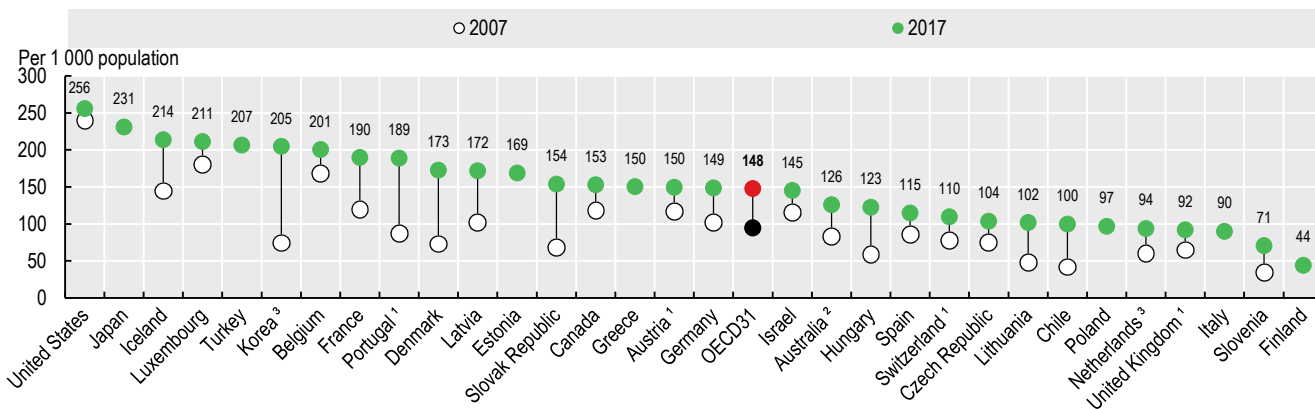
Figure 9.4. MRI exams, 2007 and 2017 (or nearest year)



1. Exams outside hospital not included. 2. Exams on public patients not included. 3. Exams privately funded not included. Source: OECD Health Statistics 2019.

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Figure 9.5. CT exams, 2007 and 2017 (or nearest year)



1. Exams outside hospital not included. 2. Exams on public patients not included. 3. Exams privately funded not included. Source: OECD Health Statistics 2019.

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