MEDICAL TECHNOLOGIES

The need to prevent diseases, diagnose early and treat effectively under the Universal Health Coverage mandate of the Sustainable Development Goals 5 calls for safe, effective, and appropriate medical.

Medical technologies are crucial in the prevention, diagnosis and treatment of illness and diseases as well as patient rehabilitation, but they also contribute to increases in health spending devices (WHO, 2017e). Computed tomography (CT) scanners and magnetic resonance imaging (MRI) units help doctors diagnose a range of conditions by producing images of internal organs and structures of the body. MRI exams do not expose patients to ionising radiation, unlike conventional radiography and CT scanning. Mammography is used to diagnose breast cancer, and radiation therapy units are used for cancer treatment. However, such equipment is expensive.

Data indicate that there are huge differences in availability of technologies across countries, and that the higher the country income level the higher the availability of medical equipment per million population for all four selected medical equipment types.

Japan has by far the highest number of CT scanners per million population. One CT scanner is available per 10 000 population in Japan, as opposed to less than one per million population in Lao PDR, Papua New Guinea, Pakistan and Myanmar (Figure 5.8). Also for MRI units, Japan reports five units per 100 000 population, whereas Sri Lanka, the Philippines, Pakistan, Myanmar and Cambodia report less than one unit per million population (Figure 5.9) The Republic of Korea has the highest number of mammographs at seven per 10 000 female aged 50-69, as opposed to Papua New Guinea, Sri Lanka, Pakistan and Myanmar where less than 10 mammographs are available per million females aged 50-69 (Figure 5.10).

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 (OECD, 2017). Although the use of medical technologies is not well known in the Asia-Pacific region, data from OECD countries show that several countries with a high number of CT scanners and MRIs, such the United States, also have a higher number of diagnostic exams per population, suggesting some degree of overuse (OECD, 2017).

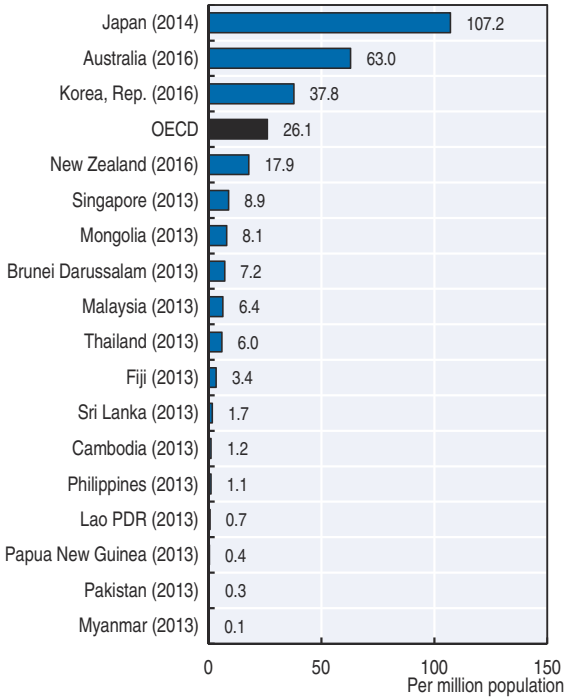
The availability of treatment equipment is also much higher in high income countries. New Zealand and Australia have over 10 radiation therapy units per million population, whereas there is only one unit per 10 million people in Myanmar, Cambodia, Pakistan, Bangladesh and Papua New Guinea and Sri Lanka (Figure 5.11).

Clinical guidelines have been developed in some OECD countries to promote more rational use of diagnostic technologies (OECD, 2017). In the United Kingdom, the National Institute for Health and Clinical Excellence (NICE) has issued a number of guidelines on the appropriate use of MRI and CT exams (NICE, 2012). In the United States, a "Choosing Wisely" campaign has developed clear guidelines for doctors and patients to reduce the use of unnecessary diagnostic tests and procedures. The guidelines include, for instance, avoiding imaging studies such as MRI, CT or X-rays for acute low back pain without specific indications (Choosing Wisely, 2015). In Australia, clinicians may use Diagnostic Imaging Pathways (DIP), an evidence-based clinical decision support tool and educational resource for diagnostic imaging. DIP guides the choice of the most appropriate diagnostic examinations in the correct sequence in a wide range of clinical scenarios. The broad objective is to reduce the number of unnecessary examinations that may expose patients to risk without benefits, and increase the number of appropriate examinations resulting in cost-effective diagnosis (Government of Western Australia, 2013).

Definition and comparability

The data cover equipment installed both in hospitals and the ambulatory sector and public and private sectors in most countries. However, there is only partial coverage for some countries. In Myanmar, data refer to equipment in the public sector. MRIs in Brunei Darussalam refer to those in the private sector, and in Mongolia, radiation therapy units refer to those in the public sector. For Australia, the number of medical technology equipment includes only those eligible for public reimbursement (about 60% of total MRI units are eligible for reimbursement under Medicare, the universal public health system).

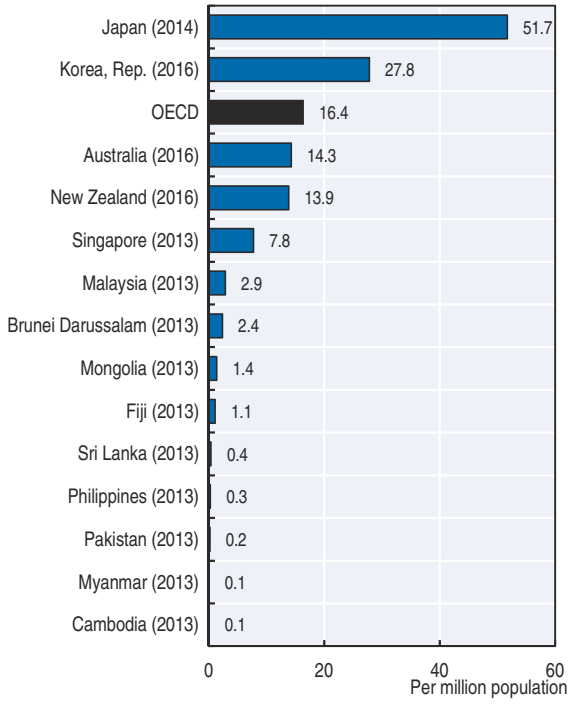
5.8. Computed tomography scanners, latest year available



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868690

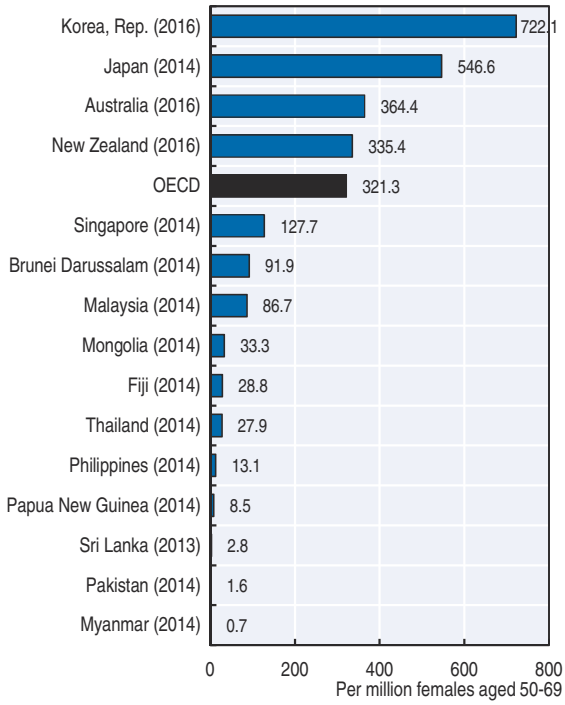
5.9. MRI units, latest year available



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868709

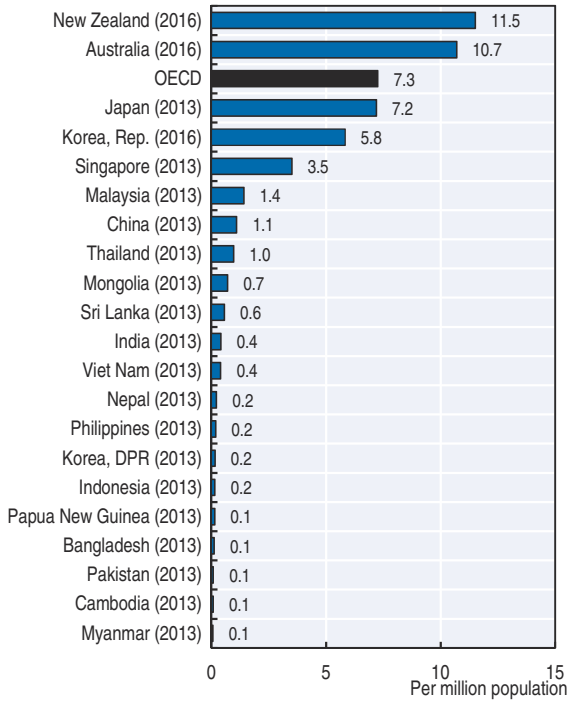
5.10. Mammographs, latest year available



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868272

5.11. Radiation therapy equipment, latest year available



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868291