

## IN BRIEF A Summary of the Evidence

# Canadian Medical Imaging Inventory: 2015

### Context

Medical imaging has become an important component of modern health care, aiding in diagnosis, monitoring, and treatment of a variety of diseases and conditions. The Canadian Institute for Health Information (CIHI) collected data on medical imaging technologies in Canada up to mid-2012, at which time collection was discontinued. CADTH has now taken on this task and will continue to maintain the inventory and publish a report of the findings every two years.

### Technology

There is a range of medical imaging modalities, each with its own characteristics. For the 2015 inventory, CADTH collected data on the following six modalities:

- Computed tomography (CT)
- Magnetic resonance imaging (MRI)
- Single-photon emission tomography (SPECT)
- Hybrid positron emission tomography (PET) and CT modalities (PET-CT)
- Hybrid PET and MRI modalities (PET-MRI)
- Hybrid SPECT and CT modalities (SPECT-CT).

### Issue

Medical imaging technologies are evolving quickly, and decision-makers must balance decommissioning old machines and installing new ones. Having current information on the status and use of medical imaging equipment in Canada is an important foundation to guide planning and other decisions.

### Methods

CADTH collected data on imaging equipment using a Web-based survey and a search of the literature. After the survey closed on November 17, 2015, validators reviewed the data for accuracy and provided additional information. Based on the available data, CADTH imputed numbers for sections where data were missing.

### Results

CADTH received 222 responses, representing a total of 374 facilities that offer medical imaging across Canada. Based on the data collected, CADTH developed the Canadian Medical Imaging Inventory (CMII), with the results published in a final report. The CMII provides insight into the landscape of medical imaging in Canada, and it paves the way for ongoing exploration of medical imaging issues.

### Key Findings

- CT is the most prevalent imaging modality, with 538 machines in Canada, followed by MRI, with 340 machines.
- Less prevalent imaging modalities are SPECT with 264 machines, SPECT-CT with 214 machines, PET-CT with 47 machines, and PET-MRI with 2 machines.
- Regarding the total number of exams, CT is the most used modality (5.28 million exams per year), followed by MRI (1.95 million exams per year), SPECT (0.76 million exams per year), SPECT-CT (0.72 million exams per year), and PET-CT (0.077 million exams per year). At present, PET-MRI is used for research only.
- Based on the median number of hours each machine is used, MRI is the most used modality (72.2 hours per week), followed by CT (63 hours per week), SPECT (40 to 50 hours per week), SPECT-CT (40 to 50 hours per week), and PET-CT (40 hours per week).
- Many sites plan to decommission outdated machines and install new ones.
- PET is now only purchased and installed as hybrid modalities (mainly PET-CT). PET-MRI is the newest specialist imaging modality and its clinical use is expected to grow.
- Most imaging machines are located in large city hospitals, with the greatest number in Ontario, Quebec, British Columbia, and Alberta. Nova Scotia, Manitoba, Saskatchewan, Newfoundland and Labrador, and New Brunswick have a relatively moderate number of machines, while the less populated jurisdictions have a relatively low number of machines.
- Some of the less populated jurisdictions have a greater number of some modalities (CT and MRI) per population, but the population is spread out so the machines may still be difficult for patients to access.
- Some of the less populated jurisdictions have limited imaging modalities. Of the six imaging modalities for which data were collected, the Northwest Territories have only CT, Yukon has only CT and MRI, and Nunavut has only CT.
- Most imaging machines are publicly funded and used for clinical purposes; a small portion of the time, they are used for research. There may be additional machines in Canada, especially those that are privately operated, that were not captured by the inventory.
- Compared with other countries in the Organization for Economic Co-operation and Development (OECD), Canada ranks in the lower 50% in terms of number of CT and MRI machines per million people. This is up from 2013, when Canada ranked within the bottom third. In terms of CT and MRI use, Canada ranks in the upper 50% and at the midpoint, respectively, which is also up from 2013.

## Read more about CADTH and the CMI:



[cadth.ca/imaginginventory](http://cadth.ca/imaginginventory)

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*Ce document est également disponible en français.*

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