

Large variations in health care use across provinces and territories in Canada raise questions about the efficiency and equity of health service delivery

A new OECD report (based on data from the Canadian Institute for Health Information) shows that there remained large variations in hospital medical admission rates and in diagnostic and surgical activity rates not only across provinces and territories, but also across health regions within different provinces in 2010.

Variations such as those documented in Table 1 suggest that either too much care is being delivered in areas of high activity (with little if any additional benefits for patients), or that there is unmet need in regions of low activity. In either case, this raises questions about the efficiency and equity of health care delivery.

Table 1. Summary of geographic variations for nine health care procedures, by province/territory and health regions, Canada, 2003 and 2010

Procedure		Hospital medical admission	CABG	PTCA	Surgery after hip fracture	Knee replacement	C-section	Hysterectomy	MRI	CT
Unit		per 100 000 pop.	per 100 000 pop.	per 100 000 pop.	per 100 000 pop 65+	per 100 000 pop.	per 100 deliveries	per 100 000 women	per 100 000 pop.	per 100 000 pop.
Age-standardised rates for Canada ¹	2003 (2006)	4 106 (2006)	93	167	435 (2006)	115	25	373	24	87
	2010	3 730	63	173	395	160	27	325	46	125
Min value at provincial level (excluding territories)	2010	3 404	43	146	379	116	21.5	299	28	84
Max value at provincial level (excluding territories)	2010	6 086	79	205	476	210	31.9	435	55	196
Min value at health region level (including territories)	2010	2 617	35	108	279	85	8.7	152	n.a.	n.a.
Max value at health region level (including territories)	2010	9 962	105	287	592	490	34.3	694	n.a.	n.a.
Coefficient of variation at health region level ²	2003 (2006)	0.35 (2006)	0.24 (0.22)	0.30	0.20 (0.16)	0.29	0.17	0.29 (2006)	0.36	0.32 (0.23)
	2010	0.36 (0.33)	0.23	0.21	0.17	0.34 (0.29)	0.18 (0.16)	0.30	0.24	0.28 (0.24)

a) Note: The rates have been age-standardised based on the 1991 Canadian population, with the exception of c-section, and MRI and CT exam, which are crude rates.

b) Values in parentheses show the coefficient of variation without the territories when the values are different.

Source: Alari et al. (2014). Chapter 4: Canada Geographic variations in health care, in *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 (based on data from CIHI).

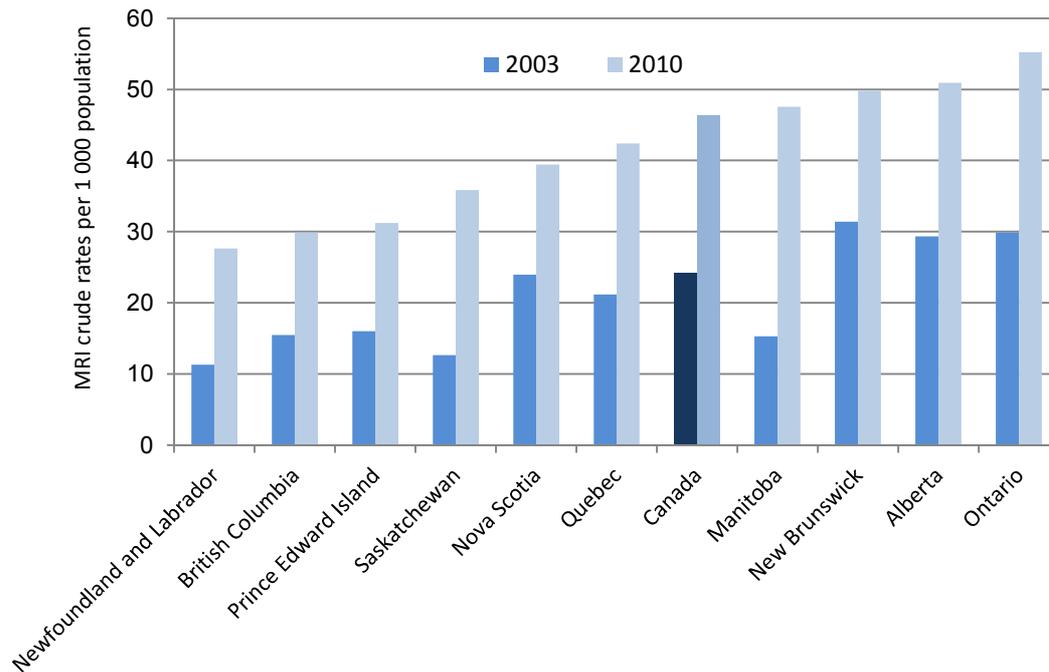
MRI and CT exams have increased greatly in all provinces, but large variations persist

Rates for MRI and CT exams that are used to diagnose a wide range of health problems have increased greatly in Canada since 2003 (before the introduction of the 2004 federal/provincial agreements on a 10-year Plan to Strengthen Health Care in Canada), and the increase has been particularly rapid in those provinces that had particularly low rates in 2003, thereby reducing variations across provinces. Nonetheless, in 2010, there remained large variations in the use of MRI and CT exams across provinces, with the

rates of MRI exams in Ontario, Alberta and New Brunswick being much higher than in Newfoundland, Prince Edward Island and British Columbia.

The usefulness of some of the growing number of MRI and CT exams that are being prescribed by doctors continues to be debated in Canada. The Canadian Medical Association has recently begun to adapt the Choosing Wisely initiative originally developed in the United States to reduce unnecessary tests. The impact of this new initiative should be closely monitored.

Figure 1. Rates of MRI exams by province, Canada, 2003 and 2010



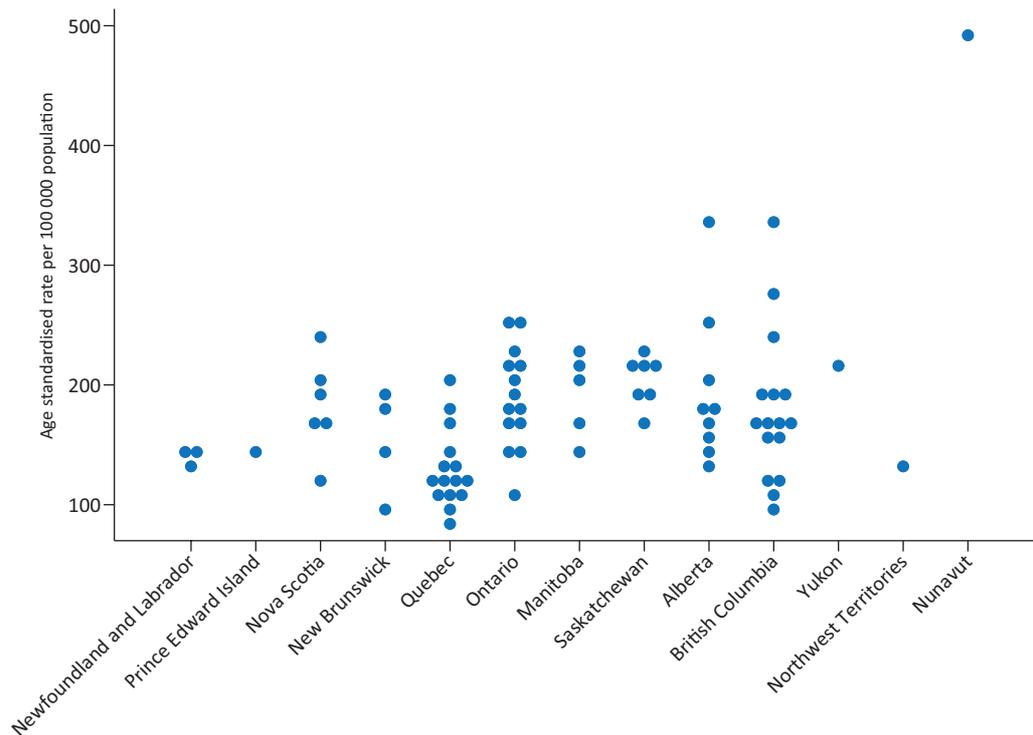
Note: There was no MRI unit in the three territories in 2003 and 2010.

Source: Alari et al. (2014). Chapter 4: Canada Geographic variations in health care, in *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 (based on data from CIHI).

Knee replacement rates have also increased substantially, but variations across provinces and health regions remain large

Rates for knee replacement, even after taking into account population ageing, have increased by nearly 40% in Canada between 2003 and 2010, with all provinces seeing an increase. But the variation in knee replacement rates across provinces has not diminished, so that the rates continue to be two-times greater in some provinces (Saskatchewan) compared with others (Quebec). Even within provinces, there are often also large variations across health regions. For example, in British Columbia, people living in the Northern Interior region were three times more likely to have a knee replacement (332 per 100 000 population) than in the Vancouver region (93 per 100 000) in 2010.

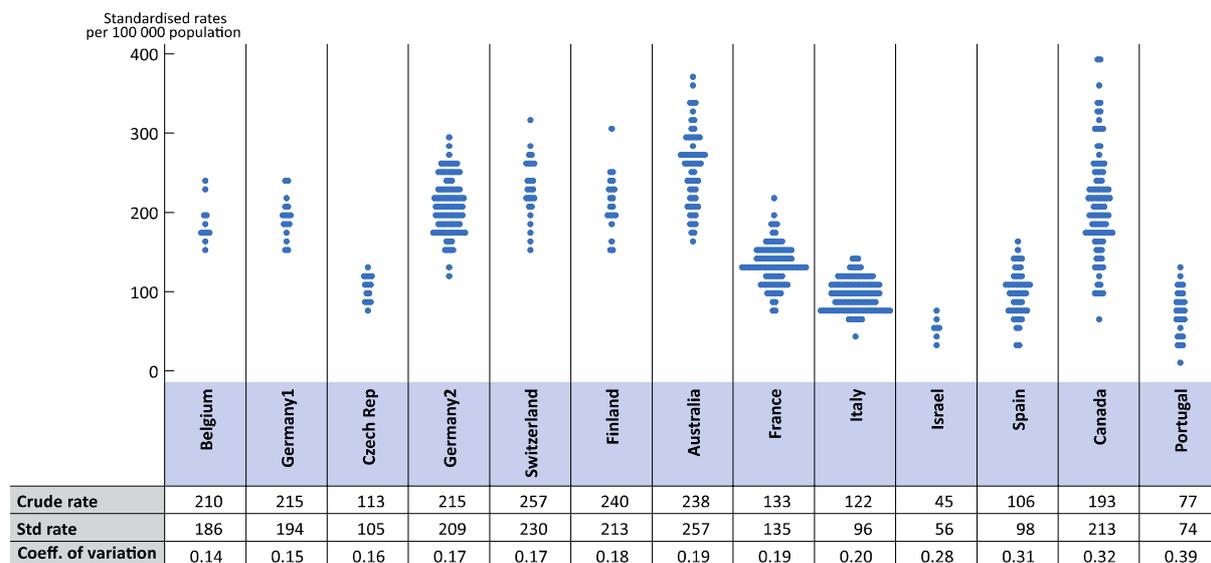
Figure 2. Knee replacement rate by province and health region, Canada, 2010



Source: Alari et al. (2014). Chapter 4: Canada Geographic variations in health care, in *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 (based on data from CIHI).

Regional variations in knee replacement rates in Canada were the second highest in 2010/2011 among the 13 countries participating in this OECD study, after Portugal.

Figure 3. Knee replacement rate across and within selected OECD countries, 2011 or latest year



Note: Each dot represents a territorial unit. Countries are ordered from the lowest to highest coefficient of variation within countries. Data for Portugal and Spain only include public hospitals. Germany 1 and 2 refers respectively to Länder and Spatial Planning Regions.

Source: Srivastava et al. (2014). Chapter 1: Geographic variations in health care use in 13 countries: A synthesis of findings, in *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.

These large variations in knee replacement rates across and within provinces in Canada suggest that there are important differences in physician practice patterns. A 2009 CIHI report also attributed some of these geographic variations to other factors, including differences in the need for knee replacement in different provinces and regions (for example, the lowest knee replacement rate in Quebec is associated with the lowest proportion of people reporting arthritis, rheumatism or being obese). This CIHI report also suggested that possible differences in access to knee replacement (which was generally lower in Quebec in 2009) might play a role (CIHI, 2009).

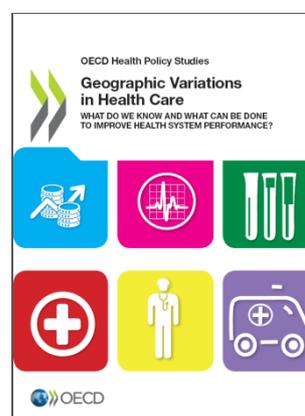
CIHI has been leading national efforts to publicly report health care variations across Canada for many years, and similar efforts have also been undertaken in some provinces. But public reporting alone is not sufficient to modify clinical practices. Further policy actions are needed, including the development and implementation of appropriate clinical guidelines, providing feedback to providers, and a more systematic reporting of patient outcomes to assess the benefits of the growing volume of interventions such as knee and hip replacement, as is being done in countries like Sweden and the United Kingdom.

The OECD report will be released at a joint conference organised by the OECD and the Bertelsmann Foundation on 16th September in Berlin to discuss the report's findings among German stakeholders (www.faktencheck-gesundheit.de).

The report **Geographic Variations in Health Care: What do we know and what can be done to improve health system performance?** is available at <http://dx.doi.org/10.1787/9789264216594-en>.

More information on Canada is available in the report in **Chapter 4, Canada: Geographic variations in health care**.

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The OECD press release, country notes and further information are available at <http://www.oecd.org/health/health-systems/medical-practice-variations.htm>.