

Bringing Canada's Medical Education Map into Focus

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Canada's medical education leaders have recently, and succinctly, stated the value of diverse learning contexts. In order to prepare physicians for the realities of practice in a wide range of settings, "Faculties of Medicine must provide learning experiences throughout MD education for all students in a variety of settings, ranging from small rural communities to complex tertiary health care centres."¹ Expressing a similar view, and mindful of healthcare needs in remote and rural areas, the World Health Organization recently recommended that undergraduate students in health disciplines be exposed "to rural community experiences and clinical rotations, as these can have a positive influence on attracting and recruiting health workers to rural areas."² Academic leaders clearly see the need to provide educational experiences in settings that respond to societal need while preparing physicians for their future practice.

A more focused picture of Canada's distributed and community-oriented approach to medical education is emerging from our medical education data. The number of students entering MD programs increased 73% between 1995 and 2009, from 1,576 to 2,734³. Regional campuses have played a large part in driving this growth. Between 2005 and 2009 regional campus enrolment saw an almost five-fold increase, going from 152 enrolled medical students to 734³. Larger MD program class sizes have played a significant role in expanding the frontiers of medical education.

The distributed and community-oriented approach to medical education is further evidenced by faculty growth trends within Canada's faculties of medicine. Overall, the number of part-time faculty increased 35% between 2003 and 2007, from 16,061 to 21,687³. During this time period, the number of part-time family medicine faculty members increased 64%, from 3,605 to 5,901³. Other disciplines, like paediatrics, emergency medicine, internal medicine and general surgery, have also seen large increases in the number of part-time faculty members. Faculty growth has been strongest in those disciplines that are commonly taught in community clinics, small hospitals and physician offices.

Canada's Medical Education Map

Perhaps the most effective way to illustrate the distributed nature of medical education is to plot learning locations on a map. The large red points in Figure 1 show the locations of Canada's 18 universities offering medical degree programs⁴. These points typically correspond with large urban centres, like Vancouver, Winnipeg, Toronto, Montreal and Halifax, to name just a few. In 2003, the Northern Ontario School of Medicine was established at Laurentian University in Sudbury and Lakehead University in Thunder Bay, Ontario's two northern-most dots in Figure 1.

Figure 1 also plots the locations of 9 satellite campuses affiliated with Canada's faculties of medicine. These include the Dalhousie University's Faculty of Medicine - New Brunswick campus which opened its doors in September 2010. Satellite campuses are commonly referred to as regional campuses and can be situated relatively close to the parent university, or at a considerable distance. For example, the straight line distance between McMaster University's Hamilton and St. Catherine's campuses is 47 kilometres. In contrast, the straight line distance between Sherbrooke's main campus and its Moncton satellite campus is 554 kilometres⁵.



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DataPoint!

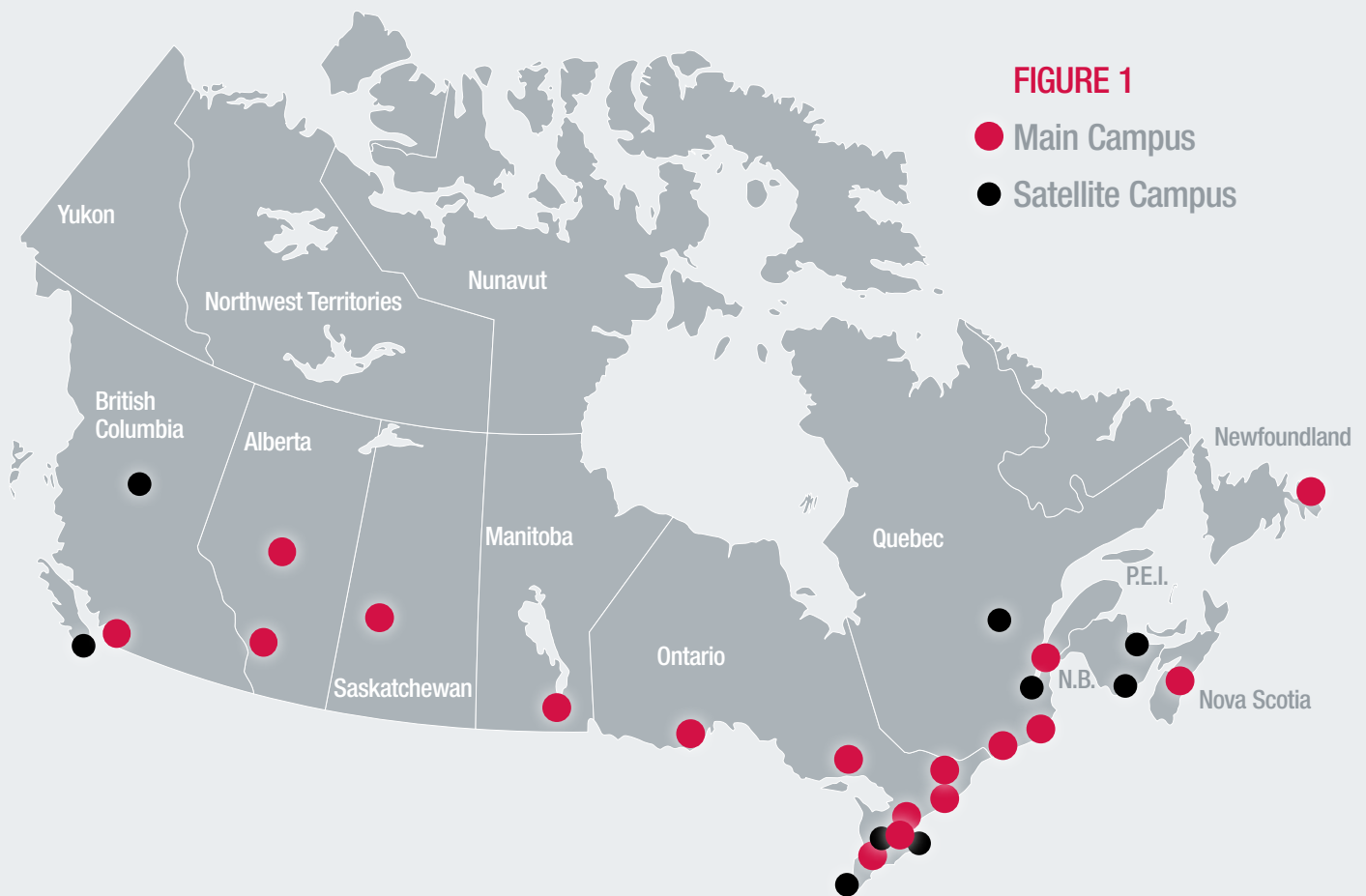
Presenting the data behind the issues

While parent universities and satellite campuses are the main learning locations during the first half of the MD program, students spend most of their third and fourth years off campus, in clinical teaching facilities. The physicians, faculty and staff within these facilities serve as preceptors and support medical students as they fulfill the clinical rotation requirements. Figure 2 illustrates what Canada's medical education map looks like when these facilities are added to the picture.

There were over 873 clinical teaching facilities⁶ affiliated with faculties of medicine in 2009-10. An additional 80 unique clinical teaching facilities were accessible through Ontario placement agencies, including the Rural Ontario Medical Program, Eastern Regional Medical Education Program and Southwestern Ontario Medical Education Network (These sites were mapped but excluded from the distance calculations). As with regional campuses clinical teaching facilities can be relatively close to or

at a considerable distance from the parent university. On average, these sites are 187 kilometers away from their affiliated parent university. At 98 kilometres, the median distance from the parent university is approximately half the average value.

The difference between average and median values suggests that most clinical teaching sites are relatively close to the parent university (less than 100 kilometers), but some can be at a much greater distance. For example, University of British Columbia (UBC) medical students undertake clinical clerkships in numerous facilities in Vancouver and the Victoria area. However, UBC also offers clerkship experiences in northern and eastern British Columbia as well as the Yukon and the Northwest Territories. Looking at the map, we see clinical teaching sites concentrated in certain areas, but we also see considerable dispersion and sites located in remote and northern communities.



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A Changing Map

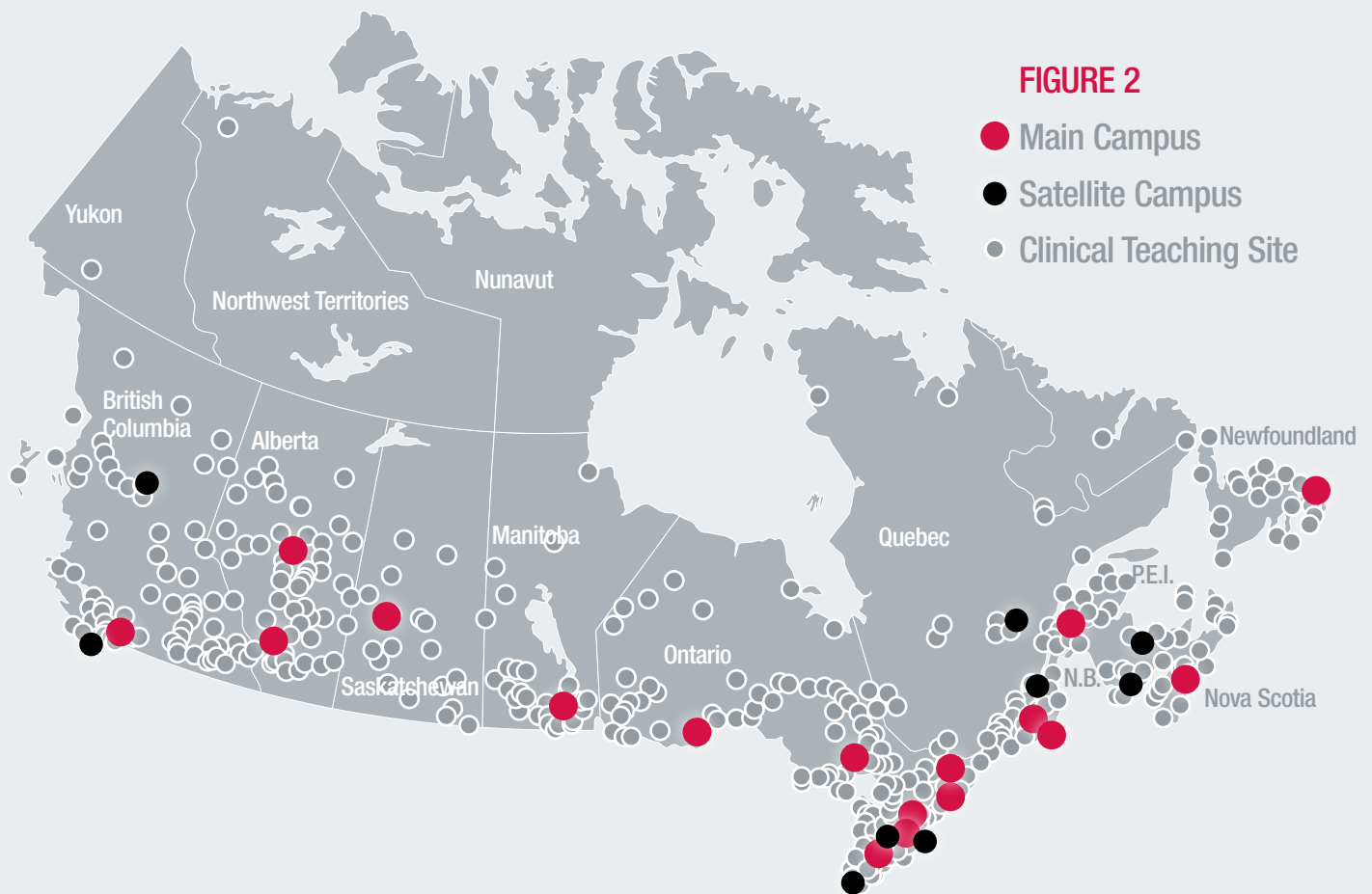
As with all maps, the ones that appear in this issue of *DataPoint!* represent a point-in-time snapshot. Prior to 2003, the main campuses in Thunder Bay and Sudbury would not have appeared on the maps. Looking forward, we expect to soon see satellite campuses in Kelowna, British Columbia and Mississauga, Ontario. In time, we may have a picture of clerkship rotations that happen in the United States and other foreign locations.

The map in Figure 2 is perhaps most likely to change over time. For now, it reflects clinical teaching facilities that were on faculty of medicine lists in 2009-10. As program directors, educators and administrators know well, continual efforts are made to recruit and train new community-based preceptors. Medical students, themselves, identify learning opportunities that may not yet be listed as clinical teaching facilities. This ongoing development

work brings new teaching facilities on to the clerkship roster and will ultimately lead to a slightly different map each time we plot clinical teaching facilities.

If the map is forever changing, we can at least be certain that the constellation of points shown in our current map reflects a more focused and complete picture of where medical education actually takes place in Canada.

A detailed version of this article, including provincial maps, methodological notes and study limitations, can be found on our website at: <http://www.afmc.ca/education-distributed-med-edu-e.php>



REFERENCES

- 1 The Association of Faculties of Medicine of Canada (AFMC). The Future of Medical Education in Canada (FMEC): A Collective Vision for MD Education. Ottawa, 2010.
- 2 World Health Organization. Increasing Access to Health Workers in Remote and Rural Areas through Improved Retention: Global Policy Recommendations. Geneva, 2010.
- 3 AFMC, Office of Research and Information Services (ORIS). Ottawa, 2010.
- 4 Note, points referencing McGill University and the Université de Montréal are overlapped. Therefore, only 17 points appear.
- 5 Equally impressive is the 514 straight line kilometres separating UBC's Vancouver and Prince George campuses.
- 6 Clinical teaching facilities are counted using unique postal codes and thereby under-represent the actual number of teaching locations. These might include solo or group practices situated near hospitals for instance.

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