

Appendix 1 (as supplied by the authors): Description of methods used to identify patients with diabetes assigned to physicians or physician networks with a high likelihood of in-hospital laboratory testing

In Ontario, some primary care physicians – particularly those in rural areas and those closely affiliated with a hospital – primarily use hospital-based laboratories when ordering laboratory tests for their patients. However, our source of information for diabetes-related laboratory tests (the Ontario Health Insurance Plan (OHIP) physician billing claims database) does not capture laboratory tests performed in hospitals. Therefore, when examining the relationship between network-level primary care physician supply and optimal diabetes monitoring (four glycated hemoglobin tests, one cholesterol test, and one retinal eye exam over a two-year study period), we excluded patients with diabetes assigned to a physician or physician network where there was a high likelihood that laboratory testing was being performed in hospital.

We undertook the following steps to identify primary care physicians who were likely to use hospital-based laboratories. First, we identified all of the patients (those with and without diabetes) who were assigned to a primary care physician. We excluded patients who were born or became eligible for OHIP services after April 1, 2010 and patient who died prior to March 31, 2011. We also excluded physicians who were not active between April 1, 2010 and March 31, 2011 and physicians who were assigned less than 100 patients. For each physician, we extracted all OHIP laboratory claims billed between April 1, 2010 and March 31, 2011 amongst their assigned patients. We then counted the total number of laboratory claims each physician billed during the year and divided by the total number of patients assigned to them in order to calculate their average number of laboratory claims per patient.

We constructed a frequency plot of the average number of laboratory claims per patient by primary care physician (See Appendix Figure 1). Using this plot, we estimated that physicians with an average number of laboratory claims per patient of less than seven were likely to use hospital-based laboratories for their patients.

We excluded patients from our original cohort (N = 756,597) if their primary care physician had, on average, less than seven laboratory claims per patient (N= 45,648; 6.0%). We also excluded patients belonging to physician networks where more than 30% of the primary care physicians assigned to that network had an average of less than seven laboratory claims per patient (N=47,122; 6.2%). We then excluded remote physician networks (N=11,251; 1.5%). The final cohort of patients used to test the relationship between primary care physician supply and optimal monitoring for diabetes was N = 610,441.