

CMA Workforce Survey 2017

Methodology

Objective

The CMA Workforce Survey aimed to collect information from physicians on a wide range of topics relating to their practice in Canada; including but not limited to workload, practice settings, remuneration methods, waiting times, use of information technology and employment. This information would then help in answering various research questions pertaining to the physician workforce in Canada, such as:

1. How many hours do physicians work on average? Is workload related to levels of satisfaction?
2. How do waiting times compare across practice settings and provinces in Canada?
3. How many physicians are currently using electronic tools in their practices? And what are the functions being used?
4. Is fee-for-service still the main method of remuneration used by physicians in Canada?

The forthcoming analysis will help identify shared challenges (e.g., waiting times), innovations (e.g., collaboration models) and potential opportunities for cross-provincial learning, which in turn can inform workforce planning. The information will be accessible to information seekers, and will be used by the Canadian Medical Association to advocate on behalf of physicians and help inform policy and initiatives aimed to support the physician workforce.

Materials

The questionnaire was developed based on previous surveys conducted by the Canadian Medical Association (CMA) and its partners (e.g., CMA's Physician Resource Questionnaire, National Physician Survey(NPS)) with additional input from issue-specific experts. Items from previous surveys, in particular the NPS (2004, 2007, 2010, 2013, and 2014), were adopted to ensure continuity and comparability. Questions capturing new developing issues were added, and the survey design was refined to produce a brief and user-friendly questionnaire.

The survey targeted the following constructs: demographics, practice setting, workload, remuneration, access to resources, collaboration, use of information technology, changes in practice, and satisfaction. The questionnaire consisted of 27 questions, mostly close-ended, a few of which consisted of sub-sections. The estimated time to complete the survey was around 15 minutes. The survey was available in both English and French. A cover letter was used to inform potential participants of the objective of the study, and to receive their consent to participate. The research ethics for this survey were approved by the University of Ottawa Research Ethics Board in November 2016.

Design and Procedure

The survey was mounted online using the FluidSurveys platform. A list of eligible participants was generated using the CMA database such that it included both CMA members and non-members, who were licensed physicians in full-time or part-time medical practice, working as locum tenens, semi-retired, employed in any medically related field (e.g., administration, teaching research), or on a leave of absence or sabbatical from active patient/clinical care. Medical students, residents, and retired physicians were not eligible to participate. A unique survey link was assigned to each potential participant.

The primary method of recruitment involved email invitations. Of the **82,979** records in the CMA database, **824** were retired, on leave, deceased, or residents/students; **22,835** did not have a valid email; and **59,320** had valid email addresses. Email invitations containing a cover letter and the personalized links to the questionnaire were sent to the **59,320** potential respondents with valid email addresses. Clicking on the personalized link resulted in unique case number being populated in the response database. This method was used to safeguard confidentiality of physician responses within the response database, but the case numbers could be extracted and used to ensure that reminder emails were sent only to physicians who had not already responded. The emails were delivered by a contracted third party, and communications were in either English or French depending on the physician's language of preference. Up to 4 email reminders were sent to physicians who had not yet responded to the survey.

The period of data collection lasted from January 13, 2017 to March 12, 2017.

- Launched: Friday, January 13
- 1st reminder: Wednesday, January 18
- 2nd reminder: Monday, January 30
- 3rd reminder: Saturday, February 11
- 4th reminder: Saturday, February 25
- Closed: Sunday, March 12

Physicians were also able to access the survey online through various social media channels and websites of journals, specialty societies and provincial/territorial medical associations. An online mechanism, the "link finder", was embedded in these advertisements so physicians could enter some key demographics in order to obtain their unique survey link. The link finder mechanism was used by 1,646 physicians.

As an incentive to complete the survey, all physicians were offered the opportunity to enter a cash prize draw. Two \$1000 prize draws were available – an early bird prize available to those who entered a ballot by February 3, 2017 and another draw for those who entered by February 27,

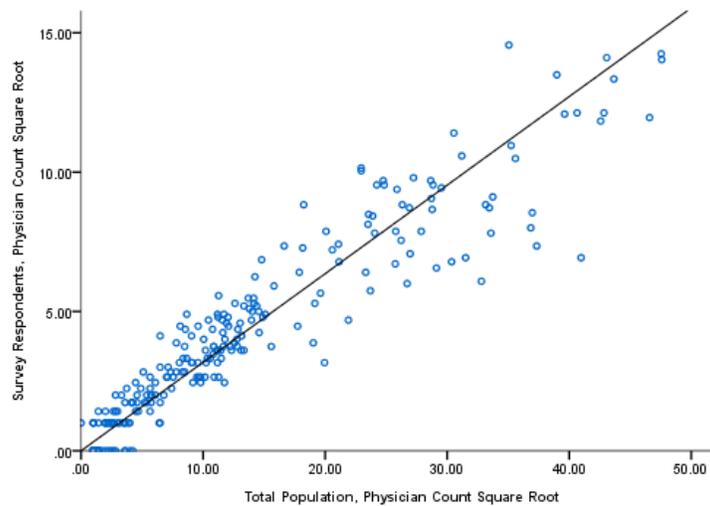
2017. The winners' contact information was, and remains, completely separate from the questionnaire responses. The winners were contacted via email.

Participants

Of the **59,320** physicians invited to complete the survey, **7,184** responded for a response rate of **12%**. The distribution of the demographic groups in the survey sample (N=7,184) was comparable to that of the total eligible physician population (N=82,155).

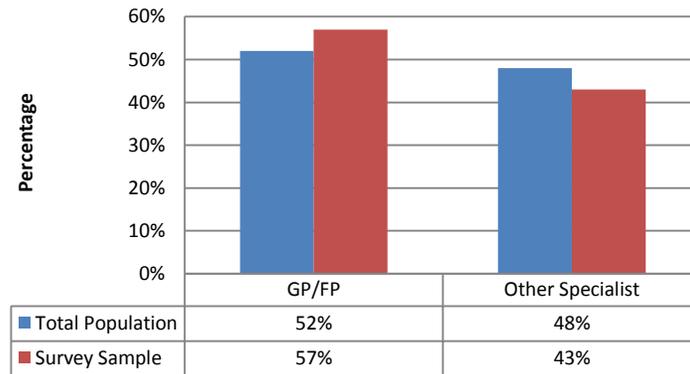
To illustrate the comparability, Figure 1 combines data from several demographic variables (physician type, sex, age group and province/territory) and plots the distribution in the survey sample against the physician population. Each data-point in Figure 1 represents information about a physician subgroup as defined by FP/GP or other specialist, sex and age group, and province/territory. The data that is plotted is the square root of the count of physicians in the defined subgroup, for both survey respondents and the physician population. The square root of physician count is used in order to plot results for groups of very disparate size. Figure 1 indicates a strong correlation ($r=0.94$) between subgroup distributions in the survey respondents, and the physician population, based on the four demographic characteristics. This strong relationship suggests that non-response bias should be low.

Figure 1: Square root of physician counts within the total eligible population and among the survey respondents. Groups defined by physician category, sex, age group and province/territory



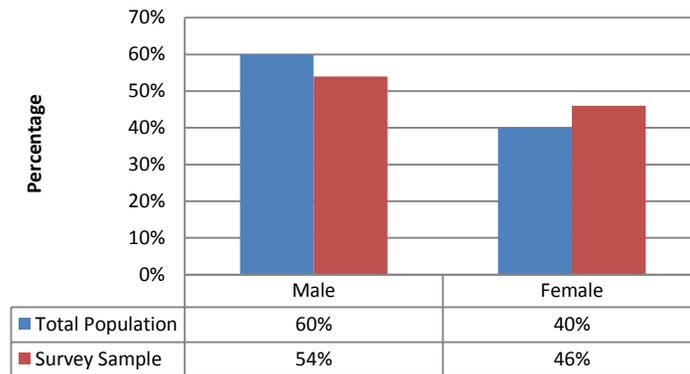
The representativeness of survey respondents to the population can also be examined for each demographic group, as illustrated in Figures 2, 3, 4 & 5.

Figure 2: Percent distribution of physicians in the survey sample vs. total population by physician group



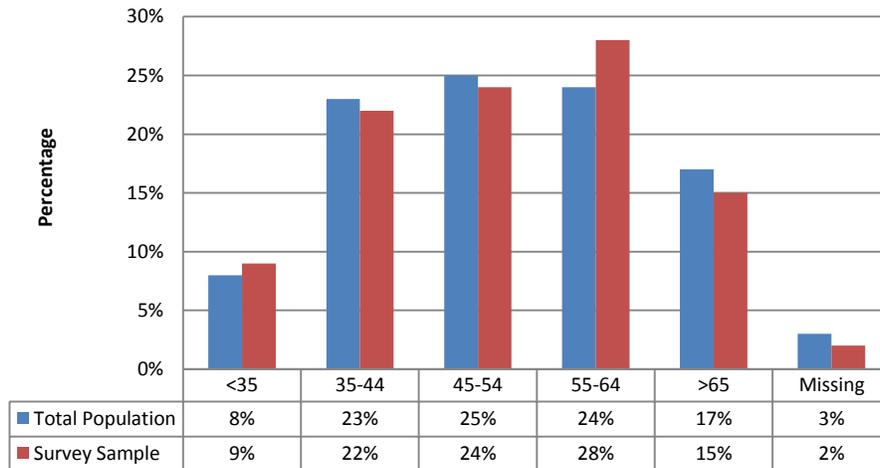
Compared to the physician population, the survey sample included a slight overrepresentation and underrepresentation of general/family physicians and other specialists respectively.

Figure 3: Percent distribution of physicians in the survey sample vs. total population by Sex



Whereas male physicians comprised a smaller proportion of the survey sample compared to the physician population, female physicians comprised a larger proportion.

Figure 4: Percent distribution of physicians in the survey sample vs. total population by Age Group



The proportion discrepancy between survey respondents and population was minimal for all age groups, with physicians between the ages of 55-64 being slightly over-represented in the sample.

Figure 5: Percent distribution of physicians in the survey vs. total population by Province

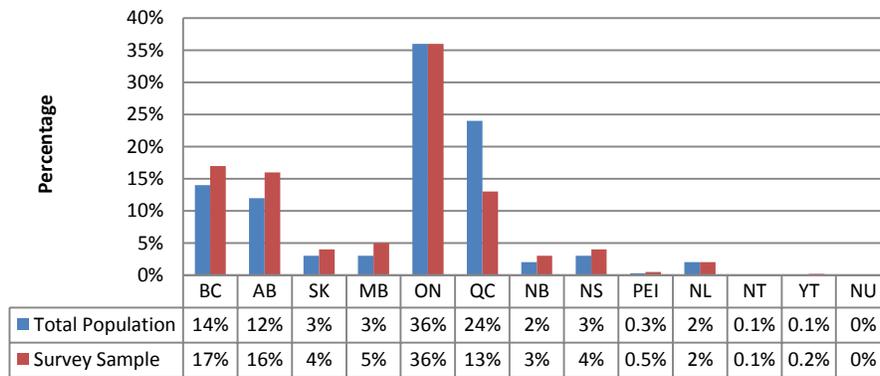


Figure 5 indicates that the percentage of survey respondents and the physician population was similar for most provinces with the exception of Quebec.

Sampling Weights, Estimation Weights and Non-response Adjustment

While the demographic distribution of survey respondents was comparable to that of the physician population, the non-response leading to the over- and under-representation of some groups indicates that unweighted estimates may be unrepresentative of the physician population. Such variation in response rates across different groups is typical of a census; non-response for eligible physicians was a result of not being aware of the survey or not responding to the email invite. In addition, unless they came across one of the various advertisements, those with an invalid address or no email address in the

CMA database could not complete the survey since all direct communication was conducted electronically.

To account for the potential of non-response bias, a weighting method was applied so the data is more representative of the total physician population. The assumption was that the non-response was at random and uncorrelated with the questions asked. The non-response adjustment method was performed for groups defined by the combination of province, physician type (family/general practitioner versus other specialist), age group, and sex, using the method of calibration (Survey Methods and Practices. Statistics Canada catalogue no. 12-587-XPE, 2003). The reference population for this calibration was the CMA database. Groups with a higher non-response received larger weights whereas those with a lower-nonresponse received smaller weights. These weights helped reduce the non-response biases resulting from the over- and under-representation of each group in the responding sample.

Of the 82,979 physicians in the initial list, eligibility could be determined for 8,321 physicians of whom 824 were found to be ineligible. The weighting and non-response adjustment process included the 7,184 physicians who responded to the survey, the 313 who provided responses too incomplete to use for estimation, and the 824 found to be ineligible; and the process assumes the ineligibility rate (by demographic group) among the indeterminate cases was the same as that among those for which eligibility was determined. This allows the estimation of the number of ineligible physicians among the 74,658 physicians whose eligibility was not confirmed. This method produces an estimate of 75,674 eligible physicians. Moreover, there were 7,184 responses representing the (estimated total) 75,674 eligible physicians. After the non-response adjustments for different demographic groups, the estimation weights for these responses average 10.53, and range from 4.25 to 35.78.

	Eligibility Determined	Eligibility Estimated	Total
Eligible	7,497	68,177	75,674
Not Eligible	824	6,481	7,305
Total	8,321	74,658	82,979

Prepared by the CMA's Physician Data Centre
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