



THE ASSOCIATION OF FACULTIES
OF MEDICINE OF CANADA

L'ASSOCIATION DES FACULTÉS
DE MÉDECINE DU CANADA

**2016 AFMC Graduation Questionnaire
Methodological Notes**

September 2016

This document presents information regarding the methodology behind the development, administration and analysis of the 2016 AFMC Graduation Questionnaire (AFMC GQ), including key aspects of data quality. It provides users with an understanding of the strengths and limitations of AFMC GQ data, and how the data can be used. For ease of reference, methodological notes have been organized into the following sections:

1. Background: History of the Graduation Questionnaire
2. Questionnaire Development
3. Eligible Participants
4. Questionnaire Administration
5. Response Rates
6. Data Capture, Processing and Analysis
7. Use of Results

1. Background: History of the Graduation Questionnaire

Prior to 2015, the Graduation Questionnaire (GQ) was administered as the Canadian Graduation Questionnaire (CGQ) by the Association of American Medical Colleges (AAMC). The CGQ was developed in 2001 as a tool for Canadian faculties of medicine to engage medical students in the evaluation of their medical education and well-being. The AAMC CGQ was English-only from 2001 to 2008, and bilingual from 2009 to 2014. The AAMC and AFMC worked in collaboration to facilitate the transfer of this important questionnaire for 2015, the inaugural year of the AFMC GQ.

2. Questionnaire Development

The AFMC GQ is the result of the collaborative effort of medical educators, representatives from Canadian faculties of medicine, members of the Committee on Accreditation of Canadian Medical Schools secretariat, students, residents and AFMC staff. Together, these groups worked closely to create the 2016 questionnaire. Based on feedback received about the 2015 AFMC GQ, several areas of the questionnaire were further modified to better meet the needs of the Canadian medical education community.

Additionally, the AFMC received assistance from faculty and representatives from Québec in order to improve the French translation of the questionnaire.

3. Eligible Participants

The target population for the 2016 AFMC GQ was the 2,867 students who were registered in active studies and, as of January 2016, eligible for graduation from their MD program at a Canadian faculty of medicine. Faculties provided the AFMC with student counts. The national student total was calculated by summing the number of eligible students at all 17 Canadian faculties of medicine. Eligibility was not independently verified. The AFMC relied on the 17 faculties of medicine for the accuracy of the information they provided.

4. Questionnaire Administration

The 2016 AFMC GQ was programmed and accessible for student completion in both English and French using FluidSurveys, an online survey platform. Prior to the launch of the questionnaire, testing was conducted by AFMC to assess the functionality of the survey software.

The AFMC received a count of eligible students from each faculty of medicine. Nine faculties were able to provide the university email addresses of all eligible students; the AFMC contacted these students directly for participation in the GQ. The remaining eight faculties were unable to share this information with the AFMC. These faculties contacted their students via email using communication materials provided by the AFMC in order to invite them to complete an online registration form. This form collected a student's name and email address, and served as a consent form to allow the AFMC to contact students who submitted this information. The AFMC then contacted these students directly for participation in the GQ.

The 2016 AFMC GQ was available to access online between February 26, 2016 and May 31, 2016. Launch dates varied by school to best coincide with their respective academic schedules.

Students were sent an invitation to participate in the GQ via email, using FluidSurvey's "Invites" feature. The email invitation provided students with a unique, private URL to use to gain access to the online survey. This customized URL was automatically generated by the online survey platform. Neither the AFMC nor the schools are able to link a student to their URL. In this way, participants were ensured anonymity. To further safeguard respondent anonymity, the survey was set to "anonymous". Some of the features of this FluidSurveys setting include: invite codes/URLs that were used to access the questionnaire remain hidden (i.e., are not included in the resulting dataset), respondent email addresses remain hidden, and IP addresses are not logged.

Upon accessing the URL, students were directed to a page providing more information about the GQ and prompting them for their (voluntary) informed consent. Students who gave consent

to participate were presented with the questionnaire. All questions in the 2016 AFMC GQ were voluntary, with the exception of the questions confirming faculty and, where applicable, campus enrolment. Students were able to view their progress via a progress bar that indicated the percentage of completion, and responses were automatically saved, allowing students to return to complete the questionnaire at another time (students could also opt to manually save their progress). Students were able to complete the questionnaire in either English or French.

Students received a total of up to three reminders to complete the GQ from the AFMC. FluidSurveys' functionality allowed only those students who had not yet completed (submitted) the GQ received these reminders, while keeping the identity of the recipients hidden from the AFMC. Students who were required to register their email addresses first received additional reminders from a designated university representative at their school, reminding them to complete the online registration form.

Students who either did not receive or lost their invitation were asked to contact gq@afmc.ca using the email address that the AFMC would have on file. All enquiries remained strictly confidential. Once notified of the missing invitation, an AFMC representative used the FluidSurveys invitation platform to re-send the original invitation.

5. Response Rates

Designated contacts at each faculty received biweekly updates from AFMC on the proportion of eligible students who had submitted questionnaires. Where students had to register their email addresses, designated contacts also received updates on the proportion of students registered.

The response rate for the 2016 AFMC GQ is calculated based on completed questionnaires. A questionnaire was considered "complete" only if all of the following criteria were met:

- a. Respondent indicated consent to participate in the GQ; and
- b. Respondent clicked the "submit" button at the end of the questionnaire.

The following table presents how many questionnaires were accessed and demonstrates how the criteria above were applied to determine the total number of completed questionnaires retained for analysis.

Questionnaires accessed	1,972
a. Respondents indicating consent to participate	1,968
b. a) above and respondents clicked "submit"	1,752
Total completed questionnaires	1,752

The resulting number of completed questionnaires was divided by the total number of eligible graduating students to determine the national response rate.

Total completed questionnaires	1,752
Total eligible students	2,867
National response rate (2016 AFMC GQ)	61.1%

Each unique URL could only be used to complete the questionnaire once; that is, once a questionnaire had been submitted using a specific URL, that link no longer allowed access to the questionnaire. With the exception of one student, who was assigned a second URL due to initially registering with an invalid email address (the first URL was sent to the mistyped email address but not successfully delivered), no student received more than one unique URL.

The refusal rate for the 2016 AFMC GQ was 0.1%. This is calculated as the number of respondents who accessed the GQ but replied “no” when asked to provide consent to participate, divided by the total number of students eligible to complete the GQ.

6. Data Capture, Processing and Analysis

Responses were captured by FluidSurveys software, which allows for responses to both the English and French versions of the GQ to be combined (i.e., appear together in the same dataset).

FluidSurveys software possesses skip logic functionality, including advanced question branching. This allows a respondent to be directed to a follow-up question based on their previous response selected. This reduces respondent burden since respondents to whom a follow-up question does not apply are not shown it. For the 2016 AFMC GQ, branching was employed for several questions; however, the FluidSurveys software has the technical ability to save responses that are not consistent with the branching rules (and therefore illogical), as responses are captured in real time. For example, a respondent could enter a response of “Yes,” progress to the next question (dependent on that “Yes” response), but then move back in the questionnaire and change their previous response to “No.” If they had already entered a response to the follow-up question, that would still be captured by FluidSurveys (the respondent would not be presented with the follow-up question on the second pass through, and would therefore be unable to change their response). As a result of this possibility, a data cleaning principle was put in place to favour responses to the prerequisite question (in the example given, the yes/no question) over the follow-up question. In order to enforce this, filters were put in place during data analysis to ensure that responses to follow-up questions were not considered for analysis when not logically consistent with responses to the relevant prerequisite question.

To protect against data entry errors,¹ FluidSurveys allows for response parameters to be set that cannot be violated (to use numerical data as an example, a minimum and maximum value

¹ Data entry errors in the context of the 2016 AFMC GQ are defined as respondent errors (e.g., typos), since the GQ is a self-administered questionnaire.

can be specified to avoid out-of-range values such as 255 for age). Such parameters were in place for the questions about age, debt, scholarship and bursary/grant/sponsorship amounts; however, these parameters were intentionally broad (e.g., minimum value >0 for debt, maximum value 100 for age) to accommodate the unknown distribution of responses. As a result, anomalous responses sometimes occurred. During data cleaning, two dollar amounts identified as extreme outliers were excluded from the analysis for the question about debt directly related to medical studies. A single response about educational debt prior to entering medical school was treated similarly.

Several questions in the GQ allowed respondents to select the response option “other (please specify),” and then provided respondents with a text box in which to elaborate. In other cases, respondents were provided with a text box to specify most responses (e.g., the question about ethnic/cultural background). For these, possible responses were not specified in the FluidSurveys programming. Instead, responses were reviewed by a human coder during data cleaning to ensure that responses were captured accurately (e.g., despite misspellings or alternate spellings) and not deemed anomalous. If the response was deemed valid, the coder selected one of the following: re-categorised the response into an existing category, coded it to a newly-created category (if sufficient number of similar responses), or coded it as “other.” If the response was deemed anomalous, it was removed from the analysis.

Qualitative questions asking for comments about various aspects of the medical education experience, student wellbeing or the GQ itself were retained verbatim and are not reported publicly.

Frequency distributions (counts and percentages) are presented for all questions from the 2016 AFMC GQ. In the case of questions in the “Mistreatment” section of the report, some frequencies may be calculated and presented for more than one question at a time. Please refer to the notes accompanying each data table for more information. Percentages presented may not add to 100 due to rounding or due to response formats that permitted more than one response per question. For some questions, measures of central tendency (mean/median) and dispersion (standard deviation/range) are reported. Because all questions (other than faculty or campus enrolment) in the 2016 AFMC GQ were voluntary, there are instances where respondents skipped (i.e., did not answer) a question. Some questions also had response options such as “not applicable” or “prefer not to say.” These cases were excluded from calculations of total counts, percentages or measures of central tendency and dispersion for a given question. In the case of “not applicable” or “prefer not to say/provide” responses, an additional table is provided with the count of respondents who chose such options and the count of those who did not answer the question. Where these options were not available to respondents, the number who skipped the question can be obtained by subtracting the total count of responses from the 1,752 completed questionnaires.

To uphold rigorous standards of participant anonymity and the confidentiality of responses, only aggregate data are reported by the AFMC. The AFMC produces a publicly available national report, combining data from all schools. Each faculty is also provided with a unique report that

presents aggregate responses at the faculty and, if applicable, campus levels. These reports will not be publicly disseminated by the AFMC. No report is issued if there are fewer than ten (10) respondents for that reporting level (e.g., if a campus has fewer than 10 respondents).

Responses to demographic, enrollment or financial questions could, on their own, reveal information about the identity of a respondent. For this reason, no results are reported when fewer than five (5) respondents selected a response option for any of the demographic, enrolment or financial questions. In the national report, this was achieved by collapsing (combining) response categories. In faculty and campus reports, fields marked with an asterisk (*) have been suppressed since collapsing categories was not always possible.

Individual-level data (microdata) will not be made publicly available by the AFMC.

7. Use of Results

As mentioned in Section 3, the 2016 AFMC GQ surveyed students eligible to graduate from an MD program in a Canadian faculty of medicine as of January 2016. Subsequent graduation was not verified by the AFMC, who relies on member schools to provide eligible student information. It is important to qualify that the AFMC GQ data reflect the responses of respondents who are eligible to graduate but may or may not be actual graduates.

The results obtained by the AFMC GQ are not based on a random sample and respondents were self-selecting. For this reason, the results presented in this report are representative only of the students who responded to the 2016 AFMC GQ and should not be used to make inferences about the entire student population. Extreme caution must be applied when performing comparisons or drawing conclusions based on this non-random sample. As noted in Section 6, when appropriate, standard deviations are reported. This statistic is useful to assess the distribution of the answers to a question. The standard deviations in this report are not meant to be used to build confidence intervals or infer statistical significance.

While the AFMC GQ was born from the AAMC CGQ, comparisons to AAMC CGQ results (2014 and earlier) cannot be made due to changes in the content of the questionnaire and method of administration. Comparisons to 2015 AFMC GQ results are made where possible; however, based on feedback received about the 2015 AFMC GQ, several areas of the questionnaire were further modified to better meet the needs of the Canadian medical education community. This includes:

- The addition of “not applicable” as a response option for the statements related to clinical learning experiences;
- Changing the response option “indifferent” to “neither agree nor disagree” or “neither satisfied nor dissatisfied”, as applicable;
- Changes to gender identity, sexual orientation, ethnic/cultural background questions;
- Changes to financial questions; and

- Broad improvements to questionnaire flow and decrease respondent burden (e.g., not asking follow-up questions when not applicable).

Please refer to the following section for more information. Question-specific information can also be found in the “Note” section accompanying most tables in the 2016 and 2015 AFMC GQ National Reports.

7.1 Additional considerations regarding specific questions within the 2016 AFMC GQ

The following are specific considerations regarding the interpretation or comparability of results for specific questions. Also highlighted are any major changes relative to the 2015 edition of the questionnaire.

- Type of degree program: This question was asked and programmed to allow for only one response in 2016. The 2015 questionnaire allowed for multiple responses; however, during data cleaning it was determined that the question could be reported as a single-response question (please refer to the 2015 AFMC GQ Methodological Notes for more information on the 2015 question). For this reason, these questions are deemed comparable from 2015 to 2016.
- Pre-clinical education: The rating scale for the 14 pre-clinical education areas was modified in 2016 to include a “don’t know” response option.
- Clinical learning experiences: Respondents were asked to rate their agreement with a battery of seventeen statements for each clinical discipline. In 2016, a “not applicable” response option was added to the scale.
- Research: In 2016, a “No, other (please specify)” response option was added to the first question in this chapter to make the response options exhaustive. This first question asks about research projects with a faculty member and allows students to indicate availability of this opportunity. A similar question in the series of questions that follows (“There were opportunities available for me to undertake research”) does not include this qualification. Therefore, respondents who indicated they had no opportunity to participate in research projects with a faculty member were still asked the question about opportunities to undertake research in general.
- Mistreatment: The questions asking about respondents’ experiences related to feeling publicly embarrassed are excluded from much of the analysis. These questions were added to the CGQ by the AAMC to increase the validity of items related to questions on being publicly humiliated, and were retained by the AFMC in the GQ. While a discussion on the impact of this change is not within the scope of this report, it is of note that the frequency distribution for the question asking “How frequently a student was publicly embarrassed” differs markedly from other items in this section.
- Career plans: The 2015 question about planned place of practice was reworded in 2016 to ask “Where do you want to practice?”, and was asked as one question (it was split

into two components – outside of Canada and within – in 2015). This question was also modified to ask students to select and rank up to 3 choices. The question asking about factors influencing career choice was also modified in 2016. In the past, the AAMC CGQ asked students about their choice of specialty prior to asking about factors that influenced this choice. In the 2015 AFMC GQ, the question asking students their choice of specialty was not asked. Students were still asked about the factors that influenced their choice; however, this was meant to refer to their choice more broadly (i.e., their medicine career in general). Language referring to specialty choice that was mistakenly left unchanged in the 2015 AFMC GQ was removed in 2016. This modified one factor (see the 2016 “Current need for physicians” vs. 2015 “Current need for physicians in this discipline”), and eliminated another (“Options for sub-specialization”).

- Gender identity, sex assigned at birth and sexual orientation: The questions pertaining to gender identity and sexual orientation were significantly changed to improve their language and organization relative to the 2015 questions. A question asking respondents for their sex as assigned at birth was added as a result of these changes.
- Ethnic/cultural background: This question was asked in an open-ended format in 2016, allowing respondents to type in their response. Grouping of responses was done during data cleaning, using Statistics Canada Census/National Household Survey guidelines for ethnic origin as a guide. Categories were added to capture cultural groups not reflected in the Statistics Canada classification; these groups may or may not be represented in the reports (please refer to standards pertaining to respondent anonymity and confidentiality of responses in Section 6). Please refer to the Appendix for further information. Please note that this question is not intended to determine visible minority status.
- Financial information: In 2016, students were not asked about non-educational debt. The two questions about educational debt prior to entering medical school and debt directly related to medical studies were retained, but were restructured to allow respondents to write in the approximate debt amount (in 2015, respondents were asked to choose from pre-set categories). A response option of “I do not know the approximate amount” was also added to both questions. The response option “Don’t know” was also added to the questions about scholarships and bursaries/grants/sponsorships. Also related to the issue of debt, the question asking about circumstances relating to medical school that caused increased debt was not asked in 2016. Finally, the question about obligations for return of service had a “No” response option added in 2016.

The national report (a summary report combining the data from all schools) is available to the public on AFMC’s website.

The information contained in the 2016 AFMC GQ National Report is presented by the AFMC on behalf of the Canadian faculties of medicine. Please contact the AFMC at gq@afmc.ca prior to use of or quoting any information contained in this report.

Please feel free to contact gg@afmc.ca for more information about this summary or any aspect of the AFMC GQ.

Appendix

Supplementary information: Ethnic/cultural background

Some respondents chose to provide very specific responses to this question, while other respondents provided general responses or even responses not reflective of the constructs identified. Since the question wording included references to “ethnic” background², Statistics Canada’s ethnic origins (as used for the Census/National Household Survey) were used as a starting point for the classification of responses. Recognizing that ethnicity and culture, while potentially related, are distinct concepts, categories were added as deemed relevant to capture groups not represented in the Statistics Canada scheme. Additionally, the organization of categories and subcategories may not align with Statistics Canada’s approach. While each specific decision is not outlined here, some are explained below.

Please note that the question asked as part of the 2016 GQ is not intended to determine visible minority status. Please refer to the 2015 AFMC GQ Methodological Notes for information on how this differs from the 2015 question. Where a response referred to racial/visible minority group without further ethnic or cultural information (e.g., “white”, “black”), it was not retained for reporting. In the case of some responses, this represents a departure from Statistics Canada’s classification for ethnic origins.

It is important to bear in mind that the question asked in the 2016 AFMC GQ referred to ethnic or cultural background. As an example of how this may affect interpretation of the results, a response of “Canadian” should not be interpreted as indicating either Indigenous, British, or French ethnic origins only.

Please see the list below for some additional details:

- “French Canadian,” “Québécois,” or similar: While some may view the term “French Canadian” as archaic, respondents self-identified using this term; therefore, it was retained. Where more specific regional identities were provided by respondents (e.g., Québécois, Franco-Ontarian), these were retained. Where a respondent indicated only “French” or “Français(e)”, they were categorized as “French”. When interpreting the results, it is important to note that there may be conceptual overlap between categories.
- “Indian”: Twenty-three (23) respondents self-identified being of “Indian” ethnic/cultural background. The *possibility* exists that a respondent of Aboriginal background chose the term “Indian” to self-identify. However, for the reasons described below, it is our assertion that the *probability* of this is very low.
 - The 2016 AFMC GQ question asked about ethnic/cultural background, not legal status (i.e., did not ask about “status Indian” vs. “non-status Indian” within the context of the *Indian Act*);

² The question wording in 2016 was: “What is your ethnic/cultural background?”

- The unlikelihood of choosing to self-identify as “Indian” for First Nations peoples (outside of a legal context as above) given the association of the term “Indian” with racist discourse in Canada;
- The age range of respondents (some sources indicate older generations are more likely to self-identify using the term “Indian”³); and
- The fact that none of the respondents indicated living in the United States prior to attending university in Canada (the term “Indian” or “American Indian” has a different historical/legislative context in the United States, and thus its popular usage differs).

Nearly 40 percent of the cases in question also indicated speaking South Asian languages (e.g., Hindi, Punjabi). Estimates for either Aboriginal background or East Indian background could be off by a magnitude of the remaining “Indian” responses (14 cases, or approximately 0.1% of all respondents who provided an answer to this question).

³ Please see <http://indigenousfoundations.arts.ubc.ca/home/identity/aboriginal-identity-terminology.html>.