

Certification Survey of Canadian Biomedical Engineering Professionals

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I. BACKGROUND

Today, national or provincial certification of biomedical/clinical engineering professionals (BME) is not a requirement for practice in the field. Although some employers provide incentives for their employees to become certified, only a small number of practicing biomedical/clinical engineers and technologists are certified in Canada. There are a number of registration and certification bodies in Canada. Provincial organizations such as Engineers and Geoscientists BC (EGBC) benchmark training and practice of engineering professional in their home provinces. The title professional engineer (PEng) is bestowed to registered engineers while designations such as applied science technologists (AScT) are used for registered technologists. At the national level, the Canadian Board of Examiners for Clinical Engineering Certification certifies professional engineers working in the field of clinical engineering (CCE). The Canadian Board of Examiners for Biomedical Engineering and Dialysis Technologists and Technicians is a national body to certified registered biomedical engineering technologists (CBET).

II. SURVEY OBJECTIVES & METHOD

This online survey was launched to seek information pertaining to clinical/biomedical engineering certification in Canada. Its purpose is to identify barriers, incentives and disincentives for clinical engineers and biomedical engineering technologists to seek certification. The survey consists of 31 questions posted on SurveyMonkey in March 2019. Notifications were sent via emails primarily to biomedical engineers and technologists working in hospitals. Recipients were also asked to forward the survey requests to their peers.

III. SURVEY RESULTS

There were 146 individuals responded to the survey, 100 (68%) of them completed all 31 questions and 136 (93%) completed most questions, the remaining only a few questions in the survey. 28% of those responded were from BC, 17% from Alberta, 34% from Ontario, and 17% from the Atlantic Provinces. The majority (95%) of respondents reported they were working in hospitals. 15% were engineers and 82% technologists or technicians. 28% of all respondents were a member of The Canadian Medical and Biological Engineering Society (CMBES) and 14% were a

member of The Association for the Advancement of Medical Instrumentation (AAMI). 74% of respondents have formal education in biomedical engineering. Out of the 136 who responded to the question on provincial professional registration, 60 (44%) were registered biomedical engineering technologists (BMET) and 14 (10%) were registered professional engineers in their provincial associations. Among all technologists, there were 28 (23%) certified biomedical engineering technologists or technicians (CBET). Among all engineers, there were 7 (32%) certified clinical engineers (CCE). Below are some highlights on provincial registration and national certification:

- Considering provincial registration: PEng-71% (15 out of 21 of engineers), AScT/CET-27% (30 out of 112 technologists).
- Considering national certification: CCE-57% (12 out of 21 engineers), CBET-23% (26 out of 112 technologists).
- Barriers in seeking registration: costs (59%), no interest (46%), exams (33%), work experience (15%), education requirements (8%).
- Incentives to become certified: fees paid by employers (81%), required for salary increase (80%), required for job promotion (75%), required for job entry (72%), preferred for job promotion (67%), preferred for job entry (60%), preferred for salary increase (67%), able to use CCE/CBET title (58%).
- Disincentives to become certified: lack of employer's recognition (67%), required to renew certification (62%), application and exam fees (60%), certification exam (43%), education requirement (23%), work experience requirement (15%).
- Reasons why certification exam is a disincentive in certification: contents irrelevant to work (47%), contents out-of-date (37%), content too difficult (16%).

IV. CONCLUSION

This survey obtained statistics in professional registration and certification amongst BME professionals working in the Canadian healthcare sector. It revealed incentives and disincentives in seeking registration and certification. The information will be useful to streamline and improve processes, and hopefully increase the values of BME professional registration and certification.