On the importance of promoting graduate funding opportunities: A response to CIHR President Alain Beaudet's open letter

Dear Editor:

Alain Beaudet, President of the Canadian Institutes of Health Research (CIHR), the most important health research funding agency in Canada, recently announced in an open letter that the Trudeau government's annual \$30 million reinvestment would be attributed in its entirety to "Project Grant" funding, with a focus on early career investigators.¹ The letter was published shortly before the results of the last round of the annual CIHR doctoral grant applications; it bears mentioning that only a select few students each year have the opportunity of receiving such funds.

Under pressure from the conservative government's budget cuts in 2012–2013, CIHR reduced the annual doctoral funding budget from \$18.9 to \$14 million (i.e., by approximately 25%). This decision has resulted in a reduced number of students who receive this scholarship (approximately one in eight now versus one in six before, in the "health services and public health" research theme), and in a reduced number of applicants (from 526 in 2014 to 471 in 2015 and 432 in 2016 in this same research theme). While it is true that research projects funded through Project Grants and similar programs often include student funding in their budget, this may promote a system where students are encouraged to focus on the topics that are already being developed in funded research groups, and therefore experience less latitude in their research interests and skills development. With increased federal funding, should CIHR's president not directly address graduate funding opportunities among the Institutes' priorities? This letter advocates for such a direction.

Financial support is recognized to be the most important determinant of doctoral success. Studies have found that competitive funding was one of the two strongest factors (the other being the student's scientific discipline) predicting whether a student completes his or her program and within standard timelines.² A European study found that doctoral students with competitive funding were almost three times as likely to finish their studies in comparison to those whose funding came from research and teaching assistantship.² Similarly, results from the PhD Completion Project, which surveyed individuals from 29 US and Canadian research universities in 2005–2008, showed that financial support was perceived as the most common contributor to success (before mentoring, family support, social environment and peer support) among those who recently finished their doctoral training.³

Doctoral funding also translates directly into an improved output for Canadian research. A recent study showed that doctoral students accounted for more than 30% of authors in articles published in health sciences in Quebec.⁴ Indeed, scholars suggest that funded students' further involvement in research publishing represents a core mediating mechanism through which funding

promotes doctoral students' academic success.^{5,6} For instance, Larivière found that students' pre-graduation productivity (measured in the number of publications) was strongly correlated with productivity in the years following their graduation.⁴

There is however reason to believe that doctoral students may experience unequal chances to develop their research capacities upon entering a doctoral program simply based on the resources and prestige that such scholarships offer, independent of the recipients' abilities or curriculum.⁶ A recent study observed that doctoral students' overall productivity followed a power curve, where 20% of students end up contributing to 80% of their group's output.⁷ The study's authors argue that this discrepancy is not due to differences in departments, schools or universities, but to the rapid socialization process that happens during the PhD years, where certain students are selected and fostered to the detriment of others. The prestige associated with such scholarships may be key to this selection process. This creates an undue burden on those who did not receive scholarships to gain an edge in an already competitive market during their transition towards becoming future Canadian health researchers.

In essence, a relatively small investment in graduate funding ensures that a larger number of students successfully finish their studies and become productive health researchers. Refusing to reinvest in graduate funding reduces promising students' opportunity to achieve excellence. We ask that Canada's health research funding agencies acknowledge these issues in their future decisions.

Thierry Gagné, MSc, Josée Lapalme, MA

Institut de recherche en santé publique de l'Université de Montréal (IRSPUM); École de santé publique de l'Université de Montréal (ESPUM), Montréal, QC

doi: 10.17269/CJPH.107.5665

ACKNOWLEDGEMENTS

TG and JL are funded by doctoral grants from the *Fonds de recherche du Québec – Santé*.

REFERENCES

1. Beaudet A. Open letter from Alain Beaudet, President of CIHR, to Canada's health researchers. CIHR, 2016. Available at: <http://www.cihr-irsc.gc.ca/e/49738.html> (Accessed April 29, 2016).
2. Groenvynck H, Vandeveld K, Van Rossem R. The PhD track: Who succeeds, who drops out? *Research Eval* 2013;22(4):199–209. doi: 10.1093/reseval/rvt010.
3. Jaschik S. *Why and When Ph.D. Students Finish. Inside Higher Education*, 2007. Available at: <https://www.insidehighered.com/news/2007/07/17/phd> (Accessed April 29, 2016).
4. Larivière V. On the shoulders of students? The contribution of PhD students to the advancement of knowledge. *Scientometrics* 2011. doi: 10.1007/s11192-011-0495-6.
5. Nettles MT, Millett CM. *Three Magic Letters: Getting to Ph.D.* Baltimore, MD: Johns Hopkins University Press, 2006.
6. Larivière V. PhD students' excellence scholarships and their relationship with research productivity, scientific impact, and degree completion. *Can J Higher Educ* 2013;43(2):27–41.
7. Conley JP, Onder AS. The research productivity of new PhDs in economics: The surprisingly high non-success of the successful. *J Econ Perspect* 2014; 28(3):205–16. doi: 10.1257/jep.28.3.205.