

# 2023 CANADIAN UNIVERSITY REPORT CARD



**White  
Paper**

# 2023 CANADIAN UNIVERSITY REPORT CARD: GLOBAL EQUITY IN BIOMEDICAL RESEARCH

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# Executive Summary

The 2023 Canadian University Report Card evaluates Canada's most prominent group of research universities, the U15, on their contributions to global health research and access to medicines, and assesses institutions' practices to promote global access to health technologies. With increases in investment into its research infrastructure in recent years<sup>1</sup>, Canada has significant potential to advance global health equity<sup>2</sup>. In order to meet this potential, Canada requires the active participation of stakeholders and research institutions. Higher education, which leads Canada's national research and innovation system<sup>3</sup>, has a significant impact on the country's biomedical research products and how accessible those products ultimately become. The OECD reports that the higher education sector made up 41.25% of Canada's gross domestic expenditure for research and development (R&D) in 2017, a figure that has grown year-over-year since 1990<sup>4</sup>. Further, the U15 report that they altogether conduct approximately 8.5 billion dollars worth of research annually, comprising 79% of all competitively allocated research funding in Canada<sup>5</sup>. Given that the majority of Canadian biomedical research is conducted by universities, these institutions are uniquely positioned to influence the accessibility of the health technologies they research, develop, and license.

Despite the significant potential to contribute to global health equity and past parliamentary recommendations made to promote Canadian contributions to access to medicines, Canada has repeatedly restricted and reduced the accessibility of the outputs of its biomedical research<sup>6</sup>. The Canadian research system has consistently prioritized strict intellectual property rights over access, and had failed its "humanitarian duty to protect the human right to health" through this pattern of decision-making<sup>7</sup>.

With universities at the forefront of the development and licensing of Canadian-researched medicines, it is imperative that their biomedical R&D practices actively prioritize equitable access. To maximize Canada's impact, universities must make crucial decisions in resource allocation, accessibility of their published biomedical research and its products, equitable licensing practices, and the availability of global health education offered to students on campus.

A pattern of critical decisions and consistent shortcomings in Canada's biomedical research system has emerged: universities receive significant amounts of public funding to conduct research and develop life-saving medicines, but the public does not have sufficient access to these medicines. This university research system does not always yield improvements in drug access to people in Canada and abroad. Therefore, this report seeks to investigate the state of university policies to help ensure that life-saving medicines and research are accessible to all. Through this, we aim to highlight meaningful contributions and identify areas of improvement for each university included. This iteration of the Canadian Report Card assesses university contributions and policies in five areas: Access, Innovation, Empowerment, Transparency, and COVID-19.

<sup>1</sup> Unesco. "Canada | 2021 Science Report," December 15, 2022.; "2021 - 2026 Framework for Action on Global Health Research," 2021. [https://cihr-irsc.gc.ca/e/documents/CIHR\\_framework\\_2021-en.pdf](https://cihr-irsc.gc.ca/e/documents/CIHR_framework_2021-en.pdf); Canada, Global Affairs. "Canada's Efforts to Promote Global Health." GAC, February 21, 2017.;

[https://www.international.gc.ca/world-monde/issues\\_developpement-enjeux\\_developpement/global\\_health-sante\\_mondiale/index.aspx?lang=eng](https://www.international.gc.ca/world-monde/issues_developpement-enjeux_developpement/global_health-sante_mondiale/index.aspx?lang=eng); Plamondon, Katrina, Dylan Walters, Sandy Campbell, and Jennifer Hatfield. "Promoting Equitable Global Health Research: A Policy Analysis of the Canadian Funding Landscape." *Health Research Policy and Systems* 15, no. 1 (2017). <https://doi.org/10.1186/s12961-017-0236-2>.

<sup>2</sup> Gabriel, Patricia, Rebecca Goulding, Cecily Morgan-Jonker, Shannon Turvey, and Jason Nickerson. "Fostering Canadian Drug Research and Development for Neglected Tropical Diseases." *Open Medicine: A Peer-Reviewed, Independent, Open-Access Journal* 4, no. 2 (2010): e117-22.

<sup>3</sup> Bégin-Caouette, Olivier, Glen A. Jones, Grace Karram Stephenson, and Amy Scott Metcalfe. "Canada: The Role of the University Sector in National Research and Development." In *The Changing Academy – The Changing Academic Profession in International Comparative Perspective*, 375–92. Cham: Springer International Publishing, 2021.

<sup>4</sup> Bégin-Caouette, Olivier, Glen A. Jones, Grace Karram Stephenson, and Amy Scott Metcalfe. 2021. "Canada: The Role of the University Sector in National Research and Development." In *The Changing Academy – The Changing Academic Profession in International Comparative Perspective*, 375–92. Cham: Springer International Publishing..

<sup>5</sup> U15 Group of Canadian Research Universities. "About Us," July 27, 2022. <https://u15.ca/about-us/>.

<sup>6</sup> Ourcommons.ca. "Committee Report No. 20 - HESA (42-1) - House of Commons of Canada." Accessed March 17, 2023. <https://www.ourcommons.ca/DocumentViewer/en/42-1/HESA/report-20/page-21>.

<sup>7</sup> Lexchin, Joel. "Canada and Access to Medicines in Developing Countries: Intellectual Property Rights First." *Globalization and Health* 9, no. 1 (2013): 42. <https://doi.org/10.1186/1744-8603-9-42>.

## Top 10 Key Findings

- **Less than half (48.9%)** of all biomedical licensing agreements established at the U15 universities in the past two calendar years (January 1, 2019, to December 31, 2020) were **non-exclusive**.
- Among responding universities, **less than ¼** of all biomedical licensing agreements included provisions to promote access in low- and -middle-income countries, as defined by the World Bank.
- Only **one** university, the University of British Columbia, has submitted a license to the Medicines Patent Pool (MPP) or World Intellectual Property Organization (WIPO) for protected intellectual property status for medicines treating HIV, hepatitis C, malaria, tuberculosis, neglected diseases, or other patented essential medicines in low- and middle-income countries since 2010.
- **Ten of the 15 U15 universities** made **no** public or official commitments to promote access to medicines, nor signed on to any licensing agreements to promote the affordability of medicines in resource-limited populations.
- **Less than half** of the Canadian U15 universities have provided resources to educate students, in the form of courses, conferences, symposiums, and seminars, on the policy and legal aspects of biomedical R&D and how these factors affect access to medicines globally during the past two calendar years.
- While all Canadian universities acknowledge the importance of open access publications, **only 42.8%** of biomedical publications at all the U15 universities were in open access journals or were available as open access publications over the past two calendar years.
- Overall, **91%** of SARS-CoV-2 publications by the Canadian U15 universities were available for open access from March 1st, 2020 to March 1st, 2021, displaying that there is potential for a significant increase in the proportion of open access publications.
- **Twelve** universities out of the U15 have **not** signed on to SARS-CoV-2 licensing agreements to promote intellectual property sharing with the aim of minimizing disease impact.
- Despite the fact that in the 2021 census, 1.8 million people identified as indigenous (about 5% of the Canadian population), U15 universities have neglected indigenous health research<sup>8</sup>. In fact, **only 0.25%** of publications from Canadian U15 universities touched on indigenous health or indigenous health strategies in the past two calendar years.
- Only **two** universities, Université de Montréal and University of Waterloo, out of the U15 published all of their clinical trial results, and summary results, for clinical trials completed in the past 2 calendar years.

<sup>8</sup>Government of Canada, Canada S. 2021 Census of Population – Data products [Internet]. Statcan.gc.ca. 2021 [cited 2023 Mar 13]. Available from: <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/index-eng.cfm>

## Abbreviations

Acronym	Full Word
AUTM	Association of University Technology Managers, Inc
LMIC	Low- and Middle-Income countries
HIC	High-Income Countries
R&D	Research and Development
FDAAA	Food and Drug Administration Amendments Act of 2007
FDA	Food and Drug Administration
CIHR	Canadian Institutes of Health Research
UAEM	Universities Allied for Essential Medicines
WHO	World Health Organization

# Background

Research and development spending reached a record high in the 2021-2022 calendar year, with 15.9 billion dollars going to Canadian universities<sup>9</sup>. Of this, 5.3 billion dollars were sourced entirely from public sources, stemming from federal and provincial contributions to university R&D. This public funding contributes to the health technology output of Canadian universities<sup>10</sup>. While no official evaluations have been made on the proportion of Health Canada-approved drugs that receive public funding, US-based research found that every FDA-approved drug approved in the window of 2010 to 2016 received public NIH funding.

Although Canadian research is well funded, regulation of research practice is limited. Most university research bodies, especially those regarding biomedical research, primarily focus on ensuring research integrity and the proper appropriation of funds<sup>11</sup>. On the surface, this kind of regulation is commendable and serves to encourage sound research practices. Little oversight, however, focuses on equity-based concerns in R&D. Critically, minute concern goes into ensuring that public contributions to biomedical R&D result in making drugs more accessible to those whose taxes went towards funding said medicines. Further, research regulation does not cover how universities should make their developed health technologies accessible to those in LMICs, although university biomedical R&D practices have profound effects on the health status of individuals in low-middle-income countries. In absence of governmental regulation, universities have the freedom to research and develop medicines in any manner they wish.

The ways in which universities patent and license the drugs they develop has a significant effect on drug accessibility. This is exemplified by the 96% price reduction in stavudine (d4t), a critical HIV antiretroviral, that resulted from a shift in policy by Yale University and Bristol-Myers-Squibb to promote access in LMICs after significant public pressure from groups like UAEM in 2001<sup>12</sup>. While policies of this nature are exemplary, they are not the norm in university technology transfer office practice. An estimated two billion people each year do not have access to essential medicines, with that population primarily being concentrated in LMICs, and university policy regarding drug licensing serves as an entry point to correct this gargantuan inequity<sup>13</sup>.

Universities have a prominent role in drug development, specifically serving as the original site of research and development of ¼ of new medicines receiving FDA approval<sup>14</sup>. Universities' role in R&D, in that they serve as a foundational site for the development of novel health technologies, allows them to patent and own intellectual property rights for these technologies<sup>15</sup>. University ownership of patents allows universities to engage in university-private sector collaboration to commercialize patented health technologies, allowing for private sector companies to transform the patented technology into drugs on the open market. This commercialization process involves a licensing agreement between the patent-holding for this technology (licensor) and a licensee interested in

<sup>9</sup> Spending on research and development in the higher education sector, 2020/2021 [Internet]. Statcan.gc.ca. 2022 [cited 2023 Feb 24]. Available from: <https://www150.statcan.gc.ca/n1/daily-quotidien/221209/dq221209d-eng.htm>

<sup>10</sup> Galkina Cleary E, Beierlein JM, Khanuja NS, McNamee LM, Ledley FD. Contribution of NIH funding to new drug approvals 2010–2016. *Proc Natl Acad Sci U S A* [Internet]. 2018;115(10):2329–34. Available from: <http://dx.doi.org/10.1073/pnas.1715368115>

<sup>11</sup> Tri-agency framework: Responsible conduct of research (2021) [Internet]. Ethics.gc.ca. 2021 [cited 2023 Feb 24]. Available from: <https://rcr.ethics.gc.ca/eng/framework-cadre-2021.html>

<sup>12</sup> Chen CE, Gilliland CT, Purcell J, Kishore SP. The silent epidemic of exclusive university licensing policies on compounds for neglected diseases and beyond. *PLoS Negl Trop Dis* [Internet]. 2010;4(3):e570. Available from: <http://dx.doi.org/10.1371/journal.pntd.0000570>

<sup>13</sup> World Health Organization. Ten years in public health 2007-2017: REPORT BY DR MARGARET CHAN DIRECTOR-GENERAL WORLD HEALTH ORGANIZATION. Genève, Switzerland: World Health Organization; 2018.

<sup>14</sup> Kinch MS, Horn C, Kraft Z, Schwartz T. Rising academic contributions to drug development: Evidence of vigor or trauma? *ACS Pharmacol Transl Sci* [Internet]. 2020;3(6):1427–9. Available from: <http://dx.doi.org/10.1021/acspstsci.0c00167>

<sup>15</sup> Drozdoff V, Fairbairn D. Licensing biotech intellectual property in university-industry partnerships. *Cold Spring Harb Perspect Med* [Internet]. 2015 [cited 2023 Feb 24];5(3):a021014. Available from: <http://dx.doi.org/10.1101/cshperspect.a021014>

commercializing said health technology. Often, this arrangement allows for the license to have sole control over the production of this technology, allowing them the freedom to price that technology as they wish.

Licenses of this nature ordinarily serve solely as sources of revenue for universities, and yet they have the potential to be a pivotal point in increasing access to medicines on a global scale. At this licensing step, provisions can be included to increase drug access, as seen with the University of British Columbia's licensing of the low-cost formulation of Amphotericin B. Amphotericin B, which itself was licensed in a way to promote access in LMICs<sup>16</sup>. Although universities hold a pivotal role in the research, development, and commercialization of new health technologies, little work has been done to evaluate the equitability of the particular policies of the Canadian U15 universities regarding licensing agreements.

Along this same theme of increasing access to medicines, the resources universities devote to global health research and education, along with accessory fields such as neglected disease research and emerging disease, serve a critical role in bridging the gap between health states in LMICs and high income countries globally. University research in these fields has been critical in bringing new vaccines, diagnostics, and therapeutics to market over the past few decades, as well as in improving public health strategy in LMICs. The Canadian government has further moved to support these fields over the past decade through strong support to the Global Fund and the creation of the Development Innovation Fund for Global Health Research, a federal grant aiming to promote Canadian contributions to health states in LMICs<sup>17</sup>. However, analysis examining the results of this federal policy on university research practices is lacking.

Further, transparency serves as another critical aspect of research equity that is often overlooked when it comes to research evaluation. Reform has been initiated in this area, such as through changes in the CIHR tri-agency policy, which requires awardees to publish open access publications<sup>18</sup>. Similar changes have been made to CIHR policy in 2022, to promote the publishing of clinical trial results as per the "World Health Organization's Joint Statement on Public Disclosure of Results from Clinical Trials"<sup>19</sup>. However, low proportions of publications are available open access at the Canadian U15. In this same vein, large proportions of clinical trial results are published in non-compliant fashions at the U15 universities, according to the FDAAA clinical trials tracker. While the role of data sharing in accelerating research progress has been acknowledged by universities, university policies often do not provide university researchers with the necessary support to publish research results in a transparent and timely fashion.

To our knowledge, no analyses in existing literature have thoroughly examined the issues above. The UAEM Canadian University Report Card seeks to do this by surveying university actions and policies in the form of a 65-question report. This report involved systematic data collection from publicly available sources and through questionnaires sent to the Canadian U15 universities. The five sections (access, innovation, empowerment, transparency, and COVID-19) all sought to evaluate key aspects of university R&D over the past four years. With respect to the previous Canadian Report Cards, transparency and the COVID-19 section were newly added to this report. The transparency section seeks to systematically analyze the university's practice of open science, with a heavy focus on clinical trials and open access publications. The COVID-19 section aims to analyze how university practices during the pandemic supported global and equitable R&D access.

<sup>16</sup> Herder M, Gold ER, Murthy S. University technology transfer has failed to improve access to global health products during the COVID-19 pandemic. *Healthc Policy* [Internet]. 2022;17(4):15–25. Available from: <http://dx.doi.org/10.12927/hcpol.2022.26830>

<sup>17</sup> Development innovation fund for global health research [Internet]. IDRC - International Development Research Centre. [cited 2023 Feb 27]. Available from: <https://www.idrc.ca/en/project/development-innovation-fund-global-health-research>

<sup>18</sup> Communications, Marketing Branch. Tri-Agency Open Access Policy on publications [Internet]. *Science.gc.ca*. 2016 [cited 2023 Feb 27]. Available from: <https://science.gc.ca/site/science/en/interagency-research-funding/policies-and-guidelines/open-access/tri-agency-open-access-policy-publications>

<sup>19</sup> CIHR signs the world health organization's joint statement on public disclosure of results from clinical trials [Internet]. *Cihr-irsc.gc.ca*. 2020 [cited 2023 Feb 27]. Available from: <https://cihr-irsc.gc.ca/e/52189.html>

## Section 1: Access

This section evaluates the extent to which universities make their medical discoveries and research publications affordable and accessible, especially to low-and middle-income countries (LMIC). Best practices include committing to equitable and non-exclusive licensing practices for medicines and health technologies, and to that end UAEM has developed an [Equitable Technology Access Framework](#) to guide licensors in this process. This also includes facilitating open access publications to ensure that publicly-funded research and information are available for access without financial barriers. Such financial barriers disproportionately affect those in LMICs, further exacerbating global health inequity.

## Section 2: Innovation

Many diseases that disproportionately affect people in LMICs, such as HIV/AIDS, tuberculosis, malaria, and more are under-researched in the North American biomedical research landscape. This section examines the policies, programs, and resources that universities dedicate towards the research and education surrounding those neglected diseases. UAEM focuses on medicines developed for neglected diseases for two major reasons: lack of access due to the price of these medicines, and the lack of available products on the market to begin with.

Medicines for neglected diseases are less lucrative for pharmaceutical companies looking to maximize profit. This, compounded with the ability of pharmaceutical companies to set exorbitant prices on medicines due to the limited availability of alternatives and lack of market competition make it far too expensive for neglected disease treatments. Consequently, LMICs often do not have the financial means to pay high-end prices, leaving treatments and research addressing neglected diseases that are not funded or produced by pharmaceutical companies. Universities can be the catalyst for addressing neglected diseases by leading the way on neglected disease research.

## Section 3: Empowerment

Future healthcare leaders, researchers, and policy decision-makers must be educated about current and future global health challenges along with the structures that perpetuate unequal access to medicines. Universities, especially those within the U15, are uniquely and optimally positioned to contribute to that education. Our empowerment section of the report card seeks to assess the availability of global health education for students at each institution. It also assesses how accessible that education is for marginalized identities and under-represented demographics.

## Section 4: Transparency

Given the significant portion of biomedical R&D supported with public dollars, universities have a responsibility to be transparent about the allocation of that funding and the subsequent results from clinical trials and other research. This section evaluates how transparent universities are concerning their biomedical R&D practices, taking into consideration the publication of clinical trial results and the universities' responsiveness to report card questionnaires.

## Section 5: COVID-19

The COVID-19 pandemic has both highlighted a need for equity-focused global health initiatives and demonstrated Canada's capacity to contribute to global health through coordinated international responses<sup>20</sup>. This section examines the steps universities are taking to close the global accessibility gap in COVID-19 treatments and other neglected disease areas. Canada's rapid response to the COVID-19 pandemic was made possible by the dissemination of research through publications and journals, which demonstrates how the accessibility of research and intellectual property is necessary for producing life-saving medicines and vaccines in times of crisis.

<sup>20</sup> Jensen, N., A. H. Kelly, and M. Avendano. "The COVID-19 Pandemic Underscores the Need for an Equity-Focused Global Health Agenda." *Humanities & Social Sciences Communications* 8, no. 1 (2021): 1–6. <https://doi.org/10.1057/s41599-020-00700-x>.



# Overall Findings

## Scoring Overview

Universities were scored based on their responses through their own replies to UAEM surveys or through data collection performed by UAEM student researchers. These scores were then combined to form a section score, and divided by the total possible points in each section to form the percent section score. These percent scores were converted to letter grades as per the scoring chart below.

## Weighting Overview

To calculate a final score, each section's percent score was multiplied by a specific section weighting multiplier. The section weights are indicated below, and reflect UAEM's priorities in this edition of the report card.

Overall Statistics	
Average Score	D
Highest Score	B
Lowest Score	F

Section Weights	
Access	25%
Innovation	25%
Empowerment	10%
Transparency	20%
COVID-19	20%

Grading Scheme	
A+	80-100%
A	75-79%
A-	70-74%
B+	65-69%
B	60-64%
B-	55-59%
C+	50-54%
C	45-49%
C-	40-44%
D+	35-39%
D	30-34%
D-	25-29%
F	<25%

## Access

### Section Overview

Questions in the **Access section** grade university contributions to promoting drug access, both in Canada and worldwide, through assessing university licensing practices, transparency in research, and university contributions to patent pools.

Section Statistics	
Average Score	F
Highest Score	B+
Lowest Score	F

### Why is the **Access section** important?

The degree to which universities share their research findings and developed health technologies has a profound impact on global access to medicines. Making research results freely available (open access) promotes inter-university research collaboration and has allowed for rapid research progress in the cases of disease outbreaks like Ebola and the 2009 H1N1 influenza<sup>21</sup>. Additionally, university licensing practices of their patented health technologies play an integral role in making generics available in both high and low-middle-income countries.

### Licensing Agreements

Only **five** universities (**33%**) have publicly committed to licensing their medical discoveries in ways that promote access and affordability for resource-limited populations.

**Why this matters:** Low income individuals in LMICs are often unable to access the products of biomedical research in a timely manner. Without specific licensing agreements promoting access and affordability, which can allow for generic competition or other processes to enable access to lifesaving medicines. The lack of such agreements in Canada's research institutions creates and exacerbates global health inequity.

Of the five Canadian universities with any commitment to accessible licensing, only **two** schools (McGill University and the University of British Columbia) have committed to specific, detailed licensing strategies that prioritize generic medicine production for university-patented medicines in lower-income countries.

When a newly-invented medicine enters the market, brand-name manufacturers will sell it at a premium to recoup their investment. In order to do so, these corporations utilize intellectual property protections and licenses that favor exclusivity over competition and keep prices high. Without licensing strategies that prioritize generic production, university-researched medicines are financially inaccessible due to significant prices charged for brand-name medicines. By excluding generic or biosimilar medicines from the market, the number of affordable alternatives to brand-name medicines that are available is zero, allowing pharmaceutical companies to charge high prices for life-saving medicines to maximize corporate profit; those in need of such medicines have few other options than to pay the high price or to go without treatment.

Only **three** schools (McGill University, the University of British Columbia, and the University of Alberta) reported committing to non-exclusive research licenses (see Table 1).

**Why this matters:** Non-exclusive research licenses allow scientists from all over the world to investigate further uses, application, or even replicate the results of primary research. By granting non-exclusive research licenses, universities better contribute to scientific discovery and create the opportunity for universities worldwide to

<sup>21</sup> Yozwiak, Nathan L., Stephen F. Schaffner, and Pardis C. Sabeti. "Data Sharing: Make Outbreak Research Open Access." *Nature* 518, no. 7540 (2015): 477-79. <https://doi.org/10.1038/518477a>.

participate in groundbreaking biomedical research. Ultimately, with the sharing of research, we can see drug development and discovery expand worldwide and allow for new medicines to originate in countries around the world, even leading to local production. Ultimately, these changes may help make medicines more financially accessible to all, especially to those in LMICs.

**Table 1 - Percentage of responding universities' total research and health technology licenses that were non-exclusive in the past 2 calendar years**

University	Research Licenses		Health Technology Licenses	
	Percent of non-exclusive licenses	Associated grading category (points out of 5)	Percent of non-exclusive licenses	Associated grading category (points out of 5)
McGill University	5%	1	5%	1
University of Alberta	79%	5	59%	4
University of British Columbia	45%	3	83%	5

### ***Open Access Publications***

**Fourteen (93%)** of the U15 universities have adopted initiatives or policies to support open access publications. **However**, only **three out of fifteen (20%)** universities have policies that fully allow researchers to publish in open access journals without cost or consequence to the researcher.

**Why this matters:** Publishing research in open access publications makes findings and developments accessible to researchers across the world, removing the barrier of the financial resources needed to access paid journal databases. Many open access journals charge significant publishing fees to researchers wanting to make their work open access, so it is imperative that universities provide sufficient resources and financial support to equitably facilitate open access publishing for all researchers.

# Innovation

## Section Overview

The **Innovation section** investigates universities' allocation of funding and research publications on global health, rare diseases, neglected diseases, and emerging infectious diseases. It highlights the institutions' focus and contribution toward global drug pricing and its reduction.

Section Statistics	
Average Score	D+
Highest Score	B
Lowest Score	D-

## Why is the *Innovation section* important?

This section aims to highlight how universities decide to allocate their research funding in the areas of neglected diseases and public health strategies. By bringing attention to whether universities choose to allocate publicly-funded grants to the research of neglected health areas, this section aims to create a mechanism of accountability that pushes universities to make conscious and equitable choices in funding and licensing to reduce biomedical research inequalities.

## Research Funding

The Canadian U15 universities, on average, allocated **7.1%** of their CIHR research funding towards global health research, across the past two years.

**Why this matters:** Global health research is essential to address “health, health-system, health inequities, and health policy challenges facing populations living in conditions of vulnerability” in low-middle income countries and high income countries. The Canadian government, through measures like the ‘Development Innovation Fund for Global Health Research,’ has provided means for universities in Canada to move into the forefront of global health research, which moves the imperative to universities to dedicate resources and staff to pursue research in this field<sup>22</sup>.

Overall, schools utilized relatively little funding towards neglected disease research (including research related to novel therapeutics, diagnostics, and vaccines) with only **1.7%** of CIHR funding going towards neglected disease research across Canada.

**Why this matters:** Neglected diseases infect over two billion people per year, and lead to over three million deaths per year across the world<sup>23</sup>. Neglected disease research funding has remained largely stagnant over the past decade, with only nominal increases observed. This disparity requires effective action from universities to build strong neglected disease research institutes, maximize available funding, and consider providing more funding to neglected disease research as a whole.

<sup>22</sup> Abimbola, Seye, Joel Negin, and Alexandra Martiniuk. “Charity Begins at Home in Global Health Research Funding.” *The Lancet. Global Health* 5, no. 1 (2017): e25–27. [https://doi.org/10.1016/s2214-109x\(16\)30302-3](https://doi.org/10.1016/s2214-109x(16)30302-3).

<sup>23</sup> Álvarez-Hernández, Diego-Abelardo, Luisa Rivero-Zambrano, Luis-Alberto Martínez-Juárez, and Rodolfo García-Rodríguez-Arana. “Overcoming the Global Burden of Neglected Tropical Diseases.” *Therapeutic Advances in Infectious Disease* 7 (2020): 2049936120966449. <https://doi.org/10.1177/2049936120966449>.

## **Research Innovation**

Only **eight of the U15** universities are proactively engaged in or supporting research on global drug pricing mechanisms to ensure equitable access to affordable medicines.

**Why this matters:** A significant number of universities are negligent on equity-based issues in biomedical research, specifically those that originate from issues in pharmaceutical pricing. Publicly-funded research conducted at universities can be targeted to research that is not profitable for the pharmaceutical industry, or the mechanisms that create and perpetuate global inequality in access to medicines. Canadian universities have room to improve in growing or supporting research into these critical issues of access and affordability.

**Three out of fifteen** schools have research institutes dedicated to neglected diseases, HIV/AIDS, TB, Malaria, and/or antimicrobial resistance (AMR).

**Why this matters:** Given the lack of investment in neglected disease research due to the less lucrative nature of producing treatments for diseases primarily affecting those in LMICs and the unavailability of generic alternatives to temper price increases, it is critical for universities to establish research centers, institutes, or other bodies focused on pursuing neglected disease research in aims of collaborating with researchers in LMICs and to promote continued innovation in these fields.

## Empowerment

### Section Overview

Questions in the **Empowerment section** work to evaluate the efforts that Canadian universities are making to prioritize the education of global health, and related fields, for both their students and educators.

Section Statistics	
Average Score	F
Highest Score	B-
Lowest Score	F

### Why is the *Empowerment section* important?

Universities around the world play an enormous role in raising awareness for issues related to global health, R&D, and neglected diseases. By offering courses and/or programs focused on these topics, students who plan on pursuing paths in global health are encouraged to broaden their perspective and understanding of the importance of advocating for such issues. If universities use their power to influence future generations involved in the medical field, we will see major advancements on a global scale.

### *Global Health-Related Courses and Education*

Only **seven out of fifteen** schools investigated offered courses centered around educating students on the policy and legal context of biomedical R&D.

**Why this matters:** future researchers, doctors, and scholars should be knowledgeable on how their individual actions could potentially implicate health equity during their future careers in science. Universities, as leaders in education, must give their students the opportunity to learn and understand key, specific policy-level determinants of health, especially due to the roles of universities in medical licensing.

### *Universities as Drivers of Inter-academic Collaboration*

Only **one** university held at least one event, conference, or symposium discussing the policy and legal context of biomedical R&D, neglected diseases, HIV, TB, and/or malaria, and health needs of low- and middle-income countries, and/or promoting drug access for low-income populations in high-income countries over the past 2 calendar years.

**Why this matters:** universities have a role in promoting student-student, student-academic, and academic-academic discussion for the purpose of education and research collaboration. This lack of sponsorship in these key forms of events aimed at promoting global health indicated neglect at the administrative level in promoting global health.

### *Canadian Universities as Research Collaborators with Universities in LMICs*

**Eight out of fifteen** universities are currently engaged in a global health partnership with universities based in low- and middle-income countries.

**Why this matters:** inter-university collaboration provides an excellent avenue for Canadian universities to support health state universities worldwide. Through working with universities in LMICs, Canadian universities can use some of their privileged resources, such as funding, technology, and personnel, to provide resources to improve global health. This can be done through collaborations such as clinical trials, molecular diagnostics testing, epidemiological studies, and other forms of research. Additionally, as seen in previous studies regarding LMIC collaboration, inter-university collaboration can improve health systems in LMICs<sup>24</sup>.

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<sup>24</sup> Niekerk, Lindi van, Don Pascal Mathanga, Noel Juban, Diana Maria Castro-Arroyave, and Dina Balabanova. "Universities as Catalysts of Social Innovation in Health Systems in Low-and Middle-Income Countries: A Multi-Country Case Study." *Infectious Diseases of Poverty* 9, no. 1 (2020): 90. <https://doi.org/10.1186/s40249-020-00684-5>.

# Transparency

## Section Overview

The **Transparency section** seeks to evaluate universities in transparency by examining how universities disclose their own biomedical R&D policy and in published clinical trial results.

Section Statistics	
Average Score	C
Highest Score	A
Lowest Score	D-

## Why is the *Transparency* section important?

Universities owe the public data, transparency, and the advancement of science. Canadian taxpayers fund most research at U15 Canadian universities and patients depend on university-developed medicines for their own health. By assessing transparency in clinical trial reporting and research publication, UAEM is assessing the extent to which publicly-funded institutions contribute to the broader public interest with the fruits of their research. Clinical trial result transparency is necessary for patients, clinicians, and regulatory bodies to understand drug efficacy, and research publications are essential for understanding and advancing the latest scientific developments from these institutions.

## Cooperation with UAEM Data Collection

**Three schools**, University of Alberta, University of British Columbia and McGill University, responded to all of the Canadian Report Card section surveys and self-reported data for relevant questions, with one additional school, University of Ottawa, submitting only one answer to our surveys. Each school was contacted multiple times and given numerous opportunities to fill out our surveys during the entire data collection period.

**Why this matters:** The vast majority of the U15 universities did not respond to the Canadian Report Card, refusing to be transparent in their biomedical research and licensing practices. This non-response rate is largely similar to previous iterations of previous US and Canadian Report Cards. This was done in the face of repeated sets of emails and calls to a plethora of administrators at each university, along with several campaigns to push for university responses. Each university was given over eight months to respond.

## Clinical Trials Transparency

Only **18%** of Canadian university clinical trial data was published on clinicaltrials.gov, according to the FDAAA clinical trials tracker. This is about 80% lower than the total average percentage of reported clinical trials (76.2%)<sup>25</sup>. Only the University of British Columbia and the University of Alberta require clinical trial reporting for research done at their institutions. Moreover, only **27%** of the Canadian U15 universities (**4/15**) publicly acknowledge the need to publish clinical trials.

<sup>25</sup> Who's sharing their clinical trial results? [Internet]. Trialstracker.net. [cited 2023 Feb 27]. Available from: <https://fdaaa.trialstracker.net>



**Why this matters:** Publishing the full results of clinical trials is directly useful to patients, clinicians, and researchers in establishing a thorough background and base to understand the efficacy and limitations of medicines. Non-reporting only serves to limit public and expert knowledge on novel health technologies. Unlike the United States and Germany, Canada has no national regulation requiring clinical trial reporting<sup>26,27</sup>. University technology transfer offices could take a direct role in guaranteeing clinical trial transparency and could serve to better educate researchers on the benefits of clinical trial transparency.

**Table 2 - University policies for publishing results of clinical trials**

University Policy	Signatories
Publishing the results of all clinical trials is <b>mandated</b>	University of British Columbia, University of Alberta
Publishing the results of all clinical trials is <b>optional</b>	Dalhousie University, McGill University, Queen's University, Université de Montréal, Université Laval, University of Calgary, University of Manitoba, University of Ottawa, University of Saskatchewan, University of Toronto, University of Waterloo, Western University

### **Privately Commissioned Research**

**100%** of responding universities reported that they engage in privately commissioned research, however, **none** of these universities allow for private companies to alter or prevent research result publication.

**Why this matters:** Allowing companies to block the publication of results from genuine scientific study serves as a serious barrier to research as a whole. Especially with regard to clinical trials, manipulating results can lead to negative effects for the scientific community and public<sup>28</sup>. Financial conflicts of interest are additionally noted to have statistically significant effects on research results<sup>29</sup>. From this, it is commendable that the responding U15 universities have policies that forbid allowing companies to influence publications in this manner. This is especially admirable as 40% of responding US universities reported allowing private companies to alter or prevent research result publication in our 2020 US University Report Card<sup>30</sup>.

<sup>26</sup> FDAAA 801 and the Final Rule [Internet]. Clinicaltrials.gov. [cited 2023 Mar 2]. Available from: <https://clinicaltrials.gov/ct2/manage-recs/fdaaa>

<sup>27</sup> Missing clinical trial data in Europe [Internet]. Health Action International. 2022 [cited 2023 Mar 2]. Available from: [https://haiweb.org/publication/missing-clinical-trial-data-in\\_europe/](https://haiweb.org/publication/missing-clinical-trial-data-in_europe/)

<sup>28</sup> Fernández Pinto M. Open Science for private interests? How the logic of Open Science contributes to the commercialization of research. *Front Res Metr Anal* [Internet]. 2020;5:588331. Available from: <http://dx.doi.org/10.3389/frma.2020.588331>

<sup>29</sup> Markowitz G, Rosner D. Deceit and denial: The deadly politics of industrial pollution. Turtleback Books; 2003.

<sup>30</sup> Gupta A, Hennessey M, Deng J. 2020 U.S. University Report Card: Global Equity in Biomedical Research.

## COVID-19

### Section Overview

Questions in the **COVID-19 section** evaluate universities' contributions to promoting access to COVID-19 research, intellectual property, and technology, with the aim of reducing the effects of the COVID-19 pandemic.

Section Statistics	
Average Score	D
Highest Score	B+
Lowest Score	F

### Why is the COVID-19 section important?

Promoting open science and sharing COVID-19 technologies saves lives. COVID-19 saw unprecedented rapid research progress, with respect to previous emerging infectious diseases, largely through the adoption of open-science principles in disseminating COVID-19 research from contributing universities, research organizations, and pharmaceutical companies. Previously, [UAEM mapped COVID-19 technologies](#) developed with public funds. This section seeks to evaluate university contributions to this knowledge base, and the effects that those actions had on reducing the effects of the COVID-19 pandemic<sup>31</sup>.

### Open-Access and COVID (Questions 2,4)

On average, **91%** of SARS-CoV-2 publications were available, open access.

**Why this matters:** Overall, the proportion of open access publications regarding COVID-19 is nearly double the average proportion of open access biomedical research publications. This increase in open access publications came while public pressure was mounting for more information about COVID-19 during the early days of the pandemic, as exemplified by petitions to increase access to COVID-19 research<sup>32</sup>. This increase in transparency is characteristic of past pandemics, where papers were available open access during other past pandemics, like Ebola and Zika<sup>12</sup>. Overall, this increase in access to scientific knowledge was viewed as beneficial by researchers in alleviating effects of the COVID-19 pandemic, indicating that this sort of publication format should be **standard** due to its increase in research progress.<sup>27</sup>

### Access Licensing Agreements for COVID-19

**Three responding universities** have signed onto licensing agreements regarding COVID-19 technologies that aim to make COVID-19 technologies broadly available through emphasizing non-exclusive licensing.

**Why this matters:** Licensing agreements are important for promoting access to medicines through promoting the sharing of health-technology licenses. This was especially important during the early phases of the COVID-19 pandemic, where there were few pre-existing health technologies.

<sup>31</sup> Besançon L, Peiffer-Smadja N, Segalas C, Jiang H, Masuzzo P, Smout C, et al. Open science saves lives: lessons from the COVID-19 pandemic. *BMC Med Res Methodol* [Internet]. 2021;21(1):117. Available from: <http://dx.doi.org/10.1186/s12874-021-01304-y>

<sup>32</sup> Tavernier W. COVID-19 demonstrates the value of open access: What happens next? *Coll Res Libr News* [Internet]. 2020 [cited 2023 Feb 27];81(5):226. Available from: <https://crln.acrl.org/index.php/crlnews/article/view/24414>

**20% of all Canadian U15 universities** signed on to **weak** COVID-19 access licensing agreements. These agreements did not emphasize generic production, were time-limited and allowed the licensor to convert non-exclusive licenses to exclusive as they saw fit. **All other universities did not sign on to access licensing agreements.**

**Why this matters:** Status-quo exclusive licensing agreements serve to limit the accessibility of COVID-19 vaccines and therapeutics in LMICs, especially as the COVID-19 pandemic proceeded to its later phases. If universities chose to sign on to stronger agreements, like the Open Covid Pledge, their technologies would increase access to COVID-19 medicines through longer-term commitments to non-exclusive licensing and ensure generic health technology availability in LMICs<sup>33</sup>.

**Table 3 - COVID-19 licensing agreements signed by the U15**

<b>U15 COVID-19 Licensing Agreements</b>	
<b>Agreement</b>	<b>Number of U15 Signatories</b>
No Agreements Signed	12
AUTM COVID-19 Licensing Guidelines	3
Harvard-MIT-Stanford Pledge (HMS)	0
COVID-19 Technology Access Pool (C-TAP)	0
Open Covid Pledge	0

### **Research Licenses and COVID-19**

Responding universities reported that at minimum **51%** of their COVID licenses were non or co-exclusive. Overall, only **43.8%** of total biomedical licenses were non-exclusive.

**Why this matters:** On average, COVID-19 licenses were non-exclusive/co-exclusive at higher rates than non-COVID-19 biomedical products. **However**, only a limited proportion of COVID-19 licenses were available without constraint to manufacturers looking to produce low-cost, generic COVID-19 diagnostics, treatments, PPE, and vaccines. While licensing practices exhibited slight improvements for COVID-19, COVID-19 treatments, diagnostics, and vaccines still remain largely unavailable to LMICs.

### **Informal Sharing of COVID-19 Research**

Universities have researched and discussed the COVID-19 needs of low-middle-income countries, through leading conferences and symposiums on COVID-19 related challenges and solutions for these populations.

**Why this matters:** university consideration of the unique issues that low-middle-income countries continue to face throughout the COVID-19 pandemic is used, and a necessary contribution of universities towards reducing the effects of the COVID-19 pandemic.

<sup>33</sup> OCL-PC v1.0 [Internet]. Open Covid Pledge. 2020 [cited 2023 Feb 27]. Available from: <https://opencovidpledge.org/v1-0/>

# University Rankings

Overall Score (Descending Order)		
1	University of British Columbia	B
2	University of Alberta	C+
3	McGill University	C
4	University of Waterloo	D+
5	McMaster University	D
6	Université de Montréal	D
7	University of Toronto	D-
8	University of Ottawa	D-
9	Dalhousie University	D-
10	Queen's University	F
11	University of Calgary	F
12	Western University	F
13	Université Laval	F
14	University of Manitoba	F
15	University of Saskatchewan	F

Section Grades						
Overall Ranking	University	Access	Innovation	Empowerment	Transparency	COVID-19
1	University of British Columbia	B+	B	D	B	B+
2	University of Alberta	B	D	D+	A	C+
3	McGill University	C-	D+	B-	B	C
4	University of Waterloo	F	C-	F	A	D
5	McMaster University	F	C-	F	B-	D
6	Université de Montréal	F	D	F	B	D-
7	University of Toronto	F	C-	D+	C-	D-
8	University of Ottawa	F	D+	C-	D-	D
9	Dalhousie University	F	D-	D-	D+	D
10	Queen's University	F	D-	F	B-	F
11	University of Calgary	F	D	F	D-	F
12	Western University	F	D	F	C-	D-
13	Université Laval	F	C-	F	D-	F
14	University of Manitoba	F	D	F	D-	F
15	University of Saskatchewan	F	D-	F	D-	D

## About UAEM

We are a global network of university students who believe that our universities have an opportunity and a responsibility to improve global access to public health and life-saving medicines, especially those developed on our campuses.

Find out more at <https://www.uaem.org>

### Other related UAEM publications

Tracking Public Investment in Global COVID-19 Research & Development (2020), in partnership with the Student National Medical Association and the American Medical Student Association

AltRe: ROUTE - A map of the alternative biomedical R&D landscape (2017)

Clinical Trials Transparency: U.S. Universities Performance & Trends (2017)

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## Supplemental Information

### Explore the 2023 Canadian University Report Card

⚡ Visit the 2023 Canadian University Report Card online: [newcanada.globalhealthgrades.org](https://newcanada.globalhealthgrades.org)

📖 Read our full 2023 Canadian University Report Card full methodology: [online](#)

✉ Email the 2023 Canadian University Report Card team: [reportcard@essentialmedicine.org](mailto:reportcard@essentialmedicine.org)

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