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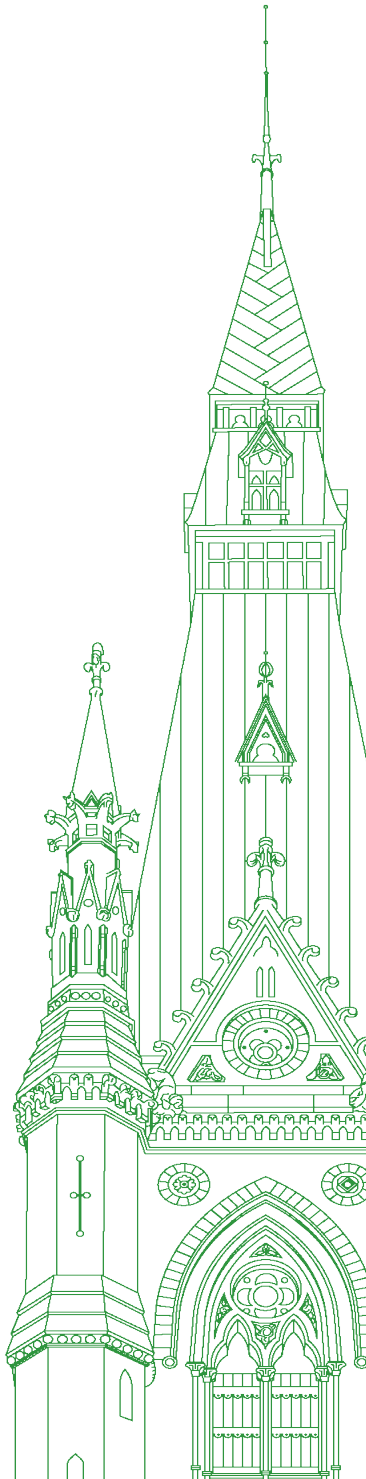

Chair: Ms. Valerie Bradford

Standing Committee on Science and Research

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● (1605)

[*English*]

The Chair (Ms. Valerie Bradford (Kitchener South—Hespeler, Lib.)): I call this meeting to order.

Welcome to meeting number 112 of the House of Commons Standing Committee on Science and Research.

Today's meeting is taking place in a hybrid format.

I'd like to remind all members of the following points.

Please wait until I recognize you by name before speaking, and all comments should be addressed through the chair. Members, please raise your hand if you wish to speak, whether participating in person or via Zoom. The clerk and I will manage the speaking order as best we can. Those participating by video conference can click on the microphone icon to activate their mic. Please mute yourself when you are not speaking. For interpretation on Zoom, you have the choice at the bottom of your screen of the floor, English or French.

Thank you all for your co-operation.

Pursuant to Standing Order 108(3)(i) and the motion adopted by the committee on Thursday, October 31, 2024, the committee is resuming its study of the impact of the criteria for awarding federal funding for research and excellence in Canada.

It's now my pleasure to welcome our three witnesses.

From Colleges and Institutes Canada, we have Pari Johnston, president and chief executive officer; from U15 Canada's group of Canadian research universities, Dylan Hanley, executive vice-president; and from Universities Canada, Gabriel Miller, president and chief executive officer.

Up to five minutes will be given for your opening remarks, after which we'll proceed with rounds of questions.

Ms. Johnston, I'll start with you. You have the opportunity to make an opening statement of up to five minutes.

Ms. Pari Johnston (President and Chief Executive Officer, Colleges and Institutes Canada): Thank you very much.

My name is Pari Johnston, the president and CEO of Colleges and Institutes Canada. On behalf of our 134 member colleges, institutes, polytechnics and CEGEPs, I want to thank the committee for making the time for this study.

When I was here for my appearance on the capstone organization, we talked about the fact that we must ensure that federal research investments lead to real and tangible impacts in the daily lives of Canadians—to results that support economic prosperity and social well-being for all, that drive community and business innovation, and that respond to the biggest challenges we face as a country. To do this, we must reimagine how we currently invest in research and re-evaluate what we value. We must redefine how we assess and award research to move beyond concepts of excellence defined primarily within a university-centred approach.

● (1610)

[*Translation*]

We also need to focus on the impact, relevance and scope of the research.

Impact-driven research means first determining the nature of an issue and then designing a research program that brings together all the right partners and end-users to resolve it, that uses all the research tools available and that implements inclusive assessment criteria with a focus on the application and impact.

Impact-driven research is helping to build better houses more quickly; to increase drought-resistant varieties of agricultural crops and find out how to encourage farmers to plant them; and to develop new methods for leveraging genomic tools in local clinics.

This exact type of research is carried out in colleges and institutes.

[*English*]

Colleges lead partnered, problem-driven and real-time research that generates applied knowledge and de-risks technology development and adaptation. This results in on-the-ground benefits through improved knowledge translation and mobilization, IP staying with the local business partner and greater technology uptake by local partners in priority economic and social sectors.

In 2021-22, our members led more than 8,000 applied research projects, resulting in 6,500 new processes, products, services and prototypes in areas like housing construction, advanced manufacturing, climate-smart agriculture, food production and social innovation. Ninety-nine per cent of our partners are Canadian companies and non-profits, keeping the fruits of our research at home in Canada.

If we want to optimize the impact of federal research investments, the following three recommendations must be actioned.

First, the federal granting agencies and research funders must redefine and rebalance the weighting of criteria that is currently used to award federal funding to ensure they adequately assess and reward research impact. This includes looking beyond traditional metrics of excellence, such as publication records, citations and other metrics aimed at establishing expertise in academic research. Criteria such as partner uptake of research outputs, capacity of a project to develop new IP or develop a novel application of an existing technology, or policy reports that lead to improved implementation pathways are indicators that speak to research impact.

Second, federal research funders must ensure that merit review committees include representation from a diversity of institution types, end-users, and industry and community partners that are able to provide a more holistic ecosystem perspective on research programs and how to ensure that benefits on the ground have broad reach. Currently, most merit review committees are almost exclusively composed of representatives from universities. To support impact, review committees must include voices from across the research ecosystem, including colleges, end-users and policy-makers familiar with effective implementation and delivery of research results.

Third, it is time for ISED and the federal granting agencies to expand eligibility for colleges and institutes in all existing tri-council programming. Right now, colleges are not eligible as lead applicants for NSERC's alliance program, which is its flagship partnership initiative. In addition, we must address informal barriers, such as not allowing research grants to cover college faculty course release time or to hire replacement faculty to carry out research projects.

Canadians and their communities expect their federal research programs to deliver for them. Enacting these three recommendations will help achieve this.

Thank you.

The Chair: Thank you, Ms. Johnston.

Mr. Hanley, I invite you to make an opening statement of up to five minutes.

Mr. Dylan Hanley (Executive Vice-President, U15 Group of Canadian Research Universities): Thanks, Madam Chair.

Thanks to all of the members of the science and research standing committee for the opportunity to appear before you today.

U15 Canada is an association of Canada's leading research universities. Today's study is concerned with the impact of federal funding policies on research excellence in Canada. Promoting excellence is at the very heart of our work at U15, and I'm confident that Canadians should be very proud of the global impact and competitiveness of our research university system, which punches way above its weight internationally, including in value for money.

Taking the University of Toronto as an example, last year the journal Nature ranked it at number two in the world for impact in health research, after Harvard and ahead of even Johns Hopkins, and yet it also educates more students every year than the entire Ivy League combined.

This is only one example of how our leading research universities deliver value to Canada and Canadians at a low cost to entry. U15 universities alone award 160,000 degrees a year, including to the vast majority of doctors and dentists in Canada, developing a crucial pipeline of talent.

We also know that research conducted at our universities has real-world impact, from research at the University of Saskatchewan to protect the Canadian pork industry from the risks of African swine fever, to research at the University of Alberta on carbon capture and storage aimed at enhancing a clean energy future for our country and to leading work on Arctic monitoring at Université Laval that will help track the impact of climate change and enforce our Arctic sovereignty.

Leading research universities also drive innovation. From artificial intelligence to agriculture, partnership between businesses and post-secondary institutions is a defining feature of our R and D system in Canada, with us ranking third in the G7 and in the top 10 in the OECD in the percentage of private sector R and D done in partnership with post-secondary institutions.

It's also important to underscore that our research universities deliver impact that's truly pan-Canadian. Our universities act as hubs of expertise across extensive networks that bring together other post-secondary institutions, research hospitals, innovative industries and community organizations. In 2022-23 alone, just our 15 universities collaborated with over 3,600 different partners and organizations on tri-agency-funded research in nearly every community and riding across this country.

Canadian research excellence has been made possible in part due to a long-standing cross-party consensus.

The Chrétien government brought in the Canadian Institutes of Health Research and launched the Canada Foundation for Innovation and the Canada research chairs program. The Harper government made major investments in the CFI, launched the Canada first research excellence fund—or CFREF—and the Canada excellence research chairs and funded excellence-based scholarships. As well, the current government has made significant investments in investigator-led research, the new frontiers in research fund and crucial programs in quantum, AI and genomics.

CFREF is expressly designed to create globally competitive platforms for Canadian research strengths. These networks have impact across the country and include projects in important evolving areas for Canada, including the links between brain and heart health at the University of Ottawa, climate change and ocean science at Dalhousie and the health and well-being of children at the University of Calgary.

Another example is the Canada excellence research chairs program, which attracts world-leading scholars to Canada, along with their talented teams, to create clusters of excellence and expertise here.

Another major pillar of our excellence system is the Canada research chairs program, which provides funding for universities to hire some of the best and brightest researchers across all areas of research.

To ensure that Canada's research enterprise can continue to flourish, I am going to suggest the following key principles.

Number one is the best ideas. It's important to note that excellence in research rests on the foundation of peer review, wherein experts in the fields are the ones to judge which proposals move forward and receive funding.

Number two is strong, healthy institutions. Our world-class research universities are a national strength that, again, all Canadians should be proud of, but we're facing unprecedented financial challenges because of decades of stagnant or declining real government funding and turbulence around international students.

Number three is unlocking impact. Our institutions are working hard to unlock the full potential impact of research in our businesses, communities and society through entrepreneurship programs, connectivity hubs for business and extensive partnerships with governments and non-profits in the social sector.

We certainly can do more, and we should do it together.

Thank you. I look forward to your questions.

● (1615)

The Chair: Thank you, Mr. Hanley.

We'll now go to Mr. Miller.

You have the floor for a five-minute opening statement.

Mr. Gabriel Miller (President and Chief Executive Officer, Universities Canada): Good afternoon, Madam Chair and members of the committee.

Thank you very much for inviting me.

I'm Gabriel Miller, the president and CEO of Universities Canada, the national voice of Canada's public universities.

I want to compliment the committee for its decision to undertake this study. I hope it's the start of an ongoing discussion about an issue that's critical to Canada's future.

As our challenges become more complex and our technology more advanced, research excellence must be at the heart of any serious plan to create jobs, increase our prosperity and improve our quality of life. Federal research investments are an essential pillar of our higher education system, a system that gives millions of Canadians a pathway to expand their career opportunities, increase their job security and earn higher salaries that help them pay the rising costs of owning a home and supporting a family.

Our research system is a training ground for the future doctors, engineers and entrepreneurs whom we need to support our economy and meet the needs of our aging population. It's through research that Canada can create the knowledge and develop the talent to fuel innovation and productivity across vital sectors of our economy, whether they are energy, agriculture, manufacturing or arts and culture.

Today I want to leave you with three broad recommendations.

First we must build on the core principles of Canada's outstanding research system, a system built over decades with support of successive governments and members from all parties. These principles vary from program to program but almost always include the need to make an original contribution to the research field, the need to provide training opportunities for highly qualified personnel and to demonstrate that the project is feasible with the resources available.

Second, I want to recommend that we continue the difficult and often imperfect work of expanding opportunities to more people and communities. What does that mean? It means that we have to help universities of every size in every region to contribute their fullest to the research enterprise. The research security fund should be strengthened so that smaller universities aren't held back by the costs of meeting a growing administrative burden and larger schools aren't slowed down.

It means that we must strengthen the unique role of universities as a forum for independent thought, discussion and discovery, where a broad range of political and ideological perspectives are engaged and explored. No one should be excluded from participating in scientific debate and discovery, conservative, progressive or otherwise. It means that we must continue the fight against racism and discrimination in all their forms and reduce the barriers that have deprived too many people of the opportunity to contribute their abilities and perspectives.

● (1620)

[*Translation*]

Lastly, we need to support French-language research, which faces unique challenges when it comes to submitting applications and publishing in French. Systemic barriers remain an issue in French-language research, including differences in success rates according to language.

We're heartened to see the committee that the government set up to study this issue. A new capstone organization could also promote excellence in French-language research.

[*English*]

What I've described is not a narrow conception of diversity. It's a commitment to unleashing the incredible talents of our country. It's a vision we should embrace with passion but with care. We must undertake this work with humility.

Many Canadians have questions, concerns and criticisms about the most effective ways of expanding opportunity and about some of what they see and hear being done in the name of diversity. We need to be listening—"we" in the university sector. We need to be learning and engaging in these discussions. We must be evaluating the tools that are used and prioritizing those that reduce barriers while strengthening research excellence.

I want to close by noting that the upcoming supply votes include important research and graduate scholarship funding for next year. I can't stress enough the importance that this funding will have for graduate students at institutions across Canada and for creating a better foundation to address many of the issues I've discussed today.

Thank you very much.

The Chair: Thank you, Mr. Miller.

Thank you to you all for your opening remarks.

I'll now open the floor to our members for questions. Please be sure to indicate to whom your questions are directed.

We'll start this off, please, with MP Lobb for six minutes.

Mr. Ben Lobb (Huron—Bruce, CPC): Thanks, Madam Chair.

My first question is for Mr. Hanley.

Thanks for coming here today. Mr. Gaffield always does a fine job when he's here as well.

A lot of grant dollars I've been able to look at—and I'm sure they're well into the millions—have nothing to do with research in Canada. That doesn't mean we have to be ignorant as a society and not look beyond our own borders, but should we be looking at more dollars invested in Canada and a Canada-first approach to our research? What do you think?

Mr. Dylan Hanley: Thanks for the question. It's a good one.

First off, I'll say regarding the dispersal of funds among the councils, just shy of 80% of all new funds go for health research, natural sciences and engineering—to NSERC and CIHR. The vast majority goes there. I think a lot of it may be partnered outside of here, but it isn't research on something specific or not specific to Canada.

With regard to the value of research on issues around the globe, it's crucial for us both to be studying things that happen in Canada and things that happen around the globe. My own personal background in graduate research was studying the Middle East and nuclear non-proliferation related to Israel and Iran. Am I bringing it to bear on the work I'm doing now for universities? I'm not sure, but it's important for Canadians to be engaged in issues that are important around the world.

I think what's more interesting is that a lot research that has taken place in recent years on our history here in Canada has been on aspects of indigenous cultures, local regional cultures, etc., that we may not have understood unless we were engaged in it.

● (1625)

Mr. Ben Lobb: The studies you mentioned are very impressive. I would never question that, because it's a very interesting topic to study.

However, I see research grants given out to study Dolly Parton's lyrics. The committee has heard me about that. Shaun, I think, gets a sore stomach when I bring it up. There is a study of the Maidan Museum in Ukraine. The list goes on and on. You'd think there might be a couple, but I would say there are hundreds. It's in the millions of dollars. I've tried to test it and maybe I have cherry-picked them. However, when I'm in my riding on the weekend and people ask what I'm doing, I say that we're doing this study and that these are some of the things they're studying. They can't believe that their taxpayer dollars are going to those things.

I'm trying to present it in a fair manner. Some of the stuff you're mentioning is absolutely great. People would be proud of that. However, should we take a step back and look at some of these projects we're funding?

Mr. Dylan Hanley: I think the peer review process, which I talked about, is about peers in a discipline judging what is a well-crafted research project according to the scientific method. You put forward a hypothesis and you're going to test it. They're going to ask whether this is the right experiment to run, regardless of whether it's in the social sciences or the medical sciences.

I think this research reflects Canada as a whole. As I said, the vast majority of it is in areas related to the harder sciences, medical research, etc. We have research in fields in the social sciences that you can go through and question. I guess what I would say is that we are a reflection of Canada as a whole. There are arts and non-profit organizations, so there is research in all of those fields, as well.

Mr. Ben Lobb: That's fair enough.

However, I don't know how many times we've had people come here and say, “Ben, you cannot challenge the people who make these decisions. It's unhealthy. It's not wise to cherry-pick. We have to look at everything.” Still, I go down the list and I can't believe it.

Here's one. My optometrist said I need bifocals. Do you know what? He's right. I do. I can hardly read this. It says, “Understanding and addressing the mental health impacts of unpaid care work on women in Bogotá, Colombia”. If that were in Canada, I'd say, “Great”. However, this is in Bogotá, Colombia. Why doesn't Colombia pay for that study, and we'll do a study in Canada on unpaid work?

What value is that to the Canadian taxpayer?

Mr. Dylan Hanley: I think the value of the research enterprise is the ability of researchers to explore any topic they are interested in. I've—

Mr. Ben Lobb: We're having a good conversation here, honestly. I know you have to defend it.

Ms. Johnston, does this frustrate you a bit? I don't want you and Dylan to get into a fight here, but does it frustrate you slightly when you're trying to get funding and research money for your colleges? You know those studies. You're in the same groups as these guys. Does it not frustrate you that you can't get a bit your way? Come on.

Ms. Pari Johnston: For me the issue, as I tried to set out, is that the college approach to research in this country has, until now, not been valued in the way that we need to value it to drive impact for Canadians. I think there's a need to look at the ecosystem that we invest in, in this country, and to start to look at how, if we want to involve those who are partnering at the local level on problems that local folks have defined, we need to reinvest in college-led research as well.

● (1630)

Mr. Ben Lobb: I look at Elon Musk's robot. I saw it laying bricks and doing all this work. Wouldn't it be great to have one of those at every college in Canada, and have young, brilliant minds think, “How can we make this work for us?” How can we...? Wouldn't that be great? Wouldn't that be great to apply for a project, a federal project, and do something like that?

Ms. Pari Johnston: Absolutely. Our view is that there is an opportunity here to really be bold and rethink the opportunity to reinvest in college-led research in this country. Right now we get 3% of the overall federal investments and, as I said to this committee before, I'd love to see it at 10%.

The Chair: That's well over our time. I'm sorry. I didn't want to cut you off.

MP Jaczek, you have the floor for six minutes.

Hon. Helena Jaczek (Markham—Stouffville, Lib.): Thank you, Madam Chair.

Thank you to the witnesses for coming here today. I hope you had the opportunity to review some of the testimony we heard last week because some of my questions will concentrate on what we heard, and I'd like your opinions.

My first question is for Mr. Miller. Last week we heard some witnesses who claimed that, by pursuing equity, diversity and inclusion, you inevitably reduce the research output of an institution or country. Perhaps you could tell us, from your experience, to what extent EDI plays a part in the evaluation of applications for funding, for federal funding? There was a claim that it was akin to affirmative action, which I have always seen as something applied to human resources and hiring of individuals, not to research applications. Could you tell us a little about the weighting of this sort of analysis related to EDI?

Mr. Gabriel Miller: Through you, Madam Chair, first, I should say I'm not a researcher myself but, of course, I've been working with universities for several years and, now, with Universities Canada for eight months.

What I would say is that, in all of my interactions with the tri-council and with researchers in our community, what has been paramount in all of their work and in their assessment of research projects has been excellence, the potential to really create change inside the discipline, the ability to contribute to the training of graduate students and evaluation on the basis of merit. There's no question that there's been growing interest, discussion and, in some cases, policies around efforts to expand opportunities so that a broader group of Canadians can participate and contribute their perspectives and talent, which, ultimately, is in itself a major contributor to excellence. My observation has been that there is a concerted effort in the community to expand opportunity, but to support merit and excellence, not to compete with it.

Hon. Helena Jaczek: Thank you so much.

Perhaps I'll turn to Mr. Hanley to ask you the same question. To what extent do you see EDI being considered? Do you have any comments in relation to it?

Mr. Dylan Hanley: Listen, I think all of our institutions are committed to the principle of ensuring that all Canadians get a fair shake, both in terms of accessing a university education should they wish to—which is still the most transformative action you can take for your economic future, and we think there are obviously other benefits to it in addition to economic—and participating to the greatest percentage possible specifically in the research enterprise.

With regard to EDI in the last number of years, I think that in our institutions, like in society as a whole, there's been a greater recognition of historic and traditional systemic barriers, and attempts to get rid of those, to open the field and the table to more people and to make sure that they have a fair shake. I think, in the last couple of years—and this is a pretty recent phenomenon that we've been undertaking this with the level of energy—there have been criticisms of some of the specific measurements and programs that have gone on. We're open to those criticisms and to making things better inside of our institutions. There are regularly programmatic reviews to look at what's.... And this isn't just for these policies; it's for any policies that are going on across the administration, so I think we are committed to it.

In the research enterprise, again, as my colleague said, I think this is about actually opening up the diversity of viewpoints that are able to come to the table and improve research. We know, in corporate teams, that diversity of perspectives and viewpoints makes things better and leads to better outcomes.

● (1635)

Hon. Helena Jaczek: Thank you.

Ms. Johnston, you talked about the peer review process and opening it up to a certain extent, particularly in looking at applied research. I think many of us have been very convinced by your arguments.

Do you have any particular opinion on the use of equity, diversity and inclusion in that peer review process?

Ms. Pari Johnston: I think you're right. The point of view from which I come is, as you said.... Our sector is undertaking research always in a partnered approach. We start from the point of view that we are responding to problems identified by community organizations, by business partners or by others in the community, a particular problem that they think is important to solve, and they want to know if the college can work with them on that. By being accessible and open to responding to these business or community problems, we're already getting a diversity of perspectives.

I do think it's really important to have a diversity of perspectives on a research problem, as well as a diversity of lenses on the benefits of research. I think this is the other part. I'm really interested in talking about broadening review committees to include a representative set of voices that includes end-users, those for whom the research is, perhaps, intended to benefit. How does it benefit people differently? This is where I think we need to also be thinking about a diversity of approaches—who's on the team and also who's benefiting from the research. That is a part of where we're interested in looking at a rebalancing.

The Chair: That's our time. Thank you so much.

Now we'll turn to MP Blanchette-Joncas for six minutes, please.

[*Translation*]

Mr. Maxime Blanchette-Joncas (Rimouski-Neigette—Témiscouata—Les Basques, BQ): Thank you, Madam Chair.

I want to extend my greetings to the witnesses who are joining us for this key study.

Mr. Miller, has Universities Canada signed on to the San Francisco Declaration on Research Assessment?

Mr. Gabriel Miller: No, but nine universities have already approved it, if I recall correctly.

Mr. Maxime Blanchette-Joncas: How many universities do you represent?

Mr. Gabriel Miller: We represent 97.

Mr. Maxime Blanchette-Joncas: I believe that you'll soon be representing 98. Is that right?

Mr. Gabriel Miller: No. Yukon University is the 97th to join our group.

Mr. Maxime Blanchette-Joncas: Okay.

You confirmed that only six of Universities Canada's 97 member universities have signed on to the San Francisco Declaration on Research Assessment.

Mr. Gabriel Miller: I think that it's more like nine.

Mr. Maxime Blanchette-Joncas: Why didn't Universities Canada sign on to this declaration?

Mr. Gabriel Miller: I think that the discussions are still ongoing. These principles have a great deal of support in our community. As a result, I think that more universities will decide to support this initiative.

Mr. Maxime Blanchette-Joncas: Mr. Miller, you said that you have been working in the academic world for a long time. What year was the declaration adopted?

Mr. Gabriel Miller: I can send you this information later.

Mr. Maxime Blanchette-Joncas: It was adopted in 2013.

You have been thinking about this for a long time, haven't you?

Mr. Gabriel Miller: Yes.

Mr. Maxime Blanchette-Joncas: Of the 97 universities that you represent, you said that nine have signed on to it.

The conclusion of the San Francisco Declaration on Research Assessment recommended the introduction of funding assessment criteria that promote more equitable, transparent and inclusive science and that value the real impact of research on society.

Does this make sense to you?

Mr. Gabriel Miller: These principles hold a great deal of value and they provide a good indication of the direction that we need to take.

Mr. Maxime Blanchette-Joncas: Mr. Miller, you said that these principles hold a great deal of value. However, they haven't been significant enough over the past 10 years for your group of 97 universities to focus on them.

Do you acknowledge that choosing not to sign on to the San Francisco Declaration on Research Assessment means perpetuating practices that may exclude researchers whose work doesn't meet the criteria based on the impact factor, especially researchers who publish the results of their work in French?

Mr. Gabriel Miller: The principle of this initiative is to embrace a wider range of factors for assessing research. This remains a priority for our universities. We must formalize support for this initiative, but the work carried out also matters. A number of universities across Canada support research that has a direct impact.

● (1640)

Mr. Maxime Blanchette-Joncas: I repeat that the San Francisco Declaration on Research Assessment seeks to promote more equitable and inclusive science.

How does your group ensure that researchers are assessed fairly and transparently, regardless of their language or discipline? Of course, I'm referring to the assessment criteria for research funding.

Mr. Gabriel Miller: We strongly support a more balanced research system in Canada, particularly for francophone researchers. The current acceptance rate for their funding applications is lower than the rate for anglophone researchers. This is unacceptable. We need to change this.

Mr. Maxime Blanchette-Joncas: Mr. Miller, since you acknowledge the disparities between francophone and anglophone researchers, it's time to sign on to the San Francisco Declaration on Research Assessment. This declaration seeks to eliminate the use of the impact factor, which places scientific publication in French at a disadvantage.

Mr. Gabriel Miller: Yes.

Mr. Maxime Blanchette-Joncas: It's important to remain consistent in this area.

I'll ask you a few questions to try to understand your reasoning. You represent 97 universities. You're the largest group of universities in Canada.

Since you haven't signed on to the San Francisco Declaration on Research Assessment, what other initiatives or methods are you implementing to improve the fair and qualitative assessment of research?

Mr. Gabriel Miller: As I said, one of our key positions is that we must change and improve our research system so that the success rate for funding applications from francophone researchers equals the rate for applications from anglophone researchers. Another initiative is to increase funding to ensure research security. The smaller institutions currently don't have access to this funding.

Mr. Maxime Blanchette-Joncas: I understand and agree, Mr. Miller.

You said that you were sensitive to the issue of French-language research. As you know, on peer review panels, which you say focus on excellence, people assess their own language skills. This means that any individual who believes that they have a good command of French can sit on the panel. However, the committee's study on research and scientific publication in French recognized that some reviewers don't have a good enough command of French to assess research. I would like to hear your thoughts on this matter.

Should the language skills of the reviewers who sit on these panels be assessed?

Mr. Gabriel Miller: We must ensure a strong representation of researchers who speak French fluently and use the most effective tools to achieve this goal.

[*English*]

The Chair: Thank you. That's our time. I appreciate it.

Now we will turn to MP Cannings for six minutes, please.

Mr. Richard Cannings (South Okanagan—West Kootenay, NDP): Thank you for being here today.

I'm going to start with Ms. Johnston.

You mentioned that you felt that merit review committees were biased toward universities. I'm just wondering if you could expand on that.

How does that impact the criteria for awarding federal funding? How could we fix that while maintaining excellent research across the country?

Ms. Pari Johnston: I think we need to look at whether these committees are broadly representative of those who are part of the research ecosystem. I think we have seen gaps, to date, in representation of those who are the end-users of research, those who are familiar with policy implementation and those who come from the college system.

Our premise is that excellence, relevance and impact should be part of how we think about the investments we make in research. If you accept that premise, which I think is incumbent upon us to start thinking about very actively as we think about our research investments, then it stands to reason that the merit review and the review committees that we're making are representative of those in the research ecosystem.

I would say that another opportunity is for us to look at two-stage reviews. How can we look at research, particularly challenge-based research funding, that takes the first scientific and technical stage of review, but then has a second impact review that is also composed of committee members who are broadly representative of those who will be benefiting from the research?

In our view, it's about being more intentional about representation that's inclusive of those who are part of the research ecosystem.

● (1645)

Mr. Richard Cannings: Thanks.

I'll turn to Mr. Hanley now with U15.

We heard from witnesses last week. One of the recommendations from one witness was to shift all research funding to the provincial governments from the federal government.

Could you comment on what that would accomplish, if anything?

Mr. Dylan Hanley: I'm not sure it would accomplish much. There is provincial research funding, as you know, although at different levels across provinces, and it's not the lion's share of the research.

Traditionally, research has been a federal responsibility. In the United States, it's the same. I don't know what shifting it to the provinces would do practically in improving outcomes or excellence, etc.

I will say that the provinces work collaboratively with the federal government in shaping the system. They are the ones shaping the institution, shaping the enrolment corridors and regulating the post-secondary institutions across the country, so I think they have a bearing in how things get shaped.

Mr. Richard Cannings: Do you want to comment on that, Mr. Miller?

Mr. Gabriel Miller: Yes. I think it's a terrible suggestion and it defies all logic. Among other things, would it really make sense in this country to have provinces as small as some of ours try to recreate a federal research system in a world where Canada is already up against heavyweights money-wise and population-wise?

We need to make sure that we're making the absolute most of our investments in this area and acting, as one of the previous members said, in a way that's going to have the biggest benefit for Canada's interests, so no.

I think what we've built in Canada is a success story. It has its flaws, but the notion of turning it into 10 systems is not supportable.

The Chair: You have one minute and 36 seconds.

Mr. Richard Cannings: I'll give you 30 seconds each to talk about how overall government funding supports—provincial and federal—for universities and colleges are essential for research. We've heard some testimony about how much universities take in terms of a percentage of some research funding.

I'll start with Ms. Johnston and try to get you all in about why we need to increase the core university funding and college funding across the board.

Ms. Pari Johnston: Fundamentally, we need to invest in, from our point of view, applied college research in a way that's more robust. In our case, we'd love to see it at 10% of the overall research investments in this country, in part because we are those at the coalface, working with businesses and community organizations that want problems solved at the local level. They are often those that want to come and have a new product, service or technology adapted or developed to respond to a local problem that then can be scaled.

To me, we need to invest in the productivity of our local SMEs and in the social innovation of our local communities, and we need to keep the research fruits and the IP that we're generating with Canadian companies. That's good for Canada.

The Chair: That's our time.

Now we'll start our second round with MP Viersen for five minutes, please.

Mr. Arnold Viersen (Peace River—Westlock, CPC): Thank you, Madam Chair.

Thanks to the witnesses for coming today.

As members of Parliament, our job is to ensure that the taxpayer is getting value for their tax dollars. If our goal of research is research excellence, where we put our money should pursue excellence as well.

In our next panel, we're going to hear from an organization called Retraction Watch, which has done an excellent job of exposing falsified or poor research. Its work ensures that we can move toward research excellence.

In 2017, the Liberal government put together a fund called the Canada 150 research chairs. Mr. Hanley, your organization, understandably, welcomed that. One of the new research chairs was Jonathan Pruitt, the chair for biological dystopias. He received a one-time federal grant of $350,000 for seven years, which is a total of $2.4 million taxpayer dollars. What he did with that money was write a bunch of papers using falsified data. Thanks to Retraction Watch, we know he had 15 papers retracted over three years.

When we're pursuing research excellence, going forward, how do we prevent this type of fraud from happening and what gaps might exist that we need to address to prevent this from happening again?

● (1650)

Mr. Dylan Hanley: It's a great question.

When I started working with U15—we have a committee of vice-presidents of research—it was not this specific case, but questions around academic integrity, fraud and research ethics were right at the centre there. Nobody has...no institutions have a greater interest in ensuring that the system is robust and has a minimum amount of that kind of behaviour.

I have to admit I'm not familiar with the case you're talking about, so I can't really speak to it specifically, but we are absolutely committed to ensuring that our academics are passing rigour and that the studies being put forward are world class.

Again, it underscores the importance of peer review. It doesn't mean that certain things don't slip through the cracks. You heard about a few famous studies in the United States that had the same thing. I don't think it's something you can ever entirely eliminate, but we do everything in our power to try to eliminate it, and I think our commitment to it will be steadfast.

I will say that's the case with all of those regulatory requirements. We handle hazardous materials in labs. There's a lot of regulation that needs to be overseen by universities. We think we do it in a way that's excellent, but the point to underscore is the reputations that are on the line when those things go wrong are our reputations, and we believe they're world class, and we do everything we can to protect them as well.

Mr. Arnold Viersen: We continually hear about this peer review process, but with the 15 papers I mentioned, it seems that.... Who's not doing their job if we have 15 papers making it through that peer review process? We first have the funding granted at the beginning—that's apparently a peer review process—and then you have 15 papers that are retracted later. Somewhere along the line, somebody's not saying something. This is an egregious case with a lot of papers happening.

How do we manage that? From our perspective, the research community is coming to the Canadian government looking for $5 billion annually, so how do we manage that?

Mr. Dylan Hanley: It is a challenge and, again, I'm not familiar with the case. I don't know which journals were publishing those various articles, whether they're Canadian journals or not or what adjudication processes were there.

One thing that has been an issue of focus, again, for the vice-presidents of research to try to manage these things across their institutions is the pressure on researchers to publish and the advent of journals that may have easier processes for publishing than others and what we do to be able to control the proliferation of those journals if they don't have tight enough requirements.

Also, I'll say there's a balance between weighting that and wanting open science and collaboration and not wanting only a few prestigious journals like Nature and Science to control all of the academic currency.

The case you're talking about is clearly egregious, and I'll tell you I'll make a point of looking it up after this committee meeting.

The Chair: That's your time.

Now we will turn to MP Kelloway for five minutes, please.

Mr. Mike Kelloway (Cape Breton—Canso, Lib.): Thank you, Madam Chair.

I have a comment that I think will lead into the questions I'm going to ask all three of you.

The last meeting we had was quite interesting. We had researchers who had a particular point of view, a right-of-centre view, and who were somewhat jaded, and some comments were made about minority groups and women not holding their own compared to, say, people like me: men.

I thought, “Should I bring that up?” I do think it's important to have sunlight, as it's the best disinfectant. I disagree with them; they had their right to say what they had to say, although I vehemently disagreed with it.

When I think about the comment about women not measuring up, I think of people like Dr. Cheryl Bartlett at Cape Breton University. I think of Dr. Jane Lewis, Dr. Coleen Moore-Hayes and Dr. Shelley Denny, who's Mi'kmaq.

In one of the comments made at the last session, there was seemingly a discounting of indigenous knowledge and indigenous research in academia and research. I wonder if all three of you can come back to me with a comment on “it just doesn't add up” or “it just doesn't measure up to other types of research.”

We can start anywhere you like.

● (1655)

Ms. Pari Johnston: I am happy to take that question first.

It's very important that we have continued, over the last number of years, to invest in indigenous-led research and research on issues that are affecting first nations, Métis and Inuit communities in this country. A number of our members are in remote, rural and northern communities, and they are very dedicated to engaging in problem-based research with their local communities, which are really interested in working together with our applied researchers to discover and determine solutions to problems that they might be facing around food scarcity or environmental change in the community affecting the local water systems.

In my view, it is important to ensure that we have a diversity of teams, including those that are working with first nations, Métis and Inuit communities to solve the problems that they define as important.

Mr. Mike Kelloway: So, it would bring value.

Ms. Pari Johnston: It would bring value.

Mr. Mike Kelloway: It would bring opportunity. It would bring curiosity.

Ms. Pari Johnston: Yes, and it brings a perspective on the research that perhaps those coming from southern institutions don't have as part of their research tool kit, a perspective that enhances the research outcomes.

Mr. Mike Kelloway: Would either of you like to respond?

Mr. Gabriel Miller: I think it's enormously valuable. First, because indigenous peoples are an inherent and fundamental part of life in Canada, we can't possibly study that aspect of who we are or our history without doing it in collaboration and in the spirit of reconciliation. That means respecting the history of indigenous peoples, coming to the table as equals, and understanding their experiences and their cultures.

I also think that there's a false idea that somehow indigenous knowledge is in competition with the scientific method. I've seen much more that indigenous knowledge can feed into, strengthen and add perspectives to the scientific method, and that strengthens our science.

Mr. Mike Kelloway: Would you like to make any comment before we conclude?

Mr. Dylan Hanley: I'd echo what both of my colleagues had to say.

I think we're at the front end of really appreciating the contributions that indigenous knowledge can make in all sorts of different areas of science and research. I agree that it isn't a dichotomy or a competition between the two. I think environmental stewardship is just the easiest one to pick on. If you look at indigenous approaches to forestry and sustainable harvesting from the land, you'll see that they're great examples of the contributions that can be made there.

I watched some of the testimony from last week. The conversation around the need for a diversity of perspectives, which I think we all agree with.... A diversity of perspectives doesn't just mean progressive and conservative; it means where you come from and your lived experience. In this country, we're privileged to have a large indigenous population from which we can learn a lot.

Mr. Mike Kelloway: How much time do I have left?

The Chair: You have four seconds.

Mr. Mike Kelloway: Thank you very much for your perspectives.

The Chair: Thank you.

We'll now turn to MP Blanchette-Joncas for two and a half minutes, please.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you, Madam Chair.

Mr. Miller, your group claims to promote equity, diversity and inclusion, while emphasizing academic excellence. I would like you to explain how you reconcile these two goals. We know that excellence, by nature, depends on selection criteria, such as university rankings and impact factors that may exclude certain languages, disciplines or local contexts.

● (1700)

Mr. Gabriel Miller: It's important. How can we change the approach to research assessment in order to support excellence in a diverse and balanced system? This work is ongoing. Your comments focus on one issue, which is the key priority of ensuring that assessments look beyond the number of publications. This must be a current and future priority.

Mr. Maxime Blanchette-Joncas: Ms. Johnston, I'm pleased to see you back at the committee.

In your opinion, are college researchers less deserving and less excellent than university researchers? Current funding criteria are based on bibliometrics. This places their work at a disadvantage, since it focuses on applied research rather than the publication of scientific articles.

Ms. Pari Johnston: Did you ask whether I think that they're less excellent?

Mr. Maxime Blanchette-Joncas: Do you think that research funding criteria currently penalize researchers who conduct applied research, as is the case in colleges, institutes and CEGEPs?

Ms. Pari Johnston: I think that we need to broaden our criteria to take better account of the fact that college researchers carry out collaborative research. This research always focuses on solving a problem. The criteria must include the relevance and scope of the research.

However, our current criteria are a bit too narrow. We must broaden the scope depending on the impact of our research.

Yes, college researchers are penalized.

Mr. Maxime Blanchette-Joncas: Thank you.

[*English*]

The Chair: Thank you.

You had five seconds left.

We'll now turn to MP Cannings for two and a half minutes.

Mr. Richard Cannings: Thank you.

I'll turn to Mr. Hanley to talk about this idea of the pressure to publish papers.

We heard some statistics of, I think, 22 papers that had a bad peer review. I just checked online and there are between two and eight million papers published per year, so 22 are probably fairly insignificant in that overall total. It points to the fact that there's this real pressure on researchers to publish, both for career advancement and to get grant money.

Could you expand on how we measure the impact and excellence of that research when we're funding research in Canada? That's the gist of this study.

Mr. Dylan Hanley: It's a great question.

Although I did a graduate degree, I'm not a researcher by background or training, as you are.

Again, we take academic fraud extraordinarily seriously. I do think it's a tiny percentage. Especially when you're talking about critical scientific studies, it still is important beyond the reputation of the university. It's critical for the credibility of the entire scientific method. It gives credence to conspiracy theories and all sorts of other odious things in society. I think we do need to stand on guard against it.

With regard to the impact of research across Canada, I will say, to your previous question about the provinces, I think that research and especially some of the excellence-based projects—CFREF is a good example—really serve to bring researchers together across different universities and regions. Yes, there's sort of a home base institution for these projects, but all of them have clusters and partnerships that span the country and bring together researchers across the country who are at the top of their fields, as well as non-profit organizations, businesses and others, in those projects that are really meant as an “own the podium” type of exercise for Canada.

This is really about building platforms up that help us compete on the global stage.

Again, research impacts our lives every day, whether it's cardiac research that saves the lives of Canadians, or research on lipid nanoparticles that you're familiar from UBC that helped unlock mRNA vaccines, or social research or economic theory, or whatever, that solves problems and gives us new perspectives on issues.

● (1705)

The Chair: That's our time.

Thank you so much to our witnesses, Pari Johnston, Dylan Hanley and Gabriel Miller, for your testimony and participating in the committee studies.

Please see the clerk for any questions. If you have any additional information you would like to submit, you may do so through the clerk.

We're going to suspend very briefly now to allow the witnesses to leave. We'll resume with our second panel.

● (1705)

(Pause)

● (1710)

The Chair: Welcome back.

We'll get started again so that we can finish in good time.

This is a brief reminder for those participating by video conference to click on the microphone icon to activate your mike, and please mute yourself when you are not speaking. For interpretation for those on Zoom, you have the choice at the bottom of your screen of the floor, English or French.

It's now my pleasure to welcome, from Polytechnics Canada, Sarah Watts-Rynard, the chief executive officer. From Research Canada: An Alliance for Health Discovery, we have Alison Evans, president and chief executive officer. We have online, from Retraction Watch, Ivan Oransky, co-founder.

We welcome you.

Up to five minutes will be given to each of you for opening remarks after which we will proceed with rounds of questions.

Ms. Watts-Rynard, I invite you to make an opening statement of up to five minutes.

Ms. Sarah Watts-Rynard (Chief Executive Officer, Polytechnics Canada): Thank you, Madam Chair.

I'm pleased to be back before this committee as you study the criteria being used to award federal research funding.

Polytechnics and institutes of technology have now been engaged in Canada's research ecosystem for more than 20 years. As experts at partner-driven research, these institutions help organizations of all sizes adopt, implement and commercialize new products and processes through applied research. Despite two decades of doing this work, there are a number of barriers to accessing federal research funding. For the purposes of my remarks today, I'll focus on three.

There is the minimal access to research support funding, a poor understanding of the salary composition of principal investigators at polytechnics, and adjudication criteria that favour research and publication-intensive CVs.

Let's start with the first. The federal government invests more than $450 million each year in the research support fund. According to this fund's website, it supports post-secondary institutions to maintain modern labs and equipment, secure research from threats, enable research management and administrative support and meet regulatory and ethical standards. For polytechnics and colleges, this fund is largely beyond reach. In fact, together they share about half of one per cent of the research support fund. The college and community innovation program is excluded from eligibility calculations, and this means there is virtually no funding for administrative support, research security or maintaining labs and equipment. These activities must be funded elsewhere.

Moving on to the second barrier, polytechnics and colleges hire faculty to be in the classroom and, while their university counterparts are compensated for spending part of their time on research activities, polytechnic instructors have a full teaching load and, as a result, experts drawn from the classroom to participate in research must be backfilled. This wouldn't be a barrier at all if federal research funding programs had faculty release provisions for those who need them. Instead, because programs are built for the university model, my member institutions are actively disadvantaged right from the proposal stages, and this means that winning conditions are missing.

Barrier number three drives to the heart of the matter. The vast majority of federal grants are built on an application process geared to individual principal investigators. Applications are often evaluated based on the background of an individual who is preparing the application. For example, it's relatively common in grant competitions to judge the merit of a proposal by the quality, quantity and significance of past experience and publications.

In the polytechnic context, applied research is a team effort. While research projects are often led by faculty members, activity is delivered out of the office of applied research. While this approach has no diminishing effect on the quality of the research, it raises challenges to participation in a system that is based around the expertise of a single individual. While peer review and research excellence are absolutely important criteria when awarding federal research funding, they aren't sufficient on their own. The current system has a bias toward research that is done in the same way by the same kind of researcher, as it has been well before polytechnics and colleges had even begun developing their research capacity, and this is quite restrictive.

To fully utilize Canada's ecosystem, the process by which funding is awarded must be reviewed and reconsidered.

Thank you very much for inviting me today, and I look forward to your questions.

● (1715)

The Chair: Thank you very much.

We will now turn to Alison Evans for an opening statement of up to five minutes.

Ms. Alison Evans (President and Chief Executive Officer, Research Canada: An Alliance for Health Discovery): Thank you, Madam Chair.

[*Translation*]

Good afternoon, everyone.

Members of the Standing Committee on Science and Research, thank you for inviting me to speak as part of your study on the impact of the criteria for awarding federal funding on research excellence in Canada.

[*English*]

My name is Alison Evans. I am the CEO of Research Canada, which is an alliance for health discovery and innovation. Our 130-plus members include hospital research institutes, pharmaceutical and life sciences companies, med-tech and AI start-ups, post-secondary institutions, provincial health organizations and health charities. Through Research Canada, we work together and with national partners, stakeholders and governments on shared interests. They include the vision of a vibrant, productive, world-leading health research and innovation system, one where better outcomes are pursued by teams in hospital research institutes and corporate and academic labs and through clinical trials and at the bedside. Such a system is critical if we are going to address the declining health and wealth of Canadians and reassert this country on the global stage.

Our most complex societal challenges increasingly require novel solutions and approaches that bring together many perspectives from diverse domains. Research is more international, collaborative and interdisciplinary. We need to respond by continually improving a research support system that exemplifies excellence and integrity; fosters collaboration amongst researchers and entrepreneurs and institutions and companies; strengthens our ability and capacity to respond to health, environment, economic, demographic, energy, technology and other opportunities and challenges; helps us attract, support and retain top talent; recognizes that knowledge is created by investigator-initiated research today and that this same research will help us drive the mission-driven needs of tomorrow; and takes calculated risks and uses evidence to inform continuous improvement.

We welcome this timely dialogue on how we fund research and today's conversation about research excellence in all its forms. Of course, it's a broad term, and thus necessitates comprehensive and continual consideration. It encompasses how research is designed, conducted, assessed, funded and used. It's context-specific, and acknowledges that flexible, tailored approaches are required. It adjusts as new evidence comes to light and as science and society evolve.

In Canada, upholding research excellence is an aspiration and responsibility held by many federal granting agencies and other funders. Using independent, competitive, structured merit review processes guides the decision-making. In the case of health, these processes help strengthen our entire "research to impact" pipeline, from discovery, applied, mission-driven and translational research to the study of health care delivery itself; to the implementation of novel and life-saving treatments and processes, including AI, into the health care system; and to our preparedness for future pandemics and other health emergencies.

We're fortunate in Canada to have many who protect and promote research excellence for which Canada is globally renowned. Through the work of the advisory panel on federal research support and those that came before them—granting agencies, governments, other funders and countless stakeholders—we are collectively trying to seize the moment that's before us to modernize our research and innovation system to ensure greater agility, responsiveness and impact for all.

In this changing world, unfortunately, Canada is falling behind. Talent, innovation and competitive gaps are widening between Canada and other advanced economies. Our declining health, prosperity and quality of life must be addressed in new ways. We must use long-standing strengths and our growing prominence in areas like AI, clean energy, biotech and life sciences; our highly educated population; and our approaches to excellence to reassert ourselves globally and drive economic growth, prosperity, job creation and outcomes that matter for all Canadians.

● (1720)

[*Translation*]

I would be pleased to discuss this further.

I'm now ready to take questions from the committee members.

[*English*]

The Chair: Thank you very much.

Now we'll turn to our final witness.

Mr. Oransky, you have the floor for five minutes, please.

Dr. Ivan Oransky (Co-Founder, Retraction Watch): Madam Chair and members of the committee, thank you for the opportunity to present my views on this important issue today.

I'm a co-founder of Retraction Watch, a non-profit news organization based in the U.S., which reports on scientific misconduct and reactions to it by universities, publishers and funding agencies, among other issues. We also maintain the world's most comprehensive database of scholarly retractions for Crossref, another non-profit that acquired the database in 2023.

I'm also a distinguished journalist in residence at New York University's Arthur Carter Journalism Institute and editor-in-chief of The Transmitter, a publication covering neuroscience.

I base my comments on 14 years of reporting and writing about relevant issues at Retraction Watch.

Last year, there were well over 10,000 retractions from the scholarly literature. Of note, just dozens of 2023's 10,000 plus retractions included researchers affiliated with Canadian universities. While that 10,000 figure was an 88% jump from 2022, the growth reflects an overall trend since the turn of the century.

Increased scrutiny of the literature is largely responsible for that rise, but 2023 revealed that a significant portion of what is published every year—conservative estimates are at least 2%, although it is likely higher—is produced simply to game the metrics that determine career and institutional success.

I wish to quote Dan Pearson, who studies how researchers can engage larger audiences: "Academic publishing is a game. And a lucrative one for those who win."

That gaming is in large part being carried out by what are known as “paper mills”—shady organizations that sell papers to researchers desperate to publish lest their careers perish. They also sell authorships, and our reporting has revealed that some of these companies even bribe editors to publish papers by their clients.

All of this is an entirely predictable response to standard incentives in academia. Universities around the world demand that researchers publish a high volume of papers—as many as possible in prestigious journals. That's because influential international rankings, such as those created by Times Higher Education prioritize citations, which are, of course, references to a researcher's work in subsequent papers.

Citations are very easy to game, as paper mills know. Knowing that citation counts are an oft-used metric to judge the quality and impact of research, citation cartels ensure that members' citation counts rise. All of this means that there is an uncomfortable truth behind the press releases, advertisements and other material universities and countries use to crow about their high rankings,. These rankings are based on a house of cards built with a stacked deck.

With good intentions, it's easy for governments and funding agencies to fall into the same trap. After all, we all rely on heuristics, apparently validated shortcuts, if you will, to make decisions, particularly when faced with a large number of choices, but citation heuristics pave the road to bad behaviour and retractions.

China offers a lesson here. Their publishing incentives have been among the most extreme in the world, and while they do top some impact and innovation rankings, they also top a ranking they probably wish they didn't: more than half of retractions in the world are by authors affiliated with Chinese universities.

I was therefore pleased to learn, as the committee heard from Jeremy Kerr last week, that five major Canadian research funding agencies have signed on to the Declaration on Research Assessment, also known as DORA. Others have suggested that instead of counting papers and citations, funders examine a small selection of papers chosen by researchers being evaluated: In other words, quality over quantity.

Such efforts will require effort and resources, but progress in research is worth it.

Thank you for your time. I welcome the opportunity to expand on my comments during the Q and A with members of the committee.

● (1725)

The Chair: Thank you to our witnesses for those opening remarks.

I'll now open the floor to questions.

Please be sure to indicate to whom your questions are directed.

We'll start off our six-minute round, please, with MP Viersen.

Mr. Arnold Viersen: Thank you, Madam Chair.

I want to thank our witnesses for being here today.

Mr. Oransky, I'd like to begin my questions with you.

As we heard in your opening statement, Retraction Watch reports on scientific misconduct and retractions by many corporations. I have many questions regarding much of the things you've said, but one thing I wanted to draw to the attention of the committee was something that you had on your website. It is an article on your website titled, “Psychiatrist in Canada faked brain imaging data in grant application, U.S. Federal Watchdog says”.

I read in Retraction Watch that Romina Mizrahi received grants from the Canadian Institutes of Health Research for nearly three million Canadian dollars and worked on this in the Department of Psychiatry at McGill University, where it appears that none of her papers have been retracted yet.

My question is, by rewarding the pursuit of publishing, how are we getting taxpayer dollars valued in this?

Dr. Ivan Oransky: I want to sort of make a pitch in response, if I may, that perhaps as this committee—and, of course, the government—is considering how to look at research, how to examine it and how to assess it, it might also consider some contributions and funding that are specifically delineated for looking at problems in the literature—in other words, sleuthing behaviour, which is what is mostly done right now by volunteers, even though publishers and universities benefit from their work.

If you look, for example, at the case of the Office of Research Integrity, which is responsible in the U.S. for oversight of research at the National Institutes of Health and some other agencies, its budget is about $15 million versus the $48-billion budget, roughly, in U.S. dollars, of the NIH.

I would have you all maybe consider whether or not there is a way to use some of the funding that is now being used to fund research directly, to fund analysis of that research and to actually keep a check on it. I believe the public will be much more confident in what it reads about what it's funding with its tax dollars and what eventually, in many cases and certainly in the case that you mentioned, could contribute, if it's done properly, to better health and better outcomes.

Mr. Arnold Viersen: One of the concerns we've been hearing from academia is about the declining trust in their institutions. How would we ensure that if folks are getting research dollars, those dollars are being used appropriately, so that when I go back to my constituents and talk about these research dollars being spent, I can say they are being spent well? Are there tweaks to the...? We keep hearing about this peer review process. Are there things we need to do that are maybe different from the peer review?

Dr. Ivan Oransky: In general, one method or approach that a number of organizations are taking—and it's still a work in progress—is to have everything be much more open. That could mean publishing data openly, making sure that anyone who wants to check those figures or take a look at the images, or whatever it was, has an opportunity to do that. That could be other researchers, or it could be the general public. If you publish your data openly, it's at least a statement that you are going to stand behind it. In fact, again, more people can look at it.

In terms of the peer review system, that is obviously a larger conversation that I'd be happy to have another time. However, the idea that a number of people have floated is that we need to simply push far less through the peer review system and that we need to acknowledge its limitations. I actually still believe that peer review is very powerful and important, but I also think that the public and many people even in science have been sold a bill of goods about how much peer review can actually catch and how good of a system it is. It's being sold sort of as a good housekeeping seal of approval when, in fact, it is incredibly porous. I think that if we're honest about that, trust will follow.

● (1730)

Mr. Arnold Viersen: Okay.

You said that you'd like to talk about peer review more broadly. Can you point us in the direction that you're thinking there?

Dr. Ivan Oransky: There's a meeting every four years, sort of like the Olympics, held in Chicago that I heartily recommend. It's the peer review congress. People are actually looking in an empirical way—in other words, in an evidence-based way—at where peer review could improve and how there are various ways to do that. The fact, though, is that, at the moment, publishers are jamming millions of papers, as you all heard earlier today, through a system that simply is overstretched. You can't really expect efficient quality control until you acknowledge that the system just doesn't have the resources.

Mr. Arnold Viersen: I think you mentioned this earlier, and I just want to get you corrected on this. In addition to peer review, is there a mechanism that we can use when assessing these projects to fund?

Dr. Ivan Oransky: I think there is, and it actually is sort of, in some ways, consistent with peer review. I suppose that may seem contradictory, but hear me out for a moment. I think that instead of looking at citation counts, which are sort of born of the very pernicious “publish or perish” incentives, and turning everything into a metric, we should look at the quality of the research and look at a handful of papers that, maybe, a particular individual is publishing—and maybe a larger number for a research project. We heard earlier from one of my colleagues on the panel that there are people who are excluded from that because they are—

The Chair: I'm sorry, but that's our time.

We're going to turn to our next questioner now.

MP Diab, you have six minutes, please.

Ms. Lena Metlege Diab (Halifax West, Lib.): Thanks, Madam Chair.

Thank you to our witnesses for being here today as we continue with our study of how we award federal research dollars.

If I can, in the couple of minutes I have, turn my attention to Ms. Evans to talk a bit about Research Canada and health discovery. Your organization is dedicated to advancing health research and health innovation, and you mentioned that you have over 130-plus members, I guess through collaborative work and so on with various partners.

In the health field, how do we ensure that those funding decisions are independent from any interference, whether it's political or otherwise? I will put it in the context of since the pandemic—maybe even before that, but we've certainly seen it since. Have you seen a rise in the distrust of researchers and of research generally? What would you say the role of a parliamentarian should be in that? Again, I'm asking questions relevant to your expertise and experience in health, and to your role in that.

Ms. Alison Evans: Okay, I heard a few questions in there.

Ms. Lena Metlege Diab: No, that's fine. Take your time.

Ms. Alison Evans: I'll start in and hopefully get to some points that are important to you.

First of all, I really welcome the fact that we have a parliamentary health research caucus that is non-partisan. It has leaders from all parties. It gives us an opportunity to bring the latest health research and innovation topics to Parliament and to policy-makers. In fact, we consult to hear what some of the most important themes are on the minds of people with constituents they're representing.

I think it's safe to say that health is on all of our minds, all the time, whether it's our own, our loved ones', our colleagues' or the people we represent. It's a great privilege to be able to bring the latest. I think that the pandemic actually, in many ways, increased Canadians' focus on the importance of health research. We had a very incredible response with mission-driven and rapid response research. The government worked across departments with companies—huge multinational pharmaceutical companies—and with innovation and research hubs at universities all across the country. Every part of this country was involved in that response. We've come out with lessons learned that will make us even stronger the next time.

● (1735)

Ms. Lena Metlege Diab: Thank you for that.

I would agree with you. Sitting at home when COVID hit, just like most people were sitting in their homes, I was a provincial politician at the time. There were a lot of, not discussions, but phone calls or emails with constituents at the time. Certainly, from reading social media, and some papers that were still left at that time, there was the need for Canada to do more, to do better or to have its own research labs, and we wondered how this could happen and what we could ensure for the next time.

When we move forward a couple of years later, when the pandemic was over and when everybody was out of their homes and their basements, and away from their screens and so on, it seems to me that the conversation then shifted quite a bit. There were still people thinking that, but others were sort of a bit cynical about research, and the discussion, for many, also just shifted.

How would you help us address some of that? Would you say there is any value, or what would be the value in research projects that might contribute more broadly to this type of research?

Ms. Alison Evans: I think that it depends, again, on where these discussions are happening. The discussions I'm involved in every day are looking at things like how artificial intelligence is going to revolutionize the delivery of health care. When we think about the incredible costs of health care delivery, about the budgets of the provinces and about the way we're trying to revolutionize things, there's actually quite a bit of excitement around the science.

I can think of a huge announcement in Ontario, just a week or so ago, between Roche Canada and Invest Ontario, which is going to see more than 250 new jobs created there for clinical research. I can think of researchers we've lost to American universities, and they are really hoping to come back to Canada and hire Canadians into their highly technically advanced manufacturing industries.

I think there's a lot of excitement. We have to balance our questions and our healthy debates by also applauding the excellence and the incredible work that is going on, and by allowing ourselves occasionally to be excited about the future we're building.

Ms. Lena Metlege Diab: I'm hearing that from you.

The more I hear, the more I tend to agree that artificial intelligence.... For most of us, it's not something that we were privy to, got education on or even knew anything about. I'm just wondering now.... I'm actually excited that the young generation is learning about it.

Thank you for that.

Thanks, Madam Chair.

The Chair: That's our time.

MP Blanchette-Joncas, you have the floor for six minutes.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you, Madam Chair.

My first questions are for you, Ms. Watts-Rynard.

In your remarks, you talked about the possibility of anonymizing funding applications in relation to CVs. That's what I heard.

I would like to hear your thoughts on this proposal, which could eliminate certain biases.

[*English*]

Ms. Sarah Watts-Rynard: I'm not thinking so much about anonymizing the applications. What I'm suggesting is that in the criteria to assess project proposals, there be a greater emphasis on the degree to which somebody has had previous funding and has published. That doesn't align with the type of research that is happening within the polytechnic and college sectors, so they're already behind the eight ball when it comes to having their proposals approved.

● (1740)

[*Translation*]

Mr. Maxime Blanchette-Joncas: Okay.

If I understand your proposal correctly, a researcher's funding history shouldn't determine their future funding.

[*English*]

Ms. Sarah Watts-Rynard: That's right. That would probably be the only way you can ever really get around the idea that we're putting a lot of money into the same institutions for the same kinds of research, with the same kind of researchers with a similar background. If you want to expand the kind of research being done beyond what's been done in the past, you really have to take a look at the criteria being used.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Based on the same logic, do you agree that the funding received shouldn't influence the number of research chairs awarded to institutions and researchers?

[*English*]

Ms. Sarah Watts-Rynard: The ability to bring expertise to the table doesn't speak to what the past research history has been. When we think about trying to bring in any new kind of research or any new kind of researcher—anything that is beyond what has been done before—it speaks to what the review criteria are and what questions we are asking. In order to have any kind of expansion of what research is in the country, we need to look beyond what has happened before.

I don't have a problem with one institution having multiple research chairs or research centres, because you can have more than one expertise in a large institution. However, I have some difficulty with the idea that research funding has largely been concentrated in a very few when there are clearly very valuable contributions to be made by the wider community of our researchers.

[*Translation*]

Mr. Maxime Blanchette-Joncas: I understand. Thank you, Ms. Watts-Rynard.

I'll ask Mr. Oransky my next questions.

I would like to hear your thoughts on publications. Professor Yves Gingras' work confirms that the bibliometrics system was originally designed to identify publications. However, the system is now used as a selection tool for awarding funding. The system encourages researchers to produce many articles in order to increase their h-index and impact factor.

In your opinion, does this encourage the proliferation of forced or fraudulent articles, which are often subsequently withdrawn?

[*English*]

Dr. Ivan Oransky: Thank you.

I think there is a direct relationship between gaming these metrics—you mentioned the h-index—and other similar metrics and the production of, I would certainly say, sloppy research. In other words, it's the overproduction of research.

There is a tension between quantity and quality. I think the system has so overemphasized and so over-rewarded quantity that quality has suffered a great deal. We often say at Retraction Watch that fraud, misconduct and sloppiness are all born of the same mother, and that mother is the pressure to publish.

Now, for some researchers, and I would argue most researchers, that simply means pushing harder and trying to do better work. For some small percentage, although I don't think it's as small a percentage as a lot of researchers, scientists and policy-makers would like to think it is, that means people commit fraud, turn to a paper mill or in some way fudge their results.

I think this is a big driver of problematic research.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Mr. Oransky, the main measurement tool currently used is the impact factor. It's used in particular by review panels and by the peers who sit on them.

If the impact factors were removed, this potentially fraudulent production mechanism could be stopped, in an attempt to increase the flow of funding and gain international exposure based on these assessment criteria.

● (1745)

[*English*]

Dr. Ivan Oransky: I think that it is worth trying. That's why I referred to DORA—the Declaration on Research Assessment. In fact, that's one of its main suggestions. One of its main recommendations is to not use the impact factor.

I'm often asked—and your question is a fair one in this regard—what we should replace it with. I would argue that we should not replace it with a metric. There's a well-known sort of "law" that any metric can be gamed and will eventually be gamed.

I think we need to get back to the basics of reading several papers, engaging with the literature and engaging with the work of the particular group, researcher or department that is being assessed. I think that a qualified group of researchers and others can do that.

The Chair: Thank you. That's our time.

We'll turn now to Mr. Cannings for six minutes, please.

Mr. Richard Cannings: Thank you.

I'm going to turn to Mr. Oransky as well, right off the bat.

Coincidentally, today I just got a news notification on my phone from the journal Science about yet another fraud in the science world around peer review. Hackers got in and were pretending to be scientists writing favourable reviews of things. It is a big problem.

As I mentioned in an earlier testimony, there are between one and eight million papers published every year. It's an absolute tsunami of papers. I think this has increased dramatically in recent years. You'd probably know exactly that rate. I know colleagues of mine who are just refusing to review papers anymore because it could be that it's all they do.

I guess you've been talking about some of the ways we can get around this and some of the ways we can try to reduce this problem. Part of it, as you say, is this pressure to publish quantity and maybe game the system for the quality.

We've all been talking about DORA here and there. I just wanted to maybe give you some more time to speak to that initiative, how it works and how we perhaps should be using that more than other ways of measuring the quality of science produced.

Dr. Ivan Oransky: Sure. Thank you.

I want to be clear that while we have reported on DORA and I'm familiar with it, I in no way speak for DORA or any of the signatories.

It's essentially a manifesto. There's actually another one called the Leiden Manifesto, which does something a bit different, but is getting at the same problem. It's looking at what is known as bibliometrics—I think that term came up previously in this hearing—and whether or not that is a good way to measure or to assess research.

I would also note that there are a number of very good bibliometrics scholars in Canada and around the world, but particularly in Canada, Vincent Larivière in Montreal has done a lot of important work in this area. I might commend his work and perhaps his testimony to you in the future, if he hasn't already.

In a short period of time, it's difficult to really go into detail about DORA and others, but the general idea is that other metrics, if need be, or just other ways to assess research—we heard about some of those previously on this panel—should be considered. For example, impact can be measured by whether or not research makes a difference. In other words, it literally has an impact. Has it been cited in policy documents? Has it led to change? Has it led to better outcomes?

This is a very downstream way to measure the impact of research. I would also argue there are other ways to measure whether or not a particular piece of research or a group of, in other words, findings in general, have contributed to whether we know more about the universe, biology or neuroscience. I think all of that, if we need to replace metrics such as the impact factor—again, we all need heuristics and we all rely on heuristics—are ways to do that.

● (1750)

Mr. Richard Cannings: Is there any duty here, on the part of the publishers of the scientific works, to police their own publications, to do that work to investigate how their own publications may be gamed and to make sure that they're publishing high-quality work? We all know there's a gradient of quality in publication and publication houses. Is there some responsibility on their part to make sure that quality is maintained?

Dr. Ivan Oransky: I would certainly argue that there is. I would also note that the publishing industry is, largely, unregulated. It's been very interesting to watch which regulators, particularly in the U.S.—with which, obviously, I'm most familiar—have actually pursued settlements, whether they're sanctions or even civil findings, against publishers. Here, it's been mostly on the part of the Federal Trade Commission, about false advertising claims, as opposed to what you would hope it would be, the health and funding agencies that would be particularly concerned.

Publishers, I think, could now also face scrutiny from agencies like the U.S Securities and Exchange Commission—obviously there are agencies like that around the world—because a number of them are publicly traded. That might offer another lever, but essentially, right now, they respond very well to public shaming when they're on the front pages of newspapers. However, until quite recently, they have not taken what I consider the necessary steps to police the literature, to clean it up.

Mr. Richard Cannings: Do you think it takes articles like this, such as what we saw about Elsevier today in Science, to shame Elsevier into cleaning up its act?

Dr. Ivan Oransky: Of course, I can't speak for them, but I've seen over the 14 years that Adam Marcus and I have been running Retraction Watch that with more and more attention, comes more and more cleaning up and retractions. I think there's a clear relationship with that. There's also more ability for what we call "sleuths", heroic people who find the issues in the literature, to do something—in other words, to make those findings public. I think the combination of those things has had an important effect, but there's much more to be done.

The Chair: Thank you. That's over our time.

We now turn to MP Tochor for five minutes, please.

Mr. Corey Tochor (Saskatoon—University, CPC): Thank you, Chair.

Thank you to our witnesses.

To carry on the questions for Retraction Watch, let's make another journal famous here: the International Journal of Hydrogen Energy. A paper was published in there, and the paper itself states:

> As strongly requested by the reviewers, here we cite some references [[35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47]] although they are completely irrelevant to the present work.

That's 13 citations in the paper. It was the researcher who was getting pressured by the reviewer to add those citations that had nothing at all to do with the paper itself. How often does something like this happen?

Dr. Ivan Oransky: Something that blatant, in other words, where we actually see the evidence for it, is still fairly rare. What is much more common and, probably, far more common than anyone would like to admit, is pressure on authors, sometimes even from editors of journals who want to increase their impact factor—something we just heard about, of course—and so what they do is they don't quite come in out and say this, but they say.... Review recommendations go back, letters to the authors that say, "Well, we would really appreciate it if," or "It would be better if you cited a paper from our journal," or something like that.

Then, it gets even more complex, a little harder to track when they have these—and I used this phrase in my testimony—"citation cartels" that people actually organize as citation rings. Again, we don't know exactly how often it happens, but if you were to speak to a bunch of researchers, I doubt that any of them, if they were being honest—and I would like to think they would be—would say that they've never had an experience when someone in some way had pressured them to cite their work, whether it's a reviewer, an editor or even someone else.

This, again, is a natural outgrowth, if you will, a completely predictable response. People just respond to incentives, to knowing that you need your h-index to be higher. What's a good way to do that? It's to make sure that you are cited more often.

● (1755)

Mr. Corey Tochor: I'll switch gears a bit.

First off, thank you for the work you do. It's a public service not just for Americans but also for an international audience that ensures we have the best possible science out there.

One thing you shared that was a little troubling is how few we're catching up here in Canada. Now, is this a good sign that research is healthy in Canada, or is it perhaps that we're just not going through as much scrutiny as other countries?

Dr. Ivan Oransky: I'll say something that, perhaps, would have been controversial some years ago: There should be more retractions from Canada. I don't mean any disrespect to your great nation. There should be more retractions from the United States of America. I could go on. The fact is that it's good news we're finding them. There are fields and, in fact, journals sometimes, that.... We heard the case earlier, in the previous panel, of Jonathan Pruitt. It's pretty bad news when this misconduct happens. I believe the number of retractions.... I could double-check our database again. What's worse news, though, is how long it took to adjudicate. That's one lesson from that story.

However, here's some good news: A group of researchers from around the world got together and said they don't want people like Jonathan Pruitt to do any more collateral damage than they already have. This led to a lot of retractions, but also to protection for the researchers who were victims of Jonathan Pruitt.

I think all of these stories are complex. I am frequently asked, “What about this field? What about that field? What about this country?” I say that, if there are fewer retractions, it's because people aren't looking. I trust things when I see more retractions. Maybe that's easy for me to say, given my work, but I actually think that's an important way to think about it.

Mr. Corey Tochor: I have a follow-up question.

If you have a government that would like to promote a false narrative, how much money do you think they would need to pour into research to make it—depending on the claim—seem real? How expensive would it be for an entity to fund research with the purpose of miseducating the public?

Dr. Ivan Oransky: That's a good question. I'm going to answer hypothetically, obviously.

I think it's actually trivial, if you want to, for example, fund a large body of research. I'm not even sure you would need the funding. You could do other things to make sure that work is published, cited and eventually ending up in policy documents, guidelines and regulations.

I'm not talking about any particular area or field here, but I think it is not that hard to move a field in a particular direction, based on pushing on publishing levers.

The Chair: Thank you very much. That's our time.

Now we will turn to MP Kelloway.

You have the floor for five minutes.

Mr. Mike Kelloway: Thank you very much, Chair.

I'm going to try to get questions to all of you, but I have five minutes, so we'll see where we go from here.

Ms. Watts-Rynard, I really appreciate your bringing up polytechnics and the difference between how research entities measure university research compared with polytechnic research. Where I'm from, the polytechnic is Nova Scotia Community College. I appreciate your making the distinction about the criteria used and how these need to change.

MP Lobb used an example of research that can help move bricks and construct different things, and I think that's of value. I also think the humanities have value. However, I think they're apples and oranges. I'm not sure what the purpose is behind, for example, studying unpaid work by women in Bogotá, but I could take a guess if I drilled down deeper. It might be to do a comparison between Canada and Bogotá. That's just an assumption on my part. It might be to learn best practices. Again, I'm assuming, because I haven't drilled down on it.

However, I want to go back to the applied research side.

I think there's a huge sandbox for us in terms applied research. You talked about some of the recommendations, but I want to drill down.

What is the most important recommendation—and we'll have many—that you want to see when you open up our report as it relates to polytechnics getting important investment to help Canadians and—it's okay to say this—the world?

Ms. Sarah Watts-Rynard: Maybe where I would start is to say that what I'd really like to see in the report is a desire to start thinking about research funding in a way that is much more evenly distributed across different kinds of research and different kinds of results. That is not to say that it's not important to have research of all types and to be thinking about primary investigator-led research of the kind that is happening at universities across the country and around the world.

I think the problem is that there's not an equal or even a realistic amount of emphasis placed on taking that knowledge and actually disseminating it to the companies, the individuals and the organizations across the country and around the world that can use that research.

I use artificial intelligence as an example. Canada is a leader in the theory behind artificial intelligence, but the application in small and medium-sized companies—and in large companies—is minimal. There is a leap to be made between that investigator-led primary research and how it then expands into the ecosystem. That's really where I'd like to see the committee put some emphasis.

● (1800)

Mr. Mike Kelloway: Thank you for that.

I have one quick question, and then I'll go on to Mr. Oransky.

I don't know if it's still the same, but back in my day, and in university settings, the principal investigator had the intellectual property. In the community college that I worked at, that wasn't the case; it was the institution. Is that still the same across Canada, or is it specific to Nova Scotia?

Ms. Sarah Watts-Rynard: With applied research, the intellectual property largely rests with the business partner. While it is being created in collaboration, it's vested with the business partner, so they're able to go and turn that into a product or a service without encumbering IP being held by the institution at all.

Mr. Mike Kelloway: I think that's an important distinction that we need to make at this committee.

Mr. Oransky, I only have about a minute according to my phone. I appreciate the work you do, sir. I really do.

You talked about policing things and cleaning them up in terms of the people who are fudging numbers or outright lying. Beyond shame, which does have an economic penalty and an intellectual penalty, is there anything we should be doing by way of other punitive measures for institutions or for principal investigators who do something they're quite aware they should not be doing?

Dr. Ivan Oransky: There are some frameworks for that. We looked a number of years ago at how many researchers like that had faced criminal sanctions. It was about one a year for the last 40 years at the time we looked at it, so it is quite rare. Some would argue that should change.

There are sanctions that sound somewhat administrative or bureaucratic, but where universities can be denied milestone payments or ongoing payments if they are not complying with certain regulations or certain checks.

In the U.S., there are the Office of Research Integrity and the NSF Office of Inspector General. It's complicated, so I may be overstating the case, but sanctions can be emitted from these offices such that people can lose their funding.

The Chair: Thank you. That's the end of our time there.

Now we will turn to MP Blanchette-Joncas for two and a half minutes.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you, Madam Chair.

Mr. Oransky, we know that, in Canada, only 15 universities receive 80% of the funding and that only 20% of researchers receive 80% of the total funding.

Why do some organizations choose not to sign on to the San Francisco Declaration on Research Assessment, commonly known as DORA? In your opinion, what benefits do they gain from maintaining a system that favours impact factors and university rankings at the expense of a more inclusive approach?

[*English*]

Dr. Ivan Oransky: If I understood it correctly, unfortunately, I think your question in some ways answers itself, in the sense that the rich become richer and the powerful remain more powerful.

An impact factor, just like anything else or any of the metrics that are used, can be used to essentially cement and consolidate funding and, I could even argue, power—but that is actually another reason why these are such problematic metrics.

Again, researchers at those institutions tend to be cited more often anyway, and then they can just double down on that, so they have no particular incentive. I would credit those institutions that are wealthy in terms of funding and that have signed the declaration or taken other measures, because I think it signals a real intellectual honesty and a willingness to change that might benefit everyone instead of just continuing the Matthew effect.

● (1805)

[*Translation*]

Mr. Maxime Blanchette-Joncas: I would like to hear your views on an approach already tried outside the country, such as in New Zealand, where the Health Research Council introduced a random funding model in 2015. The Swiss National Science Foundation and even private foundations have done the same.

Would it be possible to grant funding on a random basis to avoid the need for peer review?

[*English*]

Dr. Ivan Oransky: It's a very interesting idea, and I've read some of the coverage of that as well as a few studies of what has happened after that.

I think it's in the early days, so like everything else, we should be empirical. We should ensure that a pilot program is really tested and that we look carefully at the evidence with a clear eye.

On the other hand, we've also seen evidence that peer reviewers—and I'm talking here about grant reviewers, in other words, grant peer reviewers—often don't do any better if you were to measure impact later on, or even citations, as flawed a metric as that is. They don't do any better than a random selection. That, to me, is somewhat troubling. However, it would also argue for perhaps trying that as a system, at least for maybe some percentage. Maybe it's a pilot program.

I also want to recommend the work and the writing of someone named Stuart Buck. He's at the Good Science Project, and he has done a lot of really smart thinking about a lot of these issues, in particular about grant review—

The Chair: I'm sorry, maybe you could.... We're almost running out of resources.

We'll now turn to MP Cannings for two and a half minutes, please.

Mr. Richard Cannings: Thank you.

I'm going to turn to Ms. Evans. You represent Research Canada, a health research alliance. You mentioned that, increasingly, health research has become more international, more collaborative. How would the federal government measure the excellence of those projects?

Ms. Alison Evans: Research across all domains is sort of a global endeavour, and researchers collaborate beyond geographic boundaries as they attempt to answer very complicated questions. That is why I mentioned that the way we consider research excellence needs to be broad, and it needs to be tailored and evolving. It changes as science does and as society does.

I'm really pleased in the case of health, when we think about the populations that health research and clinical research in particular are meant to serve, that clinical trials and other types of research think about the people we want to have as benefactors and about the impacts we want to have. That's really important.

I think the same principles apply to the kinds of things we have talked about already at this meeting. We need to think about ethics. We need to think about integrity. Openness has come through as being a very important theme today. It's important for people to understand that what they're doing, and their results, will be open and public so that these can be scrutinized and can be shared, and people can build on what's being learned.

We also need to make sure that the knowledge is being translated. This was mentioned by some of my fellow presenters today. There is the need to move ideas through to commercialize changes that we then put into the health care system or that are taken by companies, and there is a need for Canadians to get access to these things in a timely and affordable way.

I hope that answers your question.

Mr. Richard Cannings: Yes.

The Chair: You have 16 seconds.

Mr. Richard Cannings: I don't want us to run out of resources.

The Chair: Okay, that's great.

Thank you very much to our witnesses. If there's something you wanted to mention and didn't get a chance to cover in your testimony today, you may submit it in writing to the clerk.

I want to thank you for your participation.

I do want to inform the committee that I will be presenting to the House, this Thursday, our report on funding of post-secondary institutions.

Also, Thursday, December 5, is our deadline for submitting our witnesses for the antimicrobial study.

We'll meet again on Thursday.

Is it the will of the committee to adjourn this meeting?

I'm sorry. Yes, Mr. Blanchette-Joncas.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Madam Chair, when you table the report on Thursday, will there be a press release?

● (1810)

[*English*]

The Chair: Yes.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you.

[*English*]

The Chair: It's quite extensive. I think you'll like it. It's very detailed. The analysts did a good job.

Thank you very much, everyone. It was a great meeting today.

The meeting is adjourned.