Researchers' Response to Canada's Fundamental Science Review

Researchers' Summit Meeting

May 31, 2017, Toronto
Researchers' Summit Meeting Summary Report

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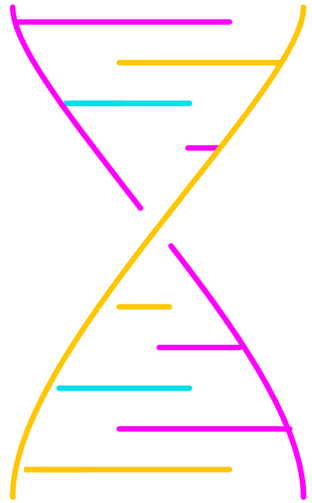


“The single most important thing to a thriving basic research lab is stability in terms of long-term commitment of resources. That’s what creates a scientific culture, and it was the key to the success of Bell Labs.”

— Professor Charles V. Shank,
Director of Lawrence Berkeley National Laboratory,
California

Preface

Canada’s Fundamental Science Review, “Investing In Canada’s Future: Strengthening the Foundations of Canadian Research” (Naylor Report), prepared by a panel chaired by Professor C. David Naylor was submitted to The Honourable Kirsty Duncan, Minister of Science, Government of Canada and released on April 10th, 2017 through the public policy forum. This enabled a national conversation on how best to support Canada’s researchers. Dr. Jim Woodgett and Dr. Imogen R. Coe organized a researchers’ summit meeting on “A Researchers’ Response to Canada’s Fundamental Science Review” on May 31, 2017 at the Metro Convention Centre South building, room #714 AB, in Toronto, Canada from 8:00 a.m. – 4:30 p.m. Approximately 200 researchers participated in the summit meeting.

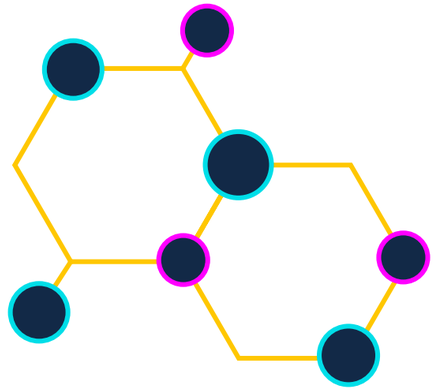
The Naylor Report is the first of its kind to tackle fundamental research issues in Canada in the past 40 years. The findings from the Naylor Report reflect the course of action the Government of Canada should follow to strengthen the foundations of Canadian research and rebuild the nation’s capacity for scientific and scholarly excellence. The report provides 35 recommendations that include advising the legislature to create an independent National Advisory Council on Research and Innovation (NACRI). The panel emphasized the challenges faced by early-career researchers along with the need for greater efforts to promote equity, diversity, inclusivity, multidisciplinary, multinational and bold research. The panel also encouraged stronger partnerships with Indigenous leaders, scholars and communities whose valuable perspectives can inform research initiatives. Professor Lewis E. Kay, while sharing his perspective on the Naylor Report during the researchers’ summit meeting, said that the recipe for success is to, “Bring together very smart people that are given freedom to explore fundamental science in a supportive way and allow them to pursue knowledge for its own sake”. He cautioned that, “Basic research is slow, it’s expensive, it takes directions that cannot be predicted, in ways that are not appreciated at the time of conception of ideas and it cannot be mandated”. Therefore, to support basic research, it is mandatory to increase the amount of funding that is allocated to such efforts. As the Naylor Report concluded, urgent action is needed for stronger oversight, governance and increased investments by the Government. In addition, the panel strongly believes that the commitment to support Canadian researchers will prove to be among the highest yielding investments towards Canada’s future that any Government could make.

Nine discussion themes were designed for the researchers’ summit meeting based on the Naylor Report to initiate thorough discussions, respectful debate, and sharing of ideas and stories that may help to continue building an equitable, bold, diverse, inclusive and excellent research ecosystem. The respective moderators of the nine discussion themes encouraged diverse input from all points of view, and summarized findings through written notes. This report distills the summaries from the nine discussion themes.

Sincere thanks go to Professor C. David Naylor for his presentation, Professors Dawn Martin-Hill, Lewis E. Kay, and Holly Witteman for sharing their perceptions regarding Canada’s fundamental science review, and Mr. Warren Weeks for sharing the art of effective communication. The team (Dr. Imogen R. Coe, Dr. Jim Woodgett, and Dr. Mehrdad Hariri) also thank the moderators, the Canadian research community, and all the participants for their input.

Researchers' Summit Meeting Format

The agenda (Appendix A) included a one-hour presentation of the excerpts of the Canada's Fundamental Science Review by Professor C. David Naylor, additional one-hour presentations of three researchers' perspectives, and two rounds of nine group discussions on nine themes (Appendix B) that happened concurrently, with 45 minutes of discussion per theme. The presentations were live-streamed for those unable to attend in person.



"Given global competition, the role of research in underpinning innovation and educating innovators, the need for evidence to inform policy-making, and the current unsettled conditions in the research ecosystem, the Panel firmly believes that this commitment is also among the very highest- yield investments in Canada's future that any Government could make."

—Professor C. David Naylor,
Professor of Medicine, University of Toronto
and Panel of Canada's Fundamental Science Review

Group Discussion Summaries

Theme 1 - Strategies for Communication

Communicating value is critical:

Communications with political leaders should reflect a more sophisticated understanding of political priorities. Using personalized stories will help politicians, who are the key players, and the public, who is the audience to understand. Chapter 2 in the Naylor Report is about the value of research. There is no need to search for different core messages around the value of research: One can, and perhaps should, simply use the arguments that the Government itself has asked for. Science communicators must educate themselves on the contents of the report and communicate these messages to senior university officials, politicians, and the public.

"Support the report" is a common view among researchers:

The overall research community would probably just applaud if the contents of the report were accepted in an un-distilled (or perhaps even a distilled) form. A serious risk for the research community is to be unhappy with any outcome that is less than 100% of the most ambitious request. A well-known quote that is attributed to former Finance Minister Michael Wilson is, "Researchers are unhappy if they receive funding and unhappy if they do not receive funding, and I know which outcome is cheaper." The fact of the matter is that researchers require support across the lifecycle of their career, from student to early, mid, and senior levels.

Community-wide benefits in the interests of Canada and Canadians:

The discussion group wanted to make their argument to clarify that researchers are NOT going for personal gain but for community-wide benefits in the interest of all Canadians, for the betterment of the country. The arguments researchers present must have, at their core, the understanding that, "It's not about me, it's about all of us (not just the research community) and our collective futures".

Be very careful to make a case in letters that researchers are arguing for the "coiled spring", which means engaging a broader community, not increasing personal research grants:

How can we go about this? There should be 'big sign-on letters' (e.g., around CIHR controversies last year, communicating the positive benefits of research). Researchers should also send individual letters to Members of Parliament (MP), their personal MPs, the Minister of Finance, the Prime Minister, and the Minister of Health. Researchers must communicate to MPs in ridings occupied by current universities and hospitals, and to MPs in neighbouring areas that derive great benefits from the presence of those institutions. One should possess the local intel on what local MPs care about before drafting and sending letters. Researchers can also communicate with the NGOs that are meant to represent these views to policy makers, like Universities Canada, Research Canada, etc. The persons who are drafting the letters should make it clear what the priorities are for Canadians. Everyone needs to change their viewpoint that some fields are more elitist than others. The Naylor Report is meant to elevate the pursuit of knowledge for all. As such, it is pertinent to advocate for the community, rather than a segment of it. In addition, remember that multiple letters are good, but 'NOT FORM LETTERS'. The Council of Academic Hospitals of Ontario ran a successful campaign whereby health research leads to Canadians being, "healthier, wealthier, and smarter". The biggest challenge is the budget ask. It is important to package the whole thing, not just the money and not necessarily making the possibility of a benefit to Canada contingent on full funding. Do not let perfection be the enemy of the good. If indeed full funding for research is "perfection" according to Naylor Report recommendations, it is not clear if researchers are thinking strategically about the breadth of priorities confronting Canada.

Success stories and/or personalized stories:

The US funds three times more per capita research than Canada, but with comparable impact. Canada has lower healthcare costs than the US. If Canadian funding was increased, researchers may be able to do much better than US researchers. Personalized stories might help to make the case for “coiled spring” arguments – the capacity to spend money effectively, quickly, and efficiently. Examples of what the funding help achieved —for example, “Here is the person who was saved by this work”, or the graduate student whose career was launched or researchers working at hospitals— could be captured in letters to MPs. These letters could benefit from including tangible links to such personal stories in communication to policy makers, such as a photograph of the person who benefitted from a research investment (e.g. a graduate student in a lab). Letters from graduate students themselves explaining how their work has been supported and their futures improved might be especially valuable.

Funding a laboratory is like building a startup company:

If anyone funds a laboratory, that will provide support for 5-10 valuable jobs, for which the foundations for something that might grow to become bigger and more important. ‘Build the meme’ with the help of social media to make it public using videos, YouTube, #SupportTheReport, etc.

Make sure to knock loud so that the voices are heard:

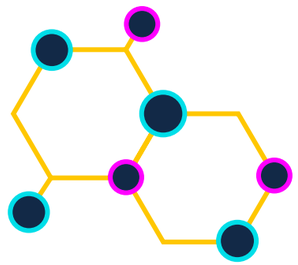
The budget process unfolds over the summer and early fall and requires that all hands be engaged. Researchers must make sure that MPs return to Parliament in September with their ears ringing with positive messages about the value of supporting research, and not just issues from the governing party.

Summary:

Everyone must be aware of the need to change their own perception that this report is not exclusively the Naylor Report; it is the report of the Fundamental Science Review Panel. The best way to translate and carry forward the message that the Naylor Report is the report of the Fundamental Science Review Panel is through a website with the brand’s key messages, which would be valuable especially if it explains the messages in lay fashion. Such a site should amplify the “support the report” and related memes. Also, everyone must promote success stories that support why researchers are doing this. Additionally, knock loudly so that a single voice is heard. Communications need to expand beyond the Minister of Science, who appears clearly to be an ally already. Instead, the research community needs to make it easier for the Minister to argue internally for rapid evolution in the research funding/support ecosystem and in terms extending well beyond just granting council money (e.g. other organizational activities among granting councils).

“Indigenous Knowledge is a complete knowledge system with its own concepts of epistemology, philosophy, and scientific and logical validity… which can only be understood by means of pedagogy traditionally employed by these people themselves”.

—Adapted from Dr. Daes, Report on the Protection of Heritage of Indigenous People in Battiste & Henderson:41:2000 and cited by Professor Dawn Martin-Hill(Mohawk, Wolf Clan), Paul- R. MacPherson Chair in Indigenous Studies, McMaster University, Hamilton



Theme 2 - Political Reality

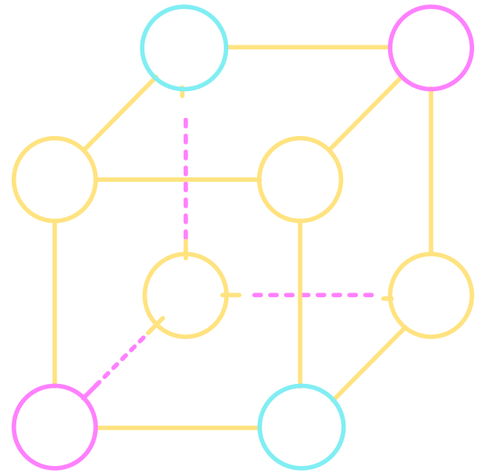
The group first discussed the political realities on the ground. As the government has many competing realities, such as job creation, healthcare, tax breaks, child poverty, and many more, the scientific community should be aware of such realities and how to build their argument and case toward the government for support for the report. Additionally, the government bears a budget deficit and is naturally extra careful about spending. Additional factors to make the government extra careful on the spending is the global political instability. As our most important trade deal, NAFTA is under the threat of annulation; the economic consequences of that is thus far unknown for the Canadian economy.

Considering the political realities, the scientific community should strategize its message and its campaign to ensure a productive result. First, its messaging: the community must well justify its request. Simply stating that doing great research is not enough for the government, who can respond back by referring to their own investment in R&D (about $10 billion annually) and on scientific research (about $4 billion annually). The justification should go beyond and link how urgent research is and why and how it may benefit Canadians and can compete with other priorities.

While other items were discussed in this theme, the notes were unfortunately lost and could not be captured here.

Summary:

The group concluded that the scientific community must succeed in communicating the urgency and benefits that can be derived out of the research projects for the communities at the appropriate levels of management to stand a chance of allotment of funds from the government in a climate of scarce resources and budgets deficits.



Our government must ensure its support for fundamental research is coherent, effective and agile enough to keep pace with the dynamic nature of contemporary science.

— The Honorable Kirsty Duncan, Minister of Science, Government of Canada

Theme 3 - Advocating for Research

Do the 'Big Ask' through effective communication with the public, politicians, and associations:

As described in Theme 1, communication is vital. The Naylor Report's broad recommendations should be implemented, with a common focus on storytelling at the individual level. Narratives are powerful tools to connect with politicians and the public, allowing stories to be about the audience and not the researchers. Therefore, there is a need to help politicians and the public understand what science is and how research is done using narratives (e.g., help people understand that basic research is needed for medical breakthroughs).

Researchers need to be more visible as members of the public. Perhaps one straightforward way to connect is talking to neighbours. By featuring stories about researchers and scientists, the public would be able to know what they do (on a daily, weekly, monthly and yearly basis). Also, featuring stories will help the public understand how research grants are utilized (there are a lot of misconceptions out there about what happens with the money), and make researchers out to be the REAL people that they are, in a straightforward way. There needs to be transparent accountability from the institutions. Researchers need to watch for oversimplification and buzzwords (e.g., innovation means different things to different Ministers). Otherwise, there could be a risk of sending mixed messages (albeit, unintentional). This has happened before where funding went towards innovation, but the money did not go into Tri-Council funding. Merely using terms like innovation will not help. The Centre for Innovation (CFI) has "innovation" in its name, but received no new funding. It is also pertinent to convince politicians and the public about return on investments (ROI).

Coordinate advocacy work among the distinct groups:

Advocates may be necessary to do the work researchers cannot do themselves. Effective advocacy means excellent communication, which in turn will create positive perceptions to the public. Encourage the public, including business leaders, to advocate for science to politicians. It will be more powerful if non-scientists do so —as it is not seen as self-serving— by keeping messages broad, simple, and clear, picking critical issues. Moreover, enable societies (e.g., academic, advocacy, and charity) coordinating with each other to align themselves so that mission statements do not clash with each other. Also, messages should be presented in a unified manner and to do so, societies and advocacy groups should work together.

Provide toolkit/train researchers to improve communication strategies:

There is a need to train researchers on how to appeal to emotion and make interpersonal connections. Politicians align actions based on emotions. Therefore, it is important to make that connection with politicians by drawing on stories of patients, students, and constituents. In addition, it would be of added value to align people with places and politics (i.e., it would be particularly helpful if a researcher who grew up in the politician's constituency be connected with them). It is also important to provide scientists with tools to help them better communicate to diverse audiences, such as Professor Holly Witteman's example on connecting with politicians (Appendix C). Researchers should pool resources from different organizations and provide opportunities to practice effective communication strategies. There is a need to recognize and appreciate researchers with awards who intentionally communicate science well to the public.

Summary

Involve professional advocates to lobby for science. Communication is the lifeline and this should occur with a variety of distinct groups by encouraging scientific and critical thinking in communities. Finally, it is crucial to equip scientists with tools to help them better advocate to the public.

Theme 4 - Delivery Vehicles for Research

Support for Investigator-Initiated Programs:

Panel participants deemed peer review to be a key foundation for funding allocations and strongly advocated for greater funding for curiosity-driven, investigator-led research programs. There was a strong pushback against strategic-ideas based funding. The importance of strategic funding programs was felt to be worthy in such cases as emergency initiatives (e.g. SARS epidemic). However, in most cases, programs were not considered to be valuable instruments for capacity building in specific areas. In fact, some participants argued for the total dissolution of strategic programs and recommended integrating them into the regular operating funding programs.

One possible strategic program that was discussed is to establish a specific funding program for early career researchers (ECR) to assist in the establishment of their independent research program. It was emphasized that an ECR funding program should not divert funding away from established researchers, especially mid-career researchers who feel they are significantly affected by the overall reduction in funding within Canada. Another suggestion is to allow institutions to allocate some of the Facilities and Administration costs towards larger startup packages for ECR. This will alleviate the immediate need for ECR to obtain external peer review funding and afford them more time to establish their independent research program.

There is the common perception that strategic CIHR funding opportunities lack transparency when it comes to their development, implementation, and follow-up. Researchers are not provided sufficient or advanced notification for some of the strategic funding initiatives to allow them to prepare a proper application or seek necessary partners. For strategic programs that require industry partnership, the onus is on the institution or researcher to find the partner with little or no support from the funding agency.

Provincial Funding Programs and Opportunities:

Panel participants strongly supported the concept that provinces and territories should endorse the Naylor Report. Recognition of the importance of provincial funding opportunities and programs was noted. However, there was uncertainty whether all provinces had comparable funding programs, or if there is inequity across Canada about funding opportunities for researchers. It is recommended that uniform provincial/territorial funding programs be established across the country.

There is a need for better integration when both federal and provincial funding is required (e.g., when it comes to CFI funding). Researchers commented on the duplication processes for CFI funding, which contributes to unnecessary time commitments and delays in obtaining the funds. Better harmonization of provincial and territorial funding support for federally supported projects would help to minimize duplication and inequality.

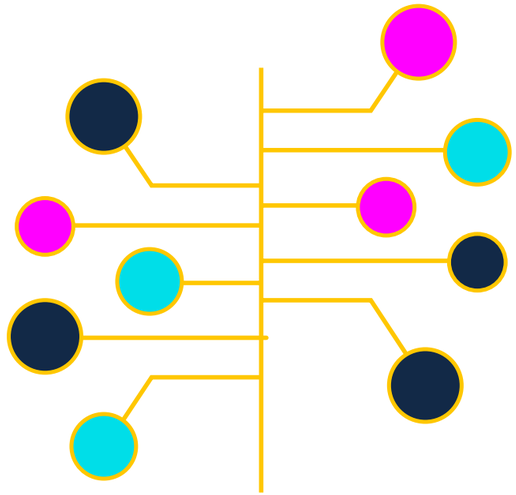
A concern raised was that some provincial funding programs were deemed top-down based on strategic priorities established by the provincial government. As with federal strategic funding programs, it was not clear how these strategic priorities are established or whether there is any consultation with the research community. A larger concern is that provincial funding programs are not open to all researchers due to their restrictive criteria or strategic alignment. For example, the Ontario Research Fund had limited funding opportunities to SSHRC researchers until recently. The criteria for the research proposal to be "cutting edge" was regarded to not adequately reflect the scholarly work by researchers in the humanities, fine arts and social sciences. In addition, provincial and territorial funding programs should have better alignment with federal open and strategic funding programs, rather than have opposing or competing priorities.

Participants did not know if every province and territory had a government minister in charge of science, technology, and research, who would be a spokesperson to advocate and promote research. This minister should communicate closely with the minister responsible for post-secondary education to ensure adequate or increased funding for graduate education and training. It was recognized that funding of postsecondary education is under the purview of provincial/territorial governments, while research funding comes from the federal

government. There is disparity between the pressure to increase graduate enrolment at the provincial level at a time when federal funding for investigator-driven research and support for trainees is diminishing. There must be proper dialogue between the various levels of government to ensure support for research and training is preserved.

Summary

The participants strongly endorsed the Naylor Report and its recommendation for more funding for investigator-led research with less emphasis of strategic-based initiatives. Better coordination and dialogue between the various levels of government is vital for the research funding and training programs.



> ***Bring together very smart people that are given freedom to explore fundamental science in a supportive way and allow them to pursue knowledge for its own sake.***
>
> — Professor Lewis E. Kay, University of Toronto, Toronto

Theme 5 - The Next Generation

The barriers to success with the current means of supporting trainees and ways to overcome them:

The barriers to success for the trainees are low pay and lack of benefits/protection for trainees. Traditional views of training in academia is the notion that the lack of support is a rite of passage that builds character and is somehow required to weed out those who are not 'dedicated enough' to science/research. There is a lack of availability of tenure-track faculty positions and other jobs (academic and non-academic) that require PhD or postdoctoral-level training. There is extreme variability in support (pay and benefits) for trainees, and the obvious disconnect between ability, effort, experience and compensation translates to general lack of equity and debt among graduate students. Can the 'best and the brightest' afford to remain in academia? It is difficult to answer this question due to the relatively poor labour market outcome advantage for PhDs (compared to those who enter the workforce with a Master's) and the lack of any evidence that postdoctoral training provides a labour market outcome advantage over PhD training. The increasing length of training is another factor that compounds the impact of poor compensation/ benefits and thus labour market outcomes. There is lack of support for transitions to careers outside of academia. In addition, there is a perception in academia that trainees who do not end up in tenure track faculty positions have somehow failed. This mindset is pervasive and shared by many trainees as well as faculty members.

To overcome the abovementioned barriers, there is a need to standardize trainee support and set minimum standards across the country, increase minimum compensation, and provide access to employee-style benefits and protections for trainees. Compensation should be tied to years of experience, which will naturally reduce the length of training times as trainees would become more expensive over the course of their training. It is preferable to applying arbitrary time limits for graduate students and post doctoral fellows, as the current job market demands increasingly long training periods to become competitive for tenure track faculty positions. It is important to focus on creating more jobs that require PhD or postdoctoral level training in academia and all other labour sectors. Additionally, to overcome the barriers that trainees are facing, it is necessary to change the culture in academia. Faculty and institutions need to recognize the extreme burden placed on trainees these days, and the 'rite of passage' is no longer an acceptable burden given the increased length in training times, declined contributions, and a decline in the retention of highly skilled personnel. Additionally, the culture of academia needs to promote the value of 'alternative' careers (i.e., recognition that attaining a tenure track faculty position is not the only successful outcome of training). There is a need to focus on destigmatizing 'alternative careers'. Moreover, scientists and researchers need develop innovative approaches to training and support career / professional development for trainees at all levels.

Disparity and inequity in trainee support:

Elite studentships/fellowships (Vanier/Banting) were viewed as contributing significantly to the disparity and inequity in trainee support. The practice of topping-up salary for award holders is common among supervisors and institutions in Canada, and these compound the disparity in compensation already associated with these awards. A prime example of this is Banting award holders at the University of Calgary, who automatically receive a $10,000 top-up for winning this award (valued at $70,000), bringing their total compensation to $80,000. Be mindful that $40K is the minimum salary for a postdoctoral fellow at that institution. Therefore, it is possible to have two post doctoral fellows in the same lab, doing highly similar work, and perhaps even sitting next to each other with a $40,000/year difference in salary. The University of Calgary is not alone in this practice. As the number of elite studentships/fellowships is commonly used to evaluate the research capacity/ success of Canadian institutions, this norm is pushing institutions to use top-ups to incentivise their trainees to strive for those kinds of awards. Most participants of the group discussion did not view this as an appropriate use of taxpayer dollars. The value added by these programs was also called into question, as they were generally not thought to achieve their goal of increasing the retention of the 'best and the brightest' given that most trainees choose their training environment based on research interests/productivity rather than salary. Therefore, in many cases, trainees have already decided where they are going to work before they find out whether they won an elite award, in which case the award

simply provides far greater compensation for doing a job they are already committed to. The consensus among both discussion groups were that these elite award programs should be cancelled entirely, or their monetary value should be reduced to limit the disparity in compensation among trainees. The prestige associated with elite awards would be upheld by the sheer difficulty in attaining one. Currently, the monetary value of these elite awards are 70+% higher than the standard Tri-Council awards. Even if the value of the elite award was reduced by 20-25%, it would still be higher than standard Tri-Council awards. The leftover money from these reduced elite awards should be used to increase the number of standard awards and/or the compensation/benefits associated with all awards, rather than creating more elite awards. This will enable to devalue the prestige associated with elite awards. Also, a portion of those standard awards should be earmarked for international trainees— particularly if the elite awards are discontinued— as at present, they represent some of the only awards that foreign trainees can apply for. One of the groups also voiced support for the discontinuation of 'boutique scholarships' that earmark funding for trainees studying specific topics. These kinds of decisions should be based on merit and research plans, not the desire to focus funds on timely issues. The majority of that group appeared to agree with this notion.

The career paths of trainees have undergone major changes over the past decade. Have our systems adapted or do they need restructuring?

Canadian systems have generally failed to adapt to the changing needs of trainees over the past decade, largely due to a failure to track outcomes and evaluate training programs. This is especially the case with respect to post doctoral fellows and their fear of change, which reinforces the status quo. Factors that have contributed to this problem include:

1. A lack of innovation in training practices (focus on traditional 'faculty training');
2. The reliance on trainees as a cheap source of labour to drive our country's research agenda;
3. The lack of standardized support for trainees;
4. The lack of oversight with respect to institutional training policies; and
5. The lack of coordination among funding agencies and institutions.

In general, the Canadian research system needs restructuring to enable it to adapt to the changing needs of trainees and to ensure that it remains capable of doing so in the future. The creation of National Advisory Council on Research and Innovation (NACRI) would provide a mechanism to ensure that federal funding agencies remain accountable to trainees' needs in the future, if trainees have a voice either on NACRI itself, or a clear formal process for providing input to that body via regular consultation. For example, organizations such as Canadian Association of Graduate Studies (CAGS) and Counseling and Psychological Services (CAPS) could provide input on behalf of graduate students and post doctoral fellows, respectively, to NACRI on a regular basis. The most obvious way to ensure this would be to provide a seat on NACRI for those organizations. This would not represent 'undue influence' of those groups, given that NACRI would undoubtedly be made up of individuals from a variety of other stakeholder groups. If groups are selected to provide input to NACRI in this fashion, they must demonstrate that they are representing the views of their respective communities (e.g., use of survey data and direct lines of communication with institutional associations).

Considering the move toward employee status and postdoctoral unionization across Canada, does the current system of federal support disadvantage post doctoral fellows funded by the Tri-Council?

The lack of employee status, access to Employment Insurance (EI) and the Canada Pension Plan (CPP), and access to institutional (or other) collective bargaining units for post doctoral fellows funded by the Tri-Council was generally thought to disadvantage federal award holders relative to the average postdoctoral fellowship, many of whom work at universities where internally funded post doctoral fellows are now categorized as employees and represented by unions. This situation has risen due to several reasons, such as the spread of postdoctoral fellows unionization throughout Ontario and Quebec, the recent unionization of post doctoral fellows at the University of Saskatchewan, and the implementation of legislative changes in Alberta that recognizes post doctoral fellows as employees, making their institutional association's collective bargaining units. As a result, post doctoral fellows in Ontario have reached (or soon will) a point where the average postdoctoral fellowship has:

1. Access to the protections offered by EI, including paid sick leave, maternity/ parental benefits, job-loss coverage and other benefits;
2. Access to CPP;
3. The right to negotiate for improved labour conditions, compensation, and employee-style health and dental benefits via collective bargaining; and
4. A collective voice to promote change in training and labour policies at the institutional level.

In contrast, federally funded post doctoral fellows, who represent a minority in the postdoctoral fellows community, generally lack those rights/privileges/ benefits, except for maternity/parental leave coverage provided by the Tri-Council. In addition, post doctoral fellows funded by Natural Sciences and Engineering Research Council (NSERC) and Social Sciences and Humanities Research Council (SSHRC) are sometimes denied benefits provided to Canadian Institute of Health Research (CIHR) - funded post doctoral fellows due simply to the fact that the former agencies deposit funds directly into the account of the award holder, while the latter funnels stipends through the institution. For example, NSERC and SSHRC award holders at the University of Calgary are referred to as "Guest Post doctoral fellows" and denied health and dental benefits of any kind, whereas CIHR award holders at the same institution are guaranteed health and dental benefits that are covered by their supervisors at present. Furthermore, Guest Post doctoral fellows may not be eligible for salary top-ups, as any internal funding provided to them would automatically give them access to benefits. Again, it is important to point out that Calgary is not the only University with such unfair policies in place. Simon Fraser University uses funding awarded to Mitacs postdoctoral fellows to cover the employer and employee premiums for EI and CPP that these post doctoral fellows have access to because of their work in industry. These kinds of practices are incentivised by the current system of federal funding and the lack of practical rules and regulations around the use of funds and/or minimum support required for post doctoral fellows. Thus, the 'best and the brightest' are denied benefits, the ability to contribute to CPP or any other pension plan that includes employer contributions (a considerable long-term monetary loss), or the ability to collectively bargain as a group, all of which place them at a disadvantage relative to the average postdoctoral fellow.

Addressing this problem will require major changes in federal funding programs. The following recommendations were made during discussion:

1. All post doctoral fellows on federal fellowships should be considered employees of the institutions where they work and provided access to EI and CPP as well as collective bargaining rights.
2. NSERC and SSHRC should adopt the same approach to distributing funds that is currently used by CIHR to prevent disparity in access to benefits and questions around employee status among federal award holders.
3. All federal award programs should require institutions to provide minimum standards of support that are uniform across all of Canada.
4. Compensation should be increased and could be adjusted for cost of living to ensure that support is actually 'standardized'.
5. The notion that the Tri-Council could create guidelines or minimum standards for the treatment of all post doctoral fellows at Canadian institutions and enforce these at the institutional level by making their adoption a requirement for institutions to host Tri-Council funded post doctoral fellows.

Some participants viewed this as a step too far and preferred that the Tri-Council not try to impose rules regarding trainees they do not 'directly support. Others thought that this was appropriate, particularly given that Tri-Council (and other federal) grants are used to fund many postdoc positions in Canada with little or no mechanisms in place to ensure that money is used to provide proper support for post doctoral fellows. While there was no consensus on this issue, most of the participants agreed that some mechanism for enforcing minimum standards was required.

Summary:

Most participants supported the recommendations made by the Naylor Report, particularly with respect to increased funding and oversight, and the standardization of federal support for trainees. However, the consensus from both discussion groups was that the Naylor report did not go far enough in addressing some of the challenges facing trainees under the current Canadian funding/ training system.

Theme 6 - Equity and Inclusiveness

Awareness and acceptance:

There is a difference between equality (sameness) and equity (fairness) that most people are unaware of. This is everyone's problem, and everyone needs to be aware of and embrace the difference, or at least not actively impede its progress. Listen to, accept, and support women, people with disabilities, aboriginal people, and visible minority groups; these are all under-represented through their career stages. Also, make efforts to intentionally include LGBTQ+ community members.

Value the work that people do to improve academia:

Everyone needs to value the work that people do to improve academia. For example, racialized people often mentor more students. Those contributions may be more impactful than another paper. Indigenous researchers' work to bring Indigenous Knowledge to the forefront of research has potential benefits for both Indigenous people and for others, if used respectfully. Additionally, efforts to enforce sex- and gender-based analysis makes for research that better serves society.

Flip the script:

Rather than asking, 'Why aren't people in under-represented groups coming and staying?', ask instead, 'What is wrong with current structure that is making it so imbalanced?' Some things are structurally easy to fix— for example, awards that are only open for a set number of years after PhD for disadvantaged people with non-traditional paths.

Engineer the bias out (dismantle systems that cause barriers) with policies and plans:

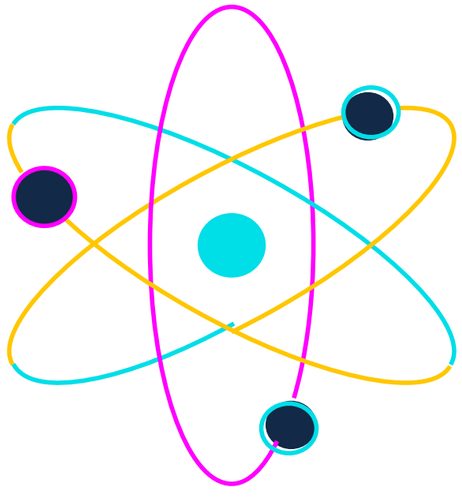
Biases exist that result in systematic exclusion of some researchers. This may be along multiple dimensions (career stage, disability, ethnicity, gender, first-generation academic status, Indigeneity, LGBTQIA2S, race, socioeconomic status, etc.) and these may intersect. Biases are complex and will likely require multiple interventions to reduce them. For example, a researcher who is an Indigenous woman or who is Black and disabled faces barriers that may be more than additive. Bias means that officials are not hiring and funding the most excellent researchers. It means that academics cannot serve students as effectively, especially students from underrepresented groups. It means that research may not reflect what matters to society. Policies and plans should be evaluated for effectiveness but evaluations should recognize that what works in one environment may not work in another.

Use strength-based approaches to tackle the issue:

Recognize or identify positive stories/examples of equity, diversity and inclusion, and share these stories/examples. Be an exemplar and champion striving for the best possible research— research that is equitable, diverse, and inclusive.

Summary:

Equity, diversity, and inclusion are important for researchers from underrepresented groups because they are also good for science and research. Biases may be complex and will likely require strength-based approaches/multiple interventions to reduce them. There is a need to implement appropriate policies and evaluate them periodically.



Theme 7 - Managing Research Budgets

A research budget for Canada:

There was agreement that strong public funding for research is an expression of Canadian values (e.g., supporting curiosity, innovation, education and inclusion). It was agreed that additional funding of the magnitude proposed by Professor David Naylor and the panel was necessary to meet the needs of the Canadian Research Enterprise. It would be the 'right size' relative to the size of the research community, whilst maintaining standards of excellence. It was apparent to all, that there is a 'coiled spring' of excellent and meritorious projects that are currently unfunded. Additional funding would support projects further down the rankings, realizing potential that is not being tapped. This is under-exploiting Canada's research potential, and underusing talent.

That is not to say the research community could not do more to better manage the resources available, and improved housekeeping could free up some resources. However, in the context of the Naylor Report's recommendation, these gains would be small and have a very minor impact. There also ought to be periodic benchmarking against international peers to assure continued right-sizing and standards. Unfortunately, there was also a sense that the Canadian experience is distinctive and no one at the sessions could identify genuine 'peer' comparator countries.

The sessions were in accord with the Naylor recommendations and there was an expressed disquiet with vanity or boutique funding programs, such as Canada First Research Excellence Fund (CFREF). While commending the intent of boosting Canadian excellence, and our international presence, funding is typically repurposed from other, existing programs and results in providing funding only to an elite stratum of researchers.

There was also some concern over the increasing requirements for 'matching' funding. In general, these rarely brought much additional funding to the project, but introduced additional administrative and political layers to the application and reporting requirements. While there were good examples of partnerships with the private sector for very specific projects, there appeared to be very little appetite to help support the broader operational costs of the research enterprise.

The sessions also recommended the reinstatement of the discontinued and repurposed Canada Research Chairs (CRC) (several hundred vacant CRCs were withdrawn several years ago) (Please refer to 7.1.2. in page 142 of the Naylor's Report, April 2017).

Infrastructure:

Canada Foundation for Innovation (CFI) has transformed the research landscape in Canada, facilitating excellent research that would not have been conceivable otherwise. There was unanimous approval for CFI and a strong endorsement of the Naylor recommendations for permanent stable funding for CFI. It was unclear whether formal A-Base status would be possible, but stable funding would be a significant step forward.

One area where CFI has been weaker is in providing for smaller infrastructure requirements. With the creation of the CFI, the federal funding agencies moved away from funding equipment, citing CFI as the responsible organization. However, small equipment is usually too small for CFI, which means many needy, if modest, projects have no place to go for equipment funding. CFI should extend its responsibilities to ensure these needs can be served.

Big Science:

There is already a lot of big science activities in Canada, often participating in international programs or networks – and each has a distinctive origin, history and rationale for being. Such projects are also by their very nature expensive. The discussions recognized the value of big science projects— to Canada's scientific status and self-esteem, to the research communities they serve, and to the research they enable— and it also recognized that often such projects are fundamental in nature and would only be supported by the public sector. It is clear, therefore, why it makes sense that this ought to be subject to some sort of coordinated central oversight.

Nonetheless, there was agreement that big science projects do not have a 'right' to permanent public funding. As resources will always be scarce, there should be periodic assessments of value-for-money and opportunity cost of big science projects,

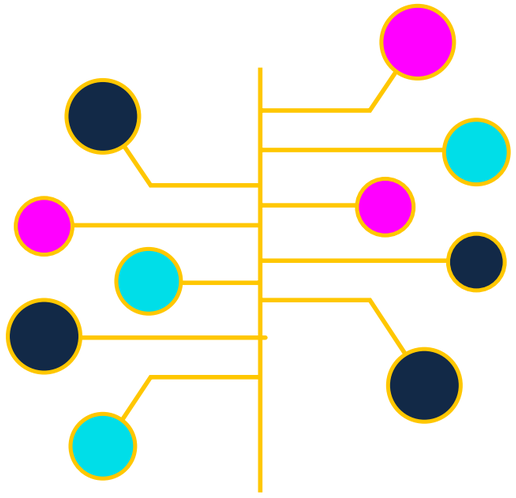
in terms of their own objectives and achievements, but also in comparison with other research that could be supported with that funding. It was agreed that the proposed oversight and priority setting by NACRI would be appropriate.

International:

There is already a lot of activity and Canadian researchers are actively engaged with many international ventures, ranging from joint international facilities, to networks and collaborations between researchers. These activities are particularly strong in big science projects and major collaborative initiatives. However, it was felt that more could be done to sponsor collaboration at the lab level, with more funding to be made available to support travel and international exchanges of staff. Some participants expressed their feelings that Canada is participating on too many fronts and perhaps NACRI could provide some oversight and direction (for example, by establishing priorities, directing funds etc.).

Summary:

Discussions showed considerable congruity of opinion regarding managing research budgets in Canada. Voices were loud and clear and in agreement that strong public funding for research is an expression of Canadian values, and additional funding of the magnitude proposed by Naylor is necessary to meet the needs of the Canadian Research Enterprise. Discussion groups unanimously endorsed the permanent and stable funding of the CFI.



> ***Basic research is slow, it's expensive, it takes directions that cannot be predicted, in ways that are not appreciated at the time of conception of ideas and it can't be mandated.***
>
> — Professor Lewis E. Kay, University of Toronto, Toronto

Theme 8 - In-between Fields

Interdisciplinary Research (IDR) projects are often unique, they are often applied, and problem-based:

Suites of best practices and common characteristics have emerged from the discussions, which include the need to manage good team dynamics. The discussion group also suggested that Principal Investigators should be trained in collaborative IDR from the get-go (initial stages) through Inter-professional Education (IPE) and practice courses. It is encouraging to note that some undergraduate programmes have introduced this approach. Also, administrative support for complex interactions of IDR teams must be explicitly put into place. Deep knowledge must be respected at the table, as much as superficial "interdisciplinary" knowledge. This means understanding the diverse knowledge and research portfolios at the table.

Science, Technology, Engineering, and Mathematics (STEM) researchers must explicitly be trained to respect scholarship from the Social Sciences and Humanities (and vice-versa, since failure to understand each other presents barriers to collaboration). In addition, STEM researchers must explicitly be trained to respect scholarship from Indigenous Peoples and learn or be taught to understand that there are other ways of acquiring knowledge. More focus is needed on knowledge co-creation.

There are downsides to IDR that are not present in narrow-subject based scholarship:

Students take longer to complete graduate degrees, which is one of the biggest disadvantages. Assembling supervisory teams can be challenging also, adjudicating T&P files, especially of junior researchers where it is difficult and the process can negatively affect candidates. IDR committees have higher workloads, more reading to do to understand where other team members are coming from etc. Adjudication of IDR grant applications can present problems if not properly handled. Personnel need sound platforms and support. Grant governance can be an issue in large IDR teams. Moreover, IDR is where researchers often learn that Science 'IS' political and not a meritocracy!

IDR may not be for everyone – true, but is often an unexamined assumption by researchers lacking self-confidence (or simply being lazy) about getting out of their comfort zone:

Challenges to participating in IDR for individual researchers include that experts with narrow scopes are required to get out of their comfort zones. Though, when made explicit, the skills required for successful IDR can be taught to all potential IDR team members: The Mobile Mindset (DBazely©) can be learned.

Who is doing IDR well?

University librarians – specialists who cut across the silos in universities; Applied Health Sciences research; Integrated science BSc at McMaster. Some European research teams, Australian Imaging research, some parts of the Tri-Council in Canada etc. However, the diverse cultures and silos of the Tri-Council suggest that successful approaches to IDR are not shared.

Summary:

IDR is assumed to be a good thing, based on the assumption that interdisciplinary collaborations will lead to innovative and/or trans-disciplinary outcomes and novel solutions. However, benchmarks and metrics that support this assumption and rationale have been lacking until recently (see US' NRC report: https://.ncbi.nlm.nih.gov/books/NBK310387/). As well, there is widespread agreement that major real-world problems and challenges are multifaceted in nature. These wicked problems may benefit from IDR-based solutions and research. Some recommendations from the discussion group are as follows: Cut out the turf wars across and within each member of the Tri-councils; Exchange best practices in IDR; Practise more storytelling; Increase training for active listening and learning to listen better; Create new narratives for research, and; Move to support a philosophy and culture of not knowing, which in turn supports a broader/ wider sense of understanding – culture shift must be incentivized.

Theme 9 - Governance of Canada's Research

Need for a new governance model for science in Canada:

Governance is a critical lever for getting science policy/funding right. Recommendation to create a new National Advisory Council on Research and Innovation (NACRI) is one of the most important recommendations in the Naylor Report as it has the potential to affect all of the above-mentioned issues. In addition, it is mentioned in the Naylor Report that current Science, Technology and Innovation Council (STIC) is not meeting the needs of the research community. The discussion group opinionated that the incoming Chief Science Advisor (CSA) is also not enough as they will most likely put together their own network of advisors informally. Therefore, it would be more useful (and transparent) to formally create a new advisory body. Discussion groups were in much support for the governance bodies that are described in the Naylor Report. NACRI along with a Four Agency Coordinating Board to formalize coordination between granting bodies and work on the details. NACRI or a similar body needs to have some teeth, particularly when it comes to increasing accountability in the Tri-Council (e.g. power to fire granting council presidents). The need for more accountability from the Tri-Council was something that came up repeatedly in both sessions. NACRI must have some independence from government, needs to be able to perform honest reporting on the state of science in Canada. There was also recognition that this new structure (NACRI and the Coordinating Body) is a substantial change and not something the government can realistically bring in over night. While many people commented on the need for increased accountability and coordination of the Tri-Council, there was no support for further consolidation of the councils under one body.

Need to get the right people on a body like NACRI:

The best strategic thinkers are needed on NACRI, not just the loudest. There was a lot of discussion around how to get the right people on NACRI and how to ensure that they would be independent, but the group also acknowledged that the researchers in the group did not know enough to thoughtfully answer these questions. Some ideas for alternative appointment processes included having half the body being appointed by Governor in Council (GIC) and having those members appoint the other half of the body, or having the other half elected.

Need to engage and build trust with the research community:

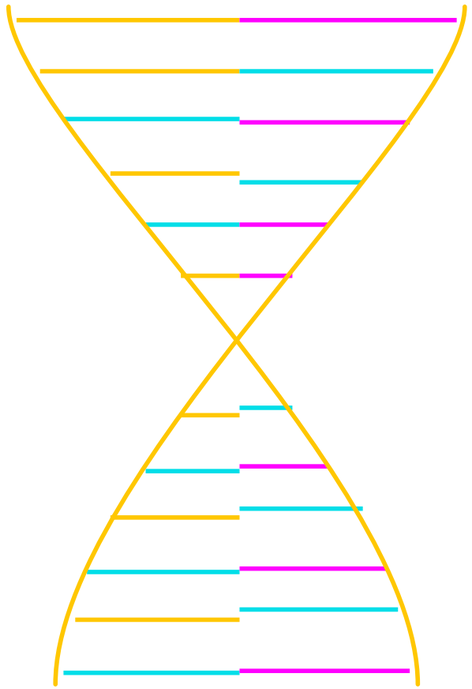
Trust cannot happen unless there is regular communication between an advisory body and the research community. There needs to be a formal mechanism for feedback and input from research institutions (universities and research hospitals), individual researchers, early career researchers and minority groups within the research community. NACRI could host regular open meetings or an annual meeting. There needs to be investment in forums to facilitate communication with the research community, especially early career researchers, to give them a say in the funding models that will affect them.

Need to build trust with the public:

Increased accountability is one way to build trust with the public. There is a need to demonstrate that research dollars are being spent in a responsible, efficient way. The new NACRI body needs to publish public reports on the state of science in Canada (current reports from STIC are not sufficient). People would like to see more presence from groups with the Royal Society of Canada acting as a liaison between researchers, public and the NACRI.

Summary:

One of the urgent calls for action in the Naylor Report is 'Stronger oversight and governance'. Discussion groups were also in much support for the governance bodies that are described in the Naylor Report. NACRI along with a Four Agency Coordinating Board will soon formalize coordination between granting bodies and work on the details. The need for more accountability from the tri-councils was something that came up repeatedly in both sessions. There needs to be a formal mechanism for feedback and input. Increased accountability is one way to build trust with the public. It is vital to demonstrate that research dollars are being spent in a responsible, efficient way.



> ***"Teams form, storm, norm and perform to deal with the issue, to varying degrees of success"***
>
> — (Tuckman. 1965. Psychological Bulletin 63:384-399)".

Appendix:

A. Agenda Book:

Initiating Partners:

Sponsored by:

A Researchers' Response to CANADA'S FUNDAMENTAL SCIENCE REVIEW

INVESTING IN CANADA'S FUTURE
Strengthening the Foundations of Canadian Research

A meeting to discuss the Naylor Panel report

May 31st, 2017
8-4:30

Social Sciences and Humanities Research Council of Canada | Conseil de recherches en sciences humaines du Canada

Program

8:00am — 8:45am	Breakfast
8:45am — 8:55am	Indigenous opening and land acknowledgement
8:55am — 9:05am	Framing the day's objectives
9:05am — 10:05am	David Naylor presentation and Q&A
10:05am — 10:30am	Coffee/tea break
10:30am — 11:30am	Perspectives: Dawn Martin-Hill, Lewis Kay, Holly Witteman
11:30am — 12:15pm	1st Discussion period
12:15pm —1:10pm	Lunch
1:10pm — 1:55pm	2nd Discussion period (move between topics)
1:55pm — 2:40pm	3rd Discussion period (move between topics)
2:40pm — 3:00pm	Effective communication - Warren Weeks
3:00pm — 3:15pm	Coffee/tea break
3:15pm — 4:15pm	Report back of group moderators
4:15pm — 4:30pm	Sum up, Next Steps

Acknowledgements:
Jade Sadej and Adina Siperman - MCI
Mehrdad Hariri - CSPC
Samantha Yammine
Marej Cerajewski and Diane Di Cesare - LTRI
Association of Canadian Early Career Heath Researchers
Eric Chou

B. Discussion Themes:

Theme 1. Strategies for Communication:
Moderator: Professor Jeremy Kerr
There are 35 Naylor panel recommendations: who are the audiences, what are the key messages, who are the key players, what are the best ways to translate and carry them forward? The report is substantive - how may its contents be most efficiently leveraged? What types of follow-up activities should be pursued?

Theme 2. Political Reality:
Moderator: Dr. Mehrdad Hariri
Given the federal deficit and the many competing demands on funds, what are the best options for moving forward on the recommendations? What are the imperatives? The report provides a 4-year window for re-investment to 2007 levels (inflation adjusted). What would the research community view as wins? What are realistic limitations associated with messaging to government? What is government looking for/impressed by?

Theme 3. Advocating for Research:
Moderator: Professor Tamara Kelly
Responsibilities of researchers, converting research discoveries into narratives (collecting examples). The right balance between focus (building to strength) or encouraging breadth? There are multiple research advisory and lobbying organizations - are they sending the right messages? Are researchers being represented well? How might researchers become more involved? Do all levels of research careers have a voice? Should there be closer cooperation between organizations advocating for research? Is there overlap or confusion? Roles of research in developing educational curricula.

Theme 4. Delivery Vehicles for Research:
Moderator: Professor Brad Wouters
Our funding agencies constantly adapt and develop as research and best practices change. How might processes such as peer review and funding allocations between strategic and investigator-initiated programs be balanced? Provinces fund education and research through universities and colleges. What is the role of provinces in moving forward with the recommendations?

Theme 5. The Next Generation:
Moderator: Professor Joe Sparling
Government policies are highly influenced by opportunities for job creation and skills development. What are the barriers to the current means of supporting trainees? Are elite studentships/ fellowships (Vanier/Banting) important or should there be standardization of support? The career paths of trainees have undergone major changes over the past decade. Have our systems adapted or do they need restructuring?

Theme 6. Equity and Inclusiveness:
Moderator: Professor Holly Witteman
How can we maximize diversity and equity in research? What are the benefits and potential problems? Indigeneity, race, ethnicity, (dis)ability, LGBTQIA2S, geography and career stage are each element of diversity and strength. How can research increase its performance, reduce barriers and attract underrepresented members of society? Targets and/or timelines? Discussion topics may include mechanisms, life cycle of researchers, minimum research “wage”.

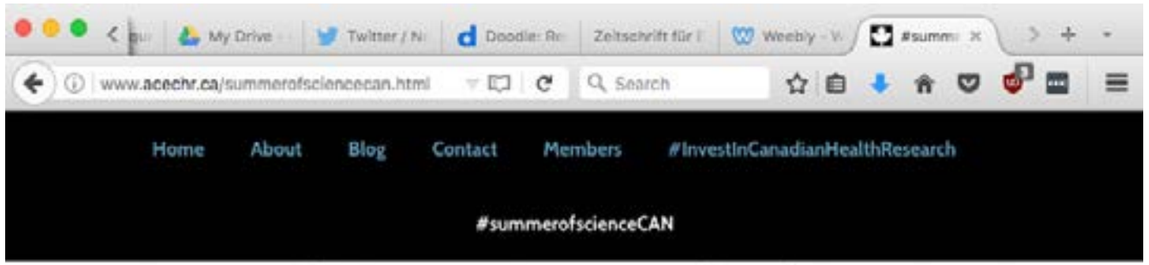
Theme 7. Managing Research Budgets:
Moderator: Professor Kevin Hamilton
Role of international collaborations and matching funding. How much research can Canada afford? Big science, funding for special institutes, international collaborations, infrastructure needs (big and small). What are the national goals for overall research activity? Is it stable?

Theme 8. In Between Fields:
Moderator: Professor Phil Hieter
Ensuring interdisciplinary research is effectively supported. Discussion of mechanisms, training opportunities, examples from other jurisdictions, pitfalls. How do we measure impact of research? Metrics can be distorted. Using global metrics, the report shows Canada is losing ground. How may this be reversed (is it all about $)? Are these appropriate metrics?

Theme 9. Governance of Canada’s Research:
Moderator: Professor Katie Gibbs
Best practices in coordination and integration of research funding (especially tri-council): discussion of role and make-up of NACRI, Chief Science Advisor, tri-council leadership group. Is there a need for further agency consolidation? What are the best ways for the research community build trust? How can the public be better engaged in research oversight?

C. A Step-By-Step Guide for researchers connecting with Members of Parliament:

Presented by Professor Holly Witteman, Faculty of Medicine, Université of Laval, Quebec.



A step-by-step guide for researchers connecting with Members of Parliament.

La version française suit.

Here we offer a step-by-step guide to connecting with your MP, with talking points and key themes to advance for consistency and guidance for staying on message. It includes:

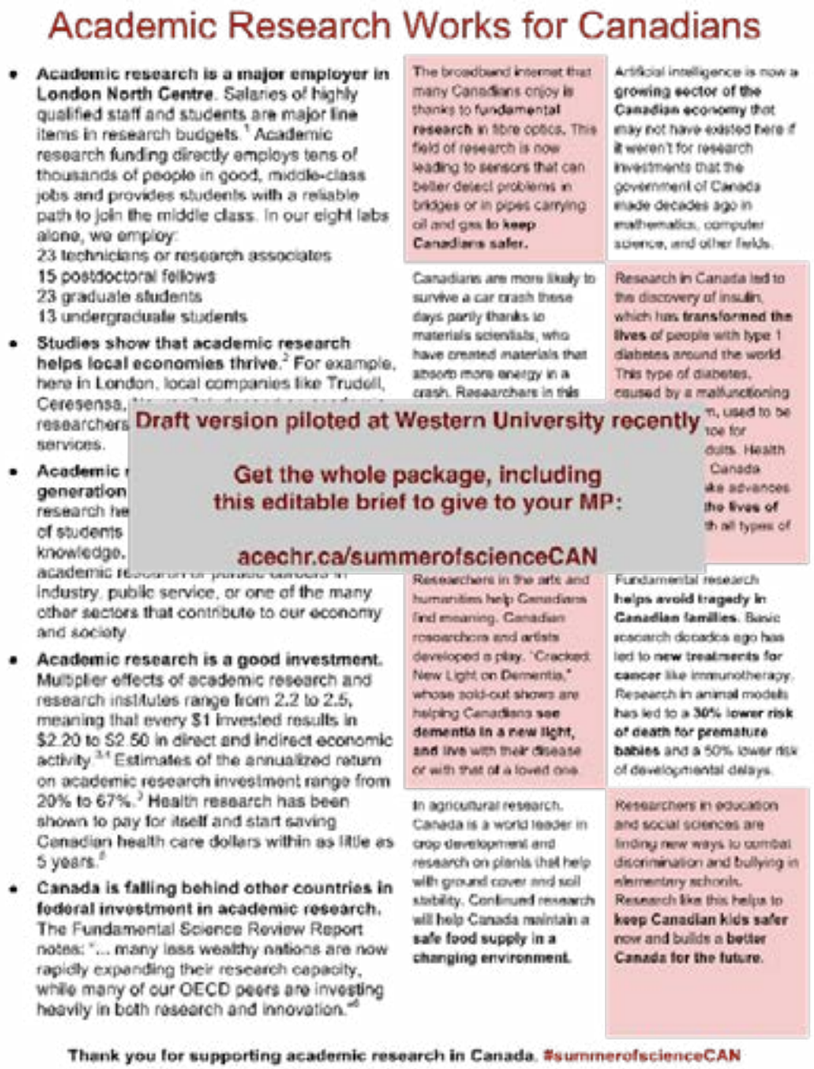
- an editable brief to give to them when you first meet with space to fill in local details
- a marked-up copy of a few Naylor report pages (you can choose different pages if you want, we’re just making it easier for you if you are happy with our choices)
- a lightly edited/updated pdf package of the “One more reason ...” images from our fall campaign (you can decide to include this in the package you give your MP or not)
- other links and documents

Key point overall:

- *Your core goal is for your MP to leave the meeting feeling very positively about research and about implementing the recommendations of the Naylor report.*

D. Academic Research Works for Canadians:

Presented by Professor Holly Witteman, Faculty of Medicine, Université of Laval, Quebec.



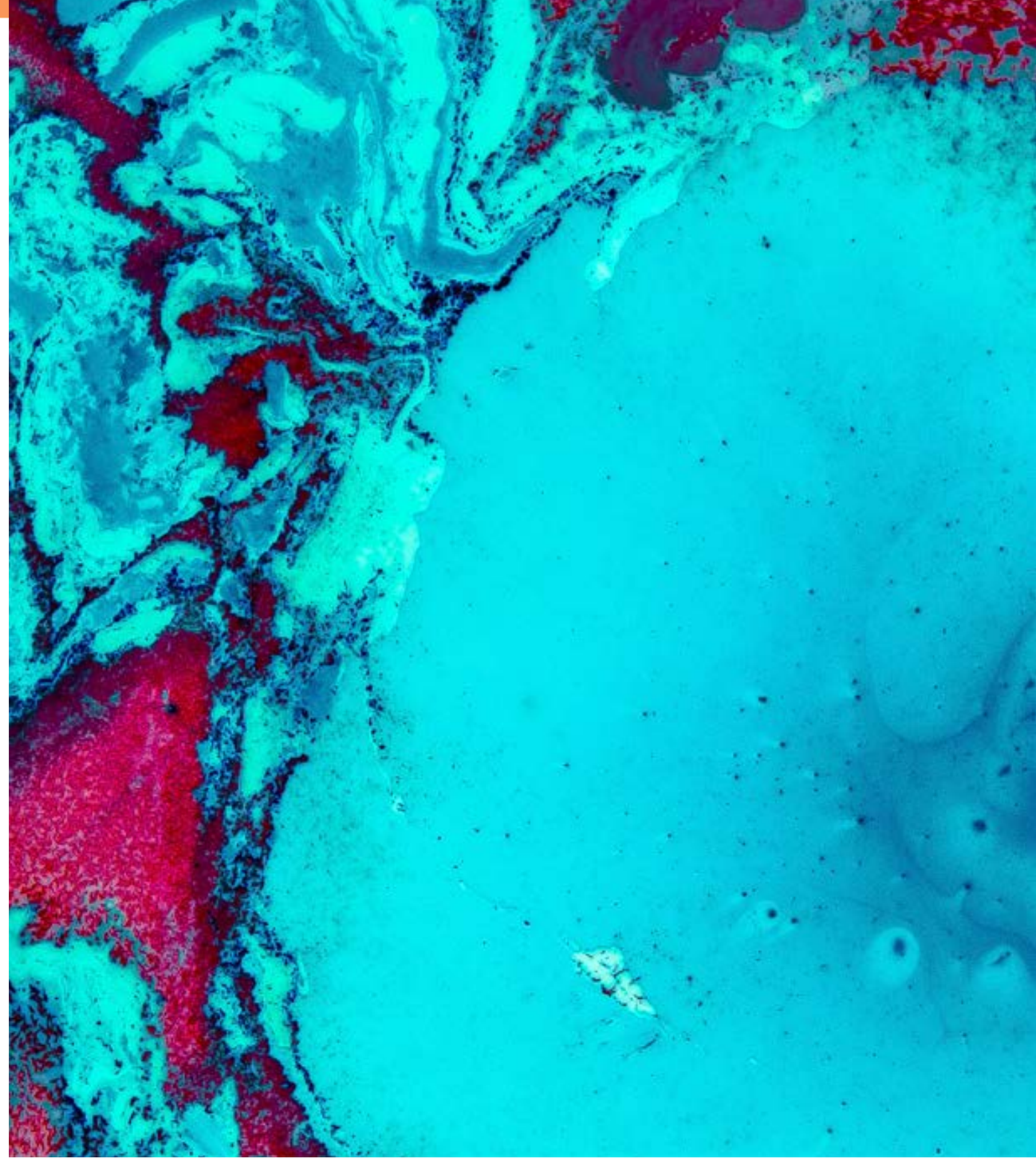
E. Researchers' Summit Meeting Registrants:

Last Name	First Name	Affiliation
Allen	Kate	Toronto Star
Anderson	Darren	Vive Crop Protection
Antonescu	Costin	Ryerson University
Austin-Smith	Brenda	University of Manitoba
Bangura	Alimamy	University of Toronto
Baron	Christian	Université de Montréal
Bautista	Stephen	Ryerson University
Bazely	Dawn	York University
Belsham	Denise	University of Toronto
Bendeck	Michelle	University of Toronto
Bender	Jackie	University Health Network
Berman	David	Queen's University
Bhasin	Komal	Centre for Addiction and Mental Health
Billia	Filio	TGRI/UHN/U of T
Bourassa	Carrie	IAPH, CIHR
Bremner	Rod	Lunenfeld Tanenbaum Research Institute
Bressan	Nadja	The Hospital for Sick Children
Brubaker	Patricia	University of Toronto
Burrows	Lori	McMaster University
Campbell	Lesley	Ryerson University
Capobianco	Stephanie	Centre for Addiction and Mental Health
Cartmale	Lara	University of Toronto
Chadwick	Judith	University of Toronto
Chambers	Christine	Dalhousie University
Chiappetta	Peggy	York University
Chow-Fraser	Patricia	McMaster University
Ciuk	Martin	Centre for Addiction and Mental Health
Clark	Peter	Simon Fraser University/Medentech
Coe	Imogen	Ryerson University
Collingridge	Graham	Department of Physiology, MSB Room 3207
Crowcroft	Natasha	Public Health Ontario, University of Toronto
Curado	Beatriz	
Daniel	Juliet	McMaster University
Danska	Jayne	The Hospital for Sick Children
Dhanvantari	Savita	Lawson Health Research Institute
DiGiulioS	tephen	Clarivate Analytics
Dirks	John H	University of Toronto
Dubey	Anita	Centre for Addiction and Mental Health
Duchaine	Thomas	McGill University
Farkouh	Michael	University Health Network - PMCC
Farnood	Ramin	University of Toronto
Fascinato	Dominique	University of Toronto
Ferris	Lori	University of Toronto
Fisher	Stephanie	University of Toronto
Freier	Blake	University of Waterloo

Galea	Liisa	University of British Columbia
Geddie	Kate	University of Toronto
Gibbs	Katie	Evidence for Democracy
Goel	Vivek	University of Toronto
Goracinova	Elena	University of Toronto
Gordon-El-Bihbety	Deborah	Research Canada
Gramolini	Anthony	University of Toronto
Grandvaux	Nathalie	CRCHUM/Université de Montréal
Grise	Kenneth	Donnelly Centre for Cellular and Biomolecular Research, University of Toronto
Halievski	Katherine	The Hospital for Sick Children
Hamilton	Kevin	Sunnybrook Research Institute
Hariri	Mehrdad	Canadian Science Policy Centre
Haroon	Nigil	University of Toronto
Harris	Laurence	York University
Harroun	Thad	Canadian Institute for Neutron Scattering
Hegele	Richard	University of Toronto
Heximer	Scott	University of Toronto
Hieter	Philip	University of British Columbia
Hill	David	Lawson Health Research Institute
Hill	Chief Leroy	Six Nations
Hoffman	Michael	Princess Margaret Cancer Centre/University of Toronto
Hysi	Eno	Ryerson University
Ing-Esteves	Sam	SickKids / UofT
Julien	Jean-Philippe	The Hospital for Sick Children
Juni	Peter	St. Michael's Hospital
Kaplan	David	The Hospital for Sick Children
Kay	Lewis	University of Toronto
Kearney	John	The Hospital for Sick Children
Kelly	Tamara	York University
Kerfoot	Steven	Western University
Kerr	Jeremy	University of Ottawa and Canadian Society for Ecology & Evolution
Khakimov	Amon	Ministry of Research, Innovation and Science
King	Joanna	University of Toronto
Knibb-Lamouche	James	McMaster University
Knight	Julia	Lunenfeld-Tanenbaum Research Institute
Kolios	Michael	Ryerson University
Lajoie	Patrick	The University of Western Ontario
Lamouche	James	McMaster University
Landry	Christian	Université Laval
Lasthiotakis	Helen	University of Toronto
Lemieux	Bob	University of Waterloo
Levesque	Guy	Canada Foundation for Innovation
Liu	Kuan	The Hospital for Sick Children, University of Toronto
Lobaugh	Nancy	Centre for Addiction and Mental Health
Lowther	Chelsea	University of Toronto
Lynn	Francis	University of British Columbia
Manolson	Morris	University of Toronto
Mansfield	Avril	Toronto Rehabilitation Institute - UHN
Martin-Hill	Dawn	McMaster University
Martino	Tami	Centre for Cardiovascular Investigations, Biomedical Sciences, University of Guelph
Matthews	Stephen	University of Toronto
McArthur	Dawn	BC Children's Hospital Research Institute / UBC
McIntosh	Randy	Rotman Research Institute - Baycrest, University of Toronto

McNagny	Kelly	University of British Columbia
McPhee	Joe	Ryerson University
McQuiggan	Jessica	Heart & Stroke Foundation
Meas	Steven	University of Toronto
Mei	Junyi	University of Toronto
Meiklejohn	Ken	University of Toronto
Melles	Stephanie	Ryerson University
Melnyk	Roman	The Hospital for Sick Children
Menaker	Rena	Council of Academic Hospitals of Ontario
Michell	Karen	Council of Academic Hospitals of Ontario
Naus	Frank	Hamilton Health Sciences
Naylor	David	University of Toronto
Nelson	Michelle	Lunenfeld-Tanenbaum Research Institute
Newton	Derek	University of Toronto
Nodwell	Justin	University of Toronto
Normand	Pierre	Canada Foundation for Innovation
O'Brien	Valerie	McMaster University
Ogilvie	Gina	Women's Health Research Institute, UBC Women's Hospital
Orrell	Kathleen	University of Toronto, The Hospital for Sick Children
Panhuis	Janette	Population Health Research Institute
Patel	Sandhya	Centre for Addiction and Mental Health
Patel	Dimple	Centre for Addiction and Mental Health
Paus	Tomas	Baycrest
Penuela	Silvia	University of Western Ontario
Perry	Christopher	Muscle Health Research Centre, York University
Peterson-Badali	Michele	University of Toronto
Pillai Riddell	Rebecca	York University
Polonenko	Melissa	The Hospital for Sick Children; The University of Toronto
Porter	Lisa	University of Windsor
Prendergast	Kelley	University of Toronto
Preston	John	McMaster Engineering
Pruszynski	Andrew	Western University
Pyle	Glen	University of Guelph
Ramachandran	Rithwik	University of Western Ontario
Ramsey	Amy	University of Toronto
Ratelle	Amy	University of Toronto
Renaud	Stephen	University of Western Ontario
Richards	Carl	McMaster University
Richmond	Chantelle	Univ. Western Ontario
Rinchon	Cricia	University of Toronto
Rizos	Zoe	Centre for Addiction and Mental Health
Rochon	Paula	Women's College Hospital
Rossant	Janet	Hospital for Sick Children
Rowe	Locke	University of Toronto
Rubin	Barry	University Health Network
Ryan	Jennifer	Rotman Research Institute, Baycrest
Sabatinos	Sarah	Ryerson University
Salahpour	Ali	University of Toronto
Salter	Michael	The Hospital for Sick Children
Saridakis	Vivian	York University
Schertzer	Jonathan	McMaster University
Scott	Benjamin	University of Toronto
Scott	Ian	The Hospital for Sick Children
Sellen	Dan	The Joannah & Brian Lawson Centre for Child Nutrition, University of Toronto

Semeniuk	Ivan	Globe and Mail
Seneviratne	Ayesh	University of Toronto
Shakiba	Nika	Institute of Biomaterials and Biomedical Engineering, University of Toronto
Shams	Nasim	University of Toronto
Sheffield	William	Canadian Blood Services
Shen	Kelly	Rotman Research Institute, Baycrest
Shivanand	Yashwinie	University of Toronto
Sibille	Etienne	CAMH / University of Toronto
Simpson	Jeremy	University of Guelph
Sloboda	Deborah	McMaster University
Soos	Agnes	University of Toronto
Sparling	Joseph	Hotchkiss Brain Institute / University of Calgary
Spencer Noakes	Leigh	The Hospital for Sick Children
Stamenova	Vess	Rotman Research Institute
Straus	Sharon	St. Michael's Hospital, University of Toronto
Strother	Stephen	Baycrest and University of Toronto
Strug	Lisa	The Hospital for Sick Children
Taylor	Madeleine	University of Toronto
Tholl	Bill	HealthCareCAN
Tomaszczyk	Alicia	York University
Trost	Brett	The Hospital for Sick Children
Tsushima	Robert	York University
Veletanlic	Emina	University of Toronto
Vichnevetski	Klara	Centre for Addiction and Mental Health
Vitkin	Alex	University Health Network - Princess Margaret Cancer Centre
Vuksan	Vladimir	St. Michael's Hospital, University of Toronto
Weaver	Dan	University of Toronto
Webster	Paul	Media
Weeks	Warren	Weeks Media
Welsh	Donald	Robarts Research Institute/Western University
Whitlow	Rod	Chiefs of Ontario
Wiley	Ryan	Shift Health
Willams	Greg	Williams Advisory Services
Wilson	Tatum	Council of Academic Hospitals of Ontario
Witteman	Holly	Laval University
Woodgett	Jim	Lunenfeld-Tanenbaum Research Institute
Wouters	Brad	University Health Network
Yammine	Samantha	University of Toronto
Youssef	Alaa	University of Toronto, Institute of Medical Sciences, Faculty of Medicine
Yusuf	Salim	McMaster university
Zamorano	Natalia	Université de Montréal
Zarin	Taraneh	University of Toronto
Zhang	Wei	University of Toronto
Zohar	Sandra	Canadian Foundation for Innovation



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