MSFHR Peer Review Assessment

April 2018

MICHAEL SMITH FOUNDATION FOR HEALTH RESEARCH

Discover. Connect. Engage.

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MICHAEL SMITH FOUNDATION FOR HEALTH RESEARCH

Discover. Connect. Engage.

Purpose

The Michael Smith Foundation for Health Research (MSFHR), funded by the province of British Columbia, is British Columbia's health research funding agency. MSFHR helps develop, retain and recruit the talented people whose research improves the health of British Columbians, addresses health system priorities, creates jobs and adds to the knowledge economy.

Since our founding in 2001, we've continued to hone our expertise about all aspects of the research funding process, including peer review.* We're proud of our rigorous and highly credible peer review process. It upholds the highest scientific standards, giving us confidence that we're funding the strongest researchers and research projects, and helping ensure that we're achieving our program objectives. We're committed to ongoing learning and improvement so we can keep making our peer review process better. This report summarizes some of our recent learning about peer review in the form of a set of recommendations derived from a review of best practices. It begins by providing background and an overview of application review at MSFHR, then presents the recommendations and our response to them.

Background

Health research funding agencies in Canada and internationally typically use a peer review process to determine if applicants to their funding programs meet a defined set of criteria and are eligible for funding. These agencies have considerable expertise in designing and executing peer review processes, and peer review has the support and confidence of most scientific stakeholders. But how do we ensure we're doing it as well as possible? A 2017 RAND review of what we know about peer review in the health sciences notes a "remarkable paucity of evidence about the overall efficiency of peer review for funding allocation."[1] The same review – an update to one initially carried out in 2009[2] – found that although there are now more high-quality studies than before, there's still a dearth of rigorous scientific evidence on peer review. Canada's Fundamental Science Review Panel echoed this conclusion in their final report, as did CIHR's International Peer Review Expert Panel, who stated that "there is no singular 'gold standard' process of grant and thus peer review."[3, 4]

The 2017 RAND review identifies several criticisms supported by current evidence of whether peer review is an effective system for awarding grants. For example, reviews vary considerably between reviewers, and the peer review system has been shown to be less effective in supporting highly innovative, novel research or predicting future performance. The system is open to cronyism and there is evidence that suggests the possibility of various forms of bias, including by gender and age. Peer review may also be less effective at assessing inter- or multi-disciplinary research. The overall burden of peer review has increased, with the greatest burden falling to applicants. Some funders have responded to this challenge by shortening and reducing the complexity of their applications, while

* In this document we use the terms peer review, application review and grant review interchangeably.

others have experimented with stricter triage processes. The burden on applicants and reviewers becomes increasingly difficult to justify in a context characterized by decreasing funding success rates across many programs and agencies.

Despite the growing body of evidence on its strengths and challenges, there's still a lot more to learn about peer review. Because of these persistent knowledge gaps, the authors of the RAND review call for better evidence on the overall effectiveness of peer review to inform the design of peer review processes. They emphasize the need for research that looks at peer review processes in context because, as they point out, "system impacts affect the peer review process, and peer review changes affect the system, so both need to be considered together to understand the dynamic behaviour of the overall research process."[1] They also call on funders to be more proactive about experimenting with, evaluating and publishing results from evaluations of alternative approaches to peer review.

Peer review is a dynamic process that must continue evolving in response to the health research funding landscape. At MSFHR, we seek to ensure that our review processes are reflective of best practices and our evolving context. Like other funding agencies, we're increasingly called on to reduce waste and increase the impact of the research we fund.[4, 5] We're being asked to demonstrate greater transparency in how we set priorities and allocate funding, and to ensure that our priorities and programs account for the diverse and sometimes divergent needs of a range of stakeholder communities. All of this is occurring in an environment where the number of excellent researchers and projects often outstrips the funds available to support them. Success rates have declined across many funding agencies, leading to increased application pressures, greater burdens on applicants and increasing concerns about the long-term sustainability of research career trajectories, particularly for early career researchers. Decisions about research funding have significant implications for individual research careers and entire areas of study. The stakes are high for everyone involved, so it's imperative that funders design and implement the best possible review processes for their funding programs.

All of these pressures on funding agencies and researchers are occurring in an environment where there is increasing attention paid to matters of equity, diversity and potential bias in research funding decision-making processes.[1, 4] With growing attention to Indigenous health research, funders are being called on to design peer review processes that are better equipped to assess applications in a way that's grounded in cultural safety and Indigenous research ethics.[6] Some funding agencies are expanding the definition of 'expert' to include research users like patients, decision-makers and members of the public, a shift that's reflected in the design of some review processes and panels. Funders are recognizing that their high expectations of applicants related to knowledge translation (KT) are not matched by review panels' capacity to review KT elements of grants.[7]

This report summarizes some of our evidence- and experience-informed learnings about peer review and what we plan to do about them. We're committed to continuous learning and improvement and to sharing what we learn in the hope that it will contribute to dialogue among funders and with our

stakeholders about how to ensure that our review processes continue to keep pace with the evolving landscape of health research.

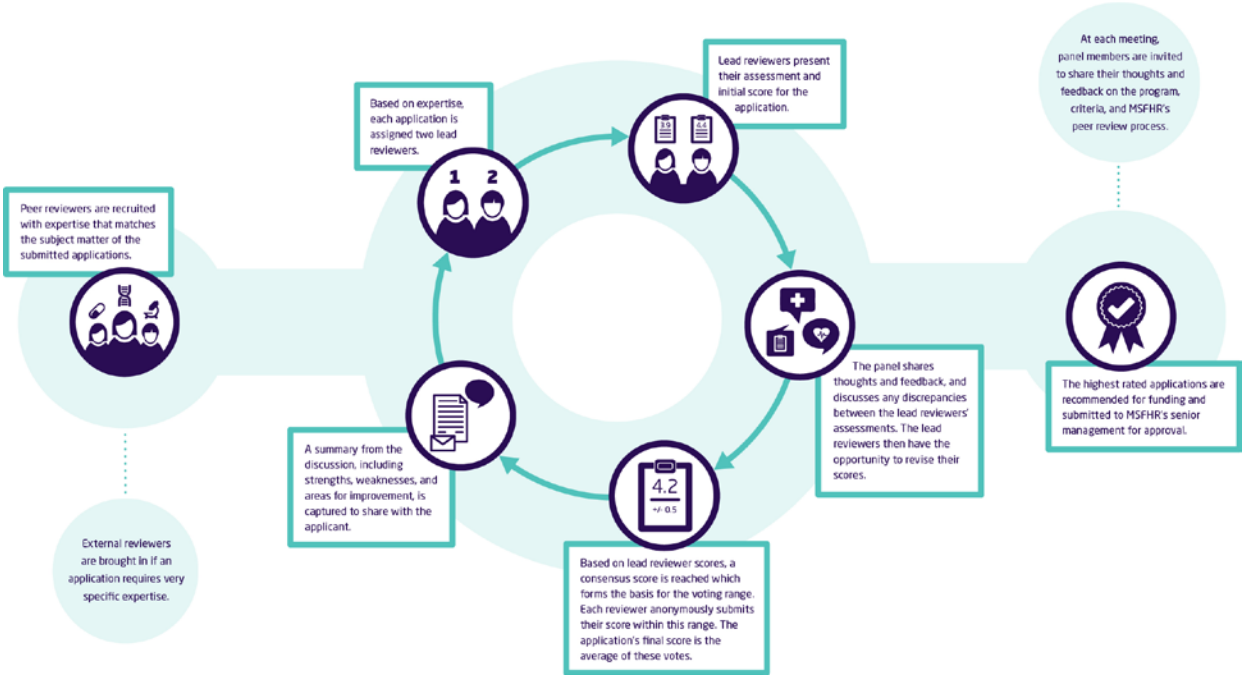
Application review at MSFHR

MSFHR is BC's health research funder. Created in 2001 by the BC government to build provincial capacity for health research, we help develop, retain and recruit the talented people whose research improves the health of British Columbians, addresses health system priorities, creates jobs and adds to the knowledge economy. The primary way we accomplish this is by designing and delivering a range of health research funding programs. We currently offer seven funding programs (see appendix A). To ensure that we fund the most excellent researchers and research through these programs, we've established a robust peer review process. That process is guided by six principles shared by all members of the National Alliance of Provincial Health Research Organizations (NAPHRO): integrity, accountability, transparency, balance, confidentiality and impartiality. MSFHR's Research Competitions team oversees our peer review process, with input from other departments (e.g. Research Program Design & Development and Knowledge Translation).

We tailor each review panel to the applications we receive in a given competition, matching reviewers to applications by recruiting subject matter experts whose expertise directly aligns with the applications we receive. We choose reviewers based on their research excellence, knowledge and judgement. Since we fund research at the provincial level where applicants and potential reviewers may be connected through collaboration or institutional affiliation, we mitigate conflict of interest by recruiting a mix of reviewers from inside and outside BC and by requiring all reviewers to proactively declare their conflicts. For highly specialized applications, we also draw on external readers, often from the international community. In 2017, about 62% of our panel members were from outside of BC, 60% were first-time MSFHR reviewers and over one-third were current or former MSFHR award recipients.

We hold in-person review meetings for our major funding awards (Scholar, Research Trainee, Health Professional-Investigator (HP-I), Innovation to Commercialization (I2C), and Implementation Science Teams). We conduct reviews for our Convening and Collaborating (C^2) and Reach programs electronically, as the applications and review criteria for these awards are less complex than those of our major awards, and our experience demonstrates that this approach works well for these programs. At our face-to-face review meetings, two lead reviewers are assigned to each application; they then share their assessments and initial scores for their assigned applications at the review meeting. To improve consistency, extra time is afforded to discussion of applications where there are meaningful differences in the initial scores. All reviewers are requested to share their unbiased feedback and discuss scoring for each application, ultimately arriving at a consensus range that each panel member then votes within anonymously.

Figure 1. An overview of MSFHR's peer review process



At the end of each review meeting, we ask reviewers to provide feedback on the program they were reviewing for, the resources provided to applicants, and the review process itself. After the review process is complete, we follow up with a survey that asks reviewers for additional input. We analyze the data from the in-person debrief and post-review survey and use the findings to inform future iterations of the program and the design of the review process.[†]

Commitment to continuous learning and improvement

The feedback we receive from our reviewers is important to us because at MSFHR, we're committed to continuous learning and improvement in all aspects of our work, including the peer review process. To enable this, we closely examine our internal processes in addition to looking outward for best practices in the field. In 2013, we engaged an outside expert to assess MSFHR's review policies and procedures in the context of current best practices. The assessment concluded that MSFHR staff were well-versed

[†] Of the 114 reviewers we surveyed in 2017, 74 responded to our survey invitation (a 65% response rate). The majority of survey respondents identified MSFHR's reputation (77%) and the in-person review meeting (75%) as the most important factors influencing their decision to participate in one of our review panels. Survey respondents gave positive feedback on the experience of reviewing for MSFHR, with over two-thirds of reviewers describing it as somewhat better or much better than other panels they'd been a part of. Reviewers also offered feedback on how to improve our review process. For example, some asked for more information and guidance on scoring (e.g., examples of weak and strong applications), while others encouraged us to triage more applications at the letter of intent stage as a way of minimizing applicant burden in a competitive funding environment.

in their duties, processes were well-documented, applicants were given good advice and direction in submitting their proposals, and reviewers conscientiously discharged their responsibilities in order to provide high-quality reviews. We implemented the majority of recommendations arising from this earlier assessment and continue to monitor or explore others.

In 2016/17, we commissioned a review of best practices in peer review that included a review of the literature as well as surveys and interviews with key informants at other health research granting agencies. The focus of this review was more operational in that it centred on our key questions about best practices in application review processes, such as optimal application length, how best to implement a triage process for low scoring applications, and when to use face-to-face review meetings. The recommendations arising from this review and our responses to them are summarized below.

Recommendations and MSFHR's responses

The following recommendations were developed on the basis of what we learned from our 2016/17 review of best practices in peer review and informed by key publications like the 2017 RAND review on grant peer review in the health sciences, the CIHR International Peer Review Expert Panel Report and the Fundamental Science Review Report. MSFHR's response to each recommendation is listed below.

1. **Ensure that the composition of MSFHR's peer review panels is appropriately aligned with the objectives of each funding program and reflective of the expertise required to review all applications received in a given competition. When appropriately aligned to program objectives, include research users, patients and/or members of the public as well as researchers on review panels.**

   For all MSFHR programs, we aim to create peer review panels that are tailored to meet the objectives of the program and well-aligned with the subject matter of the various applications. At present, we sometimes bring in non-researcher reviewers who have the expertise needed to assess applications for our KT-focused (Reach, C^2) or commercialization-oriented (I2C) program. For the Implementation Science Team program, we're designing an application review process that includes both implementation science experts and research users.

   One of four areas of strategic opportunity in MSFHR's public and patient engagement strategy is to embed public and patient perspectives and advice into the grant review process. We're in the beginning stages of implementing this strategy and still have work to do to effectively operationalize the meaningful and appropriate involvement of public and patients in our review process. We're in an ongoing dialogue with the BC SUPPORT Unit about opportunities for shared learning here, as well as looking to learn from other funding agencies already doing this.

2. **Shorten the amount of non-vital biographical information currently required in most applications, such as a more concise abbreviated CV or biosketch, with shortened publication lists.**

   In response to this recommendation, we're requiring abbreviated CVs for all of our award applications, with the exception of our Scholar award, as a detailed CV is required for this individually-focused personnel award. We've also limited the number of appendices that can be included with each application, as well as shortening specific sections of applications to some MSFHR programs based on input from peer reviewers. The aim of all of these efforts is to reduce burden for both applicants and reviewers.

3. **To ensure that panel discussions are both efficient and effective, make certain that panel Chairs have effective skills for facilitating panel discussions. When required, implement general time limits for discussion per application.**

   Our Research Competitions team is developing an instruction guide for review panel Chairs that emphasizes the importance of their role in facilitating discussions and offers guidance on how to keep meetings constructive, on-topic and on-time. We'll continue to recruit senior researchers who are experienced reviewers as our panel Chairs, as our experience has been that they bring a strong base of skills into this role at MSFHR.

4. **Establish a triage process in which applications that all initial reviews agree are not competitive and/or score below the fundable range are excluded from review panel discussion in order to ease review panel burden. Binning mechanisms – i.e., dividing applications into groups based on preliminary scores – should be investigated further for use within peer review, but should be reserved only for competitions with a large number and wide variety of applications.**

   Our Research Competitions team will develop a formal triage policy for MSFHR's Scholar, Trainee, HP-I and I2C award competitions. The award cut-offs will be informed by peer review scoring and ranking data from prior competitions.

5. **Continue holding face-to-face reviews for programs with larger application numbers and higher funding values, while continuing to explore the possibility of real-time virtual options for smaller competitions as they become available in the future.**

   As confirmed by our peer reviewer survey data, face-to-face review is considered a key aspect of a fair and transparent peer review process. In light of this and the available evidence, we'll continue to hold face-to-face review meetings for the Scholar, Trainee, HP-I, I2C and Implementation Science Team programs. We'll continue to use an electronic review process for the C^2 and Reach

programs and will explore the possibility of introducing discussion-based teleconferences or webinars for reviewers as part of the process. As our suite of programs and available technologies evolve, we'll monitor emerging and best practices in application review to ensure the effectiveness and efficiency of our review processes.

6. **Despite the potential increase in burden for reviewers, consider enhancing peer reviewer training, as it is deemed an important and necessary requirement to ensure consistent and equitable review of applications. Potential reviewer training topics include and are not limited to unconscious bias in peer review and how to review knowledge translation-focused applications.**

   MSFHR currently offers a written reviewer instruction guide and orientation webinar to our review panel members. They include information on MSFHR peer review policies and processes, as well as instructions on how to use MSFHR ApplyNet. Orientation slides will be revised to include greater emphasis on the purpose and objectives of each funding program.

   MSFHR's Knowledge Translation team is developing a webinar series on how to incorporate and review KT within research funding applications. This information will be incorporated as part of standard reviewer training. We're also piloting unconscious bias training for our I2C program reviewers; if this pilot is successful we'll look at implementing this training module across other MSFHR programs. Where possible, we'll reduce burden on reviewers by partnering with other funders to harmonize training activities and minimize duplication (e.g. we're using CIHR's unconscious bias training module rather than creating one of our own).

7. **Ensure that MSFHR's forthcoming equity strategy speaks to best practices around equitable allocation of research funding while still maintaining scientific excellence or merit as a key determining criterion for funding decisions.**

   MSFHR will integrate an equity strategy into our next strategic plan. The equity strategy will be developed in consultation with BC health researchers and will be grounded in current evidence and best practices in the field. It will address topics such as equity in research funding and in assessments of excellence or merit. It will also address the need to grow MSFHR's capacity to collect and report on data related to dimensions of equity in research funding.

8. **Continue using external readers in competitions where specific research expertise is lacking, only to an extent that it will not compromise the quality and effectiveness of the review process. If used, they should be applied in a way that maintains fairness and consistency for all applications under review.**

The Research Competitions team currently utilizes external readers, as needed, for three of our high-value award competitions (Scholar, HP-I and I2C). Current practice stipulates that external readers are used for applications that have been identified by Research Competitions as requiring additional expertise, following consultation with the assigned primary and secondary reviewers. External readers are asked only to provide assessment on the proposed research so as not to unfairly subject applications to increased scrutiny compared to those not requiring external review.

9. **Create opportunities for observers to attend peer review panel meetings. The use of observers during peer review proceedings is relatively common practice and is encouraged, as the benefits outweigh the risks and increase the perception of transparency among the stakeholder community.**

   We currently allow stakeholders with no conflict of interest (e.g., community partners, competition partners, MSFHR Board members, etc.) to attend peer review panel meetings. Formalized observer guidelines will be developed in 2018.

10. **Limit the use of honoraria to review panel Chairs and non-local reviewers, at a cost of no more than $500/individual, while ensuring other panel members are recognized in ways that can reflect positively on their career.**

    Fewer funding agencies are paying reviewer honoraria because they see peer review as a form of service researchers offer back to their scholarly communities. They are also looking to provide ways of recognizing that service that are both more visible and advantageous to reviewers' careers. In light of this, beginning in the 2018/19 competition cycle, only non-local review panel members (including Chairs and Scientific Officers) will be eligible for an honorarium of no more than $500. All other review panel members will receive non-monetary tokens of appreciation (e.g. MSFHR-branded tote bags, USB keys, etc.), a letter of thanks, and a letter of acknowledgement of service sent to the reviewer's department head.

11. **Consider creating an advisory body that provides advice and guidance on MSFHR's funding programs and competitions, and makes recommendations on key MSFHR areas of activity such as application review. Depending on the need and the current context, this body could be ad hoc or ongoing. Further discussion on how this aligns with the mandate of the MSFHR Research Leaders Forum is required.**

    MSFHR recently formed the Research Leaders Forum, a group of internationally-recognized researchers who will advise the Foundation on the trends, challenges and opportunities shaping health research. As described in its terms of reference, the Research Leaders Forum provides advice and guidance on MSFHR's grant programs and competitions, and makes recommendations

in key areas such as application review. We'll seek advice as appropriate from the Research Leaders Forum on our program design and application review processes, and will explore whether to convene an ad hoc advisory body with a very specific mandate (e.g. an in-depth assessment of MSFHR's review practices) in the future as required.

Conclusion

As a funding agency known for our expertise in application review, we're committed to continuous learning and improvement, and to working in a context- and evidence-informed way. In addition to implementing the recommendations described in this report, we'll build on what we learned in 2017 by continuing to seek input from our reviewers. We will integrate what we learn into our program learning and improvement cycle, which structures and guides the methods we use to gather and analyze data from a variety of sources to inform continuous improvement of our funding programs and processes.

We'll continue to engage in ongoing collaboration and best practice exchange with other funders, as well as continuous learning from the evolving literature on peer review. We'll also explore how we might heed the calls to action in the recent RAND review[1] – for example, asking reviewers to provide a measure of their confidence in their application ratings, analyzing levels of disagreement between reviewers, experimenting with strategies for mitigating bias (e.g. blinded reviews, training on unconscious bias), and being more proactive about evaluating and publishing what we learn from our experiments in peer review.

Appendix A: Overview of MSFHR funding programs

- **Scholar Program:** The Scholar Program supports early career health researchers, helping them form their own research teams, train junior scientists and develop world-leading research programs.
- **Research Trainee Program:** The Research Trainee Program supports health researchers in the training phase of their research career to enable career development and the long-term success of the BC health research landscape.
- **Health Professional-Investigator (HP-I) Program:** The HP-I Program supports clinical health professionals (e.g. MD, RN, PT) to develop and advance research with the goal of bringing research evidence into practice within the health system.
- **Innovation to Commercialization (I2C) Program:** The I2C Program supports researchers to advance their discoveries or inventions towards practical application, helping ignite and enrich BC's health innovation ecosystem.
- **Implementation Science Team Program:** The Implementation Science Team Program supports teams to plan, conduct, and study the implementation of proven health-related interventions that address one or more of BC's current health system priorities.
- **Convening & Collaborating (C^2) Program:** The C^2 Program supports collaborative activities between health researchers and research users to build capacity for knowledge exchange and promote the use of research evidence in practice, policy and further research.
- **Reach Program:** The Reach Program supports health researchers and research users to disseminate the outputs of health research.

Note: We also have a Health Policy Fellowship Program, which connects post-doctoral researchers with health policy decision-makers and their projects to enhance understanding, communication and promote evidence-informed policy-making. This program is on pause in 2018 as MSFHR is partnering on CIHR's Health System Impact Fellowship Program.

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