Funding Agencies and Reproducibility: CIHR's Role

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The objectives of today's presentation is to discuss the funder's role in improving data stewardship through:

- Program Design

- Peer Review

- Policy/Guidelines

Addressing issues around reproducibility is about enabling better science; NOT policing research misconduct.

The **objectives** of the reform to **CIHR's investigator-initiated programs and peer review processes** are to:

- Capture excellence across all four research pillars, from knowledge creation to knowledge translation
- Capture innovative, original and breakthrough research
- Integrate new talent to sustain Canada's pipeline of health researchers
- Improve sustainability of the long-term research enterprise

New Design

Key elements of the design have been endorsed by CIHR's Governing Council and Science Council:

1. Two separate, complementary funding schemes will replace the current Open Suite of Programs:

   - Project Scheme
   - Foundation Scheme

2. A peer review process that will include:

   - Application-focused review
   - Multi-stage review
   - Structured review criteria
   - Remote review of applications at the initial stage(s)

3. A College of Reviewers that will support excellent peer review across the spectrum of health research

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CIHR's Reforms to the Open Operating Grant Program are aimed at using Program Design to support better science.

- Foundation grants will allow researchers to 'get off the treadmill' of continual re-application.

- The Foundation Scheme should help change the underlying reward scheme. Sufficient, stable and long-term funding will allow researchers to pursue high risk and innovative ideas without the constant threat of grant renewal.

- Holders of Foundation grants will also automatically be members of the College of Reviewers.

CIHR's redesigned Project Scheme with clear evaluation criteria will employ a structured review.

This structured review will involve:

- one criterion to focus on approach/methodology

- college members reviewing and rating methodology

- weighted criterion that will be reflected in the score for every application

CIHR's New "College of Reviewers" will…

- focus on providing training/education to peer reviewers
- provide an opportunity to develop training modules on evaluating methodology
- allow for performance management of peer reviewers

Today

- CIHR peer review instructions and education are not consistently delivered or targeted to needs, especially for new reviewers.
- There is no education designed to address challenges.

Future College

Mandatory base education will be provided to all College members. Education provided will be flexible, streamlined and modular. It will be:

- aligned with experience, funding program, stage of review, role;
- supplemented with mentorship opportunities, self-assessment tools and training records; and
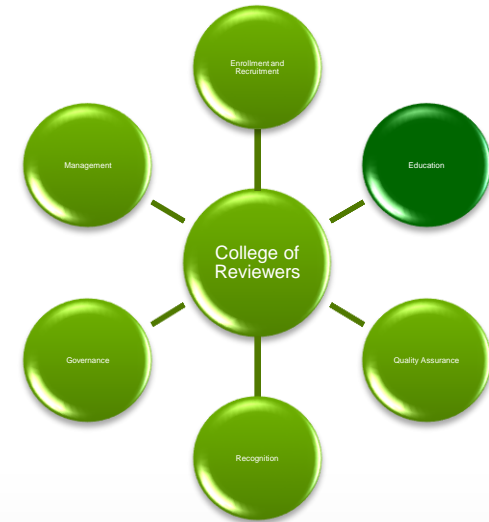- linked to a systematic approach to evaluate and improve performance of CIHR's peer review system.

Considerations

- Addressing the needs of current reviewers and new reviewers to CIHR.
- Marketing and promoting of education programs.
- Developing introductory and role specific certification education programs.
- Developing the mentorship program.

Education of College Members:

- First priority for the Education program is the delivery of courses to support reviewers with the new funding schemes. Materials are currently being developed for the Foundation Pilot reviewers.

- External testers will provide input on the education materials before they are launched.

- The Learning Management System (LMS) is being integrated as part of ResearchNet. Reviewers will be able to access their courses through their review activities as well as through a general course catalog. The catalog will be populated over time.

- The education categories that will support the College are:
    - Program specific education - this will include Foundation and Project scheme;
    - General peer review education (e.g., roles and responsibilities of a College member);
    - Role specific education – this will support the delivery of the certification programs.

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Today
There is limited formal activity and no systematic approach for monitoring or improving the quality of peer review – system wide and for individual reviewers.

Future College
Policies and mechanisms will be in place to monitor, evaluate, remediate and promote the quality of reviewer performance including:

- Reviewer assessments
- Committee assessments
- Chair assessments
- Quality assurance audits

Considerations

- Establishment of policies to manage and investigate performance gaps.
- Development of tracking and reporting mechanisms.
- Development of quality assurance tools.
- Integration of outcomes of audits into changes to programs and training.

Policy statements and guidelines are key tools for funding agencies' to address issues around reproducibility.

- This allows CIHR to…
  - clarify expectations around rigor and due diligence and is heavily related to integrity and ethics of research – an area of high priority within the agency.
  - address reproducibility in research as an ethics activity.
  - support a broader implementation of standards in basic research.

CIHR has an existing policy on open access of research data. SSHRC has an existing policy on research data archiving.

TC3+ Discussion Paper released in Fall 2013

Government-wide commitment to Open Science

Agencies preparing to launch a new harmonized policy on open access

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- Good data management practices are fundamental to research excellence.

- Making the results of research as freely available and accessible as possible advances knowledge, minimizes research duplication, promotes re-use, maximizes benefits to Canadians and promotes the accomplishments of Canadian researchers.

- Good data management practices include ensuring that the appropriate protections and safeguards are in place, including privacy, confidentiality, security, IP, etc.

- Good data management practices are an essential precondition for "open data" and "open access to research data".

Open access is the practice of providing free and unrestricted online access to research publications.

- CIHR, NSERC and SSHRC grantees must make their resulting peer-reviewed journal articles freely available online within 12 months of publication.

- Researchers can comply with the open access policy in two ways:

  - 'self-archiving' - depositing their peer-reviewed manuscript to an online repository that will make the manuscript freely accessible within 12 months of publication; or

  - submitting their manuscript to a journal that offers open access within 12 months of publication.

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2nd Edition of Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2)

- Chapter 11: Clinical Trials.

CIHR-funded trials (both clinical and non-clinical) requirements

- register the trial
- update the trial registry
- disclose serious adverse events
- deposit aggregate data in an unbiased, publicly accessible database
- RCTs must submit a report in the CONSORT format within 12 months of the end of the trial

CIHR also encourages all grant recipients to publish the systematic review submitted to CIHR as part of the grant application to justify the RCT.

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Are there other approaches we could take as a funding agency to support data integrity and reproducibility?

- program design?
- peer review?
- policy/guidelines?