



Canadian Memorial Chiropractic College Research Data Management Strategy

Introduction & Background Information

The purpose of the Canadian Memorial Chiropractic College's (CMCC's) Research Data Management (RDM) Strategy is to help researchers respond to the [Tri-Agency Research Data Management Policy](#) (the Policy) requirements. The Policy requires CMCC, as an institution eligible to receive and administer Tri-Agency funding (i.e., CIHR, NSERC, SSHRC), to develop and publish an RDM Strategy to be posted on CMCC's website (cmcc.ca) as a living document. This strategy document identifies how CMCC will support researchers as they engage with the Policy's requirements. The CMCC RDM Strategy is not a policy or an open-science strategy; however, institutional policy and procedure documents related to RDM and open-science may be developed in the future. In compliance with the Policy requirements, the CMCC RDM Strategy will be reviewed and updated as services, infrastructure and practices related to RDM evolve.

A consultative and inclusive process was used to develop this Strategy (see Appendix A). This process included surveying other publicly available RDM strategies from post-secondary institutions across Canada.

Importance of Research Data and Research Data Management

As stated above, the Policy requires CMCC to develop and publish an RDM Strategy. A benefit of the Strategy is that it recognizes the work that researchers are already doing in RDM and provides an opportunity to articulate how CMCC will support researchers, faculty, staff, and students (undergraduate and graduate) at all levels through coordinated education, training, support services, technological infrastructure, and communication.

RDM practices help researchers:

- Plan effectively for secure storage, preservation, and curation of the [research data](#). This includes archiving the research data to allow access by specific research personnel beyond the project's duration, as well as the appropriate disposal of research materials and data.
- Comply with [Tri-Agency data management plan](#) requirements for grant applications.
- Address elements of the [Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS2 \(2022\)](#).
- Fulfill their expectations under the [Responsible Conduct of Research Policy](#) to keep complete and accurate records and to comply with certification requirements.
- Share data responsibly, when appropriate.
- Comply with data repository requirements from journals or funders.
- Train faculty, staff and students at all levels.

Guiding Principles

This strategy document formalizes institutional guidance to CMCC researchers for data collection, data storage, data sharing and data archiving. These four elements constitute the foundation for RDM.

The RDM Strategy will ensure researchers follow institutional best practices to engage in effective and responsible conduct of research. It will embody how CMCC envisions that researchers store, find and reuse research data. With an appropriate RDM Strategy, CMCC will ensure research excellence and will continuously uphold researchers' ability to engage in innovation and discovery. Our RDM Strategy will also assist CMCC researchers who are working collaboratively with colleagues from other institutions.

There are eight main principles that govern this RDM Strategy:

1. Data in any form constitutes an important research output.
2. Data should be findable, accessible, interoperable, and reusable (FAIR).
3. Researchers require support in implementing RDM practices that address ethical, legal and commercial obligations as well as Tri-Agency requirements.
4. The [Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS2 \(2022\)](#) adopts a distinction-based approach in managing data related to research by and with First Nations, Métis, or Inuit communities, which concurs with data management principles developed and approved by these communities. CMCC will follow Tri-Agency guidance on Research Involving the First Nations, Inuit and Métis Peoples of Canada.
5. RDM is an important aspect of ethical and responsible research processes and practice.
6. RDM practices are important for researchers at all levels of career development.
7. RDM practices help support quality research and can be used to help facilitate open-science practices.
8. Researchers are encouraged and will be supported to adopt RDM practices regardless of funding source.

Objectives

The purpose of this RDM Strategy is to:

- Create a collaborative environment to support CMCC researchers, faculty, staff and graduate students in adopting responsible RDM processes and practices.
- Identify the office of primary responsibility for maintaining and implementing this Strategy.
- Maximize the benefits of RDM practices by supporting researchers in their RDM planning and implementation through education and collaboration.
- Facilitate the adoption of best practices that recognize the complexity and variety of data and the implementation of data management plans.

- Develop and facilitate access to supportive RDM infrastructure, including repository services and related approaches to the preservation and curation of data.

Oversight and Review

The Division of Research and Innovation, and specifically the Office of Research Administration (ORA), will be responsible for oversight of the RDM Strategy's development and maintenance. Assistance for these endeavors will be required from the Research Ethics Board (REB), Information Technology Services (IT), Clinics, Library and Information Services (Library), Student Services and Marketing and Communications. Collectively, these will be referred to as RDM Supporting Units. RDM Supporting Units work together to develop, implement, coordinate, access and communicate RDM services. Appropriate members from each of these areas will:

- Coordinate and oversee the institutional RDM education and implementation plan.
- Articulate and promote an integrated suite of RDM service offerings.
- Liaise, consult and communicate with CMCC researchers about RDM issues.
- Build and monitor the CMCC's RDM infrastructure for data deposit, preservation and archival storage.
- Plan for the implementation of appropriate resources for RDM engagement across RDM Supporting Units.
- Promote RDM as a collaboration throughout the institution and facilitate access to expertise and infrastructure.
- Clarify and communicate RDM-related procedures to help provide a shared understanding of institutional expectations.
- Track and regularly review the foundational elements of RDM, including the education and implementation strategy.
- Engage with national collaborative efforts on RDM (e.g., Digital Research Alliance of Canada).
- Engage with Tri-Agency consultations about RDM.

Institutional Support

This RDM Strategy identifies five areas where CMCC will need to support researchers with their RDM needs. Institutional supports should include:

- RDM Services and Expertise.
- RDM Technology.
- Teaching and Training Materials.
- Varied Communication Mechanisms.
- Investment in RDM Services, Expertise and Infrastructure.

A. RDM Services and Expertise

The Chair of the REB will provide leadership in training and consultations for RDM. RDM practices can be strengthened with a continued collaborative effort between RDM Supporting Units. The following are examples of support provided by these units:

- Together, the REB and the ORA will monitor all ongoing research at CMCC. During the REB review process, RDM practices are assessed for industry-wide compliance. No REB application will receive approval until compliant RDM practices are described.
- IT provides expertise available in the use of technology for data analysis and storage.
- The ORA also will play a role through the REB process (e.g., data access and retention processes).
- Library provides expertise in developing research guides covering RDM resources (e.g., learning materials and tools) and best practices.
- Expertise in Marketing and Communications will be leveraged to enhance dissemination activities.

Specific RDM services provided by the RDM Supporting Units will include:

- Providing and supporting access to repository platforms for data deposit and preservation.
- Providing support for data management planning tools.
- Providing support for data curation.
- Raising institutional awareness about RDM services and infrastructure.
- Training staff in RDM as appropriate.
- Promoting and supporting RDM practices.

B. RDM Technology

This RDM Strategy recognizes the significant role that technology support plays in the research data lifecycle. IT provides access to the following: secure data storage, including role-based access control, or RBAC; private digital space for researchers to collaborate on research projects; multiple solutions for file transfer service that may be tailored to individual needs. Infrastructure focused on data deposit, preservation, and archival storage also exists and would be offered through IT. Data repositories may be made available through OCUL Scholars Portal (Borealis: The Canadian Dataverse Repository), and through Alliance (Federated Research Data Repository, or FRDR). Special consideration for IT support concerning management of sensitive data will be required.

C. Teaching and Training Materials

An important part of an RDM Strategy is the promotion of training materials and resources. Such materials and resources are crucial for an overall understanding and adoption of appropriate RDM practices at CMCC. See Appendix B for an updated list of resources available.

This Strategy recommends:

1. Regularly maintaining and updating research guides, modules and resources in an accessible manner. Ensuring that training content is varied and reflects the diverse nature of data, researcher communities and learning styles of individual researchers.
2. Leveraging existing resources from partners and collaborators.
3. Ensuring teaching and training material development is coordinated by the REB, ORA, Library and IT as appropriate.

D. Varied Communication Mechanisms

This RDM Strategy recommends using several mechanisms for outreach, including various in-person and online resources and events. These mechanisms may include:

In-Person or Online Teaching for Groups

- General workshops delivered for faculty, staff, and students.
- Targeted in-class training for graduate students (e.g., research methods classes).
- Custom workshops/consultations for requirements of individual researchers and/or teams.

RDM Research Guides and Learning Objects

- Maintain one primary website landing point so researchers know where to find RDM-related information and links to resources.
- Develop and/or source online RDM modules for classes, electronic learning objects, and research guides.

Leveraging of Research Networks and Inter-Institutional Agreements

- Members of the RDM working group will participate in:
 - Faculty and departmental meetings.
 - Research-centered units/group meetings.
 - Institutional committee meetings.
 - Building an RDM community of practice, considering varied partners and contexts at CMCC.

Promotion and Communication of Events, Workshops and Innovation in RDM Practices

- ORA page on CMCC's Learning Management System.
- Social media activity via CMCC corporate and research social media accounts.
- News bulletins or newsletters.
- CMCC News articles (including articles in CMCC's biannual alumni magazine).

E. Investment in RDM Services, Expertise and Infrastructure

This RDM Strategy depends upon resource allocations for personnel capacity and for infrastructure. Personnel in the Division of Research and Innovation, the Library and IT are committed to creating and

maintaining RDM services, expertise and infrastructure. We anticipate that the current resources will need to be enhanced to support the growing RDM needs given the implications of the Policy. Additionally, the current expertise is distributed across areas that will be connected through a dedicated RDM Working Group. For successful implementation, each of these areas will require allocations (and/or addition) of resources and efforts to link the individuals with these responsibilities.

Successful implementation may include investment in areas such as service development, training and specific infrastructure related to storage, necessary software and data security. Supportive infrastructure is essential to the successful implementation of a RDM strategy in the long term; however, specific needs should be identified on an ongoing basis, through active implementation, to be sensitive to local practices, existing strengths and weaknesses and the evolving make-up of the CMCC research community.

Stakeholders

Anyone who is involved with the planning, administration or conduct of research at CMCC has a stake in RDM. This section describes approaches to target relevant audiences, identify stakeholder communities and find and work with RDM Champions.

A. Target Relevant Audiences

Core to this strategy is to respect and understand CMCC unique researcher needs, including varied research paradigms, disciplines and groups. We strive to ensure custom research support materials and workshops. Relevant audiences include:

- Undergraduate, Graduate, and Clinic faculty
- Division Directors
- New employees
- Adjunct professors
- Research collaborators outside CMCC
- Postdoctoral fellows
- Graduate students
- Undergraduate students
- Research officers/assistants/coordinators/administrators
- The Institute for Disability and Rehabilitation Research (IDRR)
- Indigenous researchers and their community overseers
- Student Services

B. Identify Stakeholder Communities

This strategy identifies researchers who directly engage in research and who support the research enterprise and/or academic mission of CMCC. By identifying specific groups of researchers, we can better target communication, workshops, presentations and consultation activities regarding RDM services and infrastructure.

- **Researchers:**
 - Undergraduate students
 - Graduate students
 - Researchers within CMCC
 - Research collaborators outside CMCC
 - Indigenous researchers
- **Research and Education Support:**
 - Office of Research Administration
 - Research Ethics Board
 - Divisions of Undergraduate and Graduate Studies
 - Library and Information Services
 - Institutional Affairs committee

C. Develop and Work with RDM Champions

It is important to identify, develop, and work with RDM Champions at CMCC. RDM Champions will be a core group of faculty, administrators and staff who engage in, actively promote, and teach RDM best-practices. They will assist in developing a culture of RDM that is embedded in the research culture at CMCC. RDM Champions will be integral to disseminating the Teaching and Training Materials through the Varied Communication Mechanisms. By leveraging existing expertise, we can learn from each other and develop a campus-wide understanding of RDM services and infrastructure.

Ethics Considerations

Personnel in the ORA and the Chair of REB are available to assist researchers in being aware of their ethical responsibilities and ensuring that they adhere to CMCC’s [Responsible Conduct of Research Policy](#) and the [Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS2 \(2022\)](#).

In addition, it will be important to work with the CMCC REB, through the ORA, to review research application forms for the appropriate integration of RDM information and strategies. REB review may generate recommendations on how to effectively support researchers in incorporating RDM information and strategies in the initial stages of their research preparation and planning.

Protection of Personal Health Information

As a provider of healthcare services CMCC collects, uses, discloses, retains and safeguards Personal Health Information (PHI). CMCC respects the confidentiality and sensitivity of our patients’ PHI. We are

committed to protecting PHI under the custody or control of CMCC in accordance with the Ontario [Personal Health Information Protection Act \(PHIPA\)](#), the guiding privacy principles set out by the Canadian Standards Association's Model Code for the Protection of Personal Information, and privacy best practices, including guidance from the Information and Privacy Commissioner of Ontario. Access to PHI is provided only to those who require access to provide or assist in providing care to a patient or as permitted by law. Access to PHI for research purposes is obtained only when appropriate permission to access such data has been granted, after appropriate ethical review and when appropriate consents are in place. To guard against any unauthorized collection, use, or disclosure, PHI is appropriately protected through several measures including data encryption, regular monitoring/auditing, where appropriate, electronic health record systems and investigation of complaints.

Indigenous Data Considerations

The [Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS2 \(2022\)](#) stipulates that any research data, including artefacts, resulting from, or associated with research by and with First Nations, Métis and Inuit communities, collectives and organizations, shall be managed through engagement and partnership with those communities, collectives and organizations, and with respect for the appropriate authority of those groups. CMCC is committed to working in partnership with Indigenous stakeholders to implement a distinctions-based approach to ensure that the unique rights, interests and circumstances of First Nations, Métis and Inuit peoples are acknowledged, affirmed and implemented.

Other Relevant Strategies, Policies, and Procedures

For the RDM Strategy to be successfully implemented, it needs to exist within the framework of CMCC's Strategic Plan and existing policies and procedures. See Appendix C for a list of relevant strategies, policies and procedures internal and external to CMCC.

The leadership for the Division of Research and Innovation, REB, ORA, Library and IT is committed to supporting researcher awareness and understanding of the Strategy and the policy and procedure environment of the Government of Canada and the broader scientific community. That leadership will collectively be responsible for staying up to date on this evolving landscape.

Ongoing Review

CMCC is committed to regularly reviewing and revising this strategy as RDM services and infrastructure practices evolve.

Appendix A: Process for Building and Maintaining the RDM Strategy

1. Preliminary Assessment and Institutional Consultation

In preparation for the development of CMCC's RDM Strategy, personnel from the Division of Research and Innovation, in consultation with the Vice President, Academic, undertook the following steps:

- Scanned publicly available materials prepared by other post-secondary institutions in response to the Tri-Agency Research Data Management Policy direction to develop and publish an RDM Strategy.
- Shortlisted institutional RDM Strategies from other organizations that were comparable to CMCC, considering institution size, resource availability, and consistency with institutional practices.
- Combined best practices from those strategies, including provisions which addressed all Tri-Agency RDM Strategy guidelines.

In keeping with these practices, the preliminary assessment team formed an RDM Strategy Working Group. The Working Group was to be representative of stakeholders whose involvement ensured pan-institutional commitment and awareness of Tri-Agency guidelines concerning RDM.

2. Group Membership & Governance

Reporting to the Vice President, Academic, the RDM Strategy Working Group is a diverse team responsible for leading the development of CMCC's RDM Strategy. This Working Group was formed in November 2023 and includes the following members.

1. Manager, Office of Research Administration
2. Vice President, Academic
3. Director, Human Performance Research
4. Director, Research Partnerships and Health Policy
5. Assistant Director, Research
6. Director, Life Sciences Research
7. Administrative Assistant, Research and Graduate Studies
8. Biostatistician and Research Methodologist
9. Chair, Research Ethics Board
10. Chief Information Officer
11. Director, Library and Information Services
12. Director, Graduate Studies
13. Dean, Clinics
14. Education Coordinator, Simulation Laboratory
15. Faculty Representative
16. Faculty Union Representative
17. Researcher with Indigenous Focus

Appendix B: Resources Available

[Tri-Agency Research Data Management Policy – Frequently Asked Questions](#)

[Digital Research Alliance of Canada Training Resources](#)

Appendix C: Relevant Policies and Processes

Internal Policies and Processes

[Responsible Conduct of Research Policy](#)

[Research Policy Manual](#)

External Policies and Processes

[Tri-Agency Research Data Management Policy](#)

[Tri-Agency Statement of Principles on Digital Data Management](#)

[Tri-Agency Framework: Responsible Conduct of Research](#)

[Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS 2 \(2022\)](#)

[FAIR Guiding Principles for Scientific data management and stewardship](#)

[The First Nations principles of OCAP](#)

[CARE Principles for Indigenous Data Governance](#)

[Safeguarding Your Research Portal](#)