OICR's Research Data Management Strategy

Preamble

The Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council of Canada (SSHRC) ("Tri-Agency") are federal granting agencies that promote and support excellence in research, research training, knowledge transfer and innovation within Canada. In March 2021, the Tri-Agency launched the Tri-Agency Research Data Management (RDM) Policy. This Institutional Research Data Management Strategy was created by the Ontario Institute for Cancer Research ("OICR") in response to the Tri-Agency RDM Policy. This Strategy is meant to be a fluid document, changing as the requirements for research data management policies and corresponding business practices evolve.

Purpose

OICR is committed to fostering research excellence by endorsing the proper management of research data throughout its lifecycle. OICR recognizes data as an important research output and will provide the appropriate support infrastructure and resources for researchers to successfully implement good research data management practices. In response to the Tri-Agency RDM Policy, OICR has developed this Institutional Research Data Management Strategy, which describes OICR's commitment to support research data management best practices. This includes resources to develop data management plans, share, retain, and curate data appropriately to meet the conditions of the Agency or other research agreements, and to meet compliance requirements, security standards, legal, and cultural considerations.

The OICR Institutional Research Data Management Strategy is consistent with OICR policies, the GA4GH Framework for Responsible Sharing of Genomic and Health-Related Data, and Tri-Agency policies and requirements including the Tri-Agency RDM Policy, the Tri-Agency Framework: Responsible Conduct of Research (2021), Tri-Agency Statement of Principles on Digital Data Management, and the NIH Data Management and Sharing Policy (2023).

Principles

The OICR Institutional Research Data Management Strategy is in alignment with the Draft Research Data Management Principles created by the University of Toronto Digital Research Infrastructure Advisory Committee and Researcher Council and the Toronto Academic Health Science Network Research Committee RDM Policy Table.

These principles encompass the following values:

- Promote Research Integrity and Excellence
- Recognize the Value of Data
- Encourage the Implementation of Data Management Plans
- Facilitate Long-Term Access Through Data Deposit
- Reflect Institutional Practices and Standards

- Honour Indigenous Community-Driven Principles
- Strengthen Partnership and Collaboration
- Integrate Excellence in All Disciplinary Approaches
- Safeguard Confidential and Sensitive Data
- Reflect Through Communication and Engagement Opportunities
- Provide Infrastructure that Supports Diverse and Complex Programs of Research
- Ensure Support Services are Available
- Commit to Advocacy and Support for Researchers' Needs

Definitions

Data management plan (DMP): A formal statement describing how research data will be managed and documented throughout a research project and the terms regarding the subsequent deposit of the data with a data repository for long-term management and preservation. (from CODATA Glossary)

Data repository: Repositories preserve, manage, and provide access to many types of digital materials in a variety of formats. Materials in online repositories are curated to enable search, discovery, and reuse. There must be sufficient controls for the digital material to be authentic, reliable, accessible, and usable on a continuing basis. (from CODATA Glossary)

FAIR: Findable, Accessible, Interoperable and Reusable (from FAIR)

Research data: Data that are used as primary sources to support technical or scientific enquiry, research, scholarship, or artistic activity, and that are used as evidence in the research process and/or are commonly accepted in the research community as necessary to validate research findings and results. All other digital and non-digital content have the potential of becoming research data. Research data may be experimental data, observational data, operational data, third party data, public sector data, monitoring data, processed data, or repurposed data. (from CODATA Glossary)

Research data management (RDM): RDM refers to the storage, access and preservation of data produced from a given investigation. Data management practices cover the entire lifecycle of the data, from planning the investigation to conducting it, and from backing up data as it is created and used to long term preservation of data deliverables after the research investigation has concluded. Specific activities and issues that fall within the category of data management include: File naming (the proper way to name computer files); data quality control and quality assurance; data access; data documentation (including levels of uncertainty); metadata creation and controlled vocabularies; data storage; data archiving and preservation; data sharing and reuse; data integrity; data security; data privacy; data rights; notebook protocols (lab or field). (from CODATA Glossary)

Responsibilities of Researchers and Institutional Supports

This section of the strategy describes the specific requirements and best practices that are outlined in the Tri-Agency RDM Policy. Each section below indicates what support is available to OICR researchers in each of these areas. These support services are available to all OICR researchers, irrespective of funding status.

Data Management Plans

Tri-Agency Requirement: Researchers should develop DMPs in alignment with the research project design. DMPs are meant to be living documents that are updated throughout the research life cycle. All DMPs shall describe:

- how data will be collected, documented, formatted, protected, and preserved
- how existing datasets will be used and what new data will be created over the course of the research project
- whether and how data will be shared
- where data will be deposited

DMPs also indicate who is responsible for managing the project's data, describe the succession plans in place should that person leave the research team, and identify the data-related roles and responsibilities of other team members where appropriate. Finally, DMPs outline ethical, legal and commercial constraints the data are subject to, and methodological considerations that support or preclude data sharing.

Institutional Support: OICR Research Operations will provide DMP training and support for OICR researchers, including instruction on using the national DMP Assistant tool.

Data Storage

Tri-Agency Requirement: Research data should be stored in secure, reliable networks that are in compliance with the applicable ethical and legal requirements, including the Ontario Personal Health Information Protection Act.

Institutional support: OICR Information Technology (IT) and Information Security teams provide support in finding appropriate data storage solutions in the cloud or on local OICR IT managed infrastructure, and provide the cost associated with the specific service. Requests for data storage related to personal health information or other sensitive data is assessed by OICR's Information Governance Committee. OICR has a comprehensive set of privacy and information security policies, including data classification and safeguards, privacy impact assessments, and threat risk assessments published on OICR's intranet.

Data Curation

Tri-Agency Requirement: Research data should be appropriately documented, described, and managed in order to optimize datasets for current use and future discovery and reuse. This should be done in ways that can be understood beyond a given research team.

Institutional support: OICR encourages researchers to follow the Curation Guidance endorsed by the Digital Research Alliance of Canada. OICR researchers affiliated with the University of Toronto have access to the University of Toronto Libraries, which provides curation training for research teams, including guidance on file naming, file organization, file versioning, and discipline-specific metadata schemas.

Data Deposit

Tri-Agency Requirement: Research data should normally be preserved in a publicly accessible, secure and curated repository or other platform for discovery and reuse by others. All digital research data, metadata and code that directly supports the research conclusions in journal publications and pre-prints should be deposited into a digital repository.

Researchers are not necessarily required to share their data with other researchers. Data can be kept private or access can be limited by sharing permissions when deposited into a repository. The Tri-Agency expectation is that researchers will provide appropriate access to the data where ethical, cultural, legal, and commercial requirements allow, and in accordance with the FAIR principles and the standards of their disciplines.

For research conducted by and with First Nations, Métis and Inuit communities, collectives and organizations, these communities, collectives, and organizations will guide and ultimately determine how the data are collected, used and preserved, and have the right to repatriate the data.

Institutional support: OICR Research Operations, in collaboration with OICR IT, Information Security and the University of Toronto Health Science Research Ethics Board, will provide support to OICR researchers that need access to repository services or other platforms that securely store and provide continued access to research data.

Data Licensing and Data Sharing Agreements

Tri-Agency Requirement: Before data is shared among research teams, researchers should enter into an Agreement that clearly documents the right and responsibilities related to the data that is used and generated by the research teams.

Institutional Support: The OICR legal team, in collaboration with FACIT, OICR Privacy Office, and Research Operations, supports the development of data licensing and sharing agreements for researchers who are interested in sharing data with other academic institutions, hospitals, industry, not-for-profit organizations, and charities.

Sensitive Data

Tri-Agency Requirement: A complex interplay of ethical, legal, policy, and societal factors affect how sensitive research data are collected, analyzed, used, and reused. Researchers must take into account privacy, national security and intellectual property rights. These factors should be taken into consideration when developing DMPs.

Data related to research conducted by and with First Nations, Métis and Inuit communities, collectives and organizations will be managed in accordance with data management principles developed and approved by these communities, and on the basis of free, prior and informed consent. A distinctions-based approach, which acknowledges the distinct histories, interests and priorities of First Nations, Inuit and Métis, will be used to ensure the unique rights, interests and circumstances of the First Nations, Métis and Inuit are affirmed, and implemented.

Institutional support: OICR Research Operations, in collaboration with the University of Toronto Health Sciences Research Ethics Board, the OICR Privacy Office, FACIT, OICR IT, and OICR Information Security, provides support and guidance for OICR researchers working with sensitive data.

Compliance

Tri-Agency requirement: By accepting Agency funds, institutions and researchers accept the terms and conditions as set out in the agencies' policies, agreements and guidelines.
In the event of an alleged breach of Agency policy, agreement, or guideline, OICR and the Agency may take steps in accordance with OICR's Policy on Responsible Conduct of Research and Research Misconduct and the Tri-Agency Framework: Responsible Conduct of Research.

Institutional support: OICR Research Operations, in collaboration with the University of Toronto Health Sciences Research Ethics Board, provides guidance and support related to compliance with the terms and conditions outlined in the *Agreement on the Administration of Agency Grants and Awards by Research Institutions*.

Looking Ahead

OICR will publish this strategy on the OICR website on March 1, 2023 and subsequently disseminate this strategy to all OICR research personnel. Moving forward, OICR will conduct a review in fiscal year 2023-24 to identify gaps and to ensure that the institutional supports available meet the needs of OICR researchers and are in alignment with evolving research data management policies and corresponding best practices.

Questions regarding this strategy should be directed to OICR Research Operations researchops@oicr.on.ca.

Review Process

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Approved by:

- Corporate Management – January 26, 2023
- Executive Management – February 9, 2023

Related Documents

- OICR Policy on Responsible Conduct of Research and Research Misconduct
- OICR Policy on Requirements for Research Ethics Board Approval and Ethical Conduct for Research Involving Humans
- OICR Data Protection Policies
- OICR Information Technology and Information Security Policies