

## Open Science Frequently Asked Questions

### Open Science and Scholarship Principles

**What are the BARE Open Science and Scholarship Principles?**

The Open Science and Scholarship (OS) Principles are an institution-wide, aspirational framework for responsible, transparent, and collaborative scholarship across BARE (including the Rotman Research Institute and Centre for Education).

**What does “as open as possible, as closed as necessary” mean?**

It means BARE aims to abide by the Open Science and Scholarship Principles and share research outputs broadly, but will limit sharing when needed to protect privacy, ethics, confidentiality, contractual obligations or other legitimate constraints.

**How does openness improve trust and impact of scientific research?**

Making methods and outputs available to others supports transparency and reuse, which can strengthen research quality and credibility, enhance public trust in research and enable collaborations.

**If we collaborate with BARE, do we have to share outputs openly?**

Principle 2 states outputs from external collaborations are to be released on the same basis as Principle 1, and partners should be informed and encouraged to align at the outset.

**If I participate in research, will my personal information be made public?**

No. Information that directly identifies you will never be shared publicly. Any sharing of research data will follow applicable law, ethics requirements and institutional policies to protect research participants privacy and confidentiality. Researchers will apply restrictions as required to protect your confidentiality, as specified under the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans ([TCPS2](#)).

**As a research participant, can I say no to my data being shared and still participate in the study?**

Yes. Principle 5 states you can decline open science participation and not be disadvantaged, including no effects on any clinical care or services you receive.

**Can I withdraw my study data later if I change my mind?**

How to withdraw your data is explained in the study consent form. However, withdrawal may not be possible if the data has already been shared openly.

### General Topics

**What is the difference between OS and open scholarship?**

OS focuses on making research practices and outputs more transparent and accessible, primarily within the sciences. Open scholarship is a broader concept that extends these

principles across additional disciplines, including the arts, humanities, social sciences, and education.

### **What is the difference between reproducibility and replicability?**

- *Reproducibility*: Using the same data and the same methods produces the same results. This ensures that the methods used are accurate and robust.
- *Replicability*: Using newly collected, independent data with the same methods generates the same results. This confirms the reliability of the findings.

## Open Data Sharing

### **What is open data sharing?**

Open data sharing is when study data is made available to other researchers so that it can be used to answer new research questions or combined with data collected from other studies to strengthen the findings.

### **Why is open data sharing important?**

Open data sharing promotes transparency and public trust by enabling checks on reproducibility and replicability. It also fosters collaboration and accelerates scientific progress. Many research funders and academic journals require study data to be shared openly.

### **What types of study data are shared under BARE's OS principles?**

Only de-identified, anonymized or anonymous data are shared. Examples include aggregated (group) results, statistical summaries and processed datasets where personal information has been removed or changed to protect confidentiality. Sometimes only a portion of the study data will be shared.

### **What is the difference between pseudonymization, anonymization and de-identification?**

- *Pseudonymization*: Personally-identifying information in the dataset, such as participant names, are replaced with pseudonyms – typically participant ID codes. The research team securely holds a key that links the ID codes with participant names.
- *Anonymization*: Instead of pseudonyms, generic ID codes are used; there is no key that links the ID codes with the participant names.
- *De-identification*: In addition to pseudonymization or anonymization, other information that could be potentially identifying is removed or changed so that the dataset cannot be used (alone or in conjunction with other information) to identify participants.

### **In what ways can study data be shared?**

Study data is typically shared in one of the following ways, depending on the type of data, its sensitivity and ethics board approval:

- *Open/Public release*: Study data is saved in an online database, making it available for other researchers to access, download and reuse.
- *Controlled/curated access*: Study data are available to other researchers via an application process or through a secure, vetted portal.
- *Restricted transfers*: Study data is directly shared with approved researchers or collaborators under data sharing agreements or contracts.

## Open Access Publishing

## What is open access publishing?

Open access publishing makes research publications freely available to anyone, without subscription or payment barriers. It is a core open science practice and is increasingly required for research funded by major granting agencies worldwide.

## Why is open access important?

Open access promotes transparency and broadens access to research findings. It allows academics, healthcare professionals, non-profit organizations, students, government agencies and the public to benefit from new knowledge. This approach aligns with BARE's open science principles, which emphasize sharing research for educational, health and societal impact.

## How can research be made open access?

There are three primary pathways the researcher can take:

- *At submission*: Self-archive a preprint (the version submitted to a journal).
- *At acceptance*: Self-archive the accepted manuscript (often referred to as green open access).
- *At publication*: Publish the article in an open access journal (often referred to as gold open access as the journal charges a fee).

## Pre-registration and Registered Reports

### What is pre-registration?

Pre-registration involves publicly documenting a study's hypotheses, methods and analysis plan in sufficient detail to allow others to evaluate the planned research process.

### Why is pre-registration important?

Pre-registration increases transparency and credibility by making research plans public in advance. It helps reduce bias, prevents selective reporting, and clearly distinguishes confirmatory analyses from exploratory ones, improving the trustworthiness and reproducibility of findings.

### How can a study be pre-registered?

Studies can be pre-registered using public registries such as the Open Science Framework, the National Library of Medicine's Clinical Trials Registry or other recognized online repositories.

### Can pre-registrations be embargoed?

Yes. Pre-registrations can be embargoed for a defined period (up to four years on platforms such as the Open Science Framework). During the embargo, the registration remains private and automatically becomes public once the embargo ends but importantly, it is time-stamped to the original pre-registration date. Once made public, a registration cannot be reverted to private status.

### What is a registered report?

A registered report is a publishing format in which a study's protocol – including hypotheses, methods, and analysis plans – is peer-reviewed at a journal before data collection begins. If approved, the journal provides in-principle acceptance, committing to publication of the final article regardless of the study findings, as long as the approved protocol was followed.

## **How do registered reports differ from pre-registration?**

Registered reports include peer review and a publication commitment prior to data collection, whereas pre-registration does not involve peer review or guaranteed publication.

## **What are the benefits of registered reports?**

Registered reports help reduce publication bias and improve study quality by evaluating methods before results are known.

## **Are pre-registration or registered reports required?**

Requirements vary by discipline, journal and funding agency. Some funders and journals mandate these practices, particularly for clinical trials.

## **Data Management Plans (DMPs)**

### **What is a Data Management Plan (DMP)?**

A DMP is a formal document that outlines how research data will be collected, organized, stored, protected, shared and preserved throughout and beyond the life of a research project.

### **What should a Data Management Plan include?**

A comprehensive DMP typically addresses:

- Types of data to be collected or generated
- Data formats and standards
- Documentation and metadata practices
- Storage, backup, and security measures
- Data sharing and access plans (including restrictions, if applicable)
- Long-term preservation and archiving
- Roles and responsibilities within the research team
- Required resources or budget considerations
- Ethical and legal considerations, such as privacy, consent and intellectual property