

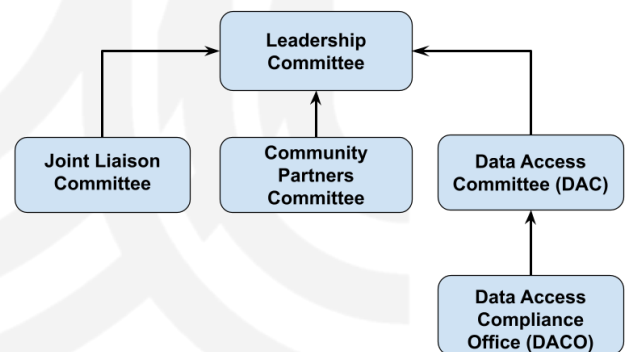
ARCHIMEDES (Advanced Research Collaboration for Health Integration, MEDical Exploration, and data Synthesis) is a digital health platform that ingests, manages, and/or releases Data Sets for research purposes, including biostatistical analyses, predictive modelling, data visualization and artificial intelligence. It also provides a High-Performance Computing (HPC) environment through which users can analyze ARCHIMEDES data.

[The ARCHIMEDES Data Governance Framework](#) outlines the tools, practices, and requirements for the responsible contribution, sharing, and use of data through ARCHIMEDES.

ARCHIMEDES Governance Structure

The ARCHIMEDES Leadership Committee, Joint Liaison Committee, Community Partners Committee, and Data Access Committee (DAC) perform decision-making and advisory functions.

The Data Access Compliance Office (DACO) is the administrative arm of the DAC and provides support by reviewing Data Contribution Forms and Data Access Requests before they are sent to the DAC for approval.



Data Access Tiers

Controlled Access data are only available to approved researchers for specific research projects. Researchers must apply for access and agree to follow privacy, ethics, and data use requirements before using the data. ARCHIMEDES allows for coded data, de-identified data, and pre-clinical data through Controlled Access.



Open Access data are made openly available to anyone through ARCHIMEDES on a public website. ARCHIMEDES allows for de-identified data and pre-clinical data through Open Access.

Consent and Privacy

If research involves human participants, appropriate consent and privacy protections must be in place before depositing data in ARCHIMEDES. The Informed Consent Form must incorporate the [ARCHIMEDES Core Permissions](#).

Informed consent forms (ICFs) must include data sharing. The ARCHIMEDES Open and Controlled Access Consent Form Templates can be adapted to any institutional ICFs: [Data Sharing Consent Templates](#).

Data Protection

Prior to contributing data to ARCHIMEDES, Institutional Data Contributors must enter into a Data Contribution Agreement. This is a contractual agreement that enables authorized Principal Investigators at the signatory institution to contribute Data Sets to ARCHIMEDES through the submission of a Data Contribution Form.

Authorizations

Contributing researchers must confirm that they hold institutional, ethical and legal permissions for contributing and releasing the Data Sets.

3 types of data can be contributed on ARCHIMEDES:

#1

Coded data: Data must have (i) an ethics approval and informed consent that authorize sharing, (ii) an ethics waiver of informed consent requirement, or (iii) another legal authorization. All direct identifiers must be removed and replaced with a unique code prior to contributing, while pre-release verification ensures Coded Data are double-coded or assigned a GUID.

#2

De-identified data: All direct identifiers and most indirect identifiers must be removed or transformed to reduce the risk of re-identification to a very low level, in accordance with Ontario IPC De-identification Guidelines or a comparable provincial or territorial de-identification standard.

#3

Pre-clinical data: Data that does not, nor did it ever, constitute data relating to human research participants, or identifiable personal data, according to applicable research ethics requirements and data protection laws.

Accessing Controlled Access Data

Principal Investigators who have entered into a Data Access Agreement, or whose institution has an Institutional Data Access Agreement in place, may access Controlled Access data by submitting a Data Access Request.

Data Security and Recovery Tools

ARCHIMEDES applies a layered, role-based security model supported by institutional IT policies and biomedical data governance standards, with encryption, firewalls, and strong user authentication. Continuous monitoring, vulnerability audits, and secure infrastructure ensure protection against unauthorized access and system threats.

- Data Storage and Backup Strategy: daily, weekly, and monthly backups and storage separation on dedicated storage volumes in a secured backup network.
- Disaster Recovery Plan: a rapid response and restoration in the event of hardware failures, software corruption, security incidents or natural disasters.
- Compliance and Data Retention: All retained backups are subject to encryption-at-rest, audit controls, and retention schedules.

ARCHIMEDES is designed to support many types of research, data, and workflows. ARCHIMEDES supports different study designs, data types, and levels of collaboration, allowing researchers to use only the tools they need while maintaining appropriate controls for privacy, consent, and compliance.

Diverse Toolkits

ARCHIMEDES provides [data sharing consent templates](#) and [de-identification toolkits](#) and guidance to support compliant research data practices.

User Access Tools

ARCHIMEDES includes user authentication and access request tools that allow credentialed users to securely request access to controlled datasets.

Data Ingestion

ARCHIMEDES provides data ingestion tools that allow users to securely submit data to the platform for private, controlled, or open release, supporting flexible and responsible data sharing.

Data Discovery Tools

ARCHIMEDES offers data discovery tools that enable researchers to explore and query available multi-modal datasets, supporting efficient identification, access, and reuse of relevant health data

Data Modalities

ARCHIMEDES enables researchers to store, manage, and share, multimodal curated health data, including behavioural, imaging, wearable, and biomaterials data, from both human research participants and non-human research data (i.e., pre-clinical data).

Performance Computing Tools

ARCHIMEDES lets users analyze data using high-performance computing (HPC) through a web portal. Users can access both supercomputers (e.g., Compute Canada) and cloud services (AWS, Azure). A built-in Data Query Tool allows users to select and work with the database for analysis.

ARCHIMEDES Support Services

The University of Ottawa Heart Institute (UOHI) operates an ARCHIMEDES Ethics Helpdesk. For questions concerning governance/ethics, contact the Ethics Helpdesk at archimedes.daco@ottawaheart.ca.

For account/access issues, contact the general ARCHIMEDES support email: archimedes.support@ottawaheart.ca.