

These slides:

[bit.ly/cu-dmsp-townhall-2](https://research.cuanschutz.edu/rio)



University Research

UNIVERSITY OF COLORADO DENVER | ANSCHUTZ MEDICAL CAMPUS

CRIO COUNCIL DMSP WG TOWN HALL

1.17.2023

<https://research.cuanschutz.edu/rio>



CRIO Council-led Data Management and Sharing Plan Working Group

- WG comprised of members from CRIO Council and the research community (schools, library, OGC, OIT, etc.)
- Identify preparations needed for campus to be ready
- WG activities page, updates, and templates are available on the Research website:

<https://research.cuanschutz.edu/crio/projects/nih-data-management-and-sharing-policy>

- Campus resources and templates for the DMSP
- NIH and community resources and training materials
- Grant submission and RPPR strategies and materials
- List of data repositories for data deposition
- Open to all! Email crio@cuanschutz.edu if you would like to help out!

Entering Slido

Please go to slido.com



Join the meeting at: #DMSPatCU2

First poll

slido



What department or unit are you in?

① Start presenting to display the poll results on this slide.

New NIH Data Management and Sharing policy

Beginning in January 2023, the Final NIH Policy for Data Management and Sharing (NOT-OD-21-013) will require researchers to include a Data Management and Sharing Plan (DMSP) in all funding applications.

Key Features:

- Applies to all research funded by NIH that results in the generation of scientific data; it does not apply to activities that do not generate scientific data, e.g. training, infrastructure development, etc.
- The NIH recommendation is 2 pages long
- The DMSP is not a scored component of proposals
- The DMSP can contain justified uncertainties, and can be updated annually.
- Annual Notice of Award is dependent on RPPR reporting on compliance to the awardee's DMSP and other NIH data sharing policies.
- Grant budgets may include costs for preserving and sharing data, including personnel and storage costs. These funds must be spent during the funding period.
- Scientific data should be made accessible as soon as possible, and no later than the time of an associated publication, or the end of performance period, whichever comes first.

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Join the meeting at: #DMSPatCU2

Second poll

slido

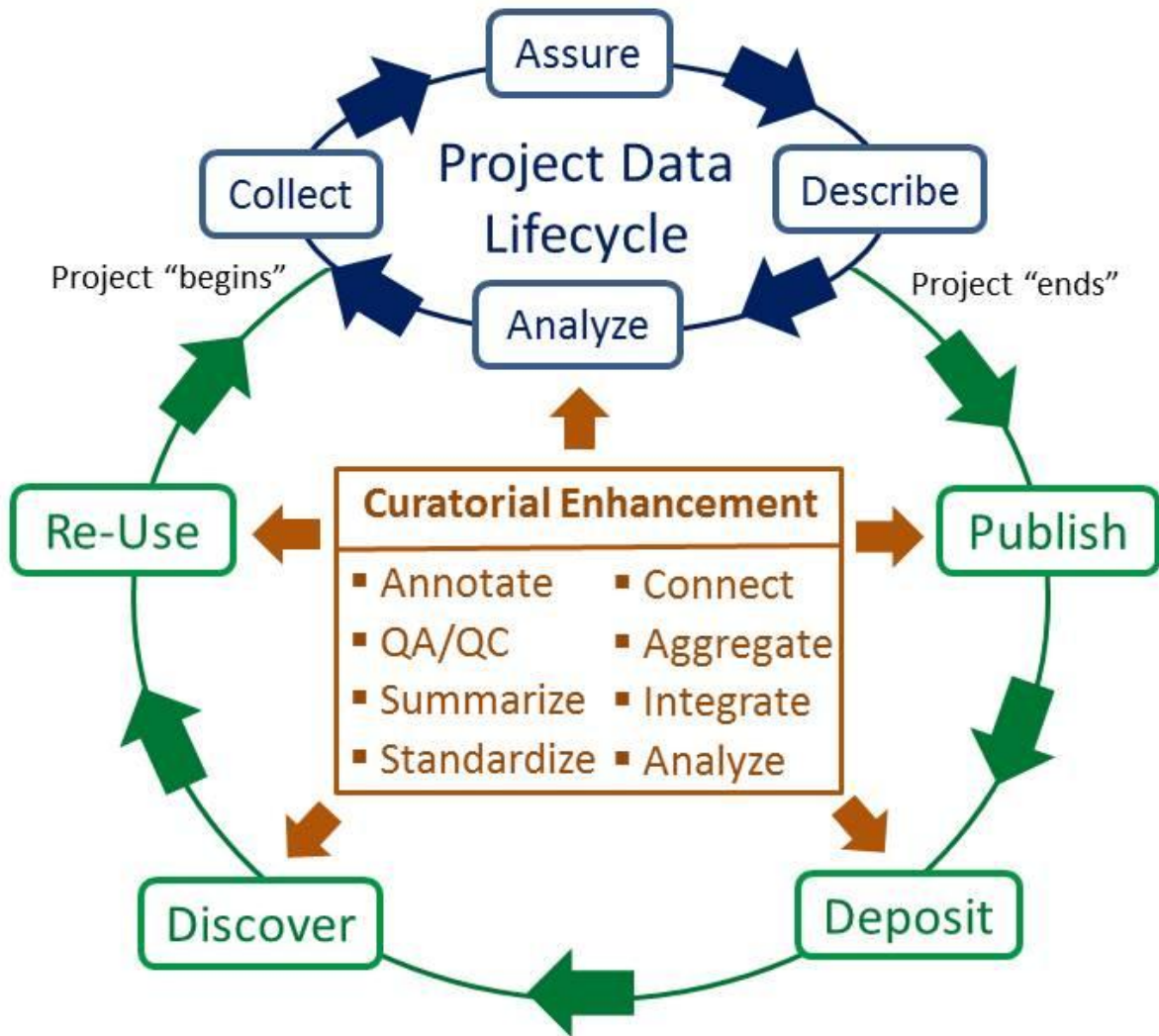


**What are your concerns
about the new DMSP?**

① Start presenting to display the poll results on this slide.

Writing the DMSP:

Think about the
whole data
lifecycle



NIH DMSP Template

NIH has a draft that covers the following categories:

- **Element 1: Data type** (*type, amount, which data will be preserved/shared, metadata and documentation*)
- **Element 2: Tools, software, and code**
- **Element 3: Data standards**
- **Element 4: Data Preservation, access, timelines for sharing and preservation, and repository selection**
- **Element 5: Factors affecting access, distribution, or reuse of scientific data, controlled access and privacy considerations**
- **Element 6: Institutional compliance, monitoring, and roles**

Reasons not to share

What are acceptable reasons to not share?

Legal

Explicit federal, state, local, or Tribal law, regulation, or policy prohibits disclosure

Ethical

Concerns around privacy or safety of research participants

Pre-existing consent policies or agreements prohibit sharing of participant-derived material

Technical

Digitization of datasets is impractical

These reasons can be explained in multiple elements (largely 4-6) depending on the specifics

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- **Element 6:** Institutional compliance, monitoring, and roles

NIH DMSP Template Element 3: Data Standards

List the standards that will be used for sharing the data and metadata.

State whether or not there are data standards for your field that are applicable to your project.

Typical data standards include:

- Metadata schemas
- Standard Terminologies (Controlled Vocabulary and Ontologies)
- Content/ Encoding Standards
- Common Data Elements
- Identifiers (PIDs)

Goldilocks approach to standards



Legend

- Indirectly relevant for
- Directly relevant for

Lesson

- Lesson 1. Credit any derived content using its original identifier
- Lesson 2. Help local identifiers travel well: document prefix and patterns
- Lesson 3. Opt for simple, durable web resolution
- Lesson 4. Avoid embedding meaning, or relying on it for uniqueness
- Lesson 5. Design new identifiers for diverse uses by others
- Lesson 6. Implement a version-management policy
- Lesson 7. Do not reassign or delete identifiers
- Lesson 8. Make URIs clear and findable
- Lesson 9. Document the identifiers you issue and use
- Lesson 10. Reference and display responsibly

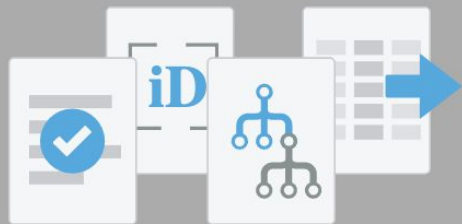
Types of actors

Designers & creators	Providers & maintainers	Reusers & referencers
●	○	●
●	●	●
●	○	○
●	●	○
●	●	○
●	●	○
●	●	○
●	●	●
●	●	●

bit.ly/id21c-plosbio

Searching for standards

<https://fairsharing.org/>



1646 Standards

Terminology Artifact	831
Model/Format	529
Reporting Guideline	241
Identifier Schema	31

Terminologies/ontologies - knowledge representations and controlled lists of terms. Most have persistent identifiers, synonyms and some have advanced relationships and text descriptions

Model/Format - data schemas, markup languages, structured tab and other file formats

Reporting guidelines - minimum checklists, reporting criteria, metadata standards, and rubrics

Identifier schemas - registry numbers, chemical identifier schemes, geocodes, and code systems

Ontologies/Terminologies

<https://obofoundry.org>

 OBO Foundry

Open Biological and Biomedical Ontology Foundry

Community development of interoperable
ontologies for the biological sciences

**Learn about OBO best practices and community
resources**

- [OBO Foundry principles](#)
- [OBO tutorial](#)
- [Ontology browsers, tutorials, and tools](#)

Participate

- [Code of Conduct](#)
- [Join the OBO mailing list and the OBO Community Slack workspace](#)
- [OBO Foundry Operations and Working Groups](#)
- [Submit bug reports or suggestions for improvement via GitHub](#)
- [Submit your ontology to be considered for inclusion in the OBO Foundry](#)

**OBO Library: find, use, and contribute to community
ontologies**

<https://bioportal.bioontology.org/>

 BioPortal

[Ontologies](#) [Search](#) [Annotator](#) [Recommender](#) [Mappings](#)

<https://www.ebi.ac.uk/ols/index>

 OLS
ONTOLOGY SEARCH

[Home](#) [Ontologies](#) [Documentation](#) [About](#)

Welcome to the EMBL-EBI Ontology Lookup Service

Search

Examples: [diabetes](#), [GO:0098743](#)

[Looking for a particular ontology?](#)

Example Models/formats

Protocol Registration Data Element Definitions

This standard describes the definitions for protocol registration data elements submitted to ClinicalTrials.gov for interventional studies (clinical trials) and observational studies.

The Observational Medical Outcomes Partnership Common Data Model (OMOP CDM)

The The Observational Medical Outcomes Partnership Common Data Model (OMOP CDM) allows for the systematic analysis of disparate observational databases for standardizing the format and content of the observational data, standardized applications (tools and methods) can be applied across databases implementing a common data model format (data model) and/or a common representation data model using variable terminologies, vocabularies, and coding schemes.

Example reporting guidelines

Consolidated criteria for reporting qualitative research (COREQ)

A reporting guideline composed of 32 criteria for qualitative research interviews and focus groups.

MIAPE: Gel Electrophoresis (MIAPE-GE)

This module identifies guidelines for the minimum information to report about the use of n-dimensional gel electrophoresis in a proteomics experiment.

Example identifier schemes

Open mHealth

Open Standard for Mobile Health Data. This standard is composed of a number of related schemes. Widely-used clinical measures were identified and clinical experts were consulted to identify the most important distinctions for the schemas' clinical use.

Common Metadata Elements for Cataloging Biomedical Datasets

The Common Metadata Elements for Cataloging Biomedical Datasets outlines a proposed set of core, minimal metadata elements that can be used to describe biomedical datasets, such as those resulting from research funded by the National Institutes of Health. It can inform efforts to better catalog or index such data to improve discoverability.

NIH DMSP Template Element 3: Data Standards example

State what common data standards will be applied to the scientific data and associated metadata to enable interoperability of datasets and resources and provide the name(s) of the data standards that will be applied and describe how these data standards will be applied to the scientific data generated by the research proposed in this project. If applicable, indicate that no consensus standards exist.

Example 1: Formal standards for 256 channels EEGs data have not yet been widely adopted. However, our data and other materials will be structured and described according to best practices. Data will be stored in common and open formats, such as CSV and JPEG files for our 256 channels EEGs and fMRI images. Information needed to make use of this data will be recorded in data dictionaries that will be accessible to the research team and will subsequently be shared alongside the final datasets.

Example 2: All genotype-phenotype data and gene function data will be annotated using ontologies such as the Human Phenotype Ontology and the Gene Ontology. Curation rules will be validated using inter-annotator consistency measures higher than 90% across 3 curators for at least a sample of 15 data entries for each annotation type. Finally, we will adhere to standards such as the GA4GH Phenopackets and the GO GAF format for distribution.

NIH DMSP Template Element 4: Data Preservation & Repositories

Provide details and timelines for sharing and preserving data for long term usability.

- Name the repository(ies) where data will be archived:
 - If a particular metadata standard is required, list in the standards section.
 - A specific NIH repository may be required in the funding opportunity announcement.
- Specify which type of unique identifier is used by the repository (DOI, handle, ID number, accession number) (Note- an identifier is not required at time of DMS plan submission).
- Revisit your data list from section 1 and state when the data will be made available (portions of the data may be released at different times). Timelines required by the policy are:
 - Data will be made available when the work is published or the award/support period ends (whichever comes first); OR
 - Data will be made available earlier.
- State the minimum number of years data will be available, based on repository policies.

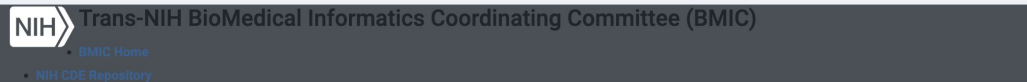
Identifying a data repository

NIH has much documentation for selecting a repository to sustainably host your data:

- <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-21-016.html>
- https://www.nlm.nih.gov/NIHbmic/nih_data_sharing_repositories.html
 - Open NIH-supported **domain-specific repositories** that house data of a specific type or related to a specific discipline;
 - Other NIH-supported **domain-specific resources**, including repositories and knowledge bases, that have limitations on submitting and/or accessing data; and
 - **Generalist repositories** that house data regardless of type, format, content, or subject matter.

National resources for storing and sharing data

NIH domain-specific repositories:



Home / BMIC Home / NIH Data Sharing Repositories

Open Domain-Specific Data Sharing Repositories

This table lists NIH-supported domain-specific data repositories that make data accessible for reuse and are open for both submitting and accessing data. Submission is typically limited to data of a certain type or related to a certain discipline. The table provides links to information about submitting data to and accessing data from the listed repositories. Repositories in this list have current NIH funding, sustained support, open data submission and access, and open time frame for data deposit, based on information provided by the repository about funding and data availability. This non-exhaustive list is also available in a [downloadable Excel version](#).

Are we missing a domain-specific data sharing repository that should be included in this list? Do you have comments or feedback on this list or the website? [Contact us](#).

ICO	Repository Name	Repository Description	Data Submission Policy	Access to Data
Common Fund	Metabolomics Workbench (MetWB)	The Metabolomics Program's Data Repository and Coordinating Center (DRCC), housed at the San Diego Supercomputer Center (SDSC), University of California, San Diego, has developed the Metabolomics Workbench. MetWB will serve as a national and international repository for metabolomics data and metadata and will provide analysis tools and access to metabolite standards, protocols, tutorials, training, and more.	How to submit data to MetWB	How to access MetWB data
Common Fund	Stimulating Peripheral Activity to Relieve Conditions Portal (SPARC)	The SPARC Portal provides interactive access to a growing collection of data, maps, and computational studies that focus on the role of the autonomic nervous system in controlling organ function. These resources are made available to the public with the intent of advancing bioelectronic medicine towards more precise treatment of	How to submit data to SPARC	How to access SPARC data



Comparison of generalist repositories:

<http://doi.org/10.5281/zenodo.3946720>

Other repositories at

<https://www.re3data.org/>



Institutional resources for storing and sharing data

Which service would you like to explore?:

☐ Compute

Crunch data in a high-performance environment.

☐ Share

Collaborate and exchange data with colleagues within the University of Colorado system and with other universities and entities.

☐ Storage

Store, protect, archive and backup data on the Internet or on campus servers using approved systems.

☐ Analytics

Gain knowledge and insights from data through reporting, visualization, digital discovery, and statistical analysis strategies.

☐ Collect & Access

Gather, organize, standardize, validate, extract, transform and load data.

☐ Lab Management

Standardize, document and secure research laboratory protocols, workflow and data.

Health Data Compass

Enterprise health data warehouse

REDCap

Online survey & database tool for research studies

Tableau

Data visualization and business intelligence

Formstack

Online surveys, data collection, questionnaires

Qualtrics

Online survey and statistical analysis tool

CIDA

Bioinformatics, study design, and data analytics.

Insights

Data visualization tool for OnCore

File Storage on the Isilon

File sharing and storage service

OneDrive

Online personal file storage

Lab Archives

Online electronic lab notebooks

OnCore

Clinical trials management systems (CTMS)

Microsoft Office 365

Microsoft productivity applications

Egnyte

Online file synchronization and sharing

Mountain Scholar

Institutional repository

Eureka

Cloud analytics and compute

<https://som.cuanschutz.edu/researchresources>

Campus resource comparison

Service	Location		Data Classification			Security			Data Tier				Collaboration		Cost (yearly)
Description	On Premises	Cloud	Highly Confidential	Confidential	Public	HIPAA - Compliant	NIST 800-171	GDPR	Active	Compute	Archive	Backup	Campus/ Affiliates	External	
Dell Isilon	X		X	X	X	X			X			X	X		\$300/TB
O365/Microsoft OneDrive		X	X	X	X	X			X			X	X	X	5TB/No Charge
Alpine	X			X	X					X					No Charge
Petalibrary	X			X	X						X	X		X	\$50/TB
SLCE	X	X	X	X	X	X	X			X					Varies
Egnyte		X	X	X	X	X						X		X	\$150/user
REDCap (CU)	X		X	X	X	X			X		X		X		No Charge
OnCore EDC		X	X			X			X		X		X		No Charge
Eureka (Compass)		X	X	X	X	X	X	X	X	X	X	X	X		Online cost estimator
Virtual Server Hosting	X		X	X	X	X			X	X			X		Online cost estimator
Scientific Device Attached Storage	X			X	X				X	X	X	X	X		Cost associated with device

CU Anschutz Digital Collections repository for sharing data



University of Colorado **Anschutz Medical Campus**

Explore

Search

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Welcome to CU Anschutz Digital Collections

The repository complements traditional means of scholarly communication, such as peer-reviewed journals, by expanding the readership and availability of scholarly research and encouraging submissions.

Begin your search

Featured Collections

[View all collections >](#)

COLLECTION

Colorado Medical Center Photographs

COLLECTION

2012 – 2016

<https://digitalcollections.cuanschutz.edu/>

Find more information at the CU-AMC RIO Website

University of Colorado Denver | Anschutz Medical Campus

Webmail | UCD Access | Canvas | Quick Links

University Research

Research Administration Offices ▾ | Research Portals | Research Tools

RIO > Projects > NIH Data Management and Sharing Policy

NIH Data Management and Sharing Policy (DMSP)

New NIH Funding Requirement Starting January 25

Beginning in January 2023, the [Final NIH Policy for Data Management and Sharing \(NOT-OD-21-013\)](#) will require researchers to include a data management and sharing (DMS) plan in funding applications. In preparation for the policy implementation, NIH has launched a [Scientific Data Sharing Website](#).

The Final DMS Policy applies to all research, funded in whole or in part by NIH, that results in the generation of scientific data. This includes competing grant applications and proposals for contracts that are submitted to NIH on or after the January 25, 2023, submission deadline. The DMS Policy does not apply to research and other activities that do not generate scientific data, including training, infrastructure development, and non-research activities.

Webinars

Required Elements

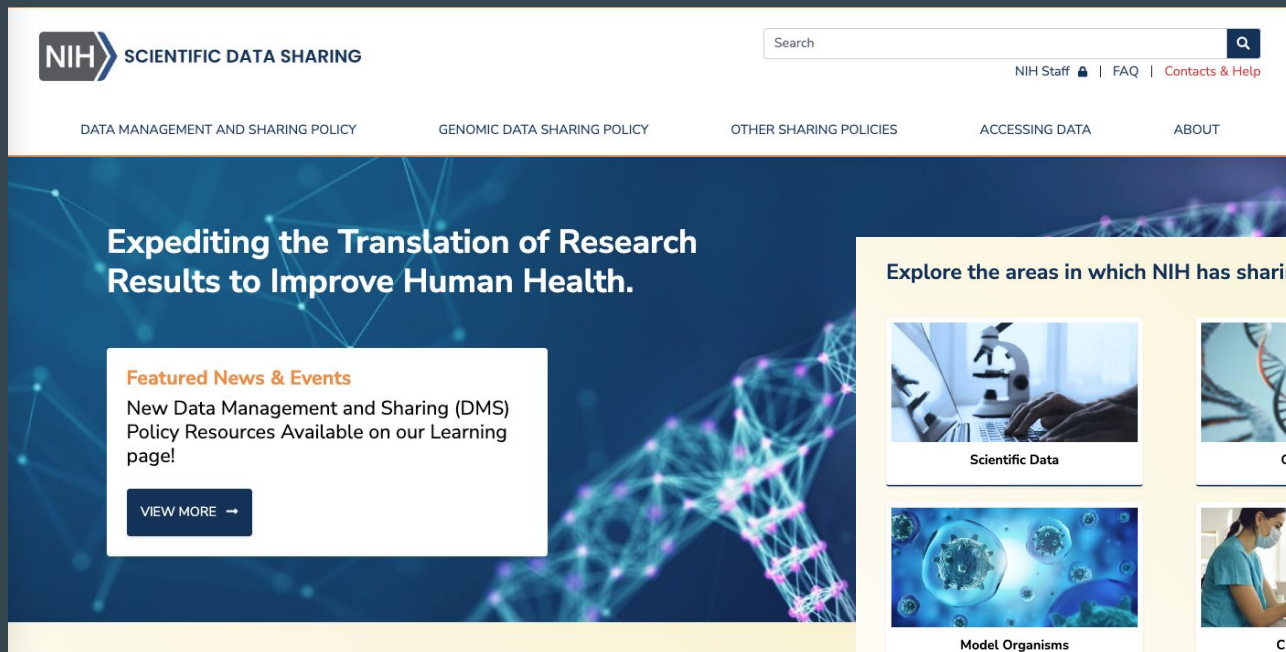
Templates

Budgeting, Compliance, Resources

- ✓ Webinars
- ✓ Examples and templates
- ✓ Data Management best practices
- ✓ Repository selection
- ✓ Budgeting information

<https://research.cuanschutz.edu/rio/projects/ni-h-data-management-and-sharing-policy>

Find more information at NIH (linked from CU-AMC site)



The screenshot shows the NIH Scientific Data Sharing website. The header includes the NIH logo, the text "SCIENTIFIC DATA SHARING", a search bar, and links for "NIH Staff", "FAQ", and "Contacts & Help". Below the header is a navigation bar with links for "DATA MANAGEMENT AND SHARING POLICY", "GENOMIC DATA SHARING POLICY", "OTHER SHARING POLICIES", "ACCESSING DATA", and "ABOUT". The main content area features a large blue banner with the text "Expediting the Translation of Research Results to Improve Human Health." and a "Featured News & Events" section with a link to "New Data Management and Sharing (DMS) Policy Resources Available on our Learning page!".

NIH SCIENTIFIC DATA SHARING

Search

NIH Staff | FAQ | Contacts & Help

DATA MANAGEMENT AND SHARING POLICY GENOMIC DATA SHARING POLICY OTHER SHARING POLICIES ACCESSING DATA ABOUT

Expediting the Translation of Research Results to Improve Human Health.

Featured News & Events

New Data Management and Sharing (DMS) Policy Resources Available on our Learning page!

VIEW MORE →

<https://sharing.nih.gov/>

Explore the areas in which NIH has sharing policies.



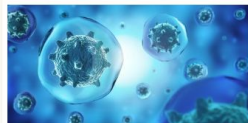
Scientific Data



Genomic Data



Research Tools



Model Organisms



Clinical Trials ↗



Research Publications ↗

Not sure where to start?

[Find which policies apply to you](#)

<https://research.cuanschutz.edu/rio/projects/nih-data-management-and-sharing-policy>

Steps being taken to ready our campus

- Best practices in selecting public data repositories for data dissemination, either generalist or specific data types, such as those on the [NIH website](#)
- A library of templates and examples for different data types and institutional language blurbs to put in the specific sections of the DMSP
- An inventory of campus locations where data can be managed
 - Cost structures to support large and small data management needs
 - Budget documentation for infrastructure and personnel
- Compliance monitoring and support for grant applications and RPPR compliance declaration
- Concierge help desk to support researchers and pre-award staff to write quality DMSPs
- New researcher navigational resources

Coming soon: a new front door for Anschutz Research

To help researchers navigate all things research data and IT



 **Research Concierge Portal**

 Help



 Search Resources

Browse Resources 



LEARN



PROPOSE



CONDUCT



CONNECT

Find Health Research Resources and Support

To browse content, select the circle on the left that best fits your current project goals. You can also search content or request a consult by using buttons in upper right.

Centralized ticketing & concierge services to support researchers' data management and sharing needs

Entering Slido

Please go to slido.com



Join the meeting at: #DMSPatCU2

Third poll

slido



What would you like to see from Campus to help you in preparing for the new DMSP and sharing your data?

① Start presenting to display the poll results on this slide.



DMSP checklist:
<https://osf.io/awpyt>

DMSP Working Group Members

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Teri Hernandez

Library

Nina McHale

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Office of Grants & Contracts

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Thomas Keith Lii

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RIO

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Carlos Goncalves

RIO + Health Data Compass

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School of Pharmacy

Heather Anderson

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Christine Childs

James Costello

Kaitlin A Gil

Jennifer Kemp

Tinalyn Kupfer

Amy Nickson

Sara Rotz

Jana Smilanich-Rose

**Join
Us!**

Connect via email:
crio@cuanschutz.edu

CRIO Council Members

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Alison Lakin *Associate Vice Chancellor for Regulatory Compliance*

Bruce Dye *Director Dental School*

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Heather Anderson *Associate Professor School of Pharmacy*

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Teri Hernandez *Professor and Associate Dean for Research*

Tom Campbell *Professor, Medicine-Infectious Disease*

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Additional Questions?



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RIO | Research Informatics Office

Reach out to us! We can help.
CRIO@cuanschutz.edu

<https://research.cuanschutz.edu/rio>

