

All of Us Research Hub

November 15, 2022

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Objectives

During today's presentation, we will

- Learn about the different data available
- Explore the Research Hub
- Examine the steps for registration
- See how to start a research project on the Workbench

Thank you to our participants and community partners!



Thank you to our consortium partners!

The Participant Center



Communications & Engagement



HPO Network

(Health Care Provider Organizations)

RMCS

All of Us California



Illinois Precision Medicine Consortium



All of Us New England



Trans America Consortium



New York City Consortium



All of Us Southern Network



All of Us SouthEast Enrollment Center



HPO Lite



All of Us Wisconsin



All of Us Pennsylvania



University of Arizona and Banner Health



FQHCs (Federally Qualified Health Centers)



VA Medical Centers



Participant Technology Systems Center (PTSC)



Biobank



Data & Research Center (DRC)



Genomics Partners



All of Us is building one of the largest, most diverse health databases ever

Inviting

1 Million

or more people
across the
United States



Data in the Researcher Workbench



329,000+
Participants



80%

are from underrepresented
communities

50%

are racial and
ethnic minorities

Enabling research discoveries that drive more precise approaches to care

Engages **people & communities who have been left out of medical research** in the past



Combines **biological factors and social determinants** on a large, inclusive scale



Easily accessible to any researcher with a secure internet connection

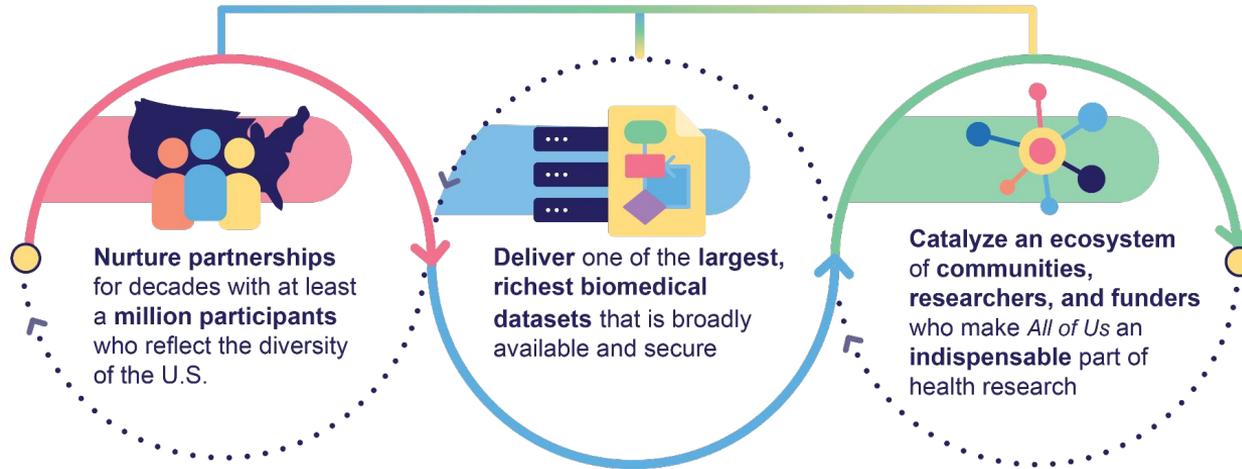


Follows participants as they move, age, and grow



Our Mission

Accelerate health research and medical breakthroughs,
enabling individualized prevention, treatment, and care for all of us



Made possible by a team that maintains a culture built around the program's core values

Participants included in All of Us research data are diverse.

Underrepresented in Biomedical Research (UBR) Categories	Curated Data (% out of 372,380 participants)
At least one UBR	78%
Non-white race or Hispanic/Latino ethnicity	44%
Age >= 65	24%
Less than GED	9%
Annual Income <=\$25k	26%
Sexual and Gender Minorities	10%
Rural Location	7%



Key takeaways for registered users



372,397

Survey Responses



306,179

Physical
Measurements



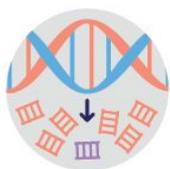
258,415

Electronic Health
Records (EHR)



165,072

Genotyping
Arrays



98,558

Whole Genome
Sequences



12,844

Fitbit
Records

Including the first batch of genomic data



Genomics

Only available via
the Controlled Tier



98,600+
Whole Genome
Sequences



593,500,000+
Unique Variants
Represented and searchable through
public genomic
data browser



165,000+
Genotyping
Arrays



**Genomics
Analysis Tools**
Hail and PLINK
in addition to R, Python,
and Jupyter Notebooks

Genomic Data is Paired with Rich Phenotypic Data



77,000+

Have Whole Genome Sequences + Electronic Health Records
+ Physical Measurements + Survey Responses



95,000+

Have Whole Genome Sequences + Physical Measurements +
Survey Responses



78,200+

Have Whole Genome Sequences + Electronic Health Records



3,500+

Have Whole Genome Sequences + Fitbit Records
Representing >30% of all participant Fitbit records

Data Highlight: Cancer

EHR Domains

Conditions



192

matching medical concepts

227,740 participants in this domain

[View Conditions](#)

Labs & Measurements



122

matching medical concepts

227,280 participants in this domain

[View Labs & Measurements](#)

Procedures



27

matching medical concepts

221,860 participants in this domain

[View Procedures](#)

Survey Questions

Personal Medical History



2

matching survey questions

142,100 participants in this domain

This survey includes information about past medical history, including medical conditions and approximate age of diagnosis.

[View Complete Survey](#)

Family Health History



1

matching survey questions

145,620 participants in this domain

Survey includes information about the medical history of a participant's immediate biological family members.

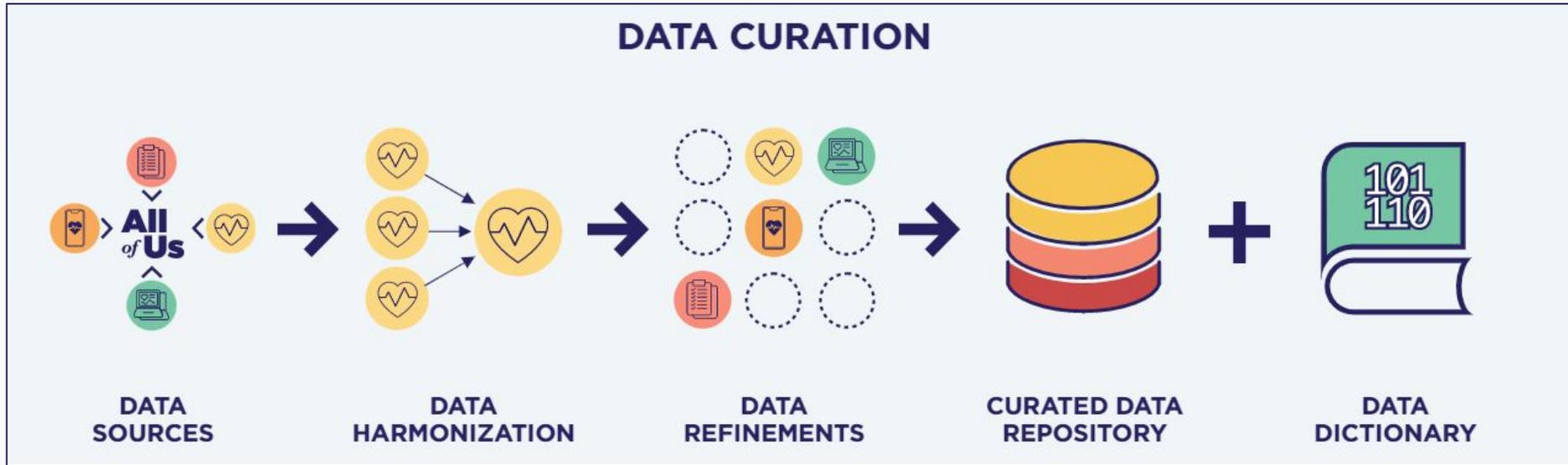
[View Complete Survey](#)

220,000+
responses

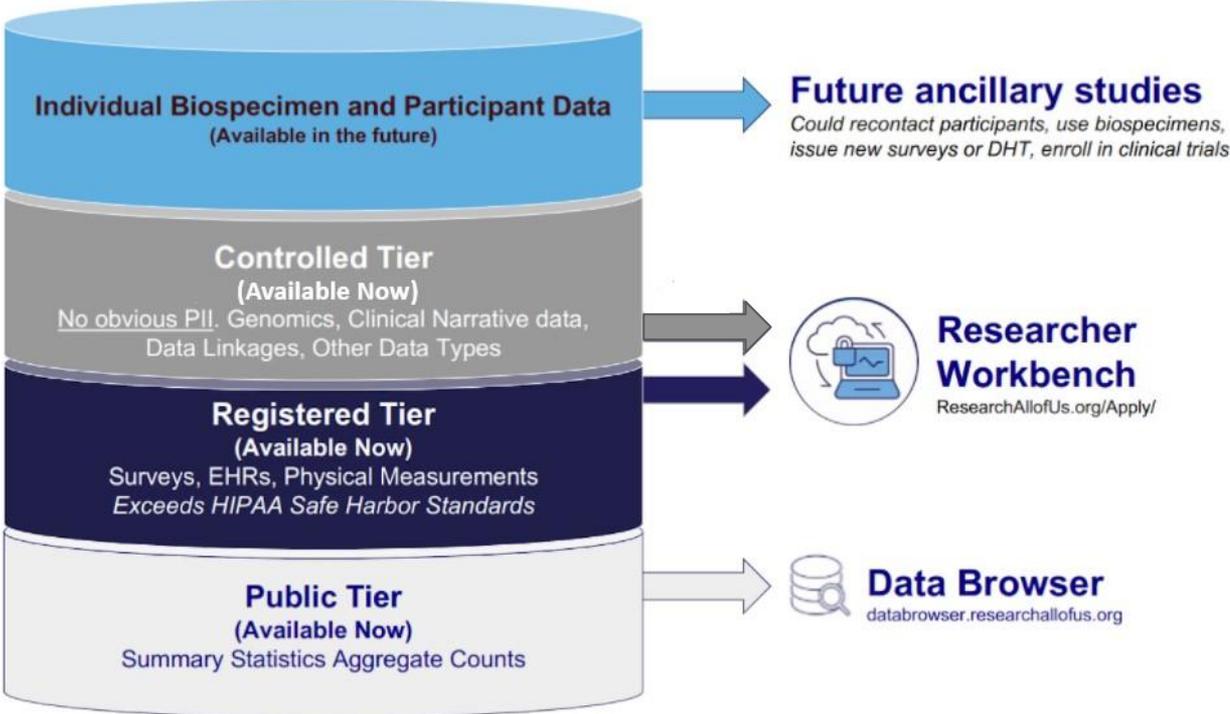
Principles of access & privacy: “Share widely and wisely.”



All of Us Research Data Pipeline



Data and resource access is tiered.



Distinguishing between the Registered and Controlled Tier



Available to
registered
researchers

Registered Tier

Registered users can access curated, individual-level data and a variety of research tools to conduct a wide range of studies.



Surveys



Electronic Health
Records



Physical
Measurements



Wearables

Data have been processed to protect participant privacy

Controlled Tier

Registered users with amended institutional agreements can access **all of the data in the registered tier plus expanded and NEW data** including:



Genomics

- Expanded demographics
- Responses to entire COPE Survey
- COVID-19 EHR data
- Unshifted event dates
- Genomic data derived from WGS (~100k participants) and array genotyping (>165k participants)

The Research Hub

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

Researchallofus.org is home to *All of Us* data, research tools, & projects.

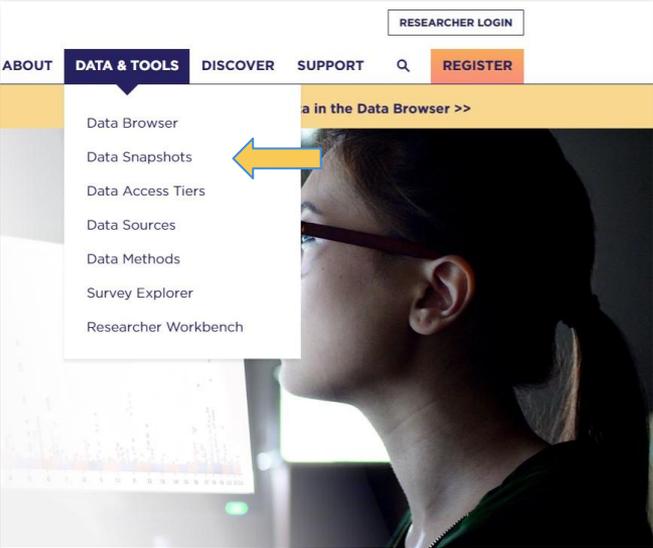


“The Public Website”



“The Workbench”

Data Snapshot provide an overview of participant data.



Data Snapshots

These aggregated, public-facing data snapshots provide an overview of All of Us Research Program participant characteristics and the types of data that we collect from participants.

Note: There are many stages of the All of Us participant journey. More than 778,000 people have registered with the program by creating online accounts at [JoinAllOfUs.org](https://joinallofus.org), beginning the enrollment process. The snapshots below highlight participants in the All of Us Research Program.

The following numbers are approximated to protect participants' privacy. Numbers reflect data collected through November 6, 2022.

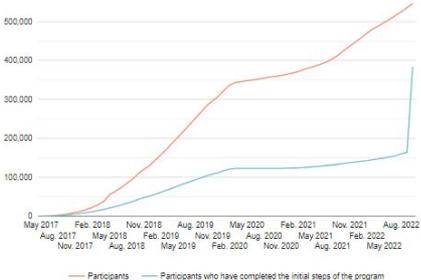
Participants at a Glance



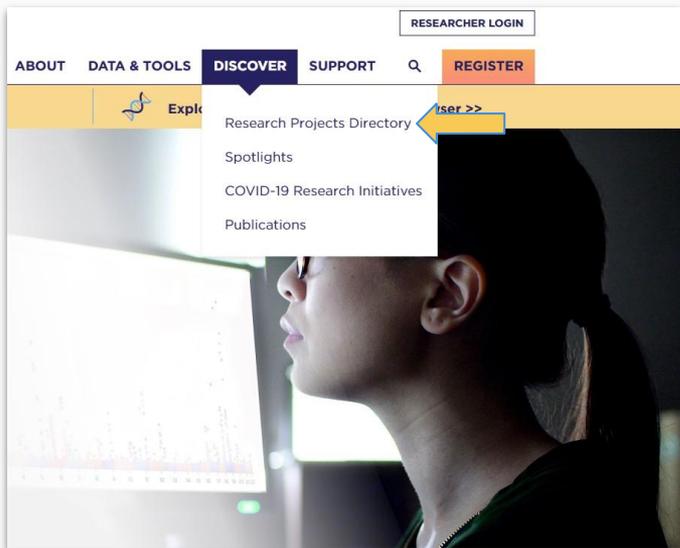
Enrollment Numbers

This graph represents participants who have consented to join the program and those who have completed all initial steps of the program. The initial steps are consenting, agreeing to share electronic health records, completing the first three surveys, providing physical measurements, and donating at least one biospecimen to be stored at the biobank.

The following numbers are approximated to protect participants' privacy. Numbers are updated as of November 6, 2022.



Use the Project Directory to view all active projects.



Research Projects Directory

3,000 ACTIVE PROJECTS

This information was updated 11/14/2022

The Research Projects Directory includes information about all projects that currently exist in the Researcher Workbench to help provide transparency about how the Workbench is being used. Each project specifies whether [Registered Tier](#) or [Controlled Tier](#) data are used.

Note: Researcher Workbench users provide information about their research projects independently. Views expressed in the Research Projects Directory belong to the relevant users and do not necessarily represent those of the All of Us Research Program. Information in the Research Projects Directory is also cross-posted on [AllofUs.nih.gov](https://allofus.nih.gov) in compliance with the 21st Century Cures Act.

Search By:

Project title: enter keywords you are looking for



Genetics of complex diseases



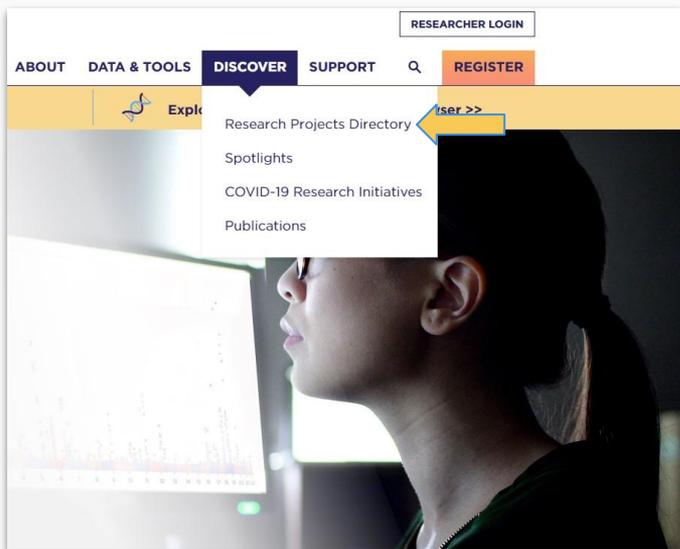
Most diseases are caused by many genes and environmental factors, as well as interactions between them, i.e., they are complex diseases. Identify disease-causing genes and their interactions with environmental factors can help us understand the disease etiologies and thus novel...

AA and rosacea



We want to explore the systemic impacts of highly inflammatory skin pathologies on other organ systems.

Use the Project Directory to view all active projects.



Impact of Exposomics and Genomics on Prostate Cancer Outcomes

SCIENTIFIC QUESTIONS BEING STUDIED

- How does behavior and lifestyle affect oncologic outcomes in prostate cancer? Does genetic ancestry influence oncologic outcomes or type of therapy received in prostate cancer? One of the risk factors for aggressive prostate cancer is a confounding social construct: racism. Identifying which societal behaviors, modifiable and non-modifiable, contribute to the development of aggressive prostate cancer may finally replace racism with non-stigmatizing, potentially modifiable risk factors.
- Are current prostate cancer treatments disproportionately administered to patients with specific social determinants of health? If so, are patients with worse social determinants of health (SDOH) receiving inferior treatments (per evidence-based standard of care)? Identifying real-world practice patterns based on SDOH can reveal where efforts can be directed to improve oncologic outcomes.

PROJECT PURPOSE(S)

- Disease Focused Research (prostate cancer)
- Social / Behavioral
- Control Set
- Ancestry

SCIENTIFIC APPROACHES

- Patients with a diagnosis of prostate cancer.
- Main Cohorts: by treatments received (prostatectomy or radiation or androgen deprivation therapy (ADT))
- Sub-cohorts: by race, by ethnicity, by inferred genetic ancestry, by waist circumference, by body mass index, by activity level (Fitbit data), by highest education, by income, by median income per zip code.
- Outcomes: descriptive statistics, ADT sequencing, progression (requiring a different modality of treatment), survival.
- Evaluate actuarial outcomes with Kaplan-meier statistics and binary logistic regression for correlation of univariates followed by multivariable logistic regression for variables that are statistically significant ($p < 0.05$).

ANTICIPATED FINDINGS

- Inferred genetic ancestry will not impact any outcomes.
- Higher waist circumference, less activity and worse SDOH will be associated with worse outcomes.
- These findings would corroborate that race and ethnicity are social constructs derived from a complex system of shared behaviors rather than a genetic determinant for higher risk disease.

DEMOGRAPHIC CATEGORIES OF INTEREST

- Race / Ethnicity
- Geography
- Access to Care
- Education Level
- Income Level

DATA SET USED

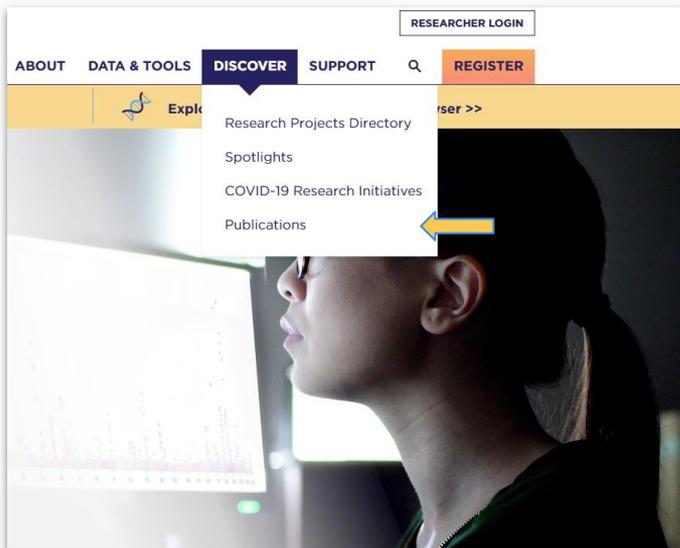
Controlled.Tier

RESEARCH TEAM

Owner:

- [William Jin](#) - Research Fellow, University of Miami

Read researchers' peer-reviewed *All of Us* publications



All of Us Publications

There are currently **66 publications** and counting

Inclusion on this list does not constitute endorsement by *All of Us*

Last updated June 2022

Featured Publications



Hypertension prevalence in the *All of Us* Research Program among groups traditionally underrepresented in medical research

[Hypertension prevalence in the *All of Us* Research Program among groups traditionally underrepresented in medical research](#)

Chandler PD, Clark CR, Zhou G, Noel NL, Achilike C, Mendez L, Ramirez AH, Loperona-Cortes R, Mayo K, Cohn E, Ohno-Machado L, Boerwinkle E, Cicok M, Qian J, Schully S, Ratsimbazafy F, Mockrin S, Gebo K, Dedier JJ, Murphy SN, Smoller JW, Karlson EW, All of Us Research Program Investigators.

Sci Rep. 2021 Jun 22;11(1):12849. doi: 10.1038/s41598-021-92143-w. PMID: 34158555; PMCID: PMC8219813.

Browse or Search all Publications

SEARCH by TITLE

SEARCH

SORT BY: DATE ↓ TITLE ↑

Keeping synthetic patients on track: feedback mechanisms to mitigate performance drift in longitudinal health data simulation.

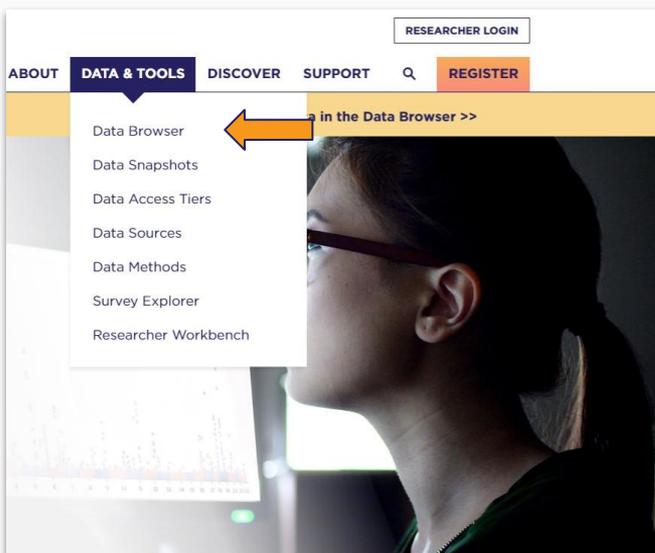
[Keeping synthetic patients on track: feedback mechanisms to mitigate performance drift in longitudinal health data simulation.](#)

Zhang Z, Yan C, Malin BA. J Am Med Inform Assoc. 2022 Aug 4;ocac131. doi: 10.1093/jamia/ocac131. Epub ahead of print. PMID: 35927974.

August 4, 2022

Exploring the Data - The Data Browser & Survey Explorer

The Data Browser is an interactive way to view the data.



Search Across Data Types

Keyword Search

Data includes 372,380 participants and is current as of 6/6/2022.

FAQs Introductory Videos User Guide

EHR Domains

Domain	Count	Participants
Conditions	24,315 medical concepts	227,740 participants in this domain
Drug Exposures	29,166 medical concepts	214,640 participants in this domain
Lab & Measurements	15,309 medical concepts	227,280 participants in this domain
Procedures	29,176 medical concepts	221,860 participants in this domain

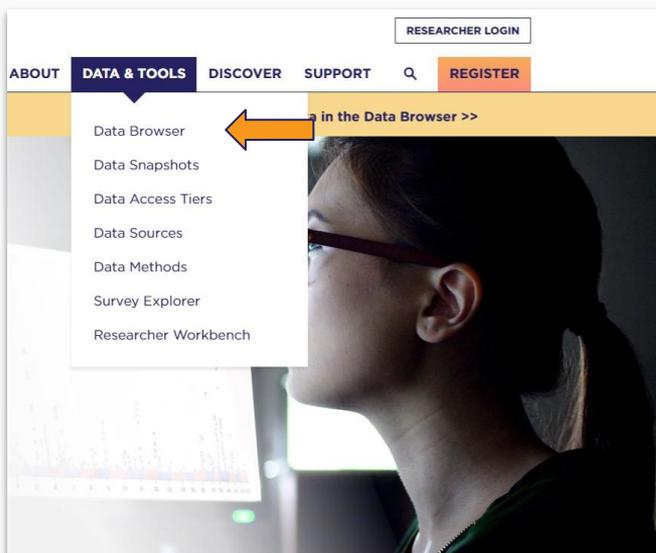
Genomics

Domain	Count	Participants
Genomic Variants	98,600 participants in the Whole Genome Sequencing (WGS) dataset 165,140 participants in the Genotyping Array dataset	
Physical Measurements and Wearables		
Physical Measurements	8 Physical Measurements	311,300 participants in this domain
Fitbit	4 Fitbit Measurements	12,880 participants in this domain

Survey Questions

Survey	Count	Participants
The Basics	28 questions available	372,380 participants in this domain
Overall Health	21 questions available	372,380 participants in this domain
Lifestyle	26 questions available	372,380 participants in this domain
Personal Medical History	465 questions available	142,100 participants in this domain
Health Care Access & Utilization	57 questions available	160,880 participants in this domain
Family Health History	104 questions available	145,620 participants in this domain
COVID-19 Participant Experience (COPE)	191 questions available	105,940 participants in this domain
Minute Survey on COVID-19 Vaccines	141 questions available	101,440 participants in this domain

The Data Browser is an interactive way to view the data.



Search Across Data Types

asthma

Data includes 372,380 participants and is current as of 6/6/2022.

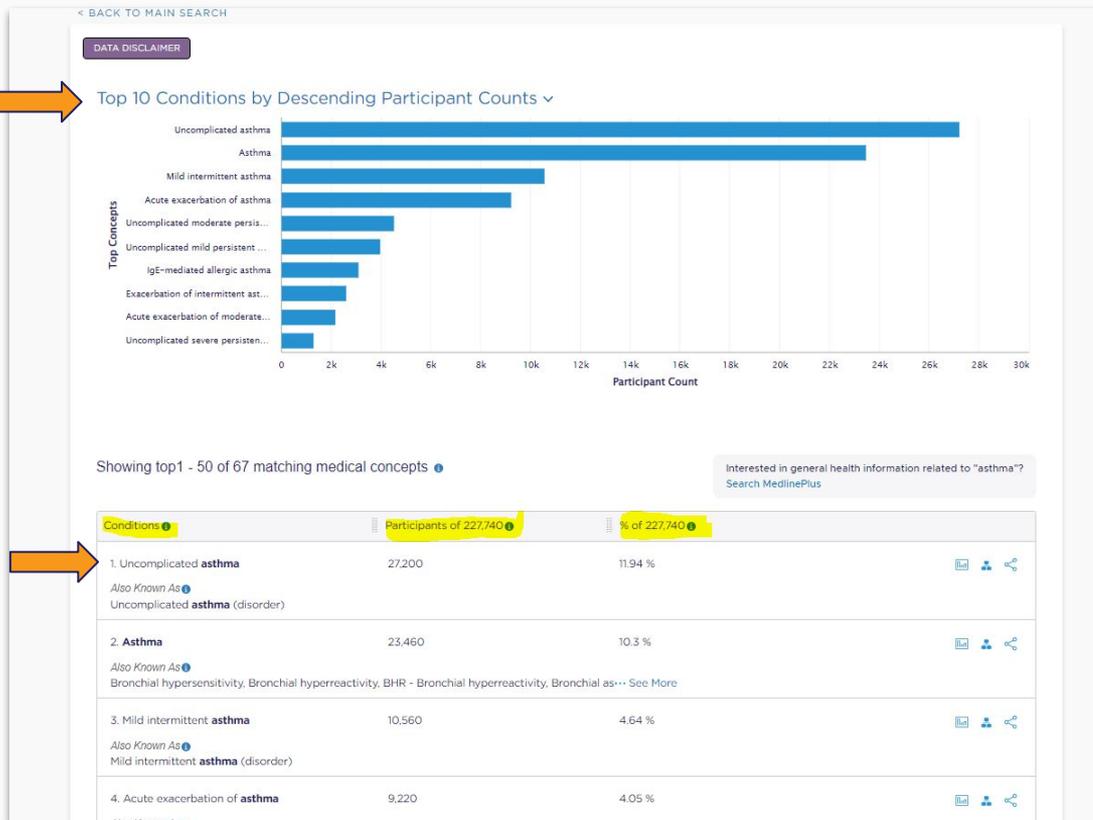
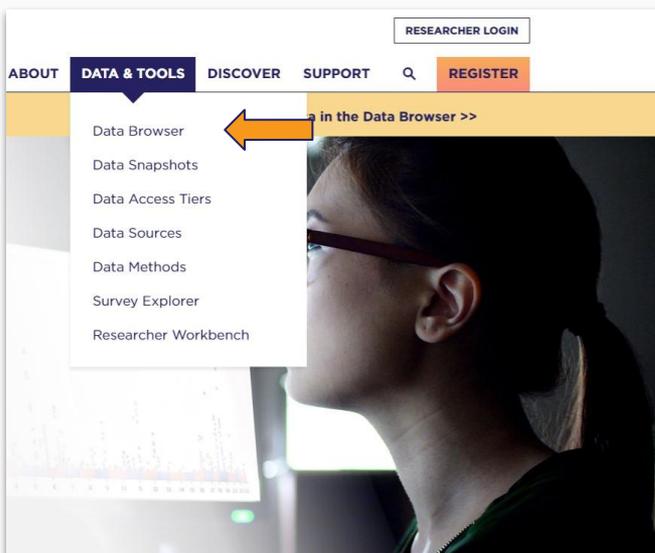
EHR Domains

67 matching medical concepts 227,740 participants in this domain View Conditions	4 matching medical concepts 221,860 participants in this domain View Procedures
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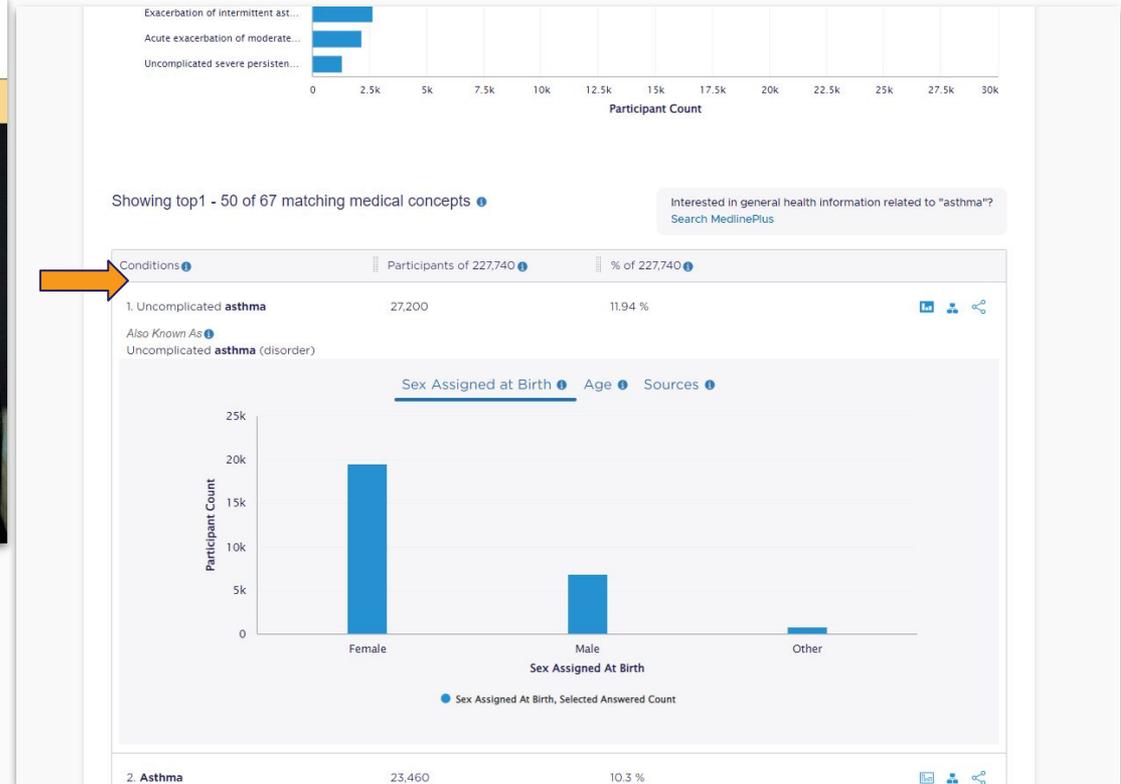
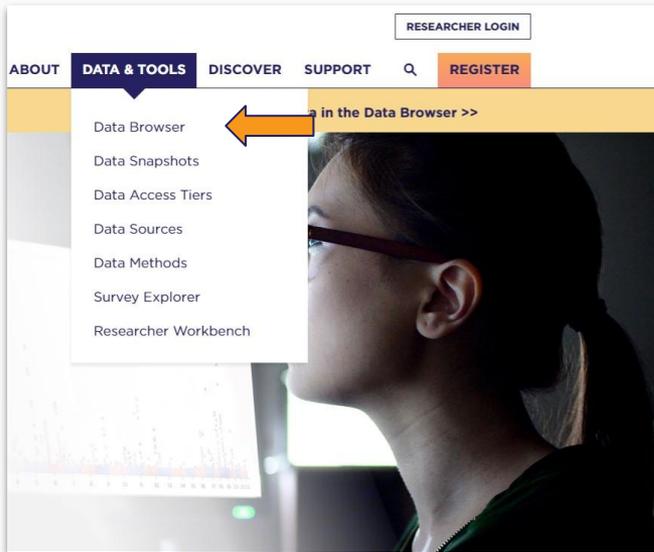
Survey Questions

1 matching survey questions 142,100 participants in this domain This survey includes information about past medical history, including medical conditions and approximate age of diagnosis. View Complete Survey	1 matching survey questions 145,620 participants in this domain Survey includes information about the medical history of a participant's immediate biological family members. View Complete Survey
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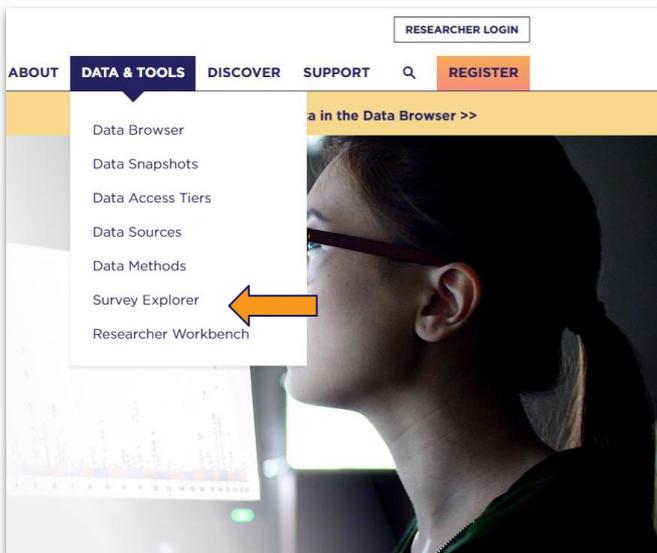
The Data Browser is an interactive way to view the data.



The Data Browser is an interactive way to view the data.



The Survey Explorer hosts all surveys available to participants.



The Basics

This core survey asks basic demographic questions, including questions about a participant's work and home. Participants must complete this survey before responding to additional surveys.

[View English version](#)
[View Spanish version](#) [EXPLORE SOURCE MATERIAL](#)

Lifestyle

This survey asks about a participant's use of tobacco, alcohol, and recreational drugs.

[View English version](#)
[View Spanish version](#) [EXPLORE SOURCE MATERIAL](#)

Overall Health

This survey collects information about a participant's overall health including general health, daily activities, and women's health topics.

[View English version](#)
[View Spanish version](#) [EXPLORE SOURCE MATERIAL](#)

Personal Medical History

This survey collects information about past medical history, including medical conditions and approximate age of diagnosis.

[View English version](#)
[View Spanish version](#) [EXPLORE SOURCE MATERIAL](#)

Health Care Access & Utilization

This survey asks questions about a participant's access to and use of health care.

[View English version](#)
[View Spanish version](#) [EXPLORE SOURCE MATERIAL](#)

Family Health History

This survey asks about the medical history of a participant's immediate biological family members.

[View English version](#)
[View Spanish version](#) [EXPLORE SOURCE MATERIAL](#)

COVID-19 Participant Experience (COPE) Survey

This survey asks about the impact of COVID-19 on a participant's mental health, well-being, and everyday life. This survey was administered to participants multiple times from May 2020 to March 2021.

[View English version](#)
[View Spanish version](#) [EXPLORE SOURCE MATERIAL](#)

Minute Survey on COVID-19 Vaccines

This survey collects information regarding a participant's COVID-19 vaccination experience. This survey was administered to participants multiple times from June 2021 to March 2022.

[View English version](#)
[View Spanish version](#) [EXPLORE SOURCE MATERIAL](#)

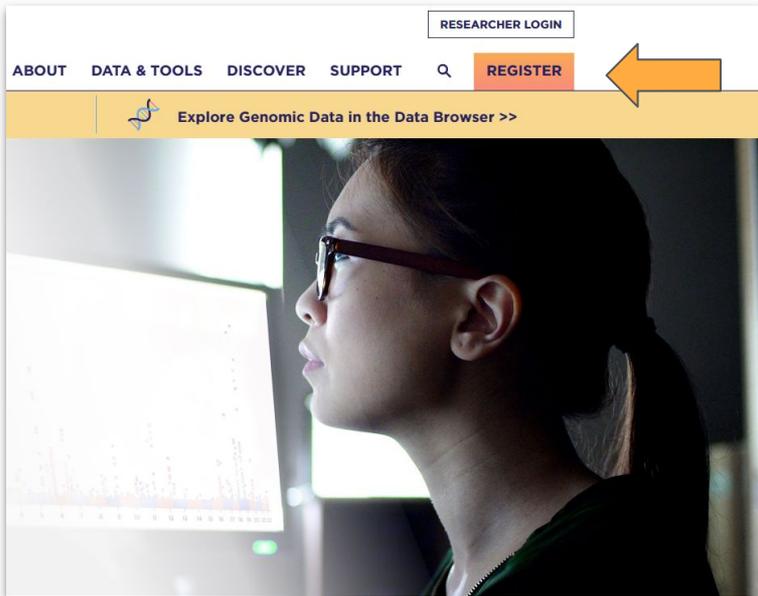
Social Determinants of Health

This survey asks about the social determinants of health, including a participant's neighborhood, social life, stress, and feelings about everyday life.

[View English version](#) [EXPLORE SOURCE MATERIAL](#)

How to Register

Registration is easy!



How to Register

STEP
1

LEARN MORE ABOUT THE DATA AVAILABLE

Explore the data available through the [Data Browser](#), which provides interactive views of aggregate-level participant data. Learn about individual-level [data access tiers](#) and the [Researcher Workbench tools](#).

STEP
2

CHECK FOR YOUR INSTITUTION'S AGREEMENT

Before you can register, your institution must have a [Data Use and Registration Agreement](#) in place with *All of Us* to ensure data security.

STEP
3

CREATE A RESEARCHER WORKBENCH ACCOUNT

Complete your researcher profile, sign the Terms of Service, and agree to the Privacy Policy.

STEP
4

VERIFY YOUR IDENTITY USING LOGIN.GOV

Verify your identity using Login.gov. You may need to provide an SSN and a state-issued ID. Your institution may also require you to use an eRA Commons account. If so, contact your institution directly. [Read more about Login.gov](#).

STEP
5

COMPLETE ALL OF US RESEARCH TRAINING

The mandatory training provides education on conducting responsible and ethical research with data from *All of Us* participants. Please allow at least one hour to complete.

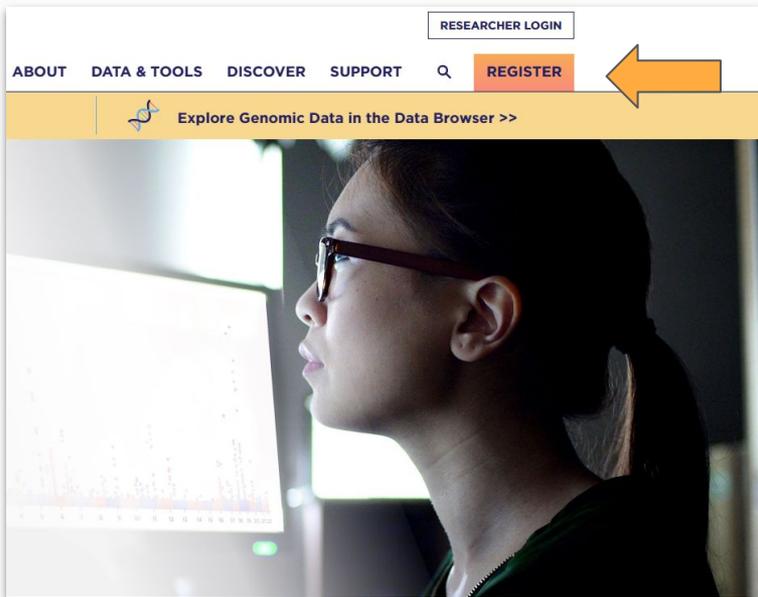
STEP
6

SIGN THE DATA USER CODE OF CONDUCT

The Data User Code of Conduct is an agreement that outlines the program's expectations for researchers.

REGISTER

See if your institution has an agreement with us for access.



Institutional Agreements

Access to the *All of Us* Researcher Workbench Controlled and Registered Tier data is available to researchers with an institutional agreement in place. Any U.S.-based academic, nonprofit, or health care institution can enter into our Data Use and Registration Agreement. Below is the growing list of institutions that have already signed agreements.

If your institution currently has an agreement that includes access to your preferred data tier, [create an account](#).

If your institution does not have an agreement that includes access to your preferred data tier or requires individual agreements, [submit a request](#).

428
Institutions Have
Agreements in
Place

Quick search - enter your institution's name

Key: **R** Registered Tier **C** Controlled Tier **I** Individual agreements required by institution **e** eRA Commons required by institution

Institution	Access Level	Contact at Institution
A.T. Still University of Health Sciences	R C	Gayla Sublette
AI LA Community, Inc	R C	Todd Terrazas
Alabama Agriculture and Mechanical University	R	Damian Clarke
Alabama College of Osteopathic Medicine	R C	Carmen Lewis
Albany State University	R C	Louise Wrensford
Albert Einstein College of Medicine	R C	John M. Greally
All of Us Researcher Academy/RTI International	R C	Julie Durway

Assistance with Registration

Welcome to the *All of Us* Research Hub

The *All of Us* Research Program, led by the National Institutes of Health, is building one of the largest biomedical data resources of its kind. The *All of Us* Research Hub stores health data from a diverse group of participants from across the United States.

Registered researchers can access *All of Us* data and tools to conduct studies to help improve our understanding of human health.

[REGISTER FOR ACCESS](#)



Leave us a message

Please select your issue

Ask a question or report an issue.

Share your feedback.

[Login.gov Registration Assistance Form](#)

I have a workspace dedicated to COVID-19 Research

Tell us about a recent publication.

Demonstration Project Team Member Questions/Feedback

Demonstration Request Form

zendesk

Benefits of Registration



Available to
all registered
users

Resources

All of Us offers data and more.

Registered users have access to:

- Platform and tools
- \$300 in initial credit
- User support materials and staff
- Opportunities to showcase work

Platform Uses

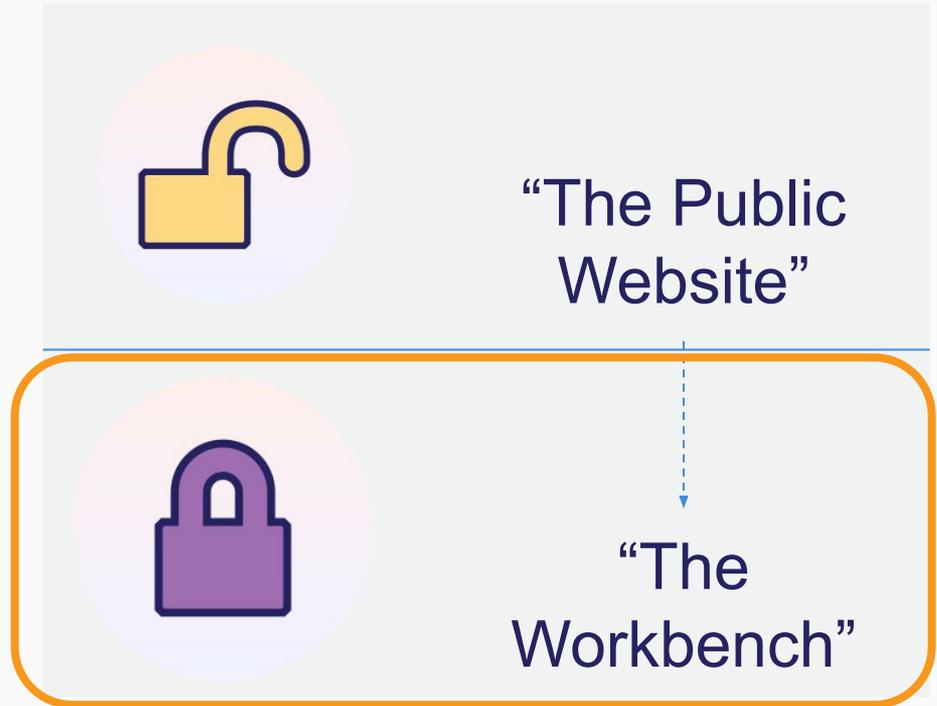
All of Us is for publishing and more.

- Team science
- Dissertation
- Thesis
- Poster presentations
- Class projects
- Self-practice (especially data science)

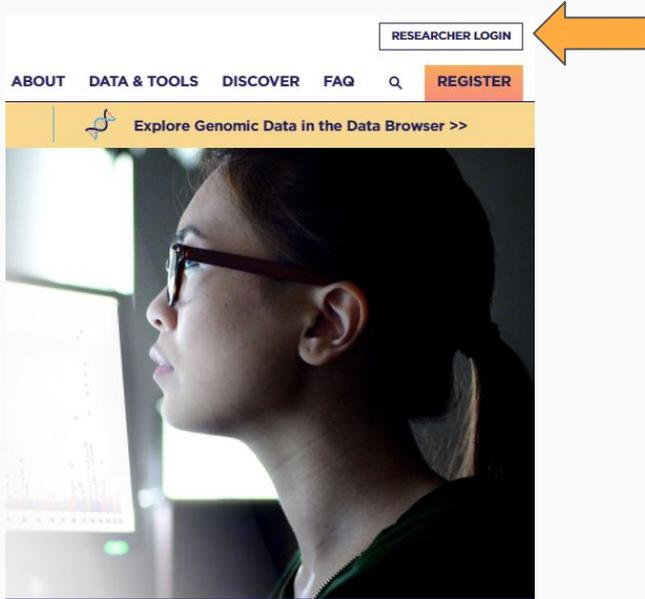
The Researcher Workbench and how to start a research project

The Researcher Workbench

A secure enclave where researchers access & analyze All of Us data.



Login from the Hub to access your Workspaces.



All of Us
RESEARCHER WORKBENCH

Already have a Researcher Workbench account?

 [Sign In](#)

[Trouble Signing In?](#)

Don't have an account?

[CREATE ACCOUNT](#)

WARNING NOTICE
You are accessing a web site created by the All of Us Research Program, funded by the National Institutes of Health.

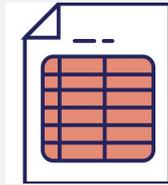
Unauthorized attempts to upload information, change information, or use of this web site may result in disciplinary action, civil, and/or criminal penalties. Unauthorized users of this website should have no expectation of privacy regarding any communications or data processed by this website.

By continuing to log in, anyone accessing this website expressly consents to monitoring of their actions and all communications or data transferring or stored on related to this website and is advised that if such monitoring reveals possible evidence of criminal activity, NIH may provide that evidence to law enforcement officials.

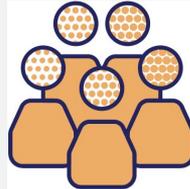
The Researcher Workbench = secure cloud analysis platform



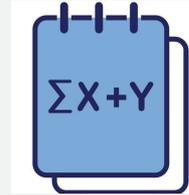
WORKSPACES



DATASET
BUILDER



COHORT
BUILDER



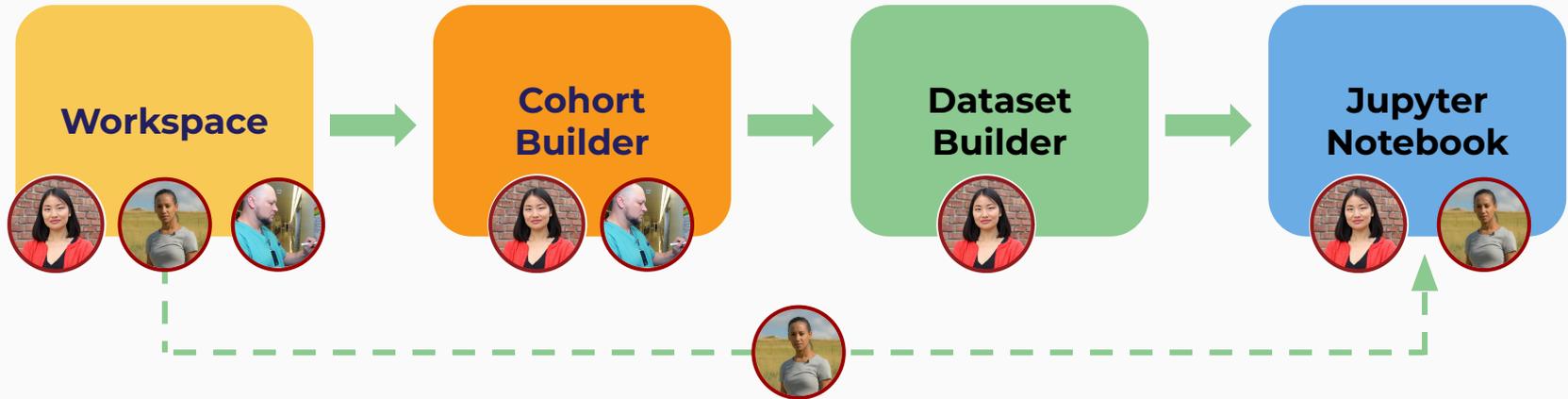
NOTEBOOKS



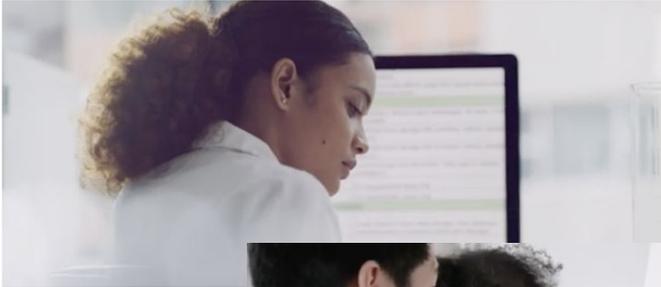
WORKBENCH USER
SUPPORT HUB

The Workbench is Collaborative

Within the Researcher Workbench, a researcher (and their research team) collaborate in “workspaces.” The workflow is flexible & collaborative.



No IRB approval needed.



We use a **passport model** and approve the **researcher**



The Workbench landing page



Welcome to the
RESEARCHER WORKBENCH

The secure platform to analyze *All of Us* data



Workspaces +

[See all workspaces](#)

Genetic Causation of Asthma

OWNER

Last Changed: 05/31/22, 05:24 PM

Asthma Demo

OWNER

Last Changed: 05/31/22, 03:34 PM

Adults Who Developed Asthma as Adults - Shared Conditions and Habits

OWNER

Last Changed: 05/31/22, 03:40 PM

Duplicate of How to Get Started with Registered Tier D Data

OWNER

Last Changed: 05/31/22, 05:06 PM

Recently Accessed Items

Item type	Name	Workspace name	Last changed	Dataset
Cohort	Array + asthma	Genetic Causation of Asthma	Jun 8, 2022	All of Us Controlled Tier Dataset v5
Cohort	wgs age asthma	Genetic Causation of Asthma	Apr 8, 2022	All of Us Controlled Tier Dataset v5
Concept Set	Asthma concept	Genetic Causation of Asthma	Apr 7, 2022	All of Us Controlled Tier Dataset v5
Cohort	WGS + Age	Genetic Causation of Asthma	Apr 7, 2022	All of Us Controlled Tier Dataset v5
Cohort	Age + BMI	Genetic Causation of Asthma	Apr 7, 2022	All of Us Controlled Tier Dataset v5
Cohort	asthma cohort 3	Asthma Demo	Sep 1, 2021	All of Us Registered Tier Dataset v3
Notebook	Asthma Demo 2	Asthma Demo	Sep 1, 2021	All of Us Registered Tier Dataset v3
Notebook	Asthma Dataset	Asthma Demo	Sep 1, 2021	All of Us Registered Tier Dataset v3

Showing 8 most recent items

Quick Tour and Videos

Workbench Quick Tour

2:33

TUTORIAL VIDEO
Introduction to the Researcher Workbench

2:26

TUTORIAL VIDEO
Cohort Builder & Cohort Review

2:49

TUTORIAL VIDEO
Dataset Builder & Concept Sets

2:54

TUTORIAL VIDEO
Notebooks & Code Snippets

2:28

TUTORIAL VIDEO
User Support

Answer questions about your Workspace.

All of Us
RESEARCHER WORKBENCH

Create a new workspace (Required) ⓘ

Workspace name

Data access tier ⓘ
Registered Tier
Registered Tier
Controlled Tier

Dataset version ⓘ
All of Us Registered Tier Dataset v5

All of Us billing account
The All of Us Research Program provides \$300 in initial credits per user. Please refer to this article to learn more about the initial credit program and how it can be used. Once you have used up your initial credits, you can either select a shared billing account or create a new one using either Google Cloud Platform or a Google billing partner.
Please note: If creating a billing account via a Google billing partner, it may take a few days to show up in the **Select account** dropdown.

Select a current billing account
Use All of Us initial credits - \$284.90 left
CREATE BILLING ACCOUNT

Research Use Statement Questions Best practices for Research Use Statement questions

The All of Us Research Program requires each data user of the All of Us data to provide a meaningful description of the intended purpose of data use for each workspace they create. To provide transparency to All of Us Research Program participants, your answers below will be made available publicly in the Research Hub Directory on our public website. **Your responses will not be used to make decisions about data access.**

Note that you are required to create separate workspaces for each project for which you access All of Us data, hence the responses below are expected to be specific to the project for which you are creating this particular workspace.

1. What is the primary purpose of your project? Publicly displayed ⓘ

Research purpose >

Educational Purpose
The data will be used for education purposes (e.g. for a college research methods course, to educate students on population-based research approaches).

For-Profit Purpose
The data will be used by a for-profit entity for research or product or service development (e.g. for understanding drug responses as part of a pharmaceutical company's drug development or market research efforts).

Other Purpose
If your purpose of use is different from the options listed above, please select "Other Purpose" and provide details regarding your purpose of data use here (500 character limit).

COPE Covid-19 Mitigation Behaviors

PROJECT PURPOSE(S)

- Population Health

SCIENTIFIC QUESTIONS BEING STUDIED

Answers to COPE survey questions regarding adherence to COVID-19 mitigation recommendations will be used to answer the following questions:

- Do responses vary by demographic characteristics including age, gender, race/ethnicity, household characteristics, employment status, and geographical variables such as urban/rural and state of residence?
- Are differences in responses by state associated with contemporaneous state mandates regarding COVID-19 mitigation behavior, controlling for other factors identified in #1 above?
- Do mitigation behaviors change over time?

Identification of variables associated with mitigation behaviors during the current pandemic may help improve further mitigation efforts, including for potential future pandemics.

SCIENTIFIC APPROACHES

Using the datasets and tools within the AoURP Research Workbench for cohort creation and statistical analyses (including the R statistical program), we will:

- Generate descriptive statistics on the sample of participants who answered the COPE surveys and compare with those of the overall AoURP cohort to assess generalizability of findings to the cohort and nationally.
- Compare responses re: COVID-19 mitigation behaviors by demographic and geographic characteristics overall and between states, using bivariate statistics appropriate for the variable types.
- Examine responses by level of contemporaneous state mandates regarding mitigation behaviors in multivariable regression models controlling for all other variables found to be associated with these behaviors in 2.
- Perform a longitudinal analysis of changes in mitigation behaviors for individuals answering all 3 COPE surveys.

ANTICIPATED FINDINGS

We expect that mitigation behaviors are associated with many different demographic and geographic areas and change over time. Identification of the associated variables will contribute to the understanding of the effectiveness of public health messages and mandates, within demographic, geographic, and temporal contexts.

DEMOGRAPHIC CATEGORIES OF INTEREST

This study will not center on underrepresented populations.

RESEARCH TEAM

Owner:

- Jill Waalen - Mid-career Tenured Researcher, Scripps Research

[Request a Review of this Research Project](#)

The About tab provides information about your Workspace.

All of Us
RESEARCHER WORKBENCH
Stable

Welcome to the
RESEARCHER WORKBENCH
The secure platform to analyze *All of Us* data

Workspaces +

Asthma Developing in Adults
OWNER
Last Changed: 08/24/21, 03:23 PM

BMC / Ebroids
READER
Last Changed: 08/24/21, 03:23 PM

WORKSPACES



All of Us
RESEARCHER WORKBENCH
Stable

Workspaces >
Asthma Developing in Adults

DATA ANALYSIS **ABOUT** Synthetic Dataset v4

Primary purpose of project

Research Purpose

Disease-focused research
asthma

Genetic Research
Research concerning genetics (i.e. the study of genes, genetic variations, and heredity) in the context of diseases or ancestry.

Social/Behavioral Research
The research focuses on the social or behavioral phenomena or determinants of health.

Population Health/Public Health Research
The primary purpose of using *All of Us* data is to investigate health behaviors, outcomes, access, and disparities in populations.

Summary of research purpose

What are the specific scientific question(s) you intend to study, and why is the question important (i.e. relevance to science or public health)?

Are there any shared behaviors to adults who develop asthma in adulthood as opposed to developing it as a child? Do adults who develop asthma in adulthood have other medical conditions or behavior in common? Do certain habits lead to developing asthma in adulthood, especially if there is a history of illness, such as bronchitis, throughout early life?

What are the scientific approaches you plan to use for your study? Describe the datasets, research methods, and tools you will use to answer your scientific question(s).

I will use longitudinal surveys as well as EHR data for this study. This work will look at patients' behaviors through their survey answers and look at conditions they develop as adults through their EHR data.

What are the anticipated findings from the study? How would your findings contribute to the body of scientific knowledge in the field?

Collaborators: **SHARE**

OWNER:
ashley.e.green@stable.fake-research-aou.org

Workspace Information:

DATASET
Synthetic Dataset v4

CREATION DATE
Tue Aug 24 2021

LAST UPDATED
Tue Aug 24 2021

DATA ACCESS TIER
Registered

WORKSPACE FREE CREDIT USAGE
\$104

The Data tab is where you begin building your research.



All of Us
RESEARCHER WORKBENCH
Stable

Workspaces > Asthma Devel

DATA ANALYSIS ABOUT

Primary purpose of project

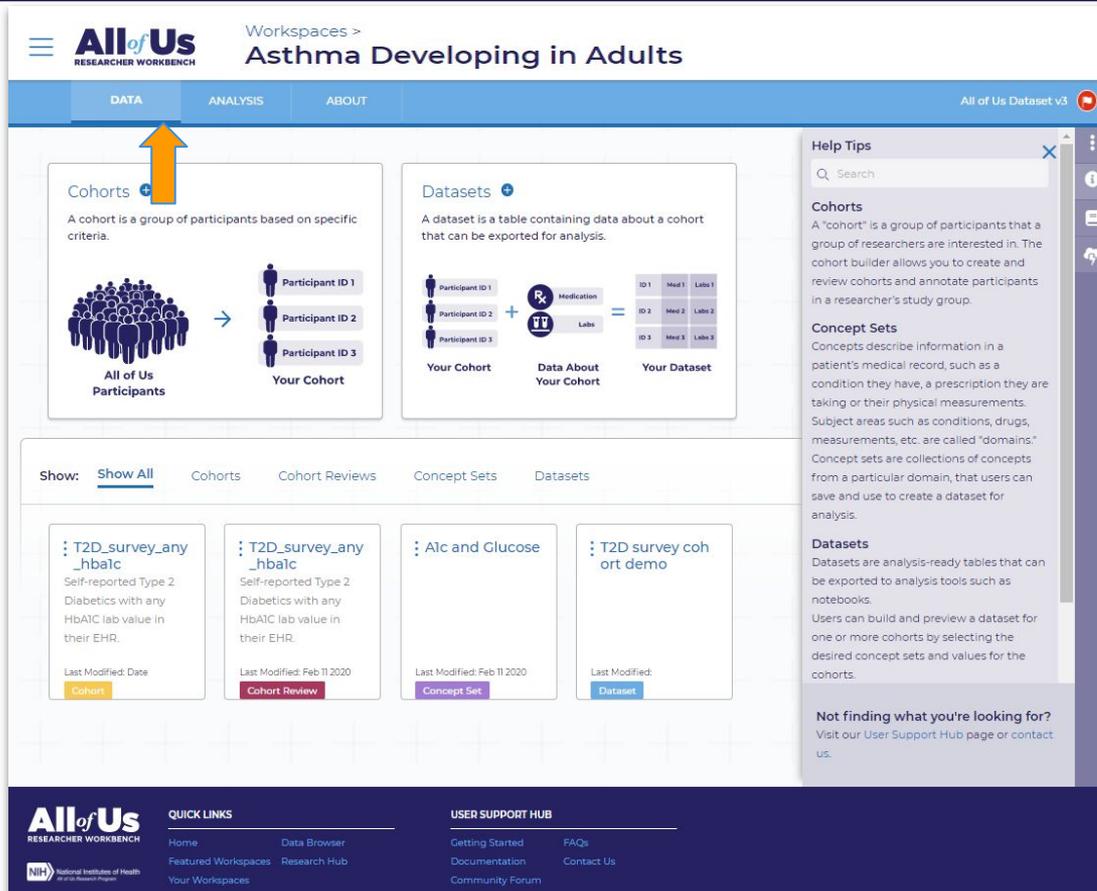
Research Purpose

Disease-focused research

asthma



Cohort + Dataset Builders



All of Us
RESEARCHER WORKBENCH

Workspaces > Asthma Developing in Adults

DATA ANALYSIS ABOUT

All of Us Dataset v3

Cohorts

A cohort is a group of participants based on specific criteria.

Datasets

A dataset is a table containing data about a cohort that can be exported for analysis.

Help Tips

Search

Cohorts

A "cohort" is a group of participants that a group of researchers are interested in. The cohort builder allows you to create and review cohorts and annotate participants in a researcher's study group.

Concept Sets

Concepts describe information in a patient's medical record, such as a condition they have, a prescription they are taking or their physical measurements. Subject areas such as conditions, drugs, measurements, etc. are called "domains." Concept sets are collections of concepts from a particular domain, that users can save and use to create a dataset for analysis.

Datasets

Datasets are analysis-ready tables that can be exported to analysis tools such as notebooks. Users can build and preview a dataset for one or more cohorts by selecting the desired concept sets and values for the cohorts.

Not finding what you're looking for?
Visit our [User Support Hub](#) page or contact us.

Show: Show All Cohorts Cohort Reviews Concept Sets Datasets

T2D_survey_any_hba1c
Self-reported Type 2 Diabetics with any HbA1c lab value in their EHR.
Last Modified: Date
Cohort

T2D_survey_any_hba1c
Self-reported Type 2 Diabetics with any HbA1c lab value in their EHR.
Last Modified: Feb 11 2020
Cohort Review

A1c and Glucose
Last Modified: Feb 11 2020
Concept Set

T2D survey cohort demo
Last Modified:
Dataset

All of Us
RESEARCHER WORKBENCH

QUICK LINKS

Home Data Browser
Featured Workspaces Research Hub
Your Workspaces

USER SUPPORT HUB

Getting Started FAQs
Documentation Contact Us
Community Forum

The Jupyter Notebook is where you will run your analysis.



Notebooks for analysis

The screenshot shows a Jupyter Notebook interface for 'Data 101 - Data Fundamentals [Python]'. The notebook contains a Venn diagram titled 'Count of participants with multiple data types'. The diagram shows the overlap of four data types: Survey (purple), EHR (blue), Phys. Meas. (green), and Fitbit (yellow). The counts for each region are as follows:

Region	Count
Survey only	47216
EHR only	286
Phys. Meas. only	0
Fitbit only	228
Survey & EHR	2086
Survey & Phys. Meas.	196709
Survey & Fitbit	60788
EHR & Phys. Meas.	0
EHR & Fitbit	0
Phys. Meas. & Fitbit	0
Survey & EHR & Phys. Meas.	4631
Survey & EHR & Fitbit	1297
Survey & Phys. Meas. & Fitbit	101
EHR & Phys. Meas. & Fitbit	0
Survey & EHR & Phys. Meas. & Fitbit	2179

The notebook interface includes a 'Contents' sidebar on the left with a tree view of sections:

- 1 Objectives
- 2 Setup
 - 2.1 How to install software packages
 - 2.2 How to import installed software pa
 - 2.3 How to select the Curated Data Re
- 3 Data Availability Part 1
 - 3.1 How many participants have survey
 - 3.2 How many participants have physic
 - 3.3 How many participants have EHR (
 - 3.4 How many participants have COPE
 - 3.5 How many participants have Fitbit
 - 3.6 How many participants have more
- 4 Data Availability Part 2
 - 4.1 How many participants have data fr
 - 4.2 How many participants have data f
 - 4.3 How many participants have data f
 - 4.4 How many participants have data f
 - 4.5 How many participants have data f
- 5 Data Organization
 - 5.1 How are participant data organized
 - 5.2 How many rows of data are in each
 - 5.3 How are data from different source
- 6 Example Queries
 - 6.1 Participant count by gender identity
 - 6.2 Participant count by race and ethni
 - 6.3 Participant count by state of reside
 - 6.4 How to interpret PPI responses suc
- 7 Expert Tip - Accessing CDR_base

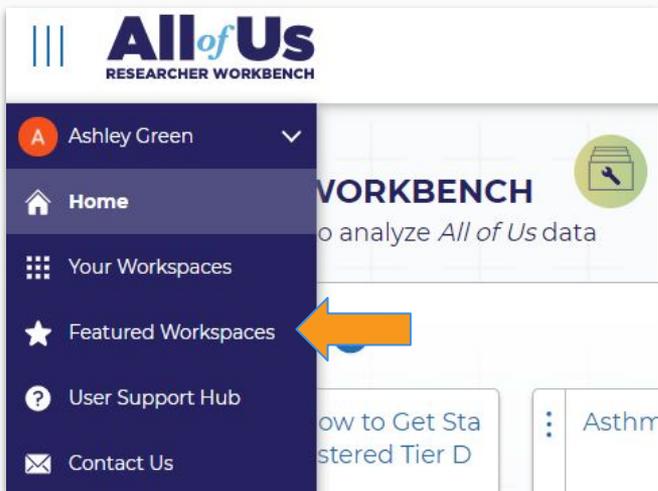
4 Data Availability Part 2

How to delve a little deeper into data availability within each major data type (Modules 1-6, Physical M

4.1 How many participants have data for each survey?

Support Resources

The Featured Workspaces can help you during your research.



All of Us
RESEARCHER WORKBENCH

Ashley Green

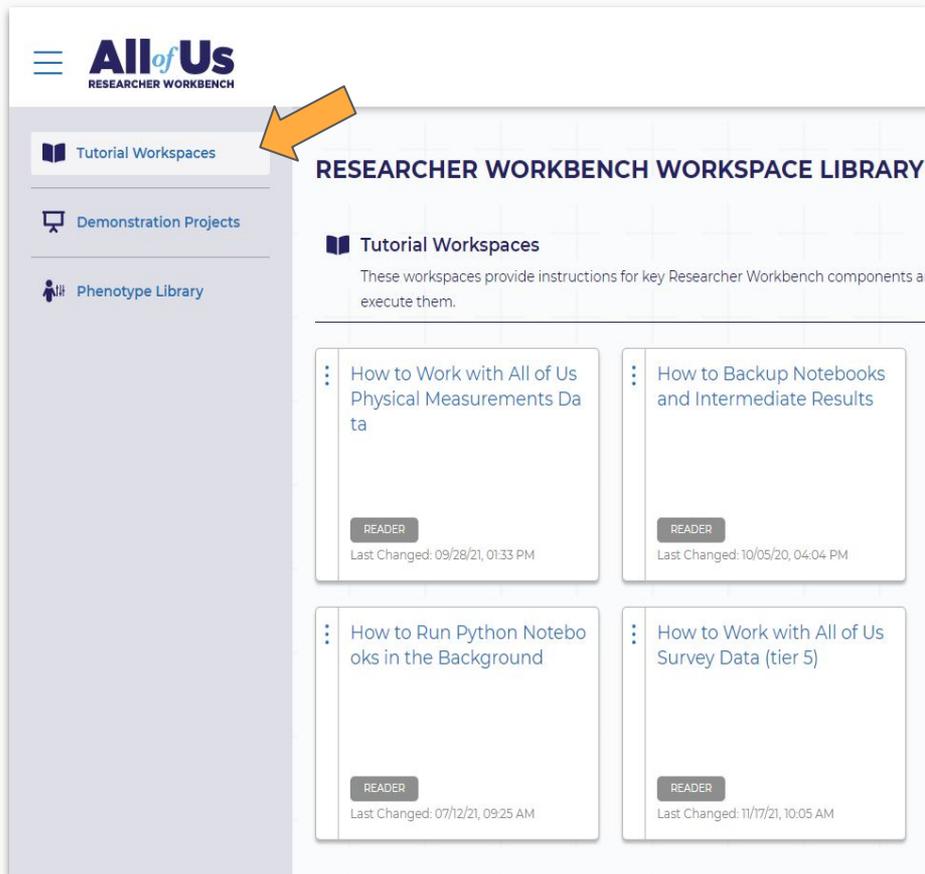
- Home
- Your Workspaces
- Featured Workspaces**
- User Support Hub
- Contact Us

WORKBENCH

to analyze All of Us data

How to Get Started Tier D

Asthm



All of Us
RESEARCHER WORKBENCH

- Tutorial Workspaces**
- Demonstration Projects
- Phenotype Library

RESEARCHER WORKBENCH WORKSPACE LIBRARY

Tutorial Workspaces

These workspaces provide instructions for key Researcher Workbench components and how to execute them.

- How to Work with All of Us Physical Measurements Data
READER
Last Changed: 09/28/21, 01:33 PM
- How to Backup Notebooks and Intermediate Results
READER
Last Changed: 10/05/20, 04:04 PM
- How to Run Python Notebooks in the Background
READER
Last Changed: 07/12/21, 09:25 AM
- How to Work with All of Us Survey Data (tier 5)
READER
Last Changed: 11/17/21, 10:05 AM

We also provide regular office hours & webinars.

Support Desk

Send us your questions.

Email us or use our “Help” icon to:

- Resolve technical issues
- Ask questions about our data or the research program
- Give us feedback or make suggestions
- and more...

Response in 1-2 business days.

support@researchallofus.org

New User Orientation

Zoom in for a live orientation.

Webinar objectives:

- Understand data & data organization
- Learn how to get started on Researcher Workbench
- Learn how to utilize the User Support Hub

Monthly

link emailed to all registered users

Office Hours

Get live, virtual help with questions.

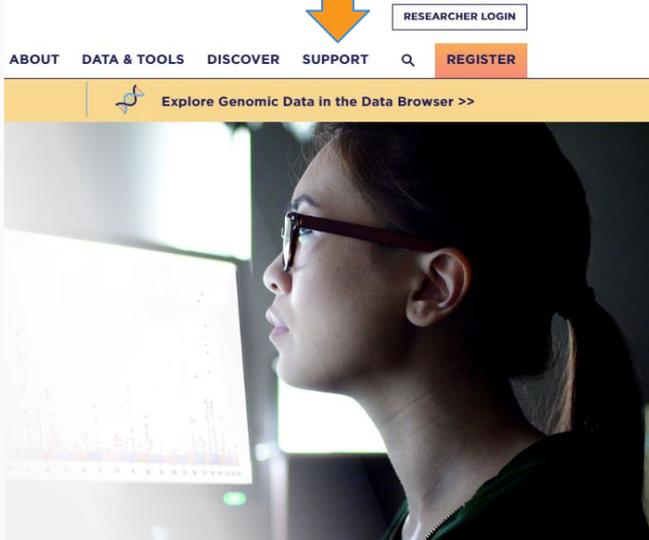
Ask your questions live:

- Workflow implementation questions
- Data refreshers and updates
- Billing questions
- and more...

Bi-Weekly (Tues., Fri. 1-2pm CST)

*link emailed to all registered users
(recordings are also available)*

The Support Hub and Team are here to help you!



Welcome to the User Support Hub

Popular searches: data dictionary, office hours, dataset, CDR, billing

Important Information for Workbench Users

Featured Workspace: Data Wrangling

Our data science team released a featured workspace targeted to new users that covers basic data wrangling in the W...

Migration of v5 microarray VCF usage to a versioned manifest system

Recently, the All Of Us Researcher Workbench switched over to a versioned system of CRAM, microarray VCF, and IDAT ...

Improvements to the User Support Hub

For those of you who've been here before, you may have noticed the User Support Hub (USH) has undergone some change...

Explore Researcher Workbench Resources



Getting Started

Looking for some help with our data and tools? Start here.



Videos

Tutorials, questions and answers, and information about the dataset



Working with Data

How to use the All of Us Researcher Workbench



Credits and Billing

Information about paying for analysis and storage costs.



Genomics

Resources to better understand the genomic dataset and how to analyze it.



Surveys

Resources to understand and analyze self-reported participant data.



Other Data

Resources for EHR, wearable, physical measurement, and geolocation data.



Policy

Information about our user policies and associated procedures.



News

Release notes, service notifications, and upcoming events



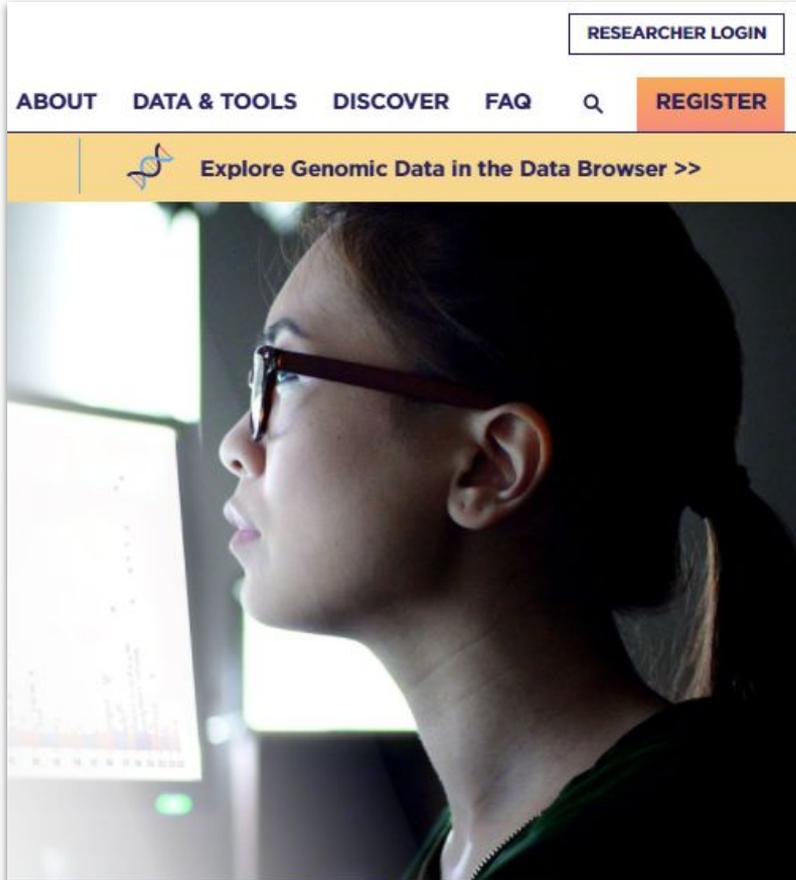
Access & DURA Support

Resources for researchers and institutional admins encompassing the access and DURA process.

Help

<https://aousupporthelp.zendesk.com/hc/en-us>

Join our community of researchers!



Help us connect with other researchers!

Email ashley.e.green@vumc.org if you know of others interested in demos or training sessions



@AllofUsResearch
#JoinAllofUs