



All of Us | Researcher
RESEARCH PROGRAM | Academy

Fisk University & Meharry Medical College

Using the *All of Us* Researcher Workbench to
Drive Action for Health Equity

Fisk University
Nashville, TN

February 28, 2024



The *All of Us* Researcher Academy is supported by the Division of Engagement, *All of Us* Research Program, National Institutes of Health, Award Number 1OT20D028395-01.

Agenda

- Welcome & Occasion
- Researcher Academy and *All of Us* Overview
- Researcher Presentation: Fisk University
- Researcher Presentation: Meharry Medical College
- Q&A Session
- Remarks from Dr. Karriem Watson, CEO *All of Us* Program
- *All of Us* Research Hub & Workbench
- Celebration of Institutional Champions & Colleagues
- Announcements & Updates
- Attendee Insights
- Closing Remarks

CCPH's *All of Us* Researcher Academy Team

Community-Campus Partnerships for Health's mission is to promote health equity and social justice through partnerships between communities and academic institutions.



Alan Richmond, MSW
Executive Director



Angela Balfour Franklin
Engagement Lead



Paul J. Kuttner
Director of Partnerships

Introducing the RTI Team



Megan Lewis
Principal Investigator



Jen Uhrig
Principal Investigator



Sula Hood
Co-Lead



Brian Southwell
Co-Lead



Ifeoluwa Adewumi



Katie Atkinson



MaryBeth Branigan



Sheri Cates



Javan Carter



Astrid Flores



Iris Glaze



Heidi Guyer



Stefanee Tillman



Trey-Rashad Hawkins



Vincenzo Malo



Courtney Richardson



Lissette Saavedra



Hadyatoullaye Sow



Tamara Terry



BriAnna Walker



Leslie Zapata Leiva

HBCU alumni of or affiliation ties with Howard University, Meharry Medical College, North Carolina Central University, and Winston-Salem State University

Researcher Academy and *All of Us* Overview

What Is the *All of Us* Researcher Academy?



The National Institutes of Health's *All of Us* **Research Program** is a historic effort to collect and study data from one million or more people living in the United States.

The goal of *All of Us* is to speed up health research discoveries, enabling new kinds of individualized health care.

The program aims to reflect the diversity of the United States and to include participants from communities that are underrepresented in health research.

The ***All of Us* Researcher Academy** provides training and technical assistance for researchers underrepresented in the biomedical workforce conducting research with the ***All of Us* Researcher Workbench**—the cloud-based analytics platform where researchers can access data from *All of Us* participants.

The academy supports students and faculty at institutions that have a historical commitment to educating underrepresented students and a track record of training researchers underrepresented in the biomedical workforce, including Historically Black Colleges and Universities (HBCUs).

All of Us Researcher Academy

GOAL

Establish a diverse learning network of researchers who will use *All of Us* data

PURPOSE

Promote equitable access to and use of the *All of Us* Researcher Workbench by a diverse array of researchers

INITIAL OBJECTIVES



Engage with HBCUs to **raise awareness** and **assess needs**



Create internships and fellowships for students and faculty at institutions that have a historical commitment to educating underrepresented students



Curate a training curriculum focused on the skills needed to access and conduct research using *All of Us* data



Provide technical assistance for researchers underrepresented in the biomedical workforce using the Researcher Workbench



Build partnerships with similar programs to draw insights to support scholars



Conduct **ongoing evaluation** of academy activities to ensure program success

Tuition-Free Short Courses for Academy Scholars



We are offering a suite of tuition-free course offerings and learning resources:

Accessing and Using the Researcher Workbench

- Researcher Workbench 101

Research Study Design

- Conceptualizing the study and problem focus
- Research study design and ethics
- Analyzing social determinants of health data

Data Analysis and Management

- Analysis and use of the different workbench data types (e.g., wearable data, survey data, and EHR data)
- Coding via R and Python (organized by proficiency level)
- Data management and analysis
- Examining data intersectionality

Research Dissemination

- How to prepare conference abstracts and peer-reviewed publications
- Promotion of publications
- Blogging/research translation

Securing External Research Funding

- Funding mechanisms (e.g., NIH grants, dissertation grants, other funders)
- Grant writing and mock study sections

Self-Care for Researchers

- Mentee and scholar well-being
- Work-life balance

Research Partnership Considerations

- Team science and collaboration
- Authorship
- Protecting intellectual property

Guidance for Educators

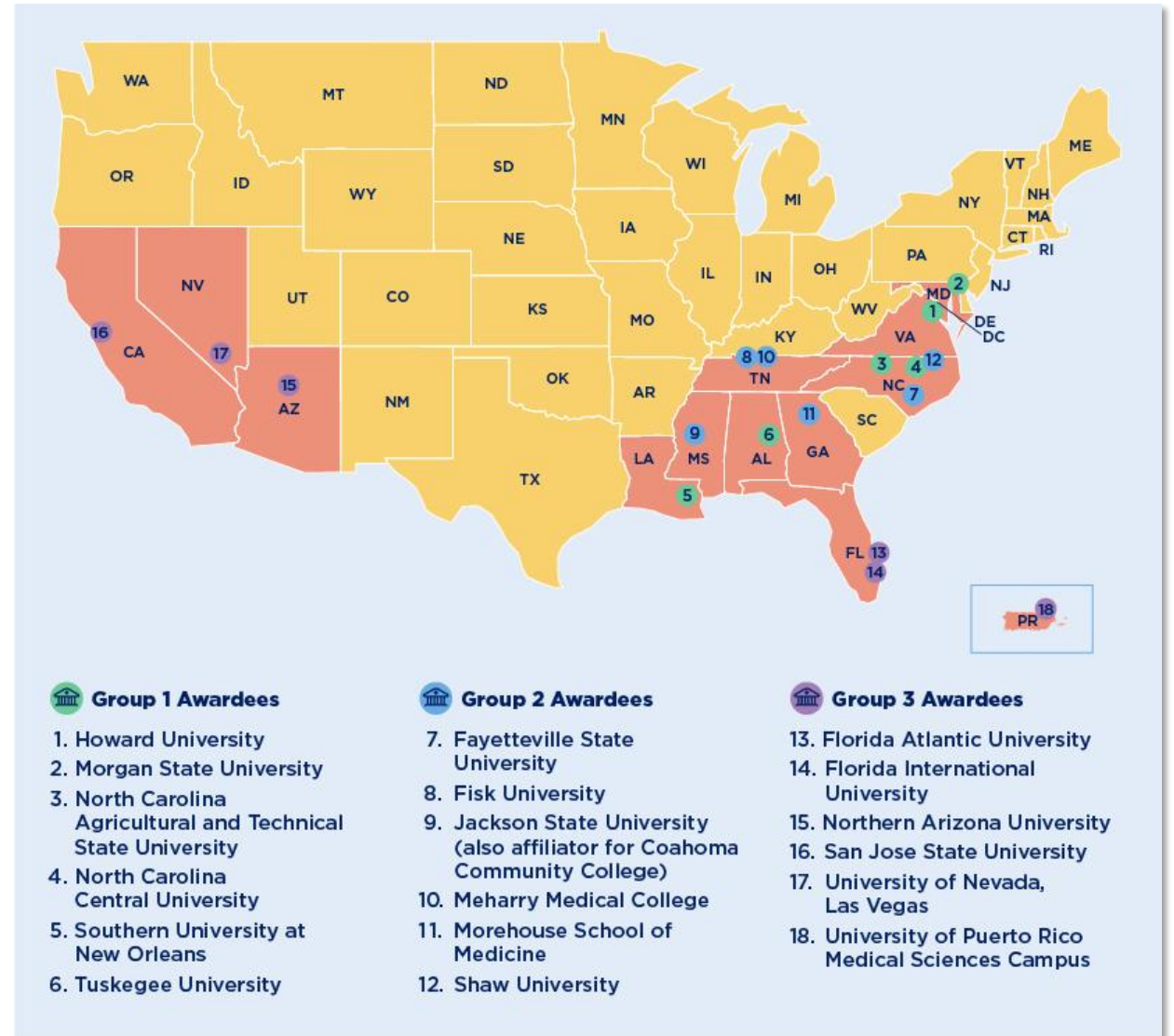
- How to support students on the platform
- Best practices for facilitating coursework/projects on the Researcher Workbench platform

Library Science Resources for Research

- Introduction to literature searching to support *All of Us* analyses

Institutional Champion Awards

- Support teams in conducting research with the *All of Us* Research Program dataset
 - ▶ Up to \$75,000 to support teams of faculty, students, and postdocs
 - ▶ Interdisciplinary teams of health and social science researchers
- Institutional Champion awardees
 - ▶ Group 1 announced in August 2022
 - ▶ Group 2 announced in July 2023
 - ▶ Group 3 announced in April 2024



Researcher Academy Internship

- **Internships to facilitate experiential learning through mentored research projects**
 - Students are paired with mentors who have active projects in the *All of Us* Researcher Workbench
 - Internships are hosted virtually or in person
 - 4-month commitment
 - Students submit an abstract for possible inclusion at a future *All of Us* Researchers Convention
- **Internship completion recognition**
 - Certificate acknowledging Academy Internship Program completion
 - Feature in Researcher Academy *Connections* newsletter
- **Six interns completed our first cohort in summer 2023**
- **Now accepting applications for interns and mentors for second cohort!**



All of Us Researcher Academy Newsletter

- Quarterly distribution
- 500+ Subscribers
- Features
 - Researcher Spotlight
 - Career Corner
 - Academy Announcements
 - Upcoming Courses and Events

Winter Issue now available!

Scan the QR code or visit researcheracademy.rti.org/newsletter to read all our newsletter issues.



All of Us | Researcher Academy | **Connections**
RESEARCH PROGRAM

Issue 6 | Winter 2024

IN THIS ISSUE

- **New Year, New Opportunities**
- **Academy Announcements**
- **Spotlight**
Dr. Dorothy Browne, Shaw University
- **Career Corner:**
How to Find a Professional Mentor
- **Upcoming Academy Courses**

New Year, New Opportunities and Connections

Although researchers sometimes receive praise for their individual accomplishments, progress in science has long been a team sport. Mentoring, in particular, can be a vital source of guidance on funding for research and encouragement to develop new analytical skills. In this issue, we continue our focus on mentoring by mapping out steps for identifying your ideal mentor in [Career Corner](#) (p. 7). We also explore how the *All of Us* Researcher Academy and its related efforts are supporting knowledge mobilization and team science.

Artificial intelligence and machine learning (AI/ML) are one emerging domain of work in which new skills are increasingly important. Yet historically underrepresented communities have not benefited from AI/ML developments at the same pace as other groups. NIH's Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Researcher Diversity (AIM-AHEAD) and RTI International have created a new resource for researchers who want to develop AI/ML skills. The traineeship, which begins this month, will guide participants through an intensive 8-month program in advanced data analysis using the resources of the *All of Us* database and AIM-AHEAD's data science training core.

Teamwork is important for 21st century science, but it does not happen without planning and effort. Being intentional about building and maintaining teams can be an important step in growing research capacity at your institution.

-continued on page 2

Learn more about the [Researcher Workbench](#)

Visit the [All of Us Research Program website](#)

Subscribe to [Connections](#)

Read past issues of [Connections](#)

All of Us Researcher Academy | Connections, Issue 6

Research Presentations



All of Us | Researcher
RESEARCH PROGRAM | Academy

A Case Study Analysis of Area Deprivation and Sleep Health

Oreoluwa Owoseeni
Rejin Nepal



Introduction

- From regulating hormones to boosting cognitive function, quality sleep underpins countless physiological and psychological processes.
- Despite its importance, millions suffer from sleep disturbances, experiencing negative consequences ranging from cardiovascular disease and diabetes to anxiety and depression.
- Recent studies suggest that socioeconomic factors, impacting access to resources and living conditions, might contribute to these disparities.
- In this case study, we look to explore the potential link between sleep quality and socioeconomic status, using predetermined deprivation indexes for different zip codes as a proxy.
- By exploring this potential connection, we aim to elucidate the systemic factors influencing sleep health and address sleep inequities, enhancing the overall well-being across diverse communities.



Overview

- Literature review of recent studies related to sleep health and socioeconomic factors to help form our research question
- Using the *All of Us* Research Database and analytical tools to set our sample size for study
- Data cleansing from our selected cohort and dataset
- Data analysis and visualization using the Workbench Jupyter Notebook and Python
- Deductions and Inferences



Literature Review

- We reviewed about 30 papers related to sleep health and its relationship with socioeconomic factors.
- Most of the papers established that there isn't a direct connection between sleep quality and income levels.
- Four stages of sleep: Light, Deep, Deeper, and Rapid Eye Movement (REM).
- Sleep quality was established to be determined by the amount of deeper sleep an individual has, preferably $\geq 25\%$.



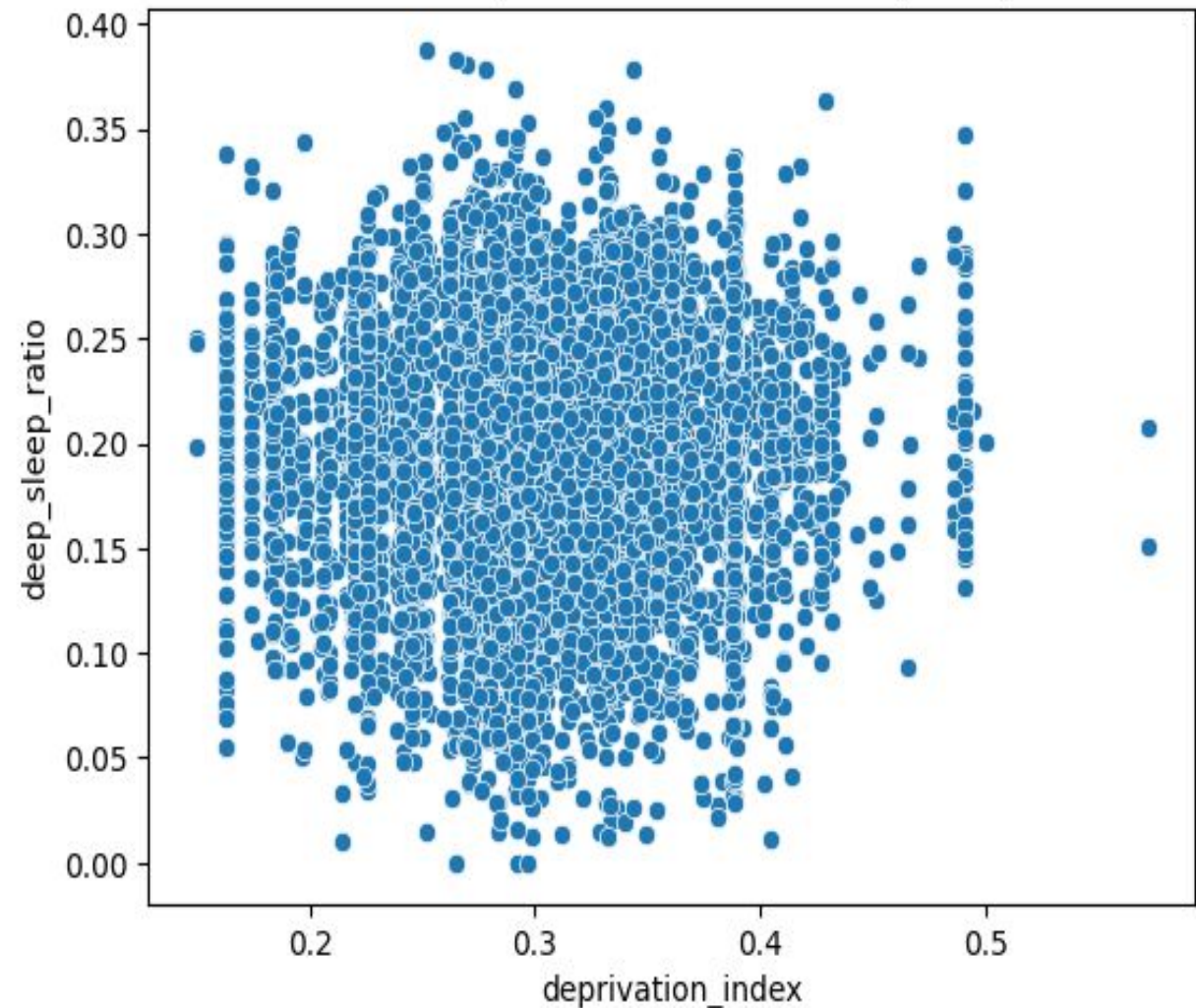
Study Design

- Hypothesis: *Individuals in low income and socioeconomically deprived areas experience a smaller ratio of deeper sleep than individuals with less deprived areas*
- After data cleansing, cohort size of $n = 9695$ adults ranging from ages 18 - 70 at the time of survey.
- We determined socioeconomic status of individuals by the area deprivation index (ADI) based on the analysis of the American Community Survey (ACS) measures in 2015 (income, housing, education, employment, etc.).
- We calculated the ratios of deep sleep as against sleep time for the individuals and then made visualizations to examine if there were any correlations between the ADIs and the deep sleep ratios.
- We also checked for any correlations between the activity calories (with steps taken) and deep sleep.

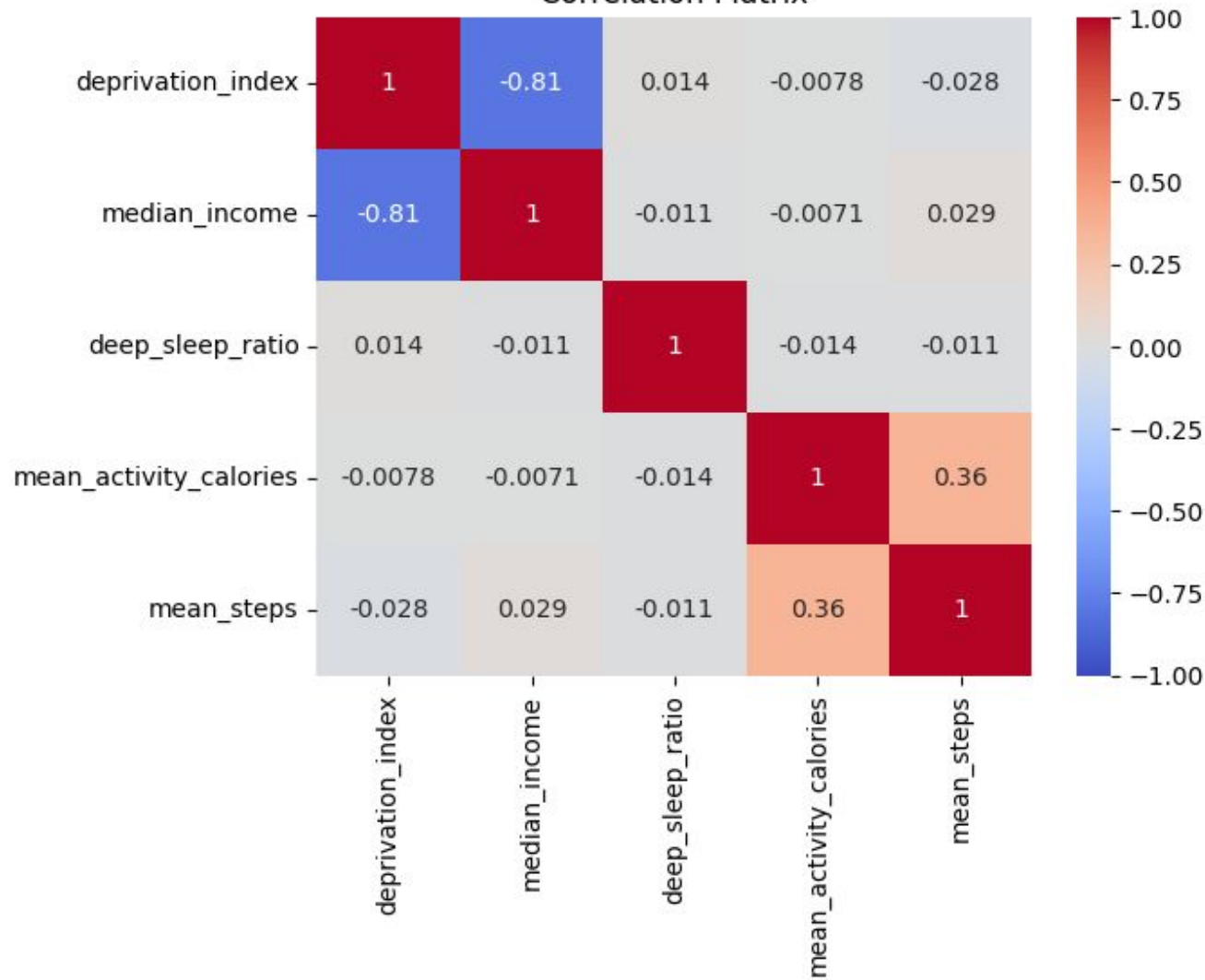
Preliminary Results



Scatter Plot: Deprivation Index vs. Deep Sleep Ratio



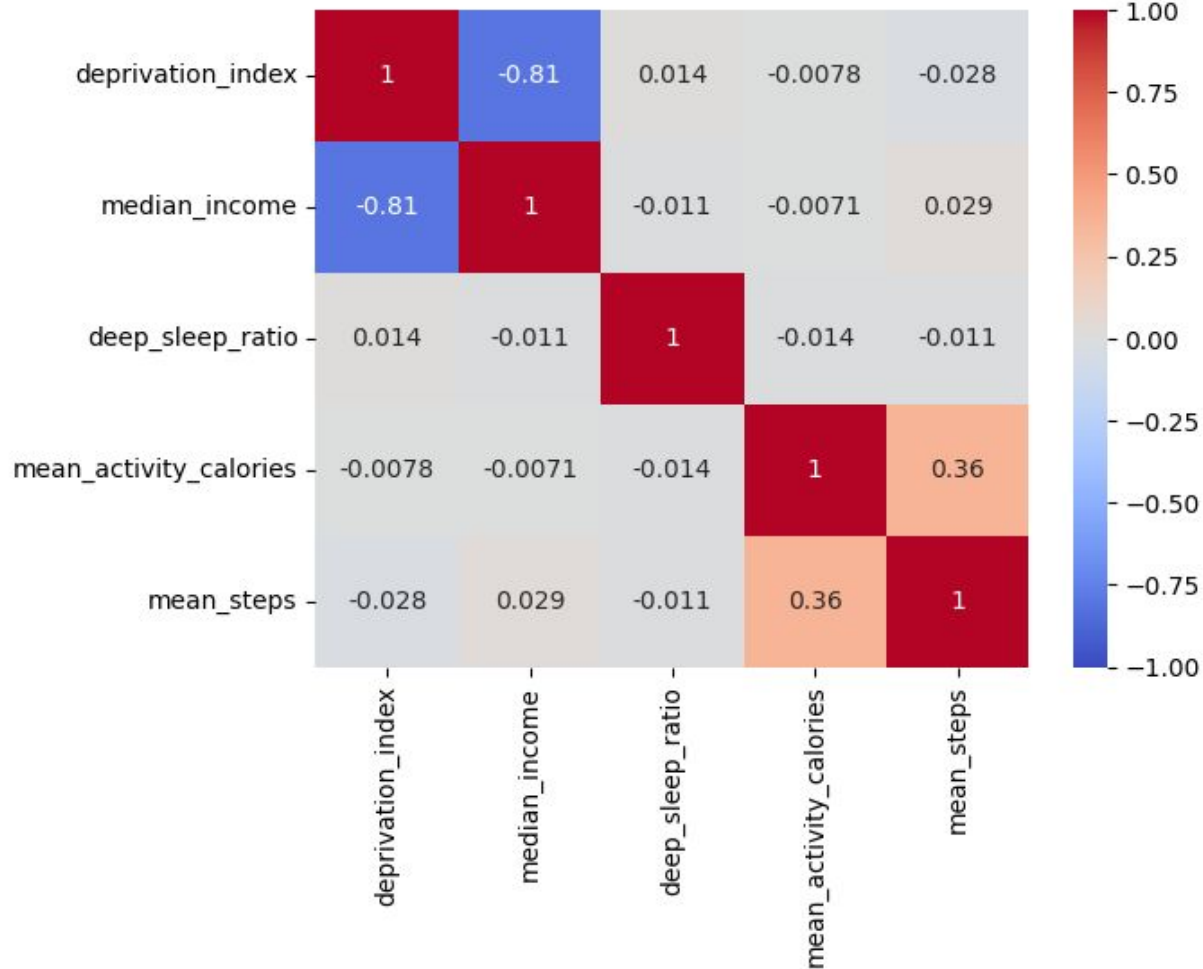
Correlation Matrix



Analysis



Correlation Matrix



- Negative correlation between the deprivation indices and income levels, validating the ADI values (Blue: First row and second column).
- Positive correlation between activity calories and steps taken, validating the metric (Pink: Fourth row and fifth column).
- Positive but not significant correlation between ADI and deep sleep ratio (Grey: Third row and first column).
- Negative but not significant correlation between deep sleep ratio and income levels (Grey: Second row and third column).
- Negative but not significant correlation between deep sleep ratio and activity calories (Grey: Third row and fourth column).



Discussions and Future Steps

- There is a negative correlation between ADI and income levels, which was expected and in line with study design, but we see a **positive** correlation with ADI and deep sleep and negative correlation with income level and deep sleep.
- This indicates that there might be other contributing factors accounted for in ADI (general socioeconomic data) that we will analyze separately for significant correlations.
- Examine how the association between deprivation index and sleep outcomes varies across genders or ethnic groups.



References

- Leavitt, J. (2024, January 18). How much deep, light, and REM sleep do you need? Healthline. <https://www.healthline.com/health/how-much-deep-sleep-do-you-need>
- Huyett, Phillip, and Neil Bhattacharyya. "The association between sleep disorders, employment, and income among adults in the United States." *Journal of Clinical Sleep Medicine* 18.8 (2022): 1967-1972.
- Patel, Nirav P., et al. "' Sleep disparity" in the population: poor sleep quality is strongly associated with poverty and ethnicity." *BMC Public Health* 10 (2010): 1-11.
- Mezick, Elizabeth J., et al. "Influence of race and socioeconomic status on sleep: Pittsburgh Sleep SCORE project." *Psychosomatic medicine* 70.4 (2008): 410.
- Grandner, Michael A., et al. "Sleep symptoms, race/ethnicity, and socioeconomic position." *Journal of clinical sleep medicine* 9.9 (2013): 897-905.



Thank you for listening!

Contributions by:

1. Oreoluwa Owoseeni
2. Rejin Nepal
3. Qingxia Li, PhD.

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- *All of Us* Research Program
- Fisk University Department of Life and Physical Sciences
- This research is funded by NIH grant #30T20D028395-01S1



The
Future of
Health Begins
With You

All of Us | Researcher
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HBCU Road Tour

**Using the *All of Us* Researcher Workbench
to Drive Action for Health Equity**

**An Update from Meharry Medical College
Department of Public Health Practice
School of Graduate Studies**

Leah Alexander, PhD, MPH



Our Mission & Vision

Mission

To improve the health and well-being of people of color and underserved communities. We strive to eradicate health disparities through educational excellence, evidenced-based research, and culturally competent service.

Vision

Diversifying the field of Public Health leaders, practitioners, and researchers to advance health equity locally, nationally, and globally.



OUR GOALS



To provide a quality public health education experience that equips diverse students with the competence to address the public health needs of all populations, especially the underserved.



To provide opportunities for faculty and students to engage in scholarly activities that enhance the public health evidence base for the elimination of health disparities



To provide opportunities for the professional development of students, faculty, community, and the public health workforce.



To provide opportunities for students to engage in collaborative and transformative public health practice activities



To strengthen and sustain partnerships and collaborations with local and national academic, community, and public health practice organizations

All of Us Faculty @ Meharry

Research Team



Leah Alexander, PhD, MPH

Associate Professor

- *Community Engaged Research*
- *Application of Behavioral Theory*



Wansoo Im, PhD

Associate Professor

- *Geographic Information Systems*
- *Community Mapping*
- *Public Health Exposome*



LaMonica Stewart, PhD

Professor

- *Prostate Cancer*
- *Summer Research Training Programs*

Team Topics of Interest:

- Health Disparities
- Social Determinants of Health
- Data Science
- Secondary Data Analysis

All of Us RESEARCH PROGRAM | Researcher Academy

Institutional Champions

Group 1 Awardees	Group 2 Awardees	Group 3 Awardees
1. Howard University	7. Fayetteville State University	13. Florida Atlantic University
2. Morgan State University	8. Fisk University	14. Florida International University
3. North Carolina Agricultural and Technical State University	9. Jackson State University (also affiliator for Coahoma Community College)	15. Northern Arizona University
4. North Carolina Central University	10. Meharry Medical College	16. San Jose State University
5. Southern University at New Orleans	11. Morehouse School of Medicine	17. University of Nevada, Las Vegas
6. Tuskegee University	12. Shaw University	18. University of Puerto Rico Medical Sciences Campus



Class of 2024 Participants

Mia Barber

Sydney Batts

Kendra Bettis

Alexis Cunningham

Kaylah Dowdell

Elijah Johnson

Sariah Harris

Robyn McDaniel

Alisha Puri

Doresha Robinson

Maurice Swift

Jayla Williams

All of Us + ILE @MMC

- The Integrative Learning Experience (ILE) serves as a capstone to their public health education program at Meharry Medical College. The ILE integrates students' academic interest, professional interests, and goals and provides an opportunity to conduct in-depth research or analysis within the context of a mentoring relationship with their ILE Preceptors.
- The ILE is required for all students to complete the MPH program and obtain their degree. The ILE project planning and preparation activities span the final two semesters of the program, ending in completion of the Integrative Learning Experience course, and submission of a final ILE paper and presentation.

Public Health & Competency Based Learning

- Competencies are a set of skills necessary for the broad practice of public health. They are desirable for professionals engaging in practice, education, and research. All of the MPH courses are designed to enhance public health competencies.
- Address what students should be able to do after completing the program.
- It's important that students and faculty understand the Public Health competencies. Every course syllabus outlines what the competencies are and how they will be assessed (exam, projects, paper, etc.) in the course.



Project Updates

- 6-8 projects
- Teams and individual projects
- Populations, exposures, health conditions:
 - African Americans
 - Hispanics
 - Women, child bearing age
 - Pregnant women
 - Obese adults
 - Sexually transmitted infections
 - Diabetes
 - Cancer
 - Preeclampsia
 - Pre-term birth
 - COVID-19
 - Access to healthcare
 - Vaccine Hesitancy

**The future of
health begins
with you.**



All of Us
RESEARCH PROGRAM



Department of Public Health Practice

Connect with us.

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Questions & Answers Session

Welcome from the *All of Us* Research Program, NIH

All of Us Data and Research Center

All of Us Research Hub

Presented to HBCU Road Tour - Nashville

Presented by Celestial Jones-Paris, Ph.D.

Clinical Scientist II

celestial.r.jones-paris.1@vumc.org



Today's Objectives

During today's presentation, we will

- Learn about the *All of Us* Research Program and the data we offer
- Explore the public-facing Research Hub and its tools
- Examine the steps for registration
- See how to start a research project on the Workbench

Making Health Discoveries Possible

The *All of Us* Program wouldn't be possible without the generosity of our participants and the dedication of our researchers to enable health discoveries.



@AllofUsResearch
@AllofUsCEO
#JoinAllofUs



One of the world's largest, most diverse biomedical datasets of its kind

Inviting at least

1 Million people from across the United States



Data available from **413,450+** participants

75%
are from communities underrepresented in biomedical research



45%
are from racial and ethnic minority groups

Data as of April 2023

Summary of Data Available in the Researcher Workbench



413,350+
Survey
Responses



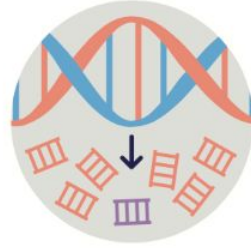
337,500+
Physical
Measurements



312,900+
Genotyping
Arrays



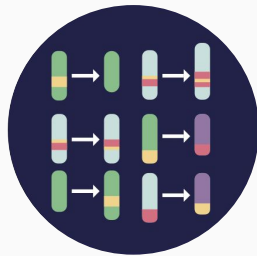
287,000+
Electronic Health
Records



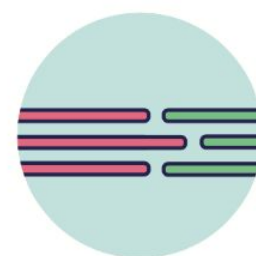
245,350+
Whole Genome
Sequences



15,600+
Fitbit
Records
NEW! Sleep Data



11,350+
Structural Variants
NEW! In 2023



1,000+
Long-Read Sequences
NEW! In 2023

Data as of April 2023

The *All of Us* Research in Action

Researchers from all settings and career stages are committed to the responsible/ethical use of participant data and returning value back to communities.



Nyia L Noel, MD, MPH

Assistant Professor of Medicine Boston University School of Medicine



Siya Qi, MS

Director, Precision Engagement, Asian Health Coalition



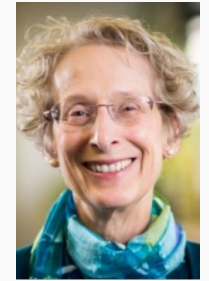
KiTani Lemieux, PhD

Associate Professor, Division of Basic Pharmaceutical Sciences



Kathryn McDougal, PhD

Clinical Assistant Professor Towson University



Louisa Stark, PhD

Professor of Human Genetics and Director of the Genetic Science Learning Center, University of Utah

Advocacy

Dr. Noel, an OBGYN at a Boston hospital, is leveraging the *All of Us* Research Program dataset to study hypertensive disorders in pregnancy and uterine fibroids. Her goal is for the public to see fibroids as a public health issue, and she highlights the need for policies to increase funding for research.

[Research Highlight \(English\)
New Intervention Addresses Racial Disparities in Uterine Fibroid Care and Treatment](#)

Community Engaged Research

The Asian Health Coalition focuses on community science and works closely with the 25 Asian Engagement & Recruitment Core (ARC) partners across the nation, the NIH, health care providers, and national organizations to help increase representation of Asian Americans, Native Hawaiians, and Pacific Islanders in the *All of Us* Research Program.

[The Asian Health Coalition Launches Community Scientist Project to Address Health Equity through Community-based Participatory Research](#)

Campus-Wide Engagement

Dr. Lemieux's research focuses on better understanding the role of noncancerous cells as cancerous cells mutate and grow in triple negative breast cancer patients, a type of breast cancer that disproportionately affects African American women. Together with other faculty at her campus, she has supported pharmacy students' research with the *All of Us* Research Program.

[It Takes All of Us: Xavier University Spotlight](#)

Undergraduate Instruction

Dr. McDougal's research efforts stem from her focus to provide undergraduate students with the opportunity to experience authentic research within undergraduate courses. She works on genomics and epidemiology-based projects with students using data from the *All of Us* Research Program.

[An Instructor's Guide to Student Projects on the Researcher Workbench](#)

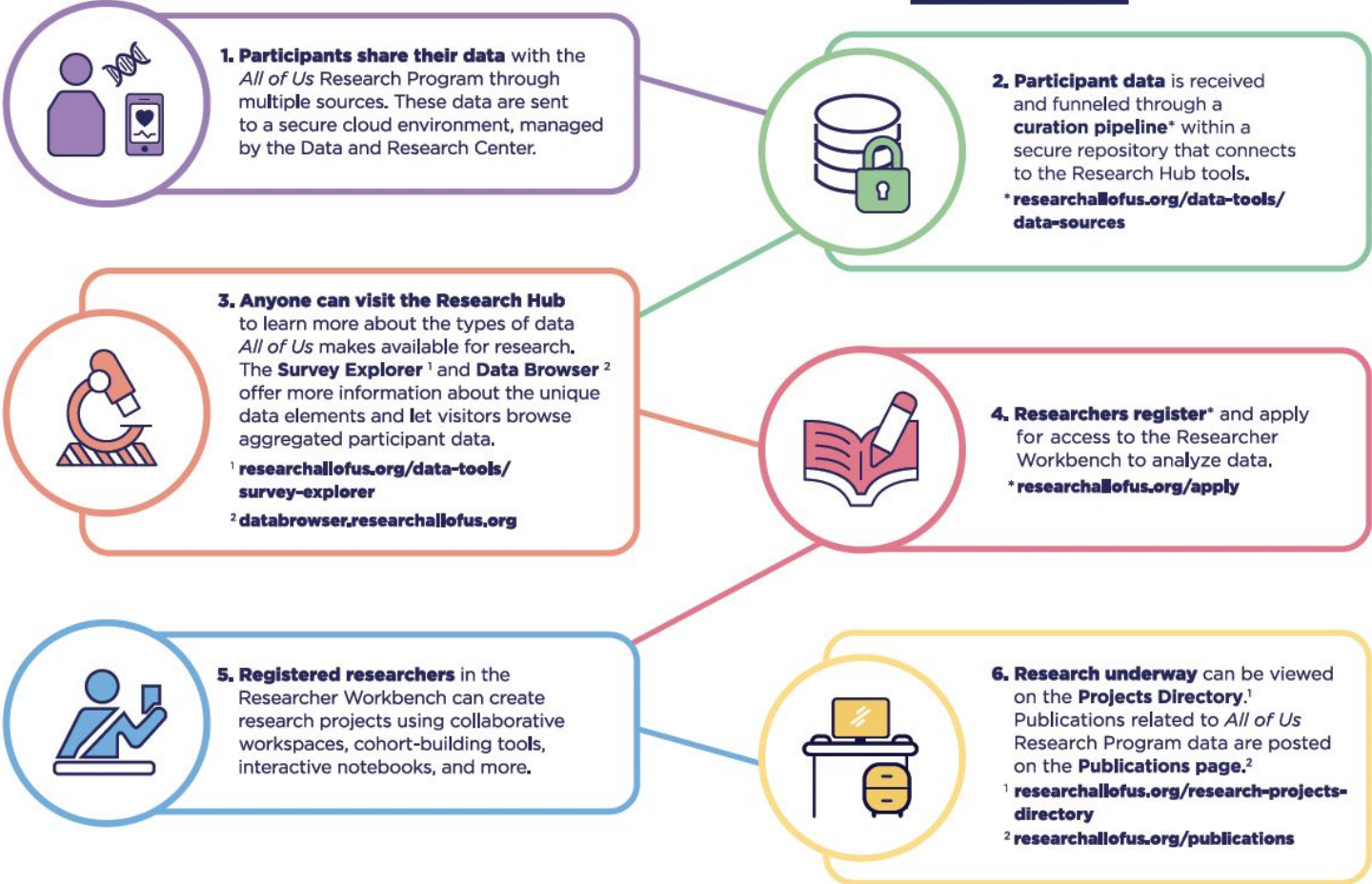
High School Instruction

Dr. Stark's research interests focus on science and health education for students and educators from the K-12 level through graduate and medical education as well as patients and members of the lay public. Her team has created a curriculum to introduce high school students to the *All of Us* Research Program.

[K-12 Curriculum](#)

How the Research Hub Works

All of Us Research: How it Works



Data: Access Flowchart and Tools

Public Tier

Anyone can visit ResearchAllofUs.org (the *All of Us* Research Hub) to learn more about the data available for research and explore aggregated participant data and summary statistics, with participant identifiers removed. Public resources include:

- **Data Snapshots:** Aggregated, public-facing overviews of participant characteristics and data types
- **Data Browser:** Interactive preview into the *All of Us* dataset through public-facing aggregate data
 - Currently includes participant-provided survey responses, physical measurements, data from EHRs and wearables, and genomic data
- **Survey Explorer:** Details the questions included in each of the surveys
- **Research Projects Directory:** Descriptions of each research project within the Researcher Workbench

Researcher Workbench

Registered Tier

Registered researchers can access in-depth data and a variety of research tools to conduct a range of studies.



Data have been processed to protect participant privacy.

Controlled Tier

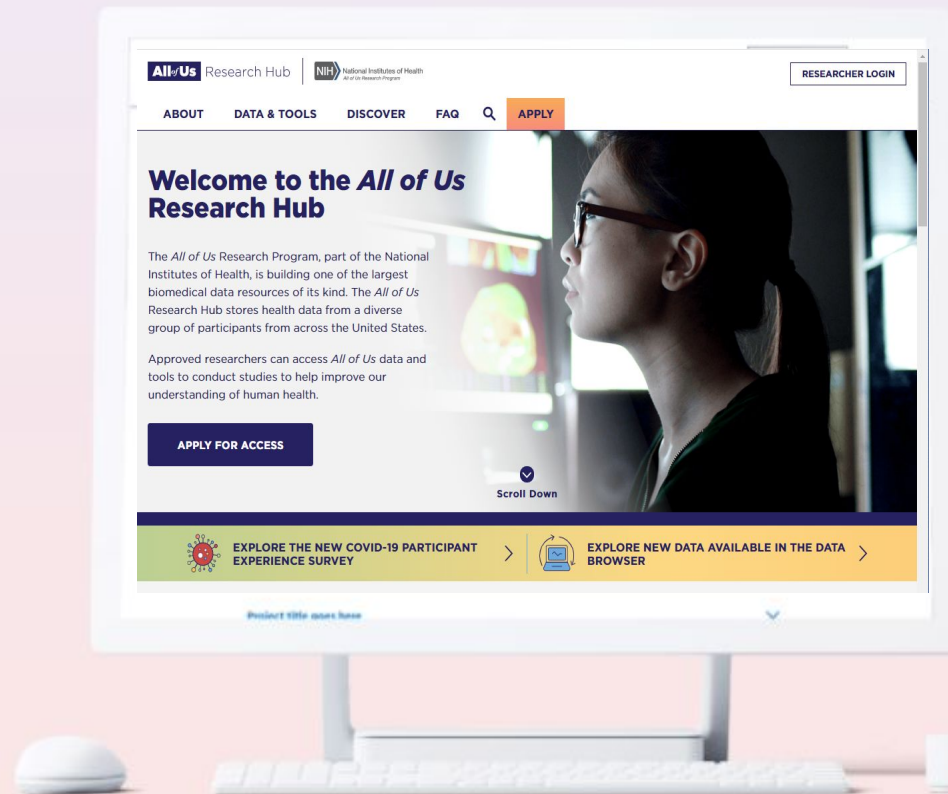
Registered researchers with amended institutional agreements can access all of the data in the Registered Tier plus additional and expanded data types, including genomic data, real dates of health events, ICD codes, more granular demographic data, and more.



Counts in the Public, Registered, and Controlled Tiers may vary based on the lag time associated with the data curation process under the program's rigorous privacy protections.

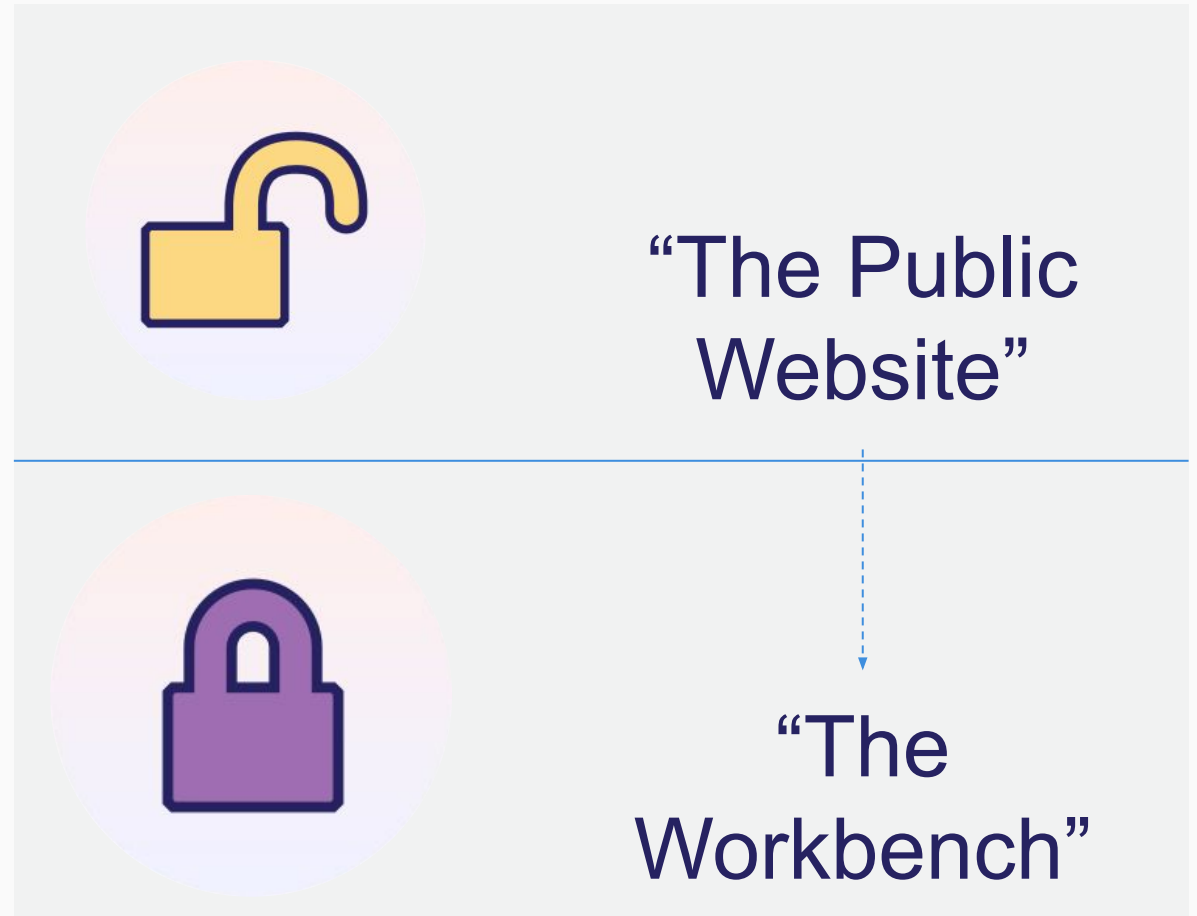
The Research Hub

The *All of Us* Research Hub

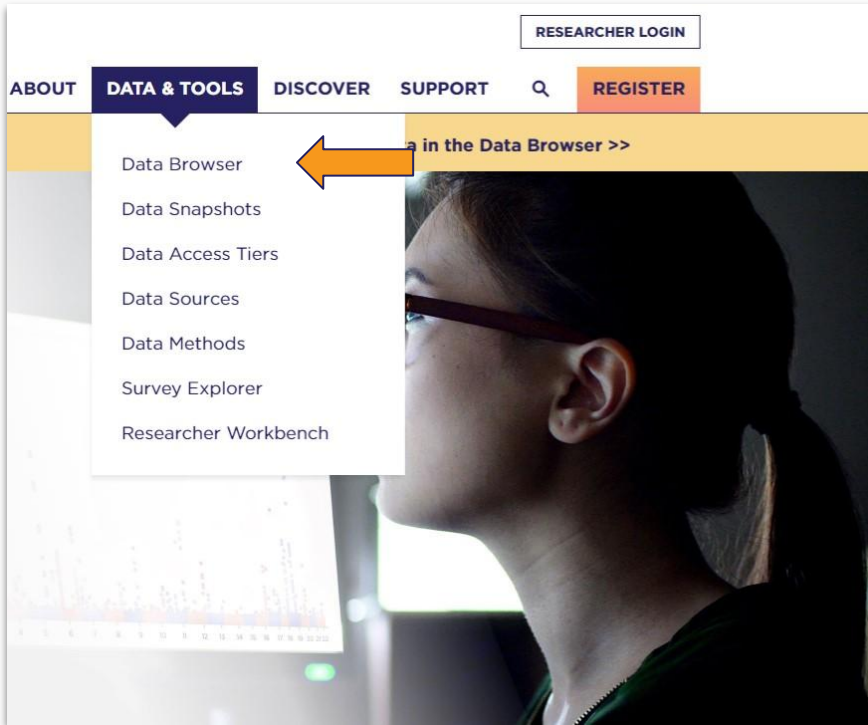


<https://www.ResearchAllOfUs.org/>

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

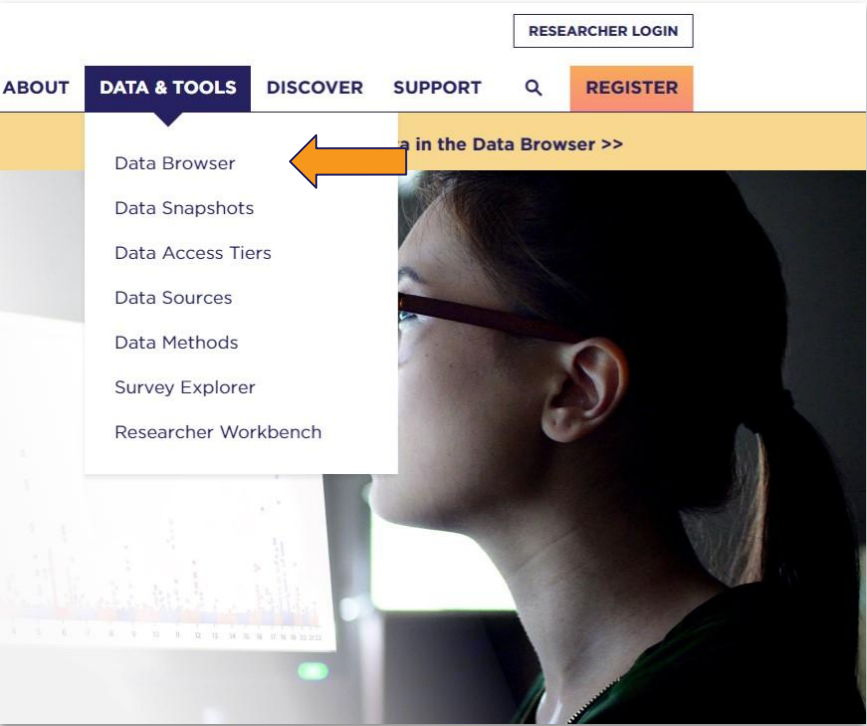


The Data Browser is an interactive way to view the data.



A screenshot of the Data Browser search results page. The page features a search bar at the top with the text 'Search Across Data Types' and a search input field containing 'Keyword Search'. An orange arrow points to the search bar. Below the search bar, there are three icons: FAQs, Introductory Videos, and User Guide. The main content area is divided into several sections, each with a title and a grid of data cards. The 'EHR Domains' section includes cards for Conditions (25,638 medical concepts, 254,700 participants), Drug Exposures (29,865 medical concepts, 239,740 participants), Labs & Measurements (16,216 medical concepts, 252,980 participants), and Procedures (30,328 medical concepts, 242,580 participants). The 'Genomics' section includes cards for SNP/Indel Variants (245,400 participants in Short-Read Whole Genome Sequencing (WGS) dataset, 1,074,881,214 SNP/Indel Variants) and Genomic data only in Researcher Workbench (1,040 participants in the Long-Read WGS dataset, 11,400 participants in the Short-Read WGS Structural Variants dataset, 312,940 participants in the Genotyping Arrays dataset). The 'Measurements and Wearables' section includes cards for Physical Measurements (8 Physical Measurements, 342,840 participants) and Fitbit (6 Fitbit Measurements, 15,620 participants). The 'Survey Questions' section includes cards for The Basics (28 questions available, 409,420 participants), Overall Health (21 questions available, 400,760 participants), Lifestyle (26 questions available, 398,200 participants), Health Care Access & Utilization (57 questions available, 190,220 participants), Personal and Family Health History (614 questions available, 185,240 participants), COVID-19 Participant Experience (COPE) (191 questions available, 100,220 participants), COPE Minute Survey (141 questions available, 127,240 participants), and Social Determinants of Health (80 questions available, 117,800 participants). Each card includes a 'View Complete Survey' link.

Explore the Data: The Data Browser



Search Across Data Types

Search bar containing the text "asthma" and a search icon on the left, and a close icon (X) on the right.

Data includes 409,420 participants as of 2/15/2023.

Three circular icons with text labels below them:

- FAQs (Icon: speech bubble with question mark)
- Introductory Videos (Icon: document with question mark)
- User Guide (Icon: database with magnifying glass)

EHR Domains

Two data cards for EHR Domains:

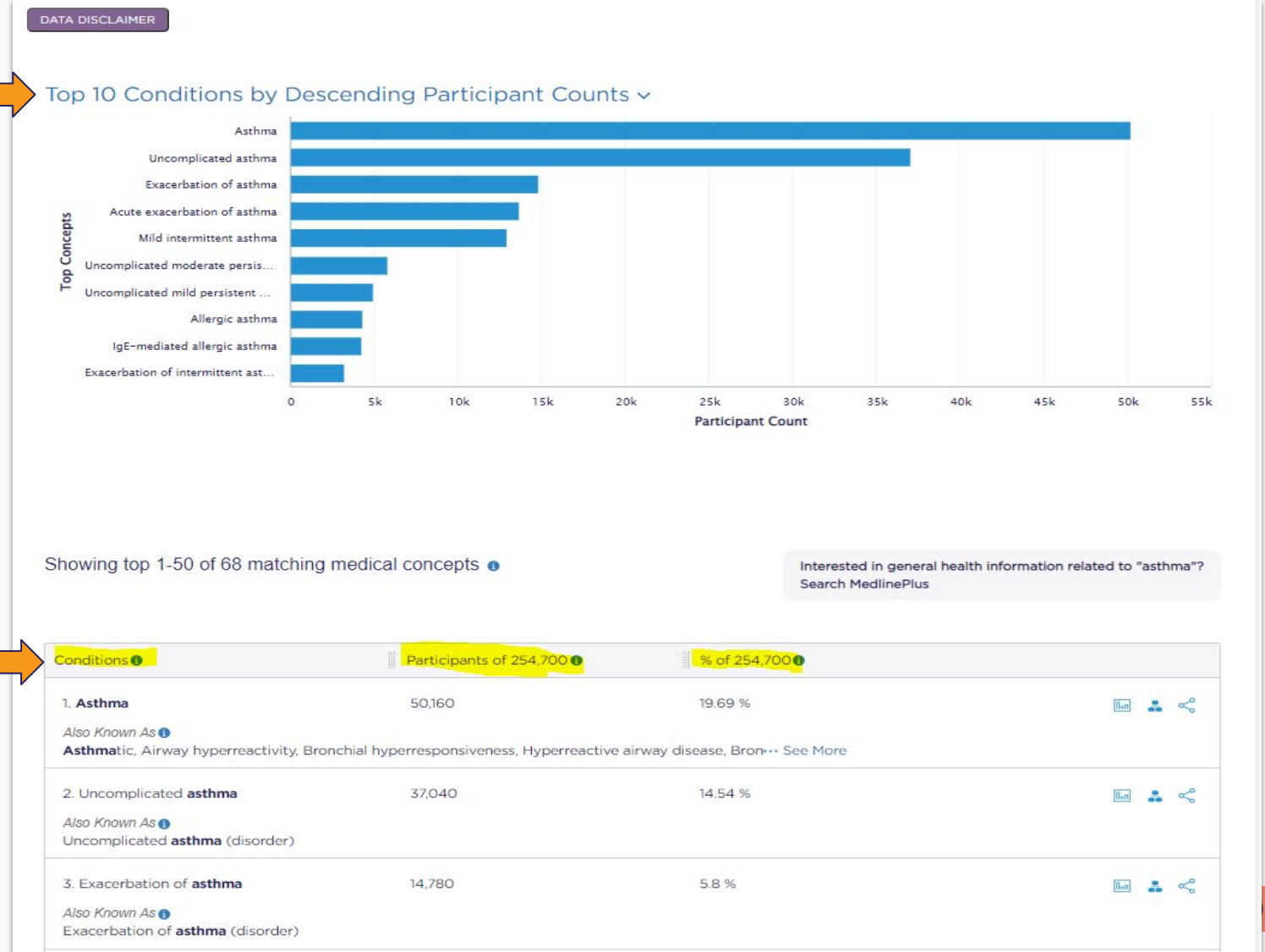
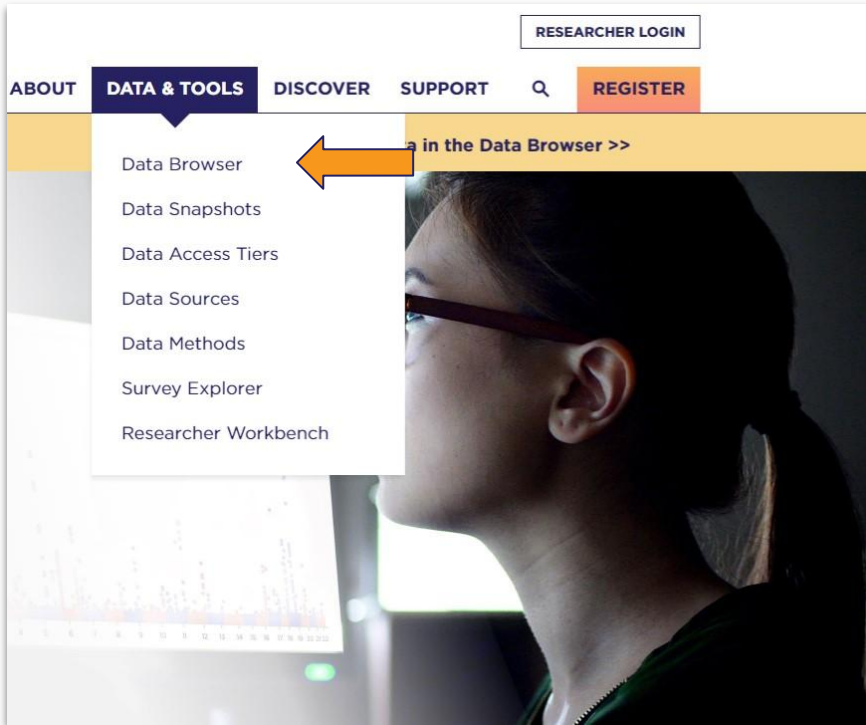
- Conditions** (68 matching medical concepts, 254,700 participants, View Conditions)
- Procedures** (4 matching medical concepts, 242,580 participants, View Procedures)

Survey Questions

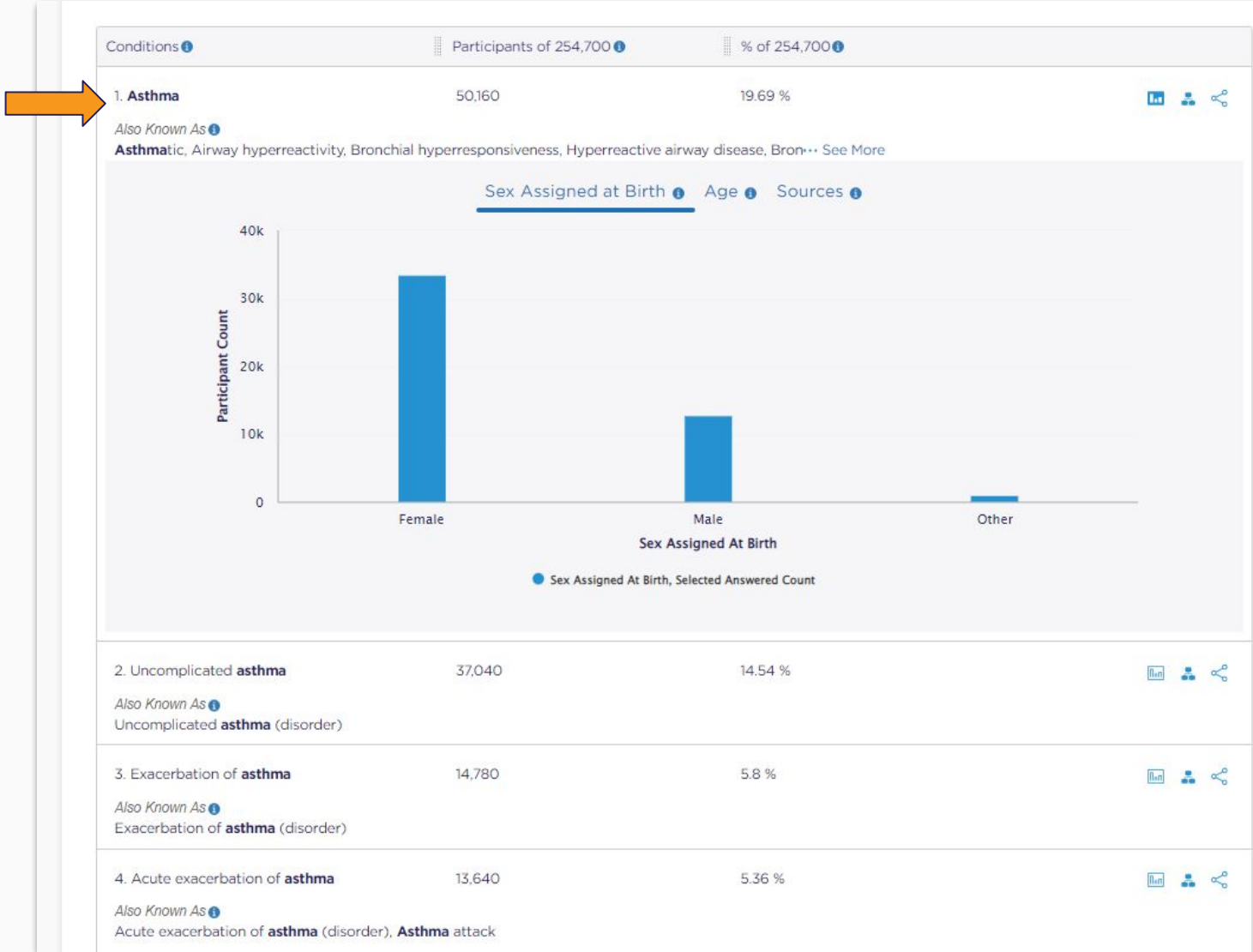
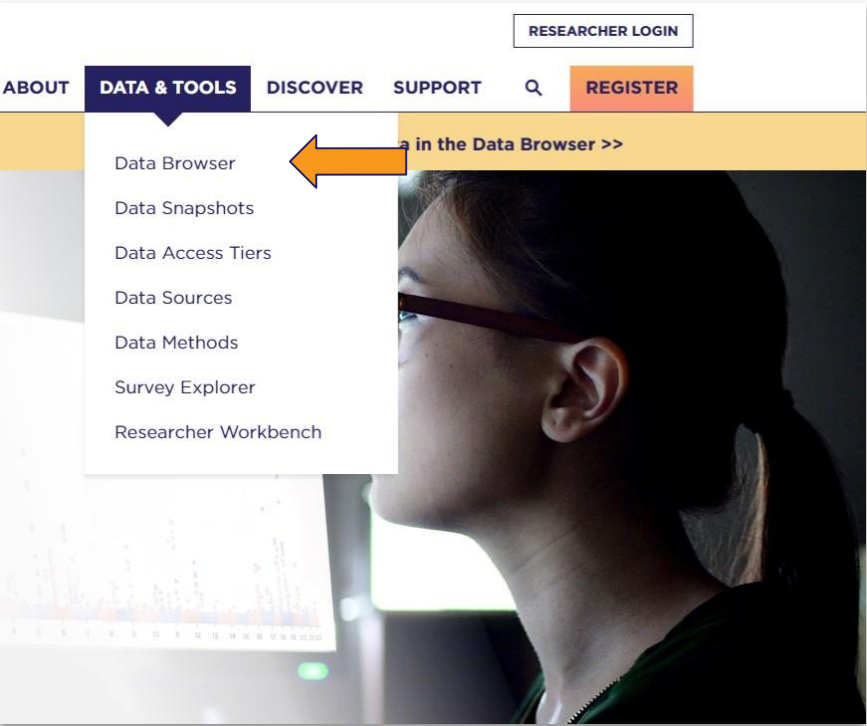
One data card for Survey Questions:

- Personal and Family Health History** (1 matching survey questions, 185,240 participants, View Complete Survey)

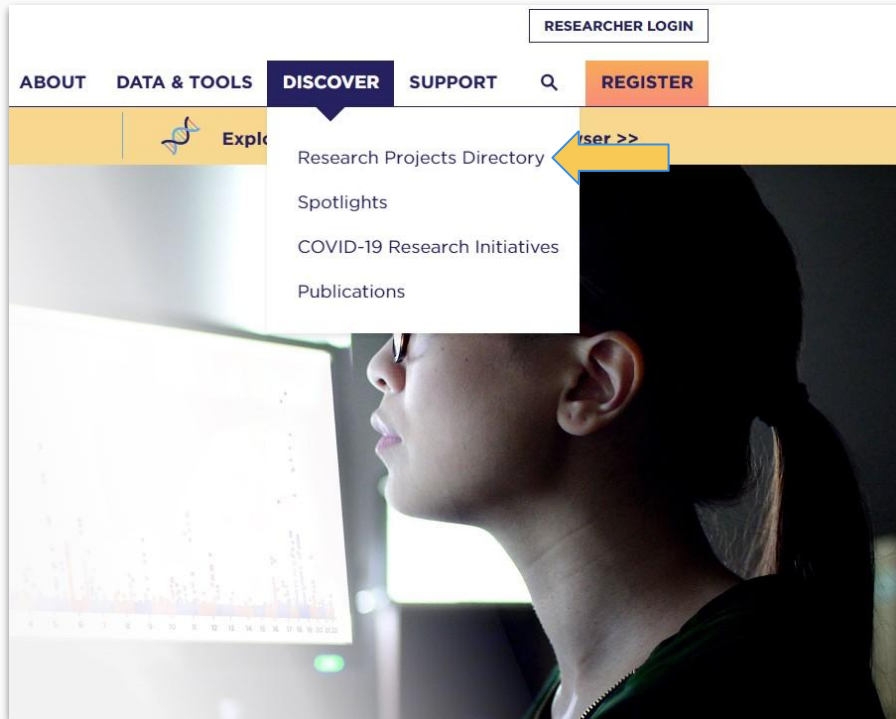
Explore the Data: The Data Browser



Explore the Data: The Data Browser



Use the Project Directory to view all active projects.



Research Projects Directory

9,303 ACTIVE PROJECTS

This information was updated 2/21/2024

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 in compliance with the 21st Century Cures Act.

Search By: Project title: enter keywords you are looking for

Demographic factors associated with autoimmune skin diseases

I hope to characterize the prevalence of autoimmune skin diseases (including psoriasis, eczema, vitiligo, bullous pemphigoid, pemphigus vulgaris, dermatomyositis, cutaneous lupus) in the All of Us cohort, and determine whether differences across ethnic groups or other demographic factors exists.

Glucocorticoids impact on breast cancer prognosis

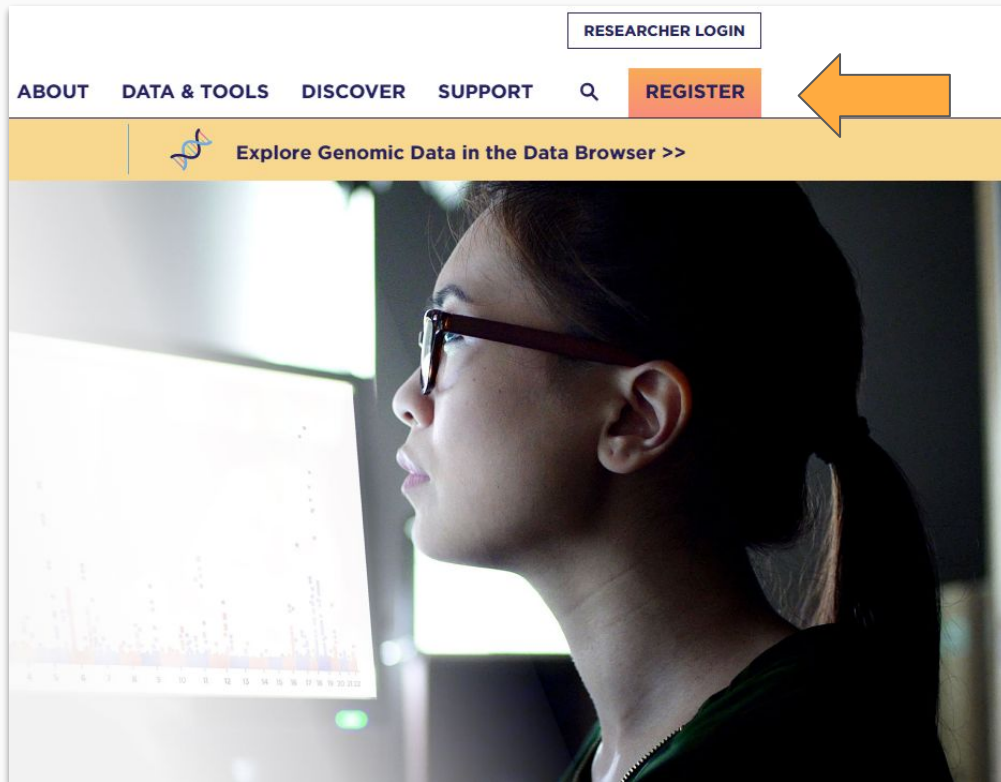
The effects of glucocorticoid (GC) co-treatment on the prognosis of Steroid hormone receptor positive and triple negative (TNBC) breast cancer patients with different racial backgrounds.

Metabolic Dysfunction among RP Patients

Mutation currently linked to a causative gene for autosomal recessive retinitis pigmentosa in Asian populations have also been casually linked to the development of T2D. We have reason to believe that this may not be a phenomenon per say but

How to Register

Registration is easy!



researchallofus.org/academy_ev

How to Register



CONFIRM YOUR INSTITUTION'S AGREEMENT

Before you can create an account, your institution must have a Data Use and Registration Agreement (DURA) in place with *All of Us*. [Confirm DURA](#).



CREATE AN ACCOUNT AND VERIFY IDENTITY

After creating your Researcher Workbench account, you will be asked to verify your identity through Login.gov or ID.me. [Learn more](#).



COMPLETE THE MANDATORY TRAINING

The training focuses on conducting responsible and ethical research using the Researcher Workbench. Additional training is required to access the Controlled Tier. [Learn more](#).

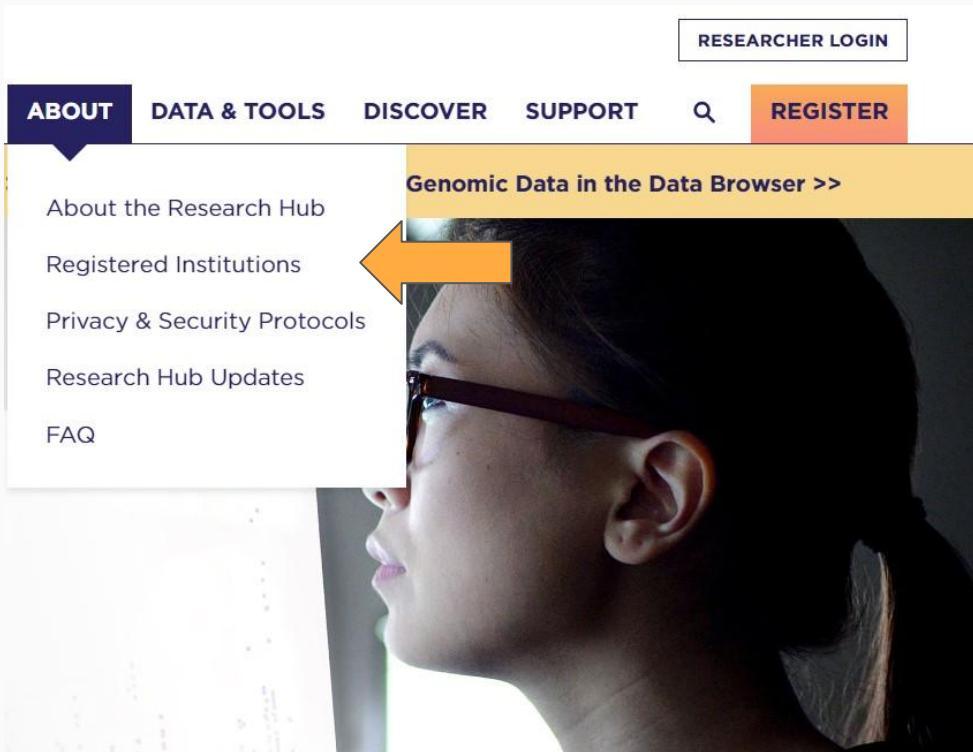


SIGN THE DATA USER CODE OF CONDUCT (DUCC)

This agreement outlines the program's expectations for researchers who use the Researcher Workbench and describes how program data may be used. [View the DUCC](#).

CREATE AN ACCOUNT

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



Registered Institutions

Access to the Researcher Workbench is available only to registered researchers with an institutional Data Use and Registration Agreement (DURA). Academic, not-for-profit, and health care institutions can enter into a DURA. Search or browse the list below to confirm if your institution has a DURA in place.

If your institution is listed below, **AND** includes your preferred data tier, **AND** doesn't require individual agreements

If your institution is not listed below, **OR** doesn't include your preferred data tier, **OR** requires individual agreements

705
Institutions Have Agreements in Place

[CREATE AN ACCOUNT](#) [SUBMIT A REQUEST](#)

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

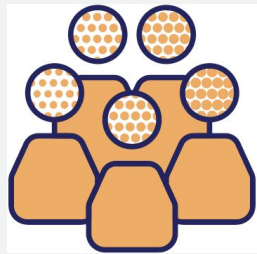
Institution	Access Level	Contact at Institution
A.T. Still University of Health Sciences	R C	Gayla Sublette
Abigail Wexner Research Institute at Nationwide Children's Hospital	R C	Nichole Michaels
Above and Beyond Family Recovery Center	R C	Daniel Hostetler
Access Care Anywhere	R C	Carissa Bishop

The Researcher Workbench and how to start a research project

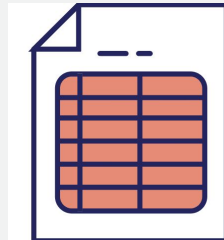
The Researcher Workbench = secure cloud analysis platform



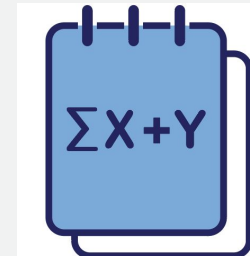
WORKSPACES



COHORT
BUILDER



DATASET
BUILDER



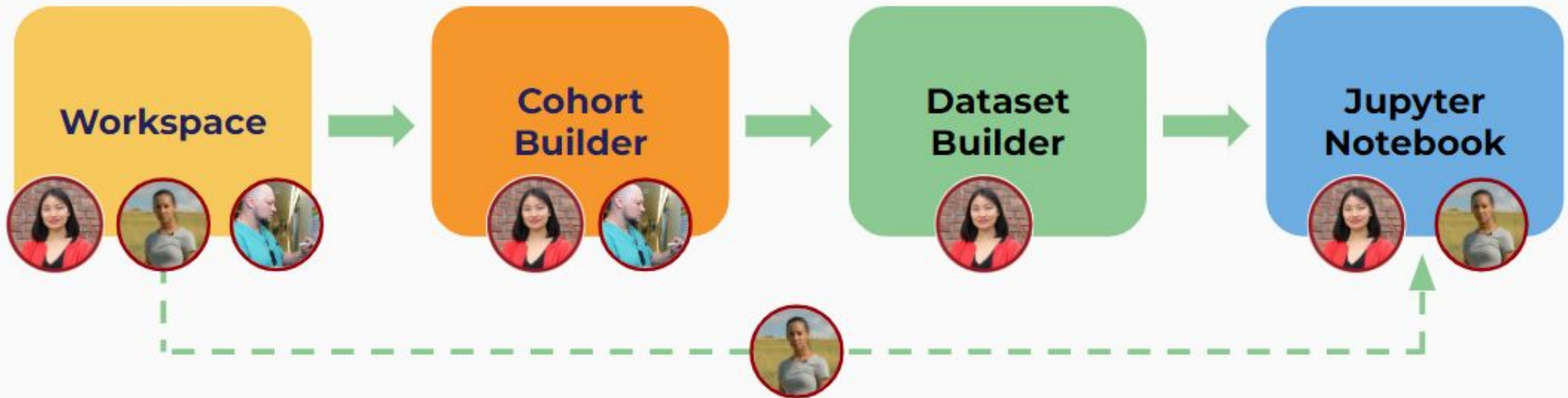
NOTEBOOKS



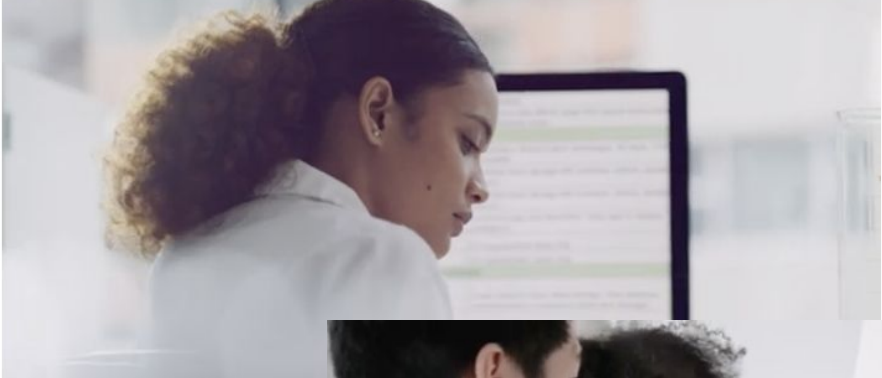
WORKBENCH USER
SUPPORT HUB

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 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

TUTORIAL VIDEO

Introduction to the Researcher Workbench

▶ 2:33

TUTORIAL VIDEO

Cohort Builder & Cohort Review

▶ 2:26

TUTORIAL VIDEO

Dataset Builder & Concept Sets

▶ 2:49

TUTORIAL VIDEO

Notebooks & Code Snippets

▶ 2:54

TUTORIAL VIDEO

User Support

▶ 2:28

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 Researcher Workbench


Workspaces > Asthma Demo

All of Us Registered Tier Dataset v3

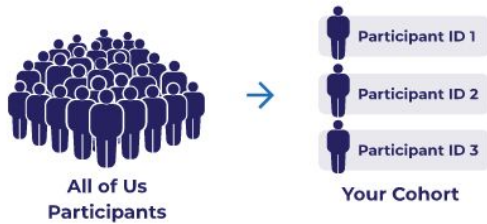
DATA

ANALYSIS

ABOUT


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.



Show: Show All
Cohorts
Cohort Reviews
Concept Sets
Datasets

	Item type ↑↓	Name ↑↓	Last Modified Date ↑↓	Last Modified By
		<input type="text" value="Search Name"/>		
⋮	Cohort	asthma cohort 3	Sep 1, 2021	
⋮	Cohort	asthma_cohort1	Feb 17, 2023	ashley.e.green@researchallof.us
⋮	Cohort	Asthma Cohort	Sep 1, 2021	
⋮	Cohort Review	Asthma Cohort	Sep 1, 2021	
⋮	Concept Set	Asthma_concept1	Feb 17, 2023	ashley.e.green@researchallof.us
⋮	Dataset	Asthma dataset	Sep 1, 2021	

Help Tips

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.

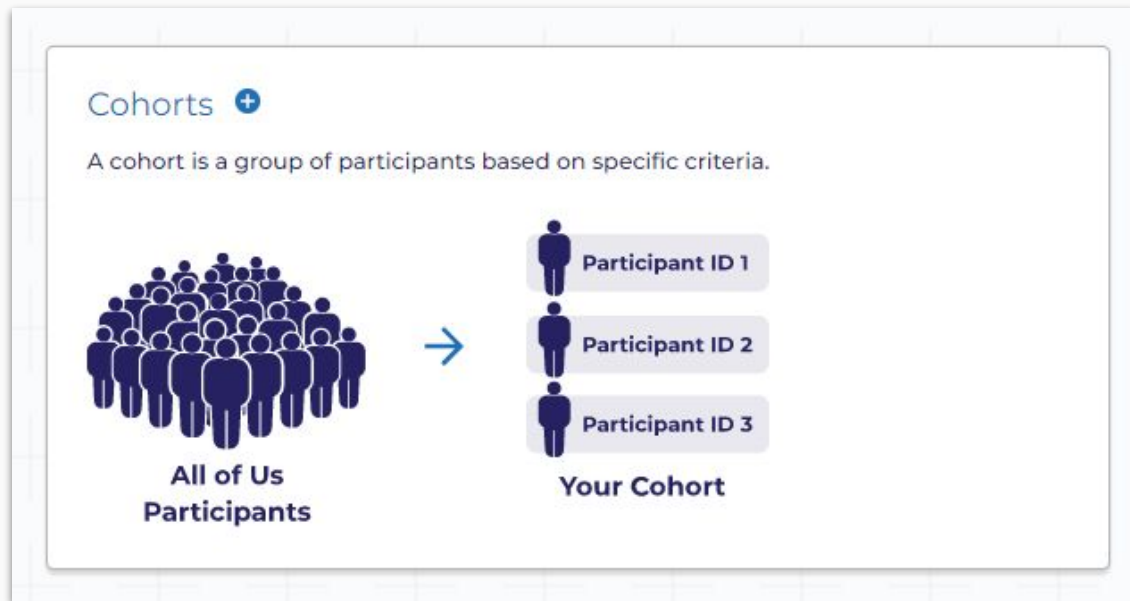
Concept Sets
Concepts describe information in a patient's medical record, such as a condition they have, a prescription they are taking or their physical measurements. Subject areas such as conditions, drugs, measurements, etc. are called "domains." Concept sets are collections of concepts from a particular 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.

Recent Data
This area displays recently opened data types like cohorts, concept sets, or datasets.

Data Type
This table displays details about cohorts, concept sets, and datasets within the workspace, including the name, owner and

The Researcher Workbench



All of Us RESEARCHER WORKBENCH Workspaces > Genetic Causation of Asthma > **Build Cohort Criteria**

DATA ANALYSIS ABOUT

Include Participants

Group 1

ADD CRITERIA ▾

Search or browse all domains ⓘ

Program Data

- Demographics
- Surveys
- Physical Measurements
- Fitbit
- Whole Genome Sequence
- Global Diversity Array

Domains

- Conditions
- Procedures
- Drugs
- Labs and Measurements
- Visits
- Observations
- Devices

USER SUPPORT HUB

- Getting Started
- Videos
- Working with Data
- Contact Us
- Policy

NIH

U.S. Department of Health and Human Services.
and does not provide medical advice, diagnosis or treatment. Copyright 2020.

The Researcher Workbench

Datasets

Build a dataset by selecting the variables and values for one or more of your cohorts. Then export the completed dataset to Notebooks where you can perform your analysis

1 Select Cohorts (Participants)

Prepackaged Cohorts

All Participants

Workspace Cohorts

Age + BMI 

Array + asthma 

2 Select Concept Sets (Rows)

Prepackaged Concept Sets

Demographics

All Surveys

Fitbit Heart Rate Summary

Fitbit Heart Rate Level

3 Select Values (Columns)

4 Preview Dataset

A visualization of your data table based on concept sets and values you selected above.
Once complete, export for analysis

[View Preview Table](#)

Select cohorts, concept sets, and values above to generate a preview table

CREATE DATASET

ANALYZE

Support Resources

Our Support Tools

Email us questions anytime at support@researchallofus.org.

Zoom in for our live New User Orientation or Office Hours.

User Support Hub

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

Webinar objectives:

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

Our User Support Hub provides:

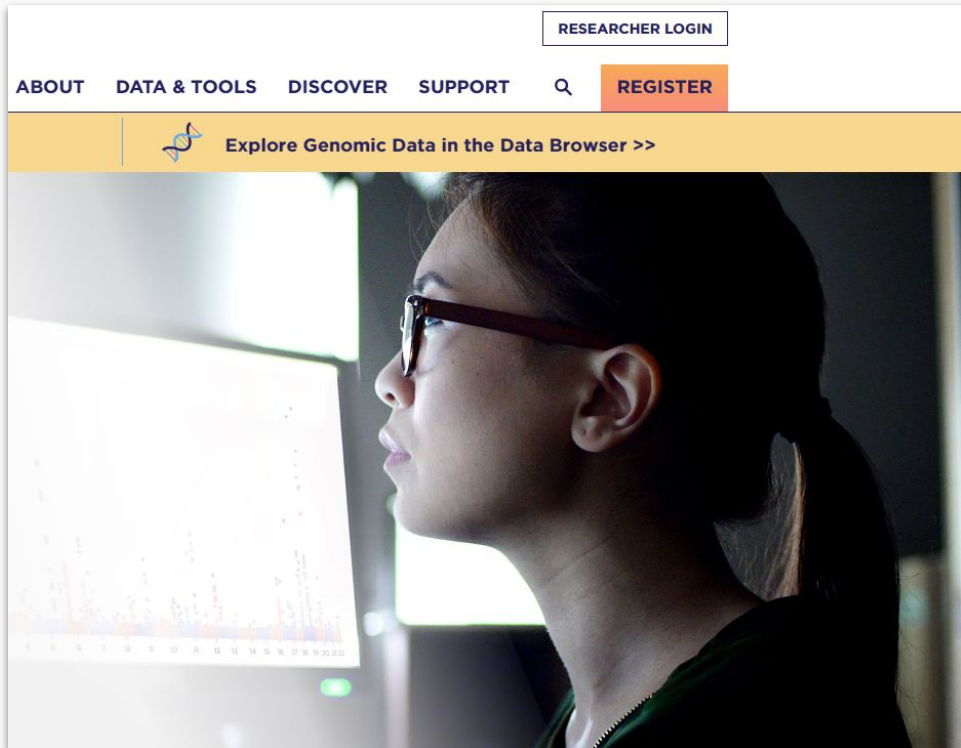
- Articles, videos and tutorials about the Researcher Workbench and dataset
- Up-to-date product updates
- Featured content
- Events calendar



Upcoming Events and Opportunities

- **Registration is now open for the *All of Us* Researchers Convention to be held on April 3 and 4.** The free, virtual event is open to researchers across all disciplines and career stages. It provides an opportunity for researchers who use *All of Us* data to showcase their work for others who share their interests in precision medicine. Register for the *All of Us* Researchers Convention at ResearchAllofUs.org/2024Convention.
- **Apply for the Biomedical Researcher (BR) Faculty Summit to be held May 14 to 18, 2024.** The summit supports researchers from diverse backgrounds, including those from communities that are underrepresented in the biomedical research workforce, who are interested in using the *All of Us* Researcher Workbench. Applicants who are selected to attend the summit will be accepted into the *All of Us* BR Scholars Program, a one-year program that provides networking opportunities, professional development sessions, grant funding, and research training. [Apply for the summit by February 29, 2024.](#)
- **Call for papers: *Journal of the American Medical Informatics Association (JAMIA)* seeks papers about returning value to communities from the *All of Us* Research Program.** Topics of interest include the use of *All of Us* data by community members, community-based organizations, and community scientists; analyses that address priority health concerns of communities; engagement of community members in the research process to promote epistemic justice; and more. **Submissions are due by April 6, 2024.** [Learn more on the JAMIA website.](#)

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



Sign up for our
newsletter!
allof-us.org/RRSignup



@AllofUsResearch
#JoinAllofUs



Questions & Answers Session

Celebration of Institutional Champions

Announcements

Call for Applications: 2024 Interns

The *All of Us* Researcher Academy is now accepting applications for its Internship Program, which will commence in June 2024.

- **How It Works**

- Complete a project using the *All of Us* Dataset (supported by a team of co-mentors)
- Stipend: Undergraduate students \$5,000 | Graduate students \$6,500 (if not currently supported by an *All of Us* award)

- **Internship Eligibility**

- Currently enrolled as an undergraduate or graduate student at an HBCU

- **Internship Requirements**

- 4-month commitment
- Attend at least two academy courses/workshops
- Attend monthly meetings with fellow interns and weekly touch-base meetings with mentor
- Submit abstract for possible inclusion at a future *All of Us* Researchers Convention

Scan **QR code** to learn more and **apply by April 1, 2024, 12:59 pm ET**



Call for Applications: 2024 Internship Mentors

The *All of Us* Researcher Academy invites experienced mentors with active Researcher Workbench projects to apply to mentor undergraduate and graduate student interns starting in June 2024.

How It Works

- ▶ The internship requires a **4-month mentoring commitment**
- ▶ Mentors guide interns in the completion of a research project using *All of Us* data
- ▶ Students submit an abstract to present their project at a future *All of Us* Researchers Convention
- ▶ Internships can be conducted **in person, virtually, or in a hybrid format**
- ▶ Mentors receive a **\$3,000 stipend** (if not currently supported by an *All of Us* award)

To learn more and become a mentor with the *All of Us* Researcher Academy Internship Program, **scan QR code** and **apply by April 1, 2024.**



For additional information, please contact AllofUs_Academy@rti.org

Course Highlights: April 2024

To register for courses,
scan the QR code or access
https://bit.ly/RA_Course



Course	Format	Date/Time
Mindfulness Practices for Health Researchers	<i>Live virtual course</i>	April 22–25, 2024; 5:15–5:45 pm ET

Overview:

This course will lead participants through a progression of mindfulness exercises for health researchers. Participants will learn to intentionally focus their attention, understand what mindfulness is and how it makes a difference, and be able to use mindful attitudes like acceptance, kindness, gratitude, and loving-kindness. This course is ideal for anyone.

Instructor: Dr. TJ Exford

Course	Format	Date/Time
Introduction to Publishing Health Data in Academic Journals	<i>Live virtual course</i>	April 4, 11, 18 and May 2, 2024, 3:00 – 4:00 ET

Overview:

This short course series will help to guide participants in the academy with their career paths and inform them of requirements and opportunities that are essential for their success in STEM or STEM-related research. This course is ideal for undergraduate or graduate students interested in publishing their research for the first time.

Instructor: Dr. Vabren Watts

All of Us Researcher Academy Newsletter

- Quarterly distribution
- 500+ Subscribers
- Features
 - ▶ Researcher Spotlight
 - ▶ Career Corner
 - ▶ Academy Announcements
 - ▶ Upcoming Courses and Events

Winter Issue now available!

Scan the QR code or visit researcheracademy.rti.org/newsletter to read all our newsletter issues.



All of Us | Researcher Academy | **Connections**
Issue 6 | Winter 2024

IN THIS ISSUE

- **New Year, New Opportunities**
- **Academy Announcements**
- **Spotlight**
Dr. Dorothy Browne, Shaw University
- **Career Corner:**
How to Find a Professional Mentor
- **Upcoming Academy Courses**

New Year, New Opportunities and Connections

Although researchers sometimes receive praise for their individual accomplishments, progress in science has long been a team sport. Mentoring, in particular, can be a vital source of guidance on funding for research and encouragement to develop new analytical skills. In this issue, we continue our focus on mentoring by mapping out steps for identifying your ideal mentor in [Career Corner](#) (p. 7). We also explore how the *All of Us* Researcher Academy and its related efforts are supporting knowledge mobilization and team science.

Artificial intelligence and machine learning (AI/ML) are one emerging domain of work in which new skills are increasingly important. Yet historically underrepresented communities have not benefited from AI/ML developments at the same pace as other groups. NIH's Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Researcher Diversity (AIM-AHEAD) and RTI International have created a new resource for researchers who want to develop AI/ML skills. The traineeship, which begins this month, will guide participants through an intensive 8-month program in advanced data analysis using the resources of the *All of Us* database and AIM-AHEAD's data science training core.

Teamwork is important for 21st century science, but it does not happen without planning and effort. Being intentional about building and maintaining teams can be an important step in growing research capacity at your institution.

-continued on page 2

Learn more about the [Researcher Workbench](#)

Visit the [All of Us Research Program website](#)

Subscribe to [Connections](#)

Read past issues of [Connections](#)

All of Us Researcher Academy | Connections, Issue 6

Summer Research Opportunities at Meharry

Meharry Enhancing Virology Training (ENVIT) Summer Research Program

SUMMER 2024

The Meharry ENVIT Program is a 9-week virology research training that include didactic lectures in fundamentals of virology and career-development topics for a virology-focused research and education career. The overall program goal is to prepare and increase the number of underrepresented minority (URM) students in virology-focused careers.

To learn more information and access the online application, visit <https://home.mmc.edu/school-of-graduate-studies-research/envit/>

Meharry Cancer Summer Research Program (SuRP)

SUMMER 2024

The Meharry Cancer SuRP is a 9- or 10-week intensive, hands-on research experience for undergraduate and medical students. The overall goals of the program are to expose students to different types of cancer research and increase their awareness of cancer health disparities. Program participants will work under the mentorship of a Meharry Medical College and/or Vanderbilt University Medical Center faculty on a research project that explores the causes, diagnosis, prevention and/or treatment of cancer.

To learn more information and access the online application, visit <https://home.mmc.edu/school-of-graduate-studies-research/meharry-cancer-surp-2/>

Nest Stop on the *All of Us* HBCU Road Tour: Jackson MS, April 23

Keep an eye out for registration information
coming in March



Attendee Insights

We want to hear from you



Closing Remarks

Thank You!



**Community-Campus
Partnerships for Health**
Promoting Health Equity and Social Justice



@AllofUsResearch #JoinAllofUs

AllofUs_Academy@rti.org