



All of Us | Researcher
RESEARCH PROGRAM | Academy

From Data to Equity

Telling the Story of North Carolina HBCUs
Using the *All of Us* Dataset to Address Health
Disparities

North Carolina A&T State University
Greensboro, NC

June 29, 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
- Community Campus Partnerships for Health (CCPH)
- Remarks from Representative Alma Adams' Office
- Researcher Academy and All of Us Overview
- Researcher Presentation: North Carolina A&T State University
- Researcher Presentation: Shaw University
- Q&A Session
- Panel Discussion
- Celebration of Institutional Champions & Colleagues
- Announcements & Updates
- Attendee Insights
- Closing Remarks
- CBO/HBCU Forum

Congresswoman Alma Adams

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Mission Statement

To bring together students and scholars of diverse disciplines and backgrounds to formulate new, relevant, and transformative research, theories, and models to bring greater clarity and understanding of health disparities and health inequities to create solutions for advancing health equity.

3 Core Areas

- Community Engagement
- Research
- Education & Training



Angelo Moore, PhD, RN, FAAN
Executive Director



Cassandra Germain, PhD
Assoc. Dir., Education & Training



Marc Cook, PhD
Assoc. Dir., Research



Stephanie Teixeira Poit, PhD
Assoc. Dir., Community Engagement

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, MDiv
Engagement Lead



Paul J. Kuttner, EdD
Director of Partnerships



Da'Naya Mayes, MS
Consultant



Anita P. Holmes, JD, MPH
Consultant

CCPH's HBCU Engagement



All of Us HBCU Road Tour

- Highlights the work faculty and students at HBCUs are engaged in with the *All of Us* dataset
- Amplifies HBCUs as knowledge building hubs
- Brings together regional HBCUs with local and national researched based community organizations.



Researcher Academy Overview

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



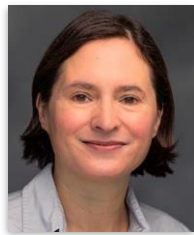
Trey-Rashad Hawkins



Leslie Zapata Leiva



Vincenzo Malo



Susana Peinado



Courtney Richardson



Lissette Saavedra



Hadyatoullaye Sow



Tamara Terry



Stefanee Tillman



BriAnna Walker

Alumni of or affiliation ties with Howard University, Meharry Medical College, North Carolina Central University, Winston-Salem State University, University of Puerto Rico, University of California, Irvine, Florida International University, Bunker Hill Community College.

What Is the *All of Us* Researcher Academy?



The ***All of Us* Researcher Academy** provides training and technical assistance for researchers 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 institutions with a documented historical mission or historical commitment to training underrepresented students. The academy also supports peer-to-peer learning and network-building among researchers and students.

Visit our webpage at
<https://academy.researchallofus.org/>
or scan the QR code



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

PROGRAM OBJECTIVES



Engage with institutions that have a documented historical mission or historical commitment to training underrepresented students 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 offer 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**
- **Seven interns started second cohort in June 2024**



All of Us Researcher Academy Newsletter

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

Spring Issue now available!

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



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

Issue 7 | Spring 2024

IN THIS ISSUE

- **Welcome New Institutional Champions**
- **Academy Announcements**
- **HBCU Road Tour Recap:** Fisk University and Meharry Medical College
- **Spotlight** Meet the New Institutional Champions
- **Career Corner:** Securing a Job in Research
- **Upcoming Academy Courses**

Researcher Academy Welcomes New Institutional Champions

In February 2024, the *All of Us* Researcher Academy welcomed its third group of Institutional Champions: Florida Atlantic University; Florida International University; Northern Arizona University; San Jose State University; University of Nevada, Las Vegas; and University of Puerto Rico Medical Sciences Campus. This new group of partners expands the academy's potential impact more broadly across the nation.

Awards will help support faculty and staff use of the *All of Us* Researcher Workbench, which affords researchers unique access to the *All of Us* dataset. Each champion institution will support researchers for a year and can welcome visiting students and faculty from other institutions to participate in research activities.

Like previous awardees, these schools all have a documented commitment to educating underrepresented students and a track record of training researchers underrepresented in the biomedical workforce (see Notice of [NIH's Interest in Diversity](#)). For example, each has a strong record of support for Hispanic or Latino(a) students. As Institutional Champions, they will have access to training, technical assistance, and peer-to-peer learning, as well as intern, mentor, and faculty scholars programs.

We are honored to welcome these new champions and to support another year of Researcher Academy activities. The academy and other researcher engagement initiatives supported by the *All of Us* Research Program are central to building a diverse community of researchers. To date, there are 10,000+ *All of Us* researchers from all career stages, institution types, backgrounds, and experiences. ■

—Sula Hood and Brian Southwell, *All of Us* Researcher Academy co-leaders

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 7

All of Us Researcher Workbench

What Is the *All of Us* Researcher Workbench?

The ***All of Us* Researcher Workbench** is a cloud-based platform that houses *All of Us* participant data.

This centralized, secure platform currently contains the following participant data in two tiers:

REGISTERED TIER

Contains individual-level data, available only to approved researchers on the Researcher Workbench. The Registered Tier currently includes data from electronic health records (EHRs), wearables, and surveys, as well as physical measurements taken at the time of participant enrollment.

CONTROLLED TIER

In addition to the data in the Registered Tier, the Controlled Tier dataset contains genomic data in the form of whole genome sequencing (WGS) and genotyping arrays, and previously suppressed demographic data fields from EHRs and surveys.

Data Now Available in the Researcher Workbench



413,350+
Survey Responses



337,500+
Physical Measurements



312,900+
Genotyping Arrays



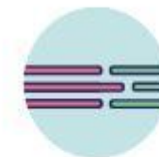
287,000+
Electronic Health Records



245,350+
Whole Genome Sequences



15,600+
Fitbit Records



1,000+
Long-Read Sequences

Data Use and Registration Agreement (DURA)

- A completed Data Use and Registration Agreement (DURA) allows researchers to access the *All of Us* Researcher Workbench with institutional sign-off
- DURAs provide data access to any U.S.-based academic or health care institution, nonprofit organization, or government entity (such as the National Institutes of Health)
- DURAs are administered by the Data and Research Center at Vanderbilt University Medical Center

Obtain a DURA with *All of Us* before registering for the Researcher Workbench.

Always use your institutional email address.



Researcher Workbench | Account Set Up and Registration

Visit the *All of Us* Research Hub using the QR code below to register for the Researcher Workbench:



Click Button to Create an Account



www.researchallofus.org/academy_sm

Researcher Workbench | Account Set-Up and Registration (continued)

When setting up your account, select these responses to the following questions:

How did you learn about the All of Us Researcher Workbench?
Select all that apply.

- Research All of Us Website
- Social Media
- Journal or News Article
- Activity, Presentation, or Event
- Friends or Colleagues
- Other Website
- Other

Did you learn about the All of Us Researcher Workbench from any of these program partners?
Select all that apply.

- All of Us Evenings with Genetics Research Program, Baylor College of Medicine, Department of Molecular and Human Genetics
- All of Us Research Program Staff
- All of Us Researcher Academy/RTI International
- American Association on Health and Disability (AAHD)
- Asian Health Coalition
- CTSA/PACER Community Network (CPCN)
- Data and Research Center (DRC)

Introduction of Presenters



NORTH CAROLINA AGRICULTURAL
AND TECHNICAL STATE UNIVERSITY

MULTIDISCIPLINARY EXPLORATION OF CARDIOVASCULAR RISK AND NUTRITION

Kristen Rhinehardt, PhD

Associate Professor, Computational Data Science and Engineering

North Carolina A&T State University

AGGIES **DO**

Background

Rebecca Siegel, MPH (Senior Scientific Director, ACS Cancer Surveillance) October 2022:

“We have been reporting this same disparity year after year for a decade. **The differences in death rates are not explained by Black women having more aggressive cancers.** It is time for health systems to take a hard look at how they are **caring differently** for Black women.”

What is known

- Black BCS diagnosed at younger age and later stage
- Breast cancer treatment is cardiotoxic
- Black women have 40% higher mortality

Gaps in that knowledge

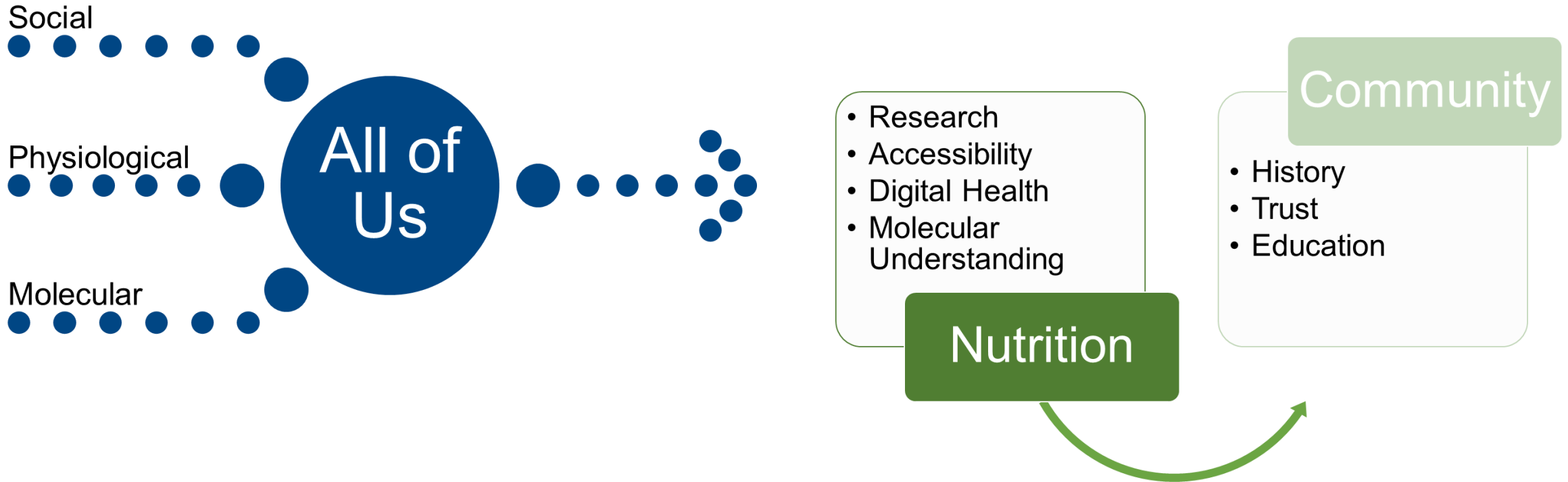
- SDoH contribution to inequity in outcomes
- Incidence of subclinical heart failure in Black breast cancer survivors
- Molecular level markers of breast cancer and cardiovascular risk based on ancestry



*Dr. Yvonne Ford, NCAT,
School of Nursing*

Health outcomes are affected by the lack of:

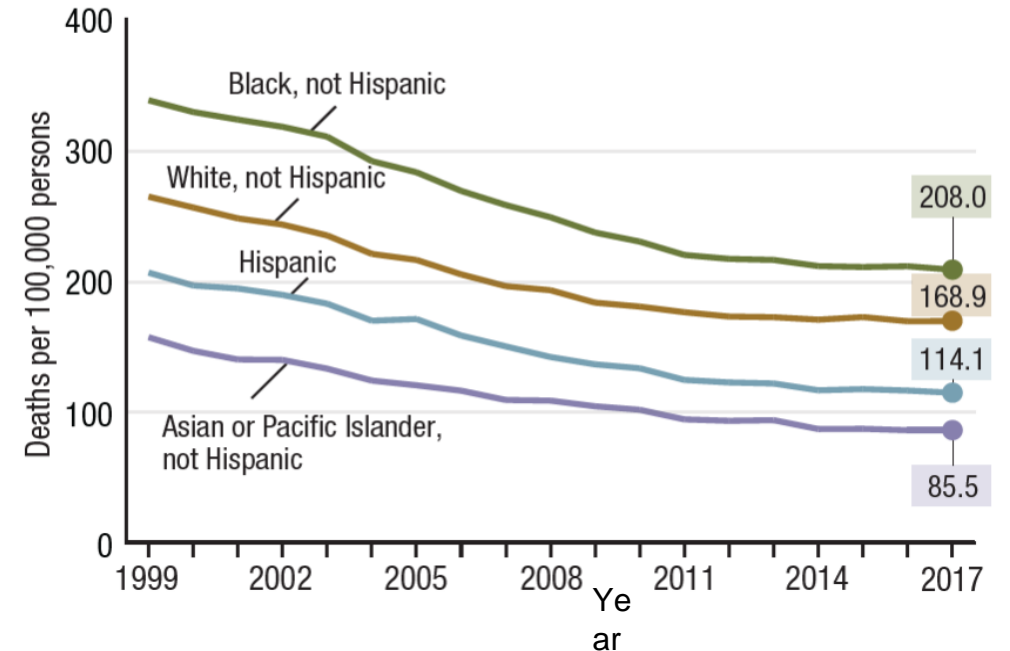
- 1. Confidence in the medical system**
2. Resources
3. Access



Nutrition and CVR

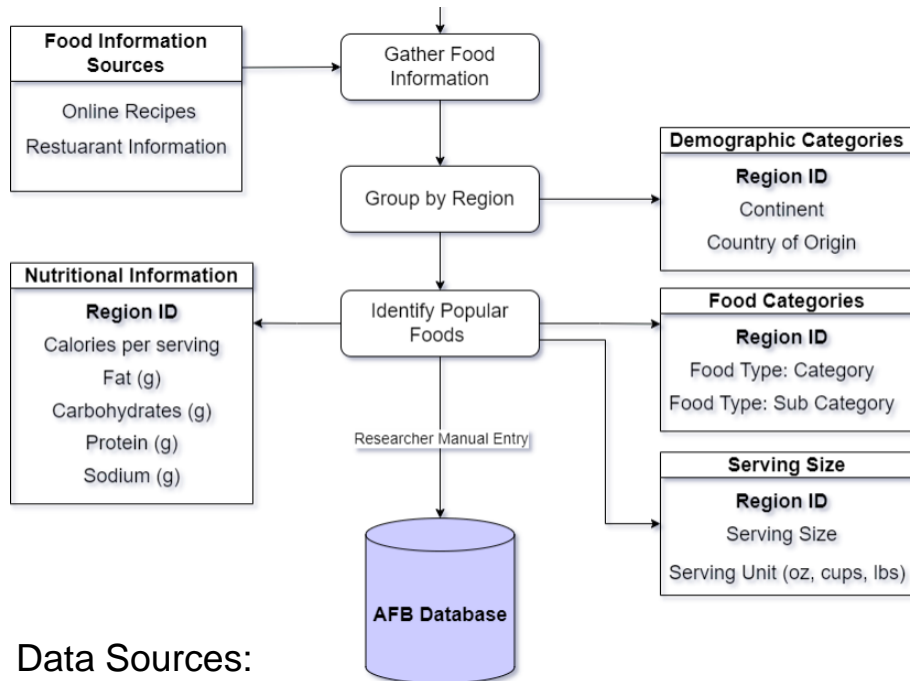
- Disparities persist in access to health care and its derivatives.
- Heart disease is one example of the disparities faced by African Americans.
- Effects of Poor Nutrition in The US
 - » Nutrient-dense
 - » Healing/ Medicinal Properties
 - Inflammation

Age-adjusted death rates for heart disease, by race and Hispanic origin: 1999–2017



Centers for Disease Control and Prevention. (2023, January 18). Health, United States - Infographics. Centers for Disease Control and Prevention. <https://www.cdc.gov/nchs/hus/spotlight/2019-heart-disease-disparities.htm>.

Demographics in US Population



Data Sources:

- Cookbooks
- Restaurant Fact Sheets
- Online Recipes

Information from the data sources were manually logged into the database

Classifying Cultural Cuisines By Region

1. Latin American

- a. Mexican
- b. Cajun/Creole/Haitian
- c. Latin

2. American South

- a. Tex-Mex
- b. Cajun Creole

3. South Asian

- a. Indian
- b. Thai
- c. Filipino
- d. Vietnamese

4. Caribbean

5. East Asian

- a. Korean
- b. Chinese

6. West African

- a. Nigerian
- b. Ghanaian

7. East African

8. European

- a. French
- b. Italian
- c. Mediterranean

Databases and Image Recognition

- 700+ food items was gathered
- Nomenclature and regional distinction
- Each food item was organized by categories

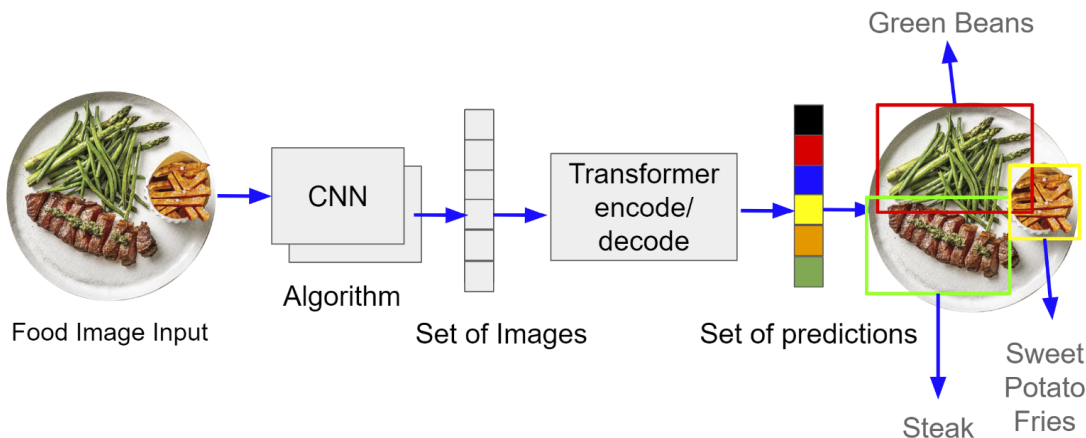


CALORIE MAMA



	Region	Recognition Rate	Included Nutritional Content Rate	Included Portion Size Rate	App-Defined Entries Rate	Rate of "Homemade"	Rate of "Name Brand"	Total Number of Alternate Searches	Average Number of Alternate Searches	Rate of Target Country Recognition
Calorie Mama	Latin America	28.35%	100.00%	94.44%	47.22%	13.89%	38.89%	24	0.19	0.00%
	Caribbean	48.86%	100.00%	100.00%	41.86%	34.88%	62.79%	21	0.24	11.63%
	Europe	61.36%	100.00%	92.59%	81.48%	22.22%	29.63%	9	0.07	9.88%
	South Asia	49.72%	96.63%	92.13%	86.52%	44.94%	28.09%	50	0.28	2.25%
	East Asia	53.68%	96.08%	72.55%	82.35%	54.90%	23.53%	11	0.12	1.96%
	West Africa	27.12%	81.25%	81.25%	50.00%	37.50%	18.75%	19	0.32	6.25%
	East Africa	15.00%	83.33%	100.00%	100.00%	100.00%	0.00%	5	0.13	0.00%
	American South	65.45%	97.22%	91.67%	52.78%	5.56%	16.67%	17	0.31	0.00%

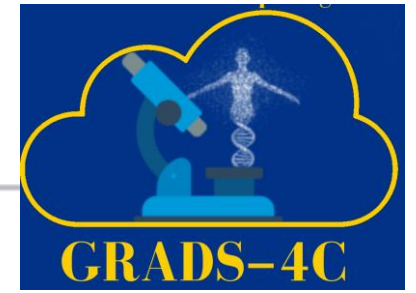
Accessibility



- East and West African dishes are recognized at a lower rate on all 3 apps
- Discrepancies between the sodium and caloric calculations in the tested nutritional apps

Health outcomes are affected by the lack of:

1. Confidence in the medical system
- 2. Resources**
- 3. Access**



Foundations of GRADS-4C

Knowledge Transfer and Sustainability

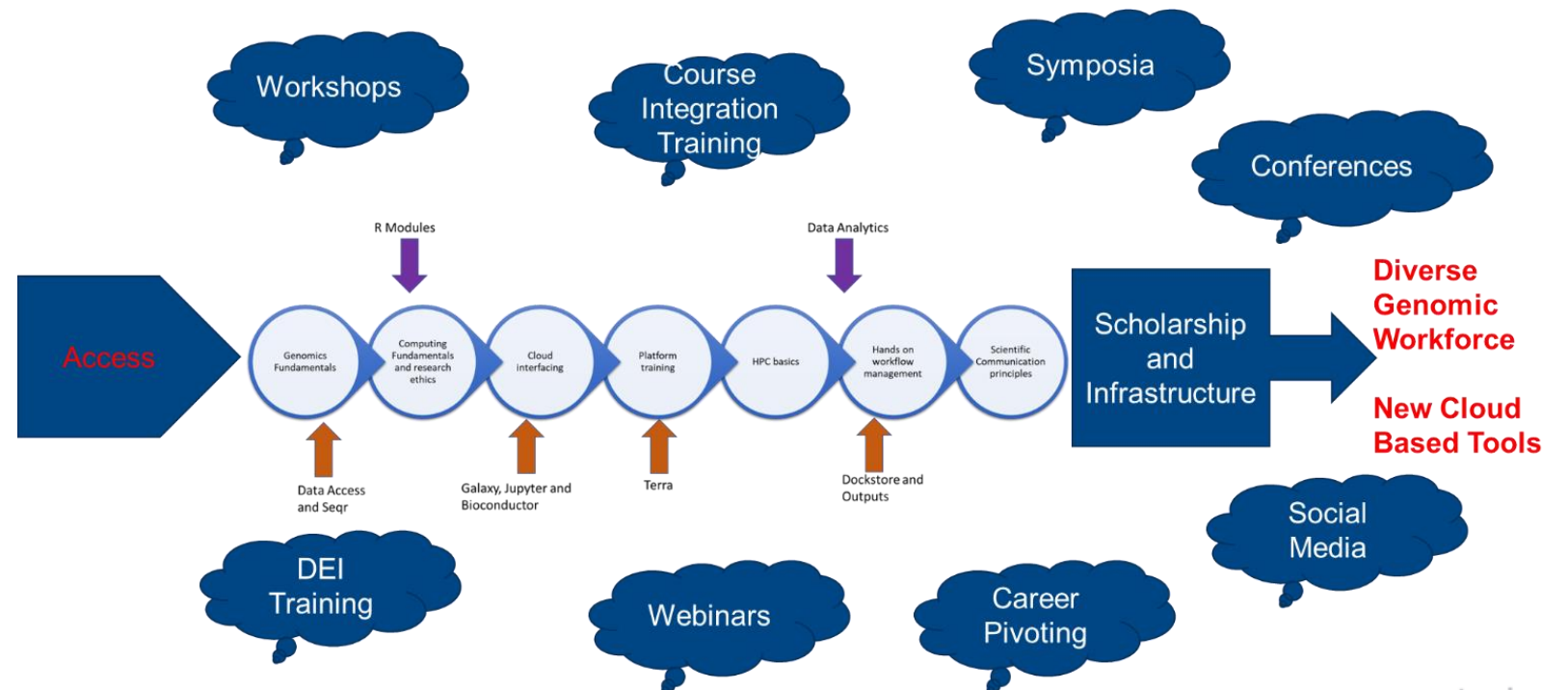
Partnership

Growth Model Infrastructure Development

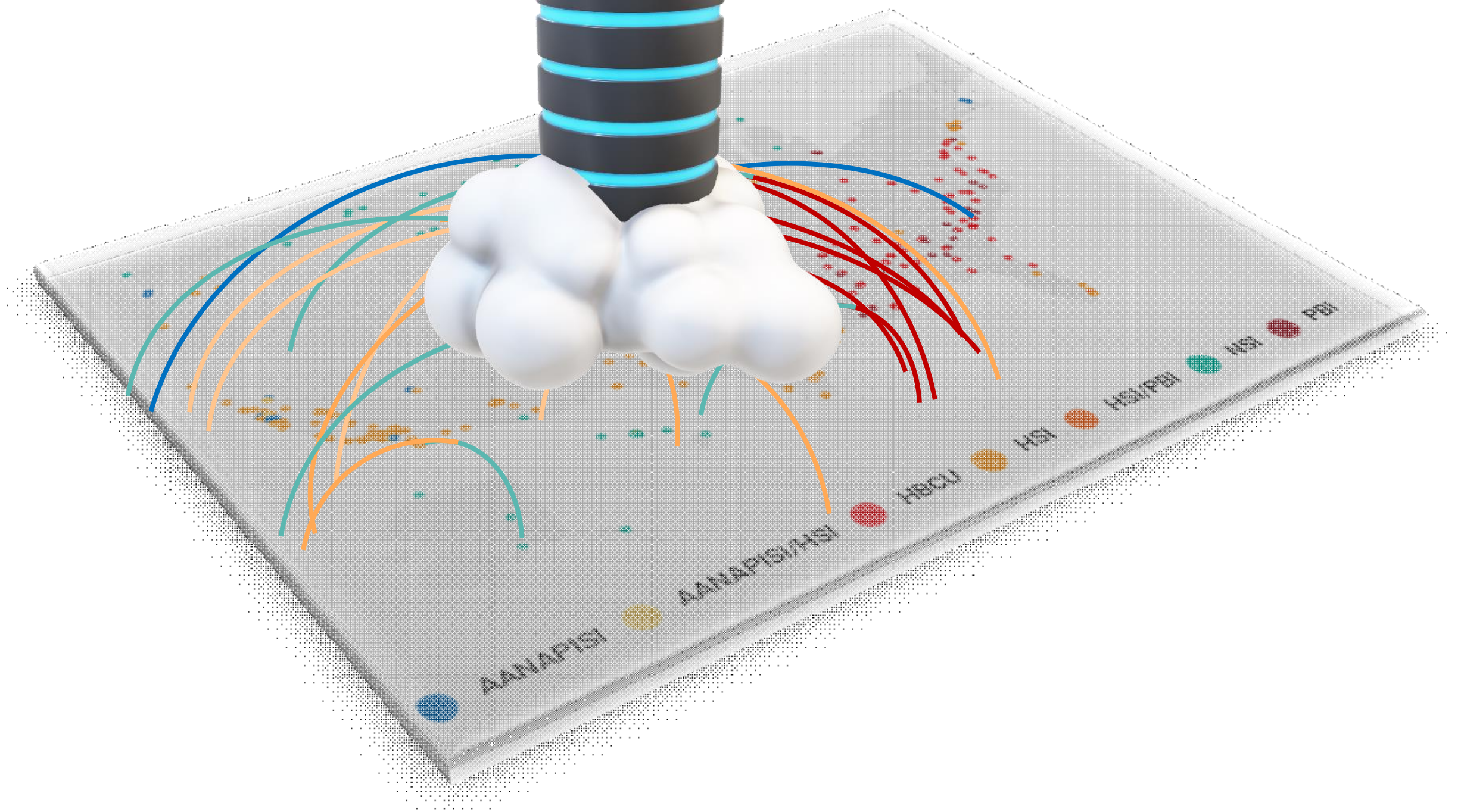
Trust



Our Mission is to develop an educational and hands-on research training network with resources in computational genomics, data sciences, and cloud computing (CGDS) to investigate and improve human health, as well as develop the future CGDS workforce, particularly among underserved populations



Website: GRADS4C.ncat.edu



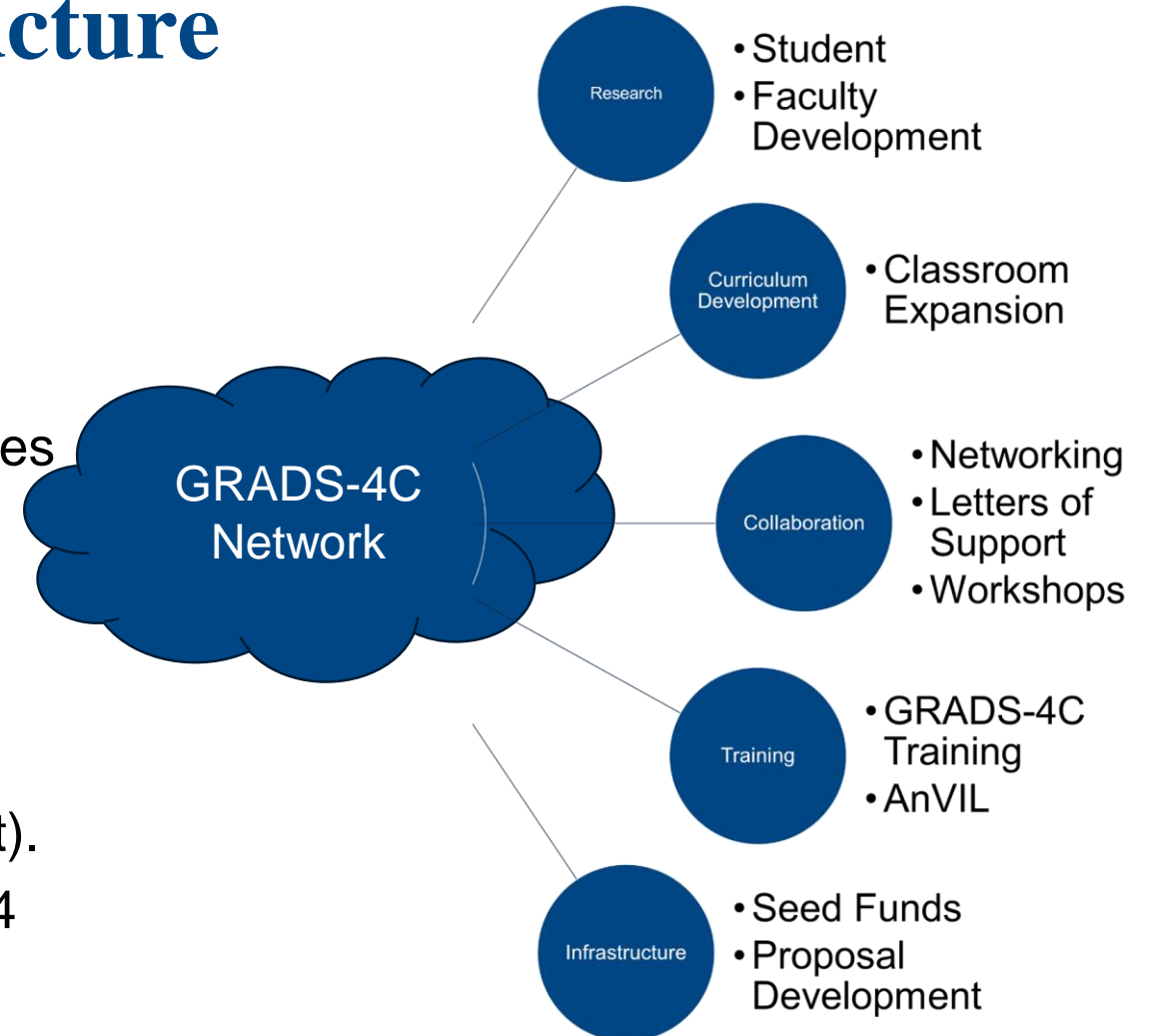
Partnerships and Infrastructure

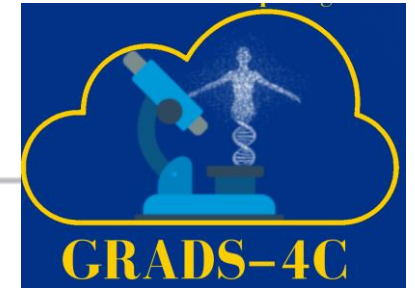
■ Collaborations

- » Research, Teaching, Grants
- » Guest lecturing
- » Course Material Development
- » Student Career Pathways and experiences (UG-> GR -> Post-Doc)

■ Seed Grants

- » 5-10 awards per year;
- » 1-5K per award for computing credits, storage or infrastructure (publication cost).
- » Phase 1 Application Opens July 30, 2024

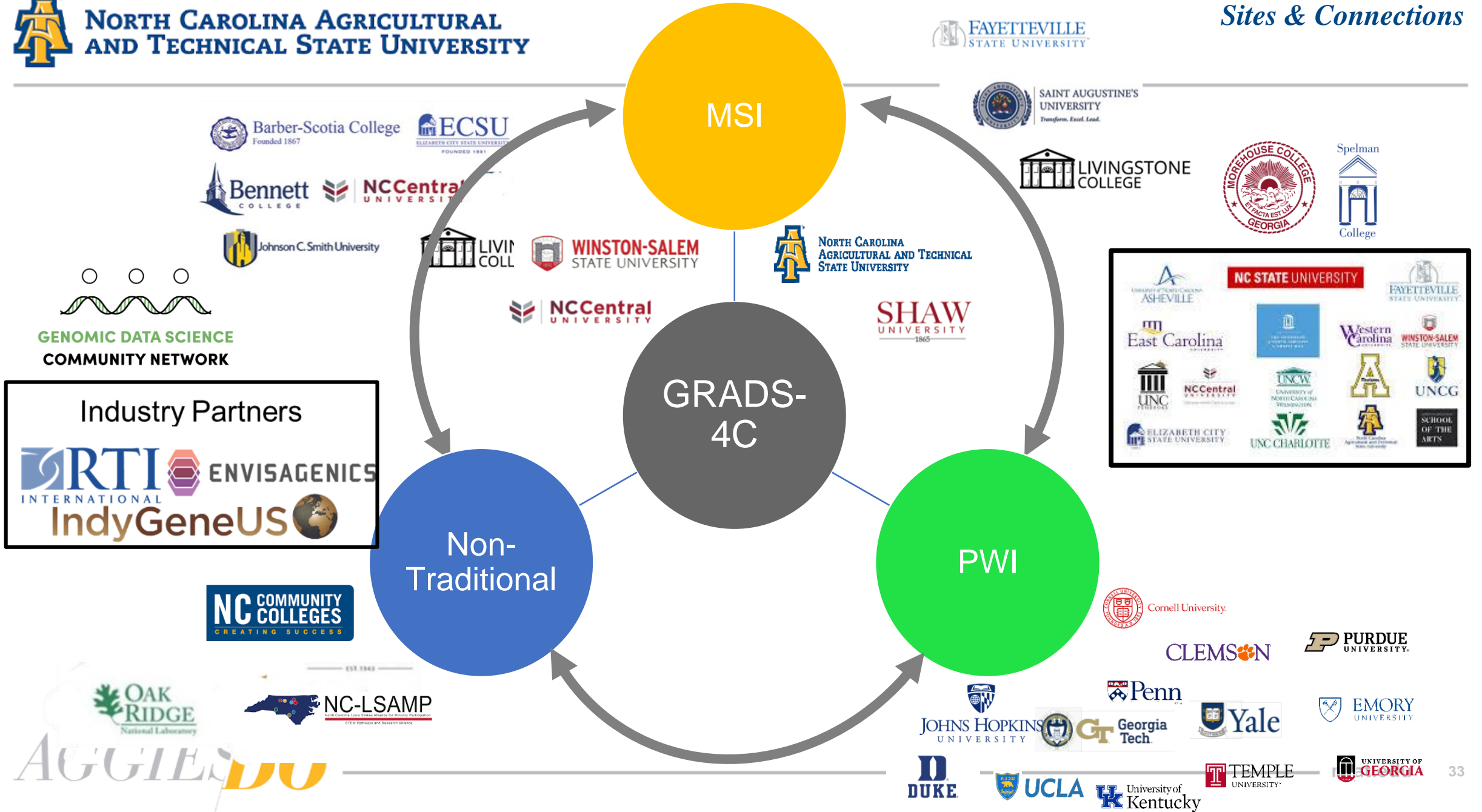




Training with GRADS-4C

- Training
 - » Summer Training Fellows
 - » Workshops and AnVIL/SCHARE/All of Us Researcher Workbench
 - » Proposal Development
 - » Graduate and Undergraduate Training
- Summer Training Fellowship
 - » Open to Faculty and a collaborating student from MSI/HBCU/HIS or R2 institution
 - » 1 year commitment of the fellows with the goal to produce 1 NIH proposal and 1 publication
 - » Application Open May 15, 2024 – July 15, 2024
 - » Submission





Thank you!

Empowering Education, Research and Community Engagement: Leveraging *All of Us* Data at HBCUs

Dorothy C. Browne, DrPH, MPH, MSW
Senior Research Scientist and Faculty
Shaw University

Outline of Presentation

- **How the Use of *All of Us* Data**
 - ▶ Enhances teaching, research and community engagement
 - ▶ Helps to strength and advance Shaw University's research mission
- **What is the *All of Us* Program?**
 - ▶ It aims to better understand how individual differences in lifestyle, environment, and biological makeup affect health, paving the way for more personalized and effective healthcare and precision medicine.
 - ▶ It includes electronic health records (EHRs), genetic information, survey data, and health information from wearables. It provides comprehensive health-related resources to allow for a more inclusive examination of health and healthcare.

Teaching Applications at Shaw University

- **Integrated *All of Us* data** in the senior capstone course (BIO 483-01), which provides hands-on learning as students develop projects that directly utilize the data.
 - ▶ Projects addressed issues of health disparities, chronic diseases, and behavior.
 - ▶ Students developed posters, which are displayed in Shaw's Yancy Science Building, and students discussed findings at Shaw's Annual Research Symposium.
- **Dr. Eric Butler**, a Shaw faculty member, taught Python to his students and research assistants. Python, until recently, was the primary statistical technique for analyzing All of Us data. He subsequently taught the Python course for RTI's All of Us Academy.
- **Dr. Dorothy C. Browne**, Shaw's Senior Research Scientist, and **Dr. Susan Newcomer**, a former Program Officer for NIH's National Institute of Child and Human Development's Population Dynamics Branch, taught the introductory and advanced courses in writing NIH applications for RTI's *All of Us* Researcher Academy.

Research Applications at Shaw University

- **Shaw Faculty awarded a 2024 Institutional Champion Award from RTI**
 - ▶ The faculty and students are examining intersectionality (e.g., race and disability, race and sexual orientation) and its impact on mental and physical well-being.
- **Early-career faculty enrolled in The Center for Health Equity Research (CHER).**
 - ▶ The Center for Health Equity Research (CHER) is committed to fostering diversity and inclusivity. It selects early-career faculty from MSIs and HBCUs to participate in a program designed to increase the number of early-career members to become NIH principal investigators.

Research Applications at Shaw University

- **Faculty selected for CHER receive training** and mentoring in areas of community-engaged biomedical research with essential, clinical, or behavioral outcomes to eliminate health disparities among racial/ethnic minority populations. CHER aims to increase the quantity and quality of health equity research targeting vulnerable ethnic minority populations.
 - ▶ Faculty use *All of Us* to apply for the R21 Award, which is for developmental and exploratory research.
 - ▶ Faculty use *All of Us* data to prepare manuscripts.

Research Applications at Shaw University

- **Summer Undergraduate Research Program.**
 - ▶ The program will select 8 juniors and seniors dedicated to becoming biomedical and social scientists. These students will gain significant research experience by engaging in research with *All of Us* mentors, many of whom will be Institutional Champion awardees.
 - ▶ The program serves as a stepping stone from undergraduate studies to graduate studies in the biomedical and related areas.
 - ▶ Participants will engage in an intensive 8-week program designed to provide hands-on experience with *All of Us* data and teach them how to plan for a research-related career.

Community Engagement Applications At Shaw

- **Student Involvement**

- ▶ Paid Research Assistantships for Shaw students, thus giving them experience with analyses and research methodologies. As research assistants with the Institutional Champion Award and the Summer Undergraduate Research Program, they have access to courses on data analyses, scientific publishing, and research methodology.

- **Community Outreach**

- ▶ As a component of the Capstone Course, the students have a Scientific Poster Day in which the faculty, students, alumni, and surrounding communities are invited.

- **Community Engagement**

- ▶ A local African-American health facility serving rural counties is collaborating with Shaw to prepare an NIH grant application to involve African-American communities in the research process to ensure that the research addresses their needs and concerns.

Engaging in the *All of Us* Program has and will enhance Shaw's teaching, research, and community engagement

1. Skills and funding opportunities via the *All of Us* Researcher Academy have enhanced faculty members' capabilities to secure NIH funding. (While NIH is not the only source of funding available, it is the gold standard for faculty at HBCUs that require research and those aspiring to become Research #1 institutions.)
2. Students have learned advanced data analysis and biostatistics by working with real-world data. This integration has helped students prepare for graduate studies and careers in healthcare, data science, and public health research.
3. Students who acquired data analytical and research methodological skills have been hired to work with other *All of Us* faculty at Shaw and other institutions.
4. Students have been selected for the *All of Us* Summer Internship Program at RTI.

Engaging in the *All of Us* Program has and will enhance Shaw's teaching, research, and community engagement

5. Partnerships have been fostered between Shaw and other HBCUs participating in the *All of Us* Institutional Champion Awards. We have discussed presenting our research to RTI and others leading this effort and the possibility of an HBCU conference presenting our *All of Us* research. We also discussed joint research projects and publications.
6. Working with our CBOs in African-American communities, who originated from our involvement in various funded initiatives, we plan to develop a community outreach initiative that will share the findings from *All of Us* and explore with these CBOs strategies for ensuring the participation of people of color in the *All of Us* Program.

Thank you!



Questions & Answers

Panel Discussion

- Frankie Denise Powell, Phd, Region 2 Director, North Carolina Counts Coalition
- Jill J. Keith, Ph.D., Director, Innovation Translation Education Center, Winston-Salem State University
- Anthony U. Emekalam, PharmD, Professor of Pharmaceutical Sciences, Elizabeth City State University
- Sherry Leviner, Phd, RN, Associate Professor, School of Nursing, Fayetteville State University

Celebration of Institutional Champions & Colleagues

Announcements

Next Stop on the *All of Us* HBCU Road Tour: Charles Drew University

Keep an eye out for registration information
coming in July

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