

Introduction to AIM-AHEAD

May 5th, 2022

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OCHIN

A driving force for health equity

Agenda

- 1. Introduction to OCHIN***
- 2. Overview of AIM-AHEAD***
- 3. The Data and Research Core***
- 4. The AIM-AHEAD Research Fellowship***

The OCHIN Network

Nationwide nonprofit driving force for health equity

Technology

Predictive Analytics
Electronic Health Records
Networking & Broadband
Virtual Care

Research

Disparities & Health Policy
Social Determinants of Health
Chronic Pain & Opioids
Diseases Affecting the Safety Net

Support Services

Billing
Cybersecurity
Practice Facilitation
Staff Augmentation

OCHIN Diversity, Equity, and Inclusion Statement

**EQUITY
DRIVES
US**

At OCHIN, we value the unique perspectives and experiences of every individual and work hard to maintain a culture of belonging. We believe that everyone is on a learning journey and has a role to play in promoting inclusion and equity.

Together, we are innovators, implementers, doers, and trailblazers. The communities and patients we serve deserve no less.

The OCHIN NETWORK

5,035,185
Patients

157
Health Systems

28
States

1,216
Clinic Sites

54.7%

FEMALE PATIENTS

21.8%

PATIENTS UNDER 18

21.6%

SPANISH SPEAKING PATIENTS

42.1%

5 MEDICAID PATIENTS

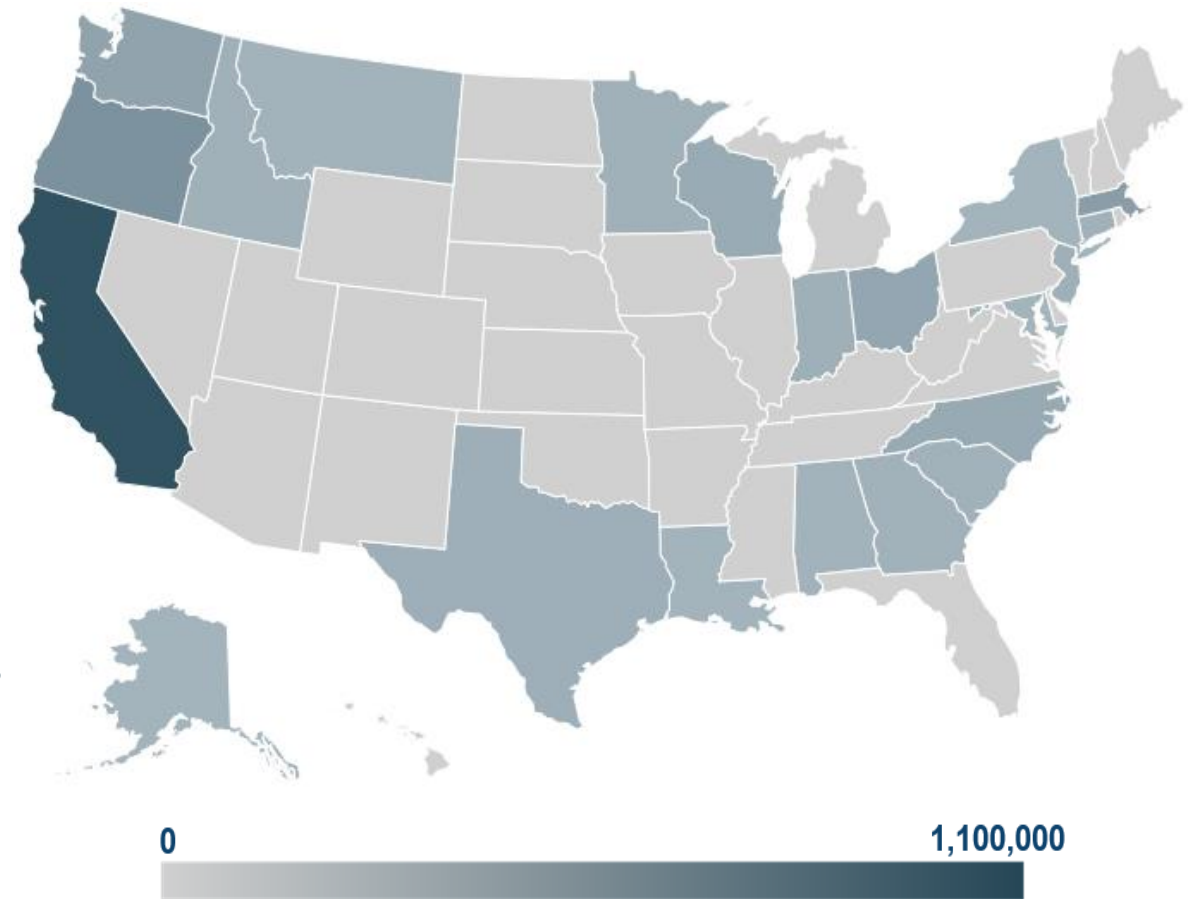
6.4%

MEDICARE PATIENTS

36.4%

UNINSURED PATIENTS

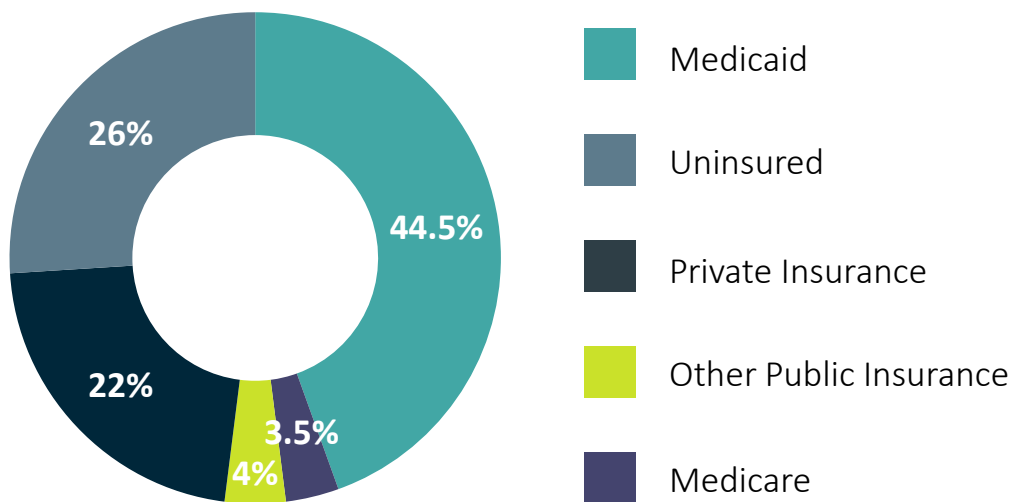
Patient Distribution by Clinic's State



And growing!
Epic EHR with a single Master Patient Index across all sites

The OCHIN Network

Payer Mix



From Underserved Communities

Nearly 1 out of 2 network patients are on **Medicaid**, and 1/4 are **uninsured**

2+ out of 5 network patients identify as **people of color (BIPOC)**

3 out of 5 network patients have **chronic conditions***

Nearly 1 out of 3 network patients are **Hispanic/Latinx** (of any race)

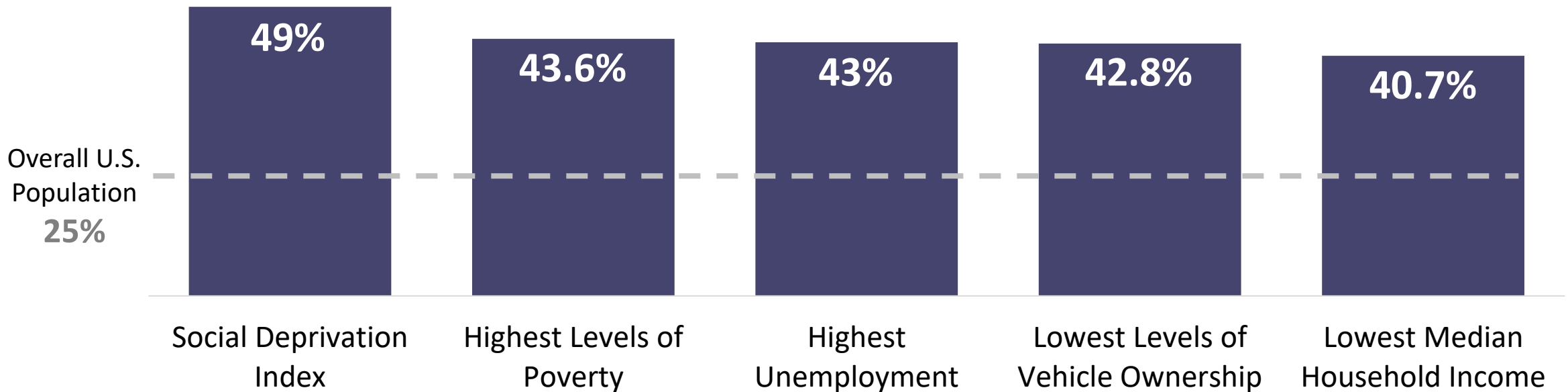
Nearly 1 out of 3 network patients are best served in a **language other than English***

1+ out of 3 network patients screened would **benefit from social support***

**Includes OCHIN Epic patients only*

OCHIN Patients Live in More Vulnerable Census Tracts

% OCHIN patients living in most vulnerable quartile of census tracts



Social Determinants of Health: Enabling Data Collection and Action

Screening Patients for Social Circumstances that Lead to Poor Health

- Dedicated SDOH screening tools aligned to emerging national standards
- Integrating Social Service Resource Locators (SSRL)

OCHIN Research Projects

- **ADVANCE:** Integrate community-level SDOH into research data warehouse
- **Health Systems Demonstration:** Assess patient complexity's impact on care
- **PRAPARE:** Develop standardized SDOH data collection tool across EHRs
- **ASSESS & DO:** Enhanced EHR-based SDOH collection/presentation tools
- **ASCEND:** Strategies to support collection and action on SDOH data in CHCs
- **CLINCH-IT:** Integrate HIT needs for treating complex patients into EHRs

Our Key SDOH Learnings

- At the clinic level, adaptability is key to implementing SDOH screening and action
- Common barriers to SDOH collection include:
 - Limited time/bandwidth
 - Lack of standardized domains, questionnaires, etc.
 - Hesitancy to ask certain questions
- Clinics starting with a target population, then scaling up have been successful

1M+ Cumulative SDOH Screens

- Homelessness
- Hunger
- Financial Strain
- Transportation
- Utilities
- Stress and Isolation
- Education
- Employment
- Interpersonal Violence

How Clinics Can Act on SDOH

- Inform treatment/care decisions
- Connect patients to social services
- Document areas of need in the community
- Understand the complexity of their patients and what resources are required to care for them

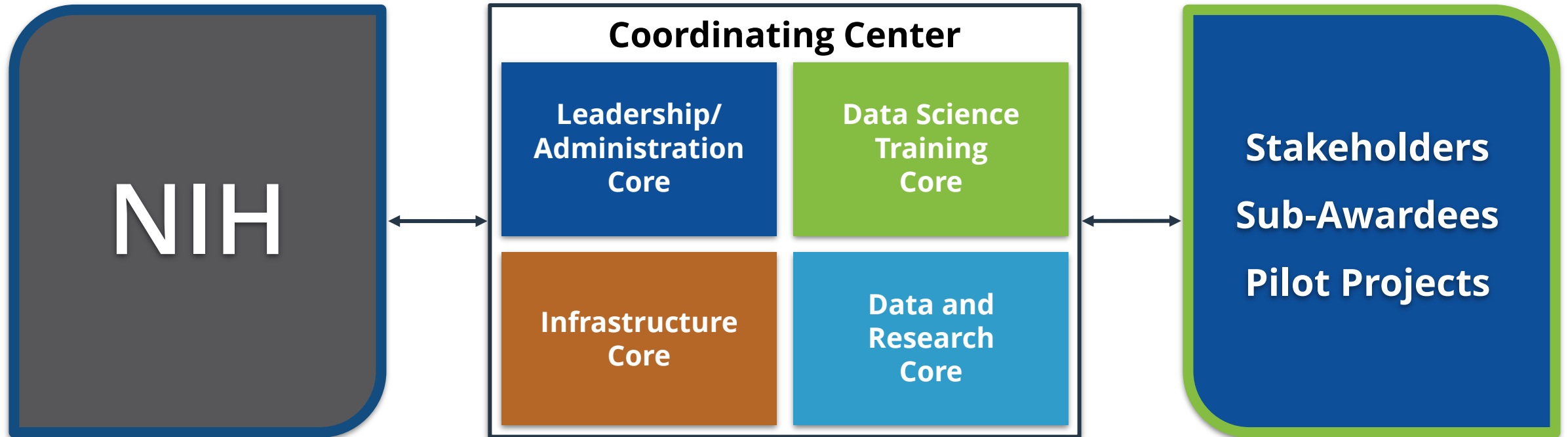


Artificial Intelligence/ Machine Learning Consortium to Advance Health Equity and Researcher Diversity

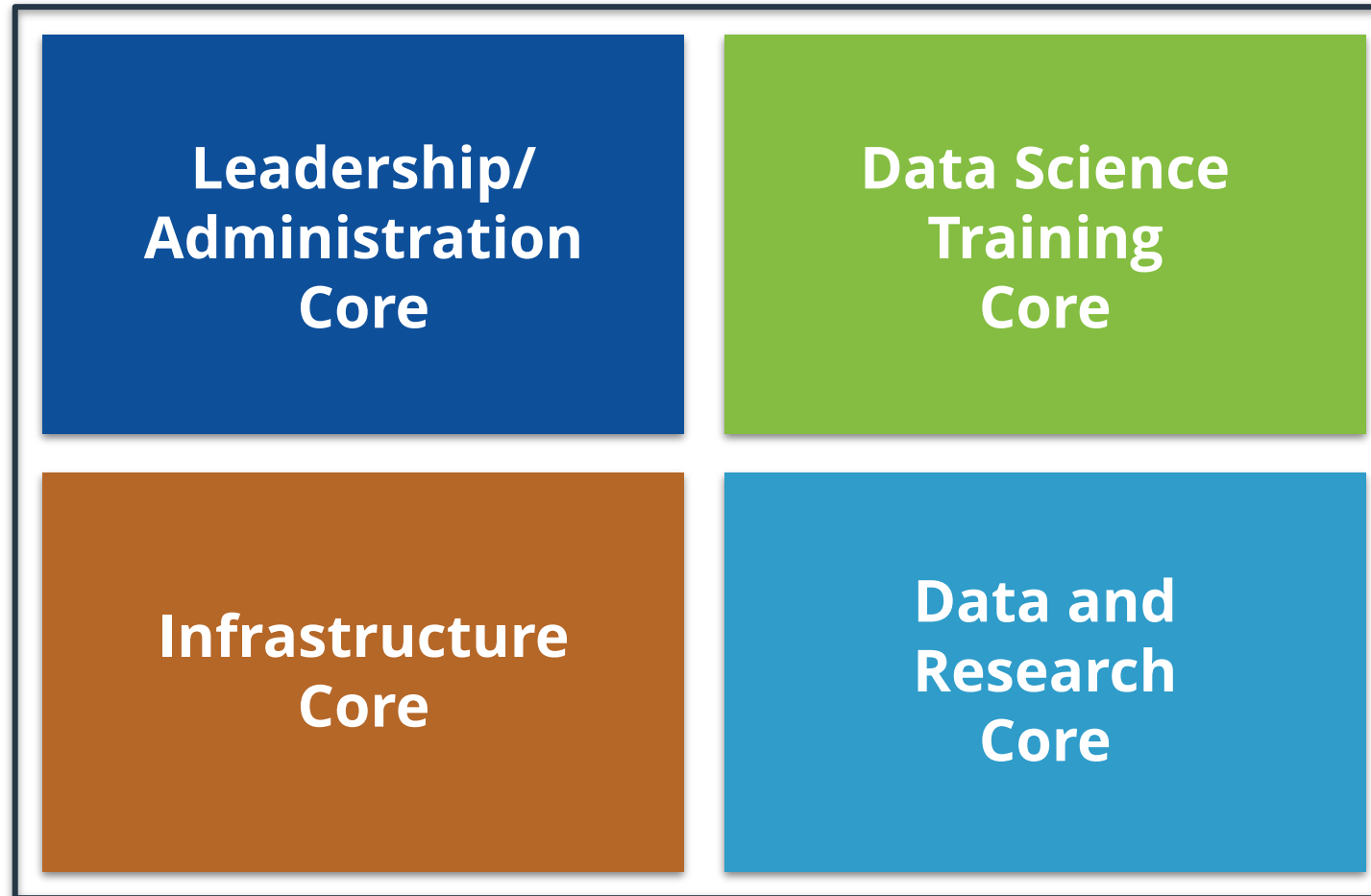
Underrepresented communities have untapped potential to contribute new expertise, data, recruitment strategies, and cutting-edge science to the AI/ML field. This program seeks to increase the participation and engagement of the researchers and communities that are currently underrepresented in AI/ML modeling and applications through mutually beneficial partnerships.

The AIM-AHEAD Coordinating Center's initial charge is to build a consortium of partners and engage with stakeholders. This planning, assessment and capacity building award will identify priority research aims in health equity and AI/ML, as well as the training and infrastructure needed to support these.

AIM-AHEAD Consortium



AIM-AHEAD Coordinating Center



AIM-AHEAD Leadership/Administration Core

Five Regional Hubs

MSIs

Green: Asian American & American Pacific Islander Serving Institution

Pink: Alaska Native and Native Hawaiian Serving Institution

Purple: HBCU

Red: HSI

Light Blue: Native American Non-Tribal Serving Institutions

Dark Blue: Predominantly Black Institution

Brown: Tribal College and University

Hubs

North & Midwest: Spero Manson

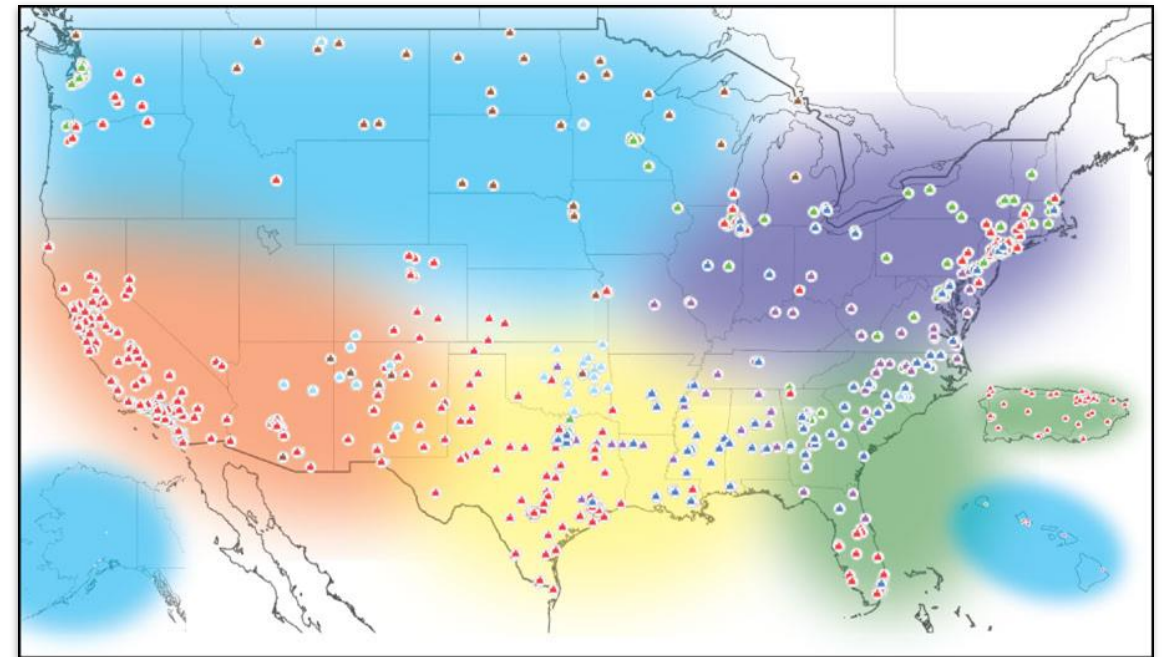
West: Keith Norris

South Central: Bettina Beech

Southeast: Anil Shanker and Herman Taylor

Northeast: Roland J. Thorpe, Jr.

Central: Harlan Jones



The Leadership/Administration Core will recruit and build a consortium of partners to enhance the inclusivity of data used for AI/ML and the diversity of leadership in AI/ML.

AIM-AHEAD Data Science Training Core

PI: Legand L. Burge
Howard University

Howard University

- Computer Science
- Nursing
- Dentistry
- Medicine
- Pharmacy

MedStar Health

- GHUCCTS
- Informatics
- Statistics
- Data
- Diversity

University of Maryland

- Health Equity
- Decision Science
- AI/ML Learning
- Management
- Implementation Science

Georgetown University

- Informatics
- Data Science
- Precision Medicine
- Translation

The Data Science Training Core will implement training opportunities in data science and health equity research, large scale data analysis and management, cloud computing, and other areas to increase AI/ML capabilities.

AIM-AHEAD Data Science Training Core

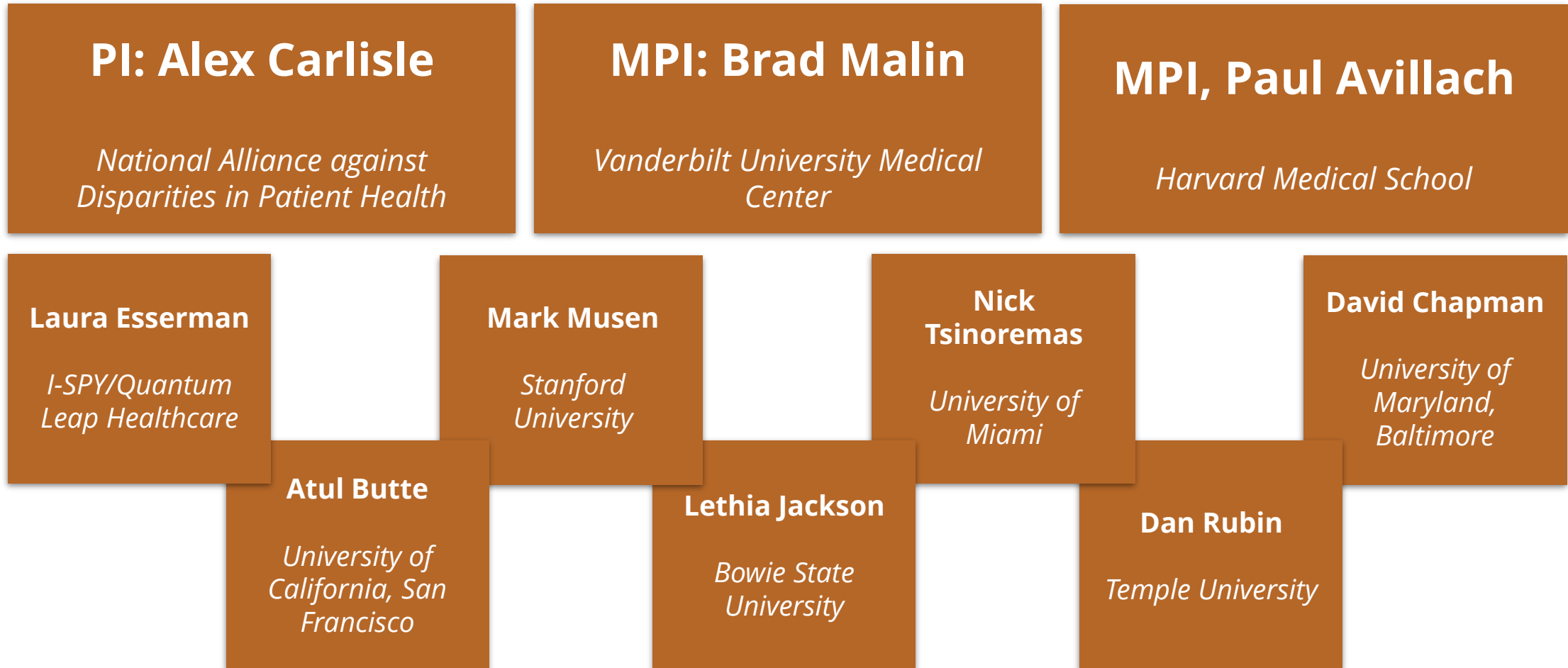
The Data Science Training Core will progress through these aims to meet the diverse training needs of the greater community

AIM 1: Identify training needs and gaps

AIM 2: Develop, expand, and strengthen education programs at the certificate, undergraduate, graduate, and professional levels

AIM 3: Coordinate the training efforts

AIM-AHEAD Infrastructure Core



The Infrastructure Core will engage with MSIs to assess their data infrastructure and capability to conduct AI/ML analysis of EHR data in order to design and develop data infrastructures and resources that increase their capacity to apply AI/ML to health disparities research.



AIM-AHEAD Infrastructure Core

The Infrastructure Core will encompass these areas to develop a consortium-wide infrastructure to support advancing health equity and researcher diversity

1. Initial HBCU/SI Engagement
1. HBCU/MSI Infrastructure Consortium Assessment
1. Health Disparity Research Pilot Project Planning
1. Data Harmonization and analysis for AI/ML
1. Data Infrastructure Research Pilot Incubator
1. Develop Series of Data Infrastructure Concierge Services

7. Deployment of Local Data Infrastructures at Consortium Sites
7. Deploy FISMA-Certified Centralized and Federated Infrastructure
7. Post-performance Evaluation and Maintenance
7. Data Privacy Plan
7. Sustainability Plans

AIM-AHEAD Data and Research Core



OCHIN and multidisciplinary partners will use EHRs, image data, social determinants of health data, and more to develop and enhance AI/ML algorithms and apply AI/ML approaches in health equity research. This work seeks to illuminate underlying issues in health systems that need to be addressed to improve health for diverse communities. Healthcare should encompass the spectrum of health and disease from prevention, diagnoses, treatments, and implementation strategies.

AIM-AHEAD Data and Research Core

The Data and Research Core will utilize these approaches to ensure quality and equity in their data collection

1. Ensure broad, geographically diverse representation
2. Provide longitudinal EHR and SDH data
3. Prepare additional data sets to increase the diversity of data

4. Partner with the Data Science Training Core
5. Partner with the Infrastructure Core
6. Test the full cycle of AI/ML model translation into clinical practice

AIM-AHEAD Coordinating Center Institutional Representation



DRC Partners

- OCHIN, Inc.
- Duke Institute for Health Innovation (DIHI)
- Morehouse School of Medicine (MSM)
- North Carolina Central University (NCCU)
- University of California at Irvine (UCI)

DRC Unit Purpose

- To act as workgroups with the core to carry out specific activities related to the DRC and assist in accomplishing core milestones



At the end of the award period, the A-CC is expected to have:

Determined the AI/ML and health disparities research use cases that will drive the design of the data and computing infrastructure and associated data sharing and training offerings

Carried out pilot AI/ML projects with consortium members to collect and prepare clinical/biomedical data, including EHR, social determinants of health, and other data from sites within the consortium

In collaboration with the A-CC training efforts, locally developed the requisite skills, capabilities, and infrastructure for these AI/ML applications

Prepared and supported the use of existing or purpose-built data resources for AI/ML applications and health disparity research

Additional expectations are at the NIH's discretion to include throughout the award period

Administrative Unit

To provide overall program, partner, budget, and compliance/regulatory support



AI/ML Unit

To design, develop, and pilot AI/ML applications



Data & Disparities Unit

To prepare data for prioritized use cases and identify data elements needed to support AI/ML for disparities research



Equity Engagement Unit

To direct outreach and engagement to multiple stakeholders (i.e., member health systems, partners, and consortium members)



Advisory Committee

Provide the AIM-AHEAD DRC with guidance and expert consultation. Leadership will shape Committee membership, governance, meeting structure and more!





AIM-AHEAD Research Fellows Program

AIM-AHEAD Research Fellows Program



Director:
Paul Avillach, MD, PhD



co-Director:
Anisha Abdul-Ali DNP, MPH, RN



co-Director:
Gloria Washington, PhD



Project Manager:
Jessica Lyons, MSc



Research Enterprise Solutions Director
Lavi Vishwanatha, BS Electrical
Engineering, MS Computer Science, ITIL,
Agile-Scrum, PMP
AIM-AHEAD Coordinating Center



Toufeeq Ahmed, PhD
AIM-AHEAD Connect



Katie Stinson, MLIS
Communications Director
AIM-AHEAD
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Ryan Kober, MA
Associate Director,
Program Management
AIM-AHEAD
Coordinating Center



Annie Mathew,
MBA
Associate Director,
Program Management
AIM-AHEAD
Coordinating Center



AIM-AHEAD Research Fellows Program

<https://aim-ahead.net/ResearchFellows>

Call for Proposal public !!!

Engage a group of 20 early career researchers to actively participate in biomedical research that involves the use of AI/ML methodologies.

- AIM-AHEAD Research Fellows cohort # 1 (start date September 1st, 2022)
- Only limited access to AIM-AHEAD **data**, (OCHIN's ADVANCE EHR) **infrastructure** (Centralized cloud computing environment), and **training** will be made available starting in Q2 or Q3 2022.
- Each Fellow will be matched to an **AIM-AHEAD mentor**
- Each Fellow can also bring in an **Institutional mentor**
- Stipend for each Fellow
- FAQ and help desk
- As the AIM-AHEAD consortium develops, more **data**, **infrastructure** and **training** will be made available to the fellows.

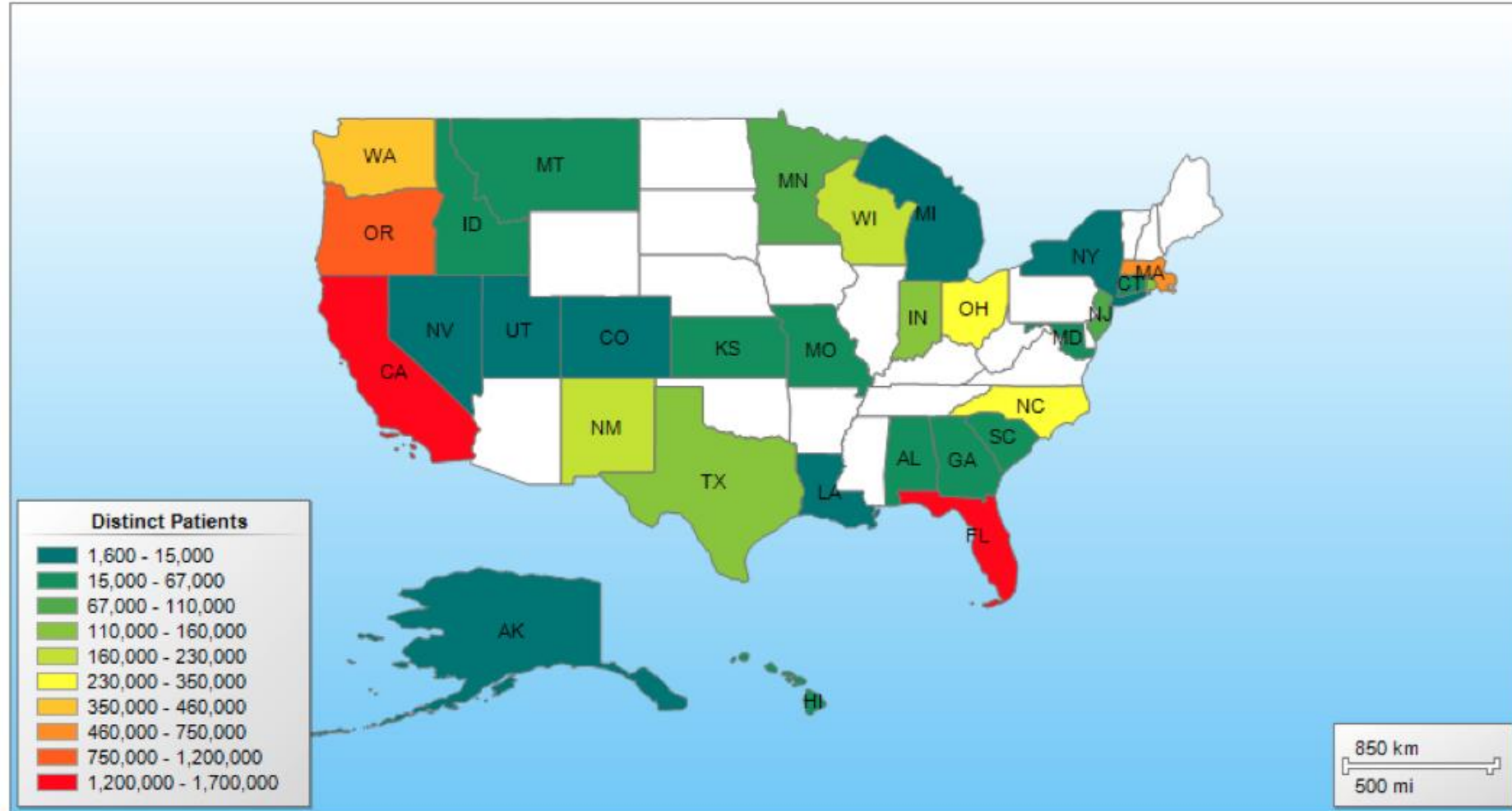
EHR ADVANCE

7,753,446 total distinct patients

184 community health care systems

1,733 clinic sites across 31 states

Patient Distribution by Clinic's State





Infrastructure made available

Service Workbench on AWS

 Research Workspaces

 **Select Compute**
Select a compute platform

 **Create Workspace**
Create the workspace

- Democratize access to public cloud computing
- Teaching and research
- Full billing control
- Secure enclave

EMR-v1

An Amazon EMR research workspace that comes with:

- Hail 0.2
- Jupyter Lab
- Spark 2.4.4
- Hadoop 2.8.5

SageMaker Notebook-v3

An Amazon SageMaker Jupyter Notebook that comes with:

- TensorFlow
- Apache MXNet
- Scikit-learn

EC2 Linux-v2

- An EC2 Linux instance with SSH access
- Secure compute in the cloud

EC2 Windows-v1

- An EC2 Windows instance with RDP access
- Secure compute in the cloud

EC2-RStudio-Server-v1-v4-1-2

An RStudio instance accessible over SSL which comes with:

- RStudio Server version 1.4.1717
- Connect securely via load balancer using Amazon issued certificates in ACM
- Fully loaded with commonly used R packages.

SageMaker Notebook-v2

An Amazon SageMaker Jupyter Notebook that comes with:

- TensorFlow
- Apache MXNet
- Scikit-learn

Call for Proposal public !!!



Thursday, April 7th, 2022	CFP public / Application Process Open
Tuesday, May 3 rd , 2022 2-4pm ET	Application Preparation workshop
Sunday, May 22 nd , 2022 11:59PM EST	Application Deadline
Beginning of August, 2022	Award notices released
Mid-August 2022	Matching AIM-HEAD Mentors / Fellows
Thursday, September 1st, 2022	Research Fellowship Program Begins
Thursday, August 31st, 2023	Research Fellowship Program Ends

Thank you!

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