DIVERSITY PROGRAM CONSORTIUM

Supported by the National Institutes of Health

The Diversity Program Consortium
Council of Councils
May 26, 2017

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Director of Training, Workforce Development & Diversity
NIGMS

Background

In 2012, the **NIH Advisory Committee to the Director (ACD) Working Group on Diversity in the Biomedical Research Workforce** met to explore ways to improve recruitment and retention of individuals from diverse backgrounds in the biomedical sciences.

As one component of a broad, trans-NIH strategy to address the need to promote diversity in the biomedical research workforce, the Common Fund established the “Enhancing the Diversity of the NIH-Funded Workforce” known as the Diversity Program Consortium (DPC).

The consortium takes a scientific approach to enhancing the diversity of the biomedical research workforce

- Three levels of simultaneous impact: **student**, **faculty** and **institution**
- Integration of **social science research** and **psychosocial interventions** into the process of training and mentoring students and faculty
- Rigorous **assessment and evaluation** of the training and mentoring interventions implemented across the program

The DPC Timeline

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Phase I: Develop and implement interventions & evaluations; publish early findings

$250 million committed over 5 years

Year 1 2015	Year 2 2016	Year 3 2017	Year 4 2018	Year 5 2019
Developing, planning	Implementing interventions, collecting data			
		Make case for continuation	Issue funding announcements	Review applications, make awards

Phase II: Focus on continuing interventions, tracking and evaluations as well as sustainability and dissemination

Year 6 2020	Year 7 2021	Year 8 2022	Year 9 2023	Year 10 2024

Gathering Input for Phase II

Consultations and Approvals (2016-2017)

- ✓ Conduct an Assessment of Needs, Gaps, and Opportunities
- ✓ NIH DPC co-chairs (September)
- ✓ NIH Leadership (February)
- ✓ Program Consultants Meeting (April)
- ➢ **NIH Council of Councils (May)**
- NIH Institute and Center Directors (TBD)
- Submit Status Report of Continuing Program (Summer 2017)

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Roadmap

- **Broad overview**
- **Scientific approach**
- **Highlights**
- **Request for continuation**

The DPC: A Highly Integrated National Consortium

Coordination and Evaluation Center

Building Infrastructure Leading to Diversity

BUILD CSULB

BUILD PODER — Promoting Opportunities for Diversity in Education and Research

ASCEND

REBUILDetroit

BUILDing SCHOLARS

BLaST

BUILDEXITO — A SUCCESSFUL RESEARCH PATHWAY

SF BUILD — enabling students to represent in science

STEM BUILD at UMBC

10 DIVERSE SITES

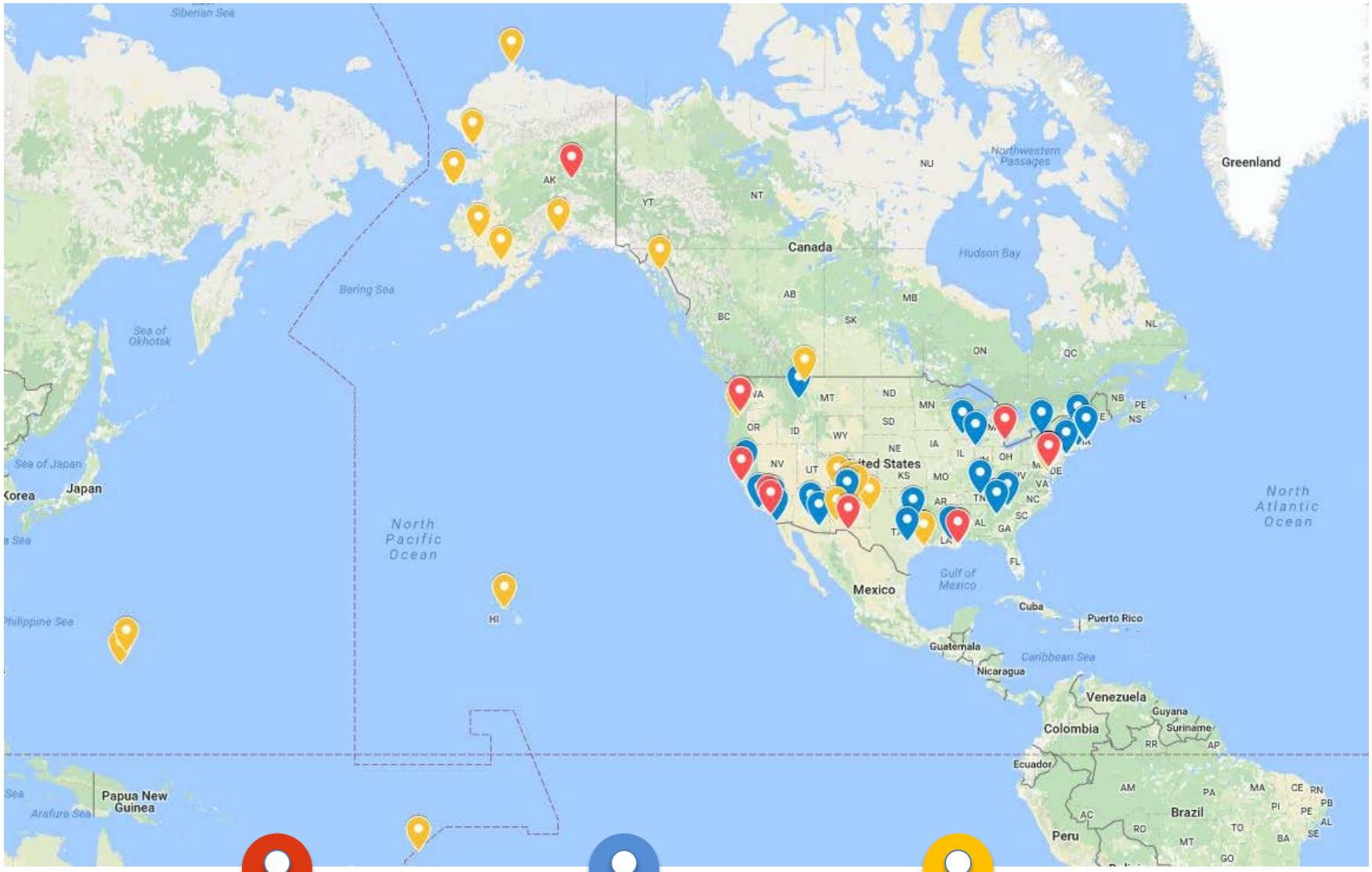
National Research Mentoring Network

NRMN

Research and Service Cores

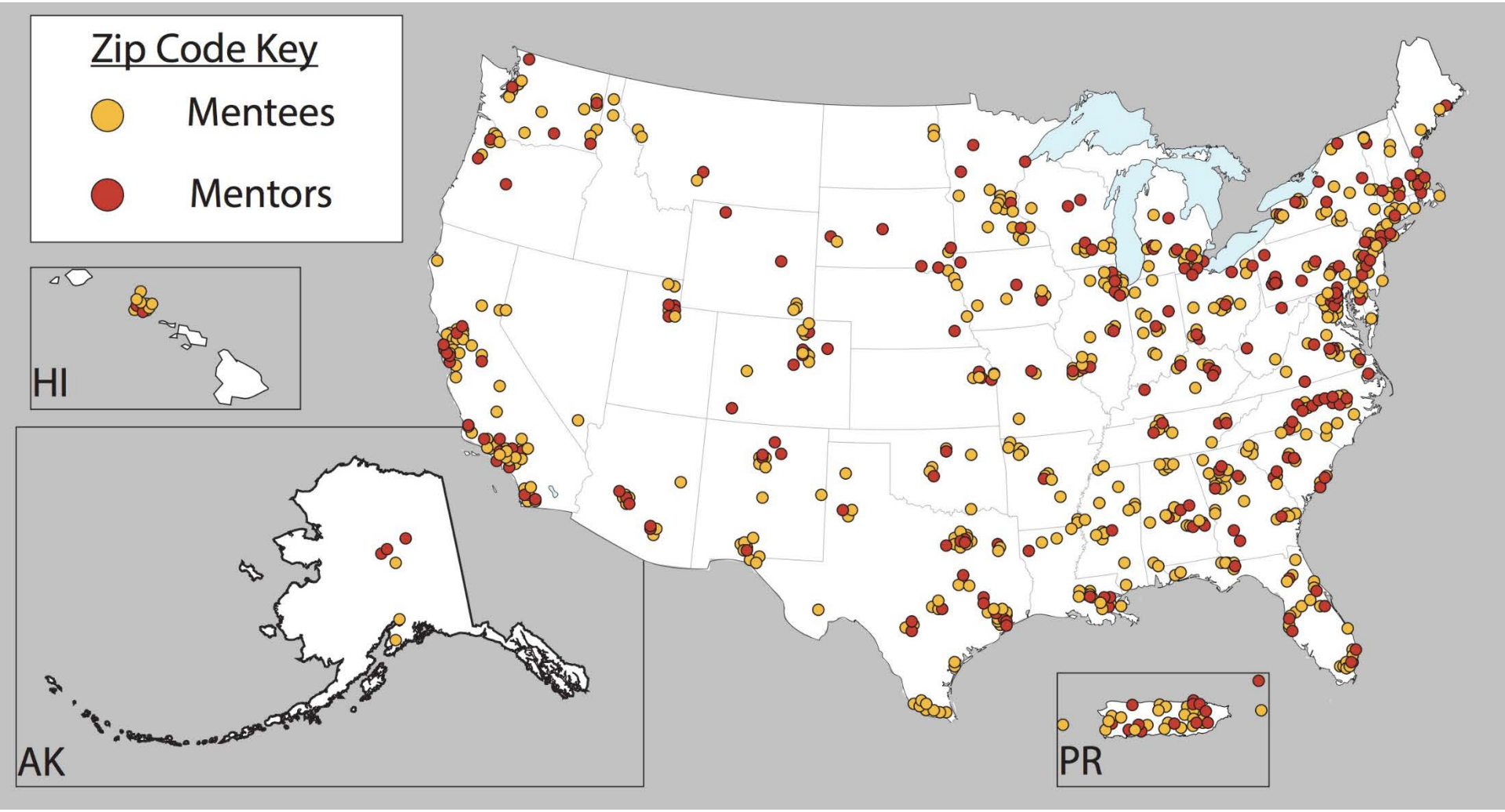
Promoting
Matching and Linking
Mentor Training
Referring

National Impact: BUILD Network Connects Over 100 Diverse Institutions



BUILD site **R1** **pipeline**

National Impact: NRMN Participants in All 50 States



Scientific approach:
Types of interventions

Testable Interventions

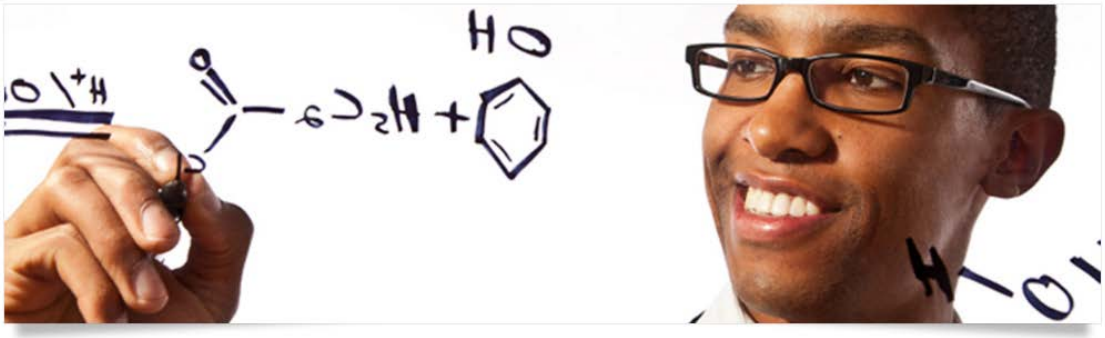
Establish the value of:

Consortium-Wide

- Providing financial assistance
- Providing authentic research experiences
- Implementing active learning courses
- Forming supportive cohorts and learning communities
- Mentor training
- Creating professional networks

Site-Specific

- Reducing stereotype threat
- Diminishing imposter syndrome
- Overcoming microaggressions
- Mitigating unconscious bias
- Increasing cultural awareness and sensitivity
- Emphasizing cultural assets
- Engaging family and support systems



More examples of BUILD Site-Specific Interventions

Scaling Student Success

STEM BUILD at UMBC

BUILD CSULB

Psychosocial Interventions

BUILDing SCHOLARS

Research Intensive Partnerships

REBUILDetroit

SF BUILD enabling students to represent in science

BUILD PODER Promoting Opportunities for Diversity in Education and Research

Innovative Research Recruitment Strategies

BUILDEXITO A SUCCESSFUL RESEARCH PATHWAY

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Scientific approach: Evaluation Plans

DPC Developed Site-Specific and Consortium-Wide Evaluation Protocols

- Logic Models
- Hallmarks of Success
- Data Sharing Agreement

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STEM BUILD at UMBC

REBUILDetroit

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SF BUILD
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BUILD CSULB

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A SUCCESSFUL RESEARCH PATHWAY

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Consortium Logic Model Example: Student

Independent Variables

Gender
Race/Ethnicity
Disability Status
Socio-economic Status
Institutional Factors
Test Scores
Major
GPA

Activities or Interventions

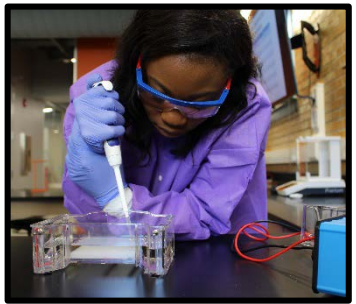
Financial Support
Academic Advising & Support
Research Training & Support
Novel Curricula
Mentoring
Diversity Training
Career Development

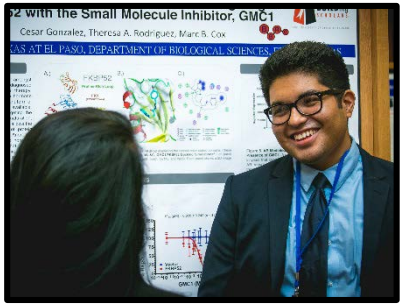
Short to Medium-Term Outcomes

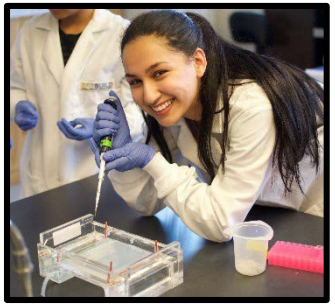
- Engagement in Research
- Enhanced Self-Efficacy & Science Identity
- Pursuit & Persistence in Biomedical Science Disciplines
- Scientific Presentations and Authorship of Manuscripts
- Social Integration
- Satisfaction with Faculty Mentorship
- Intent to Pursue Biomedical Research Career

Medium to Long-Term Outcomes

- Completion of Undergraduate Degree in Biomedical Science
- Evidence of Biomedical Career Preparedness
- Application & Acceptance to Graduate Programs
- Research Fellowships & Scholarships







Scientific Approach:
Data Sources

It takes time to collect data on recruitment and persistence

Quantitative Data

- **Tracking – Activities, Interventions, Participants (continuous)**
- **Trainee and Faculty Surveys (sampled at intervals)**
  - Psychosocial Metrics (e.g., Science Identity, Self-Efficacy)
  - Interim and Long-Term Hallmarks of Success (e.g., degrees earned)

Qualitative Data

- Integrated Case Studies (sampled at intervals)

BUILD Data Sources

Higher Education Research Institute (HERI) Surveys

*Freshmen

*Seniors

*Faculty

Tracker "Exposure" Data

*Activity descriptions

*Participation rosters

Comprehensive Individual & Institutional Data

CEC Annual Follow-Up Surveys

*Students

*Faculty

Integrated Case Studies

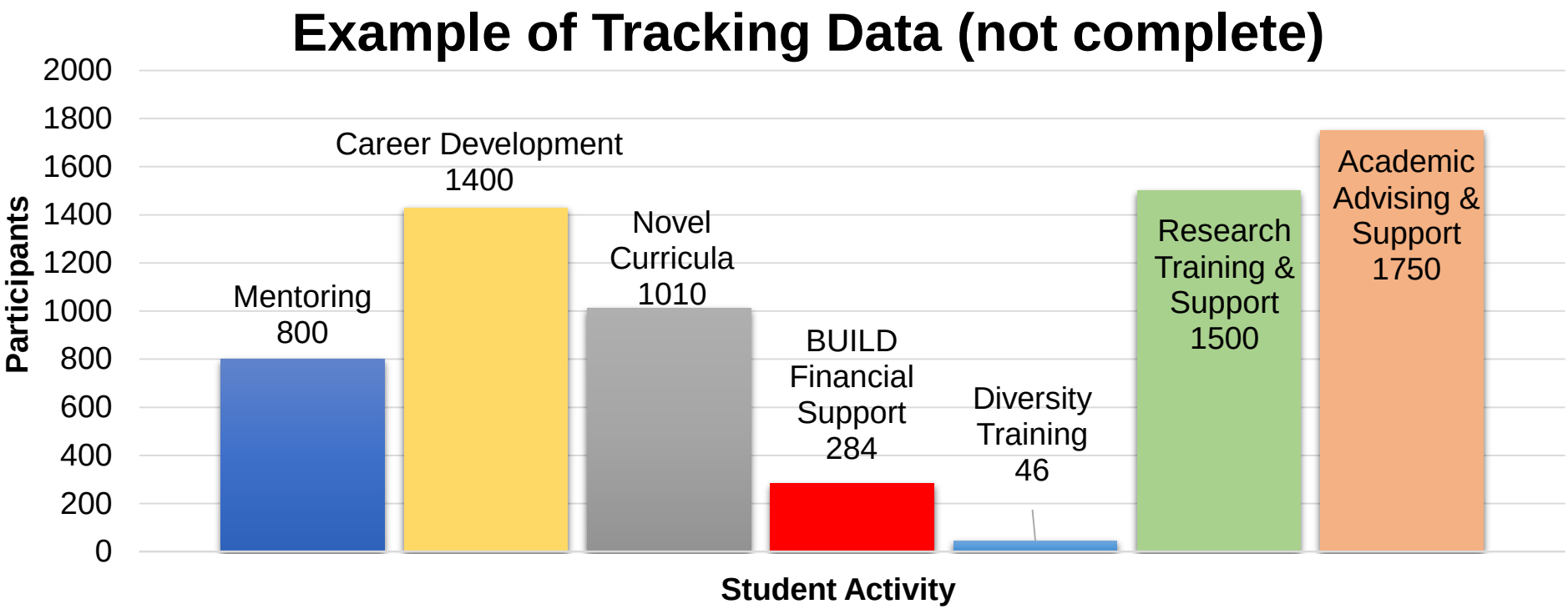
*Focus Groups (Students, Faculty)

*Interviews (Leaders)

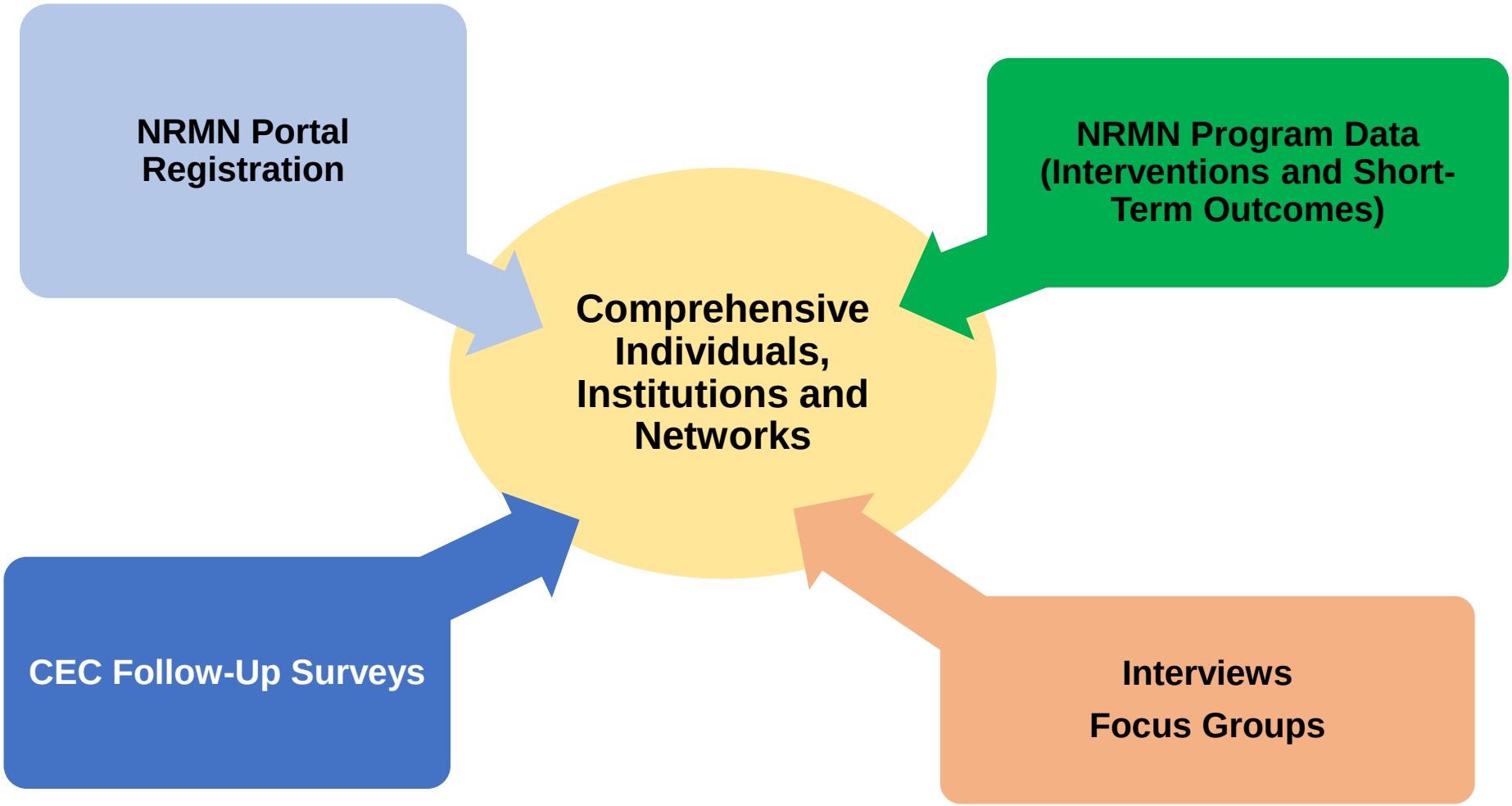
*Institutional Records

Example: Student Activity Tracking Tool

- Individuals tracked by their activities and linked to outcomes
- Data is tracked in the same way
- Stores all data in one location
- Ensures data will be accessible in future years



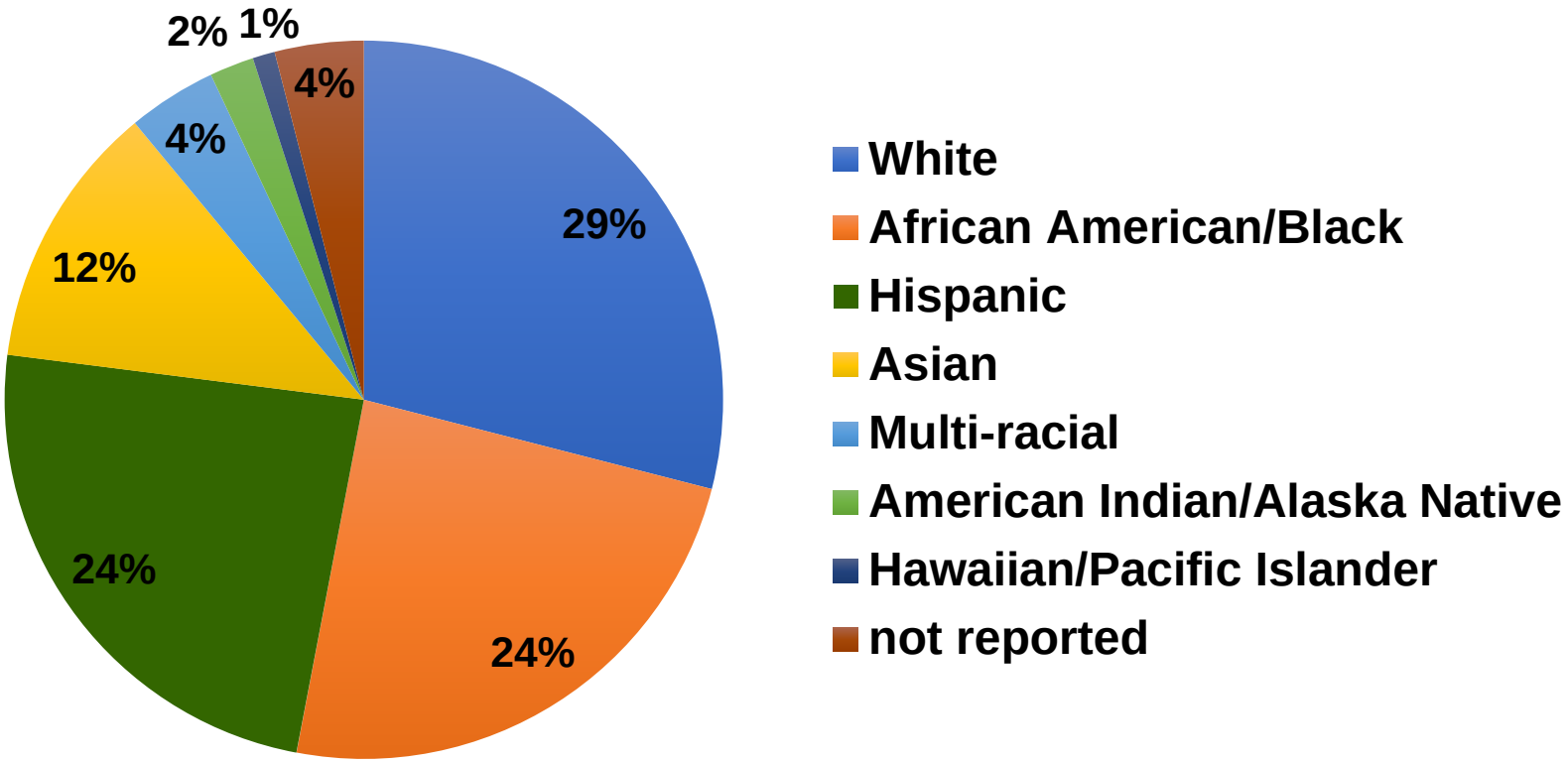
NRMN Data Sources



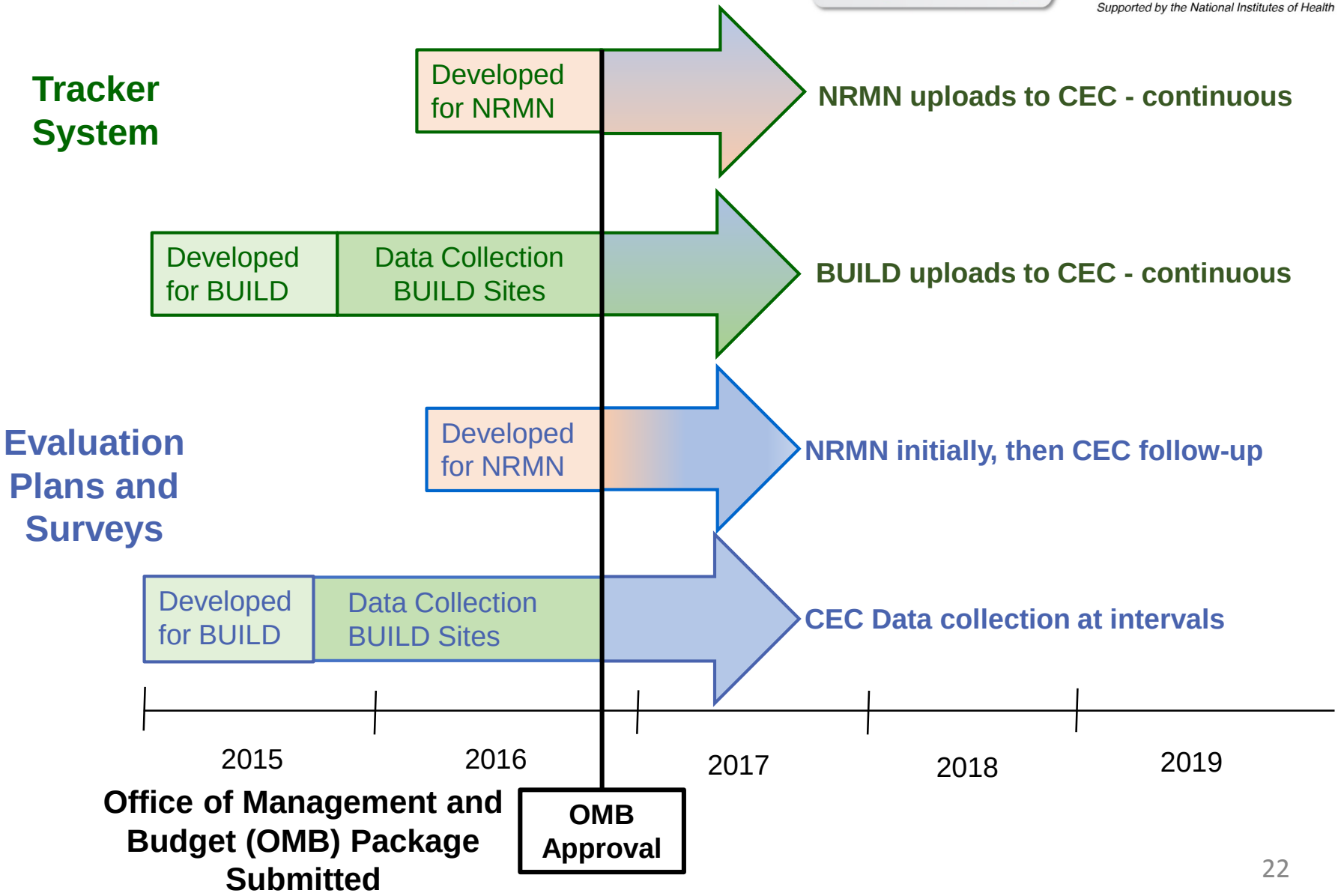
Sample of NRMN data collected

NRMNet Registrant Self-Reported Race & Ethnicity

5590 Registrants – Mentors and Mentees



Consortium-Wide Data Collection Timeline

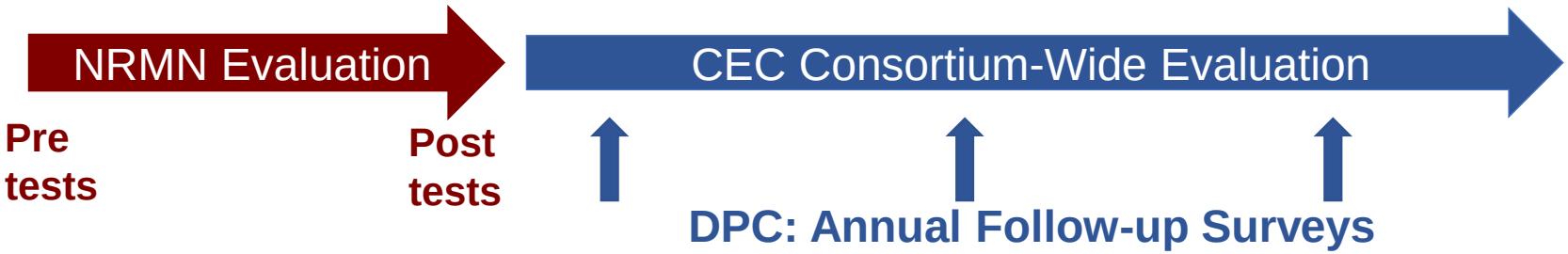


Scientific Approach:
Examples of hypotheses

Example: NRMN Hypothesis

NRMN
Mentoring to Diversify the Biomedical Workforce

Improved mentoring relationships and outcomes will occur after taking part in culturally-responsive mentor training



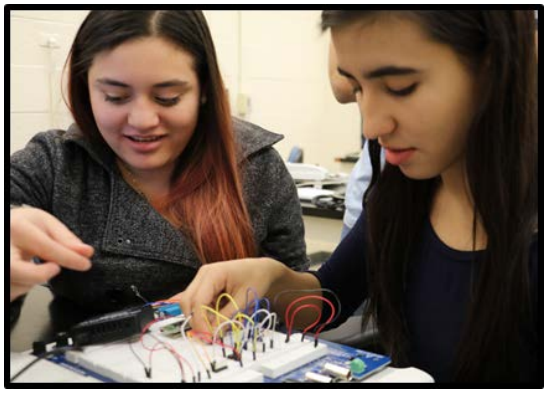
- Mentors – rank skills gained
- Mentees – rate mentoring experiences and mentor's skill
- Linked to student outcomes

In your mentoring relationship, how skilled is your primary research mentor…	Not at all	Somewhat	Very
Discussing diversity	○ 1	○ 2	○ 3
Considering their own cultural background, as well as yours	○ 1	○ 2	○ 3
Valuing and respecting cultural differences	○ 1	○ 2	○ 3

Example: Student Focused Hypothesis

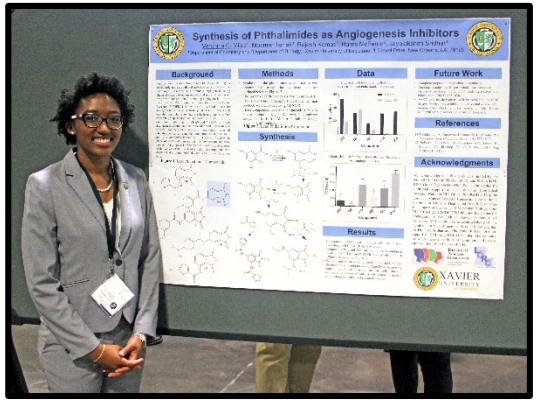
A strong science identity leads to persistence in science - certain activities and interventions increase science identity:

- A research-infused curriculum

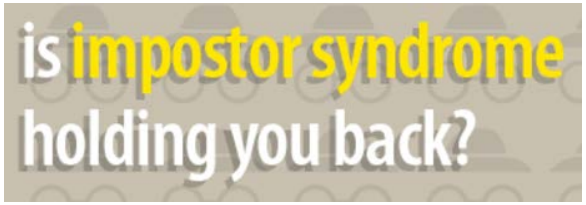


- Engagement in laboratory research

- Presentations of research findings



- Understanding and overcoming the psychosocial barriers to feeling a sense of belonging in the scientific community (site-specific)



Measuring Increased Science Identity

Survey Items

- ❑ "I have a strong sense of belonging to a community of scientists"
- ❑ "I derive great personal satisfaction from working on a team that is doing important research"
- ❑ "I think of myself as a scientist"
- ❑ "I feel like I belong in the field of science"

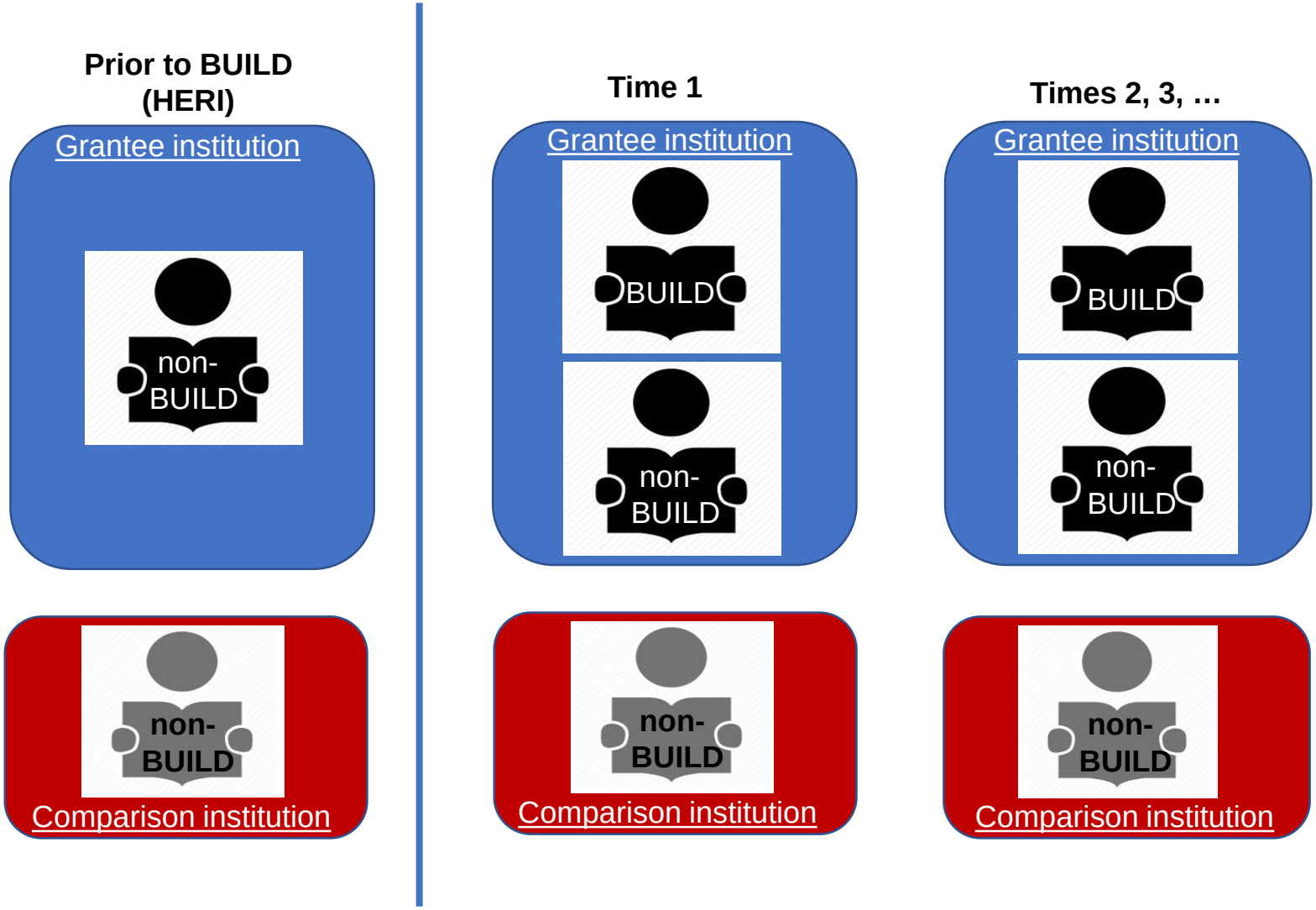
Answer scale: 1=strongly disagree, 5=strongly agree

Short-Term: Exposure to BUILD activities will result in stronger "science identity"

Longer-Term: Stronger science identity will in turn predict (a) persistence in biomedical major, (b) graduation with biomedical bachelors degree and (c) matriculation to graduate school in biomedical science

Estrada-Hollenbeck, M., et al (2011). *Journal of Educational Psychology*, *103*(1), 206–222

Consortium-Wide Evaluation Design: Example of Comparison Groups



Example: Faculty Focused Hypothesis

Certain interventions contribute to increased self-efficacy, resulting in improvements in research-related success

Interventions include:

- Rigorous pilot project funding process
- Protected time for research
- Grant writing workshops
- Grant writing coaches

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NRMN

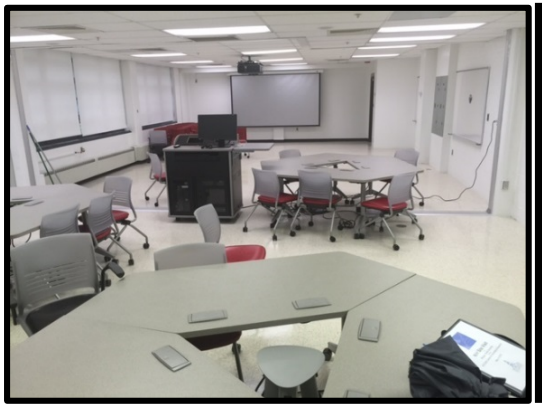
Surveys address self-efficacy

Hallmarks include: presentations at meetings, publications, external funding

Example: Institution Level Hypothesis

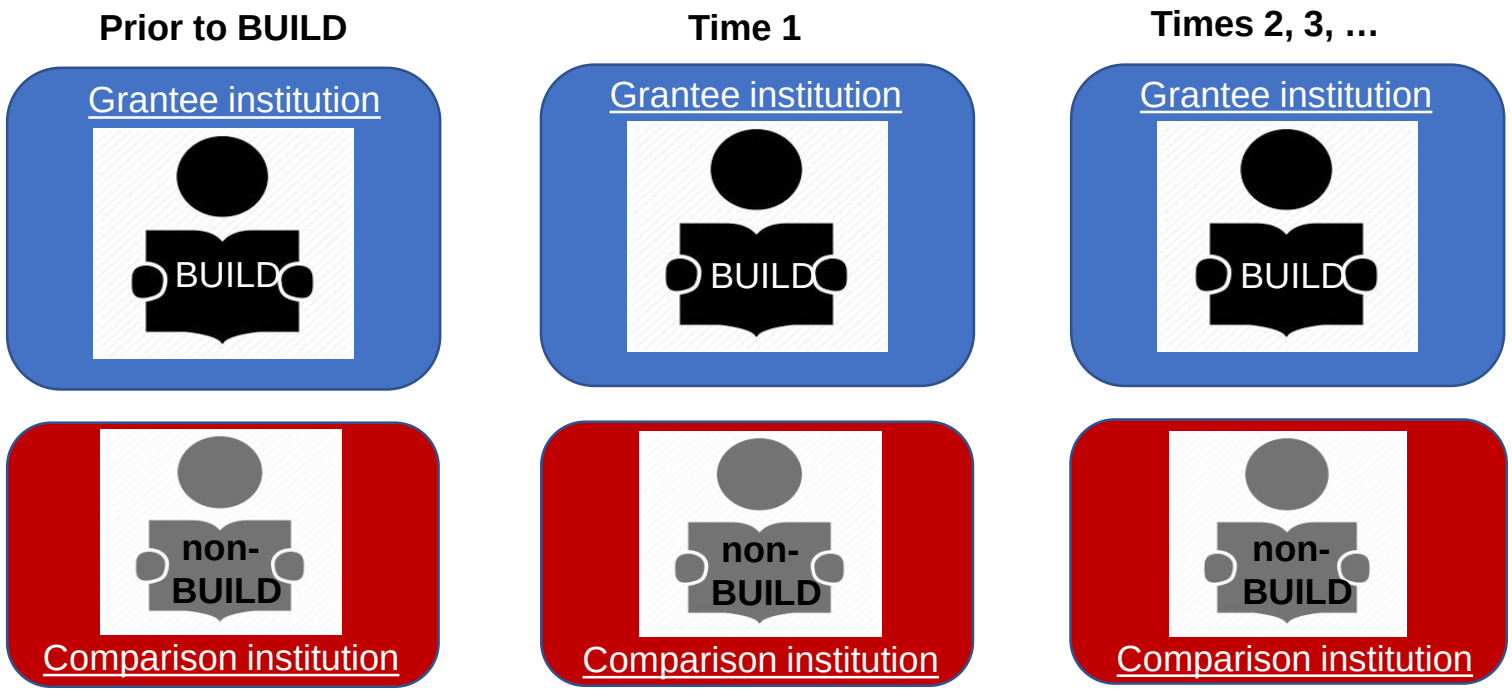
Certain institutional features contribute to increased participation in biomedical research

- Culturally relevant training for engaging diverse populations
- Advising and oversight of student success
- Innovative courses embedded in the curriculum
- Supportive learning communities
- Alterations and renovations to stimulate learning and research
- Financial support for student and faculty research
- Training and mentoring rewarded in tenure and promotion decisions
- Evolution of activities based on robust evaluations and student outcomes



Consortium-Wide Evaluation Design: Example of Comparison Groups

- Number and diversity of biomedical majors
- Retention and graduation rates
- Research activity (publications, grants)



DPC Highlights

- **Development and implementation of:**
  - Interventions to test and share
  - Site-specific and consortium-wide evaluation plans
- **Evidence of:**
  - Reaching those underrepresented in the biomedical sciences
  - Building a national mentor training, mentoring and networking hub
  - Institutional commitment (novel curricula, scholarships, dedicated space, faculty support, development of biomedical programs)
  - Increased research activity (presentations, publications, grant applications and awards)

The long term impact of this program will be in the broad dissemination of evidence-based effective training and mentoring strategies

Importance of Phase II

- **To continue to gather data to test site-specific and consortium-wide interventions**
- **To transition into sustainable models for increasing diversity in biomedical fields**
- **To disseminate effective strategies to have a lasting national impact**

DPC NIH Team

Consortium Leadership

- Jon Lorsch, Director NIGMS (Co-Chair)
- Hannah Valantine, Chief Officer for Scientific Workforce Diversity (Co-Chair)
- Gary Gibbons, Director NHLBI
- Eliseo Perez-Stable, Director NIMHD
- Roderic Pettigrew, Director NIBIB

Consortium Coordinator

- Alison Gammie, Acting Program Leader (NIGMS)

Program Officers

- Anissa Brown, BUILD Program Officer (NIGMS)
- Richard Okita, BUILD Program Officer (NIGMS)
- Mercedes Rubio, NRMN Program Officer (NIGMS)
- Desirée Salazar, BUILD Program Officer (NIGMS)
- Michael Sesma, CEC Program Officer (NIGMS)

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Project Scientists

- Diane Adger-Johnson, Project Scientist for Xavier University and CSU-Northridge (NIAID)
- Nelson Aguila, Project Scientist for Portland State and Morgan State (NCI)
- David Banks, Project Scientist for UDetroit-Mercy and UTexas-El Paso (NINR)
- Kathy Etz, Project Scientist for UAlaska-Fairbanks (NIDA)
- Kenny Gibbs, Project Scientist for CEC (NIGMS)
- James Hyde, Project Scientist for CSU-Long Beach and San Francisco State University (NIDDK)
- Rob Rivers, Project Scientist for UMBC (NIDDK)
- Darren Sledjeski, Project Scientist for NRMN (NIGMS)

NIGMS Grants Management

- Kaneisha Akinpelumi, Grants Management Specialist (NIGMS)
- Jennifer Lynch, Grants Management Specialist (NIGMS)
- Justin Rosenzweig,Grants Management Specialist (NIGMS)

Communications and Advisory Roles

- Christa Reynolds, Communications (NIGMS)
- Michael Sesma, Advisor NRMN (NIGMS)
- Shiva Singh, Advisor BUILD (NIGMS)

Comments or Questions?