American Indian/Alaska Native Research FY 2015

A Quantitative Portfolio Analysis of Research Funded by the National Institutes of Health

NIH Tribal Consultation Advisory Committee Meeting
March 9, 2017

National Institutes of Health
Turning Discovery Into Health

A Quantitative Portfolio Analysis of Research Funded by the NIH

- Why?
- How?
- Some findings
- Some interpretations
- Limitations
- Next Steps

The agency and its Tribal Consultation Advisory Committee (TCAC) asked the following questions:

- What is NIH's investment in AI/AN research and how is it focused (e.g., health, workforce, infrastructure)?
- Where is this research performed and by whom?
- How does the investment align with the burden of disease (mortality) among AI/AN populations?
- What is NIH's investment in botanicals, substance use and abuse, historical trauma, suicide prevention, and environmental health?

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METHODS Overview

- Data Extraction

Computational text search of NIH databases
FY2015
[631 candidate projects]

- Analysis and Coding
  - Criteria for manual selection and deselection projects
  - Categorize and characterize the research(ers)
  - Validate the preliminary categorizations with an internal panel of experts

Computational text search of NIH databases
FY2015
[631 candidate projects]

Manual curation using inclusion/exclusion criteria
[373 projects]

METHODS - Data Extract

Details in Report

- Extr… …015 awarded projects (and sub-projects) from *iSearch* and the NIH's grants system …o concepts and text searches relating to AI/AN health research. *iSearch* combined with …nsured a more complete set of projects.
- The NIH also included 52 Native American Research Centers for Health (NARCH) projects funded in Fiscal Year 2015 but not recorded in NIH's grants system because they were awarded by the Indian Health Service.
- A further quality check involved querying *iSearch* using 569 tribal names and including published data for the AI/AN category on the NIH Reporter web site.
- These combined efforts returned 631 records specific to NIH funding for analysis and coding.
- Note that the Office performed more than one data extract to obtain a complete set of records. These methods do not discuss the iterative steps.

Search Concepts: Alaska Indian, Alaska Native, Alaska native reservation, Alaskan Indian, Alaskan Native, Alaskan Native American, American Indian, American Indian and Alaska Native, Caribbean natives, Eastern Pequot Tribal Nation of Connecticut, Fond du Lac Tribal and Community College, Indigenous, Indigenous medicine, Indigenous population, Leech Lake Tribal College, Native Alaskan, Native American Healer, Native American reservation, Native American sign language, Native Americans, Native ASL, Native born American, Native elder, Native Hawaiian or Other Pacific Islander, Native People, Native youth, Native-Born, Northern Native American, Tribal board, Tribal college, Tribal communities, Tribal community, Tribal Council, Tribal Elders, Tribal group, Tribal health, Tribal institution, Tribal leader, Tribal medicine, Tribal member, Tribal Nation, Tribal organization, Tribal reservation, Tribal School, Tribal university, Urban Native American

According to the Bureau of Indian Affairs, there are 567 federally recognized tribes. This analysis, however, also included the Sheep Ranch Rancheria of Me-Wuk Indians (former name of the California Valley Miwok Tribe) and the Shoshone Tribe of the Wind River Reservation.

Selection Matrix for AI/AN Research Projects

Included:

Focus is specifically on AI/AN health disparities, subjects, specimens, training, infrastructure or community outreach

Excluded:

If AI/AN addressed within broader health disparities project or not specifically recruited as AI/ANs

	Inclusion Criteria	Exclusion Criteria
Awardee and Award Mechanism	NIH awardee Grants (including Cooperative Agreements) Sub-projects Contracts Intramural	Non-NIH awardee, e.g., award provided by the Centers for Disease Control and Prevention
Health Research	-Focus is specifically on AI/AN health disparities needs -AI/AN subjects the focus of int research. -Specimen or sample collected munities to address AI/AN health needs -Data extracted from or created for an AI/AN community or Tribe to address AI/AN health needs	der study but not focus of the research coincidental part of study population, no special recruitment (e.g., efforts to study a state's population) -"All groups" being recruited -Use of AI/AN samples but not looking at Native American health issues -Use of environmental samples from an Indian Reservation (e.g., smoked salmon)
Workforce Development	-Training, mentoring, or curriculum focused largely or specifically on AI/AN populations -Trainee recruitment focused largely on or specifically on AI/AN populations -Symposium or conference at tribal college or addressing AI/AN issues	-AI/AN mentioned as one of several partners or populations for a training award. -AI/AN not targeted for recruitment but may have enrollees; general focus on underrepresented minorities -Conference not specifically focused on AI/AN research or needs
Infrastructure and Community Outreach	-Community outreach or education directed specifically for tribal populations -Dissemination research among Native Americans -Cultural competency research -Projects to enhance AI/AN recruitment efforts -Infrastructure development (eg, development of analytical methods) in Tribal Colleges and Universities -Bioinformatics cores, data management, and other efforts at AI/AN facilities or communities	-Dissemination, education, and outreach to underrepresented minorities in general -Disease or condition screening for minorities in general, of which AI/AN may be a part but not recruitment focus -Disease prevention modalities (community based or population based) that target underrepresented populations but not AI/AN specifically -Research at institution with large AI/AN population but AI/AN is not the research focus
False positives	N/A	-No reference to or mention of AI/AN -False word triggers, such as "Apache" software -Research conducted by an AI/AN researcher but not on a topic specific to Native Americans -Research involving only Native Hawaiians

Details in Report

METHODS - Analysis and Coding

Details in Report

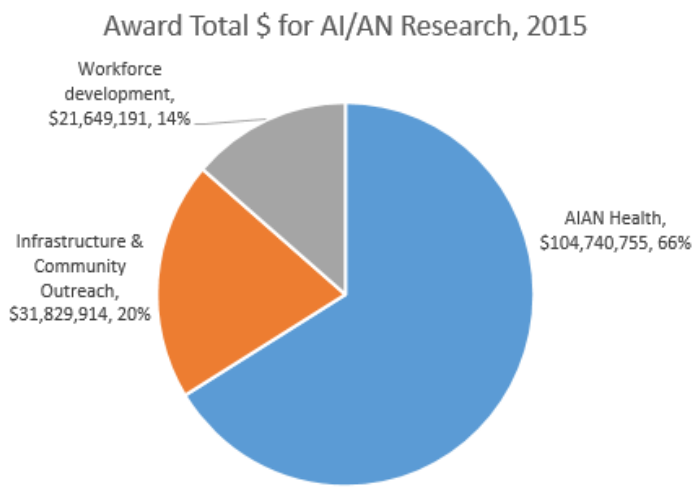
Office of Portfolio Analysis manually coded the 631 records to identify those focusing on AI/AN populations. Projects were included as AI/AN Research if any part of the project focused on AI/AN populations or research needs. An internal panel of experts confirmed the results, identifying 373 projects as AI/AN research for further analysis and excluding 258 projects that were insufficiently focused on AI/AN populations.

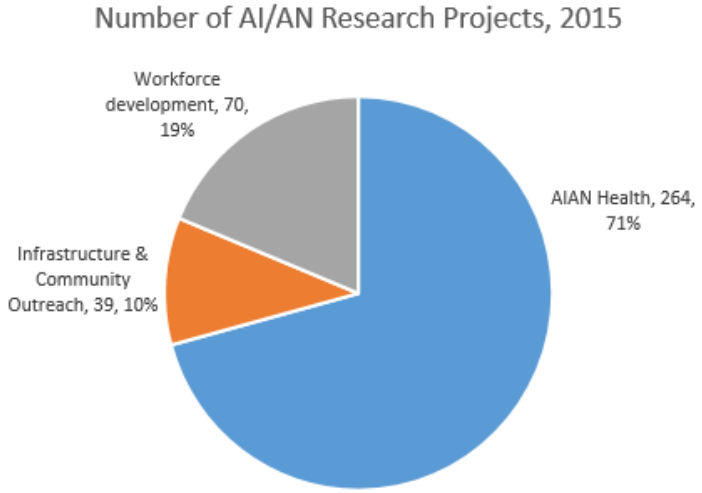
- The 373 projects were next coded by whether they addressed an
  - AI/AN health need
  - Workforce development
  - Infrastructure and community outreach
  - Additional coding categorized the projects into areas of disease or research emphasis (e.g., cancer, heart disease).
- The selection matrix in Table A describes the criteria used to include, exclude, and otherwise categorize the research projects into mutually exclusive categories of health research, workforce development, or infrastructure and community outreach.
- Due to time constraints, the panel of experts confirmed all but the final set of 35 projects added from Reporter.

Summary Table of NIH AI/AN Research Investment by Emphasis Area

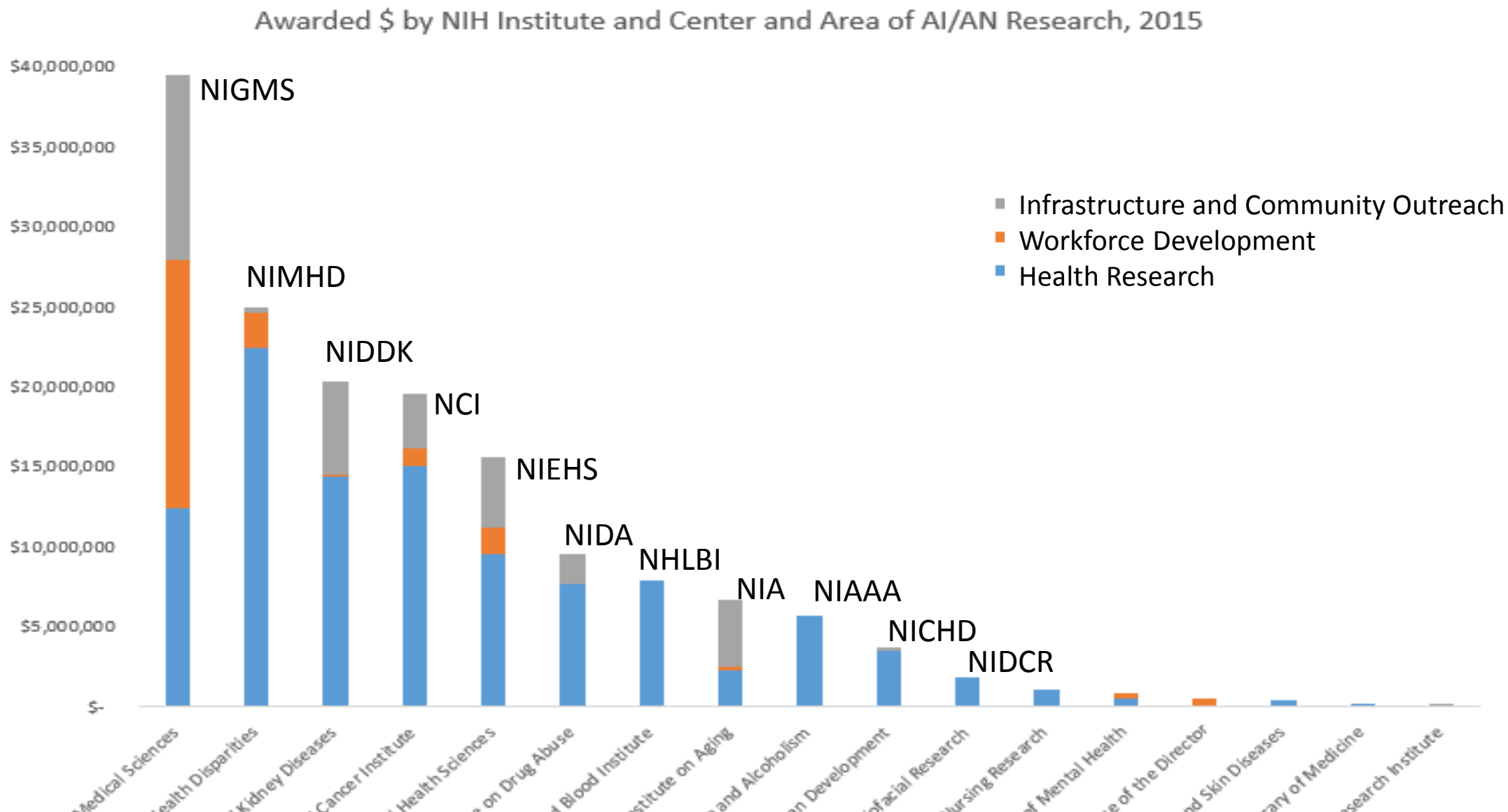
Research Emphasis	Funding, 2015 Millions (pct)	No. AI/AN Research Projects (pct)
Health Research	$104.7 (66.2%)	264 (71.0%)
Workforce Development	$21.6 (13.7%)	70 (18.6%)
Infrastructure and Community Outreach	$31.8 (20.1%)	39 (10.4%)
Totals*	$158.2 (100.0%)	373 (100.0%)

Awarded dollars and projects for AI/AN Research, 2015

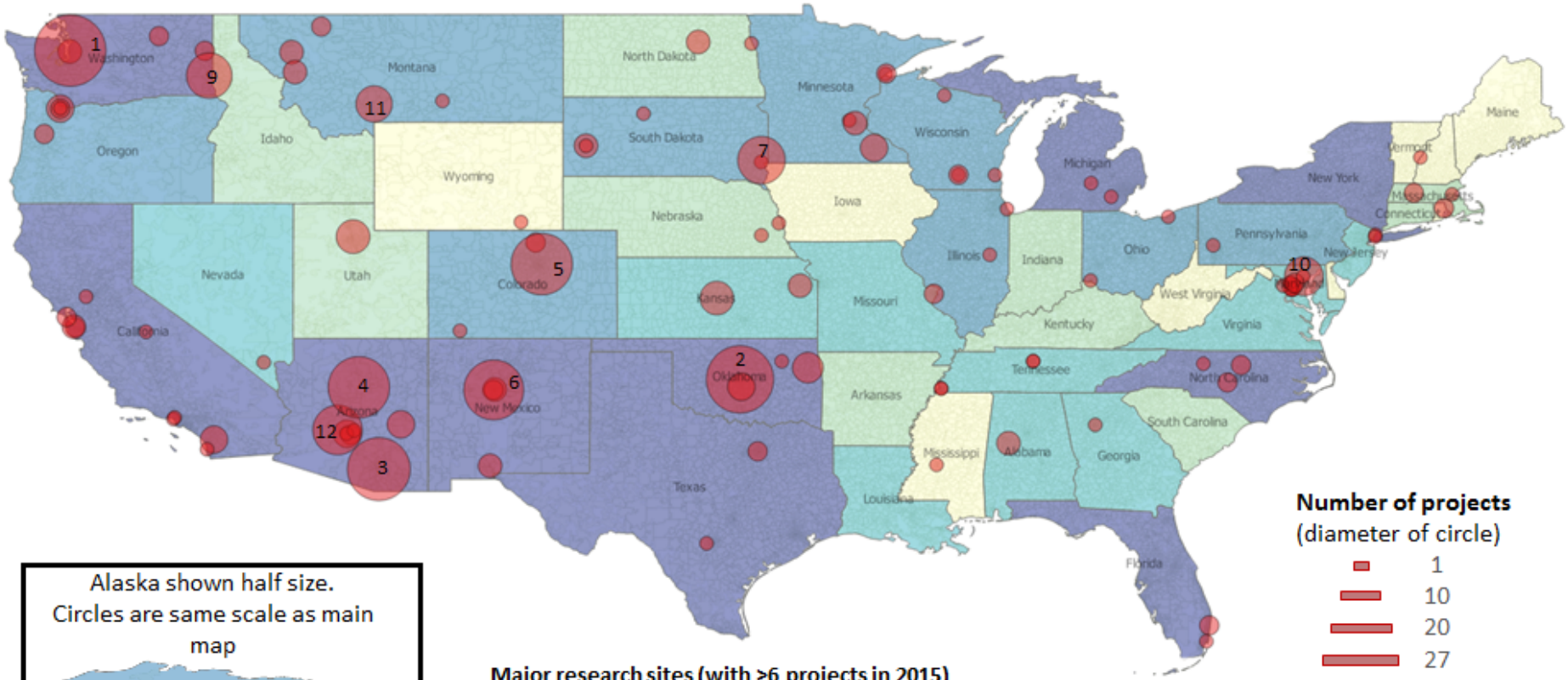




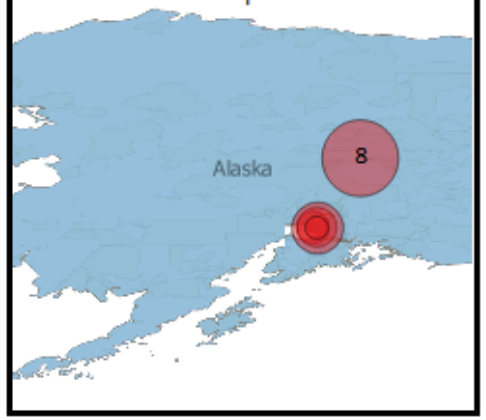
Awarded $ by Institute and Center and Area of AI/AN Research, FY2015



Geographic distribution of AI/AN Research projects



Alaska shown half size.
Circles are same scale as main map



Major research sites (with >6 projects in 2015)

1. UNIVERSITY OF WASHINGTON (27)
2. UNIVERSITY OF OKLAHOMA HEALTH SCIENCES CTR (24)
3. UNIVERSITY OF ARIZONA (21)
4. NORTHERN ARIZONA UNIVERSITY (20)
5. UNIVERSITY OF COLORADO DENVER (20)
6. UNIVERSITY OF NEW MEXICO HEALTH SCIENCES CTR (19)
7. SANFORD RESEARCH/USD (12)
8. UNIVERSITY OF ALASKA FAIRBANKS (11)
9. WASHINGTON STATE UNIVERSITY (11)
10. JOHNS HOPKINS UNIVERSITY (8)
11. MONTANA STATE UNIVERSITY - BOZEMAN (7)
12. NIH INTRAMURAL - PHOENIX EPIDEMIOLOGY AND CLINICAL RESEARCH BRANCH (13)

Number of projects
(diameter of circle)

1
10
20
27

2011 - 2015 American Indian and Alaska Native population*
(Alone or in combination)

6,122 to 26,907
30,206 to 54,186
55,498 to 81,614
81,695 to 141,686
144,952 to 719,301

*From Census.gov ACS

States with the Majority of AI/AN Research, FY2015

States with 80% of Total Funding, 2015	Funding, 2015 millions (pct)	No. AI/AN Research Projects (pct)	Major Research Sites
Arizona	$31.9 (20.2%)	66 (17.7%)	University of Arizona, Northern Arizona University, and NIH Intramural Phoenix Epidemiology and Clinical Research Branch
Washington	$14.5 (9.2%)	45 (12.1%)	University of Washington and Washington State University
Oklahoma	$14.1 (9.0%)	34 (9.1%)	University of Oklahoma Health Sciences Center
Alaska	$11.9 (7.5%)	22 (5.9%)	University of Alaska Fairbanks
South Dakota	$9.6 (6.1%)	18 (4.8%)	Sanford Research
New Mexico	$8.4 (5.3%)	27 (7.2%)	University of New Mexico Health Sciences Center
Colorado	$7.8 (5.0%)	23 (6.2%)	University of Colorado Denver
California	$7.0 (4.4%)	16 (4.3%)	
Montana	$6.9 (4.4%)	16 (4.3%)	Montana State University – Bozeman
Kansas	$6.2 (3.9%)	9 (2.4%)	
Maryland	$6.2 (3.9%)	13 (3.5%)	Johns Hopkins University
North Dakota	$3.9 (2.5%)	4 (1.1%)	
Totals*	$128.5 (81.5%)	293. (78.6%)	

Distribution of FY2015 AI/AN Research Dollars and Projects by Institution Type

Institution Type	No of Projects	Pct of Projects	Awd Total $	Pct of Awd Total $
Institution of Higher Education	265	71.05%	$109,895,741	69.46%
Other Health, Human Resources, Environment/Community Service Organization	58	15.55%	$15,980,436	10.10%
Research Organization	26	6.97%	$13,435,763	8.49%
Government - NIH Intramural Program	14	3.75%	$15,250,758	9.64%
Independent Hospital	4	1.07%	$1,392,295	0.88%
Education Organization Other Than Higher Education	3	0.80%	$1,260,410	0.80%
Other	3	0.80%	$1,004,457	0.63%
Grand Total	373	100.00%	$158,219,860	100.00%

Summary of Race and Gender Data of Investigators on AI/AN Research Projects

Race	Number of PIs	Percent		Gender	Number of PIs	Percent
White	144	52.0%		Male	102	36.8%
AI/AN	34	12.3%		Female	124	44.8%
Other or Not Reported	99	35.7%		Other or Not Reported	51	18.4%
Total	277	100.0%		Total	277	100.00%

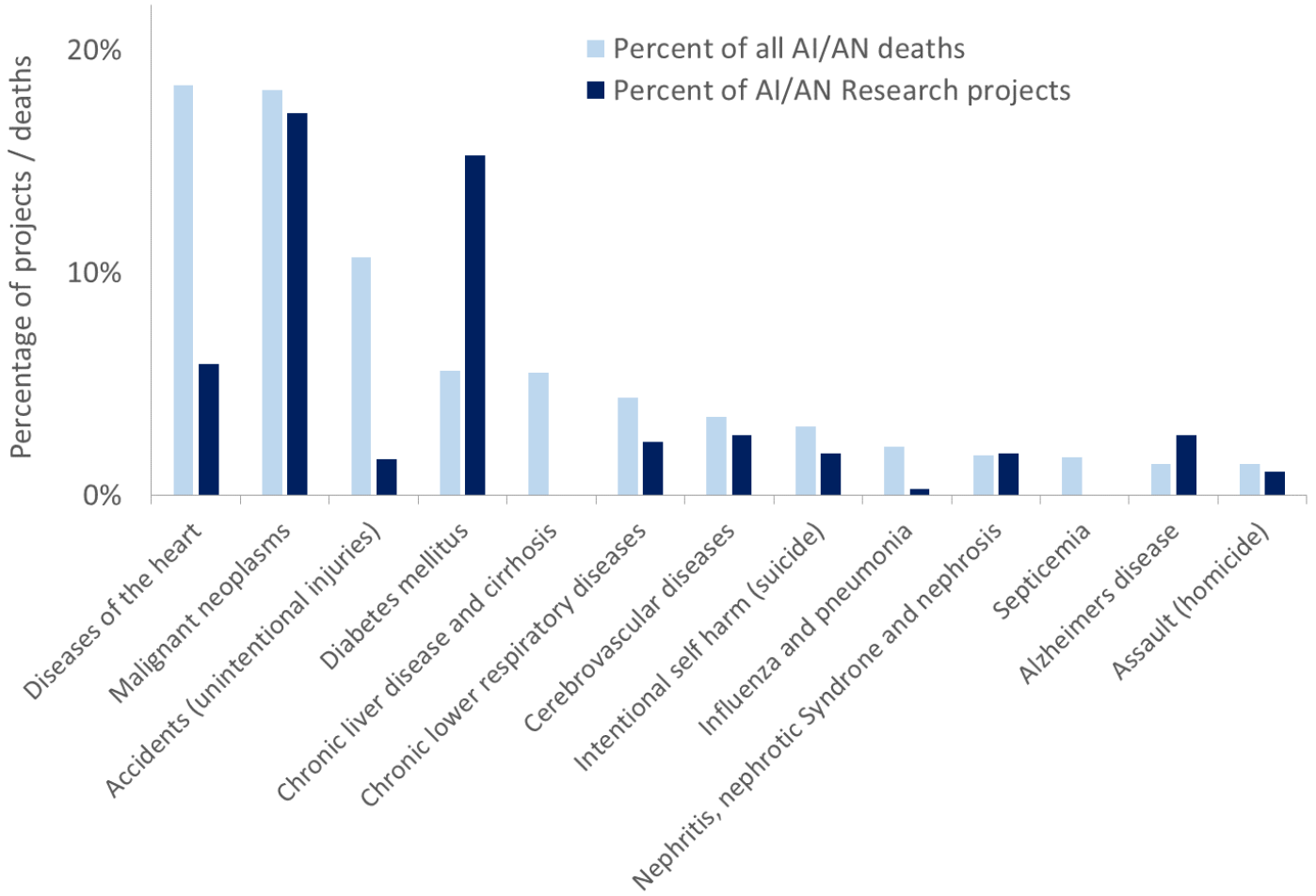
Mortality from Disease Categories in AI/AN Communities

AI/AN deaths and percentage of AI/AN deaths for the leading causes of death: 2013

Cause of death (based on ICD–10)	American Indian or Alaska Native		
	Rank	Deaths	Percent of total deaths
All causes	...	17,052	100.0
Diseases of heart (I00–I09,I11,I13,I20–I51)	1	3,139	18.4
Malignant neoplasms (C00–C97)	2	3,109	18.2
Chronic lower respiratory diseases (J40–J47)	6	757	4.4
Accidents (unintentional injuries) (V01–X59,Y85–Y86)	3	1,833	10.7
Cerebrovascular diseases (I60–I69)	7	595	3.5
Alzheimer's disease (G30)	13	238	1.4
Diabetes mellitus (E10–E14)	4	959	5.6
Influenza and pneumonia (J09–J18)	9	375	2.2
Nephritis, nephrotic syndrome and nephrosis (N00–N07,N17–N19,N25–N27)	10	302	1.8
Intentional self-harm (suicide) (*U03,X60–X84,Y87.0)	8	521	3.1
Chronic liver disease and cirrhosis (K70,K73–K74)	5	944	5.5
Septicemia (A40–A41)	11	288	1.7
Assault (homicide) (*U01–*U02,X85–Y09,Y87.1)	12	241	1.4

http://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65_02.pdf

Percentage of AI/AN deaths and AI/AN Research projects by burden of disease category



No. of Projects and Dollars for Specific Areas of Research FY2015

	No. AI/AN Projects*	Pct of Total AI/AN Research Projects	AI/AN Research Dollars*, 2015	Pct of AI/AN Research Funding
Substances (e.g., abuse)	60	16.1%	$ 24,994,081	15.8%
Environmental	39	10.5%	$ 13,116,807	8.3%
Historical Trauma	17	4.6%	$ 7,137,269	4.5%
Suicide Prevention	7	1.9%	$ 2,220,874	1.4%
Botanicals	0	0.0%	$ 0	0.0%
Total*	117	31.4%	$ 45,854,837	29.0%
Total AI/AN projects	373		$ 158,219,860	

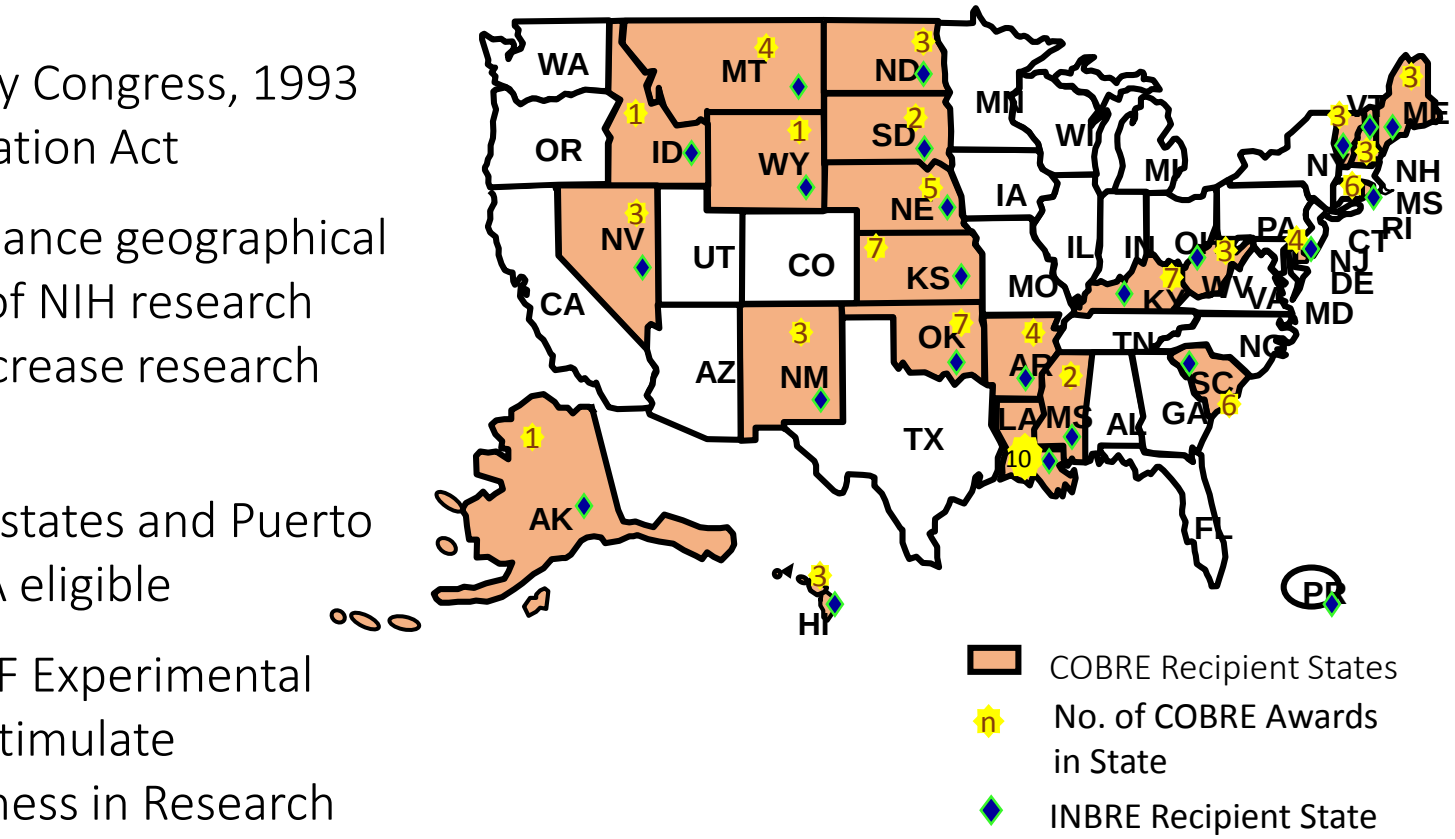
*6 projects fell into more than one category. Dollars and numbers of projects are counted within each relevant category (area of research). Projects and dollars do not sum to totals because some projects are counted in more than one category, but double-counting has been removed from the totals.

Examples of “excluded” AI/AN-containing projects in NIGMS

- The fraction of AI/AN research in non-AI/AN focused projects is difficult to quantity
- It is useful to identifying the umbrella awards where AI/AN research could be performed

Institutional Development Award

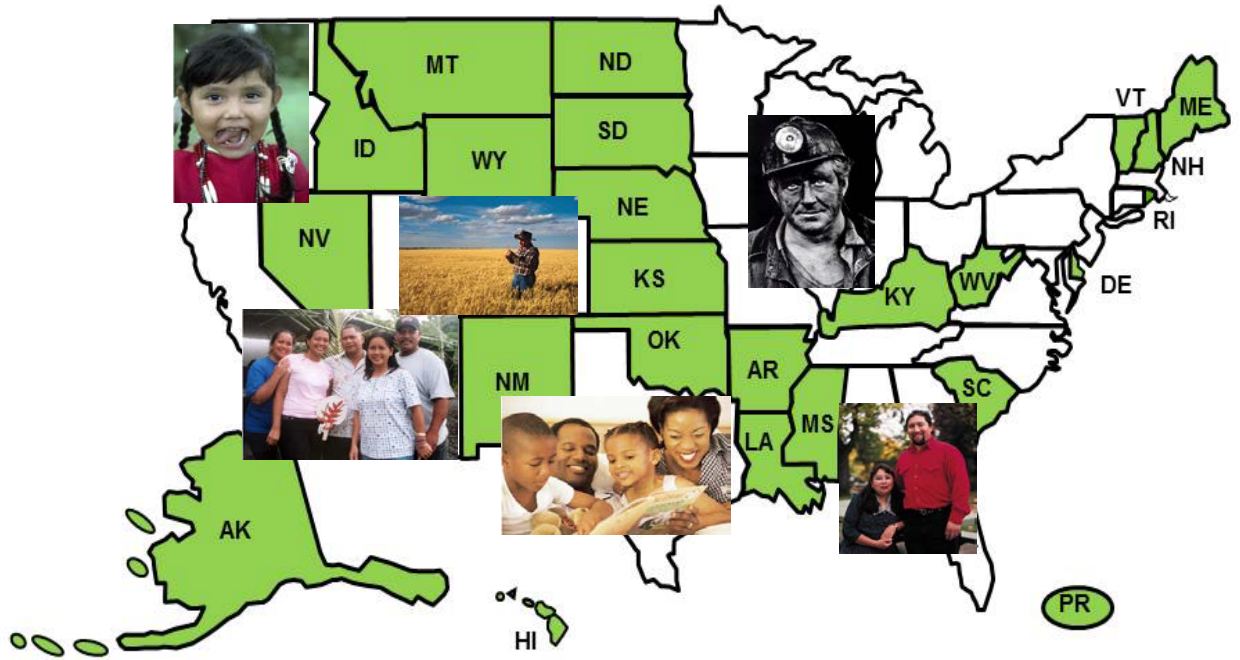
- Authorized by Congress, 1993 NIH Revitalization Act
- Intent to enhance geographical distribution of NIH research funds and increase research capacity
- Currently 23 states and Puerto Rico are IDeA eligible
- Similar to NSF Experimental Program to Stimulate Competitiveness in Research (EPSCoR, est. 1980)



Increasing Competitiveness of Investigators and Institutions in IDeA States

NIGMS Programs Supporting Research in and by the AI/AN Community

- INBRE
  - A program under IDeA whic supports the development c a statewide multi-disciplinary research network of doctoral degree-granting, undergraduate institutions and community colleges.

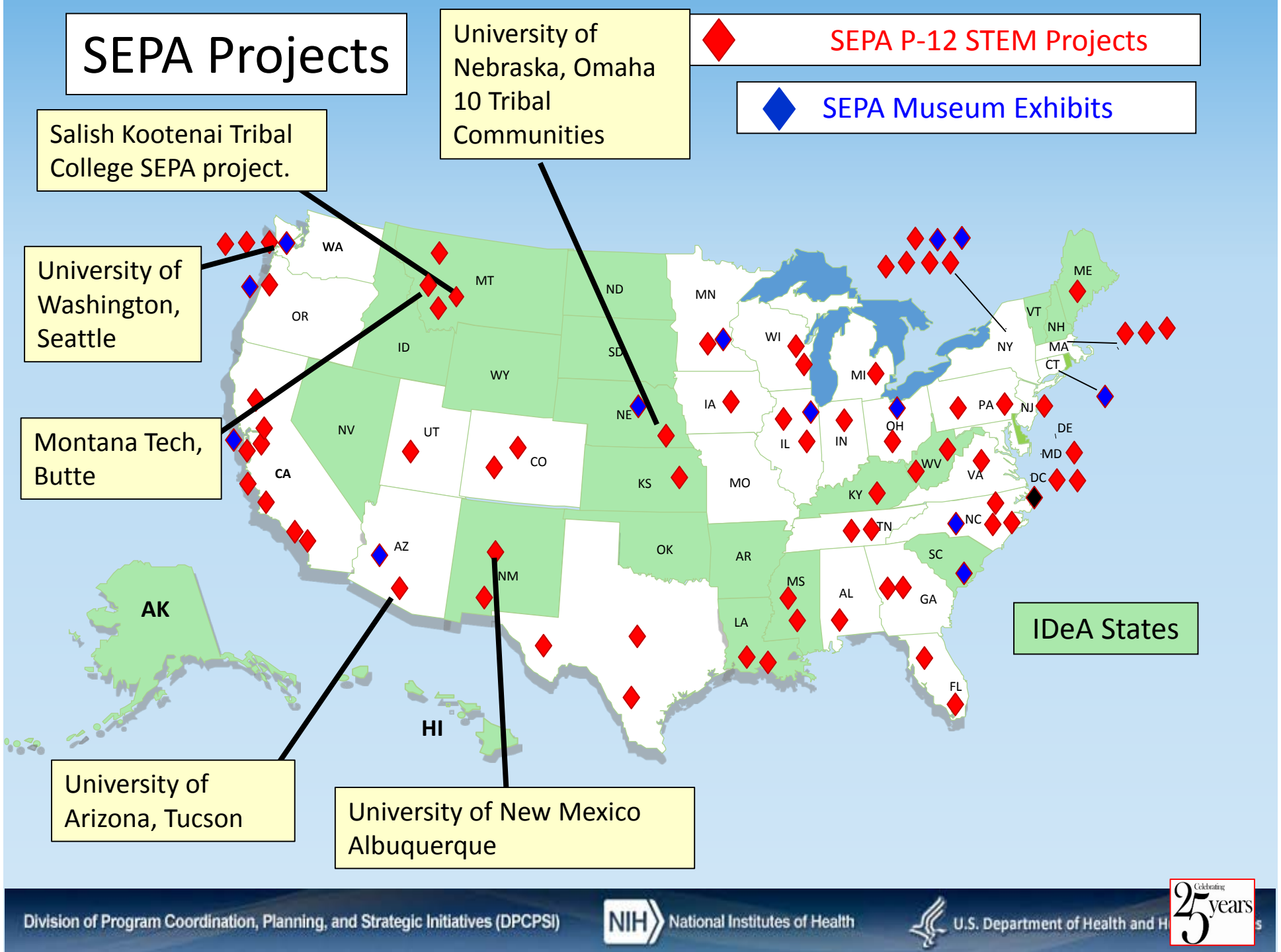


  - INBRE grants work to build and increase research capacity by supporting faculty, fellows and students at participating institutions. Currently over 18 Tribally Controlled Colleges and Universities (TCU) are networked with supported INBRE grants

Science Education Partners Award (SEPA) Program

- Invests in educational activities including interactive digital media resources, that complement or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs.
- encourages interactive partnerships between biomedical and clinical researchers and pre-kindergarten to grade 12 (P-12) pre-service and in-service teachers, schools and other interested organizations.

SEPA encourages projects that partner INBRE and COBRE programs as well as with tribal communities and colleges


SEPA Projects
University of Nebraska, Omaha 10 Tribal Communities
SEPA P-12 STEM Projects
SEPA Museum Exhibits
Salish Kootenai Tribal College SEPA project.
University of Washington, Seattle
Montana Tech, Butte
University of Arizona, Tucson
University of New Mexico Albuquerque
IDeA States
WA
OR
CA
AK
HI
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
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OH
WV
GA
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SC
NC
VA
PA
NY
ME
VT
NH
MA
CT
NJ
DE
MD
DC
Division of Program Coordination, Planning, and Strategic Initiatives (DPCPSI)
NIH National Institutes of Health
U.S. Department of Health and H
Celebrating 25 years

Building Infrastructure Leading to Diversity

Taking a scientific approach to interventions

- **Aims to prepare students to become future contributors to the NIH-funded research enterprise through 10 institutional experimental awards targeting student, faculty, and institution development at once.**

- **BUILD sites (University of Texas, El Paso, Portland State University California State University Northridge, California State Long Beach, and University of Alaska Fairbanks and their partner institutions) include 2 Tribal Colleges and Universities, 11 American Indian Alaska Native Serving Institutions and 16 Asian American and Native American Pacific Islander-Serving Institutions.**

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METHODS - Data Limitations

- AI/AN Research Project Dataset: The threshold for categorizing data as AI/AN research depended on inclusion criteria that are specific to this analysis and conservative.
- Gender and race data: The NIH does not require investigators to specify their gender or race.
- Awarded dollars: There was interest in reviewing how much funding is distributed from a grantee to community, Tribal, or other research partners. This report shows dollars only for the institution that received the award.
- NIH Comparison Data: This analysis does compare the AI/AN research portfolio with funding and number of projects for the broader NIH portfolio or other minority groups.

Next Steps

- THR Coordinating Committee members will characterize their Institute/Center's programs that are not completely AI/AN focused
  - These sites could serve as platforms or opportunities for future research
- The current version of the report will be placed on the THRO website
- NIH will refine the analysis as needed to inform strategic planning and update periodically

Questions and Comments?