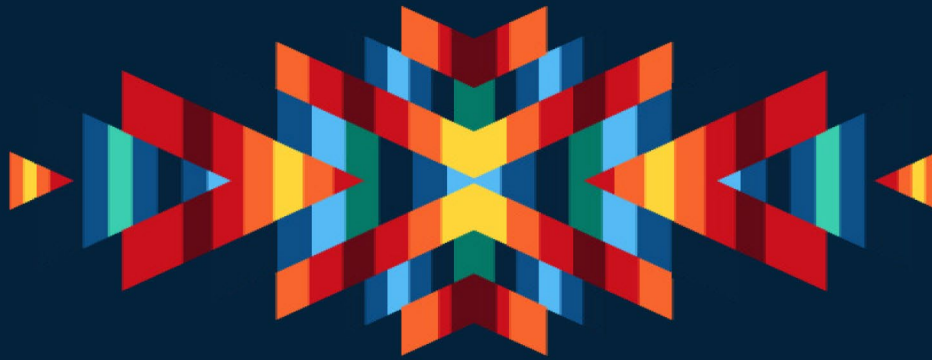


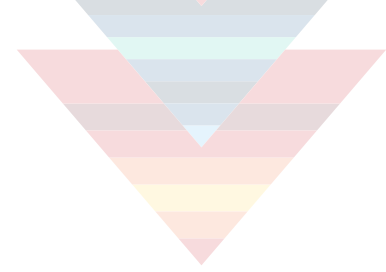
# AMERICAN INDIAN/ALASKA NATIVE HEALTH RESEARCH

## Fiscal Year 2018

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

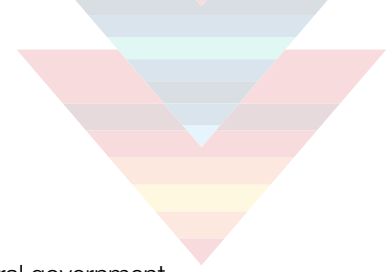


National Institutes of Health  
*Tribal Health Research Office*



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## Introduction

A unique government-to-government relationship exists between Indian Tribes and the federal government. This relationship is grounded in the U.S. Constitution and in numerous treaties, statutes, federal case law, regulations, and reaffirmed by executive orders. It is a political and legal relationship not based on race. Currently, there are 574 federally recognized Tribes across the United States, each having its own language, customs, traditions, and health needs.

In 2015, the National Institutes of Health (NIH) established the Tribal Health Research Office (THRO) to coordinate Tribal health-related research across the agency and serve as a liaison between Tribal governments and the NIH. With the launch of the first [NIH Strategic Plan for Tribal Health Research \(FY 2019–2023\)](#), the agency established a roadmap to address the health research needs of AI/AN communities. The Strategic Plan aims to improve NIH's relationship and collaborative efforts with AI/AN communities by enhancing communication and collaboration; building research capacity; expanding research; and enhancing cultural competency and community engagement.

Assessing progress on the Strategic Plan implementation requires understanding the agency's investment in AI/AN research. This report will answer the following questions:

- » What is NIH's investment in AI/AN research for FY 2015–2018?
- » What is the focus of NIH's support for AI/AN biomedical research in FY 2018?
- » What types of research are supported, and who conducts it?
- » How well does NIH's portfolio address the important health needs identified by Tribal Nations to improve the well-being of their communities?
- » What is NIH's investment in Tribal health research priorities, including areas identified by the [NIH Tribal Advisory Committee](#), such as botanicals, substance use and abuse, historical trauma, suicide prevention, and environmental health?

## Methods

THRO, in cooperation with the [NIH Tribal Health Research Coordinating Committee](#) (THRCC), created a subcommittee of subject-matter experts to assist in the portfolio analysis. The subcommittee used the NIH Research Portfolio Online Reporting Tools Expenditures & Results ([RePORTER](#)) tool and the Research, Condition, and Disease Categorization (RCDC) system to extract and cross-reference information on research projects.

The Categorical Spending data from RePORTER were double-checked with extracted FY 2018 awarded projects (and sub-projects) from the NIH grants database (IMPAC II), using text searches based on RCDC concepts relating to AI/AN health research. Projects and sub-projects were identified by publicly available data from RePORTER.

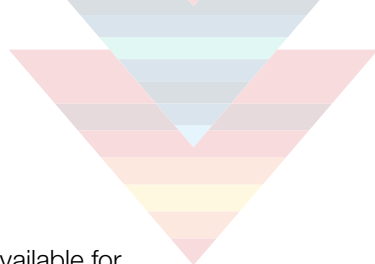
Projects were included in the list if any part of the project focused on AI/AN populations or research needs. The internal panel of experts confirmed the results, identifying 254 research projects as AI/AN research. The projects were then classified as intramural or extramural. Extramural projects were further classified according to the grant category defined by the NIH Office of Extramural Research. Finally, research projects were classified by whether they address AI/AN health research, workforce development and training, or infrastructure and community outreach.

# What is NIH's investment in AI/AN health research, and how is it focused?

## Key Points

- » The NIH invested approximately \$180 million in FY 2018 to support 254 research-based projects focused on AI/AN health or community resource needs.
- » During FY 2015–2018, NIH's budget increased from \$30 billion to \$37 billion. According to RCDC, funding for AI/AN-focused research remained relatively constant at approximately \$180 million.
- » Extramural research accounted for 88.5% of NIH funding focused on AI/AN health (233 research-based projects), and intramural research (defined as research carried out through the agency's internal research program) accounted for the remaining 11.5% of NIH funding (21 research-based projects).
- » Of AI/AN-focused funding, approximately 43% was dedicated to research; 30% to infrastructure and community outreach; and 28% to workforce development.
- » 40.2% (\$72.3 million) of the total NIH AI/AN-focused funding (\$180 million) aligned with leading causes of death in AI/AN populations, directly addressing diabetes, heart disease, cancer, Alzheimer's, respiratory and kidney diseases, and unintentional injury.
- » In addition, a significant amount of research was funded focusing on mental health, substance/drug use, suicide prevention, and environmental health.
- » Capacity building, community outreach, and workforce development projects increased in FY 2018 compared to FY 2015.

Grantees resided in 35 states; with about 80% of funding concentrated in 13 states characterized by large AI/AN populations according to the U.S. Census.



## NIH Total Funding in Tribal Health Research for FY 2015–2018

To promote accountability and transparency, the NIH has made data on funded research available for public query through RePORTER. The [Estimates of Funding for Various Research, Condition, and Disease Categories \(RCDC\)](#) shows that during FY 2015–2018, spending on AI/AN research (Figure 1) remained relatively constant at approximately \$180 million. During the same time period, overall NIH funding increased by \$7 billion, as seen in Figure 1. AI/AN-funded research accounted for approximately 0.5% of the NIH research budget in 2018.

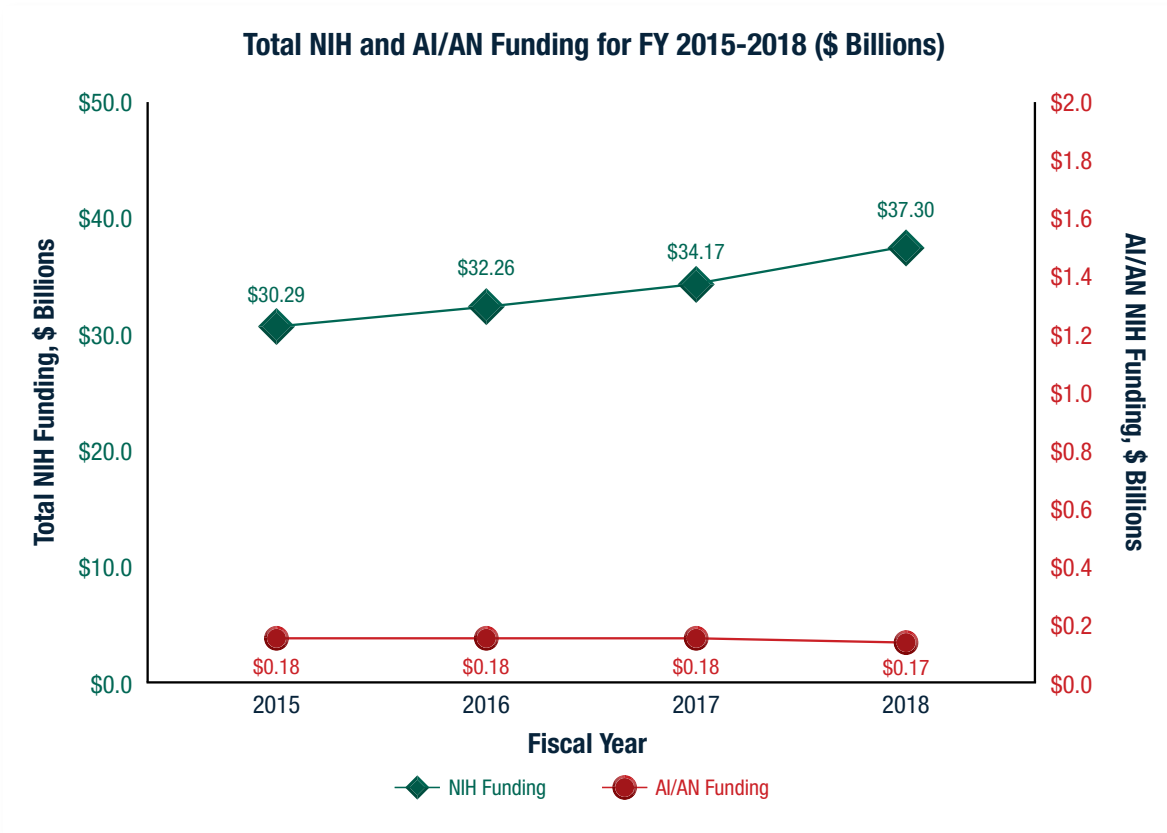


Figure 1. Total NIH and AI/AN funding, FY 2015–2018.

## Grant Categories and Areas of Emphasis for AI/AN Funding

There were nine research categories of funding that included three areas of emphasis within each research category. For categories of funding, the most was awarded through research grants at \$54 million. This was closely followed by cooperative agreements, at \$45 million, for which NIH staff provide oversight, coordination, or facilitation that goes substantially beyond what would normally be needed for a research grant. Program project and center grants, totaled \$31 million in FY 2018. Both cooperative grants and program project/center grants fund at least two related research projects collaborating for a common goal.

NIH investment in AI/AN research can be classified into three areas of emphasis: health research, workforce development, or infrastructure and community outreach as defined in the FY 2015 portfolio analysis. Figure 2 summarizes the distribution of the approximately \$180 million in total funding for 2018 in each of these areas.

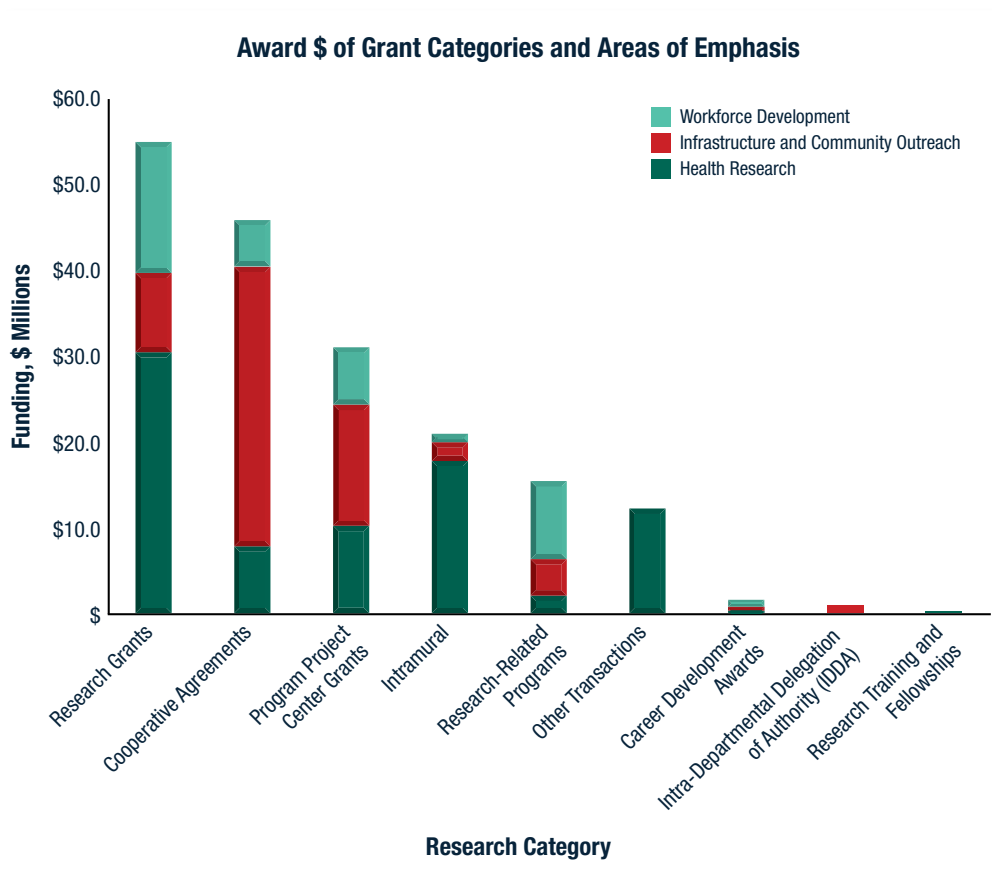


Figure 2. The distribution of FY 2018 funding for each grant category across the three areas of emphasis: health research, infrastructure and community outreach, and workforce development.

Overall, health research efforts received \$79.6 million, while infrastructure and community outreach and workforce development accounted for \$62.7 and \$37.6 million, respectively. Infrastructure and community outreach efforts are funded primarily through Cooperative Agreements and the Program Projects and Center Grants series. Workforce development received the most support from research grants and research-related programs, such as NARCH.



## NIH Funding in Tribal Health Research for FY 2018

Of the NIH's 27 Institutes and Centers (ICs), 20 ICs and the NIH Office of the Director (OD) provided approximately \$180 million for the 254 AI/AN research-based projects, with 10 ICs and the OD providing approximately \$141 million, or 78% of the funding. Since the FY 2015 report, three additional ICs contributed to AI/AN-focused research. In 2018, the OD provided \$22.2 million in AI/AN research funding, accounting for 12.3%.

The OD provided \$12.9 million in funding to programs that have AI/AN components, including the *All of Us* Research Program (\$12 million) and the Environmental influences on Child Health Outcomes (ECHO) program (\$0.5 million). The OD also provided support for the NIH Building Infrastructure Leading to Diversity (BUILD) initiative, funded by the Common Fund and administered by the National Institute of General Medical Sciences (NIGMS) (\$9.4 million). Figure 3 shows the FY 2018 IC budget for AI/AN health research.

In FY 2018, NIMHD provided the most support for AI/AN health research relative to its budget. Along with NIMHD, six additional ICs provided the greatest support for AI/AN health research relative to their budgets.

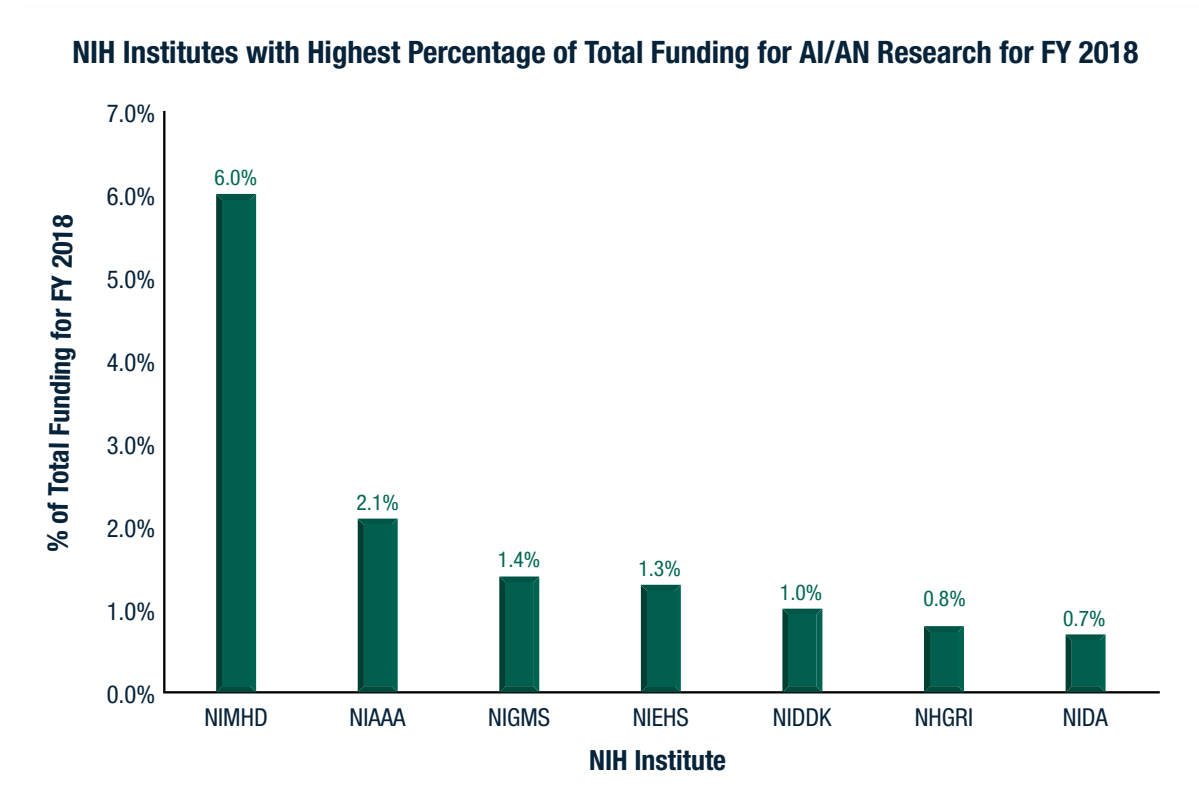


Figure 3. The NIH Institutes with the highest percentages of their FY 2018 congressionally appropriated funds toward AI/AN research.

## ***Extramural and Intramural Funding***

NIH-funded research is generally categorized as extramural or intramural research. More than 80% of NIH's funding is awarded for extramural research, largely through almost 50,000 competitive grants to more than 300,000 researchers at more than 2,500 universities, medical schools, and other research institutions in every state. In contrast, the Intramural Research Program (IRP) is the internal research program of the NIH. About 10% of the NIH's budget supports projects conducted by nearly 6,000 scientists in its own laboratories, most of which are on the NIH campus in Bethesda, Maryland. NIH extramural research funding accounts for 88.5%, or \$159.3 million, of AI/AN funding, while intramural research accounts for 11.5%, or \$20.6 million.

### ***FY 2018 NIH Intramural Research Support***

NIH intramural support for AI/AN research is \$20.6 million for FY 2018. In FY 2018, the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) provided the highest level of support at \$13.5 million, followed by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) at \$3.7 million.

The FY 2018 intramural awards are composed of 21 projects, 14 of which focus on diabetes research. The remaining projects focus on genomics, alcohol use disorder, diversity, and/or outreach projects.

### ***FY 2018 NIH Extramural Research Support***

NIH extramural support for AI/AN research involves several grant mechanisms, as shown in Figure 4. Research projects that include R01 and R25 grants received the most funding, followed by cooperative agreement projects, with U54 and UG1 being the most prominent in this category. NIGMS remained the largest funder for AI/AN extramural research and training from 2015 to 2018, with support totaling \$38 million. NARCH, an NIH-wide research program and a component of research-related center grants (S06), is administered by NIGMS and received \$10.1 million in support in FY 2018.

Investigator-initiated research and other research projects (categorized as R01s), NARCH (S06), research program projects and centers (P20, P30), Other Transactions (OTs), which are not contracts, grants, or cooperative agreements (OT2s), educational activities (R25s), and specialized center-cooperative agreements (U54, UG1 and UL1) accounted for 70% of the research funding.

Extramural awards are classified according to the following application types: new, continuing, supplemental to an existing award, and other. The continuing awards, which are either the continuation of a multiyear project or a renewal of a previously funded project, accounted for the major component at 71.6% (\$114.2 million). New projects represented 20.8% (\$33.1 million), and supplements, which are additional funding for existing grants, accounted for 5.5% (\$8.7 million). Other types of extramural awards were reported at 2.1% (\$3.4 million).

The funding distribution for extramural AI/AN research across each award type, or activity code, is presented in Figure 4. R01s are the most common type of research grant and received the most funding. Among cooperative agreements, U54s received the most funding, whereas funding under center grants was highest for the P20 and P30 mechanisms, keeping in mind funding per year for center grants tends to be higher than R01s per year. The S06 mechanism represents the research-related center grant category, while the TL4 mechanism is predominantly used for research training and fellowships.



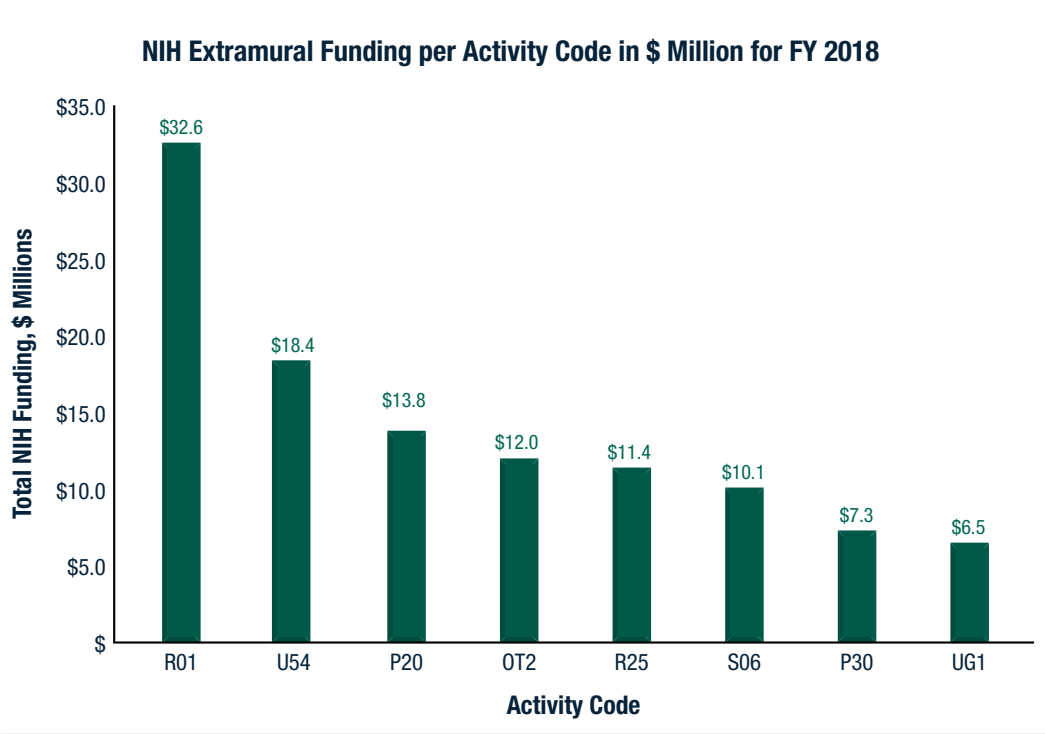
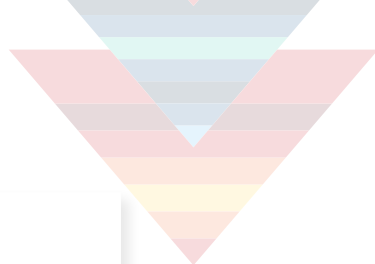


Figure 4. AI/AN Extramural NIH support for each research activity, FY 2018.

The IRINAH program was created to develop, adapt, and test the effectiveness of health-promotion and disease-prevention interventions in AI/AN populations, with the long-term goal of reducing mortality and morbidity in AI/AN communities. The program was launched in 2011 and has funded more than 41 research projects through both the R01 and R21 mechanisms focused on the health challenges faced by Native communities. This NIH-wide program involves several Institutes, Centers, and Offices (ICOs): NIAAA, NIMHD, National Institute on Drug Abuse (NIDA), National Institute of Environmental Health Sciences (NIEHS), National Institute of Nursing Research (NINR), National Cancer Institute (NCI), National Heart, Lung, and Blood Institute (NHLBI), National Institute of Dental and Craniofacial Research (NIDCR), National Institute of Mental Health, and Office of Behavioral and Social Sciences Research.

NARCH program grants account for the third largest group of AI/AN-focused grants awarded in FY 2018. The NARCH initiative supports biomedical research and career enhancement opportunities to meet the health needs prioritized by AI/AN communities. By issuing the grants to federally recognized Tribes and Tribal organizations, NARCH ensures that AI/AN communities will have opportunities to select and direct the health research within their own communities. The NARCH initiative also supports research capacity and infrastructure building to promote the ability of AI/AN communities to sustainably conduct biomedical research. NIGMS funds the bulk of capacity building and faculty and student research development activities, while participating NIH ICOs support projects that are within the scope of their strategic goals.

In FY 2018, NARCH awards totaled \$10.1 million, with NIGMS providing \$6.1 million and programmatic management. The OD, NCI, NIAAA, NIDA, NIDCR, NIDDK, NIEHS, NIMHD, National Institute on Aging (NIA), National Institute of Allergy and Infectious Diseases (NIAID), National Institute of Arthritis and Musculoskeletal

and Skin Diseases (NIAMS), and National Institute of Neurological Disorders and Stroke (NINDS) contributed 39.7% (\$4 million) to the program. Funded NARCH grants were distributed over several states: Alaska, Arizona, California, New Mexico, Oklahoma, Oregon, South Dakota, Washington, and Wisconsin.

Another significant AI/AN-focused NIH program is the [Strong Heart Study \(SHS\)](#), one of the largest epidemiological studies involving AI/AN people. It includes Tribal study participants from Arizona, Oklahoma, and North and South Dakota. Designed to understand and improve cardiovascular health in Tribal communities, the long-standing study has shown significant findings, particularly around the impact of diabetes on heart structure and function. Due to the nature of the SHS awards, which predominately fall under NIH contracts, related information is not publicly available using RePORTER's Categorical Spending Data site.

## Where is the research awarded, and who conducts it?

### Key Points

- » Institutions and organizations in 35 states received NIH funding to support the 254 AI/AN research projects.
- » 13 states received a combined total of 81.9% of the \$159.3 million in extramural AI/AN research funding, with Arizona receiving 15.5% (nearly \$25 million).
- » 81.6% of the \$159.3 million in extramural AI/AN research funding was awarded to institutions of higher education (e.g., medical schools, health sciences centers).
- » 291 different principal investigators worked on the 254 AI/AN research projects.
- » [Figure 5](#) shows the geographic distribution of extramural funding for AI/AN research for FY 2018, aggregated by state. Arizona, California, and Washington received the most funding.

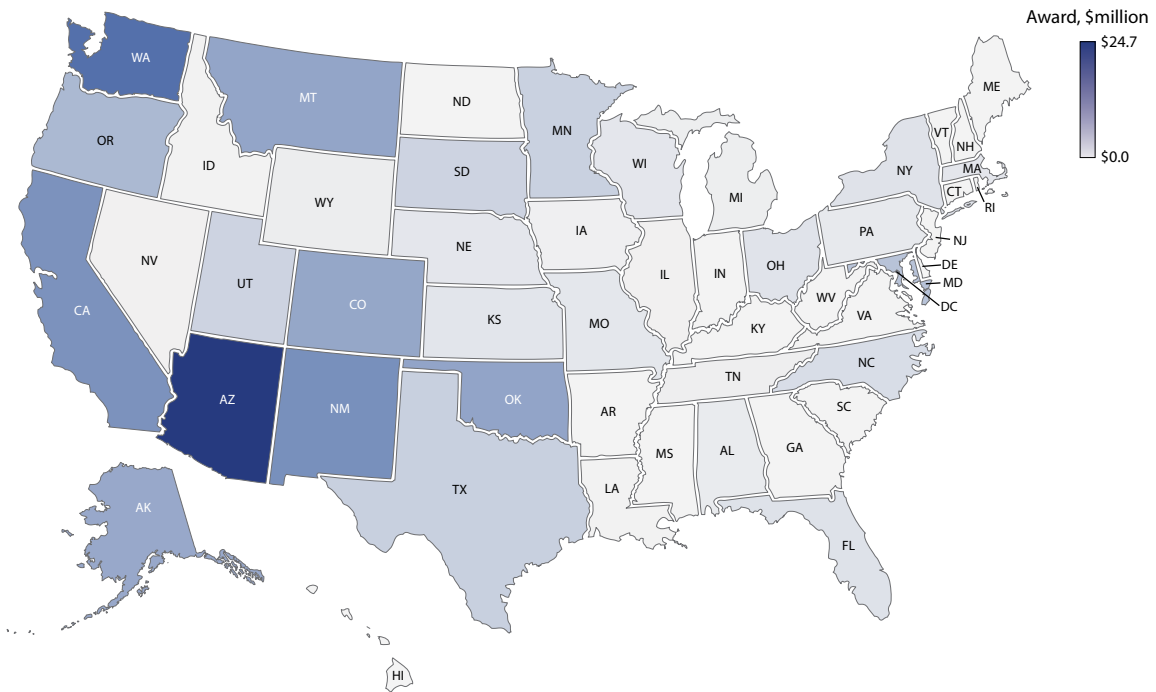


Figure 5. Distribution of extramural NIH support for AI/AN research, FY 2018.

### ***Types of Institutions Receiving Extramural Funding for AI/AN Research***

In FY 2018, institutions of higher education received the bulk of the funding at \$130 million, or 82% of \$159.3 million, a 10% increase from the FY 2015 report. Research organizations received \$13.1 million (or 8.2%), independent hospitals received \$8.2 million (or 5.1%). Education organizations other than higher education, environment/community service organizations, and organizations labeled “other” received approximately equal portions of the remaining \$8 million (or approximately 5%).

## Concluding Observations

The current portfolio analysis provided information about NIH's efforts to address the health research needs of AI/AN communities. The analysis led to the following observations, which can help inform decision making and strategic planning:

- » NIH funding for Tribal health research has remained relatively stable from FY 2015 to FY 2018 according to RCDC.
- » For FY 2018, NIH invested a total of approximately \$180 million in AI/AN health research, including \$159.3 million in extramural funding from 22 ICs and the OD, and \$20.6 million in intramural funding from five ICs.
- » The FY 2018 NIH intramural Tribal health research portfolio focused largely on diabetes, which AI/AN people experience at disproportionately high rates.
- » Flagship initiatives like the NIH-wide NARCH program and the IRNAH umbrella program continue to play an important role in NIH's AI/AN-focused research portfolio, fostering a multidisciplinary approach to studying Tribal health.
- » R01 grants received the most NIH funding. Support for training and fellowships is limited and the agency should consider how to bolster applications in science, technology, engineering, and mathematics training from Tribal applicants.
- » The NIH has provided support for research in substance abuse, environmental health, suicide prevention, and historical trauma. Insights on how to further strengthen these efforts are important considerations.



# Appendix

## Appendix: Cited Resources

### **All of Us Research Program**

<https://allofus.nih.gov>

### **American Indian/Alaska Native Health Research—FY 2015**

[https://dpcpsi.nih.gov/sites/default/files/NIH\\_AI\\_AN\\_PA\\_2015\\_508FINAL\\_opt.pdf](https://dpcpsi.nih.gov/sites/default/files/NIH_AI_AN_PA_2015_508FINAL_opt.pdf)

### **American Indian and Alaska Native (AI/AN) Research in the Health Sciences: Critical Considerations for the Review of Research Applications**

[https://dpcpsi.nih.gov/sites/default/files/Critical\\_Considerations\\_for\\_Reviewing\\_AIAN\\_Research\\_508.pdf](https://dpcpsi.nih.gov/sites/default/files/Critical_Considerations_for_Reviewing_AIAN_Research_508.pdf)

### **Appropriations History by Institute/Center (1938 to Present)**

[https://officeofbudget.od.nih.gov/approp\\_hist.html](https://officeofbudget.od.nih.gov/approp_hist.html)

### **Building Infrastructure Leading to Diversity (BUILD) Initiative**

<https://www.nigms.nih.gov/training/dpc/pages/build.aspx>

### **Estimates of Funding for Various Research, Condition, and Disease Categories (RCDC)**

[https://report.nih.gov/categorical\\_spending.aspx](https://report.nih.gov/categorical_spending.aspx)

### **Division of Program Coordination, Planning, and Strategic Initiatives**

<https://dpcpsi.nih.gov>

### **Environmental influences on Child Health Outcomes (ECHO) Program**

<https://www.nih.gov/research-training/environmental-influences-child-health-outcomes-echo-program>

### **Institutes, Centers, and Offices (ICOs)**

<https://www.nih.gov/institutes-nih/list-nih-institutes-centers-offices>

### **Intervention Research to Improve Native American Health (IRINAH) Program**

<https://cancercontrol.cancer.gov/nativeamericanintervention>

### **National Vital Statistics Reports — Deaths: Leading Causes for 2017**

[https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68\\_06-508.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68_06-508.pdf)

### **National Institutes of Health (NIH)**

<https://www.nih.gov>

### **The NIH Director**

<https://www.nih.gov/about-nih/who-we-are/nih-director>

### **NIH Strategic Plan for Tribal Health Research FY 2019–2023**

[https://dpcpsi.nih.gov/sites/default/files/2019\\_THRO\\_StrategicPlan\\_508.pdf](https://dpcpsi.nih.gov/sites/default/files/2019_THRO_StrategicPlan_508.pdf)

### **Native American Research Centers for Health (NARCH) Program**

[https://www.nigms.nih.gov/capacity-building/division-for-research-capacity-building/native-american-research-centers-for-health-\(narch\)](https://www.nigms.nih.gov/capacity-building/division-for-research-capacity-building/native-american-research-centers-for-health-(narch))

### **Strong Heart Study**

<https://www.nhlbi.nih.gov/science/strong-heart-study-shs>

### **NIH Tribal Health Research Coordinating Committee**

<https://dpcpsi.nih.gov/thro/thrcc>

### **U.S. Census, American Community Survey Demographic and Housing Estimates, 2018**

[https://data.census.gov/cedsci/table?g=0100000US.04000&y=2018&t=American%20Indian%20and%20Alaska%20Native%3ANative%20Hawaiian%20and%20Pacific%20Islander%3APopulation%20Total%3APopulations%20and%20People&cid=CP05\\_2014\\_001E&tid=ACSDP1Y2018.DP05&vintage=2018&hidePreview=false](https://data.census.gov/cedsci/table?g=0100000US.04000&y=2018&t=American%20Indian%20and%20Alaska%20Native%3ANative%20Hawaiian%20and%20Pacific%20Islander%3APopulation%20Total%3APopulations%20and%20People&cid=CP05_2014_001E&tid=ACSDP1Y2018.DP05&vintage=2018&hidePreview=false)



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