National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)

Mission: To prevent illness and save lives through the prevention, early detection, and control of emerging and zoonotic infectious disease threats.

Daniel Jernigan, MD, MPH
Director National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)

dbj0@cdc.gov

Center Organizational Chart
https://www.cdc.gov/about/pdf/organization/ncezid-org-chart.pdf

Points of Contact
Renee Calanan

Priority Areas and Activities

NCEZID partners and provides leadership and excellence in a wide range of diverse but interrelated areas that focus on infectious disease detection, prevention, response readiness, and response to outbreaks caused by infectious organisms through diverse approaches, including:

- Disease surveillance, epidemiology, laboratory science, behavioral and social science, clinical guidelines, and communications
- State-of-the-art and high-quality laboratory services and support for CDC's infectious disease laboratories
- Applied research for greater understanding of the contexts where diseases emerge, characterization of pathogens and disease pathogenesis, and solutions for preventing and stopping disease spread
- Predictive data science and rapid sharing of information
- Capacity building and training
- Discovery of new pathogens, development of medical countermeasures (e.g., treatments, vaccines, and diagnostics) and non-medical interventions, and investigation of undefined illnesses

Examples of infectious disease areas include:

- Advanced molecular detection, including next-generation sequencing and related technologies
- Antimicrobial resistance
- Emerging infectious diseases, including bacterial, viral, parasitic, prion, and fungal organisms
- Foodborne and waterborne diseases
- Health equity science and practice to understand and reduce infectious disease inequities in populations at higher risk of diseases and associated negative health outcomes
- Global health security, both domestic and global (e.g., preparedness and response against emerging infections and biothreats)

- Healthcare-associated infections
- High consequence but rare infectious diseases (e.g., anthrax, mpox, Ebola)
- Neglected tropical diseases
- One Health approaches and prevention of illness at the human-animal and -environment interface
- Traveler and refugee health
- Vaccine safety and vaccines for travelers
- Vector-borne diseases
- Zoonotic diseases

NCEZID's cross-cutting health equity focus areas include:

- Capacity Strengthening: Enhance workforce representation, skills, and resources. Support a multidisciplinary approach to advance health equity science and practice.
- Actionable Data: Collect, analyze, and disseminate data on inequities to understand patterns and underlying contributors. Translate this information into actions that reduce inequities.
- Equitable Interventions: Partner to plan, implement, and evaluate interventions that reach populations experiencing inequities.

NCEZID Tribal Health in Action webpage: https://www.cdc.gov/ncezid/what-we-do/crosscutting-programs/tribal-health-in-action.html

Example areas of interest to enhance collaboration with tribal partners:

- Rabies: CDC recently completed an analysis demonstrating disparity of rabies testing in Tribal Lands. Working with Tribal Partners to understand these barriers and improve rabies surveillance is an important next step to addressing disparities.
- Chronic Wasting Disease (Prion Disease): CDC is interested in partnering with Tribal partners to address surveillance and education around Chronic Wasting Disease.

Examples of Center-Level Technical Assistance Services and Programs

- Division of Healthcare Quality Promotion (DHQP)
  - DHQP provides technical assistance to Indian Health Service (IHS) for healthcare infection prevention and control (IPC) activities including infection control assessments and response (tele-ICARS), outbreak investigations, infection control breaches, IPC training, and surveillance system support.
  - Through Project Firstline, CDC engages and supports the National Council of Urban Indian Health and the National Indian Health Board to develop, adapt, and disseminate culturally appropriate and effective infection control training and education to frontline healthcare workers in Urban Indian Organizations and other tribal healthcare settings.
  - DHQP provides IHS periodic technical assistance on antibiotic use data and outpatient healthcare facility antibiotic stewardship—the effort to measure and improve how antibiotics are prescribed by clinicians and used by patients—implementation opportunities.
  - DHQP responded to an outbreak of carbapenem-resistant organism at a healthcare facility run by a Tribal healthcare in Alaska, including an in-person Infection Control and Assessment and Response (ICAR) and in-person IPC training and education.

- Division of Vector-Borne Diseases (DVBD)
  - DVBD addresses Rocky Mountain spotted fever (RMSF) in tribal communities through direct technical assistance and cooperative agreements.

- Division of Foodborne, Waterborne, and Environmental Diseases (DFWED)
  - DFWED has investigated and published on outbreaks and the epidemiology of various conditions among American Indian and Alaska Native people, including botulism, shigellosis, Heliobacter pylori, and coccidiomycosis.
  - DFWED uses surveillance and outbreak response systems like the System for Enteric Disease Response, Investigation, and Coordination (SEDRIC), the National Outbreak Reporting System (NORS), FoodNet, and the National Antimicrobial Resistance Monitoring System for Enteric Bacteria (NARMS). These systems and databases are available for STLT partners to track and respond to trends in foodborne, waterborne, and fungal diseases with methods to improve the quality, quantity, and timeliness of data. DFWED has reference labs and laboratory networks for pathogens such has botulism and other foodborne illnesses.
  - DFWED's Waterborne Disease Prevention Branch (WDPB) participates in the Great Lakes Restoration Initiative (GLRI) and communicates routinely with other federal agency participants, including the Bureau of Indian Affairs (BIA), which facilitates Great Lakes tribal representation within GLRI.

- Division of Infectious Disease Readiness and Innovation (DIDRI)
  - DIDRI's Arctic Investigations Program (AIP) has collaborated with the Alaska Native Tribal Health Consortium, the state of Alaska, and other partners to tackle infectious diseases threatening American Indian and Alaska Native people using state-of-the-art laboratory diagnostics, epidemiology, outbreak investigations, and research.
  - DIDRI and CDC's Office of Science published a case study describing the Mashpee Wampanoag Tribe's collaboration with a team from CDC who assisted with epidemiology, case investigation and contact tracing, infection prevention and control, community prevention measures, and vaccination. Collaborative efforts resulted in over 200 public service announcements and videos produced, 55 tribal staff trained, 222 people followed up for contact tracing, 80% of tribal members vaccinated, and 5 COVID-19 response plans written. Deployment response teams learned elements essential to partnering with a Native American tribe. This successful partnership during a rapidly evolving pandemic suggests the US federal government and tribal nations can work together effectively to build response capacity for future infectious disease threats. Wong B, Andrews N Jr, Hathaway A, Burpee A, Agyemang E, Cooper B, Santibañez S. The Mashpee Wampanoag Tribe COVID-19 Pandemic Response: A Case Study. Health Secur. 2023 May-Jun;21(3):222-232. https://www.liebertpub.com/doi/epub/10.1089/HS.2022.0158

- Division of High Consequence Pathogens and Pathology (DHCPP)
  - DHCPP is collaborating with partners from the Navajo Epidemiology Center and Littlewater Chapter to develop and implement the Healthy Homes, Healthy People project. This project is focused on providing education on hantavirus, preventing hantavirus exposure, and empowering community residents to repair and reinforce their homes against mice. Since the 1993 hantavirus outbreak in the Four Corners region of the U.S. Navajo Nation has extensive experience with community engagement and education on this important public health issue. Integrating the historical perspectives of local public health experts and community members for discussing previous experiences and prevention strategies is critical to program success. Hantavirus prevention is a priority with Tribal partners in 2024. https://www.cdcfoundation.org/stories/unique-partnership-tackles-hantavirus-navajo-nation
  - DHCPP partners with the Indian Health Service (IHS) to analyze hospital data. Subject Matter Experts (SMEs) have an Memorandum of Understanding (MOU) to receive administrative data (including inpatient and outpatient data) from IHS. We work with their Division of Epidemiology and Disease Prevention at headquarters doing a variety of analyses. The subjects of analyses may originate from either IHS or CDC and have covered a variety of topics, primarily infectious disease but recently there was an assessment of Alzheimer's disease among people who are using IHS healthcare.

Budget Updates

Total Number of Grants and Cooperative Agreements with Tribes, TECs, or THOs for FY 22.
4

Total Number of Grants and Cooperative Agreements with Tribes, TECs, and THOs for FY 23.
5

For each FY 23 Funding Activity with Tribes, TECs, THOs Complete the Following Information. Please be sure to provide updates for each funding activity including CDC RFA Award Number, Award Title, Award Amount, Funding Period, and Brief Description)
Division of Infectious Disease Readiness and Innovation/Rapid Response Research and Surveillance Branch's National Wastewater Surveillance System (NWSS)
https://www.cdc.gov/nwss/index.html
https://www.cdc.gov/tribal/cooperative-agreements/indian-country-services/nofo.html

- CDC-RFA-TO-23-0001: Strengthening Public Health Systems and Services in Indian Country
- Project Title: Expanding Wastewater Surveillance in Tribal Communities
- 5 recipients were awarded a total of $499,900
- Period of performance: 5 years (August 31, 2023 – August 30, 2028)
- Budget period length: 12 months (August 31, 2023 – August 30, 2024)

CDC-RFA-CK21-2102 Strengthening Rocky Mountain spotted fever (RMSF) prevention and control in Arizona tribal lands

- CDC-RFA-CK21-2102
- 2 recipients, total funded: $234,946
- Funding period: 9/1/2021 to 8/31/2024
- This program aims to address RMSF through implementing evidence-based strategies such as evaluating current RMSF prevention knowledge in the community, providing tailored outreach and education, and partnering with RMSF prevention support services, such as animal control, vector control, and other environmental health services.

CDC-RFA-TO-23-0001 (Under NCSTLTPHIW) Strengthening Public Health Systems and Services in Indian Country,

- CDC-RFA-TO-23-0001
- 1 recipient, total: $87,875, Strategy 2 Building capacity to prevent and control Rocky Mountain spotted fever in Indigenous Nations
- Funding Period: 8/1/2023 to 7/31/2028
- This project aims to build critical capacity to prevent Rocky Mountain Spotted Fever (RMSF) transmission by brown dog ticks (Rhipicephalus sanguineus sensu lato) through directly funding Indigenous nations experiencing human cases of RMSF or experiencing risk factors for RMSF transmission (e.g., large free-roaming dog populations, high burdens of brown dog ticks on dogs, RMSF seroprevalence in dog populations, and free roaming dogs with brown dog ticks in peridomestic settings).

CDC RFA Award Number, 5NU50K000601-02-00
Award Title: "Project Firstline: Improving Infection Control Capacity of AI/AN Frontline Healthcare Workers in Urban Settings."

- Award Amount, $733,264
- Funding Period, 9/30/2023-9/29/2024
- Brief Description Resources to the National Council of Urban Indian Health to develop, adapt, and disseminate culturally appropriate infection control education and training to frontline healthcare workers in Urban Indian Organizations.

CDC RFA Award Number, 6NU50CK00572-04-01
Award Title, "Project Firstline: Improving Infection Control Capacity for Tribal Healthcare Workers."

- Award Amount, $319,756
- Funding Period, 9/30/2023-9/29/2024
- Brief Description Resources to the National Indian Health Board to develop, adapt and disseminate culturally appropriate infection control education and training to frontline healthcare workers in tribal health settings.

Health Equity Updates

Does your CIO's Health Equity initiative include activities or metrics that specifically address AI/AN, Tribes, TECs, or THOs?
DFWED has implemented a data standardization survey and plan for health equity-related variables to be implemented in all surveillance systems and data collection tools over the next 5 to 10 years, including variables to understand tribal status of cases.

Is your CIO currently collecting, receiving, or producing health equity data that includes AI/AN information?
Numerous datasets being collected or received by NCEZID include race and ethnicity data. NCEZID programs continue to work to improve the collection of race and ethnicity data, including data quality and completeness, and the ability to report disaggregated data results that include data for AI/AN people. A center effort to assess data elements collected by NCEZID data systems aims to identify gaps, including those related to AI/AN information.

DFWED https://www.cdc.gov/nors/index.html

The National Outbreak Reporting System (NORS) receives data on all foodborne and waterborne disease outbreaks and enteric disease outbreaks from other sources. As of 2023, the NORS reporting form includes two high-level tribal health-related questions: 1) whether exposures occurred on tribal land (based on census bureau boundaries) and 2) how many cases visited an Indian Health Service or tribal facility for healthcare.

DHCPP:
DHCPP subject matter experts collaborate on an ongoing project monitoring response to Human papillomavirus vaccination among Alaska Native people. This is done in collaboration with the DIDRI's Arctic Investigations Program and the CDC National Center for Immunization and Respiratory Diseases.

DHCPP partners with the Indian Health Service to analyze hospital data. DHCPP subject matter experts have an MOU to receive administrative data (including inpatient and outpatient data) from IHS and work with IHS Division of Epidemiology and Disease Prevention on a variety of analyses. The subjects of analyses may originate from either IHS or CDC and have covered a variety of topics, primarily infectious disease but recently there was an assessment of Alzheimer's disease among people who are using IHS healthcare.

Tribal Data Updates

Please Provide a Brief Description of any Efforts to help Tribes/TECs/THOs Build or Improve Data Infrastructure.
DFWED's Health Equity Team is supporting efforts to describe health disparities in DFWED surveillance systems and data, including disparities that could affect the quality, completeness, or utility of surveillance data available to support and inform tribal health activities.

DHCPP conducted a project to assess rabies testing rates in tribal lands. Using data collected by the National Rabies Surveillance system between 2014 and 2021, DHCPP created a rabies profile for the 10 most populous Tribal Nations in the continuous United States plus the Hualapai Reservation (as Mohave Country, AZ experienced a host shift event in 2022). Analysis found that the average sample submission per 100,000 varied by state. Tribal Lands located in South Dakota and Montana saw higher submission rates compared to their adjacent areas, 999 vs 78 and 326 vs 127, respectively. Tribal Lands located in Arizona and Oklahoma saw lower submission rates compared to their adjacent areas, 26 vs 63 and 30 vs 276, respectively. An analysis to predict the likelihood of rabies freedom at the county level found a high predicted probability of rabies freedom (over 90%) on Tribal Lands in Montana and South Dakota. The lowest predicted probability of rabies freedom amongst the 10 Tribal Lands assessed was in Arizona at 25%. While these data are only the beginning of improving surveillance gaps in Tribal Nations, DHCPP believes that this assessment is an important first step to addressing barriers.

Efforts to help Tribes/TECs/THOs to Collect, Acquire, or Improve data

DHQP continues to support surveillance efforts at IHS hospitals, specifically reporting into the National Healthcare Safety Network (NHSN). This has included creating an NHSN supergroup for IHS headquarters which provides situational awareness of specific Healthcare Associated Infections (HAIs) across IHS hospitals. Ongoing technical support includes semi-annual analysis and review of NHSN data, which is provided to IHS leadership and the Partnership to Advance Tribal Health (PATH). Additionally, DHQP collaborates with IHS and PATH to coordinate a webinar series designed to improve HAI surveillance and NHSN data entry.

Efforts to help Tribes/TECs/THOs Enhance their Ability to Manage, Analyze, Interpret, or Disseminate data

DHQP is planning to coordinate a webinar in 2024 related to analyzing and using NHSN data for action. This is part of the webinar series being coordinated with IHS and PATH.

DFWED's System for Enteric Disease Response, Investigation, and Coordination (known as SEDRIC) has its first Tribal user and the system is available for other state, territorial, local, and tribal partners as requested. During major meetings/conferences, DFWED's Office of Surveillance, Information, Management and Statistics (SIMSO) orients partners to the system so partners can manage, analyze, and interpret the data in the system. Additionally, SIMSO offers a monthly office hour that is open to everyone who has access to the platform.