



# Navajo Epidemiology Center Update

The **Navajo Epidemiology Center Update** provides an overview of the mission and activities of the NEC.

NEC is a program within the Navajo Department of Health, serving one of the largest Native American tribes in the U.S. The Navajo Nation has a population of approximately 165,000 Navajos living within the Navajo Nation boundaries, plus another approximately 258,000 living in border towns and metropolitan areas. It serves an area of 28,000 square miles in the U.S. Southwest. Portions of Arizona, New Mexico, and Utah extend into the Navajo Nation lands, necessitating working relationships with the “three-states” on several fronts, including public health.

NEC was established in 2005 to conduct epidemiological activities—collect, manage and analyze health data to identify priority health concerns; investigate disease outbreaks and develop control measures; and respond to public health emergencies in coordination with other public health authorities.

#### The NEC's primary objectives are:

data collection, analysis and interpretation; disease surveillance; disease control and prevention; and data sharing.

The NEC is one of twelve Tribal Epidemiology Centers across the United States. Tribal Epidemiology Centers are Indian Health Service funded organizations serving American Indian/Alaska Native tribal and urban communities.

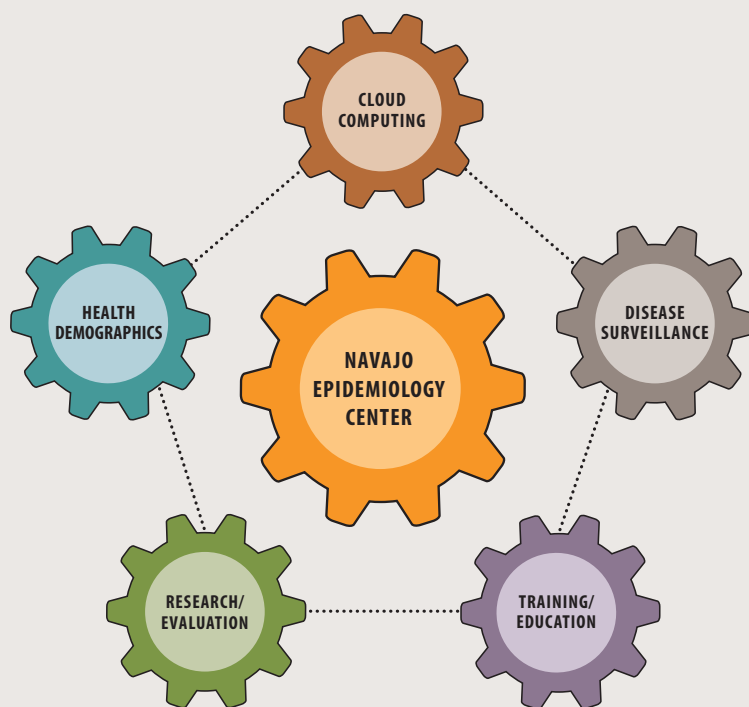
#### ► What does Epidemiology mean in Navajo?

#### ► Naaʼnjjh Naalkaah (Disease Tracking)

**Mission:** Improve the health status of Diné people by identifying health risks through Naaʼnjjh Naalkaah.

**Vision:** Empower Diné people through Naaʼnjjh Naalkaah to attain the highest level of health.

## TOOLS OF EPIDEMIOLOGY



#### CLOUD COMPUTING

#### DISEASE SURVEILLANCE FOCUS AREAS

- Infectious Disease Modeling • Mortality • Hospitalization & ER Visits
- Cancer Surveillance & Dashboard • Active Bacterial Surveillance
- Sexually Transmitted Infections Surveillance • Vaccine Confidence Promotion
- Maternal & Child Health • Hantavirus Disease Surveillance & Prevention

#### NAVAJO NATION HEALTH DEMOGRAPHICS

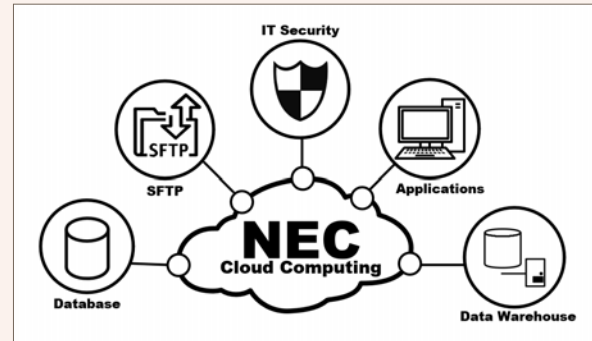
- Navajo Nation Health Survey • Navajo Population Profile

#### RESEARCH AND EVALUATION

#### TRAINING AND EDUCATION

## CLOUD COMPUTING

NEC is shaping its future with Cloud-Based Computing. The cloud computing infrastructure will provide delivery of computing services, including servers, storage, databases, networking, software, analytics, and intelligence — over the internet (“the cloud”). It will allow for data consolidation from diverse locations into a centralized repository. The unified cloud computing platform will facilitate drawing actionable insights from data. Data is at the heart of every scientific breakthrough and rich visualization can significantly help communicate important findings.



## DISEASE SURVEILLANCE FOCUS AREAS

### INFECTIOUS DISEASE MODELING

NEC, in partnership with Johns Hopkins Center for Indigenous Health and Infectious Disease Dynamics, has joined a network of innovators to design, prototype, test, refine, evaluate, and implement new and enhanced capabilities to improve disease modeling and analytics that enhance decision support during outbreaks of infectious diseases. Partnership and collaboration between academia, public health organizations, and the private sector is at the core of this effort. NEC’s participation in the network allows the Navajo Nation’s public health system to better respond to infectious disease threats by enabling a pipeline of research and development for novel data sources, modeling methods, and analytical tools that tests promising innovations in real-world settings and then supports the scale-up of successful innovations into routine practice. The network is also intended to enhance communication and collaboration among innovators, integrators, and implementors in analytic methods and public health partners in federal, state, tribal, local, and territorial

governments to improve outbreak response and enhance the ability to better control epidemics and pandemics. partners in federal, state, tribal, local, and territorial governments to improve outbreak response and enhance the ability to better control epidemics and pandemics.



Rank 2006-2009	Percent of Total deaths 2006-2009	Percent of Total deaths 2015-2017	Rank 2015-2017
1	Unintentional Injuries 18.9	Unintentional Injuries 16.9	1
2	Malignant neoplasm 12.7	Diseases of heart 12.3	2
3	Diseases of heart 12.2	Malignant neoplasm 11.5	3
4	Diabetes 5.7	Diabetes 6.5	4
5	Chronic liver disease and cirrhosis 5.6	Chronic liver disease and cirrhosis 6.4	5
6	Influenza and pneumonia 4.6	Cerebrovascular disease (stroke) 3.4	6
7	Intentional self-harm (suicide) 3.0	Influenza and pneumonia 2.9	7
8	Cerebrovascular disease (stroke) 2.7	Intentional self-harm (suicide) 2.9	8
9	Septicemia 2.3	Dementia 2.8	9
10	Other diseases of the respiratory system principally affecting the interstitium 2.2	Alcohol Dependence 2.8	10
11	Dementia 2.1	Assault 2.2	11
12	Assault 2.1	Other diseases of the respiratory system principally affecting the interstitium 1.9	12
13	Alcohol Dependence 2.0	Septicemia 1.9	13
14	Renal Failure 1.9	Renal Failure 1.4	14
15	Chronic lower respiratory disease 1.2	Chronic lower respiratory disease 1.4	15

### MORTALITY: LEADING CAUSES OF DEATH ON THE NAVAJO NATION

The causes of mortality and the changes over time are key indicators of population change. The Navajo mortality data are derived from death certificate data from Arizona, New Mexico and Utah Vital Records Offices. The Figure presents the leading 15 causes of death on the Navajo Nation for both genders combined comparing years 2006-2009 and 2015-2017. Unintentional injuries, heart disease, cancer, diabetes and liver disease and cirrhosis remained the 5 leading causes of death over the two time periods. The crafting of an up-to-date report is in progress, and we expect deaths from COVID to alter the rankings. Increases in drug overdose and alcohol use-related diseases during the pandemic may continue to affect other leading causes, like unintentional injuries and chronic liver disease and cirrhosis.

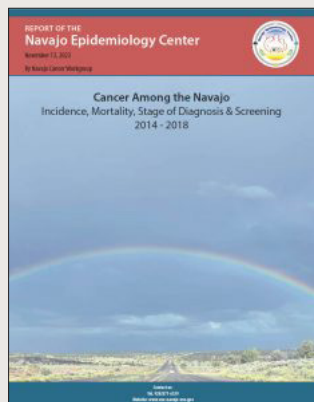
## DISEASE SURVEILLANCE FOCUS AREAS *(cont.)*

### LEADING CAUSES OF HOSPITALIZATIONS AND EMERGENCY ROOM VISITS ON THE NAVAJO NATION

The cause of morbidity and the changes over time are key indicators of disease burden for a population. The Navajo morbidity data are derived from the Epi Data Mart provided by the Indian Health Service. The health conditions are organized according to the International Classification of Diseases – 10 standards and guidelines. COVID was among the leading 10 causes of hospitalization during 2020 but not in 2021 or 2022. Age-adjusted rates for all visits declined from 2019 to 2021, possibly due to the COVID-19 pandemic, but have begun to approach pre-pandemic levels in 2022 (88% and 86% respectively). Hospitalization rates have remained high since 2019, with 2022 rates still above 2019 levels (25% higher). This could indicate lingering issues brought on by the pandemic. In addition, the Navajo Nation continues to be affected by syphilis disease (351% ER and 922% Hospitalization rate increase since 2019). Hospitalization and ER rates have also increased for “Harmful use of alcohol” (1110% and 413% respectively).

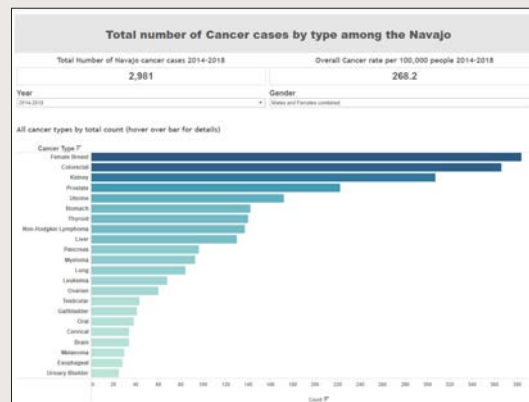
### CANCER SURVEILLANCE

Cancer is currently the third leading cause of death among the Navajo people. American Indian and Alaska Native people are often diagnosed at relatively advanced stages of cancer compared to non-Hispanic white people. Historical and cultural factors, such as the detrimental effects of uranium exposure and post-colonial changes in the food environment, in combination with social determinants of health (e.g., unemployment, food insecurity, lower access to affordable quality healthcare services) are major contributors to cancer in the Navajo people. From 2014-2018, Navajo people have experienced significantly higher rates of stomach, kidney, liver, myeloma, and gallbladder cancer compared to non-Hispanic Whites, but lower rates of lung, breast, prostate, leukemia, non-Hodgkin Lymphoma, and pancreatic cancer. Navajo people were diagnosed in later stages for breast cancer compared to non-Hispanic Whites, but not for colorectal and cervical cancer, which marked an improvement from earlier reports.



### CANCER DASHBOARD: FIRST TRIBAL CANCER DATA DASHBOARD IN THE U.S.

How can we communicate the beauty, structure and dynamics of science to the public? The answer is through data visualization (dashboard). Data visualization is a powerful tool that helps both scientists and public quickly understand the scope and context of health threats. Data is at the heart of every scientific breakthrough and rich visualization can significantly help communicate the important findings. We can now measure how many illnesses and deaths are caused by diseases via dashboard.

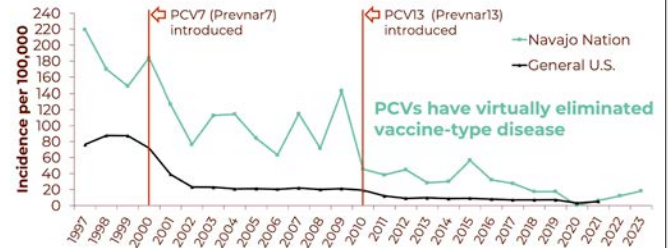


## DISEASE SURVEILLANCE FOCUS AREAS (cont.)

### ACTIVE BACTERIAL SURVEILLANCE

In partnership with the Johns Hopkins Center for Indigenous Health, Arizona and New Mexico Departments of Health, and 21 Indian Health Service, Tribal, and private health facilities serving the Navajo Nation, we can conduct active, laboratory-based surveillance for invasive bacterial disease caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Neisseria meningitidis*, *Staphylococcus aureus*, and *Group A Streptococcus*. The ‘Active Bacterial Surveillance’ project, or ‘ABS’ provides population-wide estimates of disease burden on the Navajo Nation due to the disproportionately high burden of invasive bacterial disease (e.g., meningitis, pneumonia, sepsis). By monitoring invasive bacterial infections over time, ABS allows for evaluation of the impact of interventions, like vaccines, and guides vaccine recommendations that are most beneficial.

### Rate of invasive pneumococcal disease (IPD) among Navajo children <5 years



### Navajo Nation STI Data Report 2015-2022

Report Reflects AZ and Utah Datasets

Does not include Utah Datasets



### SEXUALLY TRANSMITTED INFECTIONS SURVEILLANCE

Rates of sexually transmitted infections have increased every year through 2022 on the Navajo Nation. For 2015–2022, rates of syphilis for women of reproductive age and congenital syphilis (a disease that occurs when a mother with syphilis passes the infection on to her baby during pregnancy) increased by more than 250%. Congenital syphilis can cause adverse pregnancy outcomes such as fetal and neonatal death, low birthweight, preterm birth, and brain and nerve disorders. The NEC is enhancing its capacity to provide epidemiology support (data analytics) to emergency response efforts on the Navajo Nation, including data sharing between stakeholders for syphilis cases, characterization of STI case counts, and syphilis case prioritization.

### VACCINE CONFIDENCE PROMOTION

The introduction and widespread use of vaccines has resulted in dramatic declines in the incidence of infectious diseases on the Navajo Nation. The COVID-19 pandemic and ensuing interruptions to clinic operations, along with general vaccination fatigue, have led to a decline in the vaccination rate on the Navajo Nation. Safe and effective vaccines are key pillars of community control of COVID-19 and other pathogens (i.e., Flu, RSV) that cause respiratory diseases. Vaccines not only prevent severe COVID disease, but they have also been shown to reduce the risk of long COVID. When COVID-19 vaccines became available, uptake by Navajo adults was rapid and high compared with other U.S. races. However, despite data from the Navajo Nation proving the effectiveness of COVID-19 vaccines, the proportion of adults who are currently up-to-date is below 50%. While elders have the highest rate of being “up-to-date” for COVID vaccine of any age group, most have not gotten the recently recommended vaccine, leaving them vulnerable to severe disease. Reasons for declining coverage possibly include pandemic fatigue, low perception of risk, interruptions to routine health care and increasing vaccine hesitancy due to misinformation.

"Protect Yourself, Protect Navajo"

**STIs can be prevented if you**

**Talk. Test. Treat.**

Adil'idli (self-respect). Adahodilzin (respect & reverence). Adaa Ahaya (selfcare). Adaa Haah Hasin (know your limits).

STI treatment Guidelines: [QR Code]

CDC

**GET VACCINATED**

**PROTECT YOURSELF THIS COMING YEAR FROM COLD, FLU, RSV AND COVID-19**

**WASH YOUR HANDS**

**SANITIZE YOUR HANDS**

**WEAR A MASK IF SICK**

NAVAJODISEASEPREVENTION

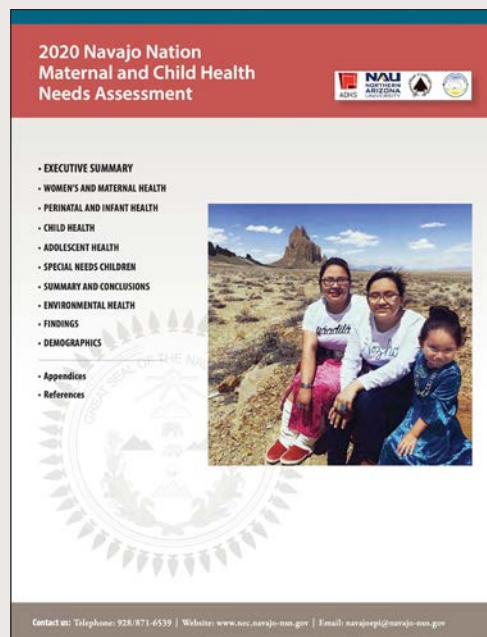
@NavajoMSP

## DISEASE SURVEILLANCE FOCUS AREAS *(cont.)*

### MATERNAL AND CHILD HEALTH

In partnership with state (AZ, NM, UT) partners, the NEC conducts the Navajo Pregnancy Risk Assessment Monitoring System (PRAMS). The purpose of Navajo PRAMS is to reduce infant morbidity and mortality by influencing maternal behaviors before, during and after pregnancy. The Navajo PRAMS survey asks new Navajo mothers questions about their pregnancy and their infant. The survey responses give us important information about the mother and infant (for instance, prenatal care, breastfeeding, smoking, infant safe sleep); and provides data for tribal health programs to use to improve the health of Navajo mothers and infants.

In partnership with the Diné College Public Health program, Northern Arizona University, Arizona Department of Health Services and others, the Navajo Epidemiology Center is a contributing member of the Navajo Maternal and Child Health (MCH) committee. The committee developed the first ever Navajo MCH Needs Assessment and Strategic Plan. The needs assessment focuses on maternal health, perinatal and infant health, adolescent health, and special needs children. The identified priorities are prenatal care, breastfeeding, nutrition, and mental health. The Diné College Public Health program implements several MCH activities, including the development and broadcasting of radio Public Service Announcements (PSAs) across Navajo Nation.



### HANTAVIRUS DISEASE SURVEILLANCE AND PREVENTION

Currently, Hantavirus disease remains a public health threat on the Navajo Nation. Over the past 30 years, more than 130 people have died from Hantavirus. When people get Hantavirus infection, the disease can be very severe and most patients need to be airlifted to major hospitals for intensive care, and almost one in two patients do not survive (44% fatality rate). The virus is spread to people by deer mice via droppings, urine and saliva. Because deer mice will always be in the environment, the ways that we can prevent Hantavirus infection are by preventing mouse infestations in homes and by providing awareness and prevention education.

Reckitt Benckiser Company donated \$100,000 to support the Healthy Homes, Healthy People (3HP) project at Little Water Chapter (LWC). The 3HP project at LWC, designed collaboratively with LWC, NEC, IHS, CDC and CDC Foundation, aims to reduce the risk of exposure to Hantavirus among residents of LWC by providing rodent exclusion interventions and empowering residents to repair their homes against rodents. The project also aims to increase awareness and prevention of Hantavirus disease and assist in home repairs as part of rodent exclusion practices.

**Hantavirus 5-Point Rapid Screening Tool:** Given the rapid progression of Hantavirus disease and with a 44% fatality rate on the Navajo Nation, there is a need for a rapid screening tool. UNM Hospital developed a rapid screening tool for the triage of suspected Hantavirus cases based on five criteria obtained from a peripheral blood smear. The screening tool has been implemented at some IHS facilities on the Navajo Nation. There are ongoing training workshops seeking to expand the use of the rapid screening tool at all IHS facilities serving the Navajo Nation.

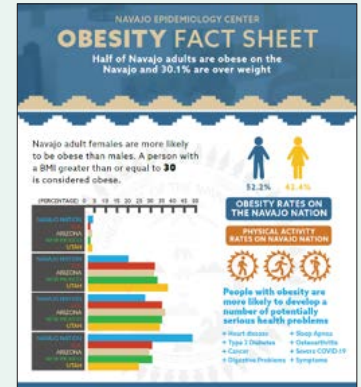


AJCP   ORIGINAL ARTICLE	
<b>Hantavirus Disease and COVID-19</b>	
<b>Evaluation of the Hantavirus 5-Point Screen in 139 COVID-19 Patients</b>	
<p>Allison K. Joyce, MS<sup>1,2</sup>, Tamah T. Oliver<sup>1,2</sup>, Aaron D. Kofman, MD<sup>3</sup>, Donna L. Talker<sup>2</sup>, Shahrokh Gafsoian<sup>2</sup>, Deniz Pektur Barclift, MD<sup>2</sup>, Adam J. Perricone, MD, PhD<sup>4</sup>, Shawn M. D'Andrea, MD<sup>5</sup>, Amy N. Whitehead, MPH<sup>1</sup>, Del Yabiku, MPH<sup>1</sup>, Jeannette Guarnier, MD<sup>1,6</sup>, Mozfar Saikh, MS<sup>2</sup>, Glynnis B. Ingal, MD, PhD<sup>1</sup>, Mary-J. Choi, MD<sup>1</sup>, and Ramona Antonio-Naz, MPH<sup>1</sup></p> <p><small>From the <sup>1</sup>National Center for Emerging and Zoonotic Infectious Diseases, CDC, Atlanta, GA, USA; <sup>2</sup>Tulanehmed Medical Center, Fort Belvoir, AZ, USA; <sup>3</sup>Tulane University, Atlanta, GA, USA; <sup>4</sup>Navajo Epidemiology Center, Window Rock, AZ, USA; and <sup>5</sup>University of New Mexico Health Sciences Center, Albuquerque, NM, USA.</small></p>	
<b>ABSTRACT</b>	
<b>Objectives:</b> Navajo Nation is disproportionately affected by hantavirus cardiopulmonary	
<p><b>KEY POINTS</b></p> <ul style="list-style-type: none"> <li>Hantavirus cardiopulmonary syndrome (HPCS) and coronavirus disease 2019 (COVID-19) can be very difficult for clinicians to distinguish upon initial signs and symptoms.</li> <li>Based on peripheral blood smears, patients with COVID-19 do not demonstrate the elevated hemoglobin, left shift, and immunoblasts and plasma cells more than 10% of lymphoid cells signs characteristic of HPCS.</li> <li>The low scores that patients with COVID-19 receive on the hantavirus 5-point screen indicate that tool can be used as a rapid screen to differentiate between the two diseases in HPCS endemic regions.</li> </ul>	

## HEALTH DEMOGRAPHICS

### NAVAJO NATION HEALTH SURVEY

The Navajo Nation Health Survey is the NEC's award-winning system of health-related surveys that collect data about Navajo residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services. By collecting behavioral health-risk data among Navajo residents, NNHS has become a powerful tool for customizing and planning health promotion activities. NNHS is a go-to resource for health data scientists and researchers and is often cited in peer reviewed scientific publications. NNHS is also a data source for other tools and systems that are being crafted currently— such as Tribal Community Health Assessments, Navajo Nation Chronic Disease & Social Determinants of Health Indicators, and Navajo Nation Healthy People 2030.



### NAVAJO POPULATION PROFILE

One of the key elements in the field of epidemiology is to know the population demographics, such as information about population size, population distribution characteristics (age, gender), geography, etc. Furthermore, it allows public health professionals to use the population information to calculate disease rates (incidence, prevalence, mortality, morbidity). The goal of the Profile is an attempt to enumerate the Navajo population based on the most recent population data provided by the U.S. Census. According to the 2020 U.S. Census enumeration, there are a total of 423,412 individuals living in the U.S. who claimed to have Navajo ancestry (this includes those who claimed to be full-blooded Navajo and those who claimed to be part Navajo and another race). The Navajo Nation encompasses 27,425 square miles of land that extends into New Mexico, Arizona, and Utah, and borders Colorado, which makes the Navajo Nation the largest tribal nation by population and geography in the U.S.



## RESEARCH & EVALUATION

### MOU BETWEEN THE NEC & JOHNS HOPKINS CENTER FOR INDIGENOUS HEALTH

The Navajo Nation President Buu Nygren signed a 5-year extension of the **Memorandum of Understanding**. The purpose of the MOU is to further improve the health and well-being of the Navajo people, promote health equality, health innovations, workforce development, and health leadership with and for tribal members and residents of the Navajo Nation. President Nygren expressed gratitude, acknowledging the challenges faced by their community: “I know a lot of our people struggle with diabetes, addictions, mental health, and behavioral health issues. Through research and our partnership with the number one public health institution, we’re truly honored to have you here on Navajo land.” Dr. Allison Barlow, Executive Director of Johns Hopkins Center for Indigenous Health, shared her feelings: “I feel so humbled to work among these incredible people. They’re just amazing. I’ve learned so much from the Diné people about selflessness, hard work and service to people.”

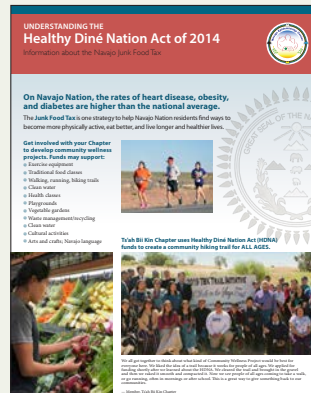


**RESEARCH & EVALUATION** *(cont.)*

**HEALTHY DINÉ NATION ACT (JUNK FOOD TAX POLICY)**

In 2014, the Navajo Nation Healthy Diné Nation Act (HDNA) was passed, combining a 2% tax on foods of ‘minimal-to-no-nutritional value’ and waiver of 5% sales tax on healthy foods, the first-ever such tax in the U.S. and globally among a sovereign tribal nation. The aim of this study was to measure changes in pricing and food availability in stores on the Navajo Nation following the implementation of the HDNA.

Due to the low density of grocery stores, convenience stores play a major role in the food availability and modest improvements have the potential to impact food accessibility for rural tribal communities at high-risk for food insecurity and food-related chronic conditions.



**RESEARCH PUBLICATIONS**

NEC is an active member of the Navajo Nation Human Research Review Board (Tribal IRB), and collaborates with academic and institutional partners to conduct health research on the Navajo Nation.

- Harris AM, Yazzie D, Antone-Nez R, Dinè-Chacon G, Kinlacheeny J, Foley D, et al. Community-Acquired Invasive GAS Disease among Native Americans, Arizona, USA, Winter 2013. *Emerg Infect Dis*. 2015;21(1):177-179. <https://doi.org/10.3201/eid2101.141148>
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- de St. Maurice A, Ervin E, Schumacher M, Yaglom H, VinHatton E, Melman S, et al. Exposure Characteristics of Hantavirus Pulmonary Syndrome Patients, United States, 1993–2015. *Emerg Infect Dis*. 2017;23(5):733-739. <https://doi.org/10.3201/eid2305.161770>
- Allison K Joyce, Tarrah T Oliver, Aaron D Kofman, Donna L Talker, Shahrokh Safaiean, Deniz Peker Barclift, Adam J Perricone, Shawn M D’Andrea, Amy N Whitesell, Del Yazzie, Jeannette Guarner, Mozafar Saleki, Glynnis B Ingall, Mary J Choi, Ramona Antone-Nez, Hantavirus Disease and COVID-19: Evaluation of the Hantavirus 5-Point Screen in 139 COVID-19 Patients, *American Journal of Clinical Pathology*, Volume 157, Issue 3, March 2022, Pages 470–475, <https://doi.org/10.1093/ajcp/aqab155>
- Yazzie D, Tallis K, Curley C, Sanderson PR, Eddie R, Behrens TK, et al. The Navajo Nation Healthy Diné Nation Act: A Two Percent Tax on Foods of Minimal-to-No Nutritious Value, 2015–2019. *Prev Chronic Dis* 2020; DOI: <http://dx.doi.org/10.5888/pcd17.200038>
- Yazzie, Del MPH; Tallis, Kristen MPH; Curley, Caleigh MPH; Sanderson, Priscilla R. PhD; Eddie, Regina PhD; Shin, Sonya MD, MPH; Behrens, Timothy K. PhD; George, Carmen MS; Antone-Nez, Ramona MPH; Jumbo-Rintila, Shirleen BS; Begay, Gloria Ann MA; de Heer, Hendrik “Dirk” PhD, MPH. The Navajo Nation Healthy Diné Nation Act: A Description of Community Wellness Projects Funded by a 2% Tax on Minimal-to-No-Nutritious-Value Foods. *Journal of Public Health Management and Practice* 28(2):p E471-E479, March/April 2022. | DOI: 10.1097/PHH.0000000000001371
- George C, Bancroft C, Salt SK, Curley CS, Curley C, de Heer HD, et al. (2021) Changes in food pricing and availability on the Navajo Nation following a 2% tax on unhealthy foods: The Healthy Diné Nation Act of 2014. *PLoS ONE* 16(9): e0256683. <https://doi.org/10.1371/journal.pone.0256683>
- Carmen George, Carolyn Bancroft, Shine Salt, Caleigh Curley, Cameron Curley, Regina Eddie, Tierra Edison, Hendrik de Heer, Priscilla R. Sanderson, Del Yazzie, Ramona Antone-Nez, Sonya Shin. Successful implementation of the Healthy Diné Nation Act in stores on the Navajo Nation. *Preventive Medicine Reports*, Volume 24, 2021, 101573, ISSN 2211-3355. <https://doi.org/10.1016/j.pmedr.2021.101573>
- John B, Etsitty SO, Greenfeld A, Alsbury R, Egge M, Sandman S, George C, Curley C, Curley C, de Heer HD, Begay G, Ashley ME, Yazzie D, Antone-Nez R, Sunhi Shin S, Bancroft C. Navajo Nation Stores Show Resilience During COVID-19 Pandemic. *Health Promot Pract*. 2022 Nov;23(1\_suppl):86S-95S. <https://doi.org/10.1177/15248399221118393>
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- Curley C, Eddie R, Tallis K, Lane TS, Yazzie D, Sanderson PR, Lorts C, Shin S, Behrens TK, George C, Antone-Nez R, Ashley C, de Heer HD. The Navajo Nation Healthy Diné Nation Act: Community Support of a 2% Tax on Unhealthy Foods. *J Public Health Manag Pract*. 2023 Sep-Oct 01;29(5):622-632. doi: 10.1097/PHH.0000000000001753
- Trujillo Lalla, Amber et al. Shopper Purchasing Trends at Small Stores on the Navajo Nation since the Passage of the Healthy Diné Nation Act Tax: A Multi-Year Cross-sectional Survey. *Current Developments in Nutrition*, Volume 6, Issue 5, nzac040

## TRAINING & EDUCATION

We are dedicated to supporting current and future Indigenous health professionals in their educational and professional development. Through our Center, we strive to provide the tools and information to strengthen Navajo communities. We partner with experts in Indigenous health from various academic institutions to provide exemplary educational opportunities for Navajo students and public health workforce. Our Center has hosted and provided mentoring to over twenty Navajo interns over the past ten years who have earned master's and doctoral degrees.

The NEC serves as a host site for student internships, partnering with:

*Diné College, Northern Arizona University, University of Arizona, University of New Mexico, and Johns Hopkins Bloomberg School of Public Health.*

### NEC INTERN: SAMANTHA ENOS (DINÉ)

Samantha Enos is currently enrolled in the Masters of Public Health Epidemiology program at the University of Arizona. Recently, she helped re-establish connections for the Navajo PRAMS project with three state PRAMS partners at NEC. She was also involved in data cleaning for the Navajo Health Survey project. Additionally, she gave a presentation on Hantavirus to summer youth employees at Cornfields Chapter. Pursuing a graduate degree is a new and exciting challenge for her, and Samantha aims to graduate in 2025. After that, she hopes to work with a tribal epidemiology center for a few years before considering a terminal degree in Social Work. If you are considering grad school, Samantha has some pearls of wisdom to share: “Lock down your funding as soon as you’re admitted. Look into faculty assistantships, research and teaching gigs, and graduate assistantships, and be sure to hunt down those scholarships.”



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### NEC INTERN: CALEIGH CURLEY (DINÉ/HOPI)

Caleigh Curley is a doctoral candidate in the Department of Community, Environment and Policy at the Mel and Enid Zuckerman College of Public Health, University of Arizona.

“My experience as an intern at NEC has propelled my academic and professional journey in Public Health. During my internship, I learned the ins and outs of policy development, implementation, and evaluation, which influenced my decision to pursue a Doctorate in Public Health Policy and Management. My goal is to apply what I have learned throughout my academic journey to provide expert analysis, advice, and guidance to senior and political leaders on policy, regulatory, and legislative issues that have significant and direct impacts on the health and well-being of Indigenous Peoples.”

“What resonated with me the most while at NEC was the culture—including its positive environment, caring leaders, and opportunities for collaboration with external entities such as academic institutions; this made my experience worthwhile. I also resonated with their efforts to collect, analyze, and interpret Tribe-specific health data to inform and help our leaders make data-driven decisions for the Navajo Nation.”



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### PUBLIC HEALTH TRAINING CERTIFICATE

In partnership with Johns Hopkins Center for Indigenous Health, NEC is working on developing and providing public health training for the Navajo Department of Health (NDOH) workforce. The one-week training certificate program will be offered annually. The title of the training will be “An Interdisciplinary Approach to Understanding the Health of the Diné,” which will be designed for NDOH workforce who are serving the health needs of the Diné. The one-week training will provide a survey of Diné health, via an interdisciplinary approach. The training will explore the health and illness perceptions of Diné and consider approaches that blend traditional healing with Western and other methods. Training participants will learn about priority health issues in the core public health disciplines of epidemiology, social, behavioral and mental health, environmental health, health policy and management; and ways to view them from the perspectives of the Diné.



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## NAVAJO EPIDEMIOLOGY CENTER RECEIVES AWARDS FOR OUTSTANDING COVID-19 EPI TEAM



**The Navajo Epidemiology Center** and its partners received the awards from Navajo Area Indian Health Service for excellence in COVID-19 disease surveillance, data analysis and data sharing for the Navajo Nation.

**The Navajo Epidemiology Center (NEC)** plays a critical role in assisting with making data-driven decisions by collecting and analyzing data, and using them to develop appropriate strategies and activities for COVID-19 response on the Navajo Nation. NEC is working with partners (tribal programs, Indian Health Service, tribal health organizations, state health departments, academic institutions, non-profit programs, and the Centers for Disease Control and Prevention), to conduct COVID-19 disease surveillance, perform contact tracing, and manage the data to help with data visualization. NEC also shares its daily COVID-19 situational reports with leaders, partners and the general public to help with making informed decisions. Additional information can be found at: [www.nec.navajo-nsn.gov](http://www.nec.navajo-nsn.gov).

### **What is epidemiology?**

The study of the distribution and determinants of health-related states in specified populations, and the application of this study to control health problems. Epidemiology is the basic science of public health. It's a highly quantitative discipline. Epidemiologists study the distribution of frequencies and patterns of health events such as the COVID-19 pandemic. It characterizes health events in terms of time, place and person. The Navajo Epidemiology Center collects and analyzes data for the Navajo Nation and shares it with the Nation's residents, leadership, health officials, hospitals, states, and other partners. The information helps protect the residents of the Navajo Nation.

**SPACE FOR NOTE TAKING**



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- Indian Health Service, Division of Epidemiology and Disease Prevention
- Centers for Disease Control and Prevention (CDC), Tribal Epidemiology Centers Public Health Infrastructure
- Partnership for Native American Cancer Prevention Outreach Core, National Cancer Institute through Northern Arizona University and University of Arizona
- American Cancer Society through the Center for Native American Cancer Health Equity through Northern Arizona University
- Reckitt Benckiser Company through CDC Foundation
- NIH Native American Research Centers for Health through Diné College and Northern Arizona University
- NIH National Institute on Minority Health & Health Disparities through Northern Arizona University
- Robert Wood Johnson Foundation through Northern Arizona University
- Arizona Department of Health Service Maternal Health Innovation through Diné College
- CDC Center for Forecasting and Analytics through Johns Hopkins Center for Indigenous Health and Infectious Disease Dynamics

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