

# Active Bacterial Surveillance

February 2023 Newsletter



CENTER FOR  
INDIGENOUS HEALTH



JOHNS HOPKINS  
BLOOMBERG SCHOOL  
of PUBLIC HEALTH

## What we do

In collaboration with the Navajo Nation and White Mountain Apache Tribe, the Center for Indigenous Health (CIH) actively monitors serious diseases caused by the bacteria *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Neisseria meningitidis*, *Staphylococcus aureus*, and group A *Streptococcus* in people living in and near the Navajo and White Mountain Apache Tribal lands. Native American individuals have higher rates of disease caused by these bacteria. **In this issue of the newsletter, we provide an update on how the COVID-19 pandemic has affected serious illness caused by bacterial infections and introduce two new activities: group A *Streptococcus* surveillance and a carriage study.**



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Please visit our new  
website!

<https://cih.jhu.edu>

## Exciting news from the Center for Indigenous Health!

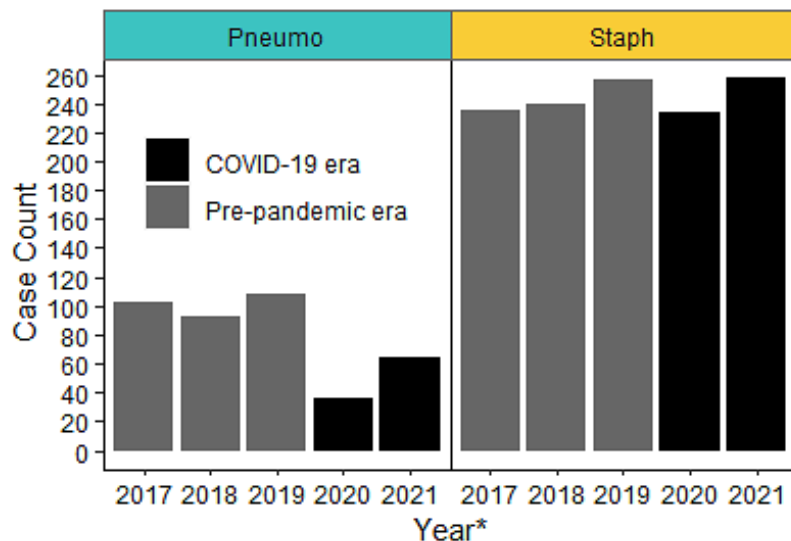
We are excited to announce that we've changed our name to the Center for Indigenous Health (formerly the Center for American Indian Health). Names carry meaning, often honor connections to culture and heritage, and tie us to our past, present, and future. The decision to change our name has been evolving for several years. The word "Indigenous" means the first inhabitants of a particular land. Using this term pays respect and recognition to the First Peoples in ways that other nomenclature does not. In addition, while our priorities remain with Indigenous Peoples in the U.S., our new name signals our tremendous growth and broadening collaborations with Indigenous Peoples across the globe.

## Invasive bacterial disease during the COVID-19 pandemic

The COVID-19 pandemic has disproportionately impacted Native American communities, highlighting the importance of continuing to monitor the burden of other serious diseases that impact these same communities. Through the Active Bacterial Surveillance system, we identified differing trends in the years before and during the pandemic for invasive disease caused by the bacteria *S. aureus* ("Staph") and *S. pneumoniae* ("Pneumo").

While the burden of serious disease caused by Staph remained relatively unchanged despite the pandemic (**Figure 1, right**), the same was not true for Pneumo. The number of cases was relatively stable before the COVID-19 pandemic, then case numbers reduced significantly during the pandemic (**Figure 1, left**). A similar decrease in Pneumo was observed in many contexts around the world during the pandemic. This reduction was likely related to the prevention measures (e.g., masking, social distancing) implemented during the early stages of the pandemic, which decreased circulation of seasonal respiratory viruses like influenza and respiratory syncytial virus (RSV) that often precede Pneumo disease. These measures had little impact on Staph because it doesn't rely as heavily on person-to-person transmission. With the return to pre-pandemic behaviors and the increased circulation of respiratory viruses, we are beginning to see an increase in Pneumo, underscoring the importance of staying current on Pneumo vaccination.

Figure 1. Pneumo and Staph, April 2017 - March 2022



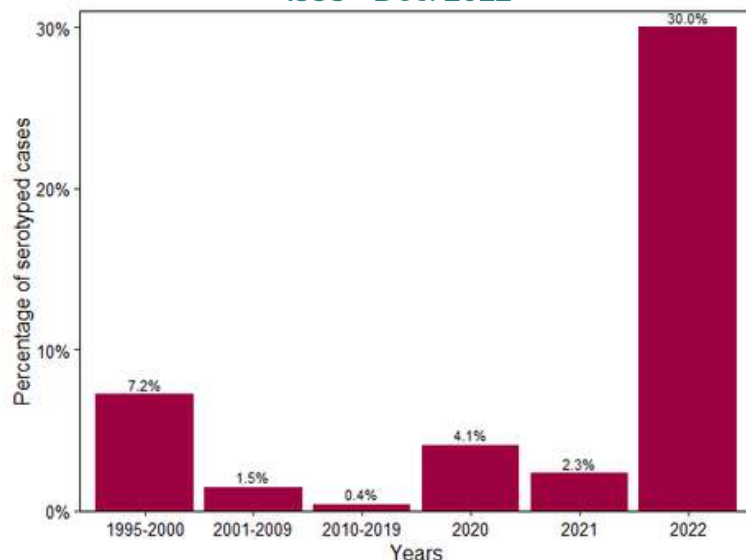
\*Year = April of the year indicated - March of the following year

### Pneumo caused by Serotype 4

There are more than 100 different serotypes of Pneumo that can cause disease. Last year, we saw a notable increase in invasive Pneumo disease caused by serotype 4 (Figure 2). In 2022, serotype 4 accounted for 30% (24/80) of invasive cases. Serotype 4 is included in all available pneumococcal vaccine formulations and had previously been virtually eliminated in Navajo and White Mountain Apache Tribal lands following the introduction of Prevnar7™ into the routine childhood immunization schedule in 2000.

Most of the serotype 4 invasive Pneumo disease in 2022 was among unvaccinated adult males aged 18-64 years. Vaccination remains an important tool for preventing serious disease caused by Pneumo. Adults ≥65 years and those aged 19-64 years with certain underlying conditions or risk factors who have not previously received a pneumococcal conjugate vaccine or whose vaccination status is unknown should be vaccinated.

Figure 2. Serotype 4 Pneumo among cases, Jan. 1995 - Dec. 2022



### Group A Streptococcus surveillance

Group A *Streptococcus* (GAS) can cause illnesses ranging from mild (e.g. sore throat) to serious (e.g. pneumonia) disease. In response to the high burden of GAS disease in Native American communities, GAS will be added to ABS. GAS isolates from serious illness and sore throat will be collected from the lab and tested to determine the strain. This will provide information on the burden of serious GAS infections and the strains causing disease in the community, which can help us design effective interventions for preventing disease.

### The PNEU-CARE study

The CIH recently began the PNEU-CARE study to look at how often we find *S. pneumoniae* and other respiratory bacteria, including *H. influenzae*, *S. aureus*, and group A *Streptococcus*, in the nose and throat of Native American children in the Southwest. Carriage (or the presence of these bacteria in the nose or throat) is not generally associated with health problems but if the bacteria move to other parts of the body, it can lead to disease. Understanding the amount of carriage and which strains are involved in carriage can help us learn how to prevent disease caused by these bacteria and to advocate for the most beneficial vaccination policies for Navajo and White Mountain Apache children.

## Thanks to our many community partners!



#### Navajo Nation

- Represented by 20+ laboratories
- Navajo Epidemiology Center
- Navajo Area Indian Health Service
- Navajo Nation Human Research Review Board (NNR-19.343 & NNR-16.238)



#### White Mountain Apache

- Represented by 3 laboratories
- White Mountain Apache Tribal Council
- Whiteriver Indian Health Service
- Phoenix Area Indian Health Service (PXR 97.04, PXR 16.02, & PXR 18.06)



### What bacterial isolates do we look for?

- *Streptococcus pneumoniae*
- *Staphylococcus aureus*
- *Haemophilus influenzae*
- Group A *Streptococcus*
- *Neisseria meningitidis*

### Isolate from sterile body sites:

- Blood
- Bone
- Cerebrospinal fluid
- Pericardial fluid
- Peritoneal fluid
- Pleural fluid
- Synovial fluid (joint fluid)
- Middle ear (*S. pneumoniae* only)

We request ONE slant of the *S. pneumoniae*, *H. influenzae*, *N. meningitidis*, *S. aureus*, or Group A *Streptococcus* isolate. CIH will provide the chocolate agar slants upon request. Isolates are sent to our reference labs for additional testing. Please maintain the isolate in your lab until you receive confirmation from us that the isolate was viable.

### If you have any questions about Active Bacterial Surveillance, please contact us:

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### The mission of the Johns Hopkins Center for Indigenous Health:

We work in partnership with communities to advance Indigenous well-being and health leadership to the highest level.

Behavioral and mental health    Infectious disease prevention    Higher education    Leadership development