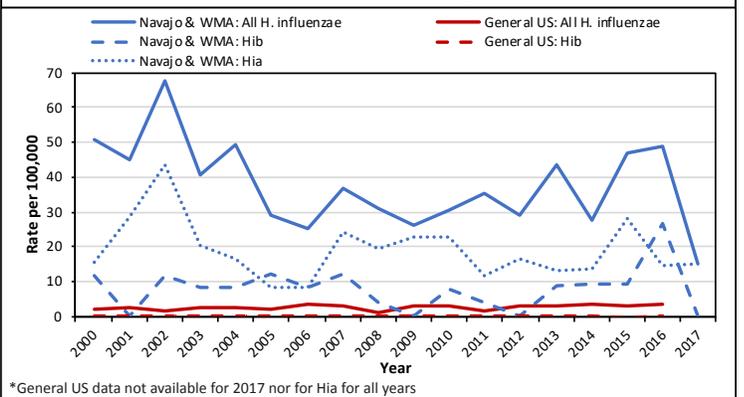


Active Bacterial Surveillance Newsletter

What We Do: The Center for American Indian Health (CAIH) actively monitors serious diseases caused by the bacteria *Streptococcus pneumoniae*, *Haemophilus influenzae* (*H. influenzae*), *Neisseria meningitidis*, and *Staphylococcus aureus* in people living on and around the Navajo and White Mountain Apache (WMA) Tribal lands; and Group A *Streptococcus* on WMA. Native Americans have higher rates of disease caused by these bacteria. In this issue of the newsletter, we describe trends in *H. influenzae* disease in children and provide an update on chemoprophylaxis guidelines.

Overview: *H. influenzae* can cause serious diseases such as pneumonia, meningitis, and ear infections. The bacteria can be encapsulated (types a-f) or unencapsulated (non-typeable). *H. influenzae* can live in the back of the nose and throat without causing illness (carriage). Transmission occurs through direct contact with respiratory droplets from someone who carries the bacteria or has *H. influenzae* disease. Native Americans have historically had high rates of invasive *H. influenzae* disease. Routine use of *H. influenzae* type b (Hib) vaccine, beginning in 1991, resulted in a reduction in Hib disease by 92% in Native American children in the southwest U.S. However, the rate of Hib disease remains many times higher in Native American children than in the general U.S. (Figure 1). *H. influenzae* type a (Hia) disease, which has a clinical presentation similar to Hib, now causes a majority of *H. influenzae* disease. While the rate of Hia disease has been stable in this surveillance system, it is increasing in other indigenous populations.

Figure 1: Rates of invasive *H. influenzae* disease among Navajo and WMA children <5 years compared to the general US, 2000-2017*



Control Measures: Secondary cases of Hib disease most often occur in young, unimmunized close contacts, usually in the first week after the index patient is hospitalized. Secondary cases can be prevented by providing rifampin chemoprophylaxis, which reduces the risk of transmission and disease by eliminating *H. influenzae* in the back of the throat. Given the severity of invasive Hia disease, the high incidence among some communities, including the Navajo Nation, and the concern that secondary cases could occur, the American Academy of Pediatrics recommends that clinicians consider chemoprophylaxis for close contacts of a person with invasive Hia. Prophylaxis should be initiated as soon as possible; however, secondary cases can occur later, and therefore initiation of prophylaxis ≥ 7 days after hospitalization of the index patient may still be of benefit. Chemoprophylaxis should be considered for:

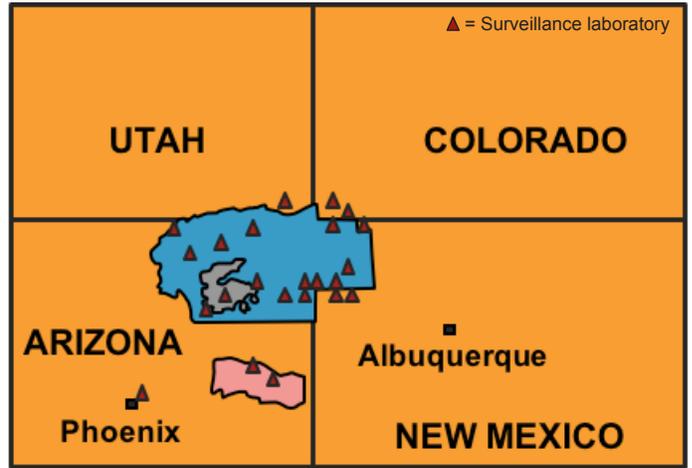
- All household contacts when at least one member of the household is aged <4 years or is immunocompromised.
- Preschool or child care center contacts when two or more cases of Hia invasive disease have occurred within 60 days.
- The index patient, if aged <2 years or member of a household with a susceptible contact and treated with a regimen other than cefotaxime or ceftriaxone chemoprophylaxis at the end of therapy for invasive disease.

Disease Investigation: In order to understand reservoirs for transmission and risk factors for *H. influenzae* disease, CAIH, in collaboration with the Arizona Department of Health Services, the New Mexico Department of Health, and the Navajo Epidemiology Center, is conducting a case-control study of invasive *H. influenzae* disease on the White Mountain Apache Tribal lands and the Navajo Nation. Enrolled participants provide an oropharyngeal sample and complete a survey. If rifampin is prescribed as chemoprophylaxis, we collect a second swab to assess its effect on *H. influenzae* carriage.

Many Thanks to our community partners

- Navajo Nation**
- Represented by 20+ laboratories
 - Navajo Epidemiology Center
 - Navajo Area Indian Health Service

- White Mountain Apache**
- Represented by 3 laboratories
 - White Mountain Apache Tribal Council
 - Phoenix Area Indian Health Service



What bacterial isolates do we look for?

- Streptococcus pneumoniae*
- Haemophilus influenzae*
- Neisseria meningitidis*
- Staphylococcus aureus*
- Group A *Streptococcus* (WMA only)

Isolated from normally sterile body sites such as:

- Blood
- Cerebrospinal Fluid (CSF)
- Joint Fluid (Synovial Fluid)
- Middle Ear (*S. pneumo* only)
- Amniotic fluid, placenta, wound (Group A *Strep.* only)
- Bone
- Pleural Fluid
- Peritoneal Fluid
- Pericardial Fluid

We request ONE slant of the *S. pneumoniae*, *H. influenzae*, *N. meningitidis*, *S. aureus* or Group A *Streptococcus* isolate. CAIH 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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Photos by Ed Cunicelli

The mission of Johns Hopkins Center for American Indian Health is:

to work in partnership with American Indian and Alaska Native communities to improve the health status, self-sufficiency, and health leadership of Native people. This mission is accomplished through three core activities:

- Research Training/Education Service**