

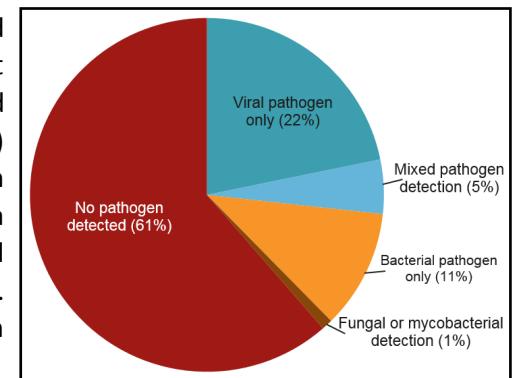
Active Bacterial Surveillance Newsletter

November 2016

What We Do: The Center for American Indian Health (CAIH) actively monitors serious diseases caused by the bacteria *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Neisseria meningitidis*, and *Staphylococcus aureus* in people living on and around the Navajo and White Mountain Apache (WMA) tribal lands. American Indians have higher rates of disease caused by these bacteria compared to the general US population. In this issue of the newsletter, we discuss the challenges associated with identifying the causes of pneumonia and list the potential benefits of a new study that investigates the causes of pneumonia in American Indian adults.

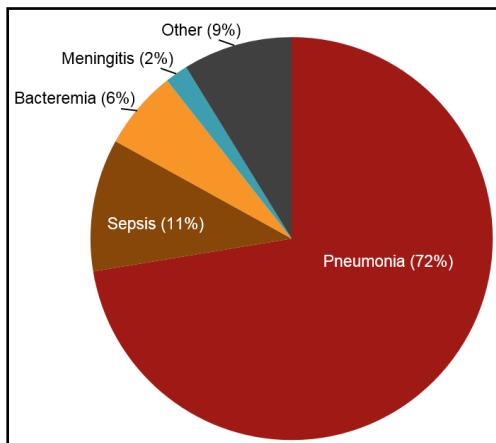
Community Acquired Pneumonia: Community acquired pneumonia (CAP) is a leading cause of morbidity and mortality among American Indian adults. CAP refers to the type of pneumonia that occurs in individuals who have not had prolonged contact with a healthcare facility. Bacteria and viruses are the most common causes of CAP. However, the pneumonia-causing pathogen is identified in less than 50% of CAP cases (figure 1). There are several reasons for this: (1) the causes of pneumonia are typically determined by testing blood rather than testing a sample from the site of infection (i.e., the lungs), (2) detection of a pathogen in the blood can be difficult if antibiotics were initiated before blood collection or (3) because traditional microbiologic techniques lack sensitivity. This can make it difficult to treat the infection. Identifying the causes of CAP can help focus prevention and treatment efforts and reduce the number of people suffering from this illness.

Figure 1: Pathogen detection among US adults with CAP requiring hospitalization¹



¹Jain et al. Community-acquired pneumonia requiring hospitalization among U.S. adults. *N Engl J Med.* 2015; 373:415-427

Figure 2: Clinical syndromes among Navajo adults with invasive pneumococcal disease,



Vaccinations Against Pneumonia: Vaccines are an effective and readily available strategy to prevent adults from getting CAP caused by influenza ("the flu") and *Streptococcus pneumoniae*, a common bacterial cause of CAP. The CDC recommends that everyone 6 months and older should get a flu vaccine every season. The 23-valent pneumococcal polysaccharide vaccine (PPV23) is recommended for American Indians and Alaska Natives aged 50-64 years living in high-risk areas and all adults over 65. The 13-valent pneumococcal conjugate vaccine (PCV13), originally used only in children, is now recommended for all US adults aged ≥65 years. Despite access to these vaccines, our surveillance shows that invasive pneumococcal disease (IPD) among American Indian adults is 2-4 times higher than adults of the general US population. Pneumonia is the most common syndrome among American Indian adults with IPD (figure 2). In order to further reduce cases of CAP, it is important to determine the causes of pneumonia in the era of PCV13 use among children and older adults.

Adult Pneumonia Study: Johns Hopkins is currently working with IHS facilities to study the causes of CAP among Navajo and White Mountain Apache adults who are hospitalized with pneumonia. Information from the ABS system about invasive bacterial disease, along with testing on upper respiratory track and urine specimens, will lead to an improved understanding of the bacterial and viral causes of pneumonia. This will help us to:

- Decrease CAP morbidity and mortality
- Tailor treatment regimens (e.g., minimize antibiotic overuse for treating viral pneumonia)
- Focus prevention efforts (e.g., optimize vaccine policy, guide development of new vaccines)

Please contact a Johns Hopkins Project office for more information (see reverse for contact details)

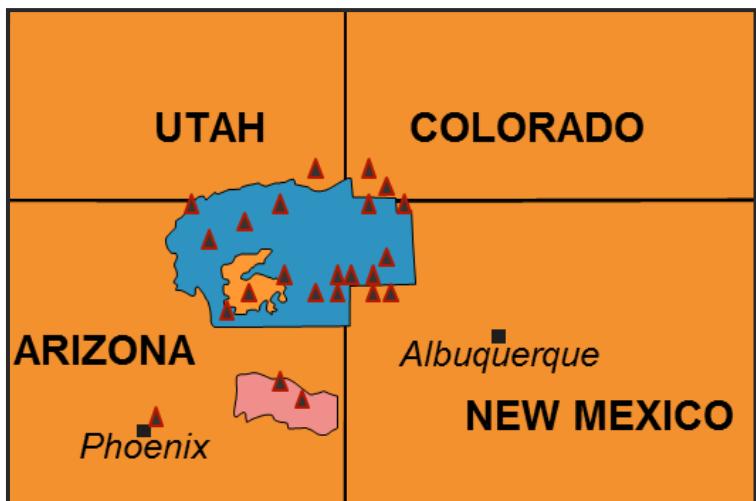
Many Thanks to our laboratory partners

Navajo Nation

- Population: ~300,000 tribal members
- Area: ~25,000 sq. miles
- Birth cohort: ~4,400/year
- Represented by 20+ laboratories

White Mountain Apache

- Population: ~16,000 tribal members
- Area: ~2,500 sq. miles
- Birth cohort: ~300/year
- Represented by 3 laboratories



New Faculty: CAIH welcomed two new faculty members to the infectious disease team. **Jessica Atwell, PhD, MPH** has focused her career on the epidemiology and control of respiratory disease, particularly pertussis and RSV. **Erin Vigil, MHS** is a member of the Jicarilla Apache tribe and is excited to work towards improving the lives of American Indians.

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

To work in partnership with American Indian and Alaska Native communities to raise health status, self-sufficiency, and health leadership to the highest possible level.

This mission is accomplished through three core activities:

- ◆ Research
- ◆ Training/Education
- ◆ Service

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Photos courtesy of Donnita Chavez