ISSUE
21
Summer
2024

CEIP Sentinel

Bulletin of **the California Emerging Infections Program**

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This issue:

The Emerging Infections Program Prepares to Celebrate 30 Years

In 1995, the California Emerging Infections Program grew out of an earlier collaboration with CDC, spearheaded by Dr. Arthur Reingold at UC Berkeley, to conduct active, population-, and -laboratory based surveillance for *Listeria monocytogenes*, *Haemophilus influezae* type b (Hib), Group B Streptococcus, and *Neisseria menigitidis.*

CDC established the Emerging Infections Program Network because of a 1992 Institutes of Medicine report on emerging and re-emerging infectious diseases[1] and the 1994 CDC Plan to Address Emerging Infections[2]. Since that time CEIP has grown to include the core projects of ABCs, FoodNet, HAIC, RESP-NET, and HPV-IMPACT to conduct surveillance for the above four pathogens and 19 more, including Group A Streptococcus, *Salmonella, Shigella, Staphylococcus aureus, Clostridiodies difficile*, and influenza, RSV, and COVID-19 in hospitalized persons, to name a few.

Next year is the 30th anniversary of the Emerging Infections Program. CEIP's surveillance efforts would not be possible without the collaboration and support of clinical laboratories, infection control departments, medical records departments, local health departments, and the California Department of Public Health. CEIP applauds and deeply thanks you!

https://www.cdc.gov/emerging-infections-program/php/about/index.html

1. 1. Institute of Medicine (US) Committee on Emerging Microbial Threats to Health. Emerging Infections: Microbial Threats to Health in the United States. Lederberg J, Shope RE, Oaks SC Jr, editors. Washington (DC): National Academies Press (US); 1992. PMID: 25121245. https://www.ncbi.nlm.nih.gov/books/NBK234855/
2. CDC. Addressing emerging infectious disease threats: a prevention strategy for the United States. (Executive Summary). MMWR 1994;43 (No. RR-5):[inclusive page numbers]. https://www.cdc.gov/mmwr/pdf/rr/rr4305.pdf

CEIP 30th Anniversary-

Where are they Now?

Mimi Ton – Research Assistant 2017

Working at CEIP was my first exposure to public health outside of the classroom. The data and surveillance aspects of the research assistant job, specifically with FoodNet and Campylobacter interviews, drove me to pursue my MPH in Chronic Disease Epidemiology at Yale University and subsequently my PhD in Epidemiology at University of Washington. After graduating this year, I am currently a Postdoctoral Scholar at University of California San Francisco with DREAM (Disparities Research: Environment and Multi-omics) and Ziv Labs, and now work in cancer epidemiology research addressing social determinants and health disparities, as well as genetic and molecular factors. What drives and inspires me to pursue this research is my hope to serve and address marginalized populations in my future work. As a Southeast Asian researcher with refugee parents, I hope to delve into the risk, lifestyle, and social factors that are persistent in these communities by leveraging epidemiologic methods and geospatial science. Aligned with these goals, I am now assisting with the first long-term cancer study of diverse US Asian ethnic groups led by Drs. Scarlett Lin Gomez, Iona Cheng, and Salma Shariff-Marco. The cohort is supported by various academic institutions, community organizations, and policy groups that are committed to Asian American health, looking to recruit 20,000 men and women between the ages of 40-75 years from all Asian American ethnic groups.

https://www.ucsf.edu/news/2024/05/427586/new-ucsf-study-find-out-what-drives-cancer-asian-americans

Active Bacterial Core Surveillance (ABCs) Pathogens (sterile sites only)

Neisseria meningitidis*, *Haemophilus influenzae*, Group B Streptococcus, Group A Streptococcus, *Streptococcus pneumoniae*, *Neisseria gonorrhoeae

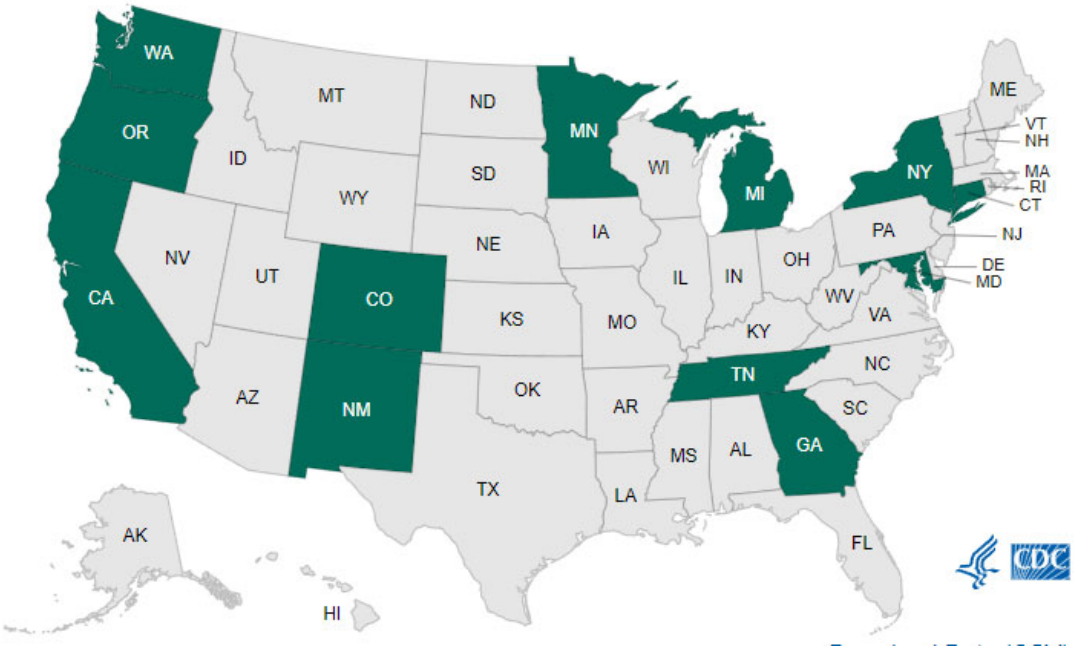
CEIP 30th Anniversary-
Where are they Now?

Benjamin Silk – Surveillance Officer 2000

My 25+ year career as an epidemiologist began as a Surveillance Officer with CEIP at the turn of the century. Through amazing mentorship and training from Gretchen, Joelle, Pam, and many others I was given incredible opportunities to learn while contributing directly to several surveillance projects and case-control studies. Many years later now -- working at CDC as a Team Lead for national respiratory virus surveillance and as a Commander with the U.S. Public Health Service -- I still reference my CEIP experiences. In particular, I have counted on those experiences as a foundation for my understanding of how active surveillance is used as a platform for epidemiologic studies. And though it's been 25 years, I also count CEIP colleagues as dear friends very much in the same ways that some of one's earliest friendships are formed during formative years. Public health inspires me not only because of the important work we do, but also the many deeply committed people we get to work with every day is what makes it most enjoyable.

Did you know that there are Emerging Infections Programs in 11 other states?

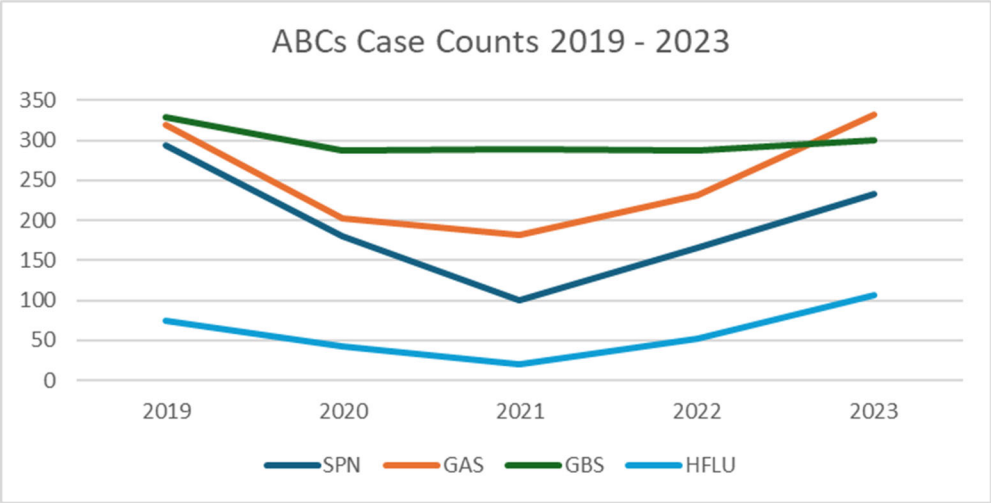
https://www.cdc.gov/emerging-infections-program/php/eip-sites/index.html



Active Bacterial Core Surveillance Highlights an Increase in Bacterial Infections Post-Pandemic

The Active Bacterial Core Surveillance (ABCs) system conducts active, laboratory-, and population-based surveillance for cases occurring in residents of Alameda, Contra Costa, and San Francisco counties. This surveillance system has played a vital role in assessing the disease burden caused by invasive bacterial infections due to group A *Streptococcus* (GAS), group B *Streptococcus* (GBS), *Haemophilus influenzae*, *Neisseria meningitidis,* and *Streptococcus pneumoniae,* which primarily manifest as bloodstream infections and, rarely, as meningitis.

The California ABCs surveillance system has seen an increase in GAS, *H. influenzae*, and *S. pneumoniae* infections in recent post-pandemic years. The data show changes across different age groups from 2019 to 2023 and a continued increase in 2024. There was a drop in all ABCs cases in 2020 and 2021, which may be attributed to the COVID-19 pandemic-related public health measures and their impact on healthcare access and shifting priorities in care. However, a resurgence was observed in 2022 and 2023, with the case numbers nearly returning to or exceeding pre-pandemic levels in 2023.



From 2019 to 2023 there was an increase in the number of pediatric cases, ages 0 to 17 years, seen in GAS, *H. influenzae*, and *S. pneumoniae.* The percent of overall cases increased from 3.8 to 5.1% for GAS, 4.0% to 10.3% for *H. influenzae*, and 5.4% to 9.9% for *S. pneumoniae.* Preliminary 2024 case data show double the number of pediatric GAS cases over all of 2023, the same number of *H. influenzae* cases as in all of 2023, and *S. pneumoniae* cases rapidly approaching 2023 case counts. While less striking, there are similar trends in cases in those aged 65 years and older for these three pathogens.

Overall, these data show a decline in cases in 2020 and 2021. The data from 2019 to 2023 indicate a concerning trend of increasing cases, with notable increases in 2022, 2023 and 2024 across several age groups. This observed increase approached or surpassed pre-pandemic levels. These data emphasize the need for continued surveillance and more public health strategies that are crucial to managing these infections and protecting the most vulnerable populations.

Contributed by Maria Rosales

Syndromic Gastrointestinal Panel Diagnostic Tests Have Changed our Understanding of the Epidemiology of *Yersiniosis*—Foodborne Diseases Active Surveillance Network, 2010-2021

The June 2024 issue of Open Forum Infectious Diseases published an analysis of yersiniosis epidemiology in FoodNet sites from 2010-2021 and focused on the impact of Culture Independent Diagnostic Tests (CIDTs) on surveillance findings. The symptoms of enteric yersiniosis (caused by Yersinia enterocolitica) may differ by age group but usually include diarrhea, abdominal pain, bloody stool, and fever. Historically, yersiniosis (caused by Yersinia enterocolitica) was estimated to affect approximately 117,000 persons annually, typically after consuming pork that was contaminated with *Y. enterocolitica.* The highest incidence rates were observed among Black or African American infants in the 1990s, but changed to Asian children younger than 5 years of age in 2007. Of note, yersiniosis is not a notifiable infection in the United States, but data on laboratory-diagnosed infections are collected by the Foodborne Diseases Active Surveillance Network (FoodNet).[1]

FoodNet routinely conducts active, population-based surveillance for *Y. enterocolitica* infections across ten states. Cases are identified by a positive culture or CIDT test result for *Y. enterocolitica*. Between 2010 and 2021, 3,829 yersiniosis infections were reported across the ten FoodNet sites. Most infections during this specific study period were identified through CIDTs (2433, 64%). Patients were more likely to have been diagnosed through CIDT if they lived in Colorodo and Minnesota, had higher Social Vulnerability Index (SVI) and Minority Status and Language (MSL) levels, had graduated college, and had high influenza vaccination rates. Patients were less likely to be diagnosed through CIDT, compared to Cx-based tests, if they lived in medically underserved communities, experienced a greater level of food insecurity, or were unemployed. The rate of infections decreased significantly among Black or African infants from 2010 through 2015 to 2016 through 2021, but did not change among Asian or White infants[1]. The reported incidence of yersiniosis increased among white children, (ages 1 to 4 years) and among all adults regardless of race and/or ethnicity. The number of CIDT-based detections increased over the course of this study period, from 3% of cases in 2012, 57% of cases in 2016, and to 89% of cases in 2021. The first large increase in case reports from FoodNet occurred in 2016, matching trends in CIDT-driven increases.

The use of CIDTs to identify yersiniosis infections has resulted in a significant increase in the number of cases detected among key populations since 2016. As a result of this more widespread use of CIDTs, we can better understand the burden of yersiniosis. As additional laboratories begin to adopt the use of CIDTs for diarrheal pathogens, additional research will be needed to determine if these changes in case detection are a result of the use of CIDTs, rather than actual changes in disease occurrence. For additional information please see the full article: Syndromic Gastrointestinal Panel Diagnostic Tests Have Changed our Understanding of the Epidemiology of Yersiniosis—Foodborne Diseases Active Surveillance Network, 2010-2021 | Open Forum Infectious Diseases | Oxford Academic (oup.com)

1. Logan C Ray, Daniel C Payne, Joshua Rounds, Rosalie T Trevejo, Elisha Wilson, Kari Burzlaff, Katie N Garman, Sarah Lathrop, Tamara Rissman, Katie Wymore, Sophia Wozny, Siri Wilson, Louise K Francois Watkins, Beau B Bruce, Daniel L Weller, Syndromic Gastrointestinal Panel Diagnostic Tests Have Changed our Understanding of the Epidemiology of *Yersiniosis*—Foodborne Diseases Active Surveillance Network, 2010-2021, *Open Forum Infectious Diseases*, Volume 11, Issue 6, June 2024, ofae199, https://doi.org/10.1093/ofid/ofae199

Contributed by MJ Mocarski

FoodNet Pathogens

***Campylobacter*, *Cyclospora*, *Listeria*, *Salmonella*,**

Shiga toxin-producing *E. coli*, *Shigella*, *Vibrio*, and *Yersinia*

New Staff Introductions:

Kiana Parkins, Surveillance Officer—RESP-Net

I am excited to be joining the team as a Surveillance Officer for RESP-NET. My background is largely clinical, primarily as an emergency department RN over the last several years. I am currently pursuing my MPH in epidemiology/ biostatistics part-time at UC Berkeley. Recently, I completed an internship researching EHRs of hospitalized COVID-19 patients with Alameda County Department of Public Health. When I'm not working, I'm usually outdoors climbing or hiking with my dog.

Dani Fujino, Data Modernization Initiative Manager

I'm Dani Fujino, the new Data Modernization Initiative Manager working to improve CEIP's data pipelines. My previous role was leading data integration for CalCONNECT, CDPH's data system for contact tracing and case investigation. When I'm not working, I enjoy baking, reading, and sampling unique preparations of tea. I also like visiting the Bay Area's excellent museums and botanical gardens.

MJ Mocarski, Epidemiologist—Food-Net

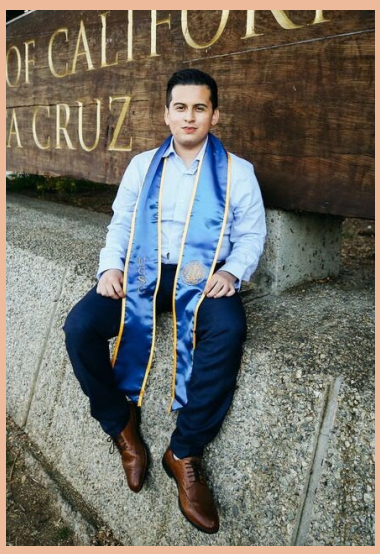
My name is MJ Mocarski, and I am an Epidemiologist in the Foodborne Illness branch of the EIP. I am originally from Connecticut and received my Master of Public Health Degree (MPH) from Southern Connecticut State University before relocating to Los Angeles. Apart from my experience in the field of epidemiology, I have also served as a public health professional in the community health division with local health districts. I look forward to utilizing my skills to better the health and wellbeing of residents across California.

Healthcare-Associated Infections Pathogens

Invasive *Staphylococcus aureus*, *Clostridiodies difficile*, carbapenem-resistant Enterobacterales (*E. coli*, *Enterobacter cloacae*, *Klebsiella aerogenes*, *Klebsiella pneumoniae*, *Klebsiella oxytoca*), *Candida* cultured from blood, and invasive *E. coli*

New Staff Introductions:

Randy Parada, Research Assistant—Food-Net



Hello everyone, my name is Randy Parada, my pronouns are he/him. I currently live in the East Bay, originally I am from San Francisco. I graduated from UC Santa Cruz with a BS in Biology. For the last couple of years, I have worked as a researcher in a lab at UCSF focused on HIV/AIDS, COVID, and other infectious diseases research. I plan to work on furthering my education by pursuing an MPH or attending medical school, that has always been a goal of mine. In my free time, I enjoy playing basketball and going to Warriors/SF Giants games, I am a huge sports fan. I enjoy exploring different parts of the bay area. I am looking forward to my new role with CEIP.

Sophia Escobar, Research Assistant—ABCs

My name is Sophia, and I grew up in Los Angeles, I moved up to Davis for my undergrad and I loved the area so much that I decided to stay up here. I have a B.S in Animal Biology with a Minor in Global Disease Biology. After graduation I worked in the restaurant service industry for three years as a craft cocktail bartender and I am currently working at a craft brewery. I just recently finished an internship with the California Department of Public Health in the CalREDIE office. I am currently going back to school to take a few extra classes before starting a Master's in Public Health program. During my days off you'll usually catch me around town reading books, comic books, or working on homework. I enjoy going out and trying new restaurants, coffee shops, and local watering holes.

Respiratory Virus Hospitalization Surveillance Network (RESP-NET)

includes Influenza Hospitalization Surveillance Network (FluSurv-NET), Respiratory Syncytial Virus (RSV) Hospitalization Surveillance Network (RSV-NET), and COVID-19 Associated Hospitalization Surveillance Network (COVID-NET)

CEIP conducts surveillance for persons hospitalized with influenza, RSV, and COVID-19 infections.

The California Emerging Infections Program (CEIP), a program of Heluna Health, is a joint project of the California Department of Public Health, U.C. Berkeley School of Public Health, and Centers for Disease Control and Prevention, in collaboration with the Alameda County Health Care Services Agency, San Francisco Department of Public Health, Contra Costa County Health Services Department, and the City of Berkeley Health and Human Services Department.

Cover Image

3D computer-generated image of a *Yersinia enterocolitica* bacteria. This artistic recreation was based upon scanning electron microscopic (SEM) imagery. Credit: Illustrator: Jennifer Oosthuizen
Image from CDC Public Health Image Library, ID# 21923

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