



# Humboldt County Public Health Laboratory Overview

The Humboldt County Public Health Laboratory (HCPHL) is an important asset for the residents of Humboldt, Del Norte and parts of Trinity counties. There are numerous services and functions performed daily that directly or indirectly impact everyone's lives. Although invisible to the public's eye, our work behind the scenes directly affects our population's health, our environment and the economy of our community. Our laboratory can be viewed as three separate labs based on regulatory oversight and services provided. What follows is a brief overview of the services the Humboldt County Public Health Laboratory provides.

## Environmental Lab

regulated by Environmental Laboratory Accreditation Program (ELAP) & FDA

Our laboratory helps make sure the community has safe water to drink by testing a variety of drinking water sources. Other environmental water testing includes; surface waters, beach waters and recreational waters. Humboldt Bay supplies approximately 70% of the oysters consumed in California and is a valuable economic resource for our community. We provide shellfish (oyster) meat testing, shellfish growing water testing and tank water testing to ensure safe consumption and sale of shellfish. HCPHL also provides other unique environmental services such as tick testing and rabies testing in animals.

Examples of some of the environmental tests we perform:

- Private and public drinking water analysis
- Water testing for events and festivals
- Water testing for our local State Parks
- Tribal water testing
- Marine and beach water analysis
- Microbial Source Tracking looking for human, dog, cow & bird signatures
- Shellfish growing waters (Humboldt Bay)
- Oyster meat testing for fecal coliforms
- Oyster meat testing for toxin producing bacteria like *Vibrio parahaemolyticus*
- Holding tanks for oyster growers
- Food-borne outbreaks like salmonella or *E. coli*
- Tick testing for Lyme disease
- Rabies testing – in animals only

## Clinical Lab

regulated by Clinical Laboratory Improvements Amendments (CLIA)

The HCPHL provides general clinical testing for our community and hospital partners. We are also a resource for additional testing not offered locally by coordinating collection, shipment and testing at another laboratory. Additionally, surveillance of disease is a critical function of the HCPHL, and recent outbreaks of influenza, Zika, measles and whooping cough (pertussis) are well documented. As part of a national surveillance network we help to prevent or stop these outbreaks within our community quickly, and if done properly - under the radar.

With new DNA-based technology, we can rapidly assist our hospital partners by diagnosing highly contagious diseases in as little as 30 minutes. Tuberculosis (TB) for example, is a highly communicable disease that can easily and quickly spread throughout our community. If a doctor suspects a patient may have TB, a traditional culture can take as long as 8 weeks to perform. The HCPHL offers a FDA approved, DNA based test that can seek out TB genetic material in the patient's sample in 90 minutes. If positive, the patient can be isolated, treated and the important public health investigation can begin immediately. If negative, the doctor and the hospital can avoid the very expensive path of isolation and Public Health can direct its attention and resources elsewhere.

Examples of some of the clinical services we provide:

- Influenza virus typing & subtyping
- Whooping cough (pertussis)
- Measles and Mumps
- Toxin producing *E. coli*
- Norovirus
- Salmonella, Shigella
- Numerous respiratory viruses
- Coordinate TB testing services
- Pediatric blood lead poisoning
- Packaging and shipping services to the State laboratory and to the Centers for Disease Control and Prevention (CDC)
- Trainings and community outreach
- Clinical consultation
- Courier service to pick up test requests from local providers and hospitals

## Bioterrorism Laboratory

Laboratory Response Network (LRN) regulated by the CDC

We are part of the CDC network of labs spread across the nation belonging to the Laboratory Response Network (LRN) that help protect the nation from biological bioterrorism threats. This federal grant-supported network of labs is charged with assisting local first responders and law enforcement by ruling out any potential biological threat used in or suspected in a criminal event. The HCPHL works closely with our local law enforcement, first responders, the FBI and the CDC with drills and trainings to ensure that our skills and instruments are continuously at the ready. The lab is equipped to isolate and identify organisms like anthrax, plague, tularemia and the bio toxin ricin. The HCPHL also provides real-time data on influenza virus every season. This information collected from all of the participating LRN labs assists the World Health Organization in determining the next year's influenza vaccine components.

Below is a brief overview of Bioterrorism services we provide:

- *Bacillus anthracis* (Anthrax) testing
- *Francisella tularensis* testing
- *Yersinia pestis* (the plague) testing
- *Brucella* species testing – raw milk
- *Burkholderia* species testing
- Smallpox virus testing
- Chickenpox (VZV) testing
- Arbovirus testing – Zika, Dengue and Chikungunya virus testing
- Multiple Agent Screen for environmental powders and swabs
- Ebola packaging, shipping & testing
- Novel influenza viruses and Bird flu
- Preparedness drills and trainings

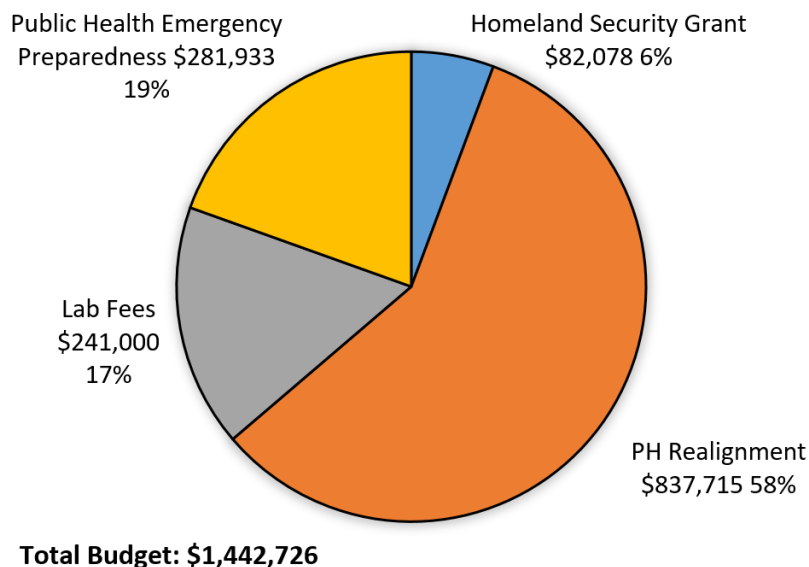
## Recent Success Stories

The 2018 Humboldt County Grand Jury report called the local public health laboratory “A gem in Humboldt County and perhaps the best laboratory in the state.” The HCPHL was recognized for its cutting-edge work in trying to understand and pinpoint the source of fecal contamination at Clam, Luffenholtz, Trinidad State and Moonstone beaches. Clam beach has recently been given a grade of “F” from the Heal the Bay’s annual beach report card, and earned the number two spot on California’s Top Ten Beach Bummers List - up from the number four spot from the previous year. The HCPHL is using the latest molecular technology called Microbial Source Tracking (MST) to identify human, ruminant, dog and bird fecal signatures. With this new technology we hope to identify the source of the contamination for each of our local beaches, and with the help of our environmental partners, make some meaningful and lasting corrective actions.

A national publication produced by the Association of Public Health Laboratories (APHL) featured the HCPHL in 2018 in an article titled, “The World is their Oyster: Humboldt County Public Health Laboratory.” The lab was recognized for its unique work in support of our local oyster industry by providing marine water and shellfish testing to ensure compliance with federal regulations surrounding oyster farming and of course consumer safety. We are one of only three recognized shellfish laboratories in the state and are the first lab of these to validate a new FDA approved test that will enhance our surveillance capabilities. Here is a link to the story: <https://view.joomag.com/lab-matters-fall-2018/0904590001542823260?page=32>

On July 23, 2019, the laboratory was able to assist our Del Norte partners north of us by testing a high-risk environmental sample submitted by the FBI from Pelican Bay State Prison. Our lab was able to confidently identify a suspicious substance as ricin toxin within 6 hours of receiving the sample. The quick action and expertise by the lab and hazmat teams limited exposure and potentially saved lives. Having this unique bioterrorism lab in Humboldt County has proven to be valuable and will continue to protect our community from known and unknown threats in the future. The lab was highlighted in October 2019 in an APHL blog post titled, “Humboldt County Public Health Lab was Ready for Ricin, Thanks to LRN,” which provides a great summary of the event at Pelican Bay State Prison. Please see link for the story: <http://www.aphlblog.org/humboldt-county-public-health-lab-ready-ricin-thanks-lrn/>

# Budget



The 2019-2020 Fiscal Year budget for the Lab is demonstrated in the graph above, totaling \$1,442,726. 58%, or \$837,715 is funded by State Health Realignment funds. Realignment funds are generated by state sales tax and distributed to local governments to fund implementation of essential services. The bioterrorism laboratory receives approximately \$280,000, or 19% of the Lab budget, annually from the California Department of Public Health Emergency Preparedness (PHEP) grant. This program also supports the clinical laboratory by purchasing all high-complexity molecular testing instruments and provides the resources to maintain them for both bioterrorism preparedness and routine clinical testing services. In addition, the LRN annually provides free training and reagents at no additional cost through PHEP. \$219,500, or 17% of the budget is made up of Lab Fees. These fees are collected for services provided to state agencies, local organizations, healthcare providers, individuals in the community, and other County departments. Lab fees cover the cost of a variety of testing such as water testing for state parks and the Division of Environmental Health, water, rabies and tick testing for community members, clinical testing for healthcare providers, and shellfish testing for local oyster businesses via state funds. The Homeland Security Grant funded the purchase of the Lab's GenExpert testing equipment in this fiscal year, making up 6% or \$82,078 of the total budget. The GenExpert will allow the Lab to expand testing services available to the community, and will drastically reduce turnaround testing, and thus reporting times, which can be critical in the event of a bioterrorism threat or a potential emerging communicable disease outbreak.

For questions or further details of the HCPHL, contact:

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