Bureau of Public Health Laboratories
Jacksonville - Miami - Tampa

Testing for Bacteria and Parasites

The Bureau of Public Health Laboratories (BPHL) Microbiology Laboratory performs tests for a range of bacterial and parasitic pathogens that cause disease in humans. This includes vaccine preventable diseases, such as *Bordetella pertussis* that causes respiratory infection or *Neisseria meningitidis*, *Haemophilus influenzae*, and *Streptococcus pneumoniae* that cause respiratory infection but can also cause meningitis in certain patient populations. The Microbiology Laboratory also tests for bacteria that cause food- and water-borne diseases e.g., *Salmonella*, *Shigella*, Shiga-Toxin *Producing E. coli*, *Vibrio* species (including cholera), *Campylobacter* species, *Listeria* species and *Yersinia* species and parasites that cause food- and water-borne diseases e.g., *Cyclospora* species. The laboratory also performs testing for *Legionella* species (the cause of Legionnaire's Disease). The Microbiology Laboratory has a robust program for HAI (Healthcare Associated Infections) testing that detects antimicrobial resistant pathogens such as Carbapenem Resistant *Enterobacterales* (CRE). Fecal and bloodborne parasites are confirmed by the laboratory e.g., *Plasmodium* species, the cause of malaria. The BPHL Microbiology laboratories in Tampa, Jacksonville and Miami provide diagnostic, confirmatory, and surveillance testing and have internal surge capacity for testing in outbreak and pandemic events and ensure testing by next generation sequencing. The Jacksonville and Miami laboratories also provide water testing for the safety of our beaches and well water. Technologies used include the newest molecular assays (next generation sequencing/whole genome sequencing) as well as culture and serologic assays.

Highlights/specialties

- PulseNet-CDC collaborator, performing testing on food and waterborne bacteria such as *Salmonella*, *Shigella*, *E. coli* and *Vibrio* and providing statewide data.
- NARMS-CDC collaborator by sending food and waterborne bacteria for antibiotic resistance testing.
- Detect and confirm *Neisseria meningitidis* serogrouping for outbreak surveillance in cases of invasive meningococcal disease.
- Detect mosquito-borne parasites such as *Plasmodium vivax* and *Plasmodium falciparum* that cause malaria.
- Detect fecal parasites for refugee testing as well as outbreaks that occur in the state.
- Perform testing for vaccine preventable bacterial diseases such as *Haemophilus influenzae*, *Streptococcus pneumoniae*, *Bordetella pertussis*, and *Neisseria meningitidis*.
- Perform testing on Healthcare Associated Infections to determine antibiotic resistance and provide screening testing for Florida's hospitals and assisted living facilities.

Workload

- BPHL-Jacksonville performed 21,339 clinical bacterial tests in total; 6,778 for aerobic and anerobic identification of bacteria, 2,500 stool cultures, 5,400 for *Salmonella* identification and serotyping, 300 for vaccine preventable diseases; 60 for mosquito and tick-borne transmitted parasites, 5,718 for fecal parasites, and 583 for hospital acquired infections in 2022.
- BPHL-Jacksonville performed 6,000 environmental bacterial tests for water testing that included detecting coliforms, *E. coli*, *Enterococcus* species and *Legionella* species.

Challenges

- Recruitment and retention of licensed, technical staff
- Workload outpacing available technologist time on the bench

Contributing to a Healthier Florida
One Test at a Time