

## Story 1: DSHS Laboratory Keeps Texans' Food Safe

Texas Department of State Health Services (DSHS) Laboratory continues its commitment to the safety of Texans' food by closely tracking sporadic cases or outbreaks of foodborne illnesses and by responding quickly and effectively to each. These important public health activities are funded in part by the Laboratory Flexible Funding Model (LFFM) cooperative agreement the laboratory has with the U.S. Food & Drug Administration (FDA).

The intent of the FDA's LFFM program is to prevent foodborne illnesses and deaths and to minimize the public's exposure to foodborne illness-causing pathogens. In doing so, the program focuses on improving the testing capacity and capabilities of state food testing laboratories by providing participating labs with funding for supplies, equipment, technical personnel, and other resources needed to expand microbiological, chemical, and radiochemical testing capacity and to enhance the laboratories' abilities to investigate outbreaks.<sup>1</sup> In this way, the LFFM grant funding is already helping the DSHS Laboratory reach its goal of increasing its testing capacity and ability to identify more disease-causing pathogens each year.

The laboratory has put into action the LFFM funding earmarked for improving state labs' surge capacity training in the event of food or other large-scale food emergency events. A new phase-contrast microscope acquired by the Consumer Microbiology Team's improved the lab's testing capacity.

The additional microscope now allows two analysts at a time to examine suspected *Listeria monocytogenes* isolates for the pathogen's characteristic tumbling motility. *L. monocytogenes* causes listeriosis, a serious food-borne illness that is most likely to sicken people who are pregnant and their unborn or newborns, older adults, and people with weakened immune systems. The new microscope is welcomed for contingency reasons too, as it "allowed the lab to have a back-up unit to our current phase-contrast microscope in case the unit goes out of service", Chris Malota, the Consumer Microbiology team lead says.

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The testing done by the entire LFFM network of labs of which the DSHS Laboratory is a part, contributes to investigations and the timely removal of problematic food items from the marketplace. The testing also allows the FDA and/or state agencies to conduct on-site inspections of facilities related to these products. Other benefits the funding has provided include the improved coordination and communication between the Laboratory groups and DSHS' Consumer Protection Group about sampling events and the development of sampling schedules for the duration of the grant cycle, says Malota.

Developing methods for the early identification of emerging foodborne issues and monitoring and evaluating testing programs for future sampling initiatives are LFFM program goals that help to better protect Texans during seasonal outbreaks. An infusion of grant funds has enabled the laboratory to respond more rapidly to cyclosporiasis, an intestinal illness caused by the parasite *Cyclospora cayetanensis*. The number of reported cyclosporiasis cases in Texas, which is most commonly acquired by eating contaminated fresh produce, has been increasing every year since 2012.

The LFFM funds allowed the laboratory to expand its real time polymerase chain reaction (PCR) testing for the presence of *C. cayetanensis* in fresh produce such as cilantro, raspberries, and basil; previously the lab was limited to testing only clinical specimens. Testing suspicious food samples directly rather than relying on identifying the parasite in clinical specimens from sick patients will be instrumental in identifying contaminated produce at earlier stages during outbreaks. Such preemptive testing of produce will help limit the number of illnesses, hospitalizations, and deaths from cyclosporiasis as well as reduce the economic burden caused by outbreaks in Texas, says Chun Wang, the Advanced Molecular Microbiology (AMM) Group manager.

The scope and importance of DSHS Laboratory's cooperative partnership with the FDA beyond that of the LFFM was seen during two recent outbreaks: the nationwide powdered infant formula recall and a local outbreak of salmonellosis. Early in 2022, the FDA sought labs to provide surge capacity respond to the nationwide recall of powdered infant formula that was in response to the outbreak of illnesses in newborns caused by *Cronobacter sakazakii*. In February 2022, the laboratory provided the FDA with its testing methods, capabilities, and sample testing capacity in the event the lab's assistance was needed in the investigation.

Breanna Scorza, a molecular biologist and member of the Advanced Molecular Detection (AMD) group, and Chris Malota, the Consumer Microbiology team lead both point to the extensive role their respective teams had in investigating a salmonellosis outbreak at a church community luncheon in Amarillo in early 2022. An epidemiological investigation of the event identified that of the 200 attendees who ate the food, 140 became ill, 17 required hospitalization, and no deaths occurred. Seven patients were visiting from out of state. The epidemiological

investigation also noted the food had been prepared entirely by volunteers who did not have any food preparation or food safety training.

The Consumer Microbiology and AMD teams quickly got to work, testing food items and clinical specimens from the event. Initial results indicated the *Salmonella* strain isolated from the beans and rice served at the event matched the strain isolated from the patients. Confirmatory genome sequencing of several isolates from the patients and the food—conducted by the AMD group—later confirmed the rice and beans were the most likely sources of the outbreak.

Each year, as part of its food monitoring role, the DSHS Laboratory routinely tests approximately 2,500 human food and environmental samples using primarily FDA and/or U.S. Department of Agriculture (USDA) standard methods. Fiscal year 2022 LFFM grant funding alongside the laboratory's coordination with the DSHS Consumer Protection Group enabled the lab to test an additional 367 food specimens such as onions, peaches, cashews, and hazelnuts for *Salmonella* species this year. Peaches and Ready-to-Eat dips were also tested for *Listeria monocytogenes*. In late May 2022, the food monitoring program resulted in a voluntary recall of yellow flesh peaches after a random sampling of peaches at a distribution center identified they were positive for *L. monocytogenes*.<sup>2</sup>

Taken together, the activities funded by the LFFM program, including the improved inter-group coordination, expansion of the laboratory's food testing capacity and molecular detection capabilities ultimately benefit all Texans by creating a nimbler yet thorough public health response to foodborne illness outbreaks in Texas, with the goal of limiting the health and economic burden of foodborne illness outbreaks, should they occur.

Sources:

1. LFFM Objectives <https://www.fda.gov/federal-state-local-tribal-and-territorial-officials/grants-and-cooperative-agreements/laboratory-flexible-funding-model-cooperative-agreement-program>
2. Voluntary Recall of Yellow Flesh Peaches [Brookshire Grocery Company Recalls Yellow Flesh Peaches Because of Possible Health Risk | FDA](#)

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