



# FOOD SAFETY

## PREVENTING FOODBORNE ILLNESS IN THE US

### PUBLIC HEALTH LABORATORY NEEDS

- Maintaining and enhancing national laboratory surveillance systems including PulseNet (CDC) and GenomeTrakr (FDA).
  - Recovering foodborne bacteria from sick people in order to conduct specialized public health testing.
  - Implementing new laboratory technologies such as whole genome sequencing (WGS).
- Supporting governmental laboratory accreditation to the ISO/IEC 17025:2017 standard.

### LABORATORY DATA PREVENTS ILLNESS

State and local public health and agricultural laboratories play an essential role in preventing foodborne illnesses in the US by:

- Conducting specialized testing for important diseases caused by *Salmonella*, *Campylobacter*, Shiga Toxin-producing *Escherichia coli* (STEC) and *Listeria*.
- Detecting clusters of related illnesses that may later be identified as outbreaks.
- Performing routine food testing to prevent possible exposure to the many hazards that may contaminate the food supply.
- Testing food during incidents involving suspected microbial, chemical or radiological contamination of food products.
- Evaluating and implementing new technologies, such as WGS.

### RECOVERY OF FOODBORNE BACTERIA IS ESSENTIAL FOR SPECIALIZED TESTING

In order to conduct specialized testing, public health relies on the submission of foodborne bacterial isolates from patient specimens. Such isolates are not as readily available with the rapid uptake of culture independent diagnostic tests (CIDTs) in clinical laboratories. Public health laboratories are diverting critical resources in order to recover these isolates. Placing the financial burden on state government is not a sustainable model for maintaining successful national foodborne disease surveillance activities. **Public health laboratories need dedicated funding in order to ensure bacterial isolate recovery occurs in order to preserve our critical foodborne disease surveillance systems.**

### ENSURING THE ONGOING SUCCESS OF PULSENET AND GENOMETRAKR

PulseNet and GenomeTrakr help detect nationwide problems in the food supply that would not otherwise be recognized. Overseen by the US Centers for Disease Control and Prevention (CDC), **PulseNet is a laboratory network that uses bacterial DNA from human illness cases to detect outbreaks.** PulseNet prevents over 275,000 illnesses and saves greater than \$.5 billion in medical costs and lost productivity each year.<sup>2</sup>



### PULSENET MONITORING DETECTS OUTBREAKS & IMPROVES SAFETY

A robust food safety surveillance system helps quickly detect and contain foodborne outbreaks, and identifies contamination patterns and trends to prevent future outbreaks. Foodborne outbreaks in the following foods helped spur improvements in their production process:

- **Alfalfa Sprouts**  
*Salmonella, E. coli*
- **Beef**  
*Salmonella*
- **Cantaloupe**  
*Listeria*
- **Deli Meats**  
*Listeria*
- **Flour**  
*E. coli*
- **Peanut & Soy Nut Butters**  
*Salmonella, E. coli*
- **Pepper (spice)**  
*Salmonella*
- **Raw Almonds**  
*Salmonella*
- **Soft Cheeses**  
*Listeria*
- **Tomatoes**  
*Salmonella*

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## FEDERAL FOOD SAFETY FUNDING NEEDS

### CDC FUNDING

FY 2019: \$ 60

FY 2020: \$ 66 (necessary)

### FDA FUNDING

FY 2019: \$ 34.25

FY 2020: \$ 34.25 (necessary)

(Dollars in millions)

Led by the US Food and Drug Administration (FDA), **GenomeTrakr generates and compares genetic and geographic data from foodborne pathogens isolated from food.**<sup>3</sup> In addition to providing invaluable information during foodborne outbreak investigations, GenomeTrakr helps identify problems in the food supply before anyone gets sick.

PulseNet and GenomeTrakr utilize WGS, which allows for more rapid and accurate identification of potential outbreaks and problems in the food supply than traditional methods. However, WGS requires a significant investment over previous technologies due to instrument and supply costs and additional training. **Public health laboratories will need at least 9.25 million annually in order to continue to perform critical testing for important foodborne pathogens such as *Salmonella*, *STEC* and *Listeria*.**

## AN INTEGRATED FOOD SAFETY SYSTEM

The Food Safety Modernization Act (FSMA), which was signed into law in 2011, reinforces the FDA's regulatory powers to protect the nation's food supply and thus reduce foodborne illness through an integrated national food safety system. Public health and agricultural laboratories that test food must provide high quality, defensible data that can become the basis of regulatory actions.

Laboratory accreditation is a critical element of an integrated food safety system and requires a significant investment of money. Accreditation requires verification by a third-party that a laboratory meets certain quality requirements and is competent to carry out specific testing. In this case, accredited laboratories provide public assurance in the form of defensible data that can be used to issue alerts, especially on imported food and recalls on domestically produced food products. Food laboratories need at least \$25 million annually to enhance their accreditation efforts.

Americans can be confident that the food they consume is reasonably safe when robust food safety surveillance systems are in place and accredited laboratories are routinely testing food in order to detect problems before they lead to illness. The recent increase in the number of food recalls means that our nation's food safety system is working better than ever before.

## CONTACT

**Peter Kyriacopoulos**, senior director of public policy  
240.485.2766 | peter.kyriacopoulos@aphl.org



## ROUTINE MONITORING HELPS DETECT EARLY THREATS TO FOOD SUPPLY

Accredited laboratories routinely check for dangerous pathogens in food, so many things get recalled before anyone gets sick. Some recent food recalls initiated before illnesses occurred include:

- Frozen Vegetables
- Cheese Products
- Ice Cream
- Alfalfa Sprouts

## REFERENCES

- <sup>1</sup> Scallan E, Hoekstra RM, Angulo FJ, Tauxe RV, Widdowson M-A, Roy SL, et al. Foodborne illness acquired in the United States—major pathogens. *Emerg Infect Dis*. 2011 Jan [February 26, 2016].
- <sup>2</sup> Scharf, Robert L. et al. "An Economic Evaluation of PulseNet. A Network for Foodborne Disease Surveillance." *American Journal of Preventive Medicine* 50.5 Supplement 1: S66-S73.
- <sup>3</sup> FDA, GenomeTrakr Network. <https://www.fda.gov/food/foodscienceresearch/wholegenomesequencingprogramwgs/ucm363134.htm>



## ASSOCIATION OF PUBLIC HEALTH LABORATORIES

8515 GEORGIA AVENUE, SUITE 700, SILVER SPRING, MD 20910 | WWW.APHL.ORG  
240.485.2745 (P) | 240.485.2700 (F)