APHL
January 2025

Use of Culture-independent Diagnostic Tests

SUMMARY COMPARISON OF 2018 AND 2022 APHL SURVEYS

The need for rapid and accurate tests to diagnose foodborne illnesses has led to the widespread adoption of culture-independent diagnostic tests (CIDTs) in clinical practice. CIDTs provide several benefits for patient care but they do not provide bacterial isolates, which are needed by public health to monitor the burden of foodborne diseases, assess trends over time and detect outbreaks. The Association of Public Health Laboratories (APHL) conducts periodic surveys of its members to evaluate the adoption of CIDTs and their subsequent impact on foodborne disease surveillance in the United States. This report combines 2018 and 2022 data and provides insights into how the expanded use of CIDTs has influenced public health laboratory practice and foodborne disease surveillance. Understanding the uses for and challenges of CIDTs over time is crucial to maintain robust surveillance and outbreak detection capability.

Results

In 2018 and 2022, APHL invited member laboratories to complete a survey about their CIDT usage, regulations and specimen submission. Respondents included state, local and other* health laboratories, with some variation in respondents between the two surveys (**Figure 1**). Data from these surveys show there is broad usage of CIDT gastrointestinal panels in both clinical and public health laboratories.

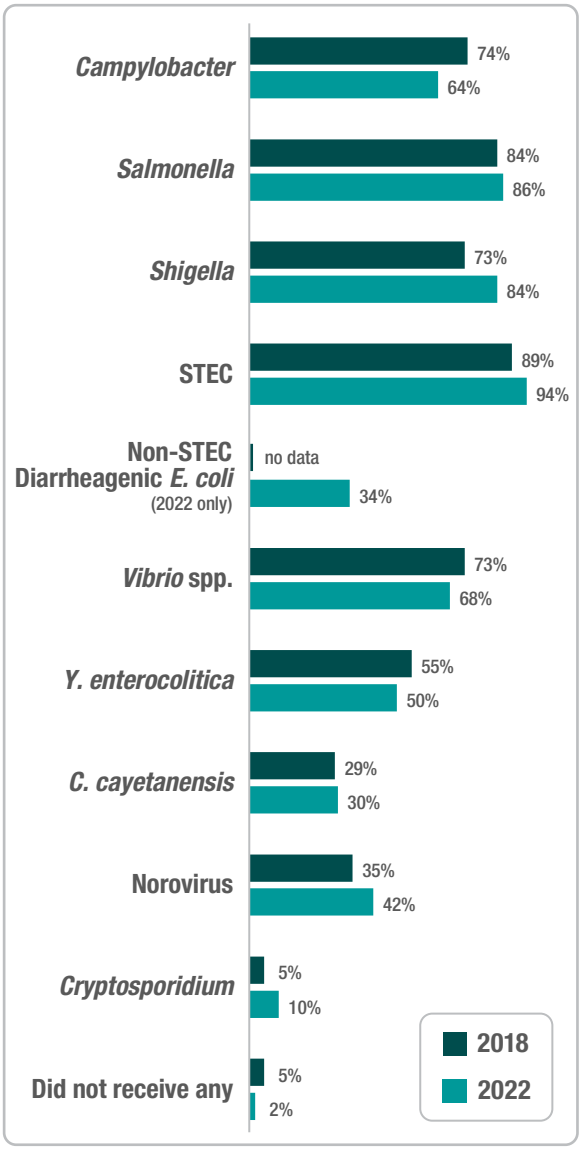
During the 2022 survey period, the COVID-19 pandemic placed unprecedented strain on public health laboratories, leading to significant personnel shortages and diversion of resources. Survey results showed laboratories were continuing to receive CIDT positive specimens, and there was a reported increase in public health laboratories receiving CIDT positive clinical material from clinical laboratories (**Figure 2**). This was seen with most bacterial pathogens, as well as viral and parasitic pathogens. Specimens of Shiga toxin producing *E. coli* (STEC), *Salmonella*, *Shigella* and *Cryptosporidium* had the greatest volume increase.

* Other respondents include territorial, clinical, veterinary, environmental and tribal laboratories.

Figure 1. Respondents, by laboratory type

Laboratory Type	2018	2022
State Public Health	49 (73%)	41 (54%)
Local Public Health	16 (24 %)	28 (37%)
Other*	2 (3%)	7 (9%)
Total	67	76

Figure 2. Respondents that receive clinical material following a CIDT positive, by organism



This project was 100% funded with federal funds. This publication was supported by Cooperative Agreement #NU60OE000104 from the US Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC. This project was 100% funded with federal funds from a federal program of $1,272,683.

APHL ASSOCIATION OF PUBLIC HEALTH LABORATORIES®

7700 Wisconsin Avenue, Suite 1000, Bethesda, MD 20814 | www.aphl.org | 240.485.2745 | info@aphl.org

Over 50% of respondents reported using a CIDT in their public health laboratory for enteric disease testing in both 2018 and 2022. Almost half (49%) of public health laboratories reported that they do not routinely receive information on what CIDT their clinical submitters use, which is crucial for tracking CIDT panel performance. Test-specific data can be found in the CIDT survey dashboard.

The most common use of a CIDT in a public health laboratory is for outbreak investigation, followed by routine testing and confirmatory testing. This trend was found for bacterial, viral and parasitic pathogens. To see full results on this survey, please visit aphl.org/CIDT.

Next Steps

Surveys like those conducted in 2018 and 2022 provide perspective into current trends and give insight on possible next steps public health laboratories can take to improve diagnostic testing while protecting public health. One step is to begin tracking confirmation rates on CIDT positive specimens, which will provide information on CIDT panel performance and provide early warnings for possible false results. Public health laboratories can also work with clinical laboratories in their jurisdiction to review and consider changing current requirements for reflex culture and submission of CIDT positive isolates.

Respondents in 2022 indicated they were interested in assistance from APHL and the US Centers for Disease Control and Prevention (CDC), with 72% requesting guidance on best practices for confirming CIDT positive specimens and 66% requesting guidance on tracking CIDT impacts on laboratory operations. APHL and CDC have begun creating recommended workflows for isolating and identifying bacteria from CIDT positive specimens, which will be posted on APHL's Food Safety website as they are released. APHL and CDC Enteric Disease Laboratory Branch have also created a joint community—the National Enteric Reference Laboratory Community—as a place for laboratories to discuss current trends involving enteric pathogens and share knowledge and testing information. APHL will continue to monitor CIDT trends and their impact on public health laboratories, and provide resources.

Additional APHL Resources

- 2024 CIDT Fact Sheet
- CIDT webpage
- Food Safety website
- Food Safety email inbox

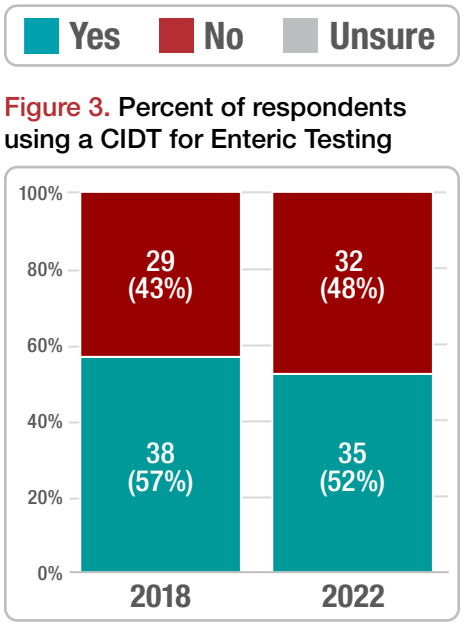


Figure 3. Percent of respondents using a CIDT for Enteric Testing

Figure 4. Percent of respondents that require clinical laboratories to perform reflex culture through code of regulations

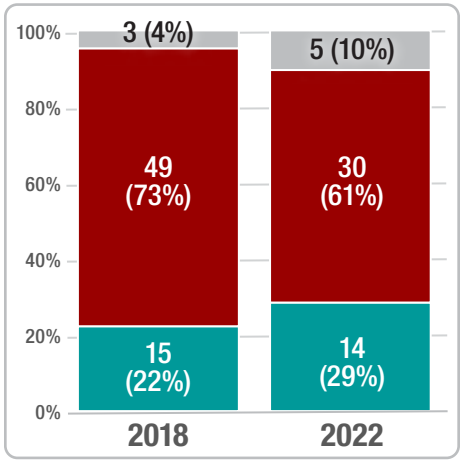
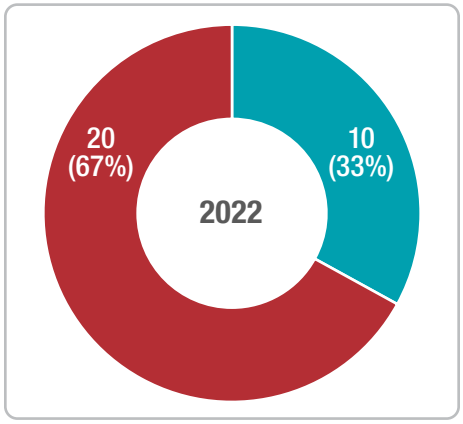


Figure 5. Percent of Respondents tracking confirmation rates from CIDT positive specimens (2022 only)



APHL ASSOCIATION OF PUBLIC HEALTH LABORATORIES®

7700 Wisconsin Avenue, Suite 1000, Bethesda, MD 20814 | www.aphl.org | 240.485.2745 | info@aphl.org